



## An Inventory of Policy Actors and Instruments Relevant to the Salish Sea

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**BORDERS IN  
GLOBALIZATION**

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# EXECUTIVE SUMMARY

## STUDY AREA

The Salish Sea ecosystem extends from the north end of the Strait of Georgia in British Columbia, to the south end of Puget Sound in Washington State, west to the mouth of the Strait of Juan de Fuca where it meets the Pacific Ocean and east to include the land and rivers that drain into marine waters (see Figure 1).

The area was officially named the Salish Sea in 2010 by government leaders on both sides of the Canada – U.S. border (BC-Geographical Names, 2010; USGS, 2009) to refer to the trans-boundary culture and language of First Nations and Tribes that have inhabited the area since pre-colonial times. The naming recognizes the integrated ecosystem that exists across political boundaries and illustrates the degree of coordination and collaboration among state and non-state actors that is needed to manage and effect change in the ecosystem.



Figure 1: Salish Sea and Surrounding Basin  
(Freelan 2009)

## PROJECT OVERVIEW

The Salish Sea Governance Study is a baseline inventory, designed to identify and categorize the variety of actors and instruments that bear on the maintenance and revitalization of the Salish Sea. Both sides of the border have regulations and actors working to mitigate the multitude of stressors adversely impacting the health of the Salish Sea and to preserve and restore the system. These include governmental entities at varying scales; indigenous communities working individually or integrating efforts; and non-state actors working within non-governmental organizations and NGO-networks.



Figure 2: Conceptual diagram of policy actors as they interact with each other to influence laws and policies impacting the Salish Sea and its surrounding basin

Formal and informal mechanisms bring these different actors together. Such interaction crosses multiple levels and orders of government and non-governmental civil society. This creates a complicated and, at times, fragmented approach to governance. This study aims to provide more clarity by creating a resource tool to improve awareness of the different governance systems (e.g. laws and policies and policy actors) affecting the Salish Sea in both the United States and Canada.

## ISSUE AREAS

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The report is organized into 16 different sections based on issue areas that are identified as being vital to the health of the Salish Sea (see Figure 3). Each section describes legislation, government agencies, First Nations and Tribal governments,<sup>1</sup> and non-governmental organizations relevant to a specific issue. Where applicable, transboundary institutions and instruments are also discussed.



*Figure 3: Inventory framework, identifying specific environmental issues that are included in baseline inventory*

## FINAL PRODUCTS

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- Baseline Inventory Report
- Web-Accessible Inventory Database

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<sup>1</sup> The inventory highlights some ways in which First Nations and Tribes are engaging in environmental issues impacting the Salish Sea, but is limited in its approach. This study has highlighted the need for additional analysis addressing governance amongst the Coast Salish Peoples, both individually, collectively and between their respective governments and those of the United States and Canada.

## **CHAPTER 1: INTRODUCTION**

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## CHAPTER 1: INTRODUCTION

The Salish Sea ecosystem extends from the north end of the Strait of Georgia in British Columbia, Canada, to the south end of Puget Sound in Washington state, U.S., west to the mouth of the Strait of Juan de Fuca where it meets the Pacific Ocean and east to the land and rivers that drain into these coastal waters (see Figure 1.1).

The area was officially named the Salish Sea in 2010 by government leaders on both sides of the Canada — U.S. border (BC-Geographical Names, 2010; USGS, 2009) to refer to the transboundary ecosystem and language of First Nations and Tribes that originally occupied the area. The naming is symbolic not just of the integrated ecosystem that exists across political boundaries, but also of the degree of coordination and collaboration that must occur between these two nations, as well as the multitude of associated subnational and non-state actors, in order to effect change.



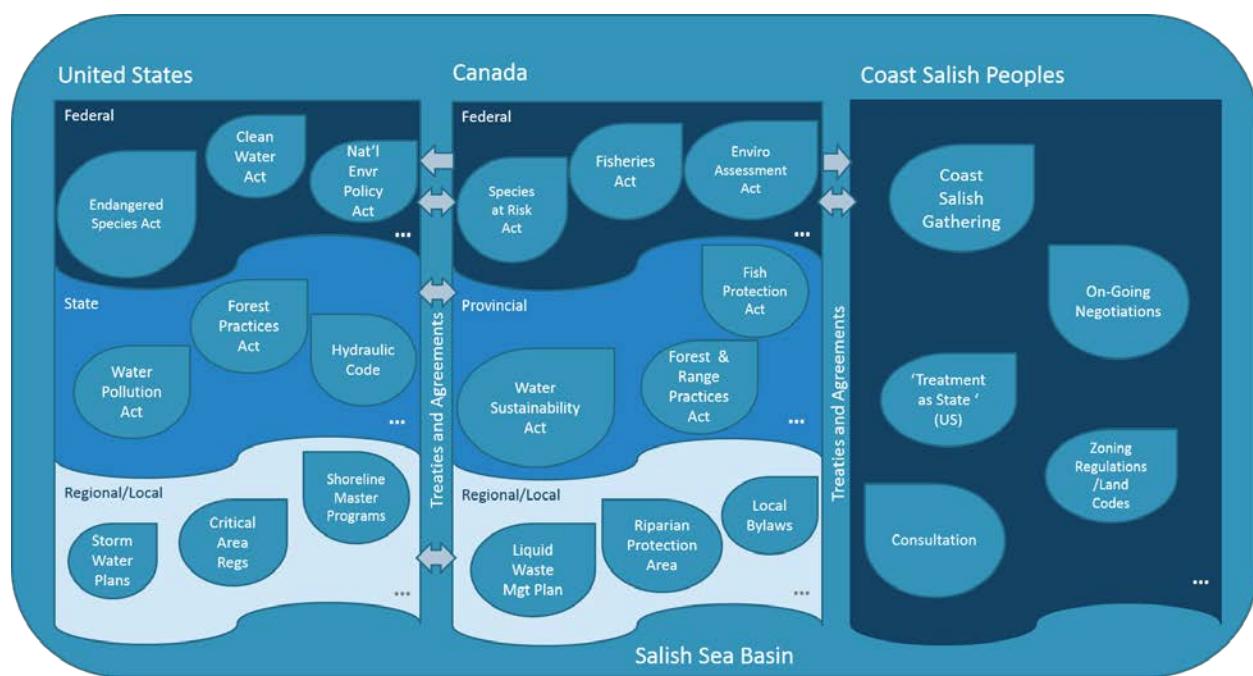
*Figure 1.1: The Salish Sea and Surrounding Basin (Freelan 2009).*

The call for change is coming about as a result of continuing declining trends in the health of the Salish Sea, including indicators of marine water quality, marine species at risk, Chinook salmon, and summer stream flow (Wong and Rylko 2014). The concern over the health of the Salish Sea system is based on

common values that occur across political boundaries, such as the desire to have safe places to recreate and a healthy ecosystem that can sustain the species and character that are integral to the identity of the Pacific Northwest.

The water, forests, and fish and wildlife that inhabit the waters and land in the Salish Sea ecosystem exist across political boundaries. The health of the Salish Sea is also influenced by a variety of stressors that can occur significant distance from the sea and across political boundaries. The factors determining the fate of the Salish Sea extend far outward and are reflective of the connectedness within the ecosystem. For example, the amount and configuration of impervious surfaces (e.g. concrete parking lots, roads) and harvested forests impact the health of streams feeding into the Salish Sea, which in turn affects the health of the entire ecosystem.

Both sides of the border have regulations and actors working to mitigate these stressors and preserve and restore the system, including governmental representatives at varying scales (federal, state/provincial, regional and local); indigenous communities working individually or integrating efforts; and non-state actors working within non-governmental organizations and NGO-networks. Figure 1.2 contains a conceptual diagram depicting the multiple scales at which policymaking is conducted as well as examples of different laws and policies at these varying scales. Formal and informal mechanisms bring the actors that work in these different forums together. Such interaction crosses multiple levels of government and non-governmental civil society. Environmental agendas and governmental processes reflect a wide range of perspectives and institutional interests deriving from the region's social complexity and jurisdictional fragmentation.



*Figure 1.2: Conceptual diagram representing multiple policymaking scales and examples of varying policies and laws.*

This creates a complicated and, at times, fragmented approach to governance. This study aims to provide more clarity by creating a resource tool to improve awareness of the different governance systems (e.g. laws and policies and policy actors) affecting the Salish Sea, both in the United States, Canada, and cross-border. This report is accompanied by a database that serves to inventory and

catalogue the laws and actors reflected in this report. It is important to note that this effort builds on work conducted by Christine Nasser for the United States Environmental Protection Agency, in her report *Beyond the Border, Environmental Management in British Columbia and Washington State* (Nasser 1992). Nasser's report, dating back to 1992, provides an important overview of the U.S. and Canadian systems of government, as well as an overview of the major environmental agencies and laws in Washington and British Columbia. This report serves to build on this previous effort by addressing issues that have emerged since Nasser's report was completed, to update information on laws and policies that may have changed, and to incorporate new information on other important policy actors, such as Tribes, First Nations and non-governmental actors. This report, like Nasser's, is reflective of policies, laws and actors at a snapshot in time, and therefore is static. However, there is hope that future funding will enable the report to be updated so that it remains current and reflects the evolving nature of environmental policymaking.

The report is organized into two main sections. The first section is a broad overview of the main policy actors and their roles in Salish Sea governance. Additional details, including website references, are contained in the database accompanying this report.

The second section addresses specific issue areas, providing an overview of key laws and policies relevant to each issue area. This section is organized into 16 different issue areas that are identified as being vital to the health of the Salish Sea (see Figure 1.3). It is recognized that this issue-specific focus does not reflect the interconnectedness between these issues, however it does provide an organizing structure to simplify the challenge of creating a baseline inventory of this complex governance system. The issue areas selected for discussion have been identified based upon their impact to the Salish Sea ecosystem, as reported in several documents, including the *Health of the Salish Sea*, a report containing the results of a transboundary monitoring effort being conducted by the United States Environmental Protection Agency and Environment Canada (US EPA 2014). It was not possible to cover all issues relevant to Salish Sea, and the exclusion of some topics should not be considered a sign of their relative importance or unimportance. The issues included for review are:



*Figure 1.3: Inventory framework, identifying specific environmental issues that are included in baseline inventory*

It should be noted that this report does not attempt to analyze or rigorously compare the environmental policies of British Columbia and Washington – this type of policy analysis will be addressed in future research. Appendix B contains a preliminary high-level comparison of the different management approaches used in the United States and Canada, based upon the issue areas selected for analysis. The effectiveness of the policies noted here are also not evaluated. Policy implementation is impacted by a number of factors, including staff and funding support, leadership, and public support, to name a few. Future review would need to examine these factors as well as policy outcomes to begin to analyze policy effectiveness.

Instead, this report is intended to serve as a baseline inventory of existing governance systems. It reflects an initial phase of a broader research agenda that will explore new frameworks for cross-border collaboration and management of trans-boundary natural resources. As an inventory document, the report relies heavily on secondary sources of information, such as government and non-government documents and websites, to identify and describe laws and policies. Thus, the summary information presented here is not original work, but rather represents a collection and organization of existing materials. Sources for information are noted in the individual reference sections and should be consulted for additional information.

## References:

British Columbia Geographical Names (BC-Geographical Names), 2010. Salish Sea: Origin Notes and History. Available at <http://apps.gov.bc.ca/pub/bcgnws/names/53200.html>. Accessed September 2, 2015

Freelan, Stefan. *The Salish Sea and Surrounding Basin*, 2009.  
[https://huxley.wwu.edu/sites/huxley.wwu.edu/files/Freelan\\_SalishSea\\_125.jpg](https://huxley.wwu.edu/sites/huxley.wwu.edu/files/Freelan_SalishSea_125.jpg).

US EPA, REG 10. "Health of the Salish Sea Ecosystem Report." Collections and Lists. Accessed September 2, 2015.  
<http://www2.epa.gov/salish-sea>.

US Geological Survey (USGS), 2009. Salish Sea: Board on Geographic Names Decisions. Available at <http://geonames.usgs.gov>. Accessed September 22, 2015

Wong, Cecilia, and Rylko. "Health of the Salish Sea as Measured Using Transboundary Ecosystem Indicators." *Aquatic Ecosystem Health & Management* 17, no. 4 (2014): 463–71.

## **CHAPTER 2: POLICY ACTORS**

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## CHAPTER 2: POLICY ACTORS

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In *Beyond the Border, Environmental Management in British Columbia and Washington State* (Nasser 1992), Christine Nasser provides an overview of the respective organization of the federal and provincial/state governments of both Canada and the United States. This structure remains unchanged and will not be duplicated here. Instead, this section is intended to provide a brief overview of the key actors, including governmental actors which operate at multiple scales. These include federal, state/provincial and regional/local; First Nations and Tribal governments; and key non-governmental organizations who engage in environmental issues in different capacities such as conducting issue analysis, providing public outreach and information, etc. (see Figure 2.1). At the federal and provincial/state level, this work mostly reflects either changes in internal administrative organizations or new organizations that have been established since Nasser's report. This work also expands Nasser study to include a discussion of Indigenous and non-governmental organizations.

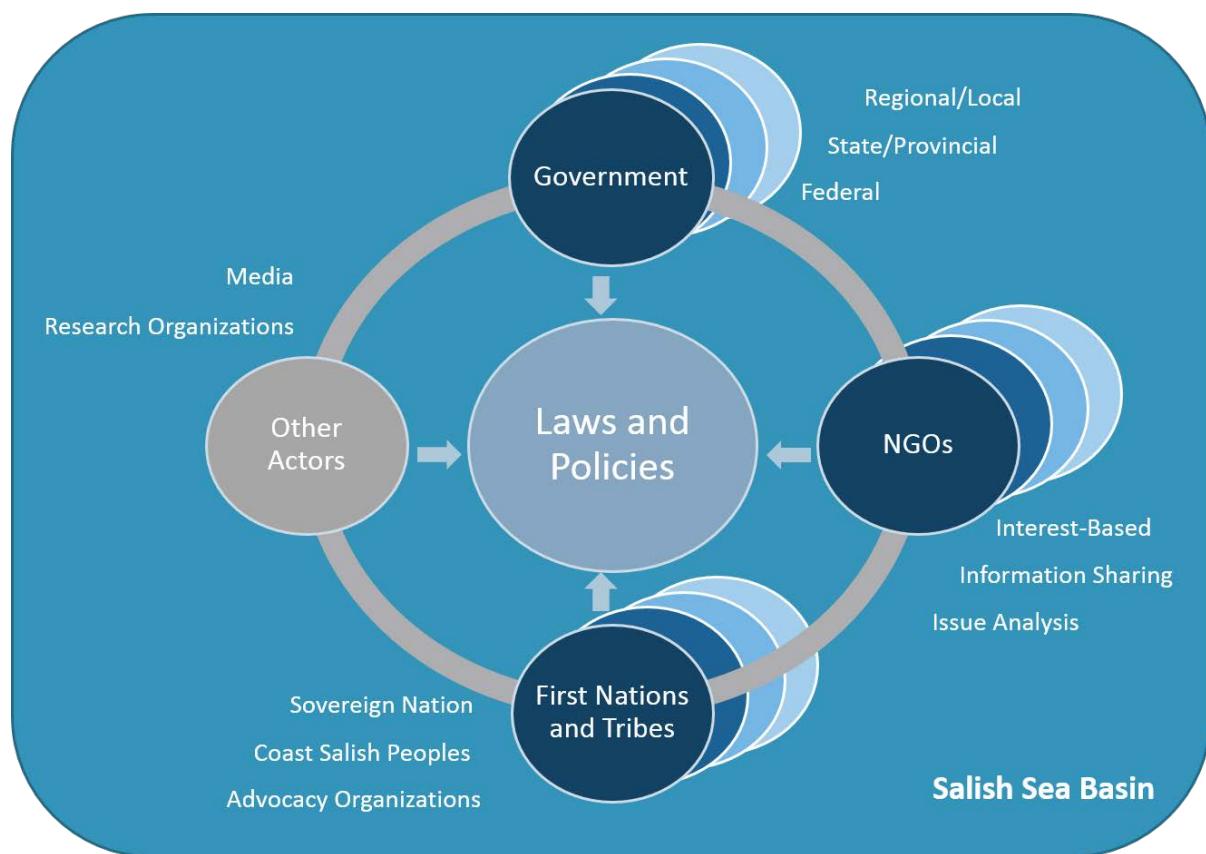


Figure 2.1: Conceptual diagram of policy actors as they interact with each other to influence laws and policies impacting the Salish Sea and its surrounding basin

## 2.1 CANADA

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Canada's Constitution Act establishes an overall framework for government regulation; specifically Sections 91 and 92 list subject matters in relation to which level of government may regulate. Neither section lists "environment" as a subject matter. As a result, a review of the Constitution must focus on particular issue areas to determine the appropriate regulatory authority (Becklumb 2013). With respect to the federal government, the following subject matters fall under federal jurisdiction:

- Public property;
- Sea coast and inland fisheries;
- Navigation and shipping;
- First Nations and lands reserved for First Nations;
- Boundary waters and migratory birds.

Other issues have been interpreted to fall under federal jurisdiction, including marine pollution and interprovincial water pollution.

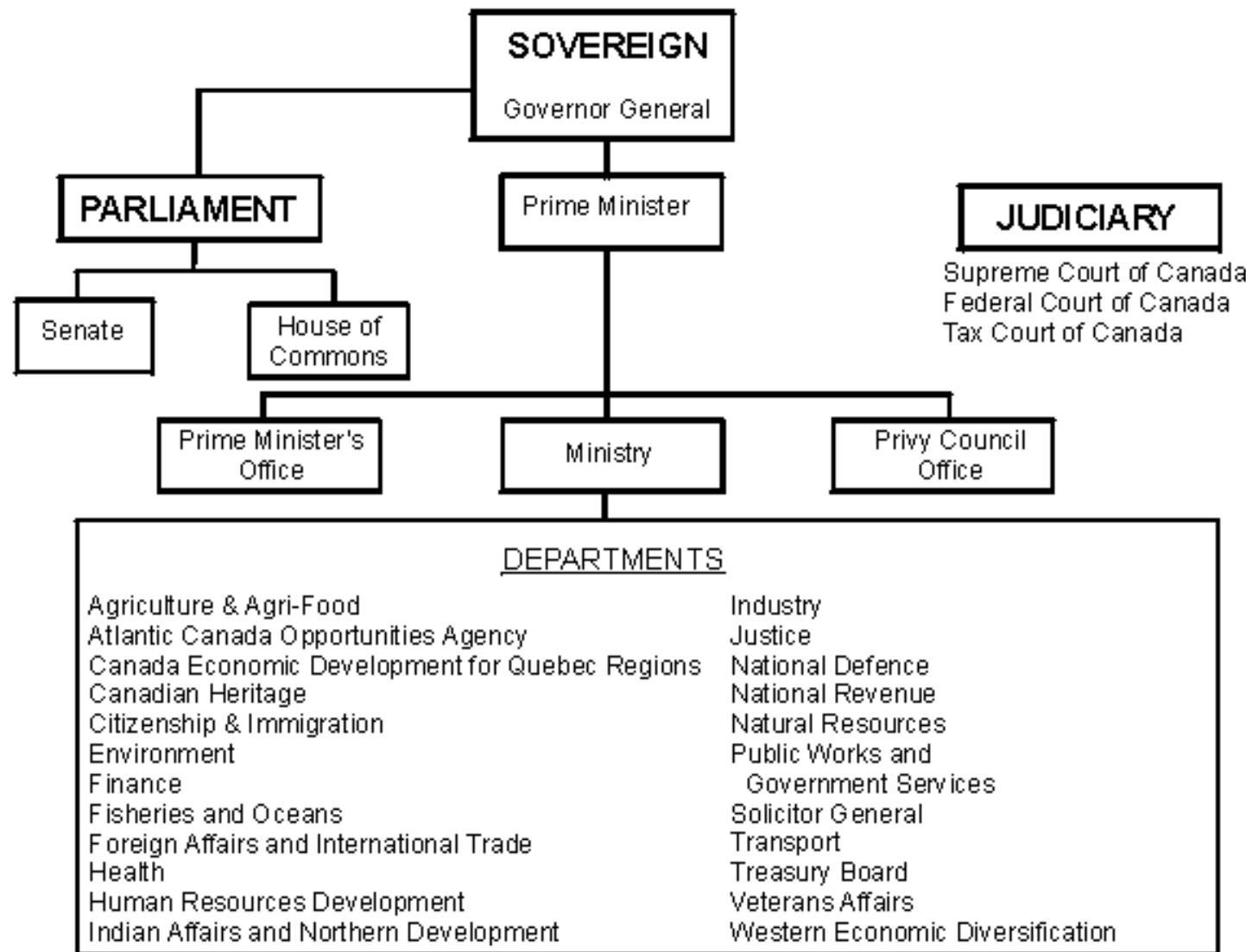
Provinces have jurisdiction over numerous environmental issues as a result of several general provisions:

- Property and civil rights in the province, which empowers the provinces to regulate most types of business and industrial activities, including emissions from such activities;
- Management of provincial Crown lands, which empowers the provinces to regulate activities such as mining and forestry on Crown lands;
- Municipal institutions in the province, under which authority the provinces have delegated to municipalities the power to regulate matters such as zoning, development, waste management and recycling, drinking water and wastewater; and
- Generally all matters of a merely local or private nature in the province (Becklumb 2013).

### Federal Policy Actors - Canada

A general organizational chart for the Federal Canadian Government is provided in Figure 2.2.

## The Structure of the Federal Government



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Figure 2.2: Canada federal government.

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The following discussion focuses on federal government departments whose work is related to the Salish Sea. Federal government departments are administrative units that implement the laws of Parliament and are responsible for the delivery of policies and programs put forward by the government. These departments are divided up among a number of public policy fields that fall within federal jurisdiction.

Government departments are created by acts of Parliament. Each act sets out the powers, duties and functions of the department and its responsible minister. The departments themselves are each led by a Government Minister, who is a member of the Cabinet. Most Cabinet Ministers are responsible for the administration of one or more government departments and report to Parliament on their departments' activities. A Cabinet Minister may also be assigned a Parliamentary Secretary to assist with his or her parliamentary and departmental duties. The administrative management of a department is led by a senior civil servant, with the title Deputy Minister (Parliament of Canada 2015).

The following are the key departments involved in Salish Sea governance issues:

**Environment Canada:** Primary coordinator of federal policies and programs directed at the protection and restoration of environmental quality. Role is to assess, monitor and protect the environment, and to provide weather and meteorological information to keep Canadians informed and safe. Administers or shares responsibility for the following Acts addressing issues as diverse as pollution prevention, weather modification, wildlife protection and emergency management:

#### Environmental Protection

- The Department of the Environment Act
- Canada Water Act
- Lake of the Woods Control Board Act
- Weather Modification Information Act

#### Pollution Prevention

- Canadian Environmental Protection Act, 1999 (CEPA 1999)
- Fisheries Act
- Antarctic Environmental Protection Act (AEPA)
- Arctic Waters Pollution Prevention Act

#### Biodiversity and Conservation

- Species at Risk Act (SARA)
- Migratory Birds Convention Act, 1994 (MBCA)
- Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA)

- Canada Wildlife Act

#### Sustainable Development

- Federal Sustainable Development Act
- Canada Foundation for Sustainable Development Technology Act

#### Other Significant Acts

- Canadian Environmental Assessment Act, 2012
- Environmental Enforcement Act
- Canadian Environment Week Act
- National Wildlife Week Act (Government Canada, 2006)

Environment Canada's mandate is to:

- Preserve and enhance the quality of the natural environment, including water, air, soil, flora and fauna;
- Conserve Canada's renewable resources;
- Conserve and protect Canada's water resources;
- Forecast daily weather conditions and warnings, and provide detailed meteorological information to all of Canada;
- Enforce rules relating to boundary waters; and
- Coordinate environmental policies and programs for the federal government (Government Canada, 2010)

**Fisheries and Oceans:** Lead federal role in managing Canada's fisheries and safeguarding its waters. Administers or shares responsibility for the following Acts addressing Canada's inland and marine fisheries, aquatic species, oceans, habitat, fishing and recreational harbors, and marine services fees:

- Atlantic Fisheries Restructuring Act
- Canada Shipping Act, 2001
- Coastal Fisheries Protection Act
- Department of Fisheries and Oceans Act
- Financial Administration Act
- Fisheries Act

- Fisheries Development Act
- Fisheries Improvements Loan Act
- Fishing and Recreational Harbors Act
- Freshwater Fish Marketing Act
- Great Lakes Fisheries Convention Act
- Oceans Act
- Species at Risk Act (Government Canada, 2013b)

**Other Acts of Interest**

- Canadian Environmental Assessment Act
- Canadian Environmental Protection Act, 1999 (Government Canada, 2013b)

Fisheries and Ocean's mandate is to:

- Support strong economic growth in our marine and fisheries sectors by supporting exports and advancing safe maritime trade;
- Support innovation through research in expanding sectors such as aquaculture and biotechnology; and
- Contribute to a clean and healthy environment and sustainable aquatic ecosystems through habitat protection, oceans management, and ecosystems research (Government Canada, 2013b).

**Other Federal Departments:**

Other federal departments with a role related to the Salish Sea include the following:

**Indigenous and Northern Affairs Canada:** Responsible for meeting the Government of Canada's obligations and commitments to First Nations, Inuit and Métis, and for fulfilling the federal government's constitutional responsibilities in the North. The mandate for Indigenous and Northern Affairs Canada is derived from a number of sources including the following:

- Canadian Constitution
- Department of Indian Affairs and Northern Development Act
- Indian Act

Relevant legislation designed to provide First Nations with jurisdictional powers outside the Indian Act further defines Indigenous and Northern Affairs Canada's mandate, including the following:

- First Nations Land Management Act
- Safe Drinking Water for First Nations Act (Government of Canada 2008)

**Natural Resources Canada:** Department responsible for development and use of Canada's natural resources and the competitiveness of Canada's natural resources products. Administers or shares responsibility for the following Acts addressing environmental issues:

- Forestry Act
- National Energy Board Act (Government of Canada 2015)

**Transport Canada:** Responsible for transportation policies and programs. It promotes safe, secure, efficient and environmentally-responsible transportation. As part of its mission, works to prevent the environmental impacts associated with transportation, including climate change, air pollution and water pollution.

Administers or shares responsibility for the following Acts addressing environmental issues related to transportation:

- The Canadian Environmental Protection Act
- Canada Shipping Act, 2001
- Transportation of Dangerous Goods Act (Government of Canada 2009)

### Provincial Policy Actors – British Columbia

#### *Ministries*

The Government of B.C. is made up of ministries, agencies and Crown corporations. Each ministry is responsible for a specific area of public policy, government function or service delivery. The following are key ministries that are involved in issues affecting the Salish Sea:

**Ministry of Environment:** Responsible for the protection, management and conservation of B.C.'s water, land, air and living resources. Key Ministry functions include:

- Administering the province's parks and protected areas;
- Monitoring and enforcing compliance with environmental laws and regulations;
- Leading on climate action;
- Managing discharges to the environment from human activities;
- Using its scientific expertise to inform and lead environmental management in British Columbia; and
- Protecting B.C.'s biodiversity, including ecosystems, native species and natural habitats. (Province of British Columbia 2015d)

Administers or shares responsibility for the following Acts:

- Water Act (soon to be Water Sustainability Act)
- Water Protection Act
- Drinking Water Protection Act
- Water Utilities Act
- Dike Maintenance Act
- Environmental Assessment Act
- Fish Protection Act
- Forest and Range Practices Act
- Ministry of Environment Act
- Utilities Commission Act (Province of British Columbia 2015j)

**Forests, Lands & Natural Resource Operations:** Responsible for stewardship of provincial Crown land and natural resources, and protection of B.C.'s archaeological and heritage resources.

Administers or shares responsibility for the following key relevant Acts (Province of British Columbia 2015f):

- |   |  |   |
|---|--|---|
| <ul style="list-style-type: none"> <li>• Dike Maintenance Act</li> <li>• Drainage, Ditch and Dike Act</li> <li>• Environment and Land Use Act</li> <li>• Environmental Management Act</li> <li>• Fish Protection Act</li> <li>• Fisheries Act (Part 3 as it relates to the licensing of aquaculture)</li> <li>• Forest Act</li> </ul> | <ul style="list-style-type: none"> <li>• Forest and Range Practices Act</li> <li>• Forest Practices Code of BC Act</li> <li>• Greenbelt Act</li> <li>• Land Act</li> <li>• Ministry of Forests and Range Act</li> <li>• Ministry of Lands Parks and Housing Act</li> <li>• Natural Resource Compliance Act</li> <li>• Private Managed Forest Land Act</li> </ul> | <ul style="list-style-type: none"> <li>• Protected Areas Forests Compensation Act</li> <li>• Range Act</li> <li>• Skagit Environmental Enhancement Act</li> <li>• Water Act (soon to be Water Sustainability Act)</li> <li>• Water Protection Act</li> <li>• Water Utility Act</li> <li>• Weed Control Act</li> <li>• Wildfire Act</li> <li>• Wildlife Act</li> </ul> |
|---|--|---|

Other responsibilities include (Province of British Columbia 2015f):

- Aquaculture licensing and regulation;
- Water use planning and authorizations;
- Indigenous consultation and coordination – natural resource operations;
- Provincial hatchery and stocking program;
- Watershed restoration;
- Fish, wildlife and habitat management;
- Drought management;
- Dam and dyke safety and regulation;
- Floodplain management; and
- Resource management compliance.

**Community, Sport & Cultural Development:** Oversees a number of Crown corporations, agencies, boards and commissions that address local governance, sports and cultural heritage (Province of British Columbia 2015c).

In addition, this ministry:

- Provides water infrastructure and planning funding;
- Supports local government activities under the Local Government Act;
- Assists with the development of Regional Growth Strategies and relations between local government and First Nations.

Administers or shares responsibility for the following relevant Acts (Province of British Columbia 2015g):

- Land Title Act
- Island Trusts Act (Gulf Islands)
- Local Government Act; and
- Community Charter Act

**Ministry of Agriculture:** Responsible for the production, marketing, processing and merchandising of agricultural products and food; the institution and carrying out of advisory, research, promotional or education extension programs, projects or undertakings relating to agriculture and food; and the

collection of information and preparation and dissemination of statistics relating to agriculture and food (Province of British Columbia 2015b).

Supports agricultural industry water requirements used in the production of food and agricultural products. Other responsibilities include:

Water:

- Funding Agriculture Water Demand Model

Pesticides:

- Provides education on pesticide, fertilizer, and herbicide use

Nutrient management:

- Leads projects and events to develop and share soil and nutrient management information with farmers.

Fisheries and aquaculture:

- Protect the provincial public interest in sustainable aquaculture development
- License marine plant cultivation and issue tenures where operations take place on Crown land
- Issues business licenses under the Fisheries Act
- Licenses and regulates commercially-caught fish once they leave the fisher's possession

Administers or shares responsibility for the following relevant Acts:

- Fisheries Act;
- Farm Practices Protection (Right to Farm)
- Agricultural Land Commission

**Ministry of Aboriginal Relations & Reconciliation:** Leads the BC Government in pursuing reconciliation with the First Nations and Indigenous peoples of British Columbia. The Ministry continues the work of reconciliation through a variety of mechanisms. A primary course to achieving reconciliation is to establish and implement agreements with First Nations (Province of British Columbia 2015a).

Administers or shares responsibility for the following relevant Acts:

- New Relationship Trust
- Treaty Commission

### *Boards and Commissions*

Independent boards, commissions and tribunals established by government to perform arbitration, regulation or a similar function. The provincial government appoints at least one representative to these agencies. The following commission has involvement in issues relating to the Salish Sea:

**Agricultural Land Commission:** The purposes of the ALC as set out in Section 6 of the Agricultural Land Commission Act are:

- To preserve agricultural land;
- To encourage farming in collaboration with other communities of interest; and
- To encourage local governments, First Nations, the government and its agents to enable and accommodate farm use of agricultural land and uses compatible with agriculture in their plans, bylaws and policies (Agricultural Land Commission 2015).

### Local Policy Actors - Regional and subregional agencies in British Columbia

The local government system in British Columbia is comprised municipalities, regional districts and improvement districts.

#### *Municipalities*

There are four classes of municipalities: village; town; district; and, city. The main distinction between these classes is population (Province of British Columbia 2015h). Under the British Columbia Local Government Act, municipalities have authority to provide core responsibilities that include, and are not limited, to the following:

- General government;
- Transportation – streets and roads, in some cases urban transit;
- Protection – police, fire;
- Environment – water treatment and supply, waste water treatment, refuse collection/disposal;
- Recreation and culture – recreation centers, playing fields, parks, libraries;
- Land use planning and regulation, building regulation, zoning; and,
- Regulation – animal control, public health, signs, business licensing, municipal services.

Municipalities have flexibility in how and what services they provide, including the ability to enter into private partnerships. Municipalities operate primarily under the Community Charter; the specific services for each municipality are detailed in their respective charter. Municipalities adopt bylaws that pertain to the health, welfare and safety of the community.

For certain services, municipality authority is subject to provincial involvement, termed concurrent authority (Province of British Columbia 2015g). The Community Charter concurrent authority provisions apply to bylaws that deal with:

- Public health;
- Protection of the natural environment;
- Wildlife;
- Building standards; and
- Prohibition of soil deposit or removal.

Municipalities can adopt bylaws in the spheres of concurrent authority, but the province may become involved. That involvement may take the form of a regulation, an agreement or a case-by-case approval, depending on the subject area and circumstances.

Municipalities have flexibility in their ability to generate revenue to finance operations, which is done primarily through property taxes but also includes the ability to charge fees for services.

### *Regional Districts*

Regional districts are larger sub-provincial government body comprised of municipalities, together with the non-urbanized areas around the municipalities (electoral areas) (Province of British Columbia 2015i). The districts function as a federation composed of municipalities and electoral areas in the district boundaries. The governance of regional districts is managed by a board of directors composed of appointees from municipalities and a director elected from each electoral area.

Regional districts have three basic roles. They provide a political and administrative framework for:

- Providing region-wide services such as regional parks;
- Providing inter-municipal or sub-regional services such as recreation facilities where residents of a municipality and residents in areas outside the municipality benefit from the service; and,
- Acting as the general local government for the electoral areas and providing local services such as waterworks and fire protection to incorporated communities within the electoral areas.

Like municipalities, regional districts have the authority to determine what services to provide. Regional districts establish most such services through service bylaws, approved by participants in the service and by the Inspector of Municipalities.

Also like municipalities, regional district authority is subject to provincial involvement, termed concurrent authority. For regional district, the Community Charter concurrent authority provisions apply to bylaws that deal with:

- Public health;

- Building standards; and
- Prohibition of soil deposit or removal.

Revenue used to finance regional district operations and services is generated through property taxes, fees and other charges. Unlike municipalities, regional districts are required to match the benefits and costs of its services to the people that benefit from the services. In other words, residents pay for the services they receive.

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## 2.2 UNITED STATES

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In the United States, environmental laws are enacted and environmental programs are managed at all levels of government: federal, state, and local. Under the Constitution, the federal government has specific, delegated powers; powers not delegated to the federal government are reserved to the States. However, the boundary between these domains is not always clear. There are several key provisions that are relevant to the division of powers between the federal and state government(s): 1) the Commerce Clause; 2) the 10<sup>th</sup> Amendment, and 3) the Supremacy Clause (Rechtscaffen and Markell 2003). Briefly, the Commerce Clause allocates the power of the federal government (Congress) to regulate commerce amongst states. There have been legal challenges of some environmental laws under this provision. In addition, the clause limits states' authority to regulate activities that may affect interstate commerce. The 10<sup>th</sup> Amendment reserves powers not federally delegated to the states. As a result of legal challenges under this amendment, the federal government has limited powers to compel states to enforce federal environmental laws. Instead, the federal government uses various tools like grants to enlist state cooperation to implement federal laws. Finally, the Supremacy Clause provides that state laws can be preempted if they conflict with federal laws. This provision does not, however, limit states from enacting regulations that are more stringent than federal environmental laws.

Laws pertaining to many major environmental problems—for example, clean air, clean water, and management of hazardous waste—are typically passed at the national level. The states then can (but are not required to) pass laws that are consistent with (and sometimes more stringent than) the national laws; thus, many environmental laws (e.g. the Clean Water Act, Clean Air Act, and the Resource Conservation and Recovery Act) are predominately implemented at the state level, with the federal government assuming an oversight role (Laskowski et al 2005). Sometimes these state laws are designed to address state specific environmental problems.

### Federal Policy Actors – United States

A general organizational chart for the Federal United States Government is provided in Figure 2.3.

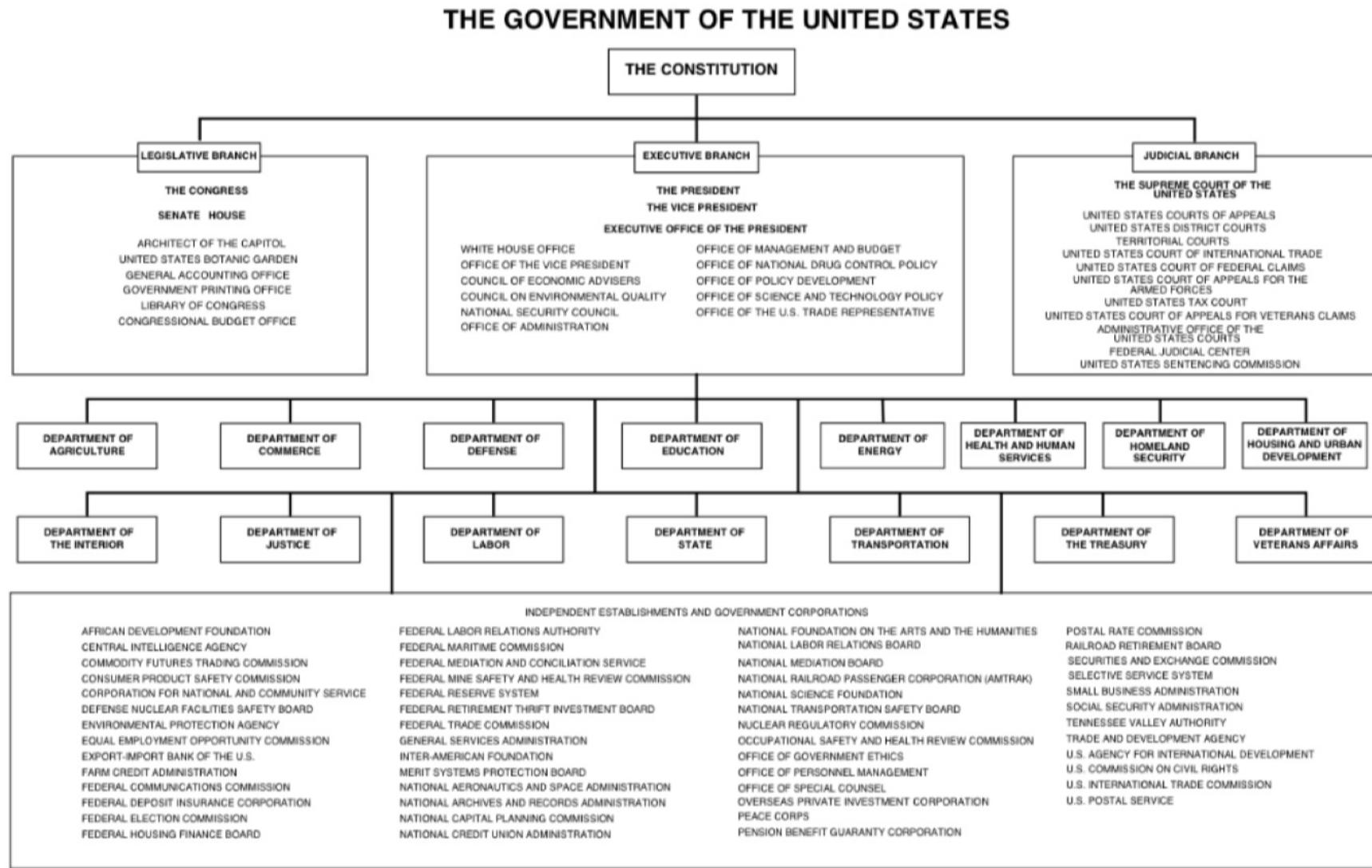


Figure 2.3: United States federal government (NetAge Inc.).

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The following discussion focuses on executive agencies whose work is related to the Salish Sea. Executive agencies are one of two types: a Cabinet agency or an independent agency. The vast majority of agencies are created by Congress through enabling statutes, which are the laws that specify the agency's duties. Most agencies fall under the Executive Branch of government. The Cabinet and independent federal agencies are responsible for the day-to-day enforcement and administration of federal laws.

Cabinet agencies are known more commonly as Cabinet departments. Each of these Cabinet agencies is led by a person referred to as "secretary." The Secretary is appointed by the President, and confirmed by the Senate.

Independent agencies of the United States federal government are those agencies that exist outside of the federal executive departments (those headed by a Cabinet secretary). Established through separate statutes passed by the Congress, each respective statutory grant of authority defines the goals the agency must work towards, as well as what substantive areas, if any, over which it may have the power of rulemaking. These agency rules (or regulations), when in force, have the power of federal law.

The following are the key departments involved in Salish Sea governance issues:

**United States Environmental Protection Agency:** The EPA is an independent agency and is the primary agency responsible for the protection of human health and the environment (US EPA 2015). The EPA works to protect human health and the environment through different roles and responsibilities, including:

- Developing and enforcing environmental regulations;
- Distributing grant funds to state environmental programs, non-profits, educational institutions, and others;
- Studying environmental issues at EPA laboratories or through information sharing initiatives with other countries, private sector organizations, academic institutions, and other agencies;
- Sponsoring partnerships with businesses, non-profit organizations, and state and local governments;
- Developing and implementing public outreach and education campaigns; and
- Disseminating information through publications and the agency's website.

EPA is charged with administering all or a part of each with relevance to the Salish Sea:

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• Clean Air Act (CAA)</li> <li>• Clean Water Act (CWA)</li> <li>• Comprehensive Environmental Response,</li> </ul> | <ul style="list-style-type: none"> <li>Compensation and Liability Act (CERCLA, or Superfund)</li> <li>• Emergency Planning and Community Right-to-Know Act (EPCRA)</li> </ul> | <ul style="list-style-type: none"> <li>• Endangered Species Act (ESA)</li> <li>• Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)</li> </ul> |
|---|---|---|

- Marine Protection, Research, and Sanctuaries Act (MPRSA, also known as the Ocean Dumping Act)
- National Environmental Policy Act (NEPA)
- Noise Control Act
- Oil Pollution Act (OPA)
- Pollution Prevention Act (PPA)
- Resource Conservation and Recovery Act (RCRA)
- Safe Drinking Water Act (SDWA)
- Shore Protection Act (SPA)
- Toxic Substances Control Act (TSCA)

**United States Department of the Interior (DOI):** United States federal executive department of the U.S. government responsible for the management and conservation of most federal land and natural resources.

DOI is charged with administering all or a part of each of the following with relevance to the Salish Sea:

- Migratory Bird Treaty Act
- Marine Mammal Protection Act
- Endangered Species Act
- Natural Environmental Policy Act (U.S. Department of the Interior 2015)

Under the DOI, there are several key bureaus that are policy actors in the Salish Sea, including:

**Bureau of Land Management (BLM):** Manages public-owned lands. In the Salish Sea, BLM manages the San Juan Island National Monument (U.S. Department of the Interior Bureau of Land Management 2015).

**United States Fish and Wildlife Service:** Bureau within the United States Department of the Interior dedicated to natural resource conservation (U.S. Fish and Wildlife Service 2015). Conducts a number of activities with relevance to the Salish Sea, including:

- Enforce federal wildlife laws,
- Protect endangered species,
- Manage migratory birds,
- Restore nationally significant fisheries,
- Conserve and restore wildlife habitat such as wetlands,
- Manage National Wildlife Refuge System,
- Operate National Fish Hatcheries,

- Foster aquatic conservation and assist voluntary habitat conservation and restoration, and
- Distribute hundreds of millions of dollars, through our Wildlife Sport Fish and Restoration program, in excise taxes on fishing and hunting equipment to State fish and wildlife agencies.

**National Park Service:** Bureau of the U.S. Department of the Interior that manages public land under the National Park program (National Park Service 2015). Manages several publicly owned lands surrounding Salish Sea, including:

- Ebey's Landing National Historical Reserve
- Fort Vancouver National Historic Site
- North Cascades National Park, and others

**United States Geological Survey:** Functions as the science agency for the Department of the Interior. Provides information on the health of ecosystems and environment, natural hazards, natural resources, and the impacts of climate and land-use change (U.S. Geological Survey 2015).

**Bureau of Indian Affairs:** Provides services directly or through contracts, grants, or compacts to federally recognized tribes. Programs include management of natural resources located on trust lands, among other duties (Bureau of Indian Affairs).

**United States Department of Agriculture:** United States federal executive department of the U.S. government that provides leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on public policy, the best available science, and effective management (U.S. Department of Agriculture 2015).

Under the Department of Agriculture, there are several key agencies that are policy actors in the Salish Sea, including:

**United States Forest Service:** Manages and protects publicly owned national forests and grasslands, including the Mt. Baker-Snoqualmie National Forest (US Forest Service 2015).

**Natural Resources Conservation Service:** Provides programs and technical assistance to help farmers, ranchers and forest landowners conserve the nation's soil, water, air and other natural resources (Natural Resources Conservation Service 2015).

**Farm Service Agency:** Implements farm conservation and regulation laws around the country. FSA's responsibilities are organized into five areas: Farm Programs, Farm Loans, Commodity Operations, Management and State Operations. Co-Administers the Conservation Resource Enhancement Program (CREP) which offers landowners financial incentives for restoring and protecting riparian habitat (areas in and around rivers and streams) on their property (Farm Service Agency 2015).

**National Oceanic and Atmospheric Administration:** Agency in the Department of Commerce that maps the oceans and conserves their living resources; predicts changes to the earth's environment; provides weather reports and forecasts floods and hurricanes and other natural disasters related to weather (U.S. Department of Commerce 2015).

Conducts a number of activities with relevance to the Salish Sea:

- Conserve marine areas through coastal management and conservation programs, including: Coastal Zone Management, the Coastal and Estuarine Land Conservation Program, the National Estuarine Research Reserve System, and National Marine Sanctuaries
- Supports and informs improved decision making and end-to-end coastal preparedness, response, recovery, and resiliency.
- Operate Sea Grant Programs
- Conduct scientific research, including fisheries research, nautical charting, and ocean and climate studies.

**NOAA Fisheries:** Office of the National Oceanic and Atmospheric Administration within the Department of Commerce responsible for stewardship of the nation's ocean resources and their habitat (Fisheries 2015).

Conducts a number of activities with relevance to the Salish Sea:

- Manage fish stocks important to commercial, recreational, and subsistence fisheries,
- Protecting marine mammals and endangered/threatened marine life,
- Provide oversight and advice to Regional Fishery Management Councils ,
- Implement the requirements of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (MSA),
- Protects, restores, and promotes stewardship of coastal and marine habitat , and
- Scientific research
- Fosters marine aquaculture
- Work with other countries through various international fisheries organizations to promote sustainable fisheries management and conservation practices

**United States Corps of Engineers:** Federal agency under the Department of Defense that conducts public engineering, design, and construction management (U.S. Army Corps of Engineers 2015).  
Conducts the following activities relative to the Salish Sea:

- Restore degraded ecosystems;
- Construct sustainable facilities;
- Regulate waterways (ground-disturbing activities in waters of the United States, including wetlands or work in, over, or under navigable waters of the United States under Sections 10 and 404 of Clean Water Act);

- Manage natural resources; and,
- Clean up contaminated sites from past military activities.
- Provide disaster preparedness and response services

**Council on Environmental Quality:** Coordinates Federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives (Council on Environmental Quality 2015).

- Ensures that Federal agencies meet their obligations under the National Environmental Policy Act
- Oversees Federal agency implementation of the environmental impact assessment process and acts as a referee when agencies disagree over the adequacy of such assessments
- Advises the President in developing environmental policies and initiatives.
- Works to ensure intergovernmental cooperation on environmental issues

**United States Coast Guard:** Branch of the United States Armed Forces with responsibility for maritime safety, security, and stewardship (US Coast Guard 2015).

**United States Federal Emergency Management Agency:** Federal agency tasked with preparing for, protecting against, responding to, recovering from and mitigating hazards (Federal Emergency Management Agency 2015).

### State Policy Actors – Washington State

The following government entities play significant roles in protecting Washington State's environment and natural resources.

**Washington State Department of Ecology:** Primary state agency responsible for the protection of human health and the environment (Ecology 2015). Organized into 10 major program areas:

- Air Quality
- Environmental Assessment
- Hazardous Waste and Toxics Reduction
- Nuclear Waste
- Shorelands and Environmental Assistance
- Spill Prevention, Preparedness, and Response
- Toxics Cleanup
- Waste 2 Resources

- Water Quality
- Water Resources

Provides the following products and services:

- Environmental permitting
- Compliance assistance
- Inspections and enforcement
- Contracts, loans, and grants
- Environmental monitoring and analysis
- Policy, rule, and technical guidance
- Education and outreach.

Ecology has federal and state authority to implement and enforce environmental laws and rules relating to:

- Protecting of water supplies
- Protecting of air quality
- Managing and reducing waste
- Cleaning up contaminated water and land
- Reducing toxic substances in the environment; and
- Supporting sustainable communities and natural resources

Ecology is charged with administering all or a part of each of the following with relevance to the Salish Sea:

- Washington State Environmental Policy Act
- Washington State Shoreline Management Act
- Washington State Water Pollution Control Act
- Washington State Biosolids Management
- Washington State Oil and Hazardous Substance Spill Prevention and Response Act
- Washington State Model Toxics Control Act

- Washington State Hazardous Waste Management Act
- Washington State Hazardous Waste Reduction Act
- Washington State Solid Waste Management - Reduction and Recycle Act
- Washington State Clean Air Act
- Washington State Pesticide Application Act
- Washington State Floodplain Management

**Puget Sound Partnership:** State agency serving as the backbone organization for Puget Sound recovery (Puget Sound Partnership 2015). The Partnership coordinates the efforts of citizens, governments, tribes, scientists, businesses and nonprofits to set priorities, implement a regional recovery plan, and ensure accountability for results. This agency works in three main capacities:

- Backbone organization for Puget Sound recovery. Coordinates the efforts of citizens, governments, tribes, scientists, businesses and nonprofits to set priorities, implement a regional recovery plan, and ensure accountability for results.
- National Estuary Program (NEP), a designation established by Congress in 1987 to protect estuaries of national significance that are threatened by degradation caused by human activity. Puget Sound was given priority status in the 1987 amendments to the Clean Water Act and became one of the original programs of the NEP.
- Regional Recovery Organization to coordinate Puget Sound partners around salmon recovery efforts and convenes a number of other state priority workgroups that impact Puget Sound recovery.

There are a number of different bodies involved, as follows:

- The Leadership Council is the governing body of the Puget Sound Partnership. The Leadership Council is comprised of a chair designated by the Governor and six additional members appointed by the Governor. The Governor will ask the advice and consent of the Senate in making the appointments. Each member of the Council is an equal participant in the process and has an equal opportunity to voice opinions and contribute ideas. Upon a formal vote, if a member is in disagreement with the majority, a minority report statement may be requested.
- The Ecosystem Coordination Board (ECB) advises the Leadership Council on carrying out its responsibilities. The Board is made up of 27 individuals representing specific interests around the Sound. The role of the ECB is specified in RCW 90.71.250(5). The ECB is required to assist with compilation of local programs for inclusion in the Action Agenda (RCW 90.71.250(5)(a)). Upon request of the Leadership Council, it can make recommendations regarding the Action Agenda (RCW 90.71.250(5)(b)). The ECB also has the authority to seek funding to implement the Action Agenda, assist the Leadership Council with public education, and recruit involvement and collaboration to achieve Sound recovery (RCW 90.71.250(c)(d) and (e)).

- There are three Strategic Initiative Subcommittees designed to focus on the three strategic initiatives (stormwater, habitat and shellfish).
- The Science Panel advises on the Puget Sound Partnerships efforts to develop a comprehensive plan to restore Puget Sound. Scientists on the board were appointed by the Leadership Council.
- The Partnership provides staff support to the Council. The Puget Sound Salmon Recovery Council assists the Leadership Council in carrying out its salmon recovery responsibilities (RCW 70.85.090) by advising the Leadership Council on decisions relating to salmon recovery and the implementation of the Puget Sound Salmon Recovery Plan. Specific responsibilities include: advising the Leadership Council on setting policy direction for implementation, including allocation of resources for habitat restoration and protection; developing and directing strategic approaches to near-term issues and actions, including adaptive management and monitoring; and holding others, and being held, accountable for implementation of the recovery plan. This role encompasses the habitat, harvest, and hatchery aspects of salmon recovery.

Note: Canadian scientists serve on the Science Panels and the British Columbia Ministry of the Environment and Fraser Basin Council participate as ex-officio members of the Puget Sound Ecosystem Coordination Board.

**Washington State Department of Agriculture:** Carries out a broad spectrum of activities that support the producers, distributors, and consumers of Washington's food and agricultural products (Washington State Department of Agriculture 2015). Has the following responsibilities which are relevant to the Salish Sea:

- Jurisdiction over the distribution, use, and disposal of pesticides and fertilizers in Washington State.
- Inspects the state's dairy farms, provides technical assistance, and takes action to ensure the dairies comply with state and federal water quality laws
- Develops and analyzes policies relative to issues that involve or affect agricultural stakeholders or agency programs.

**Washington State Department of Commerce:** State Department charged with enhancing and promoting sustainable community and economic vitality in Washington (Washington State Department of Commerce 2015). Services include direct and indirect funding, technical assistance, and planning and policy assistance. With respect to Salish Sea governance, agency implements the following relevant programs:

- Growth Management: Provides guidance and technical assistance to communities planning under Washington State's Growth Management Act (GMA). Verify GMA compliance for the purposes of grants and loans for agencies that use this information in their funding decisions.
- Capital facilities: Provides grant funding to local jurisdictions to make infrastructure improvements (e.g. to repair, replace, or create bridges, roads, sanitary sewer systems, domestic water systems, storm sewer systems, and solid waste/recycling systems).

- Energy and Climate Change: Assists local governments save energy and/or water through an infrastructure upgrades

**Washington State Department of Fish and Wildlife:** State agency dedicated to preserving, protecting and perpetuating the state's fish and wildlife resources (Washington Department of Fish & Wildlife 2015). The department operates under a dual mandate from the Washington Legislature to:

- Protect and enhance fish and wildlife and their habitats.
- Provide sustainable, fish- and wildlife-related recreational and commercial opportunities.

Administers the following laws related to the Salish Sea:

- Washington State Hydraulic Code (any construction activity or other work that uses, diverts, obstructs, or changes the natural flow or bed of state waters)
- Washington State Endangered Species (makes recommendations on species listings, recovery plans, conservation plans and species reintroduction activities)

Also has the following responsibilities:

- Administers the Priority Habitats and Species (PHS) Program, which provides information on important fish, wildlife, and habitat resources in Washington.
- Administers grants, provides technical assistance related to endangered species.
- Issues fishing and shellfishing licenses.
- Participant in the development of an integrated, statewide climate response strategy, as directed by SB5560, the Climate Leadership Act.
- Administers several pass-through grant programs that provide funding opportunities for projects within Washington State that are conducted by outside organizations or members of the public. Funding is available for projects that benefit the conservation and management of fish and wildlife and their habitat.

The department is overseen by the Washington Fish and Wildlife Commission, whose nine members are appointed to six-year terms by the Governor and confirmed by the Senate.

**Washington State Department of Natural Resources:** Manage state trust lands for the people of Washington (Department of Natural Resources 2015). This includes:

- Managing state-owned aquatic lands, including:
- Selling the rights to harvest renewable resources like wild geoducks and other shellfish and from leasing and licensing state-owned aquatic lands.
- Carrying out restoration projects
- Monitoring and inventorying aquatic resources

- Administer the Aquatic Lands Habitat Conservation Plan developed under the Endangered Species Act
- Managing designated aquatic reserves (preservation, restoration, and enhancement of state-owned aquatic lands that are of special educational, scientific, or environmental interest)
- Managing state owned forest lands and community forest trust lands.
- Manages natural areas to conserve and restore special state-managed lands.

Also administers Forest Practices Act (regulating logging practices), including issuing permits required for any forest practices activities on forestlands in the state meeting certain criteria. DNR is authorized to inspect operations and enforce all rules related to forest practices.

Issues permits for disposal of dredging material at open-water dredged material disposal sites.

Establishes or relocates harbor lines to define boundaries for commerce and navigation in the state's navigable waters.

**Washington State Recreation and Conservation Office:** Manages grant programs to create outdoor recreation opportunities, protect the best of the state's diverse biological heritage and farmland, restore habitat, and help return salmon from near extinction (Washington State Recreation and Conservation Office 2015). Grant funding includes the Salmon Recovery Funding Board (SRF Board) and the Recreation and Conservation Funding Board.

- Salmon Recovery Funding Board: Provides funding for elements necessary to achieve overall salmon recovery, including habitat projects and other activities that result in sustainable and measurable benefits for salmon and other fish species.
- Recreation and Conservation Funding Board: Provides leadership and funding to help protect and enhance Washington's natural and recreational resources for current and future generations. These grant opportunities provide for local projects, many of which involve wetland restoration and protection efforts. RCO also provides funding for the Habitat and Recreation Lands Coordinating Group whose mission is to improve the visibility and coordination of state habitat and recreation land purchases and disposals.

RCO is home to the Governor's Salmon Recovery Office, established by the legislature to coordinate a statewide salmon recovery strategy. This office provides funding for local, regional, and state salmon recovery efforts.

**Washington State Conservation Commission:** Works with conservation districts to help citizens protect renewable resources through the use of proven, incentive-based practices (Washington State Conservation Commission 2015). The Commission participates in several programs that affect wetland resources including: the Conservation Reserve Enhancement Program (CREP), the Wetland Reserve Program, Water Quality grant programs, and the Voluntary Stewardship Program. The Commission has no regulatory function, but works primarily through education and through facilitating dialogue between land owners, land managers, local stakeholders, and state and federal agencies on critical natural resource conservation issues.

**Washington Department of Health:** Programs and services to help prevent illness and injury, promote healthy places to live and work, provide education to help people make good health decisions and ensure our state is prepared for emergencies (Washington State Dept. of Health 2015). With respect to Salish Sea,

- Administers Shellfish Program to:
  - Monitor shellfish for biotoxins, pathogens, and other contaminants.
  - Regularly test water quality in shellfish growing areas and check shorelines and surrounding areas for pollution sources.
  - Classify growing areas based on water quality and current and potential pollution sources.
  - Close shellfish areas when spills, stormwater runoff, or other events compromise water quality.
- Administers Wastewater Management Program, which is responsible for the safe treatment and dispersion of domestic, non-industrial wastewater in areas of Washington not served by municipal sewage treatment works (otherwise known as on-site sewage systems or septic drainfields).
- Participates in Beach Environmental Assessment, Communication, and Health (BEACH) Program to monitor water quality at swimming beaches.

#### Other Policy Actors:

**Washington State Environmental and Land Use Hearings Office:** Independent, quasi-judicial state agency that administers the following boards (Environmental & Land Use Hearings Office 2015):

- Pollution Control Hearings Board: Decides appeals of decisions made by:
  - Local and regional air pollution control agencies or authorities.
  - The State Department of Ecology.
  - The Department of Fish and Wildlife (WDFW) pertaining to hydraulic project approval (HPA) decisions.
  - The Department of Natural Resources (DNR) pertaining to forest practices, surface mining, and forest health orders, and
  - Other agencies and orders as provided by law.
- Shoreline Hearings Board: Hears appeals from permit decisions made under the Shoreline Management Act, and from those shoreline penalties jointly issued by local government and Ecology, or issued by Ecology alone.

- Growth Management Hearings Board: Resolve land use disputes under Washington State's Growth Management Act.

**Washington State Forest Practices Board:** Independent state agency chaired by the Commissioner of Public Lands or designee involved in the management of private and public forestlands (Forest Practices Board 2015). Adopts rules that set standards for forest practices such as timber harvests, pre-commercial thinning, road construction, and forest chemical applications. Also, provides a Forest Practices Board Manual as a technical supplement to the rules.

Manages the Forest Practices Adaptive Management Program, which represents landowners, public agencies, the forest industry, environmental community, and tribal governments. This program provides science-based recommendations and technical information to help the Board determine if and when it is necessary or advisable to adjust the rules and guidance for aquatic resources to achieve the goals and objectives of the Forests and Fish Report.

**Washington State Governor's Office of Indian Affairs:** Serve as liaison between state and tribal governments in an advisory, resource, consultation, and educational capacity (Governor's Office of Indian Affairs 2015).

**Washington State Utilities and Transportation Commission:** Regulates transportation and utility industries within Washington State. Regulated businesses include electric, telecommunications, natural gas, and water (Washington Utilities and Transportation Commission 2015).

### Local Policy Actors – Regional and subregional agencies in Washington State

The local government system in Washington State is comprised of cities and towns; counties; special purpose districts; and regional governments.

#### *Cities and Towns*

Washington's constitution allows cities to exercise all the police powers possessed by the state government, so long as local regulations do not conflict with general laws (Spitzer 2015), and is generally considered to have Home Rule. Washington State has two general forms of government for cities and towns: code cities and charter cities. Code cities incorporate under pro-forma regulations addressing the form of government, while charter cities choose their form of government through adoption of local charters; charter cities, therefore, do not follow a uniform pattern.

Washington cities and towns are organized under three principal forms of government:

- Mayor-council form: In this form of government, the mayor-council form consists of an elected mayor (elected at-large), who serves as the city's chief administrative officer, and a council (elected either at-large or from districts), which serves as the municipality's legislative body. The council has the authority to formulate and adopt city policies and the mayor is responsible for carrying them out. This is the predominate form of government in Washington State.
- Council-manager form: Consists of an elected city council which is responsible for policy making, and a professional city manager, appointed by the council, who is responsible for administration. The city manager provides policy advice, directs the daily operations of city

government, handles personnel functions (including the power to appoint and remove employees) and is responsible for preparing the city budget.

- Commission form: Provides for the election of three commissioners who function collectively as the city legislative body and individually as city department heads. The three are elected at-large to fill the specific offices of commissioner of public safety (who also serves as the mayor), commissioner of finance and accounting, and commissioner of streets and public improvements (public works). This is very rarely used.

In addition, state law permits cities under certain circumstances to adopt charters unique to their communities.

Cities and towns generally have authority to provide core responsibilities that include, and are not limited, to the following:

- General government;
- Transportation – streets and roads;
- Protection – police, fire;
- Environment – water treatment and supply, waste water treatment, refuse collection/disposal;
- Recreation and culture – recreation centers, playing fields, parks, libraries;
- Land use planning and regulation, building regulation, zoning; and,
- Regulation – animal control, public health, signs, business licensing, municipal services.

### *Counties*

The Washington State Constitution also provides for the establishment of counties. Counties are regional governmental bodies that govern land located outside of incorporated cities and towns. There are two forms of county governments: commission and home rule charter. Under the commission form, counties form under pro-forma regulations addressing the form of government, while home rule charter counties choose their form of government through adoption of local charters; therefore there is no uniform pattern.

### *Special Purpose Governments*

Special purpose districts are limited purpose local governments separate from a city, town, or county government (Municipal Research and Services Center 2015). Generally they perform a single function, though some perform a limited number of functions. They provide an array of services and facilities including electricity, fire protection, flood control, health, housing, irrigation, parks and recreation, library, water-sewer service and more recently stadiums, convention centers, and entertainment facilities that are not otherwise available from city or county governments. Some types of special purpose districts that have impact on the Salish Sea include (but are not limited to):

- Agricultural Pest Districts

- Weed Districts
- Conservation Districts
- Port Districts
- Shellfish Protection Districts - "Clean Water Districts"
- Air Pollution Control Authorities
- Aquifer Protection Areas
- Diking and Drainage Districts
- Flood Control Districts
- Park and Recreation Facilities and Services
- Public Utility Facilities and Services (e.g. solid waste, water, sewer, etc.)
- River and Harbor Improvement Districts
- Public Waterway Districts

### *Regional Organizations*

The region also contains regional/metropolitan planning organizations. These are organizations that have different federal and state authorizations to conduct regional land use, economic, and transportation planning. They are generally governed by elected officials from the represented cities, counties, and special purpose districts within their respective boundaries.

For example, Regional Council of Governments serve as a multi-service entity with state- and locally-defined boundaries to deliver a variety of federal, state, and local programs while functioning as a planning organization, technical assistance provider, and coordinator. COGS are generally comprised of intergovernmental member agencies, together with administrative staff. The following are some of the regional council of governments in the region:

- Puget Sound Regional Council
- Thurston Regional Planning Council
- Skagit Council of Governments
- Whatcom Council of Governments
- Grays Harbor Council of Governments

As another example, Metropolitan Planning Organizations (MPOs) are responsible for regional transportation planning. There are a number of MPOs operating within the region, including:

- Puget Sound Regional Council
- Thurston Regional Planning Council
- Longview-Kelso-Rainier MPO
- Skagit/Island Regional Transportation Organization
- Skagit MPO (SMPO)

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## 2.3 INDIGENOUS NATIONS

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Coast Salish indigenous communities inhabit the area around the Salish Sea; their traditional homelands spanned the international borders now established by Canada and the United States (Norman 2015). There are significant differences between the indigenous relationships and agreements that have been forged between Tribes, First Nations and governments in Canada and the United States. These differences are briefly highlighted below. Despite these differences, Indigenous Nations are important policy actors that affect the governance of the Salish Sea in many ways, including (but not limited to) the following:

- Managing fisheries, aquaculture and other natural resources;
- Managing development activities on reserves or reservations;
- Consulting on projects in usual and accustomed harvest areas;
- Negotiating for and enforcing treaty rights;
- Sharing information;
- Conducting environmental assessments and monitoring;
- Completing restoration projects; and
- Collaborating with other governments, Tribes, First Nations and non-governmental agencies to implement a variety of programs.

### Indigenous Policy Actors - Canada

#### *Policy Actors*

The term(s) First Nation or Band is used to describe the basic unit of [government](#) for those peoples subject to the [Indian Act](#). First Nations can be united into larger regional groupings, sometimes referred to as tribal councils. Treaty Associations have also formed to negotiate future treaty claims.

The [Assembly of First Nations](#) is a national advocacy organization representing First Nation citizens in Canada. Its regional counterpart is the British Columbia Assembly of First Nations (BCAFN), a Political Territorial Organization (PTO) that represents the 203 First Nations in British Columbia.

The First Nations Summit is comprised of a majority of First Nations and Tribal Councils in BC and provides a forum for First Nations in British Columbia to address issues related to Treaty negotiations as well as other issues of common concern.

The Union of BC Indian Chiefs is a non-governmental organization working to advocate for the indigenous people of BC.

The First Nations Leadership Council is composed of the executives from the Union of BC Indian Chiefs, the First Nations Summit, and the BC Assembly of First Nations.

### *Reserves and Traditional Territories*

First Nations have advocated for their rights to manage activities occurring on both reserves and within their traditional territories.

Reserve lands have traditionally been managed by the federal government under the provisions of the Indian Act. However, more recently the federal government has enacted programs providing certain First Nations with powers to manage their reserve land and resources under their own land codes. The sections of the *Indian Act* dealing with land, resources and environment no longer apply to First Nations operating under their own land codes. There are several First Nations within the Salish Sea who have developed their own land codes, and several that remain under federal management.

With respect to First Nation's traditional territories, Canada's Constitution Act states that "the Aboriginal and treaty rights of the Aboriginal peoples of Canada are hereby recognized and affirmed." The Supreme Court of Canada has also affirmed in several cases that Indigenous rights exist in law.

However, until recently neither the Constitution nor the Supreme Court had defined or described the nature, scope and extent of Indigenous rights and title across BC. This is, in part, because very few treaties were negotiated with First Nations in BC. As a result, the extent of First Nations' governance over their traditional territories was largely determined by:

- **Evolving court rulings.** In general, Canadian First Nations' customary rights to fish and harvest marine resources are protected. The Supreme Court of Canada affirmed right to fish for sustenance, social and ceremonial uses in the Sparrow case (and more recently in BC as part of the Tsilhqot'in First Nation's claim to traditional lands). In addition, the Supreme Court went further in the Delgamuukw judgment to confirm that Indigenous title to land (rather than just the right to hunt, fish and gather) exists in British Columbia. As a result of this decision, the when dealing with Crown land, the government must consult with and may have to compensate First Nations whose rights may be affected. However, the Canadian government (supported by the courts) has generally taken the position that the land title rights must be proven and acknowledged by the Crown on a case-by-case basis. Recent court decisions, however, have challenged this. For example, in its recent decision in [Saik'uz First Nation and Stellat'en First Nation v. Rio Tinto Alcan Inc.](#), the Court of Appeal for British Columbia (BCCA) confirmed that First Nations may bring actions against private parties in nuisance and breach of riparian rights on the basis of unproven Indigenous rights and title claims as well as Indian reserve rights (Hicks and Millen 2015).
- **On-going treaty negotiations between First Nations, Canada and BC.** The BC treaty negotiations process is voluntary and open to all First Nations in British Columbia. There are 65 First Nations participating in or have completed treaties through the BC treaty negotiations process. The 65 First Nations represent 104 of the 203 Indian Act Bands in BC. First Nations in the BC treaty negotiations process are self-determining, and there are several First Nations that govern or represent multiple Indian Act Bands, communities, or hereditary houses, clans or families, or combinations of these. When a First Nation enters the BC treaty process they submit a statement of intent outlining their traditional territory. This establishes the parameters

for land to be included in a final treaty. Treaties may also include co-management rights on traditional territory outside of treaty settlement land.

- **Consultation.** Despite the continuing evolution of First Nation Land Claims and associated sovereignty over these lands, the Province of British Columbia has a duty to consult and where required, accommodate First Nations whenever a decision or activity could impact Treaty rights or asserted or established Indigenous Rights and Title (even if land claims for areas where the activity is occurring are unresolved).

In this context, in 2005, the B.C. government and the First Nations Leadership Council entered into a New Relationship based on three things:

- Respect, recognition and accommodation of Indigenous title and rights
- Respect for each other's laws and responsibilities
- The reconciliation of Indigenous and Crown titles and jurisdictions

The New Relationship is a vision for improved government-to-government relations between the BC government and First Nations. The New Relationship Accord suggests new processes and structures for working together on decisions about the use of land and resources. It also discusses revenue-sharing to reflect Indigenous rights and title interests, and to help First Nations with economic development. Discussions related to the New Relationship are underway that include engagement with First Nations and leaders from industry, local governments, and other key stakeholders. Under the agreement, a number of joint land-use agreements, revenue-sharing, and economic benefit agreements have been negotiated between First Nations and the BC government.

An additional approach that some First Nations have used to define their rights and title is to develop a land use plan for their traditional territory. These plans traditionally identify land use issues, challenges and opportunities, articulate a vision for the use of the land and resources, summarize community priorities for protection and development of resources; and provides direction for what activities are acceptable, where activities should occur and where they should not be carried out. An example of this type of process is the combined *Central Coast and North Coast Land and Resource Management Plan*, located to the north of the Salish Sea area.

## Indigenous Policy Actors - United States

### *Policy Actors*

There are 19 federally recognized tribes in Washington State located in the Puget Sound. Tribes are sovereign nations, and each sovereign tribe has an independent relationship with each other and the federal and state government. A federally recognized tribe is recognized as having a government-to-government relationship with the United States, with the responsibilities, powers, limitations, and obligations attached to that designation, and is eligible for funding and services from the Bureau of Indian Affairs.

Furthermore, federally recognized tribes are recognized as possessing rights to self-government (i.e., tribal sovereignty) and are entitled to receive certain federal benefits, services, and protections because of their special relationship with the United States. Most federally recognized tribes received federal

recognition status through treaties, acts of Congress, presidential executive orders or other federal administrative actions, or federal court decisions.

There are also non-federally recognized tribes, some of which have petitioned for federal recognition.

There are a number of organizations comprised of member tribes, including the following:

- Northwest Indian Fisheries Commission
- National Congress of American Indians
- Affiliated Tribes of Northwest Indians
- South Puget Intertribal Planning Agency

#### *Reservations and Traditional Territories*

A federal Indian reservation is an area of land reserved for a tribe or tribes under treaty or other agreement with the United States, executive order, or federal statute or administrative action as permanent tribal homelands, and where the federal government holds title to the land in trust on behalf of the tribe. Due to past allotment practices, lands within reservations were sometimes sold to non-member individuals; this “fee land” is no longer subject to the trust restrictions of reservation lands. Individuals within a tribe may also own previously allotted trust land. In order to sell this land to someone not eligible for trust status, the trust title must be extinguished, which requires the approval of the Secretary of the Interior or his/her representative.

There are some federally recognized tribes that are landless, which means that there is no reservation reserved for the tribe.

Because reservation land is legally owned by the United States, the Supremacy Clause exempts this type of property from regulatory jurisdiction by states or their subdivisions. In short, there is no state or local government land use regulation on trust land. In the absence of state regulatory jurisdiction on reservations, tribes have been delegated the authority to conduct reservation-wide environmental programs (similar to those delegated to the states). Thus, the United States Environmental Protection Agency has an obligation to treat tribes as states for the purpose of delegating responsibility for implementing environmental programs and regulating the reservation environment to tribes (Zaferatos 2013). Tribes need to qualify for “treatment as a state”; some tribes in the Salish Sea area have qualified and now operate environmental protection programs on reservation lands.

As sovereign nations, Tribes generally need no authorization from the federal government to govern reservation lands. Thus, the tribal council, not the local or federal government, generally has jurisdiction over reservations, having both the right and the authority to regulate activities on their lands independently from state government control. However, in many cases there have been limitations to the exercise of sovereign powers (e.g. regulation of activities on fee land, conflicts from overlapping jurisdictions, etc.), some of which still continue today (Zaferatos 2013).

On lands outside of reservations, Tribes have exerted their treaty rights and have challenged activities that would impact these rights. In 1854-1855, five treaties (Treaty of Medicine Creek, Treaty of Neah Bay, Treaty of Olympia, Treaty of Point Elliott, Treaty of Point No Point) were signed that provided

tribally reserved rights to “taking fish at usual and accustomed grounds and stations” and “hunting and gathering roots and berries on open and unclaimed lands” (Treaty of Point Elliott, 1855). A number of court decisions have been issued which have upheld Tribal treaty rights protecting rights to fish, gather shellfish, and hunt. The courts have determined that tribes are entitled to a specific share of the available harvest of resources available at their usual and accustomed grounds and stations and to manage the use of those resources. As a result of these, Tribes are now recognized as co-managers of Washington fisheries and work cooperatively with other federal and state agencies to ensure that fish and wildlife management objectives are achieved.

Under the federal government’s trust responsibility, there is a duty to consult with Tribes to ensure that agencies consider the effects that their activities have on Native American lands, resources, and protected rights. The duty extends to off-reservation activities that may harm a tribe’s land base or treaty-protected resources.

In addition, under the government-to-government relationship that exists between Washington State and tribes located within its boundaries, tribes and the state have committed to consulting with each other on matters that directly affect each other. The Centennial Accord (signed in 1989) and the New Millennium Agreement (signed in 1999) establish the basic framework and provide the general foundation for tribal/state relations.

### Indigenous Policy Actors - Transboundary Interaction

These divergent political environments have historically served to fragment cross-border relationships amongst Indigenous communities (Norman 2015). However, there have been efforts to unify the voice of Coastal Sea communities; the Coast Salish Sea Gatherings is one example of these efforts.

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## 2.4 NON-GOVERNMENTAL ORGANIZATIONS

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Non-governmental organizations exist throughout the Salish Sea region. These organizations generally form and operate separately in Canada and the United States, though some organizations operate across the border. Some United States' environmental NGOs, like Sierra Club and Natural Resources Defense Council, are involved in Canadian issues, particularly those related to pipelines that would transport oil from Alberta tar sands to West Coast ports (Healy et al 2014). Organizations operate at different scales, including international, national, regional and local.

NGOs include environmental and other citizen-based groups, community-based organizations, business and non-profit associations and coalitions, academic/research institutions and universities, private foundations, and other similar entities. Roles of non-governmental organizations can also include research, education, information sharing, advocacy, coordination and issue analysis. To this end, such organizations are increasingly becoming influential participants in the policy making process.

In general, both governments provide opportunities for members of the public to provide comments on proposed regulations and in the permitting process for new development<sup>2</sup>. However, as noted by Healy et al (2014), the United States' policy making system is relatively more open than that in Canada, due to a number of differences, including:

- Federalism and decentralization of much of environmental management to provinces;
- Inter-province consultation on environmental issues to harmonize regulations through the Council of Ministers of the Environment, where environmental groups are generally not allowed to participate; and
- Dominance of governing party in Canadian parliamentary system, which allows for discussion to occur in the cabinet committees rather than parliament

Both governments also have mechanisms in place to allow for private prosecution/civil suits, wherein individual citizens have the right to challenge a person or corporation that breaks environmental law(s). However, there appear to be differences in the extent to which judicial review occurs of decision-making by government agencies that are alleged to violate the law, with less judicial review of administrative decisions typically occurring in Canada (Healy et al 2014). In addition, the rules of standing are more onerous than in the United States (Healy et al 2014).

In the United States, efforts to shift responsibility for environmental management to lower levels of government has broadened opportunities for non-governmental influence. In addition, movement away from the existing command-and-control regime to a performance-based approach has started to occur, with resulting involvement of non-governmental actors in carrying out the tasks of environmental governance (Healy et al 2014).

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<sup>2</sup> Recent amendments to the Canadian National Energy Board Act restrict the rights of interested parties to participate as interveners and to cross-examine the proponent's witnesses, though this is being challenged.

In Canada, in contrast, the existing system has traditionally been more flexible, with voluntary or incentive-based mechanisms already in use. In addition, the Canadian government has been in a process of streamlining the environmental regulatory review process, which has resulted in significant recent changes to environmental laws at the federal level. These movements have, in some cases, served to limit involvement of environmental organizations.

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## 2.5 TRANSBoundary INTERACTIONS

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There are a number of formal government transboundary organizations, among them:

Federal:

- Canada-US International Joint Commission (1909 Boundary Water Treaty)
- International Pacific Salmon Fisheries Commission (1985 Pacific Salmon Treaty)
- Canada-United States Air Quality Committee (1991 Canada-United States Air Quality Agreement)
- North American Wetlands Conservation Council (1918 Migratory Bird Treaty)
- US-Canada Regulatory Cooperation Council (Presidential agreement establishing partnerships between a number of federal agencies to work on regulatory cooperation)

State/Provincial:

- British Columbia - Washington State Environmental Cooperation Council
- Georgia Basin - Puget Sound International Air Strategy Coordinating Committee
- Lower Fraser Valley Air Quality Coordinating Committee
- Pacific Coast Collaborative
- Western Climate Initiative (though no longer involving Washington State)
- Pacific States – British Columbia Oil Spill Task Force
- Note: The Puget Sound Partnership has attempted to strengthen transboundary communication and coordination by incorporating Canadian representation on its different bodies. Canadian scientists serve on the Science Panels and the British Columbia Ministry of the Environment and Fraser Basin Council participate as ex-officio members of the Puget Sound Ecosystem Coordination Board.

Transboundary governance also occurs informally at multiple levels and involve different actors. Healy et al (2014) identified several types of transboundary networks that occur, including:

- Transgovernmental networks dominated by government agency officials who share information and potentially develop new solutions to collective problems;
- Private actor networks in which environmental groups and other NGOs work together.

Transgovernmental networks, those dominated by government agency officials, appear to currently be the most prevalent (Healy et al 2014).

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### **3 ISSUES IN ENVIRONMENTAL MANAGEMENT**

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## CHAPTER 3: ISSUES IN ENVIRONMENTAL MANAGEMENT

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The report is organized into 16 different sections based on issue areas that are identified as being vital to the health of the Salish Sea (see Figure 3.1). Each section describes legislation, government agencies, indigenous, and non-governmental organizations relevant to a specific issue. Where applicable, transboundary institutions and legislation are also discussed. While some comparisons are made, the following sections mainly describe the policy actors and legislation that affects different aspects of environmental management. The sections are organized as independent sections that can be reviewed separately – as a result, there may be some overlap between the sections. Issues covered include:

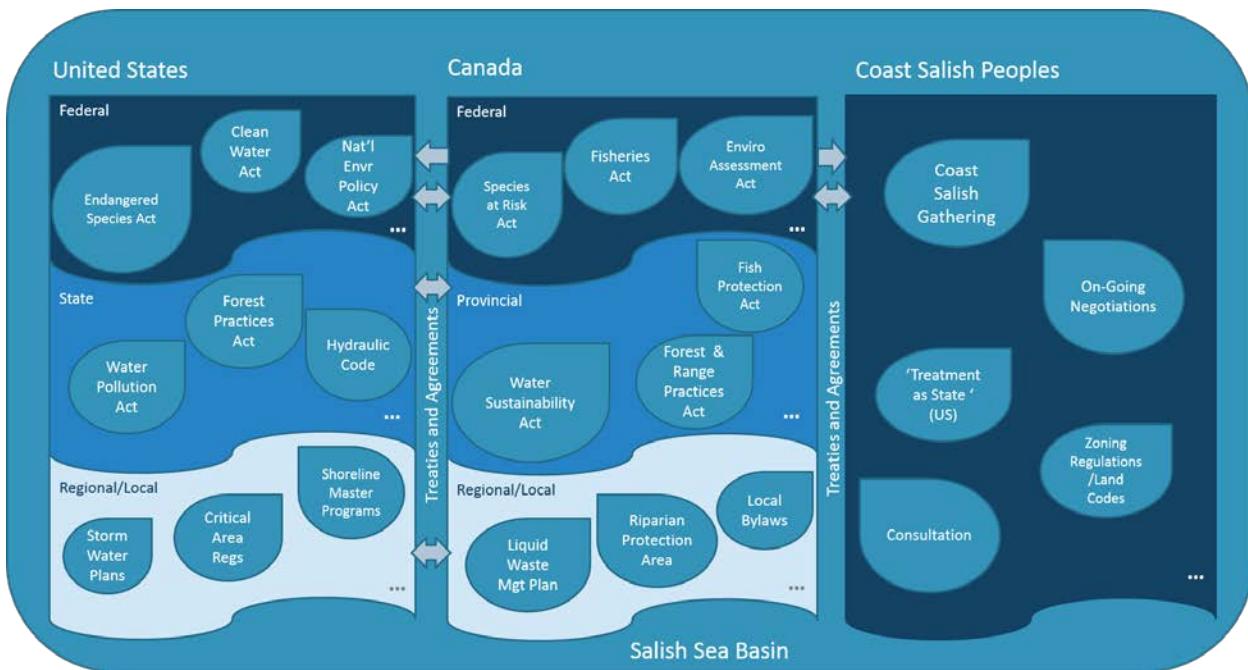


*Figure 3.1: Inventory framework, identifying specific environmental issues that are included in baseline inventory*

Each section begins with a brief overview of the relevance of the issue to the Salish Sea. A high level comparison of the different contexts for policymaking and management of the environmental issue is also provided. Then, each section contains a summary of the approaches that the governments within the United States and Canada, respectively, take in managing that topic, at the federal, state/provincial, and local government level. In addition, involvement of indigenous nations is addressed (see Figure 3.2)<sup>3</sup>. Finally, an overview of government and non-government collaboration and non-governmental actors working on the issue is discussed.

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<sup>3</sup> It is important to note that Indigenous Tribes and First Nations are sovereign entities. In the following sections, for organizational purposes only, discussion of Indigenous Tribes and First Nations is included within the respective country (United States or Canada) in which these sovereign nations are situated and engage in on-going negotiations and consultation.



*Figure 3.2: Graphic representation of organization for law and policy inventory.*

It should be noted that the policies and programs in each country may evolve and change with time, and that this report addresses the current approaches taken in each nation.

## AIR QUALITY

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### 3.1 AIR QUALITY

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The Salish Sea region shares a common airshed. Many factors influence the management of the airshed, including geography, development patterns, and differing regulatory contexts. Some significant sources of air emissions include: marine vessels; automobiles, trucks and buses (particularly vehicles with diesel engines); agricultural operations; wood stoves and other space heating; open burning of yard and wood waste; industrial combustion sources; and thermal power plants (Environmental Protection Agency, and Environment Canada 2005).

Most areas in the Salish Sea airshed currently meet relevant national air quality standards on each side of the border. However, there are still important air quality concerns in this international airshed since research shows that visibility and ecosystem health are diminished and human health is affected at existing levels of air pollution (Environmental Protection Agency, and Environment Canada 2005). In addition, air pollution impacts aquatic habitat in the Salish Sea, as toxic chemicals move into aquatic habitats through numerous pathways, including air deposition and discharges from industrial sources (Puget Sound Partnership 2014).

#### United States – Air Quality

Air emissions are regulated to ensure the health and safety of the environment and to protect human health. Air quality is managed among different layers of government, including the federal, state, and regional levels.

##### *Government Entities – United States*

##### Federal Scale – United States

##### *Air Quality Standards – United States*

**Clean Air Act:** Federal law that regulates air emissions from stationary and mobile sources. The Act authorizes two different types of air quality standards: ambient and hazardous air pollutants.

##### *Ambient Air*

Ambient air quality (or the outdoor air throughout the country) is addressed through the National Ambient Air Quality Standards (NAAQS) (US EPA, OAR. 2015a). The NAAQS includes six pollutants that are broadly indicative of air quality and that are the most prevalent hazardous byproducts of anthropogenic activity: carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), lead, and particulate matter (PM). These six are collectively known as the “criteria pollutants,” and the NAAQS designate the maximum concentration of each that is allowable within the air during various averaging periods (i.e., a certain concentration is allowable when considering a brief “8 hour” averaging period, but the allowable concentration is lower on an annual average basis).

Within the context of the Act, airsheds are assigned to one of two categories: “attainment” areas are those that comply with all NAAQS, and “nonattainment” areas are those that do not (US EPA, OAR. 2015a). The Tacoma-Pierce County is a Nonattainment Area for Particulate Matter (PM) 2.5. In addition, a maintenance area is an area that was designated nonattainment for one of the NAAQS, but

later met the standard and was re-designated to attainment. To ensure the air quality in this area continues to meet the NAAQS, states are required to develop and implement Maintenance State Implementation Plans. There are several maintenance areas for ozone, carbon monoxide, and PM 10 in the Salish Sea area.

The Act establishes a framework for issuance of permits. When new facilities (or substantial retrofits of existing facilities) are proposed within attainment areas, the proponent must install reasonably cost-effective emission control technology, but the total amount of pollution emitted within the airshed is permitted to creep upward. By contrast, a proponent seeking to emit new pollution into a nonattainment area needs to secure an emission "offset" elsewhere, so that the airshed-wide pollutant load does not increase.

The Act establishes a framework in which authority and responsibility for compliance are delegated to the states. It directs States to develop state implementation plans (SIPs), which describe how the state implements, maintains, and enforces NAAQS (Washington State Department of Ecology, 2015b.).

#### *Hazardous Air Pollutants*

Section 112 of the Clean Air Act also authorizes EPA to regulate emissions of hazardous air pollutants, which are pollutants that cause or may cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects. EPA is required to control 187 hazardous air pollutants. Examples of toxic air pollutants include benzene, which is found in gasoline; perchlorethlyene, which is emitted from some dry cleaning facilities; and methylene chloride, which is used as a solvent and paint stripper by a number of industries (US EPA, OAR. 2015a). Through appropriate rulemaking, the Clean Air Act list can be modified.

For major sources, Section 112 requires that EPA establish emission standards that require the maximum degree of reduction in emissions of hazardous air pollutants. These emission standards are commonly referred to as "maximum achievable control technology" or "MACT" standards (US EPA, OA. 2015).

As required under the Act, EPA has developed a list of source categories that must meet control technology requirements for these hazardous air pollutants. The EPA is required to develop regulations (also known as rules or standards) for all industries that emit one or more of the pollutants in significant quantities (US EPA, OAR. 2015d).

**Implemented by:** Environmental Protection Agency, Washington State Department of Ecology, and Regional Air Quality Agencies (e.g. Puget Sound Clean Air Agency, Northwest Clean Air Agency)

#### *Stationary Sources – United States*

**Clean Air Act:** The Act requires EPA to create a list of the important categories of stationary sources of air pollution, and to establish Federal standards of performance for new sources within these categories. These New Source Performance Standards (NSPS) apply to newly constructed sources or those that undergo major upgrades or modifications; these facilities are required to install pollution control equipment and to meet specific emissions limitations (US EPA, OEI. 2015). In addition, under the 1990 amendments, major stationary sources must obtain operating permits. Operating permits are legally enforceable documents that permitting authorities issue to air pollution sources after the source has begun to operate.

### *Mobile Sources – United States*

**Clean Air Act:** Mandates controls on air pollution from mobile sources by regulating both the composition of fuels and emission-control components on motor vehicles and non-road engines. Vehicle fuel standards for gasoline and diesel are met by refiners/ importers, and by other parties in the fuel distribution system (US EPA, OEI. 2015).

Regulation of vehicles includes vehicle emission limits for hydrocarbons (HC), carbon monoxide (CO), and nitrogen oxides (NOx), and particulates in the case of diesel vehicles. These limits, which must be met by the vehicle manufacturers, apply to on-road vehicles, off-road vehicles, and non-road sources (e.g., marine engines, locomotives, and lawn and garden equipment) (US EPA, OEI. 2015).

The Clean Air Act also regulates emissions from vessels.

**Implemented by:** United States Environmental Protection Agency

### *State Scale – Washington State*

#### *Air Quality Standards – Washington State*

Both Ecology and the regional air authorities have the ability to enact regulations and/or standards that are more stringent than federal standards, but this is rarely done. Standards must be, at minimum, equal to those established under the federal Clean Air Act.

**Washington State Implementation Plan (SIP):** The SIP contains all of Washington's rules, attainment and maintenance plans, and control strategies for areas of the state that have not met the NAAQS. Ecology is responsible for developing SIP revisions. Ecology may partner with a location clean air agency or ask the local agency to take the lead role in preparing a plan for an area in their jurisdiction (Washington State Department of Ecology, 2015b.).

**Implemented by:** Washington State Department of Ecology and regional Clean Air Agencies (Puget Sound Clean Air Agency, Northwest Clean Air Agency, and Olympic Region Clean Air Agency). Other State agencies, like the Washington State Department of Transportation, may be involved in developing components of the SIP.

### *Stationary Sources – Washington State*

**Clean Air Act:** The federal Clean Air Act requires all states to have statewide air operating permit programs for businesses and industries that are the largest sources of air pollution (Washington State Department of Ecology, 2015a).

Washington State has established a system of regional air pollution control authorities, which includes Puget Sound Clean Air Agency, Northwest Clean Air Agency and Olympic Region Clean Air Agency, to implement federal and state air pollution control regulations. Outside of the Air Agencies, the Washington State Department of Ecology implements the regulations.

**Implemented by:** Washington State Department of Ecology and regional Clean Air Agencies (Puget Sound Clean Air Agency, Northwest Clean Air Agency, Olympic Region Clean Air Agency)

*Mobile Sources – Washington State*

**Washington State Clean Car Law:** Starting with 2009 models, new vehicles must meet strict clean air standards to be registered, leased, rented, licensed, or sold for use in Washington. Washington adopted the California standards, which are stricter than the federal standards. This includes cars, light duty trucks, and passenger vehicles (SUVs and passenger vans). New vehicles that do not meet clean car standards cannot be registered, licensed, rented, or sold for use in Washington (Washington State Department of Ecology 2015c).

*Other Air Quality Laws and Policies – Washington State*

**Action Agenda for Puget Sound:** The Action Agenda identifies the linkage between air pollution and the health of Puget Sound and, as a result, may include action agenda items addressing air pollution as part of the yearly plans (Puget Sound Partnership 2014).

**Implemented by:** Puget Sound Partnership

Local Scale – Regional and subregional policymaking in Washington State

**Metropolitan Planning Organizations:** Air quality planning involves Metropolitan Planning Organizations (MPOs), which are responsible for regional transportation planning. As an example, the Puget Sound Regional Council (PSRC) serves as the MPO for the Central Puget Sound Area. PSRC has responsibilities under the federal and state Clean Air Acts to ensure that the region's short and long-term transportation plans do not impede the region's efforts to maintain, or improve, air quality. When a plan is developed or amended, PSRC must conduct an air quality conformity analysis to ensure that PSRC planning activities meet regional air pollution goals.

**County and local governments:** Local government agencies throughout the region may also be involved in air quality planning, for instance by conducting transportation demand management programs to reduce vehicular travel, and through zoning and land use decisions.

*Indigenous Peoples – United States*

Authorized tribes have authority under the Clean Air Act to manage air quality on their reservations. The [Tribal Authority Rule](#), or TAR, is the key to tribal implementation of the Clean Air Act. The TAR identifies those provisions of the Clean Air Act for which it is appropriate to treat eligible federally-recognized tribes in the same manner as a state (Office of Air and Radiation US EPA 2015).

EPA implements Clean Air Act requirements on reservation lands through programs such as the Federal Air Rules for Reservations, Title V permits, and air toxics rules.

The EPA also has a process in place for consultation with Indian Tribes (EPA Policy on Consultation and Coordination with Indian Tribes). "Consultation" is a process of meaningful communication and coordination between EPA and tribal officials prior to EPA taking actions or implementing decisions that may affect tribes (OITA US EPA 2015).

*Government/Non-Government Collaborations – United States*

**EPA Partnership Programs** - EPA also has a number of partnership programs (US EPA, OAR. 2015d) aimed at decreasing air pollution, including:

- AIRNow - The U.S. EPA, NOAA, NPS, tribal, state, and local agencies developed the AIRNow Web site to provide the public with easy access to national air quality information. AIRNow offers daily air quality forecasts as well as real-time air quality conditions for over 300 cities across the US, and provides links to more detailed State and local air quality information.
- Energy Star - A government-backed program helping businesses and individuals protect the environment through superior energy efficiency. Maximizes energy efficiency in commercial, industrial, and residential settings by promoting new building and product design and practices.
- Green Vehicle Guide - Reports both fuel economy and emissions of all newly manufactured vehicles. The guide is updated annually.
- Methane to Markets Partnership - An action-oriented initiative that will reduce global methane emissions to enhance economic growth, promote energy security, improve the environment, and reduce greenhouse gases.
- Smartway Transport Partnership - To improve the environmental performance and fuel efficiency of the US freight sector (truck and rail) through the use of a voluntary market incentive system, that encourages retailers/end users to choose trucking and/or rail companies that are environmental leaders in their respective industry segments.
- Green Power Partnership - Through this program, the EPA supports organizations that are buying or planning to buy green power. As a Green Power Partner, an organization pledges to replace a portion of its electricity consumption with green power within a year of joining the Partnership. The EPA offers credible benchmarks for green power purchases, market information, and opportunities for recognition and promotion of leading purchasers.

**Western Regional Air Partnership:** EPA encouraged the formation of regional organizations to provide technical assistance. In Western States, the Western Regional Air Partnership (WRAP) has formed. WRAP is a voluntary partnership of states, tribes, federal land managers, local air agencies and the US EPA whose purpose is to understand current and evolving regional air quality issues in the West (Western Regional Air Partnership 2015).

**Other programs:** The Puget Sound Clean Air Agency is also operating a number of programs aimed at reducing pollution. An example is the **Seaport Truck Scrappage and Replacements for Air in Puget Sound (ScRAPS)** which is a program between the Port of Seattle and Puget Sound Clean Air Agency focused on replacing older diesel freight trucks with new vehicles that meet new federal emissions standards (Puget Sound Clean Air Agency 2015).

**Environmental Justice Collaborative Problem-Solving (CPS) Cooperative Agreement Program:** This program provides funding for eligible applicants for projects that address local environmental and public health issues within an affected community. The CPS Program is designed to help communities understand and address exposure to multiple environmental harms and risks. In the Puget Sound, the

Duwamish River Cleanup Coalition has been awarded an agreement under this program to address air quality concerns in South Seattle (US EPA, OECA. 2015).

#### *Non-Governmental Organizations – United States*

There are non-governmental organizations that also focus on air quality issues. At the national level, the **American Lung Association** works on air quality issues (American Lung Association 2015). **Puget Sound Sage** is a local community organization in South Seattle focusing on environmental issues, including air quality (Puget Sound Sage 2015).

#### **Canada – Air Quality**

Air quality is also addressed by different regulations at different levels of government in Canada. The federal government has jurisdiction to regulate international air pollution, as well as industries over which they have specific authority over, namely aviation and transportation (Beckplumb 2013). The federal government has also asserted authority to regulate the release of toxic substances, such as mercury or asbestos, into the air. The provinces, in contrast, have jurisdiction over most types of industries, including mining and manufacturing, and therefore they also have jurisdiction to regulate emissions from these industries (Beckplumb 2013).

#### *Government Entities - Canada*

##### Federal Scale - Canada

###### *Air Quality Standards - Canada*

**Canada Air Quality Management System:** Guides work on air emissions across Canada, through three key elements:

- Canada Ambient Air Quality Standards (CAAQS), which are guidelines for maintaining healthy air quality levels. Standards have been developed for fine particulate matter (PM2.5) and ozone, and work has begun to develop standards for nitrogen dioxide (NO<sub>2</sub>) and Sulphur dioxide (SO<sub>2</sub>). The CAAQS are established as objectives under the Canadian Environmental Protection Act 1999, meaning that they are non-statutory limits used to guide decisions, unless written specifically into a permit or regulation. They are typically used to:
  - Assess current or historical air quality;
  - Guide decisions on the permitting of new or modified facilities;
  - Guide decisions on episode management, such as air quality advisories;
  - Develop long-term air-management strategies and evaluate progress, and
  - Aid regulatory development.
- Air zone management / regional airsheds, which are local areas within each territory or province where air quality is managed to ensure proactive measures are taken to protect air quality in accordance with the principles of continuous improvement and keeping clean areas clean. In

areas where air quality meets the CAAQS, activities would be aimed at ensuring that pollutant levels did not rise above the standards. In areas where air quality does not meet the CAAQS, management efforts would be focused on reducing emissions to move towards meeting the standards. There is a four-tiered framework guiding air management actions depending on the air quality level in the air management zone.

- Base-Level Industrial Emissions Requirements, which addresses point source emissions from major emitters in different sectors. The provinces and territories may regulate or otherwise implement the BLIERs. Where provinces or territories opt not to implement a BLIER, the federal regulation or instrument could apply and the federal government would ensure compliance with the BLIER(s) (Canadian Council of Ministers of the Environment 2015; Taylor and McMillan 2014).

This system is still in the process of being implemented.

**Implemented by:** Canadian Council of Ministers of the Environment, Environment Canada and Government of British Columbia

**Canadian Environmental Protection Act, 1999 (CEPA):** While most air emission regulation is conducted at the provincial level of government, a number of industry-specific air pollution regulations exist under CEPA that limit the concentration of such emissions as: 1) asbestos emissions from asbestos mines and mills; 2) lead emissions from secondary lead smelters; 3) mercury from chlor-alkali mercury plants; and 4) vinyl chloride from vinyl chloride and polyvinyl chloride plants (Blakes Lawyers 2015).

**Implemented by:** Environment Canada

The federal government directly regulates some emission sources, mostly related to transportation (e.g., railroad, marine shipping, motor fuels, and vehicle emission control equipment).

*Mobile Sources - Canada*

**Canadian Environmental Protection Act:** Authorizes authority to regulate emissions from on-road and off-road vehicles and engines. Generally, standards are established to be harmonized with those in the United States (Government of Canada 2013).

**Implemented by:** Environment Canada

**Canada Shipping Act:** Regulates vessel air emissions.

**Implemented by:** Transport Canada

Provincial Scale – British Columbia

*Air Quality Standards – British Columbia*

**British Columbia Ambient Air Quality Objectives:** Non-statutory limits used to:

- Gauge current and historical air quality,

- Guide decisions on environmental impact assessments and authorizations,
- Guide airshed planning efforts,
- Inform regulatory development, and
- Develop and apply episode management strategies such as air quality advisories

British Columbia has adopted air quality objectives for a number of contaminants, including: PM10, PM2.5, ozone, sulphur dioxide, nitrogen dioxide, carbon monoxide, total reduced Sulphur, and formaldehyde. For each of these contaminants, a range of air quality criteria may exist, reflecting the different conditions under which criteria may be applied (Government of British Columbia 2014).

#### *Stationary Sources – British Columbia*

The provinces have authority for most point sources (e.g., commercial, industrial, and governmental facilities, solid-fuel burning appliances, vehicles) and have devised individual regulatory frameworks for these sources.

**Environmental Management Act:** Primary regulation pertaining to air, and it establishes the basic requirement that the air not be polluted. Pursuant to the EMA, the provincial government implements a permitting mechanism applicable to point sources and also establishes standards applicable to some other sources (e.g., wood stoves) (Government of British Columbia 2015f).

Under the Environmental Management Act, the Waste Discharge Regulation establishes a three-tiered approach to discharges to the environment.

- Industries, trades, businesses operations or activities considered to be high risk to the environment and public health, or those where it was determined that development of a code of practice was impractical, require a permit or approval to authorize their discharges. A detailed technical assessment of the discharge is normally required.
- Industries, trades, businesses operations or activities considered to be medium risk to the environment and public health register under the code of practice or regulation if required by that code or regulation. If a code of practice or regulation has not been developed, a permit or approval is required. In this case, a technical assessment may not be required if sufficient information is included on the application form.
- Industries, trades, businesses operations or activities not listed are considered low risk and do not require a formal authorization to discharge waste. However, the discharges must not cause pollution or present a risk to public health.

**Implemented by:** British Columbia Ministry of the Environment

**British Columbia Air Action Plan:** Established 28 actions to reduce air pollution, complementing the government's plan to reduce greenhouse gas emissions, and the B.C. Energy Plan which ensures, among other things, that at least 90 per cent of the electricity generated in B.C. will continue to come from clean or renewable sources (Government of British Columbia 2015c).

The government dedicated funding over three years to implement this Air Action Plan, in partnership with industry, communities and other levels of government.

*Mobile Sources – British Columbia*

**Environmental Management Act:** Contains several regulations addressing vehicle and fuels emissions, including:

- Cleaner Gasoline Regulation
- Gasoline Vapor Control Regulation
- Motor Vehicle Emissions Control Warranty Regulation (Government of British Columbia 2015a).

**Implemented by:** British Columbia Ministry of the Environment

Local Scale - Regional and subregional policymaking in British Columbia

**Greater Vancouver Regional District:** Sub-provincial entities typically have relatively little authority with respect to air emissions, but the B.C. government has delegated authority to the Greater Vancouver Regional District (GVRD) in a region encompassing 21 municipalities in the Vancouver metro area (Government of British Columbia 2015e).

**Regional and municipal governments:** Regional and municipal governments can pass bylaws to control emissions such as backyard burning, wood stoves and vehicle idling. These governments can also address air pollution through land-use and transportation planning, regional growth strategies and sustainability plans (Government of British Columbia 2015e).

For example, Metro Vancouver has adopted a bylaw for non-road diesel engines (such as excavators, backhoes, and stationary equipment). The bylaw will reduce emissions of diesel particulate matter from older, non-road diesel engines operating in the region.

**Airshed planning:** Airshed planning is being conducted in the Lower Fraser Valley Airshed. Air quality is monitored in this area, and air quality programs and actions are developed to minimize air pollution (Government of British Columbia 2015d).

*Indigenous Peoples - Canada*

First Nations have various powers to address air pollution problems on reserve lands, including:

- Zoning regulations
- Nuisance bylaws
- Environmental protection regulations, for First Nations that have entered into the First Nations Land Management Agreement (West Coast Environmental Law 2005)

*Government/Non-Government Collaborations - Canada*

**Federal**

**Air Quality Management System Stakeholder Advisory Group:** In developing the Air Quality Management System, the Canadian Council of Ministers of the Environment pulled together stakeholders into an advisory committee. The group provides advice to governments on the ongoing implementation, improvement, and operation of AQMS. Stakeholders will also be engaged in the development of various elements of the System, including future Canadian Ambient Air Quality Standards (CAAQS), Base-level Industrial Emissions Requirements (BLIERS) and mobile sources actions (Government of British Columbia 2015d).

**Provincial**

The BC Government funds air quality programs that are implemented by non-governmental organizations. For example, the Province is funding [BC Lung Association's](#) work on replacing wood stoves. In addition, the Province is supporting the BC Clear program administered by [the Fraser Basin Council](#) in partnership with the BC Lung Association. The BC Clear program provides grants to academic institutions, government organizations, First Nations and consulting organizations to support air quality and health research (Environment 2015).

*Non-Governmental Organizations - Canada*

There are several regional non-governmental organizations that have been conducting airshed management planning and monitoring, including: [Quesnel Air Quality Roundtable](#) (Quesnel Air Quality Roundtable 2015) and [Sea-to-Sky Clean Air Society](#) (Sea-to-Sky Clean Air Society 2015).

In addition, there are advocacy-oriented non-governmental organizations that also focus on air quality issues. These include:

- [Community Health Opposition to Known Emission Dangers](#) (CHOKED) (Clean Air BC Coalition 2015)
- [Sunshine Coast Clean Air Society](#) (Sunshine Coast Clean Air Society 2015)

**Transboundary Policymaking – Air Quality**

There are several bilateral agreements that have been established addressing air quality issues at different governmental levels, including the following:

*Federal Scale – United States and Canada*

**Canada-United States Agreement on Air Quality:** Bilateral executive agreement to address transboundary air pollution (Government of Canada 2005). The Agreement initially focused on reducing levels of acidic deposition in each country, and has been expanded to also address ground-level ozone (O<sub>3</sub>), with on-going discussions on particulate matter (PM). The agreement:

- Established a framework for addressing shared concerns relating to transboundary air pollution.

- Establishes notification and consultation process to assess and potentially mitigate actions, activities, and projects that are likely to cause significant transboundary air pollution.
- Requires countries to establish specific objectives for emission limitations or reductions.
- Provides for research and monitoring and exchange of information.
- Established bilateral committee to assist in the implementation of the agreement.

**Implemented by:** Canada - United States Air Quality Committee, a bilateral committee established to assist in implementing the Agreement between the Government of the United States of America and the Government of Canada on Air Quality.

**US-Canada Regulatory Cooperation Council:** To address the transboundary movement of air pollutants, Canada and the U.S. have agreed, as one initiative of the Regulatory Cooperation Council, to consider broadening the Canada-U.S. Air Quality Agreement to include particulate matter. A work group has been designated for this task (Regional Cooperation Council 2015).

In addition, a work group is also designated to focus on light-duty emissions to promote harmonized regulations for vehicles and engines (Regional Cooperation Council 2015).

**Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem:** Bilateral agreement between the United States and Canada that outlines common goals and objectives and provides a context for federal agency collaboration on transboundary ecosystem management of the Salish Sea (US EPA 2015). Canada-US collaboration in addressing the transboundary environmental challenges confronting the ecosystem health in the Salish Sea/Georgia Basin region with a focus on knowledge and information sharing as well as transboundary demonstration projects that contribute to improved air quality, water quality, habitat and species health. Action plans are generated, updated, and monitored to identify policy activities for focus areas. Key activities include:

- Canadian-US (transboundary) collaboration
- Engaging Coast Salish First Nations and Tribes
- Information and knowledge sharing
- Transboundary demonstration projects that contribute to improved air quality, water quality and habitat and species health

An action plan has been established for 2015-2016 (Environmental Protection Agency and Environment Canada, n.d.), which focuses on:

- Supporting the Salish Sea Ecosystem Conference
- Maintaining the Health of the Salish Sea Report
- Supporting information sharing
- Spotlighing transboundary demonstration projects

- Strengthening coordination and governance mechanisms

**Georgia Basin-Puget Sound International Airshed Strategy:** Cooperative, Canada and U.S. effort to address shared air quality management concerns in the transboundary GB-PS region. The *Georgia Basin - Puget Sound Airshed Characterization Report, 2014* was undertaken to characterize the air quality within the Georgia Basin/ Puget Sound airshed (Government of Canada 2014).

***Implemented by:*** Georgia Basin - Puget Sound International Air Strategy Coordinating Committee

**Health of the Salish Sea transboundary indicator report:** On-going monitoring and reporting effort in the Salish Sea (US EPA Region 10 2015). Describes trends in indicators that can help identify priorities for future action. The indicators include fine particulate matter (PM 2.5). This reporting is an outcome of the Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem and continues to be a priority in the Action Plan for 2015-2016.

**International Maritime Organization:** United Nations' specialized agency responsible for improving maritime safety and preventing pollution from ships. Accepted a joint Canada-U.S. application to designate parts of coastal waters in B.C. and Washington as Emission Control Areas. These areas have more strict standards for marine fuels, as well as sulphurous oxide and nitrogen oxide emissions (US EPA Region 10 2015).

**West Coast Collaborative:** Public-private partnership to reduce diesel emissions. Includes federal, state, and local government, the private sector, academia, and environmental groups committed to reducing diesel emissions and advancing clean air technologies and practices along the West Coast of North America (West Coast Collaborative 2015).

**Commission for Environmental Cooperation (CEC) North American Air Working Group:** Trilateral North American Air Working Group with Mexico, the United States and Canada as its members. The working group is to support the three governments in addressing the widespread harm that air pollution such as ground level ozone, acid rain, and particulate aerosols pose over large regions of North America (Government of Canada 2005).

#### *State/Provincial Scale – Washington State and British Columbia*

**Environmental Cooperation Agreement between the Province of British Columbia and the State of Washington:** Agreement to ensure coordinated action and information-sharing on environmental matters of mutual concern.\_Established Environmental Cooperation Council (referred to in document by its original name, the BC/WA Environmental Initiative) with associated taskforces.\_Committed parties to create an action plan.\_Authorized adoption of specific arrangements to address environment problems, including Regional Air Quality Management (Ministry of Environment 2015).

***Implemented by:*** British Columbia - Washington State Environmental Cooperation Council

**WA-BC-GVRD-NWCAA Interagency Agreement:** Agreement stemming from the Environmental Cooperation agreement. This interagency agreement is between Washington State, the Province of British Columbia, the Greater Vancouver Regional District and the Northwest Clean Air Agency and was created to ensure timely prior consultation on new sources of air pollution.

*Local Scale – Regional and subregional policymaking in Washington State and British Columbia*

**Lower Fraser Valley Air Quality Coordinating Committee:** Informal committee comprised of officials from the air quality regulatory agencies on either side of the border. The LFVAQCC is a forum through which data can be shared and at which communication and coordinated planning can occur (Government of British Columbia 2015).

**Other**

There are also other agreements in place for specific issues such as arrangements between regional agencies (e.g. cooperative air quality monitoring agreement between Greater Vancouver Regional District and Fraser Valley Regional District).

There are also professional organizations collaborating on air quality issues, in particular the **Northwest International Air Quality Environmental Science and Technology Consortium** (NW AIRQuest), which is a consortium of scientists, researchers, and policymakers established for the purpose of collaboration and sharing experiences to remain abreast of the state-of-the-science and to develop regionally consistent technical approaches to emission inventories, air quality modeling, and air monitoring.

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## **CLIMATE CHANGE**

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## 3.2 CLIMATE CHANGE

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Rising levels of carbon dioxide and other heat-trapping gases have warmed the earth and are already causing wide-ranging impacts, from rising sea levels, to melting snow and ice, to more drought and extreme rainfall. Scientists project that these trends will continue and in some cases accelerate, posing significant risks to the Salish Sea region, including: warmer temperatures and more severe heat waves, larger and more intense wildfires, drier summers and wetter autumns and winters, decreased snowpack and loss of natural water storage, more severe winter flooding, sea level rise, and more extreme weather events. In many cases, these anticipated changes will compound existing problems in the Salish Sea, for instance by reducing snowpack and groundwater infiltration, increasing stormwater runoff, raising stream temperatures, and concentrating pollutants in water bodies. These changes, therefore, pose significant risks to communities, the environment, and biodiversity within the Salish Sea.

At the federal level both countries have focused on reducing emissions intensity rather than capping emissions (Healy et al 2015). Lack of economy-wide targets, coherent and integrative approaches and cohesive national implementation schemes for reaching emissions reductions target has contributed to fragmented, uneven and potentially conflicting mitigation regimes in Canada and the United States” (Healy et al 2015, p. 139).

### United States – Climate Change

Climate change issues are being addressed at different layers of government, including the federal, state, and local levels.

#### *Government Entities – United States*

##### Federal Scale – United States

At the federal level, regulatory action has generally been focused on sector-specific regulations, though a number of different organizations are working on climate change in other capacities.

#### *General Information – United States*

There are a number of different agencies within the federal government that are working on climate change issues in different capacities, including (but not limited to):

##### White House: Executive Orders, President's Climate Action Plan

**United States Environmental Protection Agency:** Regulation of air and water quality; research on impacts of climate change; technical assistance and funding to local state, local and tribal climate change and adaptation programs; coordination of voluntary programs. EPA also runs the Greenhouse Gas Reporting Program, which collects and publishes emissions data from individual facilities in the United States that emit greenhouse gases in large quantities. The EPA is also involved in the Climate Ready Estuaries program, which works with the National Estuary Programs and the coastal management community to:

- Assess climate change vulnerabilities,

- Develop and implement adaptation strategies, and
- Engage and educate stakeholders (US EPA 2015).

**Department of Agriculture:** Adapting agriculture and natural resources through cooperative extension advice and education, forest management (USFS), resource conservation (NRCS), and Agriculture Research Service activities (e.g. methane management, etc.)

**Department of Energy (DOE):** Information provision through Energy Information Administration (EIA); research through national labs; emissions monitoring and climate modeling.

**National Aeronautics and Space Administration (NASA):** Earth observations and monitoring; research on earth systems including atmospheric, water, land, etc.

**National Oceanic & Atmospheric Administration (NOAA):** Climate research and information through labs, cooperative institutes and grants.

**Department of Transportation:** Research, financing alternative transportation

**Department of Interior:** Climate impact and adaptation related to land management (BLM); fish and wildlife (USFWS); National Parks (NPS); and water reclamation (USGS) (National Academies Press, 2010).

*Energy Sector – United States*

**United States Clean Air Act:** Federal law that regulates air emissions from stationary and mobile sources. There are several initiatives underway to address air emissions contributing to climate change under the Clean Air Act, including:

*United States Clean Power Plan:* Established carbon pollution limits for the nation's existing power plants, issued under Section 111(d) of the Clean Air Act. More specifically:

Establishes state-specific goals to reduce carbon pollution from existing power plants.

States are required to develop plans that ensure they achieve the carbon pollution reduction goals. The goals are based on each state's unique mix of emissions and power sources. And, states have flexibility to choose how to achieve the carbon pollution reduction goal, including:

- Make fossil fuel power plants more efficient.
- Use lower-emitting power sources.
- Expand renewable energy generation.
- Increase energy efficiency.

Initial draft state plans for implementing the federal rule are due September 2016. Final state plans are due September 2018.

**Implemented by:** Environmental Protection Agency

**United States Energy Policy Act:** Addresses energy production in the United States, including: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Tribal energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology (US EPA 2015a).

*Transportation Sector – United States*

**United States Clean Air Act:** Federal law that regulates air emissions from stationary and mobile sources. There are several initiatives underway to address air emissions contributing to climate change under the Clean Air Act, including:

*Vehicle emission standards:* In 2009, the EPA Administrator signed a final action, under Section 202(a) of the Clean Air Act, finding that six greenhouse gases (carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>)) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to the climate change problem. These findings did not impose any requirements on industry or other entities. However, this action was a prerequisite for implementing greenhouse gas emissions standards for vehicles, which have now been adopted for light and heavy duty vehicles (EPA 2015b).

*Renewable Fuel Standard Program:* EPA is developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel (EPA 2015b).

**Implemented by:** Environmental Protection Agency and National Highway Traffic Safety Administration

Regional (Multi-State) Scale – West Coast States

**Laws and Policies**

**West Coast Governors' Agreement on Ocean Health:** Established the framework for regional collaboration to protect and manage the ocean and coastal resources along the entire West Coast. One of the initiatives under this agreement is to conduct a West Coast-wide assessment of shoreline changes and anticipated impacts to coastal areas and communities due to climate change and develop mitigation and adaptation actions (West Coast Governors Alliance on Ocean Health 2015a).

**Policy Actors**

**Western Governors' Association:** Has an Initiative focused on Climate Change and Adaptation. The Western Governors have adopted resolutions that specifically speak to Regional and National Policies Regarding Global Climate Change and Supporting the Integration of Climate Change Adaptation Science in the West. The Western Governors also called for the formation of a Climate Adaptation Work Group whose purpose is to 1) determine appropriate uses of climate adaptation modeling in informing natural resource and economic infrastructure planning and policies, and 2) to identify and fill existing gaps in climate adaptation efforts within WGA (Western Governors' Association 2015).

State Scale – Washington State

At the state level, there has been recent activity to address climate change through a cap on emissions, though the rulemaking for this has yet to be completed.

*General Information – Washington State*

There are a number of bills pending in 2015 Washington State Legislative Session that would address climate change.

In addition, there are several existing acts and regulations in place, including:

**Washington State Clean Air Rule:** In 2015, Gov. Jay Inslee has directed the Washington State Ecology to step up enforcement of state pollution laws and develop a regulatory cap on carbon emissions. New rules are anticipated to be developed in 2016.

***Implemented by:*** Washington State Governor and Washington State Department of Ecology

**Washington State Emissions Inventory and Reporting:** Requires large emitters of greenhouse gases to report their emissions, as follows:

- A single facility, source, or site that emits at least 10,000 metric tons of greenhouse gases annually in Washington; or
- A supplier of liquid motor vehicle fuel, special fuel, or aircraft fuel that supplies products equivalent to at least 10,000 metric tons of carbon dioxide annually in Washington (Washington State Department of Ecology 2015).

**Washington State Environmental Policy Act:** Provides a way to identify possible environmental impacts that may result from governmental decisions. These decisions may be related to issuing permits for private projects, constructing public facilities, or adopting regulations, policies, or plans. Information provided during the SEPA review process helps agency decision-makers, applicants, and the public understand how a proposal will affect the environment. This information can be used to change a proposal to reduce likely impacts, or to condition or deny a proposal when adverse environmental impacts are identified. Applicants and reviewers must now consider greenhouse gas emissions in SEPA review (Washington State Department of Ecology 2015).

***Implemented by:*** Washington State Department of Ecology and local and state agencies involved in reviewing projects under the Act

**Preparing for a Changing Climate: Washington State's Integrated Climate Change Response Strategy:** Statewide strategy for climate change response. Describes overarching strategy and specific actions in the following areas:

- Human health
- Ecosystems, species, and habitats
- Ocean and coastlines
- Water resources
- Agriculture

- Forests
- Infrastructure and the built environment
- Research and monitoring
- Climate communication, public awareness, and engagement

These strategies have been integrated into the *Action Agenda for Puget Sound*.

**Action Agenda for Puget Sound:** The Action Agenda addresses climate change impacts to natural systems and contains a number of strategies aimed to avoid, reduce, mitigate or adapt to climate change impacts (Puget Sound Partnership 2014).

**Implemented by:** Puget Sound Partnership

**Puget Sound Salmon Recovery Plan:** Contains strategies and actions associated with marine and freshwater habitat protection and restoration, hatchery management, and harvest management. This Plan addresses water availability issues that are likely to be further strained under climate change conditions (Puget Sound Partnership 2014).

**Implemented by:** Puget Sound Partnership

**Washington State Marine Waters Planning and Management:** Requires an interagency team of state natural resource agencies to develop a Marine Spatial Plan (MSP), which will cover aquatic lands and waters under tidal influence in Washington State. The MSP must address climate change impacts as one of the management considerations.

(Note: This legislation directs the Puget Sound Partnership to integrate marine spatial information and planning provisions into the Puget Sound Action Agenda).

**Implemented by:** Washington State Department of Ecology

*Energy Sector – Washington State*

**Washington State Energy Independence Act:** Sets energy conservation and renewable energy targets, passed by citizen initiative. Large utilities must acquire renewable resources like wind and solar to meet part of their electricity needs and must implement all cost-effective energy-efficiency measures (Washington State Department of Ecology).

## Other

There are a number of other laws and policies that have been adopted addressing energy sector related emissions. For instance:

- Department of Commerce is required to develop a state energy policy strategy that balances the goals of maintaining competitive energy prices, fostering clean energy economy and jobs and meeting the State's obligation to reduce greenhouse gas emissions.

- All new electric generating resources, including those under long term contract, must meet a greenhouse gas emission performance standard.
- New fossil-fueled thermal generating facilities and existing facilities proposing to increase their capacity by fifteen percent are required to provide mitigation for twenty percent of the total carbon dioxide emissions produced by the facility.
- Net metering required for all small renewable energy systems.
- Counties may enact “energy overlay zones” to facilitate siting of renewable energy projects based on feedstock availability, infrastructure and environmental impacts. Eligible technologies include biomass energy, mill waste, and landfill and wastewater treatment gas (Washington State Department of Ecology 2015).

*Transportation Sector – Washington State*

**Washington State Clean Car Law:** Starting with 2009 models, new vehicles must meet strict clean air standards to be registered, leased, rented, licensed, or sold for use in Washington. Washington adopted the California standards, which are stricter than the federal standards. This includes cars, light duty trucks, and passenger vehicles (SUVs and passenger vans). New vehicles that do not meet clean car standards cannot be registered, licensed, rented, or sold for use in Washington (Washington State Department of Ecology 2015).

**Other**

There are a number of other laws and policies that have been adopted addressing transportation related emissions. For instance:

- Minimum renewable fuel content requirements and fuel quality standards.
- Electric vehicles planning and infrastructure provisions were enacted by Chapter 459 Law of 2009 and codified in several RCWs.
- Department of Transportation is required to establish an alternative fuels corridor pilot project along I-5.
- Commute trip reduction program required from all large employers.
- Benchmarks for reducing vehicle miles travelled (Washington State Department of Ecology 2015).

*Government Sector – Washington State*

**Washington State Agency Climate Leadership Act:** Established Washington State greenhouse gas emissions reduction limits for state agencies in law, as follows:

- Return to 1990 levels by 2020
- By 2035, reduce emissions to 25% below 1990 levels

- By 2050, reduce emissions to 50% below 1990 levels.

Directed state agencies to quantify GHG emissions, report on actions taken to reduce GHG emissions, and develop a strategy to meet the GHG reduction targets (Washington State Department of Ecology).

### **Other**

There are a number of other laws and policies that have been adopted addressing state agency reduction of emissions as part of their operations. For instance:

- After June 15, 2010, state agencies must, when purchasing new petroleum-based fuel vehicles for vehicle fleets: (a) achieve an average fuel economy of 40 miles per gallon for light duty passenger vehicles; and (b) achieve an average fuel economy of 27 miles per gallon for light duty vans and sports utility vehicles; or (c) purchase ultra-low carbon fuel vehicles. Some vehicles are excluded.
- All state agencies and local governments are required to satisfy 40% of their fuel usage for publicly owned vessels, vehicles, and construction equipment with electricity or biofuel. By June 1, 2015, 100% these fuel needs are to be met by electricity or biofuel, to the extent practicable.
- Certain state agencies must meet building energy performance standards that are benchmarked to national standards and report on their performance.
- The Department of Transportation must develop a joint comprehensive commute trip reduction plan for all state agencies sites located in the Olympia, Lacey, and Tumwater urban growth area.
- State agencies must develop strategies and recommendations for reducing the number of miles that each employee drives.
- State must install electrical outlets capable of charging electric vehicles in each of the state's fleet parking and maintenance facilities (Washington State Department of Ecology 2015).

### *Other Sectors – Washington State*

There has also been legislation passed addressing the construction sector. There have also been a number of initiatives directed toward local government planning (Washington State Department of Ecology 2015).

### Local Scale - Regional and subregional policymaking in Washington State

There has been significant City-level action on climate change, driven in part by the work of transnational municipal networks (e.g. [ICLEI - Local Governments for Sustainability](#)), as well as opportunities to save money through energy efficiency, create jobs and generate tax revenues through the development of green technologies, and improve resiliency and reduce vulnerability, especially to sea level rise and water shortages. Despite this action, city “reach is often limited by what they are actually able to control; emissions (from transport, for example) and adaptation (of water systems, for example) are often influenced by other federal, state, and local jurisdictions” (National Academies Press, 2010, p. 56).

Several cities have taken actions to inventory and reduce their greenhouse gas emissions. There are a number of jurisdictions who have developed Climate Action Plans, including the Cities of Seattle, Bellingham, Kirkland, Olympia, Port Townsend, to name a few. Other cities have included climate change as part of their Comprehensive Planning documents. In addition, several cities (frustrated by the lack of action at the federal level) have signed the Mayor's Climate Agreement. The City of Seattle is also a member of C40 cities, an organization of cities focused on tackling climate change and driving urban action that reduces greenhouse gas emissions and climate risks (Municipal Research and Services Center 2015).

Several counties have been active in working on climate change mitigation and adaptation, most notably King County. Through the King County-Cities Climate Collaboration, King County partners with eleven cities within the County to coordinate climate change response activities.

**U.S. Conference of Mayors Climate Protection Agreement:** Agreement to advance the goals of the Kyoto Protocol addressing climate change through leadership and action by American cities. Approximately 30 cities located near the Salish Sea have signed this agreement (Mayors Climate Protection Center 2015).

### *Indigenous Peoples – United States*

Native American tribes rely on natural resources for economic, subsistence and cultural purposes. Impacts to these systems from climate change therefore may have significant impact to local tribes.

Northwest tribal agencies have met to discuss not only the existing and predicted effects of climate change, but how to mitigate (lessen) the effects or adapt to them in ways that can help protect cultural lifeways (McNutt, n.d.)

Treaty tribes also have a management interest in the habitats required to sustain their treaty-reserved resources. As such, there has been some discussion of using treaties to protect the habitat of fish, shellfish, wild game and plants (McNutt, n.d.).

Some tribes are developing climate change impact assessment and adaptation plans. The Swinomish Tribe has released a Swinomish Climate Change Initiative Impact Assessment Technical Report and the Swinomish Climate Adaptation Action Plan, which contains proposed strategies to address risks associated with forest fires and to inundation of coastal resources. Strategies included improvements to forest management policies and practices and a variety of options for protecting costal structures or requiring development to occur farther away from the coast (Swinomish Indian Tribal Community 2015).

### *Government/Non-Government Collaborations – United States*

#### Federal Scale – United States

EPA is increasingly partnering with professional organizations and non-governmental actors, both in developing policies and in implementing programs. The following is a list of state and local organizations that EPA often works with (US EPA, 2015):

- The Climate Registry
- Local Governments for Sustainability (ICLEI)

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- Climate Solutions
- Center for Climate and Energy Solutions (C2ES, formerly the Pew Center on Global Climate Change)
- Georgetown Climate Center
- Air & Waste Management Association (A&WMA)
- Association of State and Territorial Solid Waste Management Officials (ASTSWMO)
- Environmental Council of the States (ECOS)
- International City/County Management Association (ICMA)
- Interstate Technology Regulatory Council (ITRC)
- Local Governmental Environmental Assistance Network (LGEAN)
- National Association of Attorneys General (NAAG)
- National Association of Clean Air Agencies (NACAA; formerly STAPPA and ALAPCO)
- National Association of Counties (NACO)
- National Conference of Black Mayors
- National Conference of State Legislatures (NCSL)
- National Governors Association (NGA)
- National League of Cities
- Solid Waste Association of North America (SWANA)
- United States Conference of Mayors

### Regional Scale – Western States

**Climate Solutions:** Northwest nonprofit organization spearheading a regional approach to global warming solutions (Climate Solutions 2015).

**Alliance for Jobs and Clean Energy:** Coalition of organizations and business focused on addressing climate change and clean energy (Alliance for Jobs and Clean Energy 2015).

### *Non-Governmental Organizations – United States*

There has been significant involvement of non-governmental organizations in climate change. These actors have been working to inform policymakers and the public on climate change issues, as well as

partner with other organizations in the implementation in response to climate change (National Academies Press, 2010). Some of the largest environmental organizations include:

- Conservation International
- Environmental Defense Fund
- Greenpeace USA
- National Audubon Society
- Natural Resources Defense Council
- The Nature Conservancy
- Sierra Club
- 350.org

Others with a specific focus on climate change include:

- The Climate Action Network
- World Mayors Council on Climate Change

### Canada – Climate Change

Climate change is also addressed by different regulations at different levels of government in Canada. The federal government has authority under the Canadian Environmental Protection Act to regulate certain greenhouse gasses. It also has jurisdiction to regulate international air pollution, as well as industries over which they have specific authority over, namely aviation and transportation (Beckplumb 2013). Provinces have jurisdiction to regulate most types of buildings, businesses, industries and intraprovincial transportation, and therefore they also have jurisdiction to control the greenhouse gas emissions related to these matters (Beckplumb 2013).

#### *Government Entities - Canada*

#### Federal Scale - Canada

At the federal level, regulatory action has generally been focused on sector-specific regulations.

#### *General Information - Canada*

**Canadian Environmental Protection Act:** Six greenhouses gases have been added to the list of Toxic Substances set out in Schedule 1 of the Canadian Environmental Protection Act, 1999 (Beckplumb 2013). This does not control the substance but allows the Government to proceed with regulations, pollution prevention plans or environmental emergency plans.

**Implemented by:** Environment Canada

**Kyoto Protocol Implementation Act:** Under this act, the federal government is required to take action to “ensure that Canada takes effective and timely action to meet its obligations” under the Protocol.

Note: The government has not taken steps to implement this law. Legal challenges have been made, but the Federal Court determined that the legislation is “not justiciable”. The Supreme Court of Canada refused to hear an appeal from this decision.

*Energy Sector - Canada*

At the federal law, Canada has adopted a number of regulations addressing greenhouse gas emissions from the transportation sectors, including the following:

**Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations:**

Regulations adopted under the Canadian Environmental Protection Act (CEPA), 1999 and apply a performance standard to new coal-fired electricity generation units, and units that have reached the end of their useful life (Government of Canada 2007).

**Implemented by:** Environment Canada

*Transportation Sector - Canada*

At the federal law, Canada has adopted a number of regulations addressing greenhouse gas emissions from the transportation sectors, including the following:

**Passenger Automobile and Light Truck Greenhouse Gas Regulations:** Limits emissions from cars and light trucks. (Note: designed to be coordinated with federal standards in United States) (Government of Canada 2007).

**Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations:** Regulations designed to Limits emissions from heavy duty vehicles (Government of Canada 2007).

**Renewable Fuels Regulations:** Regulations established to address renewable content in the fuel supply.

*Other Sectors - Canada*

The federal government is considering taking action to regulate hydrofluorocarbons (Government of Canada 2007).

Provincial Scale – British Columbia

*General Information – British Columbia*

**British Columbia Greenhouse Gas Reduction Targets Act:** Sets legislated targets for reducing greenhouse gases, including province-wide target of a 33% reduction in the 2007 level of greenhouse gas (GHG) emissions by 2020 and an 80% reduction by 2050. Provided authority for the Emission Offsets Regulation and the Carbon Neutral Government Regulation (Ministry of Environment 2015).

**British Columbia Climate Action Plan:** Outlines strategies and initiatives to take B.C. towards meeting the goal of reducing greenhouse gas emissions by 33 per cent by 2020 (Ministry of Environment 2015).

**British Columbia Greenhouse Gas Industrial Reporting and Control Act:** Focuses on reducing GHG emissions from certain industrial operations, while increasing opportunities in the bioenergy sector, with the following key provisions:

- Requires owners or operators of waste management facilities of certain classes to manage GHGs produced from waste handled in their facilities.
- Requires coal-fired electricity generation facilities will be required to capture and sequester GHG emissions from the combustion of coal
- Requires electricity generation facilities that use other fossil fuels to have “net zero” emissions
- Supports the growth of a wood bioenergy sector by encouraging the use of wood residue as a potential energy source (Ministry of Environment 2015)

**British Columbia Carbon Tax Act:** Imposed a tax on the purchase of fossil fuels (Ministry of Environment 2015).

**British Columbia Greenhouse Gas Reduction (Cap and Trade) Act:** Provides the statutory basis for setting up a market-based cap and trade framework to reduce greenhouse gas emissions from large emitters. Requires certain operations to report their GHG emissions (Ministry of Environment 2015).

*Energy Sector – British Columbia*

**British Columbia Clean Energy Act:** Act addressing clean energy and reducing greenhouse gases. Some key provisions include:

- The Province is to achieve electricity self-sufficiency by 2016
- Sets a clean and renewable energy target of 93%
- The Province is to become a net exporter of electricity from clean and renewable resources
- Certain major electricity projects are also exempted from BCUC regulation
- BC Hydro is to deliver comprehensive Integrated Resource Plans to Cabinet, every 5 years
- No clean energy projects are permitted in parks or conservancies
- Environmental cumulative impacts of clean energy projects are to be taken into consideration in the Environmental Assessment Act
- Smart meters are to be added by 2012
- Creates a First Nations Clean Energy Business Fund
- Mandates reductions of BC's greenhouse gases for prescribed periods to 2050 (Government of British Columbia 2015)

*Transportation Sector – British Columbia*

**Greenhouse Gas Reduction (Vehicle Emissions Standards) Act:** Allowed BC to establish greenhouse gas emission standards equivalent to those laid out in California's 2004 Low-Emission Vehicle II regulations (Ministry of Environment 2015).

**Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act:** Authorizes establishment of standards for the amount of renewable fuel that must be contained in British Columbia's transportation fuel blends, reduction to the carbon intensity of transportation fuels, and adoption of a new low carbon fuel standard (Ministry of Environment 2015).

*Government Sector – British Columbia*

**Utilities Commission Amendment Act:** Encourages public utilities to reduce greenhouse gas emissions, take demand-side measures and produce, generate and acquire electricity from clean or renewable sources. It provided authority for the Demand-Side Measures Regulation (enacted in November 2008), which sets out rules that the BC Utilities Commission must use when assessing proposed demand-side measures from utilities (Ministry of Environment 2015).

*Other Sectors – British Columbia*

**Greenhouse Gas Reduction (Emissions Standards) Statutes Amendment Act:** Focuses on reducing GHG emissions from certain industrial operations, while increasing opportunities in the bioenergy sector (Ministry of Environment 2015).

**British Columbia Local Government (Green Communities) Statutes Amendment Act:** Supports local governments in reducing greenhouse gas emissions, conserving energy and working towards creating more compact, green, and sustainable communities, with the following key provisions:

- Required local governments to include greenhouse gas emission targets, policies and actions in their Official Community Plans and Regional Growth Strategies. They will also be able to use development permits to promote energy and water conservation and the reduction of greenhouse gases, and encourage alternative transportation options for off-street parking.
- Exempted developers who are building small housing units (29 square meters or less) from paying Development Cost Charges. Local governments will have the ability to waive or reduce these charges for green development including small lot subdivisions and affordable rental housing.

Local Scale - Regional and subregional policymaking in British Columbia

**British Columbia Climate Action Charter:** Over 180 of 188 local governments within British Columbia have signed the Charter, which commits local governments to measure and report their GHG emissions, plan more energy efficient communities and work towards achieving carbon neutrality. Local governments are eligible for grants equal to their carbon tax bill. These grants fund efforts to reduce GHGs and achieve Charter goals (BC Climate Action Toolkit 2015).

A number of local governments are members of Local Governments for Sustainability (ICLEI), including Vancouver, Metro Vancouver, Campbell River, Cowichan Valley Regional District, Delta, and District of North Vancouver.

The City of Vancouver has recently completed a climate adaptation strategy (Vancouver 2015). The City is also a member of C40 cities, an organization of cities focused on tackling climate change and driving urban action that reduces greenhouse gas emissions and climate risks. The City is also represented on the World Mayors Council on Climate Change.

### *Indigenous Peoples - Canada*

First Nations in Canada have also identified and expressed concerns about potential climate change impacts. Climate change impacts of relevance to First Nations in BC include:

- Poor water quality;
- Increasing drought;
- Earlier peak streamflows;
- Increased flood damage to buildings, roads, bridges, rail lines;
- Increased air pollution and exposure to water- and food-borne pathogens;
- Increased risk to water quantity due to low water levels; and,
- Increased risk to water quality due coastal erosion and storm surges.
- Changing water temperatures; and
- Shifting marine ecosystems.

Climate change has also impacted First Nations' ability to harvest fish, both commercially and for subsistence purposes, due to significant changes in fish habitat, migratory patterns and spawning beds, and to changes in water quality and temperature.

Some First Nations are beginning to plan for climate change impacts. As an example, the Xat'süll First Nation in the Cariboo region has been working with the Fraser Basin Council to identify potential climate change impacts, vulnerabilities and opportunities for the community (Fraser Basin Council 2015).

### *Government/Non-Government Collaborations - Canada*

There are a number of educational and planning resources that have been developed in partnership between government and non-government actors, including:

**BC Climate Action Toolkit:** Web resource for latest news, best practices and practical advice to help communities reduce greenhouse gas emissions and implement Climate Action Charter commitments.

**BC Regional Adaptation Collaborative:** Program is coordinated by the Fraser Basin Council and the BC Ministry of Environment – Climate Action Secretariat, with funding from Natural Resources Canada and participation of many project partners (Fraser Basin Council - 2015).

#### *Non-Governmental Organizations - Canada*

There has been significant involvement of non-governmental organizations in climate change. Their actions have involved informing policymakers and the public on climate change issues, as well as partnering in the implementation in response to climate change (National Academies Press, 2010). Some organizations with a focus on climate change include:

- David Suzuki Foundation
- The Climate Action Network
- Greenpeace Canada
- The Nature Conservancy
- Sierra Club
- Pembina Institute
- KAIROS

Local organizations operating within British Columbia include:

- Better Environmentally Sound Transportation (BEST)

#### Transboundary Policymaking – Climate Change

##### *Federal Scale – United States and Canada*

**U.S.-Canada Clean Energy Dialogue:** Designed to enhance bilateral collaboration on the development of clean energy science and technologies to reduce greenhouse gases and combat climate change.

Implemented by: Several working groups comprised of government staff have been established to focus on issues, including:

- Carbon Capture and Storage
- Electricity Grid
- Clean Energy Research and Development and Energy Efficiency (Canada 2007)

**Copenhagen Accord:** Federal commitments were made from both Canada and United States to reduce economy-wide greenhouse gas emissions by 2020 under the accord. (Note: This is not a legally binding treaty) (Healy, VanNijnatten, and López-Vallejo 2014).

**North American Leaders' Declaration on Climate Change and Clean Energy:** Agreement between Canada, United States and Mexico stating commitment to work together on reduction emissions, developing low-carbon sources, developing comparable approaches, and other measures (Healy, VanNijnatten, and López-Vallejo 2014).

**Implemented by:** Commission for Environmental Cooperation

**United Nations Framework Convention on Climate Change:** Agreement to cooperatively work to stabilize greenhouse gas concentrations (United Nations Framework Convention on Climate Change 2015).

*State/Provincial Scale – Washington State and British Columbia*

#### Laws and Policies

**Pacific Coast Collaborative Agreement:** Agreement establishing the Pacific Coast Collaborative, which provides a framework for collaboration and coordination to review joint and individual actions on:

- Clean energy;
- Regional transportation;
- Innovation, research and development;
- Regional economy;
- Emergency management; and
- Other areas deemed appropriate for cooperative action (Pacific Coast Collaborative Agreement 2015).

**Pacific Coast Action Plan on Climate and Energy:** Pacific Coast Collaborative Plan directing agencies to work together to:

- Account for the costs of carbon pollution in each jurisdiction.
- Harmonize 2050 targets for greenhouse gas reductions and develop mid-term targets needed to support long-term reduction goals.
- Affirm the need to inform policy with findings from climate science
- Cooperate with national and sub-national governments around the world to press for an international agreement on climate change in 2015.
- Enlist support for research on ocean acidification and take action to combat it.
- Transition the West Coast to clean modes of transportation and reduce the large share of greenhouse gas emissions from this sector
- Invest in clean energy and climate-resilient infrastructure (Pacific Coast Collaborative 2015)

**Pacific Coast Collaborative Action Plan on Ocean Conservation and Coastal Climate Change**

**Adaptation:** Pacific Coast Collaborative Plan directing agencies to explore and engage in collaborations to:

- Prevent and clean-up of marine debris
- Address spread of invasive species
- Address risks from toxins /non-point source pollution
- Support sustainable fisheries management
- Action on Coastal Climate Change Adaptation
- Action on Ocean Research and Innovation (Pacific Coast Collaborative 2015)

**British Columbia - Washington State Joint Action Plan on Awareness and Outreach for Coastal Impacts of Climate Change**

**of Climate Change:** Agreement outlining commitment to shared communications and outreach addressing climate change (Washington State Department of Ecology 2015).

**British Columbia - Washington State Memorandum of Understanding on Coastal Climate Change**

**Adaptation:** Agreement for joint action on climate change adaptation and mitigation, including sharing data and research, collaborating on the development of scenarios for projected sea level changes; collaborating on the development of communication and outreach initiatives; and sharing of best practices on policy development, policy options and implementation of actions (Washington State Department of Ecology 2015).

**British Columbia - Washington State Memorandum of Understanding on Pacific Coast Collaboration to Protect Our Shared Climate and Ocean**

**Protect Our Shared Climate and Ocean:** Agreement to work together on climate change action, including capping greenhouse gas emissions; reducing greenhouse gases from the transportation sector; pursuing aggressive clean and renewable energy policies; combining efforts to improve air quality; coordinating efforts to encourage clean technologies; and monitoring and recording improvements. Agreement also addresses sharing information, partnerships, and a commitment to act on issues of mutual concern (Washington State Department of Ecology 2015).

**British Columbia - Washington State Joint Action Plan on Carbon Neutral Government**: Agreement for information exchange on policies and activities to achieve carbon neutrality (Washington State Department of Ecology 2015).

**Policy Actors**

**Pacific Coast Collaborative:** Provide mechanism to cooperatively focus on implementing bilateral and multilateral agreements amongst the Pacific coastal jurisdictions on climate change, regional ocean health and other areas of mutual interest. Members include Alaska, British Columbia, Washington, Oregon and California. PCC members have agreed to develop or maintain a price on carbon and to align carbon policies, where feasible, in areas that include: clean energy, emergency management, regional transportation, research and innovation, and sustainable regional economies (Pacific Coast Collaborative 2015).

**Western Climate Initiative:** Non-profit corporation formed to provide administrative and technical services to support the implementation of state and provincial greenhouse gas emissions trading programs. It is an initiative of western states and provinces in Canada to reduce regional GHGs and fight climate change by focusing on a market-based cap and trade system. British Columbia's Greenhouse Gas Reduction (Cap and Trade) Act enabled it to be the first Canadian province to join the WCI in April 2007 (Ministry of Environment 2015).

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## **CONTAMINATED SITES**

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### 3.3 CONTAMINATED SITES (IDENTIFICATION AND RESTORATION)

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A contaminated site (also sometimes referred to as a brownfield site) is generally defined as a property that has soil, groundwater, or surface water containing contaminants at levels that exceed those considered safe by regulators. The distinction is often made between known contaminated sites, which have undergone testing, and potentially contaminated sites, which are suspected of being contaminated because of their previous land-use (i.e. waste disposal, manufacturing, military, petroleum-based activities, etc.). Contamination is most often a result of past activities with environmental consequences that were not well understood at the time. These sites can pose harmful effects to human health and environment, and thus have become a priority for cleanup activities.

#### United States – Contaminated Sites

Identification and cleanup of contaminated sites is addressed at different layers of government, including the federal, state, and local levels. The United States policy framework is based upon a polluter pay principle, as liability for contamination is placed on potentially responsible parties who 1) either currently own or operate out of a site; 2) owned or operated a site at the time of hazardous material disposal; 3) arranged for the disposal or treatment of a hazardous material; or 4) chose a disposal site and transported hazardous material there. Liability may be shared between different parties, based on equitable factors.

##### *Government Entities – United States*

##### Federal Scale – United States

**Comprehensive Environmental Response, Compensation, and Liability Act (Superfund):** Established process, standards, and funding mechanism for cleanup of uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Site identification, monitoring, and response activities in states are coordinated through the state environmental protection or waste management agencies.

CERCLA:

- Established prohibitions and requirements concerning closed and abandoned hazardous waste sites;
- Provided for liability of persons responsible for releases of hazardous waste at these sites; and
- Established a trust fund to provide for cleanup when no responsible party could be identified.

The law authorizes two kinds of response actions:

- Short-term removals, where actions may be taken to address releases or threatened releases requiring prompt response.
- Long-term remedial response actions, that permanently and significantly reduce the dangers associated with releases or threats of releases of hazardous substances that are serious, but not

immediately life threatening. These actions can be conducted only at sites listed on EPA's National Priorities List (US EPA, OA. 2015).

**Implemented by:** United States Environmental Protection Agency

**Resource Conservation and Recovery Act:** Governs the management of solid and hazardous waste and underground storage tanks (USTs) to ensure that wastes are managed in an environmentally safe manner.

**Implemented by:** United States Environmental Protection Agency

### State Scale – Washington State

**Model Toxics Control Act:** Creates a comprehensive regulatory scheme to identify, investigate, and clean up contaminated properties that are, or may be, a threat to human health or the environment, including those along Salish Sea.

Provides three options for establishing cleanup levels (Washington State Department of Ecology. 2007):

- Method A: Designed for cleanups that are relatively straight-forward or involve only a few hazardous substances. Contains numerical standards to determine when cleanup is needed and satisfactorily completed.
- Method B: Can be used at any site and uses risk-based standards to determine when cleanup is needed and satisfactorily completed.
- Method C: Usually used at industrial sites, and uses slightly different risk-based standards to determine when cleanup is needed and satisfactorily completed.

The cleanup action selected must either remove or destroy the contamination, restoring the site to cleanup levels, or contain the contamination in such a way that will minimize future exposure of humans and ecological receptors (plants and animals).

Cleanup action alternatives that provide for the containment of soils must be demonstrated to be protective of human health and the environment through either quantitative or qualitative risk assessments (Washington State Department of Ecology. 2007).

To select the most practicable permanent solution from among those cleanup action alternatives that are protective of human health and the environment requires conducting a disproportionate cost analysis (Washington State Department of Ecology 2007). This analysis involves comparing the costs and benefits of alternatives and selecting the alternative whose incremental costs are not disproportionate to the incremental benefits. The comparison of benefits and costs may be quantitative, but will often be qualitative and require the use of best professional judgment.

This Act was passed by citizens in an Initiative process. Cleanup of contaminated sites is funded through a tax on the wholesale value of hazardous substances. Property owners may also participate in a Voluntary Cleanup Program. Within Washington, this Act extends cleanup efforts to include cleanup of petroleum products, such as leaking underground storage tanks at gas stations. Sites identified for cleanup are identified [here](#).

**Implemented by:** Washington State Department of Ecology

**Puget Sound Initiative:** Dedicated funding to support cleanup of sites containing toxic contaminants within 200 feet of shoreline (Washington State Department of Ecology 2015).

**Implemented by:** Washington State Department of Ecology.

**Action Agenda for Puget Sound:** The Action Agenda identifies the impacts of contamination along the Puget Sound shoreline and of sediments, all of which impact marine water quality. Several action agenda items either directly or indirectly address cleanup of contaminated sites (Puget Sound Partnership 2014).

**Implemented by:** Puget Sound Partnership

#### Local Scale - Regional and subregional policymaking in Washington State

Identification and cleanup of contaminated sites occurs within local communities. The Model Toxics Control Act recently authorized local governments to establish redevelopment opportunity zones where additional tools and resources, such as a revolving loan fund, will be available (Municipal Research and Services Center 2015).

Many local governments are proactively supporting, planning for and promoting brownfield redevelopment by undertaking one or more of the following activities:

- Processing development applications for brownfield sites and proactively planning for the redevelopment of large brownfield sites and areas;
- Providing brownfield redevelopment information and resource links;
- Facilitating and coordinating private and public brownfield redevelopment projects;
- Providing financial incentives to the private sector for brownfield redevelopment;
- Partnering with the private sector to undertake public-private brownfield redevelopment projects;
- Proactively remediating and preparing brownfield sites owned by local government for redevelopment; and
- Marketing publicly and privately held brownfield sites

#### *Indigenous Peoples – United States*

##### *Cleanup on Tribal Lands*

Under CERCLA, EPA interacts with Tribal governments in substantially the same treatment as states for many response-related purposes, including: notification of releases, consultation on remedial action, and access to information (US EPA, OSWER. 2015b).

CERCLA section 104 allows EPA to enter into cooperative agreements with eligible tribes to perform or participate in Superfund-eligible site response activities. (EPA retains final oversight authority.).

### *Cleanup at Federal Facilities*

In the United States, tribal governments have distinct roles in cleanups of federal facilities under treaties with the U.S. government. EPA must work with tribes on a government-to-government basis consistent with its trust responsibility to protect tribal health and environments.

At the individual facility level where contamination has been identified, Tribes must be consulted on cleanup efforts. In addition to EPA's government-to-government relationship with federally recognized tribes, EPA also coordinates with several advisory boards. Types of advisory boards, include:

- Restoration Advisory Boards (RABs): Provide a forum through which community members can provide input to Department of Defense's Restoration program. RABs operate at functional, closing, or realigning installations, and Formerly Used Defense Sites where there is a sufficient and sustained community interest.
- Site-Specific Advisory Boards: Involve stakeholders more directly in DOE cleanup decisions.
- Superfund Community Advisory Groups: Serve as the focal point for the exchange of information among stakeholders involved in the cleanup of a Superfund site (US EPA. 2015).

### *Cleanup at Other Sites*

Under the provisions of MTCA, potentially affected tribal governments are provided notice of proposed cleanup actions and are provided an opportunity to comment (Washington State Department of Ecology. 2007).

### *Government/Non-Government Collaboration – United States*

**Partners in Technical Assistance Program:** Program designed to foster cooperation between EPA and colleges and universities, with the shared goal of assessing and addressing the unmet technical assistance needs of impacted communities near Superfund sites (US EPA, OSWER. 2015c).

**EPA Brownfield Program:** Provides grants and technical assistance to communities, states, tribes, and other stakeholders, giving them the resources to prevent, assess, safely clean up, and sustainably reuse brownfields (US EPA, OSWER. 2015a).

### *Non-Governmental Organizations – United States*

Many other parties play a role in the management of contaminated sites in the United States. Examples include land owners and developers, approved professionals and environmental consultants, lawyers, and scientific experts.

In the United States, members of the public have a role in commenting on the development of regulations and standards addressing cleanup and on the selection of potential remedial actions at individual sites. EPA works to provide technical assistance in communities to help residents better understand technical issues related to a cleanup and key considerations for a site's future use. EPA also

awards technical assistance grants to non-profit incorporated community groups (US EPA, OSWER. 2015e).

At federal facility cleanups, a **Superfund Community Advisory Group** may be established to assist communities in this role. A Superfund Community Advisory Group is made up of members of the community and is designed to serve as the focal point for the exchange of information among the local community and EPA, the State regulatory agency, and other pertinent Federal agencies involved in cleanup of the Superfund site.

Washington State's Model Toxics Control Act provides notice and opportunity for public comments, and authorizes public participation grants to affected persons or non-profit organizations to encourage public involvement in investigation and cleanup of contaminated sites (Washington State Department of Ecology 2015b).

### Canada – Contaminated Sites

Most cleanup is addressed at the provincial level, though the federal government is responsible for the management and cleanup of federal contaminated sites (Beckplumb 2013). These sites are located either on federal land or on First Nations reserves, or their contamination has been caused by federal government operations.

In Canada, the federal government promotes 'the polluter pays' principle: the party responsible for producing pollution should be responsible for paying for damage to the natural environment. Private companies are usually responsible for the costs of cleaning up (or "remediating") the land they contaminate. The provinces, territories and federal government are generally responsible for the cost of dealing with contamination at the sites they own or lease (Beckplumb 2013).

#### *Government Entities - Canada*

#### Federal Scale - Canada

**Federal Contaminated Sites Action Plan:** Plan for cleanup of contaminated sites located on federal lands, which would include land owned or leased by the federal government, or on land where the federal government has accepted responsibility for the contamination (Government of Canada 2012).

There are over 21,000 federal sites listed in the Federal Contaminated Sites Inventory. Currently, policy direction for the management of these contaminated sites is contained in the Treasury Board Policy on the Management of Real Property.

**Implemented by:** Environment Canada and Treasury Board of Canada

**Canada-wide Standard for Petroleum Hydrocarbons (PHC CWS) in Soil:** Remediation standard that sets out the levels to which PHC impacted sites must be cleaned up to – if and when they are subject to remediation. The PHC CWS sets out generic target levels, as well as a process for generating site-specific numbers based on risk that are protective of human and ecological health. British Columbia (BC) has not yet adopted the CCME PHC CWS soil quality guidelines for direct use under the Contaminated Sites Regulation (Canadian Council of Ministers of the Environment 2014).

**Implemented by:** Canadian Council of Ministers of the Environment, but must be adopted at the provincial level

### Provincial Scale – British Columbia

**British Columbia Environmental Management Act:** The Environmental Management Act is the main law governing contaminated sites in the province. This Act lays out standards for site identification, assessment, and cleanup (“remediation”) (Ministry of Environment 2009).

**Implemented by:** Ministry of the Environment

**Crown Contaminated Sites Program:** Responsible for cleanup of contaminated sites on Crown Lands.

**Implemented by:** The Crown Land Restoration Branch manages high-risk contaminated sites on provincial lands by:

- Providing site management policies
- Maintaining records of Crown Land contaminated sites
- Facilitating progress reporting

**Contaminated Sites Regulation:** Establishes thresholds for cleanup of contaminated sites in different media, including soil, water, sediment, etc. The Regulation provides numerical and risk-based standards to determine when cleanup is needed and satisfactorily completed (Ministry of Environment 2009).

The legislation and regulations provide a framework for two general types of remediation.

Contamination may be:

- Removed so that it no longer remains at a site – where the numerical standards for soil, water, and sediment apply, or
- Contained and managed onsite – where the risk-based standards apply.

**Implemented by:** Ministry of the Environment

### Local Scale - Regional and subregional policymaking in British Columbia

Identification and cleanup of contaminated sites occurs within local communities. In particular, local municipalities are involved in the screening process for identifying contaminated sites. In this screening process, site profiles are used to help identify contaminated sites. A site profile is usually necessary when a local government receives an application for subdivision, zoning, development, demolition of a structure or soil removal (at specific types of former commercial or industrial operations), or when a Director of Waste Management orders one. Usually they are assessed by a municipal official to determine if a site should be investigated further (Ministry of Environment 2013).

In addition, the *Community Charter* provides all local governments with the ability to offer revitalization tax exemptions to facilitate the redevelopment of brownfield sites.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: CONTAMINATED SITES

Increasingly, local governments in Canada are proactively supporting, planning for and promoting brownfield redevelopment by undertaking one or more of the following activities:

- Processing development applications for brownfield sites and proactively planning for the redevelopment of large brownfield sites and areas;
- Providing brownfield redevelopment information and resource links;
- Facilitating and coordinating private and public brownfield redevelopment projects;
- Providing financial incentives to the private sector for brownfield redevelopment;
- Partnering with the private sector to undertake public-private brownfield redevelopment projects;
- Proactively remediating and preparing brownfield sites owned by local government for redevelopment; and
- Marketing publicly and privately held brownfield sites

### *Indigenous Peoples - Canada*

The federal government is responsible for all regulation of environmental protection on First Nations reserves that are managed under the Indian Act.

The **Indigenous and Northern Affairs Canada** provides financial assistance to assess and clean up environmentally contaminated sites on reserve lands and other lands.

The Indigenous and Northern Affairs Canada manages the cleanup of contaminated sites by following the Treasury Board Federal Contaminated Sites Management Policy, and by applying the Contaminated Sites Management Working Group's (CSMWG) "Federal Approach to Contaminated Sites" and its recommended guidelines and standards - including those from the Canadian Council of Ministers of the Environment (CCME) and the Canadian Standards Association (Government of Canada; Aboriginal Affairs and Northern Development Canada; Communications Branch 2008). These guidelines provide the following criteria in determining the priority for managing contaminated sites:

- Human health and safety;
- Legal and claims obligations;
- Significant impacts on the environment; and
- Concerns of First Nations, Inuit, northerners and other stakeholders.

Note: There is no equivalent federal legislation to the Environmental Management Act.

*Government/Non-Government Collaboration - Canada*

There are professional organizations like the **Society of Contaminated Sites Approved Professionals of British Columbia** (CSAP) that provides professional development and performance assessment. CSAP Society works in collaboration with government, industry associations and to other organizations to improve land and water quality (Society of Contaminated Sites Approved Professionals of British Columbia 2015).

*Non-Governmental Organizations - Canada*

Like the United States, many other parties play a role in the management of contaminated. Examples include land owners and developers, approved professionals and environmental consultants, lawyers, and scientific experts.

In addition, members of the public have a role in commenting on the development of regulations and standards addressing cleanup.

### Transboundary Policymaking – Contaminated Sites

Transboundary dialogue appears to be happening between professionals working in the field of remediation. As an example, the Ministry of the Environment held a capacity building session that featured Washington state panelists and had a session on cleanup policies in Cascadia (Ministry of Environment 2013).

In addition, the **International Committee on Contaminated Land** is a network of contaminated land policy makers, regulators and technical advisors from Environment authorities dealing with contaminated land management (International Committee on Contaminated Land 2015). **Pacific Northwest Chapter of the Society of Environmental Toxicology and Chemistry** in a regional non-profit organization of professional scientists and researchers focused on environmental toxicology (Pacific Northwest Chapter of the Society of Environmental Toxicology and Chemistry 2015).

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**DEVELOPMENT PERMITTING  
&  
LAND USE PLANNING**

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### 3.4 DEVELOPMENT PERMITTING AND LAND USE PLANNING (PRIVATE LANDS)

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Land development associated with population growth and development presents a significant and adverse upland pressure on the Salish Sea (Puget Sound Partnership 2015). Development has reduced and divided habitat areas, and the resulting ecosystem processes that support these habitats have been degraded and disrupted. As noted in the Puget Sound Partnership's *Action Agenda for Puget Sound*, "Essential to our ability to protect the resources that remain will be encouraging density in urban areas, protecting rural working lands, and avoiding sprawl." (p. 3A-3). There are a number of tools that organizations within the region employ to minimize and mitigate impacts from development activities, including: regulatory programs, acquisition programs, partial acquisition of development rights or conservation easements, and conservation leasing. The following outlines the existing governance framework addressing development and land use planning, predominately of privately held lands. Publicly held lands will be addressed in other sections.

#### United States – Development Permitting and Land Use Planning

In the United States, private property rights are protected by federal and state constitutions. The use of land is subject to reasonable government restrictions that accomplish a legitimate governmental purpose and that permit some economically viable use of the land (Local Land Use Law Center 2007). The general power to regulate land use to protect the public interest is retained by state governments. State legislatures delegate to municipal governments the power to regulate the use of land. Municipalities adopt comprehensive plans that lay the foundation for the adoption of local land use. Municipalities also adopt traditional land use laws such as zoning ordinances and standards that regulate land subdivision and site plan development.

However, with respect to shorelines, riparian areas and wetlands, management decisions are more of a shared responsibility between multiple agencies and levels of government that all have authority to manage activities within these areas (Local Land Use Law Center 2007). For example, a pier to be constructed along a local shoreline would be subject to local shoreline management and zoning regulations (Governor's Office for Regulatory Innovation and Assistance 2015). It would require environmental review under the State Environmental Policy Act, as well as review by the Corps of Engineers. The Corps ensures integrity of national waters under Section 404 of the Clean Water Act. The Corps also maintains and protects navigation of those waters under Section 10 of the Rivers and Harbors Act. The Corps consults with other agencies for compliance with Water Quality and Coastal Zone Management, Endangered Species Act, Tribal Trust Issues, National Historic Preservation Act, and the National Environmental Policy Act. Ecology 401 Water Quality and Coastal Zone Management Certifications may be required depending on what permits are issued by the Corps and the project location. Washington State Department of Fish and Wildlife review and approval is needed for all structures proposed and activities conducted in the water. As a result, WDFW reviews applications to ensure the protection of fish and shellfish and their habitats.

As a consequence, the coastal ecosystem is regulated by a plethora of agencies from numerous governments.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

*Government Entities – United States*

Federal Scale – United States

*Land Use Planning and Growth Management – United States*

As noted, most of the power to regulate land use is retained by state governments, who then enable local jurisdictions. There are several federal acts that do affect local decision-making.

*Coastal Planning – United States*

**United States Coastal Zone Management Act:** Congress established land use policies for land development in coastal areas under the Coastal Zone Management Act (National Oceanic and Atmospheric Administration 2015). It provides planning grants to states which in turn grant funds to localities to adopt coastal development plans and adopt regulations that comply with the federal and state coastal protection principles.

A Coastal Zone Management consistency certification is required within Washington's 15 coastal counties (some of which are located in Salish Sea) for projects with a federal nexus, i.e., involving federal funding, federal licenses, permits or approvals, use of federal lands, or a federal program. A federal agency cannot approve or fund any activity unless Ecology concurs that the project is consistent with the state's federally approved CZM program. Under Washington's CZM Program, activities affecting any land use, water use, or natural resource of the coastal zone must comply with six laws, called "enforceable policies," four of which typically apply to transportation projects: SEPA, the state Shoreline Management Act, federal and state clean water acts, and federal and state clean air acts. The federal consistency process allows the public, local governments, tribes, and state agencies an opportunity to influence federal actions likely to affect Washington's coastal resources or uses (Washington State Department of Transportation 2013).

**Implemented by:** U. S. National Oceanic and Atmospheric Administration

**Puget Sound Salmon Recovery Plan:** Contains strategies and actions associated with marine and freshwater habitat protection and restoration, hatchery management, and harvest management.

**Implemented by:** U. S. National Oceanic and Atmospheric Administration (approval) and Puget Sound Partnership

**Action Agenda for Puget Sound:** The Action Agenda addresses land development and contains a number of strategies addressing land management and planning (Puget Sound Partnership 2014). Serves as the Comprehensive Conservation and Management Plan, required by the U.S. Environmental Protection Agency for estuaries of national significance, which have been designated under the Clean Water Act.

**Implemented by:** U. S. National Oceanic and Atmospheric Administration (approval) and Puget Sound Partnership

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

### *Stormwater Planning*

**United States Clean Water Act:** Under the Phase II Stormwater regulations issued by the federal Environmental Protection Agency, EPA promulgated regulations establishing its Stormwater Management Program, which regulate municipalities that operate storm sewer systems. These federal regulations require affected municipalities to implement a stormwater management program as a means to control polluted discharges from their stormwater systems: a form of point source regulation. To ensure that these municipalities meet federal clean water standards, EPA set forth six minimum control measures that municipalities must meet, including programs to address stormwater runoff from construction sites and post-construction land uses. These regulations effectively direct municipalities to adopt procedures and regulations that affect private sector construction and development and that mitigate nonpoint source pollution (US EPA 2015).

**Implemented by:** U. S. Environmental Protection Agency, Washington State Department of Transportation, and local municipalities

### *In-Water Work Permitting – United States*

**United States Clean Water Act:** Under Section 404 of the Clean Water Act, the United States Army Corp of Engineers is responsible for regulating the discharge of dredged or fill material into waters of the United States. This section of the CWA is used to enable the Corp to review the construction of docks, piers, floats, lifts, and buoys (Governor's Office for Regulatory Innovation and Assistance 2015).

**Implemented by:** U. S. States Army Corp of Engineers

**United States Rivers and Harbors Act:** Addresses the construction of structures over or in navigable waterways of the U.S., including bridges, dams, dikes or causeways, wharfs, piers, jetties, and other structures (Governor's Office for Regulatory Innovation and Assistance 2015).

**Implemented by:** U. S. States Army Corp of Engineers

**Marine Mammal Protection Act/Magnuson Amendment:** Limits authority of federal government to issue, renew, grant, or otherwise approve any permit, license, or other authority for constructing, renovating, modifying, or otherwise altering a terminal, dock, or other facility in, on, or immediately adjacent to, or affecting the navigable waters of Puget Sound, or any other navigable waters in the State of Washington east of Port Angeles, which will or may result in any increase in the volume of crude oil capable of being handled at any such facility (measured as of October 18, 1977), other than oil to be refined for consumption in the State of Washington ("BP Cherry Dock Draft EIS: Magnuson Amendment Discussion" 2014).

**Implemented by:** U. S. States Army Corp of Engineers

### *Environmental Assessment – United States*

**National Environmental Policy Act:** Establishes the broad national framework for protecting the environment by assuring that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment. Provides a way to identify possible environmental impacts that may result from federal activities. NEPA review process helps agency decision-makers and the public understand how a proposal will affect the environment.

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This information can be used to change a proposal to reduce likely impacts, or to condition or deny a proposal when adverse environmental impacts are identified.

One agency is identified as the "lead agency", and is responsible for conducting the environmental review. The lead agency is the primary agency responsible for carrying out or approving a project (US EPA 2015).

Federal agencies are responsible for creating and implementing agency-specific regulations that guide the NEPA process. Federal agencies are aided in implementing NEPA by the Council on Environmental Quality, a small agency in the Executive Office of the President, which issues regulations to aid federal agencies in implementing NEPA.

Environmental Assessments (EAs) and Environmental Impact Statements (EISs), which are assessments of the likelihood of impacts from alternative courses of action, are required from all Federal agencies, unless the activity is exempt, otherwise known as a "threshold determination" (US EPA 2015).

Federal actions can be roughly divided into three groups for NEPA purposes. At one extreme are actions that normally have a significant effect on the environment. If an agency determines that a proposal for action falls into this category, the agency proceeds directly to the EIS. Agencies typically include lists of such actions in their guidelines or regulations implementing NEPA.

At the other extreme are actions that the agency has determined are not likely to have a significant impact on the environment. The CEQ regulations permit agencies to designate such actions as categorical exclusions. Agencies must publish their lists of categorical exclusions (usually in the Code of Federal Regulations or the Federal Register), making the actions exempt from the NEPA process.

Between the two extremes of significance and non-significance lies a gray area in which threshold determinations are made on a case-by-case basis. The CEQ regulations require agencies to prepare Environmental Assessments (EAs) to aid decision-makers in determining whether the threshold of significance has been passed by a proposed action.

**Implemented by:** Various agencies

*Flood Protection – United States*

**National Flood Insurance Act:** Act creating the National Flood Insurance Program, which

- Provides flood insurance for structures and contents in communities that adopt and enforce an ordinance outlining minimal floodplain management standards.
- Identifies areas of high and low flood hazard and establish flood insurance rates for structures inside each flood hazard area

As a result of the Act, any community participating in the Program must adopt a floodplain management ordinance that meets or exceeds the minimum NFIP requirements (Municipal Research and Services Center 2015). The overriding purpose of the floodplain management regulations is to ensure that participating communities take into account flood hazards, to the extent that they are known, in all official actions relating to land management and use.

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Note: In response to a lawsuit filed by the National Wildlife Federation against FEMA, there are several changes being made to flood management. The National Wildlife Federation successfully argued that the National Flood Insurance Program is contributing to the extinction of salmon and orca in Puget Sound and therefore in violation of the Endangered Species Act (National Wildlife Federation 2015). This suit resulted in required changes to the National Flood Insurance program, including the following:

- Improving the accuracy of floodplain maps. This includes incorporating future conditions such as climate change in floodplain delineations.
- Incorporating salmon habitat protections into eligibility requirements to qualify for flood insurance.
- Creating incentives for habitat protection through the Community Rating System (CRS).
- Improving the habitat value of levees.
- Monitoring floodplain development more closely and mitigating any harm to salmon habitat allowed by the flood insurance program.

**Implemented by:** United States Federal Emergency Management Agency and Washington State Department of Ecology

### State Scale – Washington State

#### *Land Use Planning and Growth Management – Washington State*

Planning and zoning enabling laws specifically authorized municipal governments to control the use of the land by adopting land use plans and creating zoning districts (Local Land Use Law Center 2007). In most states, zoning regulations must conform to the locality's land use plan. In each zoning district, various building construction rules are established. These limit, for example, the heights and sizes of buildings and the amount of the building lot that can be built upon. Within each zoning district, each parcel of land is assigned at least one as-of-right land use, while permitting accessory uses typically associated with those principal uses. Variances of the standards may be awarded when landowners can prove that the zoning standards impose unnecessary hardships. Uses that do not conform to newly adopted zoning regulations may continue but may not be expanded or enlarged. State enabling laws also authorized localities to create administrative and quasi-judicial agencies to review and adjudicate proposals for land development and petitions for relief from zoning regulations. Planning boards or commissions were established in most communities to review and approve individual development proposals (Local Land Use Law Center 2007). Zoning boards of appeal were created to hear applications to reverse adverse determinations of zoning enforcement officials or for relief from the strict application of zoning standards where they create unnecessary hardships regarding unique parcels of land. These agencies are required to hold public hearings on most proposals and petitions, to provide notice to affected parties of the hearings, to hold meetings open to the public, and to ensure that their voting members have no conflicts of interests that prevent their decisions from being objective.

There is one particular issue about ownership of tidelands that should be mentioned. When the Washington state constitution was adopted, the state asserted ownership of the beds and shores of navigable waters up to and including the line of ordinary high water (mean high water.) Therefore, all tidelands were publicly owned (Washington State Department of Ecology 2015). However,

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Washington's state constitution contained no provision allowing upland property owners any rights of access to saltwater for transportation, fish and shellfish, propagation, and other water-oriented industry. To address this situation and provide revenue for the state, in the late 1800s the legislature authorized the sale of public tidelands to private individuals. Sale of tidelands continued until 1971. Therefore, many tidelands are in private ownership. These can still be regulated under federal, state and local laws.

**Washington State Planning Enabling Act:** Authorizes counties to establish planning and zoning regulations (Local Land Use Law Center 2007).

***Implemented by:*** Washington State Counties

**Washington State Planning Commission Act:** Authorizes cities and towns to establish planning and zoning regulations (Local Land Use Law Center 2007).

***Implemented by:*** Washington State Cities

**Washington State Growth Management Act:** Requires the fastest growing counties and the cities within them to develop and adopt Comprehensive Plans and complimentary zoning codes and other development regulations that guide and manage growth (Local Land Use Law Center 2007). There are several key provisions of the GMA that affect development, including:

- Growth boundaries. Cities are required to adopt Urban Growth Boundaries to contain urban development over a 20-year planning horizon. Urban Growth Areas (UGAs) designate the areas into which urban growth will be directed.
- Regional planning coordination. The GMA emphasizes a “bottoms up” approach to planning, in which counties and cities use state guidelines to shape their own comprehensive plans to manage growth. Establishes requirements for the development of county-wide planning policies to ensure consistency between county and city comprehensive plans.

The act presumes that local plans and regulations are valid upon adoption (an exception is the transportation chapter of the comprehensive plan, which is certified by a regional transportation planning organization). However, the state, other local governments, and certain individuals can petition one of the growth management hearing boards if they think a local action does not meet growth management requirements.

***Implemented by:*** Washington State Department of Commerce, regional planning authorities, and local jurisdictions

**Landscape Conservation and Local Infrastructure Program:** Allows cities to gain access to financing from increases in property values for revitalizing and redeveloping areas that accept transfer of development rights credits.

***Implemented by:*** Washington State Department of Commerce, regional planning authorities, and local jurisdictions

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### *Coastal Planning – Washington State*

**Washington State Shoreline Management Act:** Manage and protect the shorelines of the state by regulating development in the shoreline area. A major goal of the Act is "to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." (State of Washington Department of Ecology-SEA Program 2015)

This State legislation regulates development near "shorelines of the state" including marine waters, certain streams and lakes, uplands within 200 feet of said waters, and some associated wetlands, deltas and floodplains. The act is concerned with three main subjects: shoreline use (what types of uses are appropriate for a shoreline, based on its characteristics), environmental protection (mitigation of impacts allowed uses might have) and public access (provision of access to publicly owned areas). Jurisdictions must create a Shoreline Master Plan (SMP) that acts as a comprehensive plan for shoreline areas, defining what uses may be located in different shoreline zones, based on local conditions and circumstances. The local SMP is essentially a shoreline-specific combined comprehensive plan, zoning ordinance, and development permit system. It is also required to have a restoration plan.

The SMA establishes a balance of authority and partnership between local and state government. Towns, cities, and counties are the primary regulators. The state Department of Ecology acts primarily in a support and review capacity. Ecology provides technical assistance to local governments. Ecology also provides funding in the form of grants. Finally, Ecology is also required to review certain kinds of permits (conditional use and variance permits) for compliance with the law, and must review local shoreline master programs to ensure they also comply.

**Implemented by:** Washington State Department of Ecology and local jurisdictions

### *Stormwater Planning – Washington State*

The state of Washington, Department of Ecology, Water Quality Program, is delegated by the U.S. EPA as the state water pollution control agency, responsible for implementing all federal and state water pollution control laws and regulations. As the pollution control agency, the Department of Ecology issues NPDES permits. There are two types of NPDES permits: general (which address a class of activities and establishes a standard set of permit requirements) and individual (which are permits tailored to a specific discharge at a specific location).

Washington State issues general permits for the following point source discharges for Stormwater, which includes construction activities, municipal stormwater, industrial stormwater, sand and gravel operations, and Washington State Department of Transportation stormwater.

Other discharges would require individual permits (Washington State Department of Ecology 2015).

**Implemented by:** Washington State Department of Ecology and local jurisdictions

### *In-Water Work Permitting – Washington State*

**Washington State Hydraulic Code:** Primary fish and shellfish habitat protection law in Washington State. Under this statute, all projects that involve in-water development, which includes any work that would use, divert, obstruct or change the natural flow or bed of any river or stream or utilize any waters

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of the state require a Hydraulic Project Approval – commonly called an HPA (Washington Department of Fish & Wildlife 2015).

Agency rules to administer, interpret, or clarify the Hydraulic Code are found in WAC chapter 220-110. These rules specify the department requirement to provide protection for all fish life and habitats through the development of a statewide system of consistent and predictable rules and establish a baseline requirement which directs no-net-loss of productive capacity of fish and shellfish habitat in order for a project to be approved. Per statute "No-net-loss" is defined as:

- Avoidance or mitigation of adverse impacts to fish life; or
- Avoidance or mitigation of net loss of habitat functions necessary to sustain fish life; or
- Avoidance or mitigation of loss of area by habitat type.

WACs also define the criteria and technical provisions to be used by the department for project review and for conditioning of HPAs to ensure the no-net loss requirements of the law.

***Implemented by:*** Washington Department of Fish and Wildlife

**Washington State Aquatic Lands:** Act to protect and manage the use of state-owned aquatic lands. Establishes leasing program for activities taking place on state-owned aquatic lands. Also establishes requirement for license for short-term activities on state-owned aquatic lands (Washington State Department of Natural Resources 2015).

***Implemented by:*** Washington Department of Natural Resources

*Environmental Assessment – Washington State*

**Washington State Environmental Policy Act:** Provides a way to identify possible environmental impacts of projects or policies permitted by governmental decisions. These decisions may be related to issuing permits for private projects, constructing public facilities, or adopting regulations, policies or plans. Information provided during the SEPA review process helps agency decision-makers, applicants, and the public understand how a proposal will affect the environment. This information can be used to change a proposal to reduce likely impacts, or to condition or deny a proposal when adverse environmental impacts are identified (Washington State Department of Ecology 2015). The process requires agencies to describe potential impacts on elements of the environment including earth, air, water, plants, animals, energy, environmental health, land use, transportation, public services, and utilities. SEPA gives agencies authority to condition a proposal via permit conditions if specific adverse environmental impacts are identified.

Environmental review is required for any proposal which involves a government "action," as defined in the SEPA Rules (WAC 197-11-704), and is not categorically exempt (WAC 197-11-800 through 890). Project actions involve an agency decision on a specific project, such as a construction project or timber harvest. Non-project actions involve decisions on policies, plans, or programs, such as the adoption of a comprehensive plan or development regulations, or a transportation plan. Certain proposals are exempt because they are of the size or type to be unlikely to cause a significant adverse environmental impact. Examples include minor new construction, such as, four dwelling units or less, commercial buildings with 4,000 square feet or less, and minor road and street improvements (Washington State

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Department of Ecology 2015). Other exemptions include enforcement and inspection activities, issuing business licenses, storm/water/sewer lines eight inches or less, etc. Some proposals are exempt by statute, regardless of environmental impact.

One agency is identified as the "lead agency" under the SEPA Rules WAC 197-11-924 to 938, and is responsible for conducting the environmental review for a proposal and documenting that review in the appropriate SEPA documents (DNS, DS/EIS, adoption, addendum) (Washington State Department of Ecology 2015). For government sponsored actions, the agency proposing the project is lead agency under the SEPA Rules, although lead agency status may be transferred by agency agreement. If a project requires local approval from a city or county, the city or county will usually be lead agency for the project. Two or more agencies may share lead agency status by agreement, but a single environmental analysis would be conducted and all SEPA documentation is issued jointly.

Some projects may require approval from both federal agencies and state or local agencies, thus requiring compliance with both NEPA and SEPA (Washington State Department of Ecology 2015). For example, a major dredging operation might need approvals from the U.S. Corps of Engineers, Washington Department of Ecology, and from the county or city. Since both federal and state/local licenses are required, compliance with both NEPA and SEPA would be needed.

Agencies are encouraged to issue combined documents that meet the requirements of both NEPA and SEPA. For example, when an EIS is needed for a proposal, the NEPA and SEPA lead agencies may agree to be co-lead agencies and issue a joint NEPA/SEPA EIS.

**Implemented by:** Washington State Department of Ecology and local jurisdictions

### *Flood Protection – Washington State*

Washington Department of Ecology is the leading state agency for floodplain management in Washington State (Washington State Department of Ecology 2015). Ecology provides grants to local communities to reduce losses to life and property and protect the environmental functions of floodplains. Ecology is also the state coordinating agency providing technical assistance to local governments in implementing the National Flood Insurance Program.

**Flood Control District Act:** Provides for the creation of flood control districts for the protection of life and property, the preservation of the public health and the conservation and development of the natural resources (Municipal Research and Services Center 2015).

### *Natural Resources Planning – Washington State*

**Washington State Growth Management Act:** Requires protection of natural resource lands. Requires classification and designation of agricultural, forest, mineral lands, and critical areas. "Critical areas" include the following areas and ecosystems: (a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas (Local Land Use Law Center 2007). Classification means defining categories to which natural resource lands and critical areas will be assigned.

Designation establishes for planning purposes: the classification scheme, the general distribution, location, and extent of resource lands and critical areas. Designation means, at least, formal adoption of a policy statement, and may include further legislative action.

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Various state agencies, including the departments of Ecology and Fish and Wildlife, have published detailed guidance documents for local communities on critical area issues such as wetlands and fish and wildlife habitat. These include model ordinances and lists of recommended habitats and species for protection.

The GMA requires that best available science (BAS) be included in developing policies and development regulations to protect the functions and values of critical areas. Local governments must also give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. Department of Commerce provides guidance to local governments in how to identify what constitutes BAS for critical areas protection and how local governments should include science in their policies and development regulations.

Local municipalities must adopt a Critical Areas Ordinance (CAO) to protect critical areas from development impacts. During review of a development permit, local agencies must determine how potential development applications could affect the lands within their jurisdiction.

The act presumes that local plans and regulations are valid upon adoption (an exception is the transportation chapter of the comprehensive plan, which is certified by a regional transportation planning organization). However, the state, other local governments, and certain individuals can petition one of the growth management hearing boards if they think a local action does not meet growth management requirements.

**Implemented by:** Washington State Department of Commerce, regional planning authorities, and local jurisdictions

**Voluntary Stewardship Program:** This program provides an alternative to Counties planning under the Growth Management Act. Instead of updating regulations addressing agricultural uses in their Critical Areas ordinances, Counties may instead opt to engage in a watershed-based, collaborative stewardship planning process that uses incentives to promote agricultural and environmental stewardship. Counties participating in the program are eligible for funding for base stewardship program operations and may nominate specific watersheds as priority watersheds for additional incentives and project funding. Counties not participating in the program will proceed with the update requirements of the Growth Management Act. Many counties within Washington State have opted in to this program (Washington State Conservation Commission 2015).

**Implemented by:** Washington State Conservation Commission

**Dairy Nutrient Management Program:** Water quality program that requires all licensed cow dairies to register with WSDA, develop and implement a nutrient management plan and participate in regular inspections and compliance. Additionally, all dairies must maintain land application records of all nutrients.

**Implemented by:** Washington State Department of Agriculture

**Washington State Conservation Districts Law:** Authorizes the formation of conservation districts, which work to promote conservation within their borders (Washington State Department of Ecology 2015). Each Conservation District is an independent, non-regulatory local government entity that works with landowners to help them protect water quality, improve fish and wildlife habitat and resource conservation, while sustaining the vital agricultural community. Their boundaries generally correspond

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with county boundaries. The work of individual conservation districts is overseen by the Washington State Conservation Commission (WSCC). The WSCC assists and guides districts in the carrying out of programs, coordinates programs used in more than one district, promotes cooperation and sharing between districts, reviews agreements proposed to be entered into by districts with other public or private agencies, informs districts of recent legislation that may affect them, etc.

**Implemented by:** Washington State Conservation Commission and Washington Conservation Districts, including:

- Whidbey Island Conservation District
- Whatcom Conservation District
- Thurston Conservation District
- Skagit Conservation District
- Snohomish Conservation District
- San Juan Islands Conservation District
- Pierce Conservation District
- Jefferson County Conservation District
- Mason Conservation District
- King Conservation District
- Kitsap Conservation District
- Clallam Conservation District

**Washington State Forest Practices Act:** Regulates forest management activities in Washington State, including those on privately owned forestland. Forest practices are activities related to growing, harvesting or processing timber and requires a permit. They are designed to protect public resources, such as fish, water and wildlife, on state and private land, and also ensuring that a new forest is planted after harvest (Washington State Department of Ecology 2015).

**Implemented by:** Washington Department of Natural Resources

### Local Scale - Regional and subregional policymaking in Washington State

#### *Land Use Planning and Growth Management – Regional and subregional in Washington State*

Under the State Growth Management Act, there are a number of plans that have been developed to coordinate regional development patterns. An example of one such plan is:

**Vision 2040 and Transportation 2040:** Regional Integrated Growth Management, Environmental, Economic, and Transportation Strategy that consists of: An environmental framework, a regional growth

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strategy, policies to guide growth and development, actions to implement, and measures to track progress. VISION 2040 provides the multicounty policy framework required by GMA to meet goals to guide the policy development of local comprehensive plans at the regional, county, and local government levels (Puget Sound Regional Council 2015).

**County and local governments:** Local government agencies throughout the region adopt and implement long- and short-range plans and ordinances addressing land development (e.g. Comprehensive Plans and zoning and critical areas ordinances).

*Coastal Planning – Regional and subregional in Washington State*

**County and local governments:** Local government agencies throughout the region adopt and implement Shoreline Master Programs, which contain policies and regulations for development in the Shoreline Management zone.

*Stormwater Planning – Regional and subregional in Washington State*

**Clean Water Act:** Washington State issues National Point Discharge Elimination System (NPDES) permits to local municipalities for their stormwater discharges (Washington State Department of Ecology 2015). The permits include requirements for local jurisdictions to inventory stormwater facilities; inspect and maintain facilities; reduce pollutants at their sources; conduct public education; report NPDES permit compliance, and apply protective design standards to new development of impervious surfaces. The permits may also address requirements for water quality monitoring and retrofits of existing facilities.

Reissued Municipal Stormwater Permits under the NPDES permit program will require local jurisdictions to include Low Impact Development (LID) requirements in local codes, ordinances, and standards. LID is a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices (BMPs) that are integrated into a project design.

Local ordinances can supplement federal and state law. Planning and development codes and regulations can provide authority to address NPS pollution. For example, critical area ordinances can provide protection to critical areas that have a nexus with water quality.

Also, local solid waste regulations, illicit discharge ordinances, and animal or pet waste disposal ordinances all address NPS.

Local municipalities are also working together to share information and resources. For instance, the **Stormwater Outreach for Regional Municipalities** (STORM) is a coalition of more than 60 municipal stormwater permittees in the Puget Sound region. These counties and cities work collaboratively to deliver relevant, vetted, coordinated stormwater messages and social marketing to the region.

*In-Water Work Permitting – Regional and subregional in Washington State*

**County and local governments:** Local government agencies throughout the region adopt and implement Shoreline Master Programs, which contain policies and regulations for development in the Shoreline Management zone and specifically address local standards for in-water work (Governor's Office for Regulatory Innovation and Assistance 2015).

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

*Environmental Assessment – Regional and subregional in Washington State*

**County and local governments:** Local government agencies throughout the region adopt local regulations that address the process to be used for environmental assessment of projects within their respective jurisdictions.

*Flood protection – Regional and subregional in Washington State*

**County and local governments:** Local jurisdictions have local floodplain management ordinances. Under these ordinances, any development within the 100-year floodplain requires a permit from the local municipality (if the agency is participating in the National Flood Insurance Program). Development is defined as: any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard. Floodways are also protected under local ordinances (Washington State Department of Ecology 2015).

*Natural Resource Planning – Regional and subregional in Washington State*

*Critical Areas Regulations*

Local government agencies throughout the region adopt and implement Critical Areas Ordinances, which contain policies and regulations for development in critical areas, such as wetlands, riparian areas, geologically hazardous areas, critical recharge areas, fish and wildlife habitat conservation areas, and frequently flooded areas (Local Land Use Law Center 2007).

*Farm and Forest Zoning*

Local government agencies throughout the region adopt and implement zoning ordinances protecting natural resource lands such as farm and forest lands (Local Land Use Law Center 2007).

*Transfer of Development Rights*

Jurisdictions in the region are also working to establish transfer of development rights programs (TDR) (Municipal Research and Services Center 2015). TDR is a land use management technique (RCW 36.70A.090) that transfers development from areas a community wants to conserve to urban areas where growth should be encouraged, consistent with GMA goals. Programs exist in the following areas:

- City of Arlington
- City of Bellevue Bel-Red Subarea Plan
- City of Issaquah
- City of Mountlake Terrace
- City of Normandy Park
- City of Redmond

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- City of Sammamish
- City of Seattle
- City of Snohomish
- City of Tacoma
- King County
- Kitsap County
- Pierce County
- Snohomish County
- Whatcom County

The **Regional Transfer of Development Rights Alliance** is a partnership of King County, Pierce County, Snohomish County, Kitsap County Forterra (formerly the Cascade Land Conservancy), the Washington State Department of Commerce and the Puget Sound Regional Council (Washington State Department of Commerce 2015).

The Alliance works to encourage cities to participate in the conservation of farm, forestry and open space land through TDR in the four central Puget Sound counties (King, Pierce, Snohomish, and Kitsap).

### *Indigenous Peoples – United States*

Tribal governments have the authority to conduct land use planning for Reservation lands (Zaferatos 2013). Tribal governments in Washington State have adopted Comprehensive Plans and zoning ordinances to govern development on tribal lands. However, there may also be Fee Simple lands within the Reservation's exterior boundaries that are also impacted by regulations imposed by state agencies, Counties, and cities. In addition, transportation improvements are made through funding and decisions made by the Federal government, particularly the Bureau of Indian Affairs (BIA), the State of Washington, and counties and cities.

Several federal environmental laws authorize EPA to treat eligible federally-recognized Indian tribes in a similar manner as a state for implementing and managing certain environmental programs (US EPA 2015). This includes:

- The Clean Air Act (CAA)
- The Clean Water Act (CWA)
- Water Quality Standards and 401 Certifications
- National Pollution Discharge Elimination System (NPDES) Permits
- 404 Dredge and Fill Permits

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- Sewage Sludge Management Program
- The Safe Drinking Water Act (SDWA)
- Public Drinking Water System Supervision (PWSS) Program
- Underground Injection Control (UIC) Program
- The Toxic Substance Control Act (TSCA)
- The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

EPA has promulgated regulations and created guidance and strategies which facilitate tribes implementing and managing certain regulatory programs.

For activities located outside of Reservations, Government-to-Government coordination must occur with federally-recognized Tribes. For instance, if a project could have an impact on the plants, fish, or wildlife within a Usual and Accustomed area, state and federal governments will coordinate directly with tribal governments to determine how to avoid or mitigate the impacts (US Department of the Interior Bureau of Indian Affairs 2015).

State and federal agencies will also coordinate with tribal governments on proposed large-scale projects that fall within a tribe's Traditional Use Area. If a tribe itself is proposing a project within tribal lands that might threaten natural resources, they will work directly with the federal government for any necessary federal permits (US Department of the Interior Bureau of Indian Affairs 2015).

### *Government/Non-Government Collaborations – United States*

There are a number of land trusts and conservation organizations that have acquisition programs, or conduct partial acquisition of development rights or conservation easements, and conservation leasing (The National Conservation Easement Database 2015). These include:

- Bainbridge Island Land Trust
- Capitol Land Trust
- Center for Natural Lands Management
- Chehalis River Basin Land Trust
- The Conservation Fund
- Forterra
- Great Peninsula Conservancy
- Jefferson Land Trust
- Lummi Island Heritage Trust

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- Nisqually Land Trust
- North Olympic Land Trust
- PCC Farmland Trust
- San Juan Preservation Trust
- Skagit Land Trust
- The Nature Conservancy of Washington
- The Trust for Public Land
- Vashon-Maury Island Land Trust
- Vital Ground
- Whatcom Land Trust
- Whidbey Camano Land Trust

These land trusts are coordinated through the Washington Association of Land Trusts.

A number of organizations have also established conservation easements on properties, including:

- Archeological Conservancy
- Ducks Unlimited (Wetlands America Trust)
- Frank Family Foundation
- Friends of Lakewold
- Friends of the Hylebos
- Green River Gorge Trust
- Seattle Audubon Society
- Skagitians to Preserve Farmland
- Western Rivers Conservancy

### *Non-Governmental Organizations – United States*

There are a number of non-governmental organizations that act as stakeholders in the planning process, including the following:

- Futurewise

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

- Association of Washington Cities
- Washington State Association of Counties
- Building Industry Association of Washington
- Chamber of Commerce

Non-governmental organizations may also challenge adoption of plans and regulations (and, in some cases permit decisions) through several boards, depending upon the plan. For example, organizations may challenge adoption of Comprehensive Plans to the Growth Management Hearings Board. Shoreline Master Programs may be challenged to the Shoreline Hearings Board. Some decisions on shoreline permits may also be challenged to this board. The Pollution Control Hearings Board hears appeals from orders and decisions made by the Department of Ecology and other agencies as provided by law (Environmental & Land Use Hearings Office 2015). Issues can also be challenged in the judicial system.

### Canada – Development Permitting and Land Use Planning

Similar to the United States, in Canada, land use planning and development are typically matters that are provincial and territorial responsibility, with approval authority then delegated to local municipalities, which are required to ensure that provincial interests are maintained (Beckplumb 2013).

Also similar, management of shorelines, wetlands and other similar areas can be an area of complex, shared jurisdiction between all orders of government, including First Nations and local governments. For example, in coastal and marine waters, the federal government has jurisdiction over fisheries regulation and navigation. Local governments have zoning and other powers over local shorelines and some coastal waters. Meanwhile, the province has broad regulatory jurisdiction over numerous activities in the coastal zone. In addition, it has jurisdiction and ownership over the foreshore seaward of the high tide mark, as well as of all coastal or "inland" waters, including the seabed, within the "jaws of the land" (Green Shores 2009).

#### *Government Entities - Canada*

#### Federal Scale - Canada

#### *Land Use Planning and Growth Management - Canada*

As noted, most of the power to regulate land use is retained by provincial governments, who then enable local jurisdictions. There are several acts that do affect local decision-making.

#### *Coastal Planning - Canada*

**Canada Oceans Act:** The federal government has jurisdiction over offshore waters—from the low watermark out to 12 nautical miles. This is an Act addressing protection and development of oceans and coastal waters. The Act contains several provisions that may address the Salish Sea, including:

- Directing use of Integrated Management strategies

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- Directing the development of a national oceans strategy to guide the management of Canada's estuarine, coastal and marine ecosystems;
- Authorizing the Minister of Fisheries and Oceans to establish a national system of marine protected areas in order to protect and conserve:
  - Commercial and non-commercial fishery resources and their habitats;
  - Endangered marine species and their habitats;
  - Unique habitats;
  - Marine areas of high biodiversity or biological productivity; and
  - Any other marine resource or habitat necessary to fulfill the Minister's mandate (Fisheries and Oceans Government of Canada 2014).

Using ecosystem-based management within an IM framework, Canada has identified nineteen eco-regions and five Large Oceans Management Areas (LOMAs). The Pacific Northwest Coast Integrated Management Area (PNCIMA) has been designated on the coastal waters around the north portion of Vancouver Island, from Bute Inlet on the mainland, across to Campbell River on the east side of Vancouver Island and the Brooks Peninsula on the west side of Vancouver Island. Its western boundary is the base of the shelf slope (Fisheries and Oceans Canada Government of Canada 2014).

For each LOMA, Canada has developed an Ecosystem Overview and Assessment Report (EOAR) which describes the status and trends of physical and biological aspects of their respective ecosystems, and identifies key linkages between the two (e.g. trophic structure). Each EOAR supports the identification of Ecologically and Biologically Significant Areas (EBSAs), degraded areas, depleted species, and Ecologically Significant Species/Community Properties (ESS/CPS). EBSAs are areas that have a particularly high ecological or biological significance and require the provision of a greater-than-usual degree of risk aversion in the management of activities. Some of these areas may be sensitive to particular threats posed by human activities and require special management measures to achieve the protection required to maintain their ecological character. EBSAs are one of the information sources used for identifying Areas of Interest for consideration as Oceans Act Marine Protected Areas, although Canada is examining a number of Areas of Interest located outside of the LOMAs, including the Red Rocks area.

For the PNCIMA area, a draft integrated management plan has been developed (Pacific North Coast Integrated Management Area 2015).

### *In-Water Work Permitting - Canada*

**Canada Fisheries Act:** Protects fish populations that have First Nations cultural significance and economic opportunity (Blakes 2015). This Act has several provisions that affect the Salish Sea:

- Under the act, it is an offence for anyone to deposit or permit the deposit of any type of deleterious substance in water frequented by fish without a permit or under a regulation.
- Under the act, it is an offence for anyone to carry on a work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Indigenous fishery, or to

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fish that support such a fishery. Serious harm to fish includes harm to fish and permanent alteration or destruction of fish habitat.

- Provides the Minister with the ability to designate ecologically significant areas for fish. The Minister may require higher levels of protection for such areas and proponents would be required to submit plans for review if any activities are proposed within these areas. In addition, the Minister has authority to enter into agreements with conservation groups and others to undertake measures to enhance fisheries protection in those areas (Stefaniuk, n.d.).
- Authorizes measures to address threats such as aquatic invasive species.

The Act also imposes reporting requirements. (Note: Changes under Bill C-38 limited application of the provisions of this Act to certain fish populations).

The Act does not apply in certain waterbody types, such as artificial waterbodies that are not connected to a waterbody that contains fish at any time during any given year. Certain project activities are also exempt provided they meet specified requirements, including: maintenance and repair/replacement of bridges, causeways, and culverts; cottage, boating and recreation of certain sizes and design; maintenance and repair/replacement to harbors and marine commercial activities; drainage, flooding and erosion control, stormwater and wastewater management; and water level and flow management (Government of Canada 2013)

***Implemented by:***

- Environment Canada
- Canada Department of Fisheries and Oceans

**Canadian Environmental Protection Act (CEPA):** CEPA is Canada's main federal law to protect the environment (Blakes 2015). CEPA prohibits the disposal of any material at sea without a permit issued under the Act. Only those substances listed in Schedule 5 of CEPA 1999 may be considered for disposal at sea. These include dredged material, fisheries waste, ships, inert geological matter, uncontaminated organic matter and bulky substances that are primarily composed of iron, steel, concrete or other similar matter. Incineration at sea is banned except under emergency situations or if it is waste generated on board the ship or structure.

CEPA also allows for the development of objectives, guidelines and codes of practice for protecting the marine environment from land-based sources of marine pollution, such as run off of harmful substances from an industrial site. Substances released from Canadian sources that pollute water beyond Canadian borders are also addressed under CEPA.

Permits are granted on a case-by-case basis after an application and review process.

***Implemented by:*** Environment Canada

**Canada Navigation Protection Act:** Act of Parliament that authorizes and regulates interferences with the public right of navigation (Blakes 2015). A primary purpose of the NPA is to regulate works and obstructions that risk interfering with navigation in the navigable waters listed on the schedule to the

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

Act. The NPA also prohibits the depositing or throwing of materials that risk impacting navigation in navigable waters and the dewatering of navigable waters.

Under the Act, a navigable water includes a canal and any other body of water created or altered as a result of the construction of any work and are those waterways where the public has a right to navigate the water as a highway.

In these waters, the Act would address anything, whether temporary or permanent, that is made by humans, and that is in, on, over, under, through or across any navigable water in Canada. It also includes the dumping of fill or the excavation of materials from the bed of any navigable water and the dewatering of any navigable water.

(Note: Changes made under Bill C-45 made several significant changes to this Act:

- Limited application of Act's provisions to a narrower set of waters;
- Eliminated notice requirements to federal government;
- Eliminated authority for government to remove obstructions or request that they be removed.
- Eliminates public consultation requirements.)

**Implemented by:** Transport Canada

*Environmental Assessment - Canada*

**Canadian Environmental Assessment Act:** Act establishing an environmental assessment process prior to project approvals, with the objective of identifying and mitigating against significant adverse environmental effects prior to project approvals, and provide for meaningful opportunities for public participation (Blakes 2015).

Environmental assessment focuses on potential adverse environmental effects that are within federal jurisdiction – the list of issues to be considered as environmental effects is limited to include:

- Fish and fish habitat;
- Other aquatic species;
- Migratory birds;
- Federal lands;
- Effects that cross provincial or international boundaries;
- Effects that impact on Indigenous peoples, such as their use of lands and resources for traditional purposes;
- Changes to the environment that are directly linked to or necessarily incidental to any federal decisions about a project.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

An environmental assessment will consider a comprehensive set of factors that include cumulative effects, mitigation measures and comments received from the public.

Environmental assessment is only required for designated projects, which applies to a relatively small number of projects, generally determined based on size or production capacity and relate to major oil and gas projects, electrical generating stations, water projects, mines, mills, nuclear facilities, industrial facilities and transportation.

Unlike the environmental assessment process in the United States (in which the federal agency with primary responsibility for carrying out or approving the project conducts the environmental assessment), responsibility for environmental assessment is consolidated with three agencies: 1) the Canadian Environmental Assessment Agency; 2) the Canadian Nuclear Safety Commission; or 3) the National Energy Board (Government of Canada 2012).

All designated projects get a screening to determine whether environmental assessment is required (Government of Canada 2012). The proponent must submit a description of the designated project to the Agency. Once the project description package is complete, the Responsible Agency conducts a screening of the designated project to determine if an EA is required. Designated projects regulated by the Canadian Nuclear Safety Commission or National Energy Board will automatically require an EA; these do not undergo a screening process.

**Implemented by:** Canadian Environmental Assessment Agency; the Canadian Nuclear Safety Commission; or the National Energy Board

### *Floodplain Management - Canada*

**Floodplain Mapping Program:** Joint initiative by the federal and B.C. governments to provide information to help minimize flood damage in British Columbia. The program identified and mapped areas that were highly susceptible to flooding. These areas were designated as floodplains by the federal and provincial Environment Ministers.

Designated floodplains are subject to development restrictions. Crown agencies such as the Canada Mortgage and Housing Corporation do not support development on designated floodplains unless adequate floodproofing measures are taken (Ministry of Water, Land and Air Protection 2004).

Presently, Canada does not have a federal residential flood insurance program. As part of the Economic Action Plan 2014, the government has consulted with the insurance industry, provinces and territories to explore options for a national approach to residential flood insurance (Canada's Economic Action Plan 2014).

### Provincial Scale – British Columbia

#### *Land Use Planning and Growth Management – British Columbia*

There are different policies and laws in place that address planning within and outside of Crown Lands. Lands held by governments in the name of the monarch and are called Crown Lands. Crown lands may either be held by the federal or provincial government.

#### *Crown Lands*

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

Crown land is managed under the authority of three Acts of Legislation: the Land Act, the Ministry of Lands, Parks and Housing Act, and the University Endowment Lands Act (Ministry of Forests Lands and Natural Resource Operations 2015). Management of resources on Crown Land is also addressed by the Forest Act, Forest and Range Practices Act, the Wildlife Act and the Oil and Gas Activities Act. The BC government has also established a number of policies for integrated management of Crown Lands.

**British Columbia Land Act:** Primary article of legislation that is used by the government to convey land to the public for community, industrial and business use. The Act allows the granting of land, and the issuance of Crown land tenure in the form of leases, licenses, permits and rights-of-way for different activities, including (but not limited to) oil and gas, agriculture, aquaculture, forestry, mining, wind power, ocean energy, recreation, residential, etc. (Ministry of Forests Lands and Natural Resource Operations 2015)

**Strategic Land and Resource Planning Policies:** B.C.'s Strategic Land Use Planning process provides for the development of integrated land use plans on crown land (Ministry of Forests Lands and Natural Resource Operations 2015). Land and Resource Management Plans (LRMPs) are used for broad regional planning. Sustainable Resource Management Plans (SRMPs) are used for small to medium sized landscapes or watersheds. The planning processes supporting these efforts used a collaborative process, with involvement from First Nations, government, resource, environment and community interests. A number of plans have been developed through this process:

### South Coast Region

- Sea-to-Sky Land and Resource Management Plan (S2S LRMP)
- Sea to Sky Natural Resource District Landscape Unit/Sustainable Resource Management Plans
- Chilliwack Natural Resource District Landscape Unit/Sustainable Resource Management Plans
- Sunshine Coast Natural Resource District Landscape Unit/Sustainable Resource Management Plans

### West Coast Region

- Clayoquot Sound Land Use Plan
- Bedingfield Watershed Plan
- Bedwell-Ursus-Bulson Watershed Plan
- Clayoquot River Watershed Plan
- Cypre Watershed Plan
- Flores Island Watershed Plan
- Fortune Channel Watershed Plan
- Hesquiaht Watershed Plan

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

- Kennedy Lake Watershed Plan
- Sydney-Pretty Girl Watershed Plan
- Tofino-Tranquil (Onadsilth-Eekseuklis) Watershed Plan
- Upper Kennedy Watershed Plan
- Coast Land Use Decision Implementation
- Central Coast Land and Resource Management Plan
- North Coast Land Resource Management Plan
- Haida Gwaii Strategic Land Use Agreement Implementation
- Vancouver Island Land Use Plan
- Campbell River District Sustainable Resource Management Plan
- Sayward Land Use Plan
- North Island-Central Coast District Sustainable Resource Management Plan
- South Island Sustainable Resource Management Plan

### *Other Lands*

**British Columbia Local Government Act:** The Act is the primary legislation for regional districts and improvement districts, setting out the framework for governance and structure, as well as the main powers and responsibilities (Ministry of Forests Lands and Natural Resource Operations 2015). It also governs the incorporation procedures of local governments, amalgamations and boundary changes. It contains the powers and procedures for community development (planning and zoning).

Provides framework for coordinated planning and coordinated action for local governments in all parts of British Columbia. The Local Government Act sets out the requirements for a Regional Growth Strategy (RGS), a tool for regional planning by Regional Districts. Regional Districts are enabled by provincial legislation. Regional Districts can voluntarily develop Regional Growth Strategies. The Local Government Act also sets out the requirements for an Official Community Plan that must have a regional context statement if an RGS is in place.

If a regional district chooses to prepare a regional growth strategy, the legislation provides general goals to help local governments recognize regional issues (section 849(2)). At a minimum, all regional growth strategies and regional context statements must work towards these goals, to the extent that a regional growth strategy addresses these issues. Regional growth strategies are general guides as to how regions will grow, change and develop over a 20-year period. A number of regions in BC have adopted regional growth strategies – Greater Vancouver Regional District (GVRD), Capital Regional District (CRD) and others. Each regional district will have its own reasons for preparing an RGS. Some will focus on urban containment and establishing clear distinctions between urban and rural areas (referred to as “urban

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

containment areas"). Others will see an RGS as providing the context for major transportation development decisions or as a tool to address water supply and quality concerns. Some regions will use an RGS as an opportunity to address critical emerging issues such as water supply and its links to other regional issues like growth management, open space preservation, water conservation and environmental protection.

In turn, local plans (Official Community Plans (OCPs)) must reflect existing regional plans, or regional growth strategies (Ministry of Community, Sport, and Cultural Development 2015). An OCP provides a clear statement of intentions regarding growth and change. These plans can be developed by both municipalities and regional districts. As part of the development of an OCP, the regional district board or the municipal council must provide one or more opportunities for consultation with persons, organizations and authorities that will be affected, for example:

- The board of any regional district that is adjacent to the plan area;
- The council of any municipality that is adjacent to the plan area;
- First Nations;
- School district boards, greater boards and improvement district boards; and,
- The provincial and federal governments and their agencies.

There are a number of OCPs that have been adopted in the Salish Sea region.

**Implemented by:** British Columbia Ministry of Community, Sport and Cultural Development and local jurisdictions

**Community Charter Act:** The Act provides a legal framework for municipalities to identify and meet community needs (Ministry of Community, Sport, and Cultural Development 2015).

**Implemented by:** British Columbia Ministry of Community, Sport and Cultural Development and local jurisdictions

*Coastal Planning – British Columbia*

*Crown Lands*

**Coastal Marine Plans** - The Coastal Plans focus primarily on the provincial jurisdiction of foreshore areas and address economic development and diversification, environmental threats, land and resource conflicts, First Nations issues, and supporting informed decision-making in coastal areas. There are two distinct levels of planning: local coastal planning and strategic coastal planning. (Government of British Columbia 2015)

Strategic coastal planning focuses on identifying broad goals, objectives and strategies for coastal and marine resources. A strategic level coastal plan has been developed for:

- Central Coast Land and Resource Management Plan

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

There are three types of local plans: coastal plans to identify land tenure opportunities to guide decision-makers; issue-resolution plans to resolve conflicts or issues associated with coastal land uses and activities; and special management plans that provide detailed direction for management of specific uses or distinct areas. The following are local plans that have been developed:

- Baynes Sound Coastal Plan
- Cortes Island Coastal Plan
- Johnstone-Bute Coastal Plan
- Kyuquot Sound Coastal Plan
- Malaspina Okeover Coastal Plan
- Nanaimo Estuary Management Plan
- Nootka Coastal Land Use Plan
- North Island Straits Coastal Plan
- Quatsino Sound Coastal Plan

*Stormwater Planning – British Columbia*

**British Columbia Environmental Management Act:** Regulates industrial and municipal waste discharge, pollution, hazardous waste, and contaminated site remediation. This Act requires a waste discharge permit to be issued to introduce waste to the environment (Blakes 2015). Only introductions of waste from “prescribed” industries, trades, businesses, operations and activities require authorization. Industries, trades, businesses, operations and activities are “prescribed” in the Waste Discharge Regulation. If an industry, trade, business, activity or operation is not “prescribed” by the regulation, it does not require an authorization to introduce waste into the environment; however, the discharge must not cause pollution. Municipal stormwater is required to obtain permits under this Act.

*In-Water Work Permitting – British Columbia*

**British Columbia Environmental Management Act:** Principal environmental statute in B.C. Under the EMA, waste cannot be released into the environment except in accordance with a permit or a regulation.

*Environmental Assessment – British Columbia*

**British Columbia Environmental Assessment Act:** Requires some major projects to undergo a formal environmental assessment. This process identifies and assesses the potential impacts of a proposed project and develops measures to eliminate, minimize or manage those impacts (Environmental Assessment Office 2015).

Projects that may need to go through the environmental assessment process include the following:

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

- Industrial projects: chemical manufacturing, primary metal and forest project industries;
- Energy projects: power plants, electric transmission lines, natural gas processing or storage plants and transmission pipelines;
- Water management projects: water diversions, dams, dykes, groundwater extraction;
- Waste disposal projects: special waste facilities, local government solid and liquid waste management facilities;
- Mine projects: coal and mineral mines, sand and gravel pits, placer mineral mines, construction stone and industrial mineral quarries and off-shore mines;
- Food processing projects: meat and meat products manufacturing and fish processing;
- Transportation projects: large public highways and railways, large ferry terminals and marine ports; and
- Tourist destination resort projects: large golf, marine, or ski hill destinations.

The Environmental Assessment Office reviews materials and submits a recommendation to the Minister of Environment and another minister responsible for that category of reviewable project for a final determination. When making the decision, the Minister has three choices:

- Issue an environmental assessment certificate with any conditions they consider necessary;
- Refuse to issue the certificate; or
- Require further study or assessment

### *Flood Protection – British Columbia*

**Floodplain Mapping Program:** Joint initiative by the federal and B.C. governments to provide information to help minimize flood damage in British Columbia. The program identified and mapped areas that were highly susceptible to flooding. These areas were designated as floodplains by the federal and provincial Environment Ministers.

A floodplain map delineates the area that can be expected to flood, on average, once every 200 years. This is called the 200-year flood. Floodplain maps are administrative tools which depict minimum elevations for floodproofing. Minimum floodproofing requirements can then be incorporated into building bylaws, subdivision approvals, and local government planning and regulations.

**British Columbia Dike Maintenance Act:** Requires review and approval prior to any modification of a dike or area adjacent to a dike.

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

**British Columbia Drainage, Ditch and Dike Act:** Authorizes the creation of Drainage, Diking or Development Districts responsible for constructing and maintaining a system of dikes, drains, dams, etc. necessary for the supply of water (and possibly electricity) and/or the prevention of flooding.

***Implemented By:*** British Columbia Ministry of Environment

*Natural Resources Planning – British Columbia*

**British Columbia Agricultural Land Commission Act:** Sets out principles and broad rules for the protection of agricultural land in British Columbia. The Act establishes guidelines for designation of agricultural land, based on a variety of factors including soil suitability, topography and climate. Lands designated for agricultural use are placed within a provincial zone, called Agricultural Land Reserve (ALR). In this zone, agriculture is recognized as the priority use. Farming is encouraged and non-agricultural uses are restricted.

The ALC Act takes precedence over, but does not replace other legislation and bylaws that may apply to the land. Local and regional governments, as well as other provincial agencies, are expected to plan in accordance with the provincial policy of preserving agricultural land.

ALR lands are found through the regional districts located in proximity to the Salish Sea.

The **BC Ministry of Agriculture's Sustainable Agriculture Management Branch** programs promote environmentally sustainable agricultural practices including Environmental Farm Planning and Nutrient Management.

**British Columbia Forest and Range Practices Act:** Establishes regulations for forestry practices on public land. The Act sets the requirements for planning, road building, logging, reforestation, and grazing. The Act includes protection standards for management zones, as well as management guidelines to protect sensitive areas like riparian corridors.

***Implemented by:*** British Columbia Ministry of Forests, Lands & Natural Resource Operations

**British Columbia Private Managed Forest Land Act:** Creates a mechanism for the regulation of forest practices on private land categorized as managed forest.

***Implemented by:*** British Columbia Ministry of Forests, Lands & Natural Resource Operations

Local Scale - Regional and subregional policymaking in British Columbia

*Land Use Planning and Growth Management - Regional and subregional in British Columbia*

As noted, a number of regional districts have chosen to adopt regional growth strategies under the provisions on the Land Act. The Strategy provides general guidance on regional growth, change and development over a 20-year period. It outlines key issues and long-range planning direction for regional district and municipal official community plans (or OCPs). An example of a Regional Growth Strategy is Metro Vancouver's [Shaping Our Future](#), which identifies goals for healthy and complete communities that have access to a range of services and amenities, which also helps to support housing affordability. Housing policies focus on the provision of diverse and affordable housing choices.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

Regional transportation planning B.C. recently established 8 Regional Transportation Advisory Committees to identify regional transportation needs and provide advice to the Minister. The Greater Vancouver Transportation Authority Act creates an authority for regional transportation.

Local governments (municipalities and regional districts) hold the authority to plan and regulate land use within their respective boundaries. They do this through official community plans, zoning, development permits, subdivision authority, building permits, and a variety of regulatory bylaws that affect land development.

Under the Local Government Act, a municipality, regional district, or Island Trust can designate environmentally sensitive areas (ESAs) in official community plans and regional growth strategies, and to restrict development impacts to these ESAs through zoning bylaws, development permit areas, etc. ESAs are defined as any parcel of land that already has, or with remedial action could achieve, desirable environmental attributes. These attributes contribute to the retention and/or creation of wildlife habitat, soil stability, water retention or recharge, vegetative cover and similar vital ecological functions. ESAs can include aquatic and riparian ecosystems, and any areas providing habitat for special wildlife and species at risk are also considered to be environmentally sensitive areas. In contrast to the Washington State Growth Management Act, however, this regulation is enabling only – there is currently no provincial direction, policy or model to guide local governments; potential for wide discrepancy in results.

Under the Local Government Act, municipalities may also designate development permit areas (DPA) in an OCP. A DPA can be designated to: protect agricultural land, protect the natural environment, and guide the form and character of development. This authority can also be used to achieve climate action goals, including: energy conservation, water conservation and GHG reduction. If a local government designates a DPA, the OCP must describe the special contributions or objectives that justify the DPA designation. Guidelines for how development proposed for that area can address the special condition or objectives must also be specified.

Within a DPA, a property owner must obtain a development permit before subdividing land or constructing, adding to, or altering a building. A local government may issue a development permit (DP) that varies or supplements a subdivision or zoning bylaw.

### *Coastal Planning - Regional and subregional in British Columbia*

Local governments (municipalities and regional districts) hold the authority to plan and regulate land use within their respective boundaries, which may extend over foreshore and nearshore areas (Green Shores 2009). They do this through official community plans, zoning, development permits, subdivision authority, building permits, and a variety of regulatory bylaws that affect land development.

### *Stormwater Planning - Regional and subregional in British Columbia*

**Liquid Waste Management Plans:** Under the Environmental Management Act, stormwater systems operated by local governments must be authorized under a Liquid Waste Management Plan; Liquid Waste Management Plans usually also include an Integrated Stormwater Management Plan (British Columbia Ministry of Water, Land and Air Protection 2002). (If the stormwater plan is developed separately, the Liquid Waste Management Plan is still required to summarize the plan). The degree to which stormwater is addressed will vary from community to community.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

Stormwater planning has increasingly become more integrated, resulting in the term Integrated Stormwater Management Plan (ISMP), which addresses how land use planning tools are incorporated into stormwater planning. ISMP includes similar concepts to the Low Impact Development (LID) approaches now required as part of NDPES permits in Washington State.

The stormwater management plan should be linked to other LWMP initiatives, so that activities such as source control and education programs can be coordinated. In the absence of a separate stormwater management plan, the LWMP should incorporate, as a minimum, a commitment to initiate stormwater management planning with a proposed budget and schedule. Stormwater management tools include land use and zoning restrictions, cluster developments, limits on effective impervious area, control of construction activities, public and private sector education, source control programs, requirements for treatment of industrial or commercial runoff, changes to local government operation and maintenance procedures, and supporting bylaws (British Columbia Ministry of Water, Land and Air Protection 2002).

### *In-Water Work Permitting - Regional and subregional in British Columbia*

Local governments (municipalities and regional districts) hold the authority to plan and regulate land use within their respective boundaries, which may extend over foreshore and nearshore areas (Green Shores 2009). They do this through official community plans, zoning, development permits, subdivision authority, building permits, and a variety of regulatory bylaws that affect land development.

### *Flood Protection - Regional and subregional in British Columbia*

Under the Local Government Act and Land Title Act, local municipalities have the authority to implement a broad array of flood hazard management tools to ensure that future land use will be planned and buildings constructed in a manner that will reduce or prevent injury, human trauma and loss of life, and to minimize property damage during flood events.

Local governments have the authority to adopt local bylaws addressing development activities in floodplain areas. Local governments also have the authority to require submittal of a Flood Protection Strategies Report. These provisions are designed to prevent the development of land subject to a flood or other type of hazard unless flood protection measures are in place. The onus is on the landowner to address the required guidelines to the satisfaction of the local government (Schwarz 2014).

### *Natural Resources Planning - Regional and subregional in British Columbia*

Another tool to protect water resources is the Riparian Areas Regulation (RAR). The RAR was enacted under Section 12 of the Fish Protection Act in July 2004. It calls on local governments to protect riparian areas during residential, commercial, and industrial development by ensuring that a Qualified Environmental Professional (QEP) conducts a science-based assessment of proposed activities (Ministry of Forests Lands and Natural Resource Operations 2015).

In addition, when forestry operations occur on private land, the Private Managed Forest Land program applies. The program is managed by a council that sets standards for private forest land (Ministry of Forests Lands and Natural Resource Operations 2015).

*Indigenous Peoples - Canada*

**Canada First Nations Land Management Act** - Authorizes First Nation signatory to make environmental laws on reserve lands (including laws on zoning, environment, services and dispute resolution). These laws will deal with environmental assessment and protection (Government of Canada; Aboriginal Affairs and Northern Development Canada 2012).

Environmental management and assessment agreements will be negotiated between each First Nation and Canada for funding these laws and for harmonization of First Nation, provincial and federal environmental laws.

First Nations have authorities similar to provincial and local governments over upland and aquatic lands within Indian Reserves (Green Shores 2009). Outside Reserves, traditional rights to marine resources are the subject of ongoing Treaty Negotiations for many of the First Nations along BC's coast. The provincial and federal governments have a duty to consult with First Nations on any shoreline tenure applications to ensure that they do not significantly affect Indigenous or treaty rights (Ministry of Forests Lands and Natural Resource Operations 2015).

*Government/Non-Government Collaborations - Canada*

The Land Title Act allows non-government organizations to hold conservation covenants (Hillyer and Atkins 2005). There are a number of land trusts operating throughout the Salish Sea region, including:

National

- Ducks Unlimited Canada
- Nature Conservancy of Canada

Regional

- Habitat Conservation Trust Foundation

Subregional

- Fraser Valley Conservancy
- Bowen Island Conservancy
- Comox Valley Land Trust
- Cowichan Land Trust
- Denman Conservation Association
- Gabriola Land and Trails Trust
- Galiano Conservancy Association

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

- Gambier Island Conservancy
- Garry Oak Meadow Preservation Society
- Greenways Land Trust
- Habitat Acquisition Trust
- Islands Trust Fund
- Juan de Fuca Community Land Trust Society
- Malaspina Land Conservancy Society
- Mayne Island Conservancy Society
- Nanaimo and Area Land Trust
- Native Plant Society of BC
- Pender Islands Conservancy Association
- Quamichan Watershed Stewardship Society
- Salt Spring Island Conservancy
- Salt Spring Island Water Preservation Society
- Savary Island Land Trust Society

The Land Trust Alliance of British Columbia is a coordinating body representing land trust members across the province (Land Trust Alliance of British Columbia 2015).

Land trusts are typically independent non-government organizations; however they frequently work in partnership with governments, other organizations, foundations, and businesses in achieving shared conservation goals.

Smart Growth BC is a nongovernmental organization that provides education and capacity building to municipalities, communities and the public. It works throughout the province with community groups, businesses, developers, planners, municipalities and the public to create more livable communities in B.C. (Smart Growth BC 2015)

SmartGrowth BC offers a number of programs such as:

- The Community Assistance Program (support to both communities and municipal councils on incorporating smart growth principles);
- Smart Growth Advisory Services (fee based consulting to municipal governments in developing Official Community Plans, with the focus on community involvement); and

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

- Smart Growth on the Ground (an intensive three day workshop with a community to look at the future and develop a concept plan that is then presented to the municipal council).

There are other programs operating within British Columbia to provide stewardship services to the agricultural sector (BC Agricultural Council 2015). For instance, the Canada - British Columbia Environmental Farm Plan Program Is a an agreement between Agriculture and Agri-food Canada (AAFC), the BC Ministry of Agriculture and Lands (BCMAL) and the BC Agriculture Council (BCAC). The aims and objectives of the EFP include:

- Encouraging farmers and ranchers to be better stewards of land;
- Ensuring the future of the BC agricultural industry through the further implementation of Beneficial Management Practices;
- Fostering partnerships with agencies; helping farmers and ranchers to be proactive in the identification of environmental opportunities and risks on their own land;
- Raising awareness of progress being made on the land;
- Improving farm profitability;
- Improving the public perception of agriculture;
- Reducing conflicts between agriculture and environmental interests; and
- Reducing wildlife impacts to agricultural lands.

The **Stewardship Center of B.C.** also provides tools and educational programs for community residents and land-use decision-makers with easy-to-access information as well as stewardship practices guidelines for wildlife and species at risk habitat restoration and protection.

### *Non-Governmental Organizations - Canada*

There are a number of non-governmental organizations that act as stakeholders in the planning process, including the following:

#### Construction/Building

- British Columbia Construction Association

#### Environmental Law

- Canadian Environmental Law Association
- Canadian Institute of Planners
- Planning Institute of British Columbia
- West Coast Environmental Law

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

### Conservation Sector (Schwarz 2014)

- B.C. Wild
- Sierra Club of B.C.
- The Nature Trust of B.C.
- Ancient Forest Alliance
- The Nature Conservancy
- Western Wilderness Committee
- Alberni Environmental Coalition
- West Coast Islands Conservancy
- Carmanah Forestry Society
- Friends of Tsitika
- Sunshine Coast Conservation Association
- Discovery Islands Ecosystem Advocacy

### Agricultural Sector (Schwarz 2014)

- Vancouver Island Dairymen's Association
- Island Farmers' Alliance
- Island Milk Producer's Association
- Cowichan Agricultural Society
- Island Organic Producers Association
- Vancouver Island Chicken Producers Association
- Vancouver Island Egg Producers Association
- Vancouver Island Vegetable Growers Association
- Cowichan Agricultural Society
- Cowichan Agripro Society
- Comox Valley Farmers' Institute

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- District 'A' Farmers' Institute.

### Fisheries Sector (Schwarz 2014)

- Ecotrust Canada
- BC Salmon Farmers Association
- The Native Brotherhood of BC
- Pacific Salmon Foundation
- Gulf Trollers Association
- Way West Fishing
- Nuu -chah-nulth Fisheries Council

### Outdoor Recreation Sector (Schwarz 2014)

- Outdoor Recreation of BC
- BC Wildlife Federation
- Federation of Mountain Clubs of BC
- Federation of BC Naturalists
- Sea Kayak Association of BC
- Steelhead Society of BC
- Alpine Club Vancouver Island
- Vancouver Island Outdoor (Website)
- Island Mountain Ramblers

### Forest Employment Sector (Schwarz 2014)

- IWA – Forest Industry Pension Plan
- C.E.P.
- P.P.W.C
- Economic Developers Association of BC
- Young Professionals of Campbell River

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Forest Industry Independents Sector (Schwarz 2014)

- The Truck Loggers Association

Forest Managers & Manufacturers Sector (Schwarz 2014)

- International Forest Product Limited (INTERFOR)
- Western Forest Products Ltd
- Coast Forest
- Keystone Wildlife Research Limited
- Pollock Forest Management:

General Employment Sector (Schwarz 2014)

- B.C. Government Employees Union
- International Union of Operating Engineers
- United Food & Commercial Workers
- Canadian Auto Worker Local 3019
- Young Professionals of Campbell River

Mining Sector (Schwarz 2014)

- The Mining Association of B.C.
- Association for Mineral Exploitation B.C.
- Mining Association of BC

Social & Economic Sustainability Sector (Schwarz 2014)

- Vancouver Island Economic Alliance

Tourism Sector (Schwarz 2014)

- Tourism Victoria
- Vancouver Island Sea Kayaking Tours
- Quadra Island Tourism

Youth Sector

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- Connect V.I

Transboundary Policymaking – Development Permitting and Land Use Planning

### Land Use Planning and Growth Management – United States and Canada

**Pacific Coast Collaborative Agreement:** Agreement establishing the Pacific Coast Collaborative, which provides a framework for collaboration and coordination to review joint and individual actions on:

- Clean energy;
- Regional transportation;
- Innovation, research and development;
- Regional economy;
- Emergency management; and
- Other areas deemed appropriate for cooperative action (Pacific Coast Collaborative 2015).

**Implemented by:** Governments of Alaska, British Columbia, California, Oregon and Washington

### Coastal Planning – United States and Canada

#### **U.S.-Canada Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem:**

Bilateral agreement between the United States and Canada that outlines common goals and objectives and provides a context for federal agency collaboration on transboundary ecosystem management of the Salish Sea. Focus on knowledge and information sharing as well as transboundary demonstration projects that contribute to improved air quality, water quality, and habitat and species health (US EPA 2015). Action plans are generated, updated, and monitored to identify policy activities for focus areas. Key activities include:

- Canadian-US (transboundary) collaboration
- Engaging Coast Salish First Nations and Tribes
- Information and knowledge sharing
- Transboundary demonstration projects that contribute to improved air quality, water quality and habitat and species health

The current action plan (2015-2016) focuses on promoting knowledge and information exchange and on spotlighting transboundary demonstration projects (US EPA 2015).

**Implemented by:** EPA and Environment Canada

**Transboundary Ecosystem Indicators Project/Health of Salish Sea Ecosystem Report:** Uses shared set of ecosystem indicators to report of the health of the Salish Sea. Emphasis on collaboration across the

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DEVELOPMENT PERMITTING & LAND USE PLANNING

U.S.-Canada international border, and across various levels of government, non-profits, First Nations and tribes (US EPA 2015).

**Implemented by:** EPA and Environment Canada

**Salish Sea Ecosystem Conference:** Forum for collaboration on science and policy issues related to Salish Sea recovery. The conference serves as the primary conduit for coordination and collaboration between Washington State and British Columbia (US EPA 2015).

**Implemented by:** Conference Leadership Committee comprised of representatives from United States and Canadian agencies and Tribal representatives

**British Columbia-Washington Coastal and Ocean Task Force:** Established to replace the Puget Sound-Georgia Basin Task Force. This effort now covers a range of activities in both inner marine waters and open ocean coasts. Through the Task Force, B.C. and Washington share information and collaborate on activities that protect and restore coastal and marine habitats; encourage the development of ecosystem management approaches for ocean and coastal resources; and foster sustainable coastal communities and development (Drew, n.d.).

**Implemented by:** British Columbia Ministry of Environment and Washington State Department of Ecology

### Stormwater Planning – United States and Canada

**North American Commission for Environmental Cooperation:** Established by North American Agreement on Environmental Cooperation as body to support cooperation among the NAFTA partners to address environmental issues of continental concern, including the environmental challenges and opportunities presented by continent-wide free trade (Commission for Environmental Cooperation 2015). Stormwater management has been discussed as a key issue.

### Environmental Assessment – United States and Canada

**Memorandum of Understanding on Environmental Assessment:** Provides mechanism for transnational comments on environmental review applications for major projects (“major project” means, for a project located in British Columbia, a reviewable project as defined in section 1 of the British Columbia Environmental Assessment Act (EA Act), and for a project located in Washington State, a project subject to state jurisdiction under the State Environmental Policy Act (SEPA) for which a Determination of Significance has been made thereby requiring an environmental impact statement).

Parties agree to give prior notice and information exchange related to major project proposals in the vicinity of the other jurisdiction (Minister of Environment 2015).

### Flood Protection – United States and Canada

**Environmental Cooperation Agreement between the Province of British Columbia and the State of Washington:** Ensure coordinated action and information-sharing on environmental matters of mutual concern. Established Environmental Cooperation Council (referred to in document by its original name, the BC/WA Environmental Initiative) with associated taskforces (Minister of Environment 2015).

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Committed parties to create an action plan. Authorized adoption of specific arrangements to address environment problems, including:

- Georgia Basin/Puget Sound Water Quality
- Columbia River/Lake Roosevelt Water Quality
- Nooksack River Flooding
- Regional Air Quality Management
- Coordinated Groundwater Management (Sumas-Abbotsford)

**Implemented By:** British Columbia - Washington State Environmental Cooperation Council and associated taskforces:

**Nooksack River International Task Force:** Recommend actions to reduce flood damage and improve preparedness.

### Natural Resources Planning – United States and Canada

**North American Wetlands Conservation Council:** Council of federal, provincial and/or territorial governments and non-government organizations established to provide a national mechanism for the implementation of the North American Waterfowl Management Plan (NAWMP), and to take a leadership role in wetlands policy and awareness (North American Wetlands Conservation Council 2015).

Provides leadership to the Habitat and Species Joint Ventures through which the North American Waterfowl Management Plan (NAWMP) goals are achieved.

Also serves as the national coordinating committee for developing and implementing national level wetland policies and programs in Canada, which includes the Pacific Coast habitat joint venture (now Pacific Birds).

**Pacific Birds Habitat Joint Venture:** International partnership between the U.S. and Canada committed to conserving habitats for migratory birds, including wetland areas (Pacific Birds Habitat Joint Venture 2015).

**American Friends of Canadian Land Trusts:** Partners with Canadian conservation organizations and American owners of environmentally and ecologically significant lands to protect Canada's natural lands, clean water, abundant habitat, and quality of life for citizens of both countries (American Friends of Canadian Land Trusts 2015).

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DREDGING  
&  
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### 3.5 DREDGING AND OCEAN DUMPING/DREDGE MATERIAL DISPOSAL

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Dredging activities occur throughout the Salish Sea area, both to support the operation of water-dependent commercial activities, such as navigation and maritime commerce, and to facilitate the cleanup of contaminated soils from toxic cleanup sites. It is also used to help minimize flood risks that may occur by removing sediment that accumulates and disrupts water depth and flow. In all of these cases, careful management is needed to ensure that the dredging activities, or their associated disposal, do not degrade water quality (e.g. through the disturbance of contaminated sediments, increased water turbidity, reduced dissolved oxygen) or impact aquatic habitat. It is likely that climate change related impacts that disrupt the cycle of sediment transport will require more frequent dredging in the future (Puget Sound Partnership 2014). In addition, changes in shipping standards may require dredging to support deeper port facilities.

In order to minimize potential impacts, governments on both sides of the border implement pollution prevention programs, which are reviewed in the Water Quality and Quantity section. Dredging activities, which are specifically addressed in this section, are regulated in both British Columbia and Washington through established review processes and agency assessments.

Disposal of materials in marine waters also has the ability to impact water quality, habitat, and navigation and, as a result, is managed through processes in place on both sides of the border.

#### United States – Dredging and Ocean Dumping

Dredging and dredge material disposal requires multi-agency review and approval under several different laws and regulations. The Washington Dredged Materials Management Program, an interagency program of the Corps (Seattle District), EPA Region 10, Ecology, and Department of Natural Resources, is an interagency program that serves as an integral part of the U.S. Army Corps of Engineers permitting process for dredging and disposal in the waters of the U.S. The program is an interagency effort that oversees the disposal and use of dredged sediments (Washington Department of Ecology 2007).

##### *Government Entities – United States*

##### Federal Scale – United States

###### *General Information – United States*

**United States Environmental Policy Act:** Establishes procedural requirements designed to ensure that governmental agencies give proper consideration of environmental matters in making decisions on actions.

**Implemented by:** Agency with federal permitting authority

**United States Endangered Species Act:** Requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also

prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife. Likewise, import, export, interstate, and foreign commerce of listed species are all generally prohibited.

For dredging activities in Washington, the Corps (Regulatory) completes Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (U.S. Army Corps of Engineers 2012).

**Implemented by:** U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service and the National Marine Fisheries Service

**United States Marine Mammal Protection Act:** Requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize marine mammals.

**Implemented by:** U.S. Fish and Wildlife Service and the National Marine Fisheries Service

**Magnuson-Stevens Act:** The Magnuson-Stevens Fishery Conservation and Management Act (MSA) govern marine fisheries management in the U.S. The MSA mandates the identification of Essential Fish Habitat (EFH) for federally managed species as well as the development of measures to conserve and enhance the habitat necessary for fish to carry out their life cycles. The MSA requires federal agencies to consult with NMFS before authorizing, funding, or conducting an activity that may adversely affect EFH. When consulted, NMFS provides guidance, in the form of conservation recommendations, to help federal agencies minimize the impact of their actions on EFH (U.S. Army Corps of Engineers 2012).

**Implemented by:** National Marine Fisheries Service

*Dredging – United States*

**United States Rivers and Harbors Act:** Under Section 10, the Corps regulates structures and/or work in or affecting the course, condition, or capacity of navigable waters of the United States and therefore would be applicable to dredging activities (U.S. Army Corps of Engineers 2012).

**Implemented by:** U.S. Army Corps of Engineers

**United States Coastal Zone Management Act:** Congress established land use policies for land development in coastal areas under the Coastal Zone Management Act. It provides planning grants to states which in turn grant funds to localities to adopt coastal development plans and adopt regulations that comply with the federal and state coastal protection principles.

A Coastal Zone Management consistency certification may be required within Washington's 15 coastal counties (some of which are located in Salish Sea) for dredging activities (U.S. Army Corps of Engineers 2012).

**Implemented by:** Washington State Department of Ecology

**Wild and Scenic Rivers:** The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. If the work is occurring in a designated wild and scenic river, coordination with the U.S. Forest Service and/or the National Park Service is required (U.S. Army Corps of Engineers 2012).

**Implemented by:** U.S. Forest Service and/or the National Park Service

*Disposal in Marine Waters – United States*

**United States Clean Water Act – Section 404:** Establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands (US EPA 2015). Requires a permit (either General Permit or Individual Permit), unless otherwise exempt.

No discharge of dredged or fill material may be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment or (2) the nation's waters would be significantly degraded.

**Implemented by:** U.S. Army Corps of Engineers, as well as U.S. Fish and Wildlife Service and National Marine Fisheries Service (for review of impacts to fish and wildlife)

**United States Marine Protection, Research, and Sanctuaries Act:** Regulate international ocean disposal of materials. Permit and enforcement provisions of the law are often referred to as the Ocean Dumping Act (US EPA 2015). Ocean dumping cannot occur unless a permit is issued under the MPRSA. In the case of dredged material, the decision to issue a permit is made by the Army Corps of Engineers, using EPA's environmental criteria and subject to EPA's concurrence.

**Implemented by:** U.S. Army Corps of Engineers and United States Environmental Protection Agency (dredge materials); otherwise, United States Environmental Protection Agency

State Scale – Washington State

*General Information – Washington State*

**Washington State Environmental Policy Act:** Establishes procedural requirements designed to ensure that governmental agencies give proper consideration of environmental matters in making decisions on actions. Environmental review would be required for dredging and ocean dumping activities.

**Implemented by:** City or County of jurisdiction, Washington State Department of Ecology

**Washington State Hydraulic Code:** Primary fish and shellfish habitat protection law in Washington State. Under this statute, all projects that involve in-water development, which includes any work that would use, divert, obstruct or change the natural flow or bed of any river or stream or utilize any waters of the state require a Hydraulic Project Approval – commonly called an HPA. Hydraulic Project Approval is required for dredging activities (Washington Department of Fish & Wildlife 2015).

**Implemented by:** Washington State Department of Fish and Wildlife and Washington State Department of Natural Resources

**Washington State Water Pollution Control Act:** The State of Washington is required to issue a Water Quality Certification (or Modification). Issuance of a Section 401 Certification means that Ecology has reasonable assurance that the applicant's project will comply with state water quality standards and other aquatic resources protection requirements under Ecology's authority (US EPA 2015).

**Implemented by:** Washington State Department of Ecology

*Disposal in Marine Waters – Washington State*

**Washington State Aquatic Lands:** Act to protect and manage the use of state-owned aquatic lands. With respect to dredging, the Department of Natural Resources manages and monitors 12 aquatic land disposal sites for dredged materials on state-owned aquatic land, including eight in Puget Sound and the Strait of Juan de Fuca. The Washington Dredged Materials Management Program implements sediment sampling, chemical and biological testing, and test interpretation to evaluate the suitability of dredged material before approving it for in-water disposal (Washington State Department of Natural Resources 2015).

**Implemented by:** Washington State Department of Natural Resources

Local Scale - Regional and subregional policymaking in Washington State

**Laws and Policies**

**Washington State Shoreline Management Act:** Manage and protect the shorelines of the state by regulating development in the shoreline area. Dredging must either be determined to be exempt from permitting, or requires the local agency to issue a permit for the activity (U.S. Army Corps of Engineers 2014).

**Implemented by:** City or County of jurisdiction

**Washington State Floodplain Management:** If dredging is proposed to occur within the 100-year floodplain, a Floodplain Development Permit would be required.

**Implemented by:** City or County of jurisdiction

**Other Policy Actors**

Port authorities often undertake dredging activities to support their port operations.

*Indigenous Peoples – United States*

Tribal involvement in dredging and dredge material disposal includes consultation on non-tribal lands that could impact tribal treaty rights, as well as management of dredging on tribal lands.

In reviewing proposals for dredging activities, the U.S. Army Corps of Engineers must determine if a proposed project may affect the Usual and Accustomed fishing grounds of a Tribe. If a project may affect the Usual and Accustomed fishing grounds of a Tribe, these concerns must be addressed before a permit can be issued.

In addition, if a Tribe has been authorized to administer its own Section 404 permit program, it can authorize dredging activities (Note: No Tribes have assumed administration of the Section 404 program at this time). If a Tribe has been authorized to administer Section 401 of the Clean Water Act (water quality certification), it must determine that a dredging project on tribal lands will comply with state water quality standards and other aquatic resources protection requirements under Ecology's authority (US EPA 2015). Several tribes have been granted Section 401 certification authority under the Clean

Water Act over activities on tribal lands (e.g. Lummi Nation, Makah Tribe, Port Gamble S'Klallam, Puyallup Tribe of Indians, Swinomish Tribe and Tulalip Tribes).

### *Government/Non-Government Collaborations – United States*

Recently, some estuary restoration projects have demonstrated the use of clean dredged sediment from these disposal sites (e.g., Fidalgo Bay Habitat Restoration Project). Disposal or placement must be consistent with sound engineering practices and meet all federal environmental requirements, including those established under the Clean Water Act and the Marine Protection, Research, and Sanctuaries Act (Puget Sound Partnership 2014).

### *Non-Governmental Organizations – United States*

Environmental NGOs may become involved in the permitting review processes associated with dredging and dredge material disposal if they are concerned about potential impacts to habitats or water quality.

## Canada – Dredging and Ocean Dumping

Similar to the United States, dredging and dredge material disposal requires multi-agency review and approval under several different laws and regulations, at different levels of government. For instance:

- Fisheries and Oceans Canada is responsible for ensuring that fish and fish habitat are protected.
- Fisheries and Oceans Canada (Canada Coast Guard) ensures that navigable waters are protected.
- Environment Canada allows the ocean disposal of dredged materials at designated disposal sites along the BC Coast.
- Ministry of Environment is responsible for regulating the environmental quality of sediments disposed on Crown and private land.
- Forests, Lands & Natural Resource Operations is responsible for addressing dredging and disposal of sediment on Crown land.
- The Port Authorities are responsible for managing port activities, port properties, lands granted to them by the federal and provincial governments, channel maintenance.

### *Government Entities - Canada*

#### Federal Scale - Canada

##### *General Information - Canada*

**Canadian Environmental Assessment Act:** Projects that involve a certain size may trigger the requirements for environmental assessment (Government of Canada 2013).

**Implemented by:** Canadian Environmental Assessment Agency; the Canadian Nuclear Safety Commission; or the National Energy Board

**Canada Marine Act:** Establishes authority of ports to administer, manage and control of land and water within its jurisdiction.

**Implemented by:** Ports

**Canadian Fisheries Act:** Requires that projects avoid causing serious harm to fish unless authorized by the Minister of Fisheries and Oceans Canada. This applies to work being conducted in or near waterbodies that support fish that are part of or that support a commercial, recreational or Indigenous fishery. To protect fish and fish habitat, efforts should be made to avoid, mitigate and/or offset harm. Dredging activities are reviewed to ensure that they do not change channel morphology, re-suspend sediments, or change aquatic vegetation in a manner that would impact food supply, habitat structure, etc. (Government of Canada 2010).

Note: Disposal of material from dredging may be exempt if it occurs at an approved marine disposal site used in the past 10 years. Some routine maintenance cleanout of drainage channels may also be exempt.

**Implemented by:** Fisheries and Oceans Canada

**Canada Species at Risk Act:** Act designed to protect endangered and threatened species and their habitat.

**Implemented by:** Environment Canada, Parks Canada, and Fisheries and Oceans Canada

*Disposal in Marine Waters - Canada*

**Canadian Environmental Protection Act:** Environment Canada is the permitting authority for the deliberate disposal of approved substances at sea under the Disposal at Sea Regulations under the Canadian Environmental Protection Act (CEPA). Only those substances listed in Schedule 5 of CEPA 1999 may be considered for disposal at sea. These include dredged material, fisheries waste, ships, inert geological matter, uncontaminated organic matter and bulky substances that are primarily composed of iron, steel, concrete or other similar matter. Incineration at sea is banned except under emergency situations or if it is waste generated on board the ship or structure. Both the proposed dredged materials and the receiving environment must be reviewed to ensure that the activities do not result in significant environmental effects (Government of Canada 2007).

**Implemented by:** Environment Canada

**Canada Navigation Protection Act:** Regulates works and obstructions that risk interfering with navigation in the navigable waters listed on the schedule to the Act. Prohibits the depositing or throwing of materials that risk impacting navigation in navigable waters and the dewatering of navigable waters. Dredging can be classified as a “Minor Work” under this Act, if the work meets the criteria and complies with specific terms and conditions for construction (Government of Canada 2014).

**Implemented by:** Transport Canada

**Canada Shipping Act:** Primary legislation governing marine transport, pollution and safety

**Implemented by:** Transport Canada, Fisheries and Oceans Canada (Canada Coast Guard)

### Provincial Scale – British Columbia

In British Columbia, ownership of water and most streambeds is vested in the Crown. Therefore, several other laws and policy actors are involved at the provincial level, as follows:

#### *General Information – British Columbia*

**British Columbia Environmental Assessment Act:** Projects that involve a certain size may trigger the requirements for environmental assessment.

**Implemented by:** Environmental Assessment Office

**British Columbia Land Act:** Primary article of legislation that is used by the government to convey land to the public for community, industrial and business use. The Act allows the granting of land, and the issuance of Crown land tenure in the form of leases, licenses, permits and rights-of-way for different activities, including (but not limited to) oil and gas, agriculture, aquaculture, forestry, mining, wind power, ocean energy, recreation, residential, etc. Land Use Operational Policies have been established for different types of land uses. Some of these address (e.g. general commercial) address dredging that may be incidental to the land use and apply to the tenure area (Ministry of Forests Lands and Natural Resource Operations 2015).

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

#### *Dredging – British Columbia*

**British Columbia Water Sustainability Act:** Provides the basic regulatory framework for water management in British Columbia (Note: This is a major update to the Water Act which will come into effect in 2016. Dredging is regulated under the Water Act, and is expected to continue under the Water Sustainability Act).

Under the current Water Act, Section 9 requires that a person may only make “changes in and about a stream” under an Approval; in accordance with Part 7 of the Water Regulation, including Notification where required; or under a Water License or Order.

Under the Water Act, “changes in and about a stream” means:

- Any modification to the nature of the stream including the land, vegetation, natural environment or flow of water within the stream, or
- Any activity or construction within the stream channel that has or may have an impact on a stream (Ministry of Forests, Lands and Natural Resource Operations 2015)

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

**Fraser River Sediment Program:** Sediment management program designed to reduce the risk or threat of a flood (Emergency Management BC 2015).

**Implemented By:** Emergency Management BC (EMBC) works with the Department of Fisheries and Oceans Canada, the B.C. Ministry of Forests, Lands and Natural Resource Operations, Transport Canada

## ISSUES IN ENVIRONMENTAL MANAGEMENT: DREDGING & OCEAN DUMPING

and the B.C. Ministry of Environment to select sites. In addition to working on annual removal projects, the partners are working towards developing a long term plan for sediment removal over a 10 year period

### *Disposal in Marine Waters – British Columbia*

**British Columbia Environmental Management Act:** Principal environmental statute in B.C. Under the EMA, waste (which includes air emissions, effluent and refuse) cannot be released into the environment except in accordance with a permit or a regulation. Dredge disposal may require EMA approvals from the Ministry of the Environment, depending on the material and the location (Province of British Columbia 2015).

***Implemented By:*** British Columbia Ministry of Environment

### Local Scale - Regional and subregional policymaking in British Columbia

Local jurisdictions may have specific bylaws that address dredging activities.

### *Indigenous Peoples - Canada*

The Province is legally obligated to consult and accommodate (where required) First Nations on land and resource decisions that could impact their Indigenous Interests.

### *Government/Non-Government Collaborations - Canada*

None identified.

### *Non-Governmental Organizations - Canada*

Environmental NGOs may become involved in the permitting review processes associated with dredging and dredge material disposal if they are concerned about potential impacts to habitats or water quality.

### *Transboundary Policymaking - Dredging and Ocean Dumping*

**London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) and the 1996 Protocol:** International treaty governing ocean dumping (International Maritime Organization 2015).

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**ENDANGERED SPECIES/  
SPECIES AT RISK**

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## Section 3.6: Endangered Species/Species at Risk – Table of Contents

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### 3.6 ENDANGERED SPECIES/SPECIES AT RISK

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The Salish Sea is a rich ecosystem with many species of birds and mammals that use the marine environment for some or part of their life cycle. Yet, the species that depend on the Salish Sea for food or habitat have experienced serious declines and are at risk or vulnerable to extinction. As reported in the *Health of the Salish Sea Ecosystem Report*, nearly 30 percent of birds and 38 percent of mammals are already listed as either threatened, endangered or are candidates for these designations (US EPA 2011). Further, long term monitoring has shown population declines in species, even if those are not candidates for designation. As an example, population declines are being experienced in nearly 40 percent of the most common marine bird species (including seabirds, sea ducks, and shorebirds) that overwinter in the Salish Sea – this is particularly worrisome because these species are near the top of the food chain. Population declines have not abated and appear to be on the increase. Between 2008 and 2011, 23 new species were listed as either threatened, endangered or are candidates for these designations, including five fish species and 18 birds (US EPA, Region 10 2015).

Many factors can play a role in loss of biodiversity, including sprawling population growth, overfishing, pollution, changes in availability of food sources (which are also being impacted by environmental factors), loss of habitat and other environmental factors such as climate change (US EPA, Region 10 2015).

Governments on both sides of the border are taking actions such as developing species recovery and management plans, establishing catch restrictions, and creating conservation areas to help recover and maintain declining species. However, there are a number of key differences in the governance of species of concern (Waples et al 2013), including:

- Different definitions used for ‘endangered’
- Different provisions for listing of subspecies
- Different criteria for listing assessment
- Different consideration of socioeconomic factors
- Different review body(s) conducting evaluations

As an example, the species’ status over the varying jurisdictions may be inconsistent, leading to different management strategies across the border. As an example, Table 3.6.1 overviews some of the key species that have been listed in the Salish Sea region:

*Table 3.6.1: Comparison of Endangered Species/Species at Risk in United States and Canada*

Species	United States Status	Canada Status
Chinook Salmon ( <i>Oncorhynchus tshawytscha</i> )	Federal: Threatened for Puget Sound population	Federal: No status (considered Threatened and under consideration for addition to SARA)

## ISSUES IN ENVIRONMENTAL MANAGEMENT: ENDANGERED SPECIES/SPECIES AT RISK

	State: Candidate for Puget Sound population	Province: Apparently secure
Steelhead ( <i>Oncorhynchus mykiss</i> )	Federal: Threatened for Puget Sound population  State: No status for Puget Sound population	Federal: No status  Province: Demonstrably widespread, abundant, and secure
Bull trout ( <i>Salvelinus confluentus</i> )	Federal: Threatened  State: Candidate	Federal: Under consideration for addition to SARA  Province: Blue List, species of Special Concern
Orca whale ( <i>Orcinus orca</i> )	Federal: Endangered for the southern resident population  State: Endangered for all populations	Federal: Endangered for Northeast Pacific southern resident population  Province:  Critically imperiled for Northeast Pacific southern resident population
Rockfish (varies)	Federal: Endangered for Bocaccio rockfish and Threatened for Canary Rockfish and Yelloweye rockfish  State: Candidate for 13 species of Rockfish (including federally listed)	Federal: Species of Concern for Rougheye Rockfish and Yelloweye Rockfish  Province: No status
Oregon Forestsnail ( <i>Allogona townsendiana</i> )	Federal: No status  State: No status	Federal: Endangered  Province: Critically imperiled

These differences may be a result of varying approaches used in the respective countries for making listing determinations. For example, in the United States, federal ESA listing determinations are made by US federal managers, after considering available scientific information. In Canada, status assessments under SARA fall to an independent advisory body, and the government takes factors other than a species' status into account before deciding whether to list that species (Waples et al 2013). These and other differences can influence which species receive formal protection.

(Note: Habitats for at-risk species are often protected by the series of public lands in the two countries. The Public Lands section addresses the myriad types of protected areas and managing agencies).

## United States – Endangered Species

Protection of plants, animals and habitats has traditionally been reserved for state governments. However, under the power of the Constitution Commerce Clause, the federal government has enacted a wide range of environmental laws, including the Endangered Species Act (ESA). Through the ESA, the federal government now exercises power to regulate listed species and their associated habitat to achieve conservation and recovery (Baur and Irvin 2010). Recognizing the role of states in endangered species management, the ESA authorized the Secretary of the Interior to enter into cooperative agreements with states that established "adequate and active" programs of protection. The Washington State Department of Fish and Wildlife (WDFW) has entered into cooperative agreements with federal agencies involved in endangered species management under these provisions (Washington Department of Fish & Wildlife 2015a; "Limited Cooperative Agreement Between the United States Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service and the Washington Department of Fish and Wildlife for the Conservation of Threatened and Endangered Species" 2010). As a result, this agency is eligible for federal financial assistance to provide conservation programs or assist in monitoring species. In addition, WDFW is authorized to conduct law enforcement, research, management, and public information and education activities related to endangered and threatened species.

### *Government Entities – United States*

#### Federal Scale – United States

**United States Endangered Species Act:** Provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. Requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife except under Federal permit<sup>4</sup> (US Fish and Wildlife Service. 2015a). Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Through regulations, the term "harm" is defined as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." (US Fish and Wildlife Service. 2015a). Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on Federal land. Likewise, import, export, interstate, and foreign commerce of listed species are all generally prohibited. The law's ultimate goal is to "recover" species so they no longer need protection under the ESA.

#### The Act:

- Authorizes the designation and listing of species as endangered and threatened;
- Prohibits unauthorized taking, possession, sale, and transport of endangered species;

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<sup>4</sup> This provision applies specifically to threatened species. Regulations for threatened species are promulgated as needed.

- Provides authority to acquire land for the conservation of listed species, using land and water conservation funds;
- Authorizes establishment of cooperative agreements and grants-in-aid to states that establish and maintain active and adequate programs for endangered and threatened wildlife and plants.

Under the ESA, species may be listed as either endangered or threatened. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing as endangered or threatened (US Fish and Wildlife Service. 2015a). For the purposes of the ESA, Congress defined species to include subspecies, varieties, and, for vertebrates, distinct population segments (Waples et al 2013).

Section 4 of the ESA requires species to be listed as endangered or threatened solely on the basis of their biological status and threats to their existence. The US Fish and Wildlife Service (USFWS) and the NOAA Fisheries (NMFS) conduct most status reviews in response to petitions; however, reviews can also be initiated by the services (Waples et al 2013). When evaluating a species for listing, the agency must consider five factors: 1) damage to, or destruction of, a species’ habitat; 2) overutilization of the species for commercial, recreational, scientific, or educational purposes; 3) disease or predation; 4) inadequacy of existing protection; and 5) other natural or manmade factors that affect the continued existence of the species. Staff in the USFWS and the NMFS make the listing decisions, following input from government scientists and others. Listing decisions must be based on the best scientific information available. Listing decisions are reviewed at least every 5 years by the USFWS and the NMFS. The following are links to listed species:

- [United States Fish & Wildlife Service \(USFWS\) Listed Species](#)
- [National Marine Fisheries Service \(NOAA Fisheries\) Listed Species](#)

Section 7 of the ESA requires Federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with the FWS and NMFS, as appropriate, to ensure that effects of actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species (US Fish and Wildlife Service. 2015a). During consultation the “action” agency receives a “biological opinion” or concurrence letter addressing the proposed action. USFWS and the NMFS are required to develop and implement recovery plans unless doing so would not promote conservation; a progress report to Congress is required every 2 years (Waples et al 2013).

The ESA also requires the designation of “critical habitat” for listed species when “prudent and determinable.” (US Fish and Wildlife Service. 2015a). Critical habitat includes geographic areas that contain the physical or biological features that are essential to the conservation of the species and that may need special management or protection. Critical habitat designations affect only Federal agency actions or federally funded or permitted activities. Federal agencies are required to avoid “destruction” or “adverse modification” of designated critical habitat.

Section 10 of the ESA may be used by landowners including private citizens, corporations, Tribes, States, and counties who want to develop property inhabited by listed species. Landowners may receive a permit to take such species incidental to otherwise legal activities, provided they have developed an approved habitat conservation plan (HCP) (US Fish and Wildlife Service. 2015a). HCPs include an assessment of the likely impacts on the species from the proposed action, the steps that the permit

holder will take to avoid, minimize, and mitigate the impacts, and the funding available to carry out the steps.

(Note: Authorization for spending under ESA expired on October 1, 1992. The prohibitions and requirements of ESA remain in force, even in the absence of an authorization, and funds have been appropriated to implement the administrative provisions of ESA in each subsequent fiscal year. It is not known when reauthorization will be addressed next and the extent of changes that may come about as part of reauthorization).

***Implemented By:***

- United States Fish and Wildlife Service (terrestrial and freshwater organisms)
- United States National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (marine wildlife such as whales and anadromous fish including salmon)

***Other***

**The Land and Water Conservation Fund (LWCF)**: This law established a fund for providing federal assistance to the States in planning, acquisition, and development of needed land and water areas and facilities as well as providing funds for the Federal acquisition and development of certain lands and other areas. Funds are generated from a portion of revenues from offshore drilling paid by oil companies, sale of surplus land and other sources. (Note: In 2014, the LWCF Coalition formed to advocate for dedicated funding for the program).

**Northwest Power Planning and Conservation Act**: Holds Bonneville Power Administration (BPA) responsible for mitigating fish and wildlife losses to the region (Municipal Research and Services Center 2015).

**State Scale – Washington State**

**Department of Fish and Wildlife Regulations**: The Washington State Species of Concern are listed [here](#). Species can be listed at the state level, but not at the federal level and vice versa. In addition, their type of listing can differ.

"Endangered" means any wildlife species native to the state of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the state (Washington Department of Fish & Wildlife 2015d).

"Threatened" means any wildlife species native to the state of Washington that is likely to become an endangered species within the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats (Washington Department of Fish & Wildlife 2015d).

"Sensitive" means any wildlife species native to the state of Washington that is vulnerable or declining and is likely to become endangered or threatened in a significant portion of its range within the state without cooperative management or removal of threats (Washington Department of Fish & Wildlife 2015d).

"Candidate" includes fish and wildlife species that the Department will review for possible listing as State Endangered, Threatened, or Sensitive. A species will be considered for designation as a State Candidate species if sufficient evidence suggests that its status may meet the listing criteria defined for State Endangered, Threatened, or Sensitive in WAC 232-12-297, Section 3.3: "When populations are in danger of failing, declining, or are vulnerable, due to factors including, but not restricted to, limited numbers, disease, predation, exploitation, or habitat loss or change." (Washington Department of Fish & Wildlife 2015d)

State Monitor species are not considered Species of Concern, but are monitored for status and distribution. They are managed by the Department, as needed, to prevent them from becoming endangered, threatened, or sensitive (Washington Department of Fish & Wildlife 2015d).

Status determinations are made under a set of procedures adopted by the Washington Fish and Wildlife Commission; the procedures were developed by a group of citizens, interest groups, and state and federal agencies. Public review of listings is part of the process (Washington Department of Fish & Wildlife 2015c). Final listing decisions are made by the Washington Fish and Wildlife Commission.

Washington State Department of Fish and Wildlife maintains information on important fish, wildlife, and habitat resources in Washington as part of its Priority Habitats and Species (PHS) Program (Washington Department of Fish & Wildlife 2015b).

**Implemented By:** Washington State Department of Fish and Wildlife and the Washington Fish and Wildlife Commission

**Habitat Conservation Plan(s):** A number of different agencies have completed Habitat Conservation Plan(s) in response to a species' listing and as part of their management activities that may impact the listed species. As an example, the Washington State Department of Natural Resources has developed a Forest Practices Habitat Conservation Plan (HCP) in response to the federal listing of certain threatened and endangered fish species (Washington State Department of Natural Resources 2015). DNR manages forestry practices on private land under the State's Forest Practices Act and rules. The purpose of the HCP is to ensure that landowners who conduct forest practices activities in compliance with the Forest Practices Act and rules will also be following the requirements of the Federal Endangered Species Act for those species.

Another example is the [Rockfish Conservation Management Plan](#), which is designed to help restore and maintain abundance, distribution, diversity and long-term productivity of rockfish populations in Puget Sound (US EPA 2015b).

**Implemented By:** Various agencies

**Puget Sound Action Agenda:** The Puget Sound Partnership is working with other state, local, federal and tribal programs to protect and restore local habitats including shorelines and riparian areas, estuary wetlands, eelgrass and floodplain habitats (US EPA 2015b).

#### Local Scale - Regional and subregional policymaking in Washington State

Cities and Counties play a key role in managing land use planning and permitting. In this role, these local governments have the authority to regulate development including clearing, grading, and construction.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: ENDANGERED SPECIES/SPECIES AT RISK

These activities may occur within areas that provide habitat to species of concern. The following overviews some of the mechanisms by which protection of these areas occurs at the local level:

**Washington State Growth Management Act:** Under the State's GMA, fish and wildlife habitat conservation areas are considered 'critical' areas that must be designated and their functions and values protected using the best available scientific information - known as best available science or BAS (Washington State Department of Commerce 2015). In addition, jurisdictions must also "give special consideration to conservation and protection measures necessary to preserve or enhance anadromous fisheries." [RCW 36.70A.172 (1)] (Washington State Department of Commerce 2015)

The designation of fish and wildlife habitat conservation areas should include:

- Areas with which endangered, threatened, and sensitive species have a primary association.
- Habitats and species of local importance.
- Commercial and recreational shellfish areas.
- Kelp and eelgrass beds.
- Mudflats and marshes.
- Herring, surf smelt and sand lance spawning areas.
- Naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat.
- Waters of the state.
- Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.
- State natural area preserves and natural resource conservation areas
- Areas critical for habitat connectivity.

GMA requires cities and counties across the state to address proposed development that directly or indirectly impacts fish and wildlife habitat. Fish and wildlife habitat conservation is the management of land for maintaining species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created. Under the guidance of the GMA, local jurisdiction may adopt a number of different provisions in their respective zoning and municipal codes to respond to the requirement to protect fish and wildlife habitat conservation areas, including (but not limited to):

- Requiring developers on private land to submit Habitat Conservation Plans;
- Classifying and protecting streams with different buffers, depending on the functions of the streams;
- Requiring daylighting of piped streams;
- Protecting nearshore marine habitats; and

- Requiring stormwater management, including treatment of water entering ditches and drainage structures.

**Washington State Shoreline Management Act:** Requires protection of habitats with which federally and state-listed species have a primary association.

**Washington State Environmental Policy Act:** Under SEPA, the responsible agency conducting the environmental review must determine whether the proposed action will result in an adverse effect to endangered or threatened species or their habitat.

#### *Indigenous Peoples – United States*

If implementation of the ESA may impact tribal trust resources, the exercise of tribal rights, or Indian lands, the appropriate federal agency is required to consult with, and seek the participation of, the affected tribes to the maximum extent practicable (US EPA, American Indian Environmental Office. 2015). This includes opportunities to participate in data collection, consensus seeking, and associated processes. Government-to-government consultation is required to discuss the extent to which tribal resource management plans for tribal trust resources outside Indian lands can be incorporated into actions to address the conservation needs of listed species. Tribal governments may petition the USFWS or NMFS to list species, and may comment on proposed listings, critical habitat designations, and recovery plans. Tribes may also enter into conservation agreements regarding species considered candidates for listing, which may eliminate the need for listing.

If Tribal activities, such as tribal hunting and fishing, may raise the possible issue of direct take, a government-to-government consultation is required to occur between federal government agencies and Tribes.

**Executive Order 13175:** Executive Order issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes (NOAA Fisheries West Coast Region 2015).

**American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act (Secretarial Order No. 3206):** The Secretaries of the Commerce and the Interior have issued an Order outlining the administration of the Endangered Species Act as it affects Indian lands, tribal trust resources and the exercise of tribal treaty rights (US Fish and Wildlife Service 2015g; NOAA Fisheries West Coast Region 2015).

**Department of Commerce Department Administrative Order 218-8:** Implements Executive Order 13175 establishing procedures for consultation and coordination with Indian Tribal Governments (NOAA Fisheries West Coast Region 2015).

#### *Other*

**Northwest Indian Fisheries Commission** - Established by treaty and assists the tribes in conducting orderly and biologically-sound fisheries and to provide member tribes with a single, unified voice on the fisheries management and conservation issues (Municipal Research and Services Center 2015a).

### *Government/Non-Government Collaborations – United States*

#### *Federal*

The USFWS has identified a number of partnerships with NGOs involved in species conservation (US Fish and Wildlife Service 2015e), including:

- Association of Zoos and Aquariums (AZA)
- Bat Conservation International (BCI)
- Center for Plant Conservation
- National Fish and Wildlife Foundation (NFWF)
- The Nature Conservancy
- NatureServe
- North American Native Fishes Association

In addition, USFWS operates the Partners for Fish and Wildlife Program, which is a national, voluntary habitat restoration program that provides financial and technical assistance to private landowners, Tribes, and other conservation partners. It focuses on restoring habitat for migratory birds, anadromous fish, and declining plant and animal species. Focus habitats in Washington include prairies, wetlands, and riparian and instream habitats (US Fish and Wildlife Service 2015g).

USFWS also has approved a number of conservation banks. Conservation banks are permanently protected lands that contain natural resource values (US Fish and Wildlife Service 2015b). These lands are conserved and permanently managed for species that are endangered, threatened, candidates for listing as endangered or threatened, or are otherwise species-at-risk. Conservation banks function to offset adverse impacts to these species that occurred elsewhere, sometimes referred to as off-site mitigation. In exchange for permanently protecting the land and managing it for these species, the U.S. Fish and Wildlife Service (FWS) approves a specified number of habitat or species credits that bank owners may sell.

In addition, NOAA Fisheries partners with the Pacific Fishery Management Council (Office of Sustainable Fisheries 2015). The Magnuson-Stevens Fishery Conservation and Management Act (MSA) created the Pacific Fishery Management Council as one of the eight regional fishery management councils (councils) responsible for the fisheries that require conservation and management in their region. The councils are composed of both voting and non-voting members representing the commercial and recreational fishing sectors in addition to environmental, academic, and government interests. Councils are responsible for:

- Development and amendment of Fishery Management Plans
- Convening committees and advisory panels and conducting public meetings
- Developing research priorities in conjunction with a Scientific and Statistical Committee

## ISSUES IN ENVIRONMENTAL MANAGEMENT: ENDANGERED SPECIES/SPECIES AT RISK

- Selecting fishery management options
- Setting annual catch limits based on best available science
- Developing and implementing rebuilding plans

NOAA Fisheries also partners with the [Pacific States Marine Fisheries Commission \(PSMFC\)](#) which promotes and supports actions to conserve, develop, and manage fishery resources in California, Oregon, Washington, Idaho, and Alaska by coordinating research activities, monitoring fishing activities, and facilitating a wide variety of projects (Office of Sustainable Fisheries 2015).

In addition, UWFWS and NOAA Fisheries have authority to enter into Safe Harbor Agreements (SHA) with property owners. A SHA is a voluntary agreement involving private or other non-Federal property owners whose actions contribute to the recovery of species listed as threatened or endangered under the Endangered Species Act (ESA). In exchange for actions that contribute to the recovery of listed species on non-Federal lands, participating property owners receive formal assurances from the Service that if they fulfill the conditions of the SHA, the Service will not require any additional or different management activities by the participants without their consent (US Fish and Wildlife Service 2015c).

### *State*

Numerous partnerships have been established to focus on species conservation and recovery. Partnerships are often centered on a specific species of concern. For instance, in its 2012 Annual Report, the Washington State Department of Fish and Wildlife (Washington Department of Fish & Wildlife 2013) recognized the following partners for Orca Whale recovery:

NOAA Fisheries, Fisheries and Oceans Canada, Center for Whale Research, The Whale Museum, Orca Network, Seattle Aquarium, Puget Sound Partnership, Washington State Department of Ecology, U.S. Coast Guard, University of Washington, Olympic Coast National Marine Sanctuary, Cascadia Research Collective, Straitwatch, Cetus Research and Conservation Society, Pacific Whale Watch Association, Marine Resources Committee of San Juan County, Vancouver Aquarium, SeaDoc Society, Portland State University, University of British Columbia, Parks Canada, Georgia Strait Alliance, Washington Environmental Council, and Coast Watch Society.

### *Non-Governmental Organizations – United States*

Non-governmental agencies use different approaches to engage in protection of at-risk species, including litigation and collaboration (Long 2005).

The Endangered Species Act provides opportunities for civil suits to ensure compliance with the Act. As a result, NGOs often use litigation to force agency action, such as petitioning the government to list a species, filing lawsuits to require timely agency action, and challenging decisions not to list through litigation. For example, in 2003, the National Wildlife Federation filed a lawsuit against FEMA arguing that the National Flood Insurance Program is contributing to the extinction of salmon and orca in Puget Sound and therefore in violation of the Endangered Species Act (National Wildlife Federation 2015). This suit resulted in required changes to the National Flood Insurance program, including the following:

- Improving the accuracy of floodplain maps. This includes incorporating future conditions such as climate change in floodplain delineations.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: ENDANGERED SPECIES/SPECIES AT RISK

- Incorporating salmon habitat protections into eligibility requirements to qualify for flood insurance.
- Creating incentives for habitat protection through the Community Rating System (CRS).
- Improving the habitat value of levees.
- Monitoring floodplain development more closely and mitigating any harm to salmon habitat allowed by the flood insurance program.

A number of organizations also work collaboratively with private landowners and agencies to help protect and recover species. This can include restoring habitats, monitoring populations, and conducting outreach and education to the public on emerging issues. It can also include land conservation through land trusts, conservation easements and other similar mechanisms. There are a number of land trusts and conservation organizations that have acquisition programs, or conduct partial acquisition of development rights or conservation easements, and conservation leasing. These include:

- Bainbridge Island Land Trust
- Capitol Land Trust
- Center for Natural Lands Management
- Chehalis River Basin Land Trust
- The Conservation Fund
- Forterra
- Great Peninsula Conservancy
- Jefferson Land Trust
- Kittitas Conservation Trust
- Lummi Island Heritage Trust
- Nisqually Land Trust
- North Olympic Land Trust
- PCC Farmland Trust
- San Juan Preservation Trust
- Skagit Land Trust
- The Nature Conservancy of Washington
- The Trust for Public Land

- Vashon-Maury Island Land Trust
- Vital Ground
- Whatcom Land Trust
- Whidbey Camano Land Trust

These land trusts are coordinated through the Washington Association of Land Trusts.

NGOs also work to publicize information, lobby governments, and influence conferences. An example of this is the Endangered Species Coalition, which is a national network of conservation, scientific, education, religious, sporting, outdoor recreation, business and community organizations. Another example is the Center for Biological Diversity, who works to protect endangered species by:

- Compiling and analyzing data about species status and recovery.
- Submitting legal petitions, filing lawsuits when necessary, using the leverage of our supporters' voices and taking multiple other actions to ensure that imperiled species are federally protected.
- Obtaining adequate amounts of critical habitat for species.
- Advocating for sound conservation policy.
- Watchdogging Congress and government agencies.

### Canada – Species at Risk

The provinces have jurisdiction over most wildlife within their borders. There are three principal exceptions to this (Beckplumb 2013). The federal government has primary jurisdiction over:

- Wildlife on federal lands, such as in national parks and national wildlife areas;
- Aquatic species, including marine mammals, such as whales; and
- Migratory birds

#### *Government Entities - Canada*

#### Federal Scale - Canada

**Species at Risk Act:** Act designed to protect endangered and threatened species and their habitat, including the following:

- Requires permit to engage in an activity affecting a listed wildlife species, any part of its critical habitat or its residences on federal lands.

- Established the **Committee on the Status of Endangered Wildlife in Canada** (COSEWIC) as an independent body of experts responsible for assessing and identifying species at risk. COSEWIC functions as a national advisory board and is made up of representatives from both within and outside the government. The board incorporates aboriginal traditional knowledge (ATK) into its decision-making;
- Requires that the best available knowledge be used to define long and short-term objectives in a recovery strategy and action plan;
- Created prohibitions to protect listed threatened and endangered species and their critical habitat;
- Creating a public registry to assist in making documents under the Act more accessible to the public (Environment Canada 2009).

For the purposes of SARA, species are defined to include subspecies, varieties, or geographically or genetically distinct populations. SARA has the following status categories:

- EXTINCT: A species that no longer exists.
- EXTRATED: A species that no longer exists in the wild in Canada, but occurring elsewhere.
- ENDANGERED: A species facing imminent extirpation or extinction.
- THREATENED: A species that is likely to become endangered if limiting factors are not reversed.
- SPECIAL CONCERN: A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events.

Initiation of the assessment process typically originates from COSEWIC, but unsolicited requests also come from government and the public (Waples et al 2013). A decision not to list can be based on perceived socioeconomic consequences of listing decisions. International Union for Conservation of Nature criteria are used by COSEWIC as a guide in the status assessment. COSEWIC oversees status assessments and makes final recommendations regarding status. Species are generally not protected under SARA until they are added by the Federal Cabinet to the SARA Schedule 1 list.

Once listed, it becomes illegal to harm, sell, buy, or trade it or to destroy its “residence”. However, these prohibitions apply only to aquatic species, birds protected under the Canadian Migratory Birds Convention Act, and those species on federal lands. Therefore, the protections in SARA currently apply throughout Canada to all aquatic species and migratory birds (as listed in the Migratory Birds Convention Act) regardless of whether the species is resident on federal, provincial, public or private land (Waples et al 2013). Other federally listed species on private and provincial or territorial lands are subject to prohibitions articulated by provincial or territorial statutes.

If the minister of the environment concludes that provincial or territorial laws do not provide effective protection, the federal government can invoke prohibitions on provincial or territorial and private lands, but such actions have yet to be taken (Waples et al 2013).

SARA provides the ability to protect species' critical habitat. An example of this is the establishment of Rockfish Conservation Areas by the Canada Department of Fisheries and Oceans. The RCAs were established to protect rockfish from recreational and commercial fisheries.

In addition, recovery strategies and action plans must be created for endangered or threatened species. Recovery strategies can also address a species critical habitat (Fisheries and Oceans Canada Government of Canada 2004).

**Implemented by:** Environment Canada, Parks Canada, and Fisheries and Oceans Canada

### Provincial Scale – British Columbia

British Columbia has no stand-alone endangered species act. Instead, BC addresses species at risk through the following agreements, laws and policies:

**Canada-British Columbia Agreement on Species at Risk:** Agreement established to coordinate activities and programs related to species at risk (Ministry of Environment et al 2005).

**Implemented by:** Ministry of Environment, Ministry of Fisheries and Oceans, and Province of British Columbia

**Wildlife Act:** Protects vertebrate animals from direct harm, except as allowed by regulation (e.g., hunting or trapping) (BC Ministry of Environment 2015a).

Section 6 of the Act allows the provincial cabinet to designate a species as "endangered" if as a result of the action of humans it is threatened with imminent extinction throughout all or a significant portion of its range. Species may be designated as "threatened" if it is likely to become endangered if factors affecting its vulnerability are not reversed (West Coast Environmental Law 2015).

Protective measures include prohibitions against the following unauthorized actions (unless specifically authorized by regulation or by the Minister of Environment for designated purposes such as scientific research, education, or conservation measures such as captive breeding):

- Kill, harm, harass, capture or take an individual of a species at risk;
- Damage or destroy a species residence of a species at risk;
- Import a live species at risk into British Columbia;
- Export a species at risk from British Columbia, including a species individual or part;
- Traffic in species individuals, parts or meat of a species at risk;
- Possess a species individual or a part; or
- Ship or transport a species at risk individual or part within British Columbia (BC Ministry of Forests, Lands and Natural Resource Operations 2015a).

Legal designation as Endangered or Threatened under the Act also enables the protection of habitat in a Critical Wildlife Management Area (BC Ministry of Environment 2015a). Wildlife management areas may be designated by the Minister of Forests, Lands and Natural Resources with consent from the provincial cabinet. There are currently 28 designated WMAs in BC (BC Ministry of Forests, Lands and Natural Resource Operations 2015c). Activities that involve use of land or resources in a WMA require written permission from the appropriate regional manager under the Wildlife Act. The regional manager may establish orders that prohibit or restrict certain activities in a WMA. Government may also make certain regulations respecting use or occupation of a WMA. A management plan, developed in consultation with partners, First Nations, agencies, stakeholders and the public is used to help guide activities in a WMA.

(Note: Fish species are not eligible for designation as an endangered or threatened wildlife species).

**Implemented by:** Ministry of Forests, Lands & Natural Resource Operations

**Forest and Range Practices Act:** Species at risk can be designated as "Identified Wildlife" if the species requires special management to address the impacts of forest and range activities. The terms "wildlife" and "species at risk" have been defined in the Act so that endangered, threatened, or vulnerable species of vertebrates and invertebrates, endangered or threatened plants and plant communities, and regionally important vertebrates may be designated as Identified Wildlife (BC Ministry of Environment. 2015a).

Identified Wildlife are managed through the establishment of wildlife habitat areas (WHAs) and implementation of general wildlife measures (GWMs), or through other management practices specified in strategic or landscape level plans (BC Ministry of Environment 2015d). The goal of these designations is to minimize the effects of forest and range practices on Identified Wildlife, and to maintain their limiting habitats throughout their current ranges and, where appropriate, their historic ranges.

**Implemented by:** Ministry of Environment and Ministry of Forests, Lands & Natural Resource Operations

**B.C. Conservation Data Centre:** Assigns provincial conservation status to species at risk. The following factors are considered in assigning the Provincial Conservation Status Rank:

- Total number and condition of occurrences
- Population size (species only)
- Range extent and area of occupancy
- Short- and long-term trends in the foregoing factors
- Threats
- Intrinsic vulnerability
- Environmental specificity

## ISSUES IN ENVIRONMENTAL MANAGEMENT: ENDANGERED SPECIES/SPECIES AT RISK

Provincial Status applies to a species' or ecological community's conservation status in British Columbia. The status ranks have the following meaning:

- X = presumed extirpated
- H = historical (species)/possibly extirpated (communities)
- 1 = critically imperiled
- 2 = imperiled
- 3 = special concern, vulnerable to extirpation or extinction
- 4 = apparently secure
- 5 = demonstrably widespread, abundant, and secure.
- NA = not applicable
- NR = unranked
- U = unrankable

Species and ecological communities are then assigned to one of three lists (BC Ministry of Environment 2015b), based on their provincial Conservation Status Rank:

- Red-listed species and ecological communities are Extirpated, Endangered, or Threatened in British Columbia. Extirpated taxa no longer exist in the wild in British Columbia, but do occur elsewhere. Endangered taxa are facing imminent extirpation or extinction. Threatened taxa are likely to become endangered if limiting factors are not reversed. Not all Red-listed taxa will necessarily become formally designated. Placing taxa on these lists flags them as being at risk and requiring investigation.
- Blue-listed species and ecological communities are of Special Concern (formerly Vulnerable). Taxa of Special Concern have characteristics that make them particularly sensitive or vulnerable to human activities or natural events. Blue-listed taxa are at risk, but are not Extirpated, Endangered or Threatened.
- Yellow-listed species and ecological communities are secure. Yellow-listed species may have red- or blue-listed subspecies.

The RED and BLUE lists serve two purposes (BC Ministry of Environment 2015b):

- To provide a list of species for consideration for more formal designation as Endangered or Threatened, either provincially under the British Columbia Wildlife Act, or nationally by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).
- To help inform setting conservation priorities for species/ecological communities considered at risk in British Columbia.

**Implemented by:** Ministry of Environment

**BC Conservation Framework:** British Columbia's Ministry of Environment developed a set of science-based tools and actions - called a Conservation Framework - for conserving species and ecosystems. A centerpiece of this framework is the [BC Species and Ecosystems Explorer](#) which provides conservation information on approximately 6,000 species and 600 ecological communities in British Columbia.

**Implemented by:** Ministry of Environment

**Report of the British Columbia Task Force on Species at Risk:** Report by Task Force that identifies impediments to effective management of species at risk and the remedies needed to address them by refinements to existing statutes, regulations, management systems and citizen engagement practices (British Columbia Task Force on Species at Risk 2011).

#### Local Scale - Regional and subregional policymaking in British Columbia

Local governments, through their bylaws, also have the power to regulate activities that have the potential to harm habitat for at-risk species. Streamside Protection Bylaws are one example of a bylaw that protection riparian habitat. The protection measures are intended to minimize or prevent impacts of residential, commercial, or industrial developments on stream channels, aquatic ecosystems, water quality, and riparian areas.

*Other*

**Species and Ecosystems at Risk Local Government Working Group:** Established to foster communication and collaboration with representatives from local governments on species and ecosystems at risk.

#### *Indigenous Peoples - Canada*

*Federal*

SARA acknowledges the valuable role Indigenous people can play in the recovery and protection of species at risk by authorizing the consideration of traditional knowledge of Indigenous peoples in the assessment of species at risk and development of recovery measures (Assembly of First Nations 2009). SARA also established the [\*\*National Aboriginal Council on Species at Risk\*\*](#) to advise the federal Minister of Environment on the administration of SARA and provide advice and recommendations to the [\*\*Canadian Endangered Species Conservation Council\*\*](#). In addition, SARA established the [\*\*Aboriginal Traditional Knowledge Subcommittee on Species at Risk\*\*](#), a subcommittee of the Committee on the Status of Endangered Wildlife in Canada (Assembly of First Nations 2009).

First Nation reserves under federal jurisdiction would be subject to regulation under SARA (same as federal lands). First Nations must be consulted when regulations are drafted affecting reserve lands.

SARA requires that the recovery strategy be prepared in cooperation with every Indigenous organization that the minister considers will be directly affected by the recovery strategy and in cooperation with the appropriate Wildlife Management Boards under Land Claims Agreements (Assembly of First Nations 2009). (Note: There appear to be no existing Wildlife Management Boards established in the Salish Sea region).

The federal government has established an Aboriginal Fund for Species at Risk Program to promote the conservation and protection of Canada's biodiversity by supporting species recovery planning, habitat protection, and overall conservation and capacity building initiatives by Indigenous people in Canada. The Aboriginal Fund for Species at Risk Program include two funds: the Aboriginal Capacity Building Fund, which supports Indigenous organizations and communities across Canada in building capacity to enable their participation in the conservation and recovery of species at risk, and the Aboriginal Critical Habitat Protection Fund, which supports the recovery of species and protection of important habitat on Indigenous lands (Environment Canada 2009). The Funds are co-managed by Environment Canada, Fisheries and Oceans Canada and Parks Canada Agency, with the cooperation of Indian and Northern Affairs Canada. Fisheries and Oceans Canada must manage the funds pertaining to aquatic projects, and Environment Canada is responsible for land projects.

### *Province*

With respect to Wildlife Management Areas (WMAs), First Nations may continue to exercise their Indigenous rights in WMAs but may be limited by conservation concerns and public health and safety legislation. Exceptions are provided for medicinal and ceremonial uses of a species protected under SARA by an Indigenous person. First Nations are consulted in developing management plans for WMAs. Designation and management of WMAs does not affect future land claim settlements.

### *Government/Non-Government Collaborations - Canada*

#### *Federal:*

**Habitat Stewardship Program (HSP) for Species at Risk:** Fund that contributes to the recovery of endangered, threatened, and other species at risk, and to preventing other species from becoming a conservation concern. Activities must take place on private lands, provincial Crown lands, Indigenous lands, or in aquatic and marine areas across Canada. The program also fosters partnerships among organizations interested in the recovery of species at risk and other priority species.

#### *Province:*

Some of the ministry's key conservation land partners include:

- Ducks Unlimited Canada
- The Nature Trust of BC
- Habitat Conservation Trust Foundation
- Nature Conservancy of Canada
- The Land Conservancy of BC
- Environment Canada/Canadian Wildlife Service
- Pacific Salmon Foundation
- First Nations and other federal, Provincial and local government agencies

- Other non-governmental organizations and industry

**Habitat Conservation Trust Fund:** Funds fish and wildlife enhancement work and habitat conservation, primarily from hunting and fishing license surcharges. Managed by a board composed of stakeholders (Habitat Conservation Trust Fund Foundation 2015).

**BC Hydro - Fish Wildlife and Compensation Program:** Funds projects designed to conserve and enhance fish, wildlife and their supporting habitats affected by the creation of BC Hydro owned and operated generation facilities in the Coastal, Columbia and Peace regions of British Columbia.

**South Coast Conservation Program:** Established by government and non-government organizations to fill coordination gaps between various levels of government, conservation groups, land use interests and local communities to conserve species and ecological communities at risk. The SCCP is active in a range of activities, including: workshops on guidelines and stewardship practices, networking through social media and supporting on-the-ground applied science on priority species and their habitats (South Coast Conservation Program 2015).

**Pacific Estuary Conservation Program:** Habitat conservation program formed by a group of government agencies and non-government organizations in British Columbia, with goal of better coordinate efforts to protect environmentally valuable estuaries along the rugged B.C. coast. The present partners of the PECP include the Ministry along with Environment Canada (Canadian Wildlife Service), Ducks Unlimited Canada, the Habitat Conservation Trust Foundation, the Nature Conservancy of Canada, The Land Conservancy of BC and The Nature Trust of British Columbia. Works with current landowners to find creative ways to secure estuary land for conservation.

**Crown Land Securement Partner Program:** Program focused on acquiring private land and securing complementary Crown land. Funding and in-kind support for a full-time coordinator has been provided by Ducks Unlimited Canada, The Pacific Estuary Conservation Program, The Nature Trust of BC, the Habitat Conservation Trust Foundation, the BC Trust for Public Lands, Environment Canada (Canadian Wildlife Service) and the Ministry of Environment.

#### *Non-Governmental Organizations - Canada*

Like the United States, non-governmental agencies use different approaches to engage in protection of at-risk species, though litigation is not used as frequently as in the United States. An example of litigation is the lawsuit filed by Ecojustice lawyers on behalf of the David Suzuki Foundation, Environmental Defense, Georgia Strait Alliance and the Wilderness Committee against the Minister of Fisheries and Oceans (DFO) for failing to identify the habitat of the Nooksack dace, an endangered fish restricted to only four streams in BC's Lower Mainland (David Suzuki Foundation 2015).

Organizations like the BC Wildlife Federation and the Federation of BC Naturalists help conserve British Columbia's fish, wildlife, park and outdoor recreational resources. Nature Canada is another organization with a specific focus on endangered species.

A number of organizations also work collaboratively with private landowners and agencies to help protect and recover species. This can include restoring habitats, monitoring populations, and conducting outreach and education to the public on emerging issues. It can also include land conservation through land trusts, conservation easements and other similar mechanisms.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: ENDANGERED SPECIES/SPECIES AT RISK

The Land Title Act allows non-government organizations to hold conservation covenants. There are a number of land trusts operating throughout the Salish Sea region, including:

### National

- Ducks Unlimited Canada
- Nature Conservancy of Canada

### Regional

- Habitat Conservation Trust Foundation

### Subregional

- Fraser Valley Conservancy
- Bowen Island Conservancy
- Comox Valley Land Trust
- Cowichan Land Trust
- Denman Conservation Association
- Gabriola Land and Trails Trust
- Galiano Conservancy Association
- Gambier Island Conservancy
- Garry Oak Meadow Preservation Society
- Greenways Land Trust
- Habitat Acquisition Trust
- Islands Trust Fund
- Juan de Fuca Community Land Trust Society
- Malaspina Land Conservancy Society
- Mayne Island Conservancy Society
- Nanaimo and Area Land Trust
- Native Plant Society of BC
- Pender Islands Conservancy Association

- Quamichan Watershed Stewardship Society
- Salt Spring Island Conservancy
- Salt Spring Island Water Preservation Society
- Savary Island Land Trust Society

The Land Trust Alliance of British Columbia is a coordinating body representing land trust members across the province.

Land trusts are typically independent non-government organizations; however they frequently work in partnership with governments, other organizations, foundations, and businesses in achieving shared conservation goals.

### Transboundary Policymaking – Endangered Species/Species at Risk

#### *Agreements*

**Convention on International Trade in Endangered Species of Wild Fauna and Flora:** Provides for international cooperation for the protection of certain species of wild fauna and flora against over-exploitation through international trade (Merten 2015).

**Agreement between the Government of the United States of America and the Government of Canada on Fisheries Enforcement:** Agreement that each nation will work to ensure that its nationals, residents and vessels do not violate, within the waters and zones of the other Party, the national fisheries laws and regulations of the other Party. Bilateral meetings are held, often on the margins of multilateral events, to review past practices and discuss new standards, policies, and strategies for cooperation. Under the auspices of this agreement, the USCG, NOAA, and DFO partnered to develop complimentary cross-border regulations to support the recovery of the endangered population of Southern Resident Orca whales (Merten 2015).

**Framework for Cooperation between the U.S. Department of the Interior and Environment Canada in the Protection and Recovery of Wild Species at Risk:** Framework of cooperation to prevent populations of wild species shared by the United States and Canada from becoming extinct as a consequence of human activity, through the conservation of wildlife populations and the ecosystems on which they depend. Addresses certain species of mammals, birds, reptiles, insects and plants (US Fish and Wildlife Service 2015d).

***Implemented by:*** U.S. Fish and Wildlife Service and the Canadian Wildlife Service

**Memorandum of Understanding establishing the Canada/Mexico/US Trilateral Committee for Wildlife and Ecosystem Conservation and Management:** Formally brought together for the first time the three nations of North America, consolidating a continental effort for wildlife and ecosystem conservation and management (US Fish and Wildlife Service 2015d).

#### ***Policy Actors***

##### *Government Actors*

**Canada/Mexico/US Trilateral Committee for Wildlife and Ecosystem Conservation:** Established by MOU for information exchange related to wildlife and ecosystem conservation and management.

**North American Commission for Environmental Cooperation:** Established by North American Agreement on Environmental Cooperation as body to support cooperation among the NAFTA partners to address environmental issues of continental concern, including the environmental challenges and opportunities presented by continent-wide free trade (US Fish and Wildlife Service 2015d).

**Pacific Salmon Commission** - Established by treaty between the United States and Canada, and provides regulatory advice and recommendations to the two countries on salmon fisheries (Merten 2015).

#### *Non-government Actors*

Healy et al (2015) note that there are significant NGO and academic linkages across the US and Canadian borders addressing transboundary species and habitat protection. Examples provided include the Nature Conservancy and Ducks Unlimited.

**American Friends of Canadian Land Trusts:** Partners with Canadian conservation organizations and American owners of environmentally and ecologically significant lands to protect Canada's natural lands, clean water, abundant habitat, and quality of life for citizens of both countries.

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## **ENERGY TRANSPORT**

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### 3.7 ENERGY TRANSPORT (E.G. MARINE, RAIL AND PIPELINE)

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The Salish Sea region is a major marine transportation hub, with large port facilities supporting one of the busiest shipping routes. The region's port districts are important as centers for commerce. The region is also a hub for transportation of energy commodities, strategically positioned to receive crude from a number of sources (e.g. Bakken shale in North Dakota, oil sands in Alberta and Alaska's North Slope) and ship refined products to markets along the Pacific West Coast and Asia (Smith 2015). The region contains several refineries and energy export terminals, with energy now being transported by pipeline, rail and marine vessels.

It is estimated that about 11,000 large vessels transit through the Salish Sea each year, bound for both US and Canadian ports (Georgia Strait Alliance 2015). This includes oil tankers, container ships and bulk cargo carriers, together with smaller vessels including naval vessels, cruise ships, fishing boats, pleasure craft and ferries.

Vessel traffic in the Salish Sea has the potential to impact the marine ecosystem. Oil pollution can occur as the result of spills during accidents, off-loading fuel oils, refueling, maintenance of vessels, and through leaks that are discharged in bilge water. Vessel traffic also releases other contaminants, including pollution from discharges of graywater, sewage, lubricating oil, engine coolants and other contaminants. There are also risks from a large spill related to a collision or running aground, threats which are heightened due to rocky coastline, the narrowness and low depth of many waterways, along with frequent stormy conditions and increasing general vessel traffic in the area. Marine transportation also contributes to air pollution in the region. Further, there is concern that underwater noise pollution is impacting marine mammals.

Shipping traffic is anticipated to grow, and may include expansions of energy transport terminals such as Kinder Morgan's proposed pipeline expansion and the Pacific Gateway coal terminal at Cherry Point in Washington, as well as the coal and container terminal expansion at Delta port. Transportation of crude oil from Canadian oil sands and shale oil from the Bakken fields is increasing. These ongoing changes in marine transportation patterns increase the risk of major spills in the Salish Sea. Oil and chemical spills can threaten the Salish Sea's ecosystems. These incidents can kill fish, birds, and marine animals and contaminate beaches and shellfish. Spills, whether on land or water, can threaten public health, safety, and the environment.

Rail is increasingly being used for transportation of oil and other hazardous materials. Oil is currently being transported by train to three refineries. Since 2012, more than a dozen plans have emerged to ship crude oil by train to Northwest refineries and port terminals, including facilities proposed in both United States and Canada (de Place 2015). Pipelines have traditionally transported oil and other materials. Recently, there have been proposed expansions of liquefied natural gas (LGN) pipelines and facilities, particularly in British Columbia, but also including connection through Washington State. Expanded oil and natural gas production has also resulted in pressure to build more pipeline infrastructure. Spills from these facilities can enter groundwater and surface water bodies, threatening freshwater and marine ecosystems.

As a result, significant effort has been focused on preventing and preparing for oil and chemical spills on both sides of the border, as well as collaboratively.

Expansions or construction of new refineries or energy terminals would undergo review and permitting as described in the Development and Land Use Planning Section. This section instead focuses on regulations addressing oil and hazardous substance transportation.

### United States – Energy Transport

There is currently no oil and gas production in Washington. Oil movement in and out of Washington State takes several routes. In the Puget Sound area, crude oil is transported into the Sound for processing at existing refineries (e.g. there are currently 5 refineries, including one in Tacoma, two in the Anacortes area, and two north of Bellingham). Today a federal ban on crude oil export in the United States prohibits these oils from being transported out of the country<sup>5</sup> (Plumer 2014). However, bitumen and refined oils from Canada may be exported from Puget Sound facilities to international markets since it would be non-U.S. crude oil. There is no prohibition on refined products, which are exported from the United States. Bakken oil transported by rail comes through Spokane to facilities on Puget Sound, where it can be refined and exported via barge and tanker. There is currently one pipeline carrying crude oil from Canada into the US for processing. There are other pipelines carrying refined products (Smith 2015). There is also existing liquefied natural gas pipeline in the I-5 corridor.

Puget Sound refineries transfer their refined products to the Olympic Pipeline, tankers, articulated tug-barges and trucks for export.

#### *Government Entities – United States*

#### Federal Scale – United States

##### *Oil Spill and Hazardous Substance Release Response – United States*

#### **Oil Spills**

The federal government has the primary responsibility for directing oil spill responses under the Clean Water Act and the Oil Pollution Control Act (Braddock 2015). In coastal marine waters (including the Puget Sound) the US Coast Guard directs oil spill response. Oil spill response on inland areas is directed by the United States Environmental Protection Agency (Braddock 2015). The National Oceanic and Atmospheric Administration and the Department of the Interior may become involved in oil spill response, by assessing damage and directing restoration efforts (Braddock 2015).

**Oil Pollution Act of 1990:** The OPA is the primary legislation that governs oil spills in the U.S. The Act includes provisions for spill contingency plans, liability limits and specifications for responsible parties, spill prevention measures (e.g., double hulls on tankers), and other measures (Washington State Department of Ecology 2015). OPA authorizes states to impose more stringent requirements, though some may be preempted (Braddock 2015).

#### ***Implemented by:***

- United States Coast Guard

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<sup>5</sup> Congress is considering lifting this ban. Also, there have been some exceptions granted for export of certain types of crude oil.

- United States Department of Transportation (for onshore oil pipelines)
- United States Environmental Protection Agency
- United States Fish and Wildlife Service (e.g. response plans)

**National Contingency Plan:** Federal government's blueprint for responding to both oil spills and hazardous substance releases. The NCP regulations apply to applicable spills from vessels, pipelines, onshore facilities, and offshore facilities (US EPA 2015).

**Implemented by:** National Response Team (multiagency team), with United States Environmental Protection Agency as lead agency

**Clean Water Act:** Principal federal statute for water quality protection. Under the Act, discharges of oil in quantities that may be harmful to public health or the environment must be reported (US EPA 2015).

**Implemented by:** United States Environmental Protection Agency and Washington State Department of Ecology

### Hazardous Substance Release

**Comprehensive Environmental Response, Compensation and Liability Act:** Requires reporting of releases of hazardous substances, as well as response to address any release, or threatened release, of hazardous substances, pollutants, or contaminants that could endanger human health and/or the environment (US EPA 2015).

**Implemented by:**

- United States Coast Guard (typically responds to contamination in water)
- United States Environmental Protection Agency (typically responds to contamination on land)
- Natural Resource Trustees (designated state and federal agencies and tribes with expertise about the biological impacts of the released substance and the sensitive species and/or habitats)

**United States Emergency Planning & Community Right-to-Know Act:** Establish national legislation on community safety. This law is designed to help local communities protect public health, safety, and the environment from chemical hazards. Requires hazardous chemical emergency planning by federal, state and local governments, Indian tribes, and industry. It also requires industry to report on the storage, use and releases of hazardous chemicals to federal, state, and local governments (Washington Department of Ecology 2015).

Key provisions:

- Sections 301 to 303. Emergency Planning - Local governments are required to prepare chemical emergency response plans, and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts. Facilities that maintain Extremely

Hazardous Substances (EHS) on-site in quantities greater than corresponding threshold planning quantities must cooperate in emergency plan preparation.

- Section 304. Emergency Notification - Facilities must immediately report accidental releases of EHS chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities (RQs) defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to state and local officials. Information about accidental chemical releases must be available to the public. See also Continuous Release Reporting.
- Sections 311 and 312. Community Right-to-Know Requirements - Facilities manufacturing, processing, or storing designated hazardous chemicals must make Material Safety Data Sheets (MSDSs) available to state and local officials and local fire departments. MSDSs describe the properties and health effects of these chemicals. Facilities must also report, to state and local officials and local fire departments, inventories of all on-site chemicals for which MSDSs exist. Information about chemical inventories at facilities and MSDSs must be available to the public.

***Implemented By:***

- United States Environmental Protection Agency
- Local Emergency Planning Committees (LEPCs), which includes representatives from state and local government; as well as Police, fire, civil defense, and public health professionals; environment, transportation, and hospital officials; facility representatives; and representatives from community groups and the media

*Marine-Transport Specific – United States*

**Clean Water Act:** EPA regulates discharges incidental to the normal operation of commercial vessels greater than 79 feet in length and operating as a means of transportation primarily through the Vessel General Permit (VGP) (US EPA 2015). Incidental discharges from the normal operation of vessels include, but are not limited to, ballast water, bilge water, gray water (e.g., water from sinks, showers), and anti-foulant paints (and their leachate). These discharges may result in negative environmental impacts via the addition of traditional pollutants or, in some cases, by contributing to the spread of aquatic invasive species.

***Implemented by:*** United States Environmental Protection Agency and U. S. Army Corps of Engineers (Corps)

**Port and Waterways Safety Act:** Authorizes the U.S. Coast Guard to establish vessel traffic service/separation schemes (VTSS) for ports, harbors, and other waters subject to congested vessel traffic (National Oceanic and Atmospheric Administration 2012). Under this Act, regulations have been established addressing tanker traffic, including:

- Regulated Navigation Areas and Limited Access Areas (33 CFR 165, Subpart B): Establishes the regulation limiting tank vessels greater than 125,000 deadweight tons from access Puget Sound and adjacent waters, when bound for a port or place in the United States. Also establishes VTS Traffic Separation Scheme system.
- Safety Zones 33 CFR 165, Subpart C

- Security Zones 33 CFR 165, Subpart D
- Deepwater Port Operations, 33 CFR 150
- Restricted Waterfront Areas 33 CFR 165, Subpart E
- Speed and Wake Control Shipping - 46 USC Sec. 2302
- General Anchorage Regulations, 33 CFR 110

**Implemented by:** United States Coast Guard

**Marine Mammal Protection Act/Magnuson Amendment:** Limits authority of federal government to issue, renew, grant, or otherwise approve any permit, license, or other authority for constructing, renovating, modifying, or otherwise altering a terminal, dock, or other facility in, on, or immediately adjacent to, or affecting the navigable waters of Puget Sound, or any other navigable waters in the State of Washington east of Port Angeles, which will or may result in any increase in the volume of crude oil capable of being handled at any such facility (measured as of October 18, 1977), other than oil to be refined for consumption in the State of Washington ("BP Cherry Dock Draft EIS: Magnuson Amendment Discussion" 2014).

**Implemented by:** U. S. Army Corps of Engineers (Corps)

**National Marine Sanctuaries Act and Regulations:** Regulations controlling certain vessel activities by requiring avoidance of areas, and prohibiting anchoring and vessel discharges in national marine sanctuaries. Specifically, off the Olympic Coast is designated as an Area to be Avoided where all ships and barges that carry oil or hazardous materials in bulk as cargo or cargo residue and all ships 400 gross tonnage and above solely in transit should avoid area (U.S. Coast Guard 2014).

**Implemented by:** National Oceanic and Atmospheric Administration

**Jones Act:** Requires that vessels transporting cargo between two U.S. points be built in the United States, as well as crewed and at least 75% owned by U.S. citizens. The domestic build requirement for tanker ships, in particular, has been identified as contributing to higher costs in moving domestic crude oil along the coasts, which may be resulting in expansion of transport by other means (e.g. rail and pipeline) and/or changes in origin/destinations (Frittelli et al. 2014).

#### Rail-Transport Specific – United States

There has been a bill introduced into Congress by Washington State Senator Maria Cantwell addressing safety regulations on crude oil shipped by trains, including limits on the volatility of oil inside tank cars. (Office of Senator Maria Cantwell 2015)

There are a number of different organizations involved in rail transportation of oil, including the following:

The **Federal Railroad Administration** (FRA) has jurisdiction over railroad safety (Washington State Department of Ecology 2015). FRA regulations cover the safety of track, grade crossings, rail equipment,

operating practices, and movement of hazardous materials (hazmat). Railroads are required to have response plans, which are subject to FRA approval (for large tank cars only).

The **Pipeline and Hazardous Materials Safety Administration** within DOT (PHMSA) issues requirements for the safe transport of hazmat by all modes of transportation, which the FRA enforces with respect to railroads (Washington State Department of Ecology 2015).

Rail incidents are investigated by the **National Transportation Safety Board** (NTSB), an independent federal agency. The NTSB makes recommendations toward preventing future incidents based on its findings (Washington State Department of Ecology 2015).

U.S. safety requirements apply to any train operating in the United States, regardless of its origin or destination.

(Note: Both United States and Canada recently jointly announced new crude-by-rails regulations that establish new tank car safety standards for trains carrying crude oil and other flammable liquids (Department of Transportation 2015)).

*Pipeline Specific – United States*

*Pipeline construction:*

Several federal environmental laws and agencies may come into play in the permitting process for natural gas pipelines, depending on the proposed route for the pipeline. The principal laws involved include:

**Certificate of Public Convenience and Necessity:** Permit authorization required by the Federal Energy Regulatory Commission (FERC) for proposed construction or extension of facilities to transport natural gas. Note: Only applies to interstate natural gas lines (United States Government Accountability Office 2013).

*Implemented by:* FERC

**National Environmental Policy Act (NEPA):** Under NEPA, federal agencies must assess the effects of major federal actions—those they propose to fund, carry out, or permit—that affect the environment. This requirement applies to interstate pipelines and intrastate pipelines that must have federal authorizations. The lead agency is the federal agency that takes responsibility for preparing NEPA analyses. The lead agency consults with cooperating agencies that have jurisdiction by law or special expertise regarding any environmental impact involved in a proposed project. Under NEPA, the lead agency for interstate pipeline is the Federal Energy Regulatory Commission (FERC) (United States Government Accountability Office 2013).

*Implemented by:* FERC

**Clean Water Act:** Pipeline projects may also be subject to many requirements of the Clean Water Act, one goal of which is to eliminate the addition of pollutants to waters of the United States. Section 404 of the Clean Water Act requires, among other things, that projects involving the discharge of dredged or fill material into waters of the United States must obtain a permit; this permit is typically issued by the Corps. Gas pipelines may involve such discharges when, for example, they are constructed within a

riverbed, stream, or wetland. Additionally, pipeline construction may be subject to Section 402 of the Clean Water Act, which prohibits the discharge of pollutants into waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. Pipeline construction is also subject to Section 401 of the Clean Water Act, which requires anyone seeking a permit for a project that may affect water quality to seek approval from the relevant state water quality agency (United States Government Accountability Office 2013).

**Implemented by:** United States Environmental Protection Agency

**Endangered Species Act:** The Endangered Species Act requires federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a species listed as threatened or endangered under the act, or destroy or adversely modify its critical habitat. To fulfill this responsibility, the agencies must, under some circumstances, formally consult with FWS or the NOAA Fisheries (NMFS) when the actions they authorize may affect listed species or designated critical habitat. Formal consultations generally result in the issuance of biological opinions by FWS or NMFS (United States Government Accountability Office 2013).

**Rivers and Harbors Act:** Projects such as pipelines that could affect navigable waters of the United States must receive authorization from the Corps. Specifically, the Corps regulates any work or structures in, over, or under navigable waters or any work that may affect the course, location, or condition of those waters (United States Government Accountability Office 2013).

**Implemented by:** U.S. Corps of Engineers (Corps)

**Other:**

**Coastal Zone Management Act:** A Coastal Zone Management consistency certification is required within Washington's 15 coastal counties (some of which are located in Salish Sea) for projects with a federal nexus, i.e., involving federal funding, federal licenses, permits or approvals, use of federal lands, or a federal program. A federal agency cannot approve or fund any activity unless Ecology concurs that the project is consistent with the state's federally approved CZM program. Under Washington's CZM Program, activities affecting any land use, water use, or natural resource of the coastal zone must comply with six laws, called "enforceable policies," four of which typically apply to transportation projects: SEPA, the state Shoreline Management Act, federal and state clean water acts, and federal and state clean air acts. The federal consistency process allows the public, local governments, tribes, and state agencies an opportunity to influence federal actions likely to affect Washington's coastal resources or uses (United States Government Accountability Office 2013).

**Implemented by:** Washington State Department of Ecology

**Pipeline operation:**

The Federal government is primarily responsible for developing, issuing, and enforcing pipeline safety regulations. States can assume intrastate regulatory, inspection, and enforcement responsibilities under an annual certification, but the federal government retains regulatory authority for interstate pipelines.

**Pipeline Inspection, Protection, Enforcement and Safety Act of 2006:** Act addressing pipeline safety through Damage Prevention Plans. Establishes federal one-call notification system for pipeline damage

incidents. Establishes new grant program to assist State partners in damage prevention improvements (United States Government Accountability Office 2013).

**Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011:** Act to provide for enhanced safety and environmental protection in pipeline transportation (United States Government Accountability Office 2013).

State Scale – Washington State

*Oil Spill and Hazardous Substance Release Response – Washington State*

**Statewide Master Oil and Hazardous Substance Spill Prevention and Contingency Plan (also known as Northwest Area Contingency Plan):** Regional blueprint for responding to both oil spills and hazardous substance releases. Includes Washington, Oregon, and Idaho, two US Coast Guard Captain of the Port Zones (Puget Sound and Columbia River), and the US Environmental Protection Agency's (EPA's) Inland Zone. Plan indicates that it has been formed with participation of Federal, state, tribal, and local government representatives as well as representatives from commercial, non-profit, and private interests (Northwest Area Committee and Regional Response Team 10 2015).

**Implemented by:** Washington State Department of Ecology

**Oil and Hazardous Substance Spill Prevention and Response Act:** Under this law, Ecology is the state agency responsible for responding to, and overseeing the cleanup of oil spills and hazardous material incidents. The law also includes prevention and preparedness requirements, and authorizes Ecology to assess and collect damages and fines for spills (Braddock 2015).

**Implemented by:** Washington State Department of Ecology

**Washington State Governor Directive on Oil Transport:** In June 2014, Washington State Governor Jay Inslee established a directive for state agencies to work together and with federal and tribal governments to assess the safety of oil transport in Washington and develop policy recommendations for improved public safety and spill prevention and response. The Washington State 2014 Marine and Rail Oil Transportation Study is an outgrowth of this directive, and contains a number of recommendations for the state and federal legislature (Washington State Department of Ecology 2015). The 2015 Washington State Legislature subsequently passed a bill related to oil transportation safety to improve the safety oversight of oil transported in Washington and to strengthen the state's ability to prevent and respond to oil spills. The law requires rail operators to have a state-approved contingency plan for oil spills and expands protection requirements to all modes of oil transportation, not just commercial marine vessels. The bill also requires rail facilities to notify local responders and communities of pending oil train transfers. The legislation expands the barrel tax on crude oil and petroleum products to include rail and pipeline.

**Implemented by:** Washington State Department of Ecology

**Oil Transportation Safety Act:** Adopted in 2015, gives first responders advance notice of oil shipments in order to be prepared in the case of an accident. In order to gain an accurate understanding of oil transportation safety issues, the bill requires public disclosure of the amount and type of oil coming through Washington. Requires railroads hauling crude oil to show their ability to pay for oil spill cleanup. Railroads also have to submit oil spill contingency plans to the Department of Ecology. The bill

also requires grants to emergency responders to help pay for oil spill response and firefighting equipment. The bill also pays for safety and planning measures by extending the barrel tax to oil transported by train; currently only oil arriving via ship is subject to the barrel tax. Requires railroads and other shippers to show they can pay to clean up spills (Office of Washington Governor Jay Inslee 2015). (Note: There was disappointment from environmental groups that some provisions were dropped from the final adopted bill, including those aimed at allowing new rules requiring tug escort for oil tankers and other vessels in Puget Sound – there are currently no rules addressing barge transport of oil, which is growing. In addition, a provision that would have taxed oil transport by pipeline was deleted (Le and La Corte 2015)).

**Implemented by:** Washington State Department of Ecology

**Washington State Water Pollution Control Act:** Principal state law governing water quality. It provides the primary authority to regulate sources of pollution, achieve compliance with the state water quality standards, and require the implementation of best management practices to address pollution.

**Implemented by:** Washington State Department of Ecology

**Washington State Model Toxics Control Act:** Creates a comprehensive regulatory scheme to identify, investigate, and clean up contaminated properties that are, or may be, a threat to human health or the environment. Requires notification when oil spill or hazardous material release occurs.

**Implemented by:** Washington State Department of Ecology

*Marine-Transport Specific – Washington State*

**Transport of petroleum products — Financial responsibility Act:** Defines and prescribes financial responsibility requirements for vessels that transport petroleum products as cargo or as fuel across the waters of the state of Washington and for facilities that store, handle, or transfer oil or hazardous substances in bulk on or near the navigable waters (Braddock 2015).

**Washington State Tanker Traffic Regulation:** Prohibits oil tanker traffic greater than 125,000 DWT from proceeding beyond a point east of a line extending from Discovery Island light\_south to New Dungeness light.

**Vessel Oil Spill Prevention and Response Regulation:** Establishes authority for inspection of vessels entering Washington State navigable waters, as well as requirement for covered vessels to have a contingency plan for the containment and cleanup of oil spills (Braddock 2015).

*Rail-Transport Specific – Washington State*

According to the Washington State Department of Ecology, Federal transportation law pre-empts states from passing state rail safety regulations (Washington State Department of Ecology 2015).

*Pipeline Specific – Washington State*

**Pipeline Construction:**

Intrastate pipeline facilities are approved by the Energy Facility Site Evaluation Council (EFSEC).

Facilities under EFSEC jurisdiction are:

- Crude or refined petroleum or liquid petroleum product pipelines larger than six inches in diameter and greater than 15 miles in length.
- Natural gas, synthetic fuel, gas, or liquefied petroleum gas pipelines larger than 14 inches in diameter and greater than 15 miles in length.

The review process conducted by EFSEC requires a land use hearing to determine whether the project is consistent with local land use plans and ordinances, as well as environmental review under the State Environmental Policy Act (Energy Facility Site Evaluation Council 2015).

**Washington State Environmental Policy Act:** Establishes procedural requirements designed to ensure that governmental agencies give proper consideration of environmental matters in making decisions on actions. The procedural requirements governing this environmental review process are contained in detailed regulations enacted by the Department of Ecology in chapter 197-11 WAC.

**Implemented by:** Energy Facility Site Evaluation Council (lead agency)

*Pipeline operation:*

The Utilities and Transportation Commission (UTC) is responsible for developing and enforcing safety standards for natural gas and hazardous liquid pipelines located within the state (Washington Utilities and Transportation Commission 2015). UTC also has delegated authority to inspect interstate pipeline facilities which are required to comply only with Federal standards.

#### Local Scale - Regional and subregional policymaking in Washington State

*Oil Spill and Hazardous Substance Release Response - Regional and subregional in Washington State*

Within their emergency response role, local governments assess local risks, prepare emergency response plans, and to have a delivery capability proportionate to the types and level of hazards that exist in their communities.

*Rail-Transport Specific - Regional and subregional in Washington State*

Several local jurisdictions in Washington State have expressed concerns about the impacts of increased rail traffic going through their communities. Communities have issued resolutions that address environmental concerns about the transport of coal or oil, including:

- City of Edmonds
- City of Seattle
- Some communities have conducted traffic studies and other reports to address the impact of trains that transport coal and oil passing through or stopping in their area.

Yet, most cities and counties have limited roles in the transportation of coal and oil through their community.

In addition, the Association of Washington Cities Ad Hoc Freight Rail Committee has been established to address a number of city concerns relating to rail safety, mobility and service, and the committee will coordinate with affected cities, Washington's congressional delegation, state, federal and local agencies, and other stakeholders to develop a recommendation.

### *Pipeline-Transport Specific - Regional and subregional in Washington State*

#### *Pipeline Construction:*

Local governments may also be involved in permitting for new pipelines, reviewing for consistency with local laws and ordinances.

#### *Pipeline Operation:*

Local governments manage the land uses and land development activities on properties containing or located near pipeline facilities. In Washington State, there has been a concerted effort to improve land use planning around pipelines. The Association of Washington State Cities was awarded a grant provide technical assistance to provide technical assistance and develop guidance for cities. In preparing the program, AWC partnered with a wide range of Northwest pipeline safety stakeholders to develop the program, including: the Pipeline Safety Trust (PST); the Municipal Research and Services Center (MRSC); the Washington State Citizens Advisory Commission on Pipeline Safety; the Washington State Association of Counties (WSAC); the Northwest Gas Association; and the Washington Utilities and Transportation Commission (WUTC) (Municipal Research and Services Center 2015).

Local governments are also involved in permitting for facilities, such as refinery expansions – these issues are addressed more specifically in the Development and Land Use Section.

### *Indigenous Peoples – United States*

As part of the planning and review process for projects, federal agencies engage in government-to-government consultation with Tribal governments. Tribal governments are also involved in a number of cooperative efforts addressing marine transport, such as participating in efforts being conducted throughout the state to plan and prepare for oil spills.

Some tribal governments are invoking their federal treaty rights to oppose coal and oil shipments. For example, the Lummi Nation is invoking their federal treaty rights to request that the US Army Corps of Engineers deny proposed development of a coal export facility. The Lummi's totem pole journey has also raised awareness about coal transport; the journey travels along the proposed 2,500-mile coal train route through the Pacific Northwest to dramatically demonstrate the connection between the Tribal Nations and all cultures.

The Swinomish Indian Tribal Community has brought a federal lawsuit against BNSF Railway to prevent trains carrying crude oil from using tracks on reservation land, saying the transport violates a long-standing agreement (Cavaliere 2015).

Tribal representatives participating in the Salish Sea Workshop noted their concerns about vessels interrupting fishing grounds, as well as release of ballast water impacting fishing areas. Finally, Tribes are involved in preparing reports that could influence decision-making. For example, a study, funded in

part by the Makah tribe, details potential risks associated with a rise in tanker vessel traffic in the Strait of Juan de Fuca.

*Governmental/Non-Governmental Collaborations – United States*

*Marine-Transport Specific – United States*

**Harbor Safety Committees:** Proactive forums for identifying, assessing, planning, communicating, and implementing operational and environmental measures that promote safe, secure, and efficient use of relevant waterways, harbors, or ports. The committee is generally made up of delegates appointed by broadly based organizations representing a span of interests with various governmental agencies formally supporting its work in advisory capacities. In the region there are two committees:

- Puget Sound Harbor Safety Committee (Puget Sound Harbor Safety Committee 2015)
- Grays Harbor Safety Committee (Port of Grays Harbor 2015)

**Washington State Emergency Response Commission:** Established to implement the provisions of the Emergency Planning & Community Right-to-Know Act. Comprised of a broad-based membership with representatives from private industry, state and local agencies (Washington Department of Ecology 2015).

**Local Emergency Planning Committees:** Responsible for developing a local emergency plan for their district. Represents local government, emergency response officials, environmental and citizen groups, industry and other interested parties is established in each planning district (county) (Washington Department of Ecology 2015).

Others:

- Pacific Northwest Area Committee
- Puget Sound Area Maritime Security Committee

*Rail-Transport Specific – United States*

**Rail Safety Advisory Board:** Provides advice and recommendations to the Federal Railroad Authority on railroad safety matters. Provides a forum for collaborative rulemaking and program development and includes representatives from all of the agency's major stakeholder groups, including railroads, labor organizations, suppliers and manufacturers, and other interested parties (Federal Railroad Administration 2015).

*Pipeline-Transport Specific – United States*

**Citizens Committee on Pipeline Safety:** Governor-appointed committee that meets regularly to discuss, identify, review and highlight pipeline safety issues on a local and national level (Washington Utilities and Transportation Commission 2015).

*Non-Governmental Organizations – United States*

Non-governmental agencies have been active in civil protests of proposed facilities, as well as participating in public review of projects.

Organizations involved in these efforts include (but not limited to):

- Sierra Club
- Greenpeace
- Natural Resources Defense Council
- Earthjustice (who filed an appeal of expansion of Shell's Puget Sound refinery in Anacortes on behalf of local community groups)
- Puget Soundkeeper Alliance
- National Wildlife Federation
- Climate Solutions
- 350.org
- Rising Tide
- Faith Action Network

(Note: Many NGOs view this issue as being connected to climate change).

A number of representatives from environmental organizations also participated in the **Puget Sound Partnership Vessel Traffic Risk Assessment 2010 Steering Committee**, which was tasked with evaluating the changes in accident and oil spill risk caused by an increase in commercial vessel traffic associated with proposed projects in the Salish Sea (Puget Sound Partnership 2015). Environmental NGOs represented on the Committee included Friends of the Earth and Washington Environmental Council. The Committee also included representatives from federal and state agencies, Tribes, and private industry.

The Sightline Institute, an environmental think tank, has been reporting on energy transport and related issues as part of its *Thin Green Line* series.

Pipeline Safety Trust is a nonprofit public charity promoting pipeline safety through education and advocacy by increasing access to information, and by building partnerships with residents, safety advocates, government, and industry, that result in safer communities and a healthier environment.

A coalition of environmental groups, including the Sierra Club, Puget Soundkeeper, Columbia Riverkeeper, RE Sources for Sustainable Communities, Natural Resources Defense Council, Spokane Riverkeeper and Friends of the Columbia Gorge, filed a suite under the Clean Air Act against Burlington

Northern Santa Fe Railway (BNSF) and several coal companies for violations of the federal Clean Water Act, including emitting coal pollution in waterways in Washington State (Beyond Coal 2015).

Also, some organizations, like Tides Foundation, acts as an umbrella organization for other NGOs.

### Canada – Energy Transport

On the west coast of Canada, marine transport of oil occurs predominantly through the ports of Vancouver, Prince Rupert and Kitimat. Transport occurs through a variety of vessels, including barges, container ships, domestic and international ferries, and other types of commercial and private vessels. Canada is also a large exporter of coal, from ports along the B.C. coast. In 2008, about 80 per cent of the coal exported from Canada by freighter was shipped through coal terminals in Vancouver (Dogwood Initiative n.d.).

There is a voluntary Tanker Exclusion Zone off the B.C. coast that applies to loaded oil tankers servicing the Trans-Alaska Pipeline System between Valdez, Alaska, and Puget Sound, Washington (Government of Canada; Transport Canada; Safety and Security 2012). This exclusion zone was established through joint discussions of the Canadian Coast Guard and the United States Coast Guard with the American Institute of Merchant Shipping before the National Oil Spill Preparedness and Response Regime was developed. This zone does not apply to tankers travelling to or from B.C. ports.

Transport Canada implements a policy preventing large tankers (over 40,000 tons deadweight) from using the southern portion of the Inside Passage, specifically the Johnston Strait and Discovery Passage (Government of Canada; Transport Canada; Safety and Security 2012). These tankers are directed to the outside route for north/south transits. The Pacific Pilotage Authority enforces a policy that requires preventing large tankers (over 40,000 tons deadweight) transiting the Haro Strait and Boundary Pass to use two pilots and a tug escort of suitable size.

There is a federal moratorium on oil and natural gas exploration and development off of the coast of BC (Government of Canada; Transport Canada; Safety and Security 2012). There is no moratorium on tanker operation in Canada's western waters.

The Kinder Morgan pipeline transports crude oil and refined products within BC. Applications have been submitted for a second pipeline to carry tar sands oil from Alberta. The Enbridge pipeline currently transports crude oil from British Columbia south to US refineries, including those in Puget Sound.

A number of natural gas pipelines are also present, including the Spectra Energy pipeline which crosses through portions of British Columbia to Sumas, WA; and another pipeline on Vancouver Island and crossing through portions of BC (Canadian Association of Petroleum Producers 2015).

### *Government Entities - Canada*

#### Federal Scale - Canada

##### *Oil Spill and Hazardous Substance Release Response - Canada*

The federal government has the primary responsibility for directing oil spill responses in marine waters, under its authority to over territorial seas (Beckplumb 2013). The Canadian Coast Guard has been

assigned the lead agency for response to marine pollution events, under the Oceans Act (Government of Canada 2011). The Province of British Columbia is responsible for response to upland spills.

**National Oil Spill Preparedness and Response Regime:** Establishes standards and organization structure for preparedness and response to marine oil spills. Ships that transit Canadian waters are required to have a shipboard oil pollution emergency plan, as well as an arrangement with a certified response organization that would respond to a spill on the polluter's behalf (Government of Canada; Transport Canada; Safety and Security 2006). Western Canada Marine Response Corporation was formed to respond to spills in British Columbia's navigable waters.

**Implemented By:** Transport Canada and Canadian Coast Guard and Western Canada Marine Response Corporation

**Canadian Coast Guard Marine Spills Contingency Plan:** Provides the details regarding the scope within which the Canadian Coast Guard will operate to ensure an appropriate response to a marine pollution incident. It outlines the operational precepts under which the Canadian Coast Guard monitors or provides a coordinated and integrated response to a marine pollution incident at the national, regional and local levels.

**Implemented By:** Canadian Coast Guard (lead agency)

*General Transport - Canada*

**Transportation of Dangerous Goods Act:** Regulates transportation of dangerous goods, from industrial chemicals to manufactured goods. Requires development of an approved Emergency Response Assistance Plan (ERAP) before transport of dangerous goods.

**Implemented By:** Transport Canada

*Marine-Transport Specific - Canada*

Marine transportation generally falls under federal authority.

**Canada Shipping Act:** Primary legislation governing marine transport, pollution and safety. The Act addresses oil spill prevention, preparedness, response and recovery. Regulations devised under the Act require the use of double-hulled tankers. Other regulations developed under the Act address vessel routing to prevent collisions. The regulations also require vessel reporting in order to ensure that safety and environmental concerns are addressed before ships enter Canadian waters. In addition, all tanker operators must take a marine pilot with local knowledge on board before entering a harbor or busy waterway (Government of Canada; Transport Canada; Safety and Security 2012).

**Implemented By:** Transport Canada and Minister of Fisheries and Oceans

**Pilotage Act:** Established the Pacific Pilotage Authority responsible for establishing, operating, maintaining and administering a safe and efficient pilotage service within designated Canadian waters.

**Implemented By:** Pacific Pilotage Authority

**Technical Review Process of Marine Terminal Systems and Transshipment Sites (TERMPOL):** Federal government initiative that assesses the safety and risks associated with oil/gas tanker movements to, from and around Canada's marine terminals. The review may consider any safety measures above and beyond existing regulations to address any site-specific circumstance (Government of Canada; Transport Canada; Safety and Security 2012).

**Implemented By:** Transport Canada, together with other federal departments and stakeholder representatives, as required.

**Canada Marine Liability Act:** Act addressing liability and compensation for oil pollution damage. The Act imposes liability on the owner of a ship for the costs and expenses incurred in respect of measures taken to prevent, repair, remedy or minimize oil pollution damage from the ship, including measures taken in anticipation of a discharge. The owner of the ship may be liable for costs and expenses incurred by the government or any other person in respect of measures she/he was directed to take or prohibited from taking (Government of Canada; Transport Canada; Policy Group 2010).

**Implemented By:** Transport Canada

Note: In 2015, *An Act to Defend the Pacific Northwest*, was voted down in the House of Commons. If enacted, that bill would have banned supertankers from transporting oil on the North Coast, including refined oil, while instructing the National Energy Board to increase consultation with First Nations and communities and assess value-added job impacts when considering energy projects.

#### *Rail-Transport Specific - Canada*

The Canadian rail system includes both federal and provincial railways. Railways that cross provincial boundaries are governed by federal legislation, while railways that operate strictly within the boundaries of the province are governed by provincial legislation.

**Canada Transportation Act:** Federal framework legislation for Canada's transportation system and for the Canadian Transportation Agency's role in the administration of several parts of the Act. Currently undergoing review.

**Implemented By:** Canadian Transportation Agency

**Railway Safety Act:** Regulations addressing safety of railway operations. Includes requirements for railways to implement a safety management system. Authorizes Transport Canada to enforce rail safety regulations and conducts research and development in support of improved railroad safety (Canada National Railway Company 2015). (Note: Both United States and Canada recently jointly announced new crude-by-rails regulations that establish new tank car safety standards for trains carrying crude oil and other flammable liquids (Department of Transportation 2015)).

**Implemented By:** Transport Canada

**Safe and Accountable Rail Act:** Establishes minimum insurance requirements for railway crude oil shippers using federally regulated railways.

**Implemented By:** Transport Canada

*Pipeline-Transport Specific - Canada*

*Pipeline Construction:*

**Canadian Environmental Assessment Act:** A pipeline project, such as a liquefied natural gas pipeline, will require an environmental assessment if it includes one or more activity, such as a marine terminal, listed in the Regulations Designating Physical Activities (Blakes 2014). The CEAA assessment is potentially narrower than its BC counterpart, as the legislation only requires review of aspects of the environment under federal jurisdiction (such as impacts on the marine environment, migratory birds and transboundary effects). Review of impacts on indigenous communities is also mandated. The end result of the environmental assessment process is an assessment report from the Canadian Environmental Assessment Agency, which determines the significance of potential impacts and makes recommendations on whether or not a project should proceed. The decision on whether a project can proceed is made by either the Minister of Environment or the federal Cabinet, depending on the outcome of the EA. (Note: Changes made in 2012 to the CEAA support the replacement of the federal EA process with the provincial EA process through “substitution” (i.e., one EA process and both the provincial and federal ministers render a decision on the result), or “equivalency” (i.e., one EA process and a provincial decision only) on request from the B.C. government. Also, changes eliminated joint review panels for projects regulated by the National Energy Board and the Canadian Nuclear Safety Commission, which provided an opportunity for federal government and provinces to establish a joint review panel. Some existing projects that have been initiated before these changes may be reviewed under previous authorities).

**Implemented By:** Canadian Environmental Assessment Agency

**National Energy Board Act:** Governing legislation for the National Energy Board (NEB), an independent federal agency established by Parliament to regulate international and interprovincial aspects of the oil, gas and electric utility industries. The NEB regulates:

- The construction and operation of interprovincial and international pipelines;
- The export and import of natural gas; and
- The export of oil and electricity.

Large facilities require a Certificate of Public Convenience and Necessity, in which the economic necessity and public interest is reviewed. (Note: Under Bill C-38, final decisions on these certificates are now made by Governor in Council rather than NEB. Also, applicants are no longer required to file information regarding environmental and social effects, such as Species at Risk. NEB will now review proposals that cross navigable waters (no longer subject to review under Navigable Waters Protection Act) (Blakes 2015)).

The export of natural gas from Canada requires an export license issued by the NEB. The NEB can only issue such a license for an LNG project if it is satisfied there is sufficient gas to meet domestic needs.

**Implemented By:** National Energy Board

**Canada Fisheries Act:** Prohibits serious harm to fish that are part of a commercial, recreational or Indigenous fishery, or to fish that support such a fishery. Serious harm to fish includes harm to fish habitat. If the activity would in harm, authorization will be needed from Fisheries and Oceans Canada.

**Implemented By:** Environment Canada and Fisheries and Oceans Canada

*Pipeline Operation:*

Pipeline systems that cross provincial or international boundaries are regulated by the federal government, primarily under the authority of the NEB. Pipeline operations may also be subject to regulations of other federal, provincial or municipal bodies including Natural Resources Canada, Environment Canada, Fisheries and Oceans Canada, and Transport Canada, depending on the type and ownership of the land which the pipeline crosses. The Transportation Safety Board investigates pipeline incidents and makes recommendations for improvements.

Pipelines which are wholly contained within a province typically fall under that province's regulatory jurisdiction.

#### Provincial Scale – British Columbia

*Oil Spill and Hazardous Substance Release Response – British Columbia*

The Province develops Comprehensive Emergency Management Plans, (including Spill Response Plans), that define the scope and structure of the provincial government's involvement when responding to emergencies. The response plans address issues such as waste handling, wildlife rescue, shoreline cleanup and assessment, etc. (Ministry of Environment 2015).

*General Transport – British Columbia*

**Transport of Dangerous Goods Act:** Establishes the safety regulatory framework for the movement of dangerous goods by truck within the province.

**Implemented By:** Ministry of Transportation and Infrastructure

*Rail-Transport Specific – British Columbia*

**British Columbia Railway Safety Act:** Provincial railway safety legislation; adopts the technical regulations, rules and standards of the federal legislation.

**Implemented By:** Ministry of Transportation and Infrastructure

*Pipeline-Transport Specific – British Columbia*

*Pipeline Construction:*

**BC Environmental Assessment Act:** The Reviewable Project Regulation establishes the types of projects that are required to undergo environmental assessment in BC. If an EA is required, there is a formal scoping process to determine the application requirements for the EA; this is subject to public review and comment. After applicant submission of the application materials, review is completed by the B.C.

Environmental Assessment Office (EA) and/or an EA working and the public. The EAO generate an assessment report that will be accompanied by its recommendations on whether or not the project should be approved and any relevant outstanding issues or conditions that may be required. The final stage of the EA process is a review of the EAO assessment report and recommendations, by the provincial minister(s) involved. The minister(s) will decide whether the project is approved or not, or whether further assessment is required to render an approval. If approved, the EAC will then be issued and the project can move to the permitting stage. In some instances, application for provincial permits can be processed concurrently with the EA (Blakes 2014).

**Implemented By:** B.C. Environmental Assessment Office (EA), a branch of the Ministry of the Environment

**British Columbia Environmental Management Act:** Depending on the type of activities associated with the development of the pipeline, review under this Act may be required. For example, dredge disposal is an area of activity that will likely require EMA approvals from the Ministry of the Environment (MOE), depending on the material and the location ultimately selected (Blakes 2014). Other project activities that will likely require EMA-related permitting include:

- Wastewater discharge (including cooling water) – effluent permit under section 14 of the EMA
- Storm water management during construction and operations – requires compliance with the Petroleum Storage and Distribution Facilities Storm Water Regulation

**Implemented By:** Ministry of Environment and Oil and Gas Commission (under Section 14)

**British Columbia Water Act (to be replaced by Water Sustainability Act):** Addresses short-term use of water by the oil and gas industry, administered by the Oil and Gas Commission (OGC). Also, under the Water Regulation requires notification or approval of “changes in and about a stream.” The OGC also administers approvals for changes in and about a stream in respect of an oil and gas activity (Blakes 2014).

**Implemented By:** Oil and Gas Commission

**Oil and Gas Activities Act:** Establishes the regulatory framework that governs oil and gas activity within British Columbia (Blakes 2014). Authorized the Oil and Gas Commission as a regulatory agency to oversee oil and gas operations in British Columbia.

Regulations passed under the Act, include the Environmental Protection and Management Regulation, which establishes the government’s environmental objectives for water, riparian habitats, wildlife and wildlife habitat, old-growth forests and cultural heritage resources. The Act requires the Commission to consider these objectives in deciding whether or not to authorize an oil and gas activity. The Liquefied Natural Gas Facility Regulation establishes construction and operational requirements for LNG facilities. The Act also establishes protection zones around pipelines to prevent accidental damage.

**Implemented By:** Oil and Gas Commission

*Pipeline Operation:*

**Utilities Commission Act:** Authorizes British Columbia Utilities Commission, an independent regulatory agency that regulates British Columbia's natural gas and electricity utilities as well as intra-provincial pipelines.

### Local Scale - Regional and subregional policymaking in British Columbia

#### *Oil Spill and Hazardous Substance Release Response - Regional and subregional in British Columbia*

Within their emergency response role, local governments assess local risks, prepare emergency response plans, and to have a delivery capability proportionate to the types and level of hazards that exist in their communities (Ministry of Environment 2015).

#### *Marine-Transport Specific - Regional and subregional in British Columbia*

Local municipalities do not have jurisdiction over tanker traffic. Yet, some jurisdictions have expressed concerns about increased tanker traffic in the region. For example, in 2012 the Union of B.C. Municipalities has passed a resolution urging the Premier of British Columbia, the Leader of the Official Opposition and members of the Legislative Assembly to use whatever legislative and administrative means that are available to stop the expansion of oil tanker traffic through BC's coastal waters (forestethics 2012).

#### *Rail-Transport Specific - Regional and subregional in British Columbia*

Local communities generally have a limited role in railway policy making. Several local jurisdictions in British Columbia have expressed concerns about the impacts of increased rail traffic going through their communities (e.g. news outlets report concerns expressed by White Rock and some Metro Vancouver mayors).

Railways provide local authorities with aggregate reports on the nature and volume of dangerous goods transported through civic jurisdictions on a quarterly basis. Local governments and emergency responders then use that data covering past shipments to conduct risk assessments and draft emergency-planning procedures for future incidents.

#### *Pipeline-Transport Specific - Regional and subregional in British Columbia*

Local communities generally have a limited role in pipeline policy making, but may participate in permitting facilities. Typically, project activities will require permits or approval from the municipality within which the project is situated. Municipalities derive their authority from the provincial Local Government Act. Examples of municipal regulatory requirements include permits for land use or development, building permits, occupancy permits, dust control, noise management and storm water management.

A number of communities have expressed concern about proposed pipelines and have passed motions opposing facilities. The Union of B.C. Municipalities has also passed motions against proposed pipeline projects ("Union of BC Municipalities | PIPE UP Network" 2015).

### *Indigenous Peoples - Canada*

The Government of Canada has a constitutional duty to consult First Nations whose traditional territorial areas and treaty rights may be adversely affected by any proposed project which requires a federal decision.

Under the Tsilhqot'in case decided by the Supreme Court of Canada, First Nations' land claims were acknowledged to include traditional territorial areas (CBC news 2015). This decision may have significant implications for projects under consideration that are located within territorial areas of First Nations.

First Nations have also been involved in protests, including protests associated with Kinder Morgan Trans Mountain pipeline expansion and Enbridge pipeline as well as oil by rail. First Nations have also advocated against LNP pipelines.

First Nations have also issued a number of declarations opposing these projects (West Coast Environmental Law 2015), including:

- Coastal First Nations Declaration which bans tar sands tankers on the north coast (March 2010),
- Save the Fraser Declaration banning tar sands pipelines and tankers in the Fraser watershed, and on the north and south coasts (signings in Nov/Dec 2010 and Dec 2011), and
- The St'át'imc Chiefs Council Resolution (October 2010).

Provincial and regional First Nations political organizations have also been active on this issue, including the following:

- First Nations Summit has passed a resolution asking Canada to halt consideration of the Enbridge Northern Gateway Pipelines
- Union of BC Indian Chiefs has passed resolution opposed to Enbridge Northern Gateway Pipelines
- Coastal First Nations have signed the Coastal First Nations Declaration banning tar sands pipelines and tankers in the Fraser watershed

Another initiative is the **Idle No More movement** — a series of grassroots First Nations protests against bills passed by the federal government weakening environmental protections, such as Bill C-38 (Idle No More 2015).

### *Pipeline-Transport Specific – Indigenous Peoples in Canada*

The Government of Canada has indicated that for pipeline projects, it will rely on the NEB hearing processes, to the extent possible, to meet its duty to consult. The NEB's filing requirements require applicants to consult with potentially-affected Indigenous groups on all proposed projects and report to the NEB on the outcomes of their consultation.

First Nations have subsequently participated in and voiced their opposition to the Enbridge pipeline during 2012 regulatory hearings by Canada's National Energy Board. First Nations have also been involved in appealing decisions issued by the NEB. The project was approved by the NEB and has now been appealed by First Nations and tribal organizations.

*Governmental/Non-Governmental Collaborations - Canada*

*Oil Spill and Hazardous Substance Release Response - Canada*

**National Advisory Council:** National forum established to provide an opportunity for parties involved in and/or impacted by marine oil spills and the oil spill response regime to meet, identify, discuss and realize opportunities (Government of Canada; Transport Canada; Safety and Security 2010).

**Pacific Regional Advisory Council:** Regional committees established to provide a forum for parties involved in and/or impacted by marine oil spills and the oil spill response regime to meet, identify, discuss and realize opportunities (Transport Canada 2001). Part of the ongoing partnership approach to preparedness and response in Canada. Includes representatives from the following interest areas:

- Municipalities,
- Fishing and aquaculture interests,
- Environmental groups,
- Indigenous interests,
- Port authorities,
- Business and business associations, e.g., tourism associations or agencies,
- Shipping interests and oil handling facilities, and
- Representatives from academia, marine law and other disciplines.

*General Transport - Canada*

**Transportation of Dangerous Goods General Policy Advisory Council:** Provides Transport Canada with advice on all matters related to the transportation of dangerous goods. Members of the council represent the Canadian Association of Fire Chiefs, the Canadian Association of Chiefs of Police, the Federation of Canadian Municipalities, labor unions, and a variety of industry associations, including manufacturers, consignors, carriers, shippers and consignees (Transportation of Dangerous Goods Government of Canada; Transport Canada; Safety and Security Group 2009).

*Marine-Transport Specific - Canada*

**Canadian Marine Advisory Council:** Transport Canada's national consultative body for marine matters. Participants include representatives of individuals and parties that have a recognized interest in boating and shipping concerning safety, recreational matters, navigation, marine pollution and response and marine security (Government of Canada; Transport Canada; Safety and Security 2010).

Subjects discussed included:

- The development and acceptance of international conventions, regulations, codes, standards, and recommendations;
- The development and implementation of national statutes, regulations, codes, standards, recommendations and procedures;
- Operations and services; and
- Any other matters related to marine safety, marine services, marine pollution prevention and response, and marine security.

**Clear Seas:** Independent, not-for-profit organization that provides impartial and evidence-based research to inform the public and policy makers about marine shipping in Canada, including risks, mitigation measures and best practices for safe and sustainable marine shipping (Clear Seas 2015). (Note: Established after Port Metro Vancouver asked for creation of center of excellence).

*Rail-Transport Specific - Canada*

**Advisory Council on Railway Safety:** Provide a forum for the development and assessment of changes to the Railway Safety Act (RSA) regulatory framework through collaborative activities and for dialogue on railway safety issues. Comprised of federal, provincial and municipal governments, the railway industry, labor organizations and other stakeholders such as shippers and suppliers (Federal Railroad Administration 2015).

*Non-Governmental Organizations - Canada*

Non-governmental agencies have been active in civil protests of proposed facilities, as well as participating in public review of projects (where those opportunities exist – in some forums participation is only permitted if the representative is determined to be directly impacted by a proposal. This is the case for NEB facility hearings. However, the Georgia Strait Alliance has been granted intervener status in the National Energy Board hearings on the proposed Kinder Morgan pipeline expansion proposal).

As an example, the following organizations commented on a proposed coal port facility on Fraser River (“Tell Fraser Surrey Docks” 2015):

- VTACC and Communities and Coal Joint Submission
- Dogwood Initiative
- Georgia Strait Alliance
- Wilderness Committee
- Sunshine Coast Conservation Association
- New Progressive Alliance

- Earth Justice
- Spokane Riverkeeper/The Lands Council/Lake Pend Oreille Waterkeeper
- ForestEthics

Organizations involved in these efforts include (but not limited to):

- Sierra Club BC
- Greenpeace Canada
- West Coast Environmental Law
- Natural Resources Defense Council
- Pembina Institute
- Living Oceans Society
- Raincoast Conservation Foundation
- David Suzuki Foundation
- Environmental Defense Canada
- Ecojustice Canada

Also, some organizations, like Tides Canada, acts as an umbrella organization for other NGOs.

Note: There has been some criticism of US organizations funding “anti-oil” initiatives in Canada.

Other groups have completed analysis and issued reports. An example of this is the Pipeline and Tanker Trouble report, completed by representatives from Natural Resources Defense Council, Pembina Institute, Living Oceans Society and endorsed by Dogwood Initiative, Douglas Channel Watch, ForestEthics, Friends of Wild Salmon, Headwaters Initiative, Pacific Wild, Raincoast Conservation Foundation, Sierra Club BC and West Coast Environmental Law (Swift et al. 2011).

Finally, there has been a campaign to ban oil tankers off of the coast of British Columbia. The Dogwood Initiative has been involved in this campaign (Dogwood Initiative 2012).

### Transboundary Policymaking – Energy Transport

#### Oil Spill and Hazardous Substance Release Response – United States and Canada

**Canada-United States Joint Marine Pollution Contingency Plan:** Provides a coordinated mechanism for planning, preparing for, and responding to spills in contiguous waters and established procedures for the coordination of spill response efforts between Canada and the US. The Plan covers all potential sources of marine pollution (i.e. ships, offshore platforms, mystery spills). The federal-level plan includes

specific arrangements for the Salish Sea (CANUSPAC geographical annexes). (Government of Canada 2015)

**Mutual Aid Agreement – Task Force 2011 (Updated Agreement):** Agreement establishing conditions for sharing equipment and resources for oil spill response.

**US Coast Guard Pacific Area Pacific States/British Columbia Oil Spill Task Force Memorandum of Understanding:** Establishing partnership between US Coast Guard and Pacific States/BC Oil Spill Task Force. Authorizes establishment of committee to serve as a forum for discussion of Pacific Region marine safety and oil spill prevention, preparedness and response; coordinate response measures; and identify opportunities for improving oil spill planning and response.

**Pacific States – British Columbia Oil Spill Task Force:** Interagency forum for sharing information and resources, coordinating regional oil spill prevention projects, and fostering regulatory compatibility. Members include Alaska, Washington, Oregon, and California, and British Columbia (Pacific States – British Columbia Oil Spill Task Force: 2015).

**Oil Spill Memorandum of Cooperation between the Pacific States of Alaska, California, Hawaii, Oregon, and Washington and the Province of British Columbia:** Established formal mechanism for intergovernmental cooperation on oil spill prevention, preparedness and response. Authorized establishment of Task Force Coordinating Committee and outlined issues to be addressed, including:

- Oil spill prevention, preparedness and response;
- Information exchange on issues of vessel pollution other than oil;
- Effective communications; and
- Consistency and compatibility between Task Force jurisdictions

**Pacific Coast Collaborative Agreement:** Agreement establishing the Pacific Coast Collaborative, which provides a framework for collaboration and coordination to review joint and individual actions on:

- Clean energy;
- Regional transportation;
- Innovation, research and development;
- Regional economy;
- Emergency management; and
- Other areas deemed appropriate for cooperative action.

**Salish Sea Workshop:** Co-sponsored by the Washington Department of Ecology and the Puget Sound Partnership International Maritime Organization. The workshop focused on vessel oil spill risk assessment and management. The purpose was to develop a consolidated list of actionable

recommendations to move forward with actions to enhance public safety and environmental protection. Attendees included:

- Tribal/First Nations Governments
- US and Canadian government agencies
- Non-government agencies (Pacific States/BC Task Force, Friends of the Earth, Friends of the San Juans, Washington Environmental Council); and
- US and Canadian Industry representatives

#### General Transport – United States and Canada

**Nawtsamaat Alliance:** Coalition of Coast Salish Indigenous Peoples, environmental, interfaith, and youth activists, and community members created to heighten awareness of the increased risks and threats by the fossil fuel industry. The Alliance mobilizes international, cross-cultural, and co-creative joint action to block fossil fuel projects such as the proposed Kinder Morgan Trans Mountain Pipeline Expansion in British Columbia, as well as oil trains, coal trains, oil tankers, ports and other pipelines.

There also appear to be a few NGOs working cross-border on energy issues (most notably oil sands), including:

- Natural Resources Defense Council
- Greenpeace
- Sierra Club
- 350.org
- Environmental Defense
- ForestEthics

Note: There has been some criticism of US organizations funding “anti-oil” initiatives in Canada (Krause 2014).

**Safe Energy Leadership Alliance:** Coalition of local, state, and tribal leaders from across Washington, Oregon, Idaho, Montana, California, and British Columbia working to raise awareness of the safety risks of oil and coal transportation.

#### Marine-Transport Specific – United States and Canada

##### **Agreement for a Cooperative Vessel Traffic Management System for the Juan de Fuca Region:**

Cooperative arrangement for vessel traffic management in waters near the common boundary of Canada and the United States in the region of Juan de Fuca Strait. Administered by joint coordinating group.

**International Treaty to Protect the Sacredness of the Salish Sea:** Treaty between First Nations in lower mainland and Vancouver Island as well as Tribal governments of Washington State to prohibit the increased transport of tar sands products through the Salish Sea and specifically makes the Kinder Morgan Trans Mountain Expansion Project illegal in Coast Salish Law. The treaty contains a provision in which the signatories agree to take collective action, if necessary, to enforce the protection of the Salish Sea under Coast Salish, Canadian or International Law (Sacred Trust Initiative 2015).

**International Maritime Organization:** United Nations Specialized Agency that governs the world's maritime shipping activities. Administers the following regulations restricting tanker traffic: International Regulations for Preventing Collisions at Sea, 1972, and COLREGS, Rule 10, Traffic Separation Schemes.

#### Rail-Transport Specific – United States and Canada

**Oil Train Safety Rules:** Canada and the United States jointly issued new coordinated administrative rules for oil by rail transport.

**Regulatory Cooperation Council:** The RCC Rail Safety, Dangerous Goods and Intelligent Transportation Systems Working Group is working on aligning rail safety standards between Canada and the United States. In addition the RCC Marine Transport Working Group is working to align marine transportation security requirements to prevent duplication of services and to remove impediments to cross-border trade.

#### Pipeline-Transport Specific – United States and Canada

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## FRESHWATER RESOURCES

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### 3.8 FRESHWATER RESOURCES (E.G. WETLANDS AND RIPARIAN AREAS)

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Freshwater resources provide a variety of important functions in the Salish Sea. Riparian corridors, streams, and wetlands help to store, infiltrate, evaporate and cleanse stormwater runoff. They also provide groundwater recharge. They provide habitat for a number of different species. Yet, riparian and wetlands areas are threatened by land conversion practices such as development practices, forestry activities, and agricultural operations. These practices have historically resulted in the removal of vegetated cover, hardening, straightening or culverting of stream bank features, and wetland fill.

Removal or modification of these features in conjunction with the increased impervious area associated with development causes adverse downstream impacts that include increased runoff flow rates and volumes, contamination of receiving waters, destruction of habitat and reduced ground water recharge. Yet, despite their importance, the Salish Region is experiencing continued loss of riparian and wetland areas due to development and agricultural operations, as well as loss of forested areas in the upper watersheds due to timber harvesting or land use conversion (US EPA Region 10 2015).

Different levels of government on both sides of the border now have protections in place to minimize impacts to riparian areas and wetlands.

#### United States – Freshwater Resources

Federal, state, and local governments all have authority to regulate streams and wetlands, resulting in multiple, overlapping regulations and agency oversight.

##### *Government Entities – United States*

##### Federal Scale – United States

###### *General Information – United States*

**United States Clean Water Act:** The primary federal law protecting wetlands and streams is the Clean Water Act (CWA). Wetlands are a subset of waters of the United States, which are identified based on their soil, hydrology, and vegetation (Wetlands Program 2015).

Discharges dredged or fill material from point sources into wetlands require a permit from the Army Corps of Engineers (Section 404). In addition, EPA issues permits for point source discharges of pollutants other than dredged or fill material. U.S. EPA and the U.S. Army Corps of Engineers have developed guidance for determining whether a waterway, water body, or wetland is protected by the Clean Water Act. Where actions require a federal permit, license or approval that result in a discharge into waters of the state, the state requires a Section 401 certification.

With respect to agricultural lands that meet federal and/or state wetland classification criteria, if the land is converted to a non-agricultural use or is abandoned, it may be regulated under federal, state or local wetland laws.

The Army Corps is authorized to issue general, regional, state, or national permits that allow certain categories of wetland filling activities without the need to obtain individual permits. Projects will not

receive permits if: a practicable alternative with less impact exists; the activity would violate state water quality standards, would violate any toxic effluent standard, would jeopardize an endangered species, or would harm a marine sanctuary; the activity would cause significant degradation of any waters; or, the activity has not included appropriate steps for minimizing potential adverse impacts on aquatic ecosystems. The federal wetlands permit requirements allow several narrow exemptions, including routine farming activities, maintenance of dams and other infrastructure, construction of farm ponds or roads, or actions authorized by an approved state program. Several federal agricultural programs are also designed to preserve wetlands.

*Riparian Specific – United States*

**United States Rivers and Harbors Act:** Addresses the construction of structures over or in navigable waterways of the U.S., including bridges, dams, dikes or causeways, wharfs, piers, jetties, and other structures (Governor's Office for Regulatory Innovation and Assistance 2015). This law is sometimes used for reviewing development projects in streams.

**Wild and Scenic Rivers Act:** Act established to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection (National Wild and Scenic River System 2015).

Rivers are classified as wild, scenic, or recreational. Classified rivers that discharge into Salish Sea include:

- Illabot Creek
- Pratt River
- Skagit River
- Snoqualmie (Middle Fork) River

***Implemented By:***

- United States Fish and Wildlife Service
- United States Department of the Interior Bureau of Land Reclamation
- United States Department of the Interior National Park Service
- United States Department of Agriculture U.S. Forest Service

*Wetland Specific – United States*

In addition to the Clean Water Act, the Endangered Species Act, National Environmental Policy Act, Migratory Bird Act and other similar laws provide some protection to wetlands through species and habitat conservation measures (Government of Canada 2010).

State Scale – Washington State

*General Information – Washington State*

**Washington State Water Pollution Control Act:** Authorization required for discharging pollutants in waters of the state. Waters of the state includes wetlands, including wetlands that may be geographically isolated and therefore not subject to permits under the Clean Water Act (Wetlands Program 2015).

**Washington State Hydraulic Code:** Primary fish and shellfish habitat protection law in Washington State. Under this statute, all projects that involve in-water development, which includes any work that would use, divert, obstruct or change the natural flow or bed of any river or stream or utilize any waters of the state (including wetlands) require a Hydraulic Project Approval – commonly called an HPA (Wetlands Program 2015).

Agency rules to administer, interpret, or clarify the Hydraulic Code are found in WAC chapter 220-110. These rules specify the department requirement to provide protection for all fish life and habitats through the development of a statewide system of consistent and predictable rules and establish a baseline requirement which directs no-net-loss of productive capacity of fish and shellfish habitat in order for a project to be approved. Per statute "No-net-loss" is defined as:

- (a) Avoidance or mitigation of adverse impacts to fish life; or
- (b) Avoidance or mitigation of net loss of habitat functions necessary to sustain fish life; or
- (c) Avoidance or mitigation of loss of area by habitat type.

WACs also define the criteria and technical provisions to be used by the department for project review and for conditioning of HPAs to ensure the no-net loss requirements of the law.

**Washington State Shoreline Management Act:** This Act requires local jurisdictions containing shorelines of the state to adopt local Shoreline Master Programs. Shoreline Master Programs guide development and protection efforts along the shoreline – which can include streams with over 20 cubic feet per second mean annual flow, wetlands and floodplains within 200 feet of the shoreline, as well as systems that are associated with the shoreline (Wetlands Program 2015). Shoreline Master Programs must contain regulations addressing development in shoreline associated critical areas, such as wetlands and streams. Strategies for saving wetlands and other critical areas include limiting uses and avoiding development in some areas, transferring development density to another site or a non-sensitive portion of a large site, and public purchase of valuable or unique wetlands. Buffer areas around wetlands and along streams are also used to protect the functions of these critical areas. Mitigation of impacts on wetlands and other critical areas involves reducing the adverse impacts of a project to an acceptable level. In addition to critical areas regulations, non-regulatory and incentive programs are also used to protect wetlands. In addition, Shoreline Master Programs are required to demonstrate that the local jurisdiction has planned for No Net Loss of Ecological Functions over the 20-year planning horizon of the shoreline master program. Permits are required to ensure that proposed activities comply with local shoreline master programs and the SMA.

**Washington State Growth Management Act:** Requires the fastest growing counties and the cities within them to develop and adopt Comprehensive Plans and complimentary zoning codes and other

development regulations that guide and manage growth (Wetlands Program 2015). The legislation requires local jurisdictions to identify, designate and protect critical areas. "Critical areas" include the following areas and ecosystems: (a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas (riparian areas); (d) frequently flooded areas; and (e) geologically hazardous areas. Classification means defining categories to which natural resource lands and critical areas will be assigned.

Designation establishes for planning purposes: the classification scheme, the general distribution, location, and extent of resource lands and critical areas. Designation means, at least, formal adoption of a policy statement, and may include further legislative action.

Various state agencies, including the departments of Ecology and Fish and Wildlife, have published detailed guidance documents for local communities on critical area issues such as wetlands and fish and wildlife habitat. These include model ordinances and lists of recommended habitats and species for protection.

The GMA requires that best available science (BAS) be included in developing policies and development regulations to protect the functions and values of critical areas (Washington State Department of Commerce 2015). Regulations are contained in a Critical Areas Ordinance (CAO) to protect critical areas from development impacts. Strategies for saving wetlands and other critical areas incorporate the concept of environmental mitigation sequencing and no net loss, and include limiting uses and avoiding development in some areas, transferring development density to another site or a non-sensitive portion of a large site, and public purchase of valuable or unique wetlands. Buffer areas around wetlands and along streams are also used to protect the functions of these critical areas. Mitigation of impacts on wetlands and other critical areas involves reducing the adverse impacts of a project to an acceptable level. In addition to critical areas regulations, non-regulatory and incentive programs are also used to protect wetlands. Regulations must be periodically updated to reflect changes in best available science.

Local governments must also give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. Department of Commerce provides guidance to local governments in how to identify what constitutes BAS for critical areas protection and how local governments should include science in their policies and development regulations (Washington State Department of Commerce 2015).

During review of a development permit, local agencies must determine how potential development applications could affect the lands within their jurisdiction.

**Voluntary Stewardship Program:** This program provides an alternative to Counties planning under the Growth Management Act (Washington State Conservation Commission 2015). Instead of updating regulations addressing agricultural uses in their Critical Areas ordinances, Counties may instead opt to engage in a watershed-based, collaborative stewardship planning process that uses incentives to promote agricultural and environmental stewardship. Counties participating in the program are eligible for funding for base stewardship program operations and may nominate specific watersheds as priority watersheds for additional incentives and project funding. Counties not participating in the program will proceed with the update requirements of the Growth Management Act. Many counties within Washington State have opted in to this program.

***Implemented by:*** Washington State Conservation Commission

**Washington State Environmental Policy Act:** Environmental review is required for all project and non-project proposals unless the activity is exempted under state law (Wetlands Program 2015). Activities in wetlands and riparian areas typically require review.

**Washington State Forest Practices Act:** Regulates forest management activities in Washington State, including those on privately owned forestland. Forest practices are activities related to growing, harvesting or processing timber and requires a permit. Establish protection standards for forest practices activities such as timber harvest, pre-commercial thinning, road construction and maintenance, fertilization, forest chemical application, required reforestation, and specific riparian and wetland protection measures. The rules are designed to protect public resources, such as water quality and fish habitat while maintaining a viable timber industry. They are under constant review through an adaptive management program (Washington State Department of Ecology. 2015).

*Wetland Specific – Washington State*

**Washington Wetland Program Plan:** Washington State recently completed a Wetland Program Plan (WPP), which was developed by a collaborative group of state agencies called the WPP Interagency Work Group (WDNR, WDFW, WSDOT, Commerce, RCO, PSP,WSCC, Parks, and Agriculture), with input from local governments, tribal governments, Washington citizens, and federal agencies (Wetlands Program 2015). The goal of the state's wetland program, established by Governor Gardner in 1989, is to achieve no overall net loss in acreage and function of Washington's remaining wetlands and to further the long-term goal to increase the quantity and quality of Washington's wetlands resource base. The WPP will be used to further this goal by:

- Increasing coordination among state agencies and between state agencies, local governments, tribal governments, federal agencies, and non-governmental organizations.
- Applying for grant funding to finance actions and activities that promote the goal.
- Addressing gaps in the state wetland program

**Wetland Mitigation Banking Program:** A wetland mitigation bank is a site where wetlands are restored, created, enhanced or preserved. A bank is established to generate increases in wetland function called credits that can be used or sold to provide compensation for unavoidable wetland losses. This ensures the success of the mitigation before unavoidable damage occurs at another site (Washington State Department of Ecology 2015).

**Wetland in Lieu Fee Mitigation:** In lieu fee mitigation programs provide a readily accessible option for compensatory mitigation for applicants with unavoidable impacts to wetlands. In Lieu Fee programs are established to collect fees for mitigation and then complete mitigation projects. In Lieu Fee programs are similar to banks where an applicant pays a third party to assume their mitigation responsibility. Staff are currently working with the US Army Corps of Engineers and the Environmental Protection Agency on three proposed In Lieu Fee programs in the Puget Sound region (Wetland Program 2015).

Local Scale - Regional and subregional policymaking in Washington State

**County and local governments:** Local government agencies throughout the region adopt and implement long- and short-range plans and ordinances addressing land development (e.g.

Comprehensive Plans, zoning and critical areas ordinances, and stormwater plans and regulations), which address protection of freshwater resources (Municipal Research and Services Center 2015).

In general, these ordinances address new development activities or activities that substantially change existing land uses. As a result, ongoing uses such as agricultural activities, are not required to be modified to be restored and existing agricultural activities can continue. New development or construction associated with these uses (e.g. expansion of agricultural activities or construction of livestock manure storage facilities) may be subject to local zoning rules.

### *Indigenous Peoples – United States*

Tribal governments manage natural resources on reservations and nearby federal trust lands. Federally recognized tribes can administer Clean Water Act's Wetland programs on Tribal Land, with an EPA-approved program (US EPA 2015). The Port Gamble S'klallam Tribe, the Stillaguamish Tribe, and the Tulalip Tribe have completed wetland program plans that have been approved by the EPA. Several other tribes are currently developing their wetland plans. Other tribal governments have wetland management programs in place but have elected not to develop a Wetland Program Plan or seek approval by the EPA. A number of tribal governments have, or are currently pursuing, EPA delegation under the Clean Water Act section § 303 and § 401, and other programs. Regulations under these programs vary by Tribe and may include water quality standards, water resource protection codes, hydraulic project approvals or other environmental permits.

Tribes also have interests in off-reservation aquatic resources that provide habitat, material, and cultural resources. Washington's Treaty Tribes have constitutionally protected, federally adjudicated, treaty-reserved rights to harvest and manage natural resources in their usual and accustomed areas. For those tribes, their resource management rights extend beyond their territorial reservation boundaries and can include wetlands and riparian areas that support treaty reserved or protected rights and species.

In an effort to ensure that their reserved rights are protected, many tribes review activities that have the potential to affect trust resources via local, state, and federal environmental review and permitting processes. For example, tribes may review Clean Water Act Section 404 permits, Section 401 certifications, and State Environmental Policy Act (SEPA) or National Environmental Policy Act reviews, and then provide state and federal agencies with comments and direction to ensure that proposed projects and attending mitigation are protective of their reserved rights and resources and do not impede access to their usual and accustomed areas. Tribes are also engaged in reviewing new regulations and plans. In this role, certain tribes have brought legal challenges. As an example, the Swinomish Indian Tribal Community challenged Skagit County's critical areas ordinance, in particular its allowance of existing activities (e.g. agricultural activities) occurring within critical areas to continue.

### *Governmental/Non-Governmental Collaborations – United States*

A number of NGOs participated in the review of the Washington Wetland Program Plan (Wetland Program 2015), including:

- League of Women Voters Washington State
- Citizen's Alliance for Property Rights

- Building Industry Association of Washington
- Futurewise

### *Non-Governmental Organizations – United States*

There are numerous non-governmental organizations that work on preservation and restoration of freshwater resources (US EPA 2015). These include:

- The Adopt-a-Stream Foundation
- American Rivers Library
- Center for Watershed Protection
- Environmental Concern
- The Institute for Wetland and Environmental Education and Research
- NatureServe
- River Network

Also, see the overview of Land Trusts and conservation easements in the Development and Land Use section above.

### Canada – Freshwater Resources

Provinces are primarily responsible for managing the freshwater water resources within their borders. Key exceptions to this include federal regulation of water in relation to fisheries, shipping and navigation, as well as responsibility for regulating all aspects of rivers and lakes that occur on federal land within the provinces (Beckplumb 2013). Examples include rivers and lakes in national parks.

#### *Government Entities - Canada*

##### Federal Scale - Canada

There is no specific wetlands legislation in Canada. Rather, wetlands are protected indirectly through a number of Acts that address species conservation.

##### *General Information - Canada*

**Canada Fisheries Act:** Protects fish populations that have First Nations cultural significance and economic opportunity (Blakes 2015). This Act has several provisions that affect wetlands and/or riparian areas:

- Under the Act, it is an offence for anyone to deposit or permit the deposit of any type of deleterious substance in water frequented by fish without a permit or under a regulation.

- Under the Act, it is an offence for anyone to carry on a work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Indigenous fishery, or to fish that support such a fishery. Serious harm to fish includes harm to fish and permanent alteration or destruction of fish habitat. Under this Act, Fisheries and Oceans Canada has authority over the activities that occur within streams and riparian areas protecting streams.
- The Act imposes reporting requirements.

**Implemented by:** Transport Canada

**Navigation Protection Act:** Prohibits the unauthorized construction or placement of a “work” on, over, under, through or across any navigable waters that are listed in a schedule to the Act. This list includes Canada’s major rivers, lakes and the three oceans it borders (Blakes 2015). Where a project falls into the definition of “work” and is on a prescribed water body, the federal government must approve it before it is undertaken. Work includes the dumping of fill or excavation of materials from the bed of a navigable water.

**Implemented by:** Transport Canada

**National Conservation Plan:** Funding initiative for natural resource conservation (Moulton 2015).

**Other:**

In addition, at the federal level, the Canada Wildlife Act, Migratory Birds Convention Act, Species at Risk Act, and Canadian Environmental Assessment Act provide some protection to wetlands through species and habitat conservation measures (Government of Canada 2010).

Provincial Scale – British Columbia

*General Information – British Columbia*

**British Columbia Water Act:** Requires authorization for activities that would make “changes in and about a stream”. Under the Water Act, “changes in and about a stream” means:

- Any modification to the nature of the stream including the land, vegetation, natural environment or flow of water within the stream, or
- Any activity or construction within the stream channel that has or may have an impact on a stream

**Implemented by:** Ministry of Forests, Lands, and Natural Resource Operations

**British Columbia Fish Protection Act:** Act that sets out provisions to protect and restore fish habitat in waters under provincial jurisdiction (Blakes 2015). Key provisions include:

- Prohibition on the construction of dams on significant rivers in British Columbia including the Fraser, Nass, Tatshenshini and Thompson rivers
- Authorization for a regional water manager to consider the impact on fish and fish habitat when deciding whether to grant a license or approval under the Water Act.

- Authorization for granting of streamflow protection licenses, which may be issued to an organization possessing a community-based interest in the stream.
- Establishment of a system of site-specific assessment of the effect of proposed development on fish habitat.

Local governments covered under the provincial directives in the Act must amend their bylaws to include Riparian Areas Regulations. Alternatively, a Local Government may adopt a bylaw that is equivalent to or more stringent than the Riparian Areas Regulation. Riparian Area Regulations apply to all streams, rivers, creeks, ditches, ponds, lakes, springs and wetlands connected by surface flow to a waterbody that provides fish habitat. (Note: the regulations do not apply to marine or estuarine shorelines, which are regulated at the federal level under the Canada Fisheries Act).

Under the Riparian Areas Regulation, a Local Government must not allow a development within 30 meters of the high water mark of a stream or top of a ravine to proceed until either:

- Fisheries and Oceans Canada has authorized a harmful alteration of fish habitat under the federal Fisheries Act; or
- The BC Ministry of Environment and Fisheries and Oceans Canada have been notified of the proposed development and have received a copy of an assessment from a Qualified Environmental Professional demonstrating that the development will not result in a harmful alteration to the natural features, functions, and conditions that support fish life.

Development refers to new residential, commercial, and industrial development on lands under local government jurisdiction. This would include private land and the private use of provincial Crown land. Farming activities are not subject to the regulation.

The Act also authorizes the designation of sensitive streams for managing land use and development that impacts fish habitat. Sensitive Stream designation will ensure that fish have enough water to survive. Recovery plans, an essential tool of the Fish Protection Act, may be required on Sensitive Streams that are unable to rehabilitate naturally. Based on public consultation and scientific information, streams across the province will be identified that warrant special management attention because of risk to fish populations due to inadequate water flows and other habitat concerns. Plans for the protection and recovery of fish in sensitive streams are to be developed co-operatively with interested stakeholders.

**Implemented By:** Ministry of Environment and local jurisdictions

**Local Government Act:** The Riparian Area Regulations established under the Fish Protection Act apply to local government regulation of development activities authorized under Part 26 of the Local Government Act (Ministry of Forests Lands and Natural Resource Operations 2015).

**Implemented By:** Ministry of Environment and local jurisdictions

**British Columbia Environmental Mitigation Policy:** Provides guidance for design and review of proposed development activities in or near natural resources such as wetlands or riparian areas. It is not legally enforceable (Ministry of Environment 2015).

**Implemented By:** Ministry of Environment

*Wetland Specific – British Columbia*

**Wetlands Action Plan for BC:** Non-regulatory action plan to improve wetland conservation. Action plan focuses on promoting collaboration among government and non-government organizations to maintain, restore, and protect wetland ecosystems throughout BC. Developed by the Wetland Partnership.

**Wetland Ways: Interim Guidelines for Wetland Protection and Conservation in British Columbia:**

Wetland Ways provides a series of recommended practices to protect and maintain existing wetlands and move towards an increase in wetland area (Ministry of Environment 2015).

Local

Under the Local Government Act and Community Charter Act, municipal and regional district governments have the authority to establish a number of different bylaws that can protect fresh water ecosystems (Environmental Law Clinic, University of Victoria 2007). For example, a Local Government may adopt a bylaw that is equivalent to or more stringent than the Riparian Areas Regulation, in which case it has shared jurisdiction with the Federal Department of Fish and DFO, MFLNRO and the City share authority over the activities that occur within this setback area adjacent to the stream.

The Wetland Partnership has developed a Green Bylaws Toolkit that provides guidance to local jurisdictions on different approaches to protecting sensitive ecosystems. Bylaw approaches raised in the Toolkit include:

- |   |  |   |
|---|--|---|
| <ul style="list-style-type: none"><li>• Regional Growth Strategies</li><li>• Official Community Plans</li><li>• Zoning, including density bonuses and amenity zoning</li><li>• Parking runoff control and</li></ul> | <ul style="list-style-type: none"><li>impermeable surfaces</li><li>Development permit areas</li><li>Impact Assessment</li><li>Watercourse Protection Bylaw</li><li>Landscaping Bylaw</li></ul> | <ul style="list-style-type: none"><li>Tree Protection bylaw</li><li>Soil Removal and Deposit bylaw</li><li>Pesticide Use bylaw</li><li>Invasive species bylaw</li><li>Subdivision servicing bylaw</li></ul> |
|---|--|---|

*Indigenous Peoples - Canada*

The Assembly of First Nations has raised concerns that the Canadian Environmental Protection Act does not adequately protect the environment and First Nations' Indigenous and Treaty Rights (which depend on having healthy natural ecosystems and environments), and in particular has identified lack of wetland protections as a concern (Assembly of First Nations 2015).

*Governmental/Non-Governmental Collaborations - Canada*

**Wetland Stewardship Partnership:** Group of government and non-government organizations dedicated to the conservation of wetlands and other sensitive ecosystems (Wetland Stewardship Partnership 2010). Current members of the Wetland Stewardship Partnership include:

- BC Hydro
- British Columbia Wildlife Federation
- The Community Mapping Network
- BC Nature (Federation of BC Naturalists)
- Ducks Unlimited Canada
- The Nature Conservancy of Canada
- BC Parks
- Environment Canada, Canadian Wildlife Service
- The Nature Trust of British Columbia
- British Columbia Ministry of Environment
- Grasslands Conservation Council of BC
- British Columbia Ministry of Forests, Lands, and Natural Resource Operations
- Royal Roads University

*Non-Governmental Organizations - Canada*

See organizations involved in government/non-government collaboration.

Transboundary Policymaking – Freshwater Resources

**North American Wetlands Conservation Act:** Act established to conserve North American wetland ecosystems and waterfowl and the other migratory birds and fish and wildlife that depend upon such habitats (U.S. Fish and Wildlife Service 2015).

Encourages partnerships to conserve North American wetland ecosystems for waterfowl, other migratory birds, fish, and wildlife.

Encourages the formation of public-private partnerships to develop and implement wetland conservation projects consistent with the North American Waterfowl Management Plan (NAWMP), a blueprint for continental waterfowl and wetlands conservation, and other North American migratory bird conservation agreements.

Creates the North American Wetlands Conservation Fund to help support projects through grants.

Establishes a nine-member North American Wetlands Conservation Council (Council) to review and recommend grant proposals to the Migratory Bird Conservation Commission for funding.

**Implemented By:**

- United States Fish and Wildlife Service
- North American Wetlands Conservation Council
- Environment Canada
- Migratory Bird Conservation Commission

**North American Wetlands Conservation Council:** Council of federal, provincial and/or territorial governments and non-government organizations established to provide a national mechanism for the implementation of the North American Waterfowl Management Plan (NAWMP), and to take a leadership role in wetlands policy and awareness (North American Wetlands Conservation Council 2015).

Provides leadership to the Habitat and Species Joint Ventures through which the North American Waterfowl Management Plan (NAWMP) goals are achieved.

Also serves as the national coordinating committee for developing and implementing national level wetland policies and programs in Canada, which includes the Pacific Coast habitat joint venture (now Pacific Birds).

**Convention on Wetlands of International Importance (Ramsar Convention):** Identifies and recognizes wetlands of international importance.

**Pacific Birds Habitat Joint Venture:** International partnership between the U.S. and Canada committed to conserving habitats for migratory birds, including wetland areas (Pacific Birds Habitat Joint Venture 2015).

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**FISHERIES**  
**&**  
**AQUACULTURE**

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### 3.9 FISHERIES AND AQUACULTURE

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Fisheries and shellfish harvest are an important economic and cultural tradition in the Salish Sea. Fish and shellfish are also subject to unique pressures stemming from upland and in-water activities that threaten their health, including overfishing, deteriorating water quality, loss of habitat, and exposure to toxic chemicals.

Fisheries harvest is managed in both Canada and the United States, as well as across the border in order to ensure sustainability of different fisheries. Due to the migratory nature of fish populations, fisheries management is generally a cooperative process involving federal, provincial/state, and tribal representatives from both countries. There are different management responsibilities and mechanisms depending on which stocks are targeted, where the fishing is occurring, and who is fishing.

Within this regulatory scheme, aquaculture is used as a management technique for different purposes. Commercial aquaculture is the propagation, or rearing, of aquatic organisms for commercial purposes, such as human consumption. In general, restoration aquaculture is used to increase numbers in populations at low levels; while enhancement aquaculture is used to increase numbers to support commercial or recreational harvest (NOAA Fisheries 2015).

#### United States – Fisheries and Aquaculture

Management of fisheries occurs at both the federal and state levels. At the federal level, NOAA Fisheries works to ensure sustainability of marine species, while the United States Fish and Wildlife Service protects freshwater species. Washington Department of Fish and Wildlife manages fisheries at the state level. These organizations function in a variety of ways, such as collecting data, conserving fish habitat, assessing the status of fish stocks, and implementing management programs.

##### *Government Entities – United States*

##### Federal Scale – United States

##### *Fisheries Management – United States*

**Magnuson–Stevens Fishery Conservation and Management Act (Magnuson–Steven Act):** Governs the management and control of U.S. marine fish populations, and is intended to maintain and restore healthy levels of fish stocks and prevent overharvesting (Office of Sustainable Fisheries 2015). The Act:

- Establishes US jurisdiction over waters within 200 nautical miles offshore
- Authorized regional fishery management councils to manage fisheries (e.g. establish essential fish habitat, designate habitat areas of concern, develop fishery management plans and advise on actions that may impact habitat). Council must describe essential fish habitat (EFH) in their fishery management plans, so that they minimize impacts on EFH from fishing activities, and that they and other Federal agencies consult with the National Marine Fisheries Service about activities that might harm EFH. Actions that occur outside of EFH, but that might affect the habitat, must also be taken into account. The MSA defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.”

- Includes national standards for fisheries management and outlines the contents of fishery management plans.
- Gives the Secretary of Commerce power to review, approve, and implement fishery management plans and other recommendations developed by the councils.

***Implemented by:***

- Pacific Fisheries Management Council
- NOAA Fisheries

**United States Endangered Species Act:** Under the Endangered Species Act, NOAA Fisheries has listed salmon and steelhead species in Puget Sound and the Washington coast including:

- Puget Sound Chinook – listed as threatened in 1999
- Hood Canal & Strait of Juan de Fuca summer chum – listed as threatened in 1999
- Lake Ozette sockeye – listed as threatened in 1999
- Puget Sound steelhead – listed as threatened in 2007

NOAA Fisheries has also considered listing petitions for several other species, which were either found not to warrant listing or they remain in candidate status. These include Puget Sound /Georgia Basin coho, Pacific herring, Pacific hake (cod), walleye pollock, and copper (quillback) brown rockfish.

Other key fish that have been listed include:

- Georgia Basin Bocaccio Rockfish (listed as endangered in 2010)
- Georgia Basin Canary Rockfish (listed as threatened in 2010)
- Georgia Basin Yelloweye Rockfish (listed as threatened in 2010)
- Southern DPS Green Sturgeon (listed as threatened in 2005)
- Southern DPS Eulachon (listed as threatened in 2010)

The ESA prohibits “take” of listed species, which includes all intentional or incidental mortality, injury, or degradation of their habitat. NOAA Fisheries has been granted authority to exempt certain activities from the take prohibition, provided that they are demonstrated to meet specific criteria (Northwest Indian Fisheries Commission 2015). Fisheries’ rules for allowing exemption are intended to protect the abundance, productivity, diversity, and spatial distribution of an Evolutionarily Significant Units (ESU), which are regional aggregates of populations to which the ESA is applied.

To comply with the ESA, the Puget Sound tribes and the Washington State Department of Fish and Wildlife (WDFW) submitted harvest management plans for Puget Sound chinook and Hood Canal summer chum to NOAA Fisheries for evaluation; these plans were subsequently authorized (Northwest Indian Fisheries Commission 2015).

Note: There have been on-going discussions about reauthorizing this Act.

***Implemented by:***

- United States Fish and Wildlife Service (terrestrial and freshwater organisms)
- United States National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (marine wildlife such as whales and anadromous fish including salmon)

**Policy Actors**

**Pacific Fishery Management Council:** One of eight regional fishery management councils established by the Magnuson-Stevens Fishery Conservation and Management Act (Pacific Fishery Management Council 2015). The Council manages fisheries for about 119 species of salmon, groundfish (blackcod, Pacific whiting, rockfish and flatfish), coastal pelagic species (sardines, anchovies, and mackerel), and highly migratory species (tunas, sharks, and swordfish). It is comprised of state or tribal fish and wildlife agencies, and private citizens appointed by governors of the four states within the Council region, in conjunction with the Secretary of Commerce, who are knowledgeable about recreational or commercial fishing or marine conservation).

**Pacific States Marine Fisheries Commission:** Commission formed by Congress to promote and support actions to conserve, develop, and manage fishery resources in California, Oregon, Washington, Idaho, and Alaska by coordinating research activities, monitoring fishing activities, and facilitating a wide variety of projects (Pacific States Marine Fisheries Commission 2015).

Aquaculture – United States

**United States Rivers and Harbors Act:** Addresses the construction of structures over or in navigable waterways of the U.S., in this case for aquaculture related facilities to ensure that these facilities do not adversely impact finfish resources (Governor's Office for Regulatory Innovation and Assistance 2015).

***Implemented by:***

- United States Army Corps of Engineers

**United States Clean Water Act:** Section 404 requires review for the discharge of materials into waters of the United States (Governor's Office for Regulatory Innovation and Assistance 2015).

***Implemented by:***

- United States Army Corps of Engineers

**United States Endangered Species Act:** Permit review by the Corps may require ESA Section 7 consultation by NOAA Fisheries and the US Fish & Wildlife Service as well as review for impact to Essential Fish Habitat under the Magnusson Stevens Act (Governor's Office for Regulatory Innovation and Assistance 2015).

***Implemented by:***

- US Fish & Wildlife Service
- NOAA Fisheries

**United States Coastal Zone Management Act:** The Army Corps permit must also be certified by the Washington Department of Ecology pursuant to the Coastal Zone Management Act (Governor's Office for Regulatory Innovation and Assistance 2015).

***Implemented by:***

- United States Army Corps of Engineers
- Washington Department of Ecology

State Scale – Washington State

*Fisheries Management – Washington State*

**Puget Sound Comprehensive Chinook Management Plan:** Guides the Washington co-managers (Tribes and WDFW) in planning annual harvest regimes. The Plan states that it will constrain harvest to the extent necessary to enable rebuilding of natural Chinook populations in the Puget Sound evolutionarily significant unit (ESU), provided that habitat capacity and productivity are protected and restored. The Plan also indicates that it includes measures to conserve and rebuild abundance, and preserve diversity among all the populations that make up the ESU. The ultimate goal of the plan is to promote rebuilding of natural productivity so that natural Chinook populations will be sufficiently abundant and resilient to perform their natural ecological function in freshwater and marine systems, provide related cultural values to society, and sustain commercial, recreational, ceremonial, and subsistence harvest (Puget Sound Indian Tribes and Washington Department of Fish and Wildlife 2010).

***Implemented by:***

- Washington State Department of Fish and Wildlife
- Tribes, including Lummi, Nooksack, Swinomish, Upper Skagit, Sauk-Suiattle, Tulalip, Stillaguamish, Muckleshoot, Suquamish, Puyallup, Nisqually, Squaxin Island, Skokomish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, and Makah tribes

**Statewide Steelhead Management Plan: Statewide Policies, Strategies, and Actions:** Provides a framework of policies, strategies, and actions that present overarching guidelines for department managers to collaborate with tribal co-managers and other interested parties, including watershed and regional groups, in the development of watershed and regional management plans (Washington Department of Fish and Wildlife 2008).

***Implemented by:***

- Washington State Department of Fish and Wildlife

**Forage Fish Management Plan:** Plan for the management of forage fish resources and fisheries in Washington State, adopted by the Washington Fish and Wildlife Commission (Bargmann 1998). The

plan is used to guide resource management decisions, establish priorities and develop fishing regulations. Addresses:

- Pacific Herring
- Eulachon
- Northern Anchovy
- Pacific Sand Lance
- Surf Smelt
- Sardine
- Longfin Smelt

***Implemented by:***

- Washington State Department of Fish and Wildlife

**Puget Sound Rockfish Conservation Plan Policies, Strategies and Actions:** Management plan with policies, strategies and actions designed to help restore and maintain abundance, distribution, diversity and long-term productivity of rockfish populations in Puget Sound. Plan also offers a framework for state fish managers to follow in developing regulations, establishing priorities, and providing guidelines for the development of additional plans with tribal co-managers (Washington Department of Fish & Wildlife 2015).

Key provisions of the plan include:

- Managing fisheries in Puget Sound to ensure the health and productivity of all rockfish species.
- Utilizing science-based marine conservation areas that, with other actions, aid in natural production of rockfish populations and their habitats.
- Working with the Northwest Straits Commission, tribes, fishers and others to improve the system for reporting and removing lost fishing gear from Puget Sound.
- Promoting the restoration of depleted stocks to sustainable levels through the appropriate use of hatchery programs and artificial habitats.

Within Puget Sound, WDFW has implemented recreational depth and area restrictions, and closed commercial fisheries that target rockfish or have a high potential to encounter them as bycatch (Washington Department of Fish & Wildlife 2015).

***Implemented by:***

- Washington State Department of Fish and Wildlife

Aquaculture – Washington State

### Laws and Policies

**Shellfish Aquaculture Regulations:** Addressed geoduck aquaculture facilities as follows:

- Commissioned a series of intertidal geoduck aquaculture scientific research studies to be led by Washington Sea Grant.
- Created a Shellfish Aquaculture Regulatory Committee with members representing a wide range of perspectives.
- Directed Ecology to develop Shoreline Master Program guidelines for geoduck aquaculture operation siting and operation.

**Clean Water Act:** A National Point Discharge Elimination System Permit (NPDES) is required for upland aquaculture facilities or operations that discharge fish rearing water to a surface water body or a system that drains to a surface water body. In addition, the Department of Ecology would be required to complete a Section 401 Water Quality certification (Governor's Office for Regulatory Innovation and Assistance 2015).

***Implemented by:***

- Washington State Department of Ecology

**Hydraulic Code:** Regulates activities on and near state waters that could affect fish life. Establishment of aquaculture facilities may require Hydraulic Project Approval (Governor's Office for Regulatory Innovation and Assistance 2015).

***Implemented by:***

- Washington State Department of Fish and Wildlife

### Policy Actors

**Washington State Department of Health:** The Department is responsible for closing beaches to shellfish harvest. The Department also licenses and regulates companies that commercially harvest and sell molluscan shellfish.

**Washington State Department of Fish and Wildlife:** Registration is required by the Washington State Department of Fish and Wildlife (WDFW) for any aquaculture operation, including those culturing food fish, shellfish, and certain aquatic animals. Quarterly reports on production are required. In addition, a permit is required to transfer live fish products within the state.

**Washington State Department of Natural Resources:** Leases state-owned aquatic land to support aquaculture operations that grow oysters, clams, and mussels using a variety of growing methods, including: bottom, bag, intertidal long lines, and floating shellfish rafts.

### Local Scale - Regional and subregional policymaking in Washington State

Local governments do not have a direct role in fisheries management, but are indirectly involved in habitat protection and restoration as part of their role in regulating land use activities on or near waters that could affect fish life and in completing habitat restoration projects.

In addition, local governments regulate shoreline areas under local Shoreline Master Programs developed under the requirements of the Shoreline Management Act. Some jurisdictions (e.g. Whatcom and Jefferson Counties) have banned fin fish aquaculture in their jurisdiction under the locally adopted Shoreline Master Program.

### *Indigenous Peoples – United States*

Tribes are co-managers of fisheries in Washington State. In this role, Tribes are involved in establishing management plans for threatened species, as well as collecting data, conserving fish habitat, assessing the status of fish stocks, establishing annual harvest plans/catch quotas, and implementing management programs. Tribes participate in the annual Pacific Salmon Commission meetings, as well as work with the Washington State Department of Fish and Wildlife, under the review of the Pacific Fisheries Management Council, to implement regional salmon fishery plans for compliance with federal conservation standards (Northwest Indian Fisheries Commission 2015). Treaty tribes also maintain monitoring staff in order to evaluate compliance with fisheries catch limits.

Tribes work with the Northwest Indian Fisheries Commission, which assists member tribes in their role as natural resources co-managers.

In addition, for aquaculture projects, Tribes are consulted as part of the federal permitting process completed by the Army Corps of Engineers.

### *Governmental/Non-Governmental Collaborations – United States*

Collaboration is occurring between government and non-government organizations, particularly in the areas of habitat preservation and restoration. An example of this is the Regional Fisheries Enhancement Group Program. This program was created by the Washington State Legislature to involve local communities, citizen volunteers, and landowners in the state's salmon recovery efforts (Washington Department of Fish and Wildlife 2015). Each RFEG works within a specific geographic region based on watershed boundaries. Every group is a separate, nonprofit organization led by their own board of directors and supported by their members. There are several RFEGs working in the Puget Sound area, including:

- Nooksack Salmon Enhancement Association
- Skagit Fisheries Enhancement Group
- Sound Salmon Solutions
- Mid-Sound Fisheries Enhancement Group
- South Puget Sound Salmon Enhancement Group

- Hood Canal Salmon Enhancement Group
- North Olympic Salmon Coalition

Another example is the **Pacific Coastal Salmon Recovery Fund**, established by Congress in 2000 to reverse the declines of Pacific salmon and steelhead, supporting conservation efforts in California, Oregon, Washington, Alaska, Idaho, and Nevada (NOAA Fisheries West Coast Region 2015). NOAA Fisheries administers PCSRF's competitive grants process. Funds awarded to Washington State are managed by the Washington State Recreation and Conservation Office and are allocated through the Salmon Recovery Funding Board. The funding has been used for a variety of projects, including in-stream, wetland, estuarine, riparian, and upland habitats, as well as land acquisition, fish passage and monitoring projects.

The **Pacific Marine and Estuarine Fish Habitat Partnership** is one of 19 nationally recognized partnerships that seeks to advance regional and national goals relating to juvenile fish habitat (Pacific Marine and Estuarine Fish Habitat Partnership 2015). Members include representatives from federal agencies including the US Fish and Wildlife Service, NOAA Fisheries, US Forest Service, as well as state agencies from Washington, Oregon and California, together with the Pacific States Marine Fisheries Commission, the Nature Conservancy, the Pacific Fishery Management Council and the Makah Tribe.

The **Western Native Trout Initiative** is another example of a public-private Fish Habitat Partnership that works collaboratively across 12 western states to conserve, protect, restore and recover 21 native trout and char species (Western Native Trout Initiative 2015).

#### *Non-Governmental Organizations – United States*

Non-governmental organizations are active in a number of different capacities. NOAA Fisheries acknowledges the work of NGOs in providing outreach and education to the public about marine resources and fisheries. Members of NGOs also participate in advisory capacities, such as serving on multi-stakeholder advisory boards. An example is the Marine Fisheries Advisory Committee, which advises the Secretary of Commerce on marine source matters (NOAA Fisheries 2015). This board contains representatives of several key environmental NGOs, including:

- World Wildlife Fund
- National Fish and Wildlife Foundation
- Conservation Law Foundation

The Committee also includes industry and recreation-related representatives.

NGOs also participate in the development of species management plans, by participating in public involvement activities associated with policy-making.

With respect to aquaculture, the Washington State Department of Ecology acknowledges the work of these NGOs:

- Sierra Club Cascade Chapter

- Pacific Coast Shellfish Growers Association
- Underwater Harvesters Association
- Protect Our Shoreline, a waterfront property owners' group
- Save Our Shoreline, a waterfront property owners' group

Some of these groups represent industry, while other represent NGOs with concerns about the potential impacts of aquatic farming (Washington State Department of Ecology 2015).

### Canada – Fisheries and Aquaculture

The federal government has jurisdiction to regulate not only fish and fisheries, but also fish habitat and the quality of fish-bearing waters, as well as marine plants and marine mammals (Beckplumb 2013). Under this authority, the federal government regulates all parts of the oceans under Canadian jurisdiction, as well as lakes, rivers and streams within the provinces and territories. Federal jurisdiction applies to waters that are owned by the federal Crown or the provincial Crown or are privately owned. The Federal government has delegated authority to manage non-salmon fisheries in inland waters to the Province.

With respect to aquaculture, the federal government (Fisheries and Oceans Canada (DFO)) is responsible for most aspects of the aquaculture industry, including licensing sites, production volumes, species to be produced, fish health, sea lice levels, fish containment and waste control. The province, in contrast, issue tenures where operations take place in either the marine or freshwater environment, license marine plant cultivation, and manage business aspects of aquaculture such as work place health and safety within the province.

#### *Government Entities - Canada*

#### Federal Scale - Canada

#### *Fisheries Management - Canada*

**Canada Fisheries Act:** Act addressing the protection of the productivity of recreational, commercial and Indigenous fisheries. (Note: Recent changes under Bill C-38 limited application of the provisions of this Act to certain fish populations, with a focus on Canada's commercial, recreational and Indigenous fisheries) (Government of Canada 2015). This Act authorizes the Minister to regulate access to the fisheries resource, impose conditions on harvesting, and enforce regulations.

#### *Implemented by:*

- Fisheries and Oceans Canada

**Canada Species at Risk Act:** Act designed to protect wildlife species at risk, including fish, reptiles, marine mammals and mollusks. Under SARA, several freshwater aquatic species have been classified as at-risk, including (but not limited to):

- Several species of Stickleback (Endangered)

- Westslope Cutthroat Trout (British Columbia population (Special Concern Status)
- White Sturgeon (Endangered)

A number of other freshwater aquatic species have been recommended for classification by COSEWIC, but have not yet been included on the official SARA list.

Several marine species have also been listed, such as two species of Rockfish (Rougheye and Yelloweye). A number of other freshwater aquatic species have been recommended for classification by COSEWIC, but have not yet been classified as SARA Schedule 1 (the official list of wildlife species at risk).

SARA provides the ability to protect species' critical habitat. An example of this is the establishment of Rockfish Conservation Areas by the Canada Department of Fisheries and Oceans. The RCAs were established to protect rockfish from recreational and commercial fisheries.

**Canada's Policy for Conservation of Wild Pacific Salmon:** Plan for restoring and maintaining healthy and diverse salmon populations and their habitats (Fisheries and Oceans Government of Canada 2010).

**Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries:** Sets out a strategic framework to guide Pacific fishery monitoring and catch reporting (Fisheries and Oceans Canada 2011). Developed by Fisheries and Oceans Canada (DFO) in consultation with First Nations, commercial and recreational harvesters and other stakeholders. Provides guidance on various catch monitoring requirements and the development and application of specific standards. This framework acknowledges the importance of the following tools: a precautionary approach towards harvested fish stocks, and development of integrated fisheries management plans.

**Integrated Fisheries Management Plans:** Guides the conservation and sustainable use of marine resources (Fisheries and Oceans Canada 2013). An IFMP is developed to manage the fishery of a particular species in a given region. IFMPs combine the best available science on a species with industry data on capacity and methods for harvesting that species. In the Pacific Region, the following Plans have been developed:

- Shellfish (Invertebrates)
- Groundfish
- Pelagics
- Minor Finfish
- Salmon

***Implemented by:***

- Fisheries and Oceans Canada

**Pacific Integrated Commercial Fisheries Initiative:** This initiative is part of fisheries management reform that has been underway; funding for this initiative is to expire in 2016 (Pacific Region Fisheries and Oceans Canada 2008). The initiative was aimed at achieving environmentally sustainable and

economically viable commercial fisheries, where conservation is the first priority and First Nations' aspirations to be more involved are supported.

***Implemented by:***

- Fisheries and Oceans Canada

*Aquaculture - Canada*

*General*

**Fisheries Act:** Establishes authority to regulate the aquaculture industry in order to protect fish and fish habitat. The Act sets out authorities on fisheries licensing, management, and protection and pollution prevention. The Fisheries Act provides broad powers to the Minister for the proper management and control of commercial, Indigenous, and recreational fisheries, and the activity of aquaculture. The Fishery (General) Regulations (FGR) and the Pacific Aquaculture Regulations (PAR) are the principle Fisheries Act regulations governing aquaculture activities in BC (Fisheries and Oceans Canada Government of Canada 2013). These regulations frame the management and regulation of aquaculture activities on the Pacific coast, including establishing a licensing regime consistent with the other fisheries managed by the Department.

***Implemented by:***

- Fisheries and Oceans Canada

*Finfish Aquaculture*

Virtually all marine finfish sites are located on tenured Crown foreshore and are regulated by the Aquaculture Regulations that govern cage structures, containment netting, net inspections and record keeping, boat operations, best management practices, predator avoidance and escape response (Fisheries and Oceans Canada 2009).

*Shellfish Aquaculture*

A Land Act tenure and a Fisheries Act Aquaculture License must be obtained from the Shellfish Unit before a shellfish operation can be developed.

**Integrated Management of Aquaculture Plans:** Management plans, reviewed every two years, which identify the main objectives and requirements for management of specific aquaculture sectors in British Columbia, as well as the management measures that will be used to meet these objectives (Fisheries and Oceans Government of Canada 2009). IMAPs have been developed for:

- Marine Finfish
- Shellfish

***Implemented by:***

- Fisheries and Oceans Canada

**Sustainable Aquaculture Program:** Program operating through 2018 designed to improve the regulatory system for the aquaculture sector in Canada by: streamlining regulations, improving regulatory management, increasing scientific knowledge and science-based decision-making, and ensuring transparency through enhanced public reporting (Government of Canada 2013).

***Implemented by:***

- Fisheries and Oceans Canada

*Other*

**Oceans Act:** Provides authority to the Minister to lead the development and implementation of plans for the integrated management of activities affecting estuaries, coastal and marine waters, and the coordination of oceans issues.

***Implemented by:***

- Fisheries and Oceans Canada

**Navigation Protection Act:** Requires review and authorization of works in navigable waters. The nature and degree of interference to navigation of the project is evaluated, and if an authorization is issued, any impacts are mitigated through terms, conditions and compliance measures.

***Implemented by:***

- Transport Canada

Provincial Scale – British Columbia

*Fisheries Management – British Columbia*

**Canada Fisheries Act:** The province exercises delegated authority for the management of non-salmon freshwater fisheries (Province of British Columbia 2015).

***Implemented by:***

- Ministry of Forests, Lands, and Natural Resource Operations

*Aquaculture – British Columbia*

**Canada Fisheries Act:** The provincial government's role in aquaculture includes:

- Licensing marine plant cultivation and issuing tenures where operations take place on Crown land
- Issuing business licenses under the Fisheries Act
- Protecting the provincial public interest in sustainable aquaculture development

***Implemented by:***

- Ministry of Forests, Lands, and Natural Resource Operations

### Local Scale - Regional and subregional policymaking in British Columbia

Local governments do not have a direct role in fisheries management, but are indirectly involved in habitat protection and restoration as part of their role in regulating land use activities on or near waters that could affect fish life and in completing habitat restoration projects.

### *Indigenous Peoples - Canada*

#### *Fisheries Management - Canada*

Treaty negotiations between the Canadian government and many First Nations in British Columbia are ongoing; as a result, for those Nations without modern-treaties, issues related to First Nations' fishing rights and the role of First Nations in fisheries management remain unresolved.

However, courts have recognized First Nation's rights with respect to fisheries. In its 1990 *Sparrow* decision, the Supreme Court of Canada found that where an Indigenous group has an Indigenous right to fish for food, social and ceremonial purposes, it takes priority, after conservation, over other uses of the resource.

First Nations are involved in consultation, cooperative management and stewardship activities, and many are seeking a greater role in all aspects of aquatic resource management decisions through the treaty negotiation process. As an example, the [Forum on Conservation and Harvest Planning for Fraser Salmon](#) was developed as a process for Fraser River and Vancouver Island/Marine Approach First Nations to provide input to Fisheries and Oceans Canada on sharing Fraser River fish stocks for Food, Social, and Ceremonial (FSC) purposes

First Nations also work with Fisheries and Oceans Canada (DFO) through a number of fisheries and aquaculture programs, including:

**Aboriginal Fisheries Strategy:** Seeks to provide for the effective management and regulation of fishing by Indigenous groups through the negotiation of mutually acceptable and time-limited fisheries agreements between DFO and Indigenous groups (Pacific Region Fisheries and Oceans Canada 2008). Where agreement cannot be reached with an Indigenous group, DFO will review the consultations with the group and the Minister of Fisheries and Oceans will issue a communal fishing license to the group, containing provisions that the Minister believes are consistent with the Sparrow decision and subsequent Supreme Court of Canada decisions. The license allows the group to fish for food, social and ceremonial purposes. This strategy applies only in areas where land claims remain unsettled and have not put a fisheries management regime in place.

**Aboriginal Aquatic Resource and Oceans Management Program:** Provides funding to qualifying Indigenous groups to establish aquatic resource and oceans management bodies. This program provides funding for 20 groups in British Columbia (Pacific Region Fisheries and Oceans Canada 2008).

**Aboriginal Fisheries Strategy Agreements:** Provides funding to support the development of agreements addressing First Nations' role in the management of fisheries, including the food, social and ceremonial (FSC) fishery and any economic opportunity fisheries. Funding is provided to support fisheries-related

co-operative management activities and capacity development. Activities can include stock assessment, enhancement and habitat restoration, negotiation, consultation, education and public awareness (Pacific Region Fisheries and Oceans Canada 2008).

**Aboriginal Fund for Species at Risk Agreements:** Contributes funding for approved projects, which are directed at Indigenous capacity building and habitat protection and recovery for species at risk. The key objective is to encourage meaningful involvement of Indigenous people and communities in the implementation of the Species at Risk Act (Pacific Region Fisheries and Oceans Canada 2008).

**First Nations Fisheries Memorandum of Understanding:** MOU between the Government of Canada and the First Nations Leadership Council with the intent to maintain and build positive relations between First Nations in British Columbia and Fisheries and Oceans Canada (Pacific Region Fisheries and Oceans Canada 2008). The agreement outlines a collaborative relationship to engage in joint dialogue on matters related to fisheries and aquatic resources. Signatories included representatives from the First Nations Summit, the Union of B.C. Indian Chiefs; and the Assembly of First Nations.

#### **Other**

First Nations also work collaboratively through different organizations on fisheries issues. An example of this is the development of the BC First Nations Fisheries Action Plan, which contains an overarching vision statement, goals, and principles relating to the Pacific fishery (British Columbia Assembly of First Nations 2015). One of the priorities identified in the Action Plan was the establishment of the First Nations Fisheries Council, which works with and on behalf of BC First Nations to protect and reconcile First Nations rights and title as they relate to fisheries and the health and protection of aquatic resources (First Nations Fisheries Council 2015). The Council works to:

- Advance and protect First Nations Title and Rights related to fisheries and aquatic resources, including priority access for food, cultural and economic purposes;
- Support First Nations to build and maintain capacity related to fishing, planning, policy, law, management, and decision-making at a variety of scales (local, regional, national and international); and
- Facilitate discussions related to the development of a British Columbia-wide First Nations-based collaborative management framework that recognizes and respects First Nations jurisdiction, management authority and responsibilities.

#### *Aquaculture - Canada*

Some First Nations have been involved in efforts to change aquaculture practices in British Columbia, particularly from open pen fish farms. For example, more than a dozen British Columbia Indian Nations, as well as 16 fishing and salmon conservation groups in Canada and the United States, requested an investigation under the North American Free Trade Agreement into Canada's failure to enforce laws regulating damage to wild salmon caused by aquaculture operations in British Columbia (Center for Biological Diversity 2015). The Commission for Environmental Cooperation, an environmental dispute body established under the North American Free Trade Agreement, dismissed the request.

*Governmental/Non-Governmental Collaborations - Canada*

*Fisheries Management - Canada*

Collaboration is occurring between government and non-government organizations, particularly in the areas of habitat preservation and restoration. An example of this is the Recreational Fisheries Conservation Partnerships Program, a program operated by Fisheries and Oceans Canada that supports multi-partner projects at the local level aimed at restoring recreational fisheries habitat in order to enhance the sustainability and productivity of Canada's recreational fisheries. Specifically, the program, through contribution funding, enables proponents to manage and execute projects that restore compromised and/or threatened recreational fisheries habitat.

With funding from this program, the Squamish River Watershed Society re-connected several channels of the Cheakamus River through channel excavation, culvert installation, weir construction and diversions so that flows were re-established.

In addition, there are a number of multi-stakeholder advisory bodies composed involved in consulting on fisheries management plans as well as updating the commercial salmon allocation framework, including:

**Salmon Integrated Harvest Planning Committee:** Provides formal advice and make recommendations to Fisheries and Oceans Canada on operational decisions related to salmon harvesting in north and south coastal portions of the Pacific Region and the watersheds that contribute to these fisheries (Government of Canada 2009).

**Commercial Salmon Advisory Board:** Provides advice on policy matters related to the commercial salmon fishery (Government of Canada 2009). Develops Commercial salmon harvest plans that consolidate and co-ordinate the interests of the various areas and gear types, according to the objective and criteria developed by the Integrated Salmon Harvest Planning Committee. Serves as the consultative body on issues that affect commercial salmon fisheries.

**Sport Fishing Advisory Board:** Provides formal advice and makes recommendations to the Department of Fisheries and Oceans Canada on matters relating to tidal recreational fisheries and non-tidal anadromous fisheries (Government of Canada 2009).

*Aquaculture - Canada*

The following advisory bodies are involved in aquaculture management issues:

**Marine Finfish Aquaculture Management Advisory Committee:** Multi-stakeholder forum which is tasked with providing feedback to Fisheries and Oceans Canada on the coast-wide management of marine finfish aquaculture (Government of Canada 2009).

**Shellfish Aquaculture Industry Advisory Panel:** Multi-stakeholder forum which is tasked with providing feedback to Fisheries and Oceans Canada on the management of shellfish aquaculture (Government of Canada 2009).

### *Non-Governmental Organizations - Canada*

Aquaculture has been controversial in Canada and British Columbia (Young and Matthews 2011). Several environmental NGOs have campaigned against aquaculture, including:

**Coastal Alliance for Aquaculture Reform:** Coalition of NGOs formed to ensure salmon farming in BC is safe for wild salmon, marine ecosystems, coastal communities and human health. Comprised of the following conservation groups:

- David Suzuki Foundation
- Georgia Strait Alliance
- Living Oceans Society
- T. Buck Suzuki Environmental Foundation

There are also a number of trade and industry organizations involved in promoting positive awareness of the aquaculture industry through education and community involvement, as well as advocating for policies supportive of the industry. Some examples are:

- Positive Aquaculture Awareness
- Canadian Aquaculture Industry Alliance
- BC Salmon Farmers Association

### Transboundary Policymaking – Fisheries and Aquaculture

#### Fisheries Management – United States and Canada

##### **Laws and Policies**

**Pacific Salmon Treaty:** Treaty between United States and Canada which laid out the foundation for cooperation in the management, research and enhancement of Pacific salmon stocks of mutual concern. Established a forum for equitable sharing of harvest benefits and conservation constraints on fisheries in Canada and the United States. Separate agreements – or “Annexes” to the Treaty – govern fisheries for chinook, coho, chum, and sockeye (Pacific Salmon Commission 2015).

##### ***Implemented by:***

- Pacific Salmon Commission

##### **Policy Actors**

**Pacific Salmon Commission:** Body formed by the governments of Canada and the United States to implement the Pacific Salmon Treaty. Provides regulatory advice and recommendations to Canada and the United States about Pacific Salmon and Steelhead Trout conservation.

The fundamental role of the Pacific Salmon Commission is two-fold:

- Conserve the Pacific Salmon in order to achieve optimum production,
- Divide the harvests so that each country reaps the benefits of its investment in salmon management.

**International Pacific Halibut Commission:** Established by a Convention between the governments of Canada and the United States of America. Its mandate is research on and management of the stocks of Pacific halibut within the Convention waters of both nations (International Pacific Halibut Commission 2015). The IPHC conducts numerous projects annually to support both major mandates: stock assessment and basic halibut biology. The Commission works with several advisory boards, which contain representatives from a variety of interests, including harvesters, fisheries managers, processors, government staff, science advisors, and academics. The Commission's advisory bodies include the Conference Board, the Processor Advisory Group, the Research Advisory Board, the Management Strategy Advisory Board, and the Scientific Review Board.

**Long Live the Kings and the Pacific Salmon Foundation:** Through the Salish Sea Marine Survival Project and Steelhead Research Planning effort, Long Live the Kings and the Pacific Salmon Foundation are working with a multi-disciplinary group of scientists from federal and state agencies, tribes, and academia, with managers, and with funders from the public and private sectors, to develop a joint United States and Canada research program, utilizing intellectual and capital resources from both countries to evaluate the causes of weak juvenile salmon and steelhead survival in the Salish Sea marine environment (NOAA Fisheries West Coast Region 2015). Organizations involved in the project include:

### Tribes

- Nisqually Indian Tribe
- Tulalip Tribes
- Lummi Nation
- Port Gamble S'Klallam Tribe
- Muckleshoot Indian Tribe
- Skagit River System Cooperative
- Squaxin Island Tribe
- Cowichan Tribes
- The Puyallup Tribe of Indians
- Jamestown S'Klallam Tribe

### Private

- Pacific Salmon Endowment Fund Society
- Goldcorp
- Sitka Foundation
- Canfisco
- Pacific Crest Seafoods
- Northwest Marine Technology
- Finest at Sea
- Eagle Wing Tours
- Kintama

International

- Southern Endowment Fund of the US-Canada Pacific Salmon Treaty\*

State

- State of Washington\*\*
- Washington Department of Fish and Wildlife
- Puget Sound Partnership (including the Puget Sound Salmon Recovery Council)
- Northwest Indian Fisheries Commission
- Salmon Recovery Funding Board

Academic

- University of British Columbia
- University of Washington
- University of Victoria
- Simon Fraser University

Local

- King County
- Seattle City Light
- City of Bellingham
- Port Metro Vancouver
- Port of Seattle

Federal

- National Oceanic and Atmospheric Administration
- Fisheries and Oceans Canada
- US Geological Survey
- Environmental Protection Agency
- US Fish and Wildlife Service
- National Fish and Wildlife Foundation
- Washington Sea Grant

Nonprofit

- Genome British Columbia
- Kwiht

- Trout Unlimited
- Pacific Northwest Salmon Center

### Aquaculture – United States and Canada

#### **United States National Oceanic and Atmospheric Administration & Canada's Department of Fisheries**

**& Oceans Partnership on Aquaculture:** Binational partnership with three key initiatives: comparing regulatory objectives and outcomes of net pen aquaculture, cooperating on farmed to wild fish interactions, and cooperating on regulatory oversight and management of offshore aquaculture (Regulatory Cooperation Council 2015). The partnership is part of a broader initiative known as the Regulatory Cooperation Council (RCC), launched by President Obama and Canadian Prime Minister Harper in 2011 to encourage smarter and more effective approaches to regulation in the U.S. and Canada.

#### ***Implemented by:***

- Regulatory Cooperation Council
- United States National Oceanic and Atmospheric Administration
- Canada's Department of Fisheries & Oceans Partnership

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MARINE  
&  
NEARSHORE ECOSYSTEMS

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### 3.10 MARINE AND NEARSHORE ECOSYSTEMS

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Marine water quality in the Salish Sea is being impacted by a number of different pollutants that enter the water from different sources, including freshwater resources that drain into the marine environment, overland runoff, and direct discharges to the marine environment. These pollutants include human and animal wastes, fertilizers, pesticides, and toxic chemicals that run off pavement during storms and are discharged from industrial facilities. They also include discharges from vessels. These pollutants can harm aquatic life, and also pose several health and safety problems to humans. Salish Sea marine water quality is being adversely impacted, with observations showing reduced levels of dissolved oxygen and acidification (US EPA 2015).

The impact of reduced levels of dissolved oxygen has dramatically increased over the past few decades due to human-caused increases in nutrients in the water from fertilizer runoff and other nutrient sources including animal waste, failing septic systems and municipal and industrial wastewater discharges (US EPA 2015).

Nearshore aquatic systems are vital to the health of the Salish Sea. These systems form the interface between the terrestrial and marine landscape and are comprised of shorelines, estuaries, and deltas. Yet these areas are under pressure from a number of stressors, including pollution impacts (e.g. soil erosion, excess nutrients, toxic substances, and pathogens) and structural alterations which can lead to loss of habitat.

The Water Quality and Quantity section more specifically addresses water quality impacts from point or non-point sources. This section, instead, focuses on mechanisms in place to protect and preserve marine and nearshore ecosystems.

#### United States – Marine and Nearshore Ecosystems

The protection of the marine environment in the United States is a responsibility shared by all levels of government.

##### *Government Entities – United States*

##### Federal Scale – United States

##### *Marine Waters – United States*

##### General Information – United States

**United States Coastal Zone Management Act:** Provides for the management of the nation's coastal resources. The goal is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

Established several programs to restore and enhance the nation's coastal areas: the National Estuarine Research Reserve System, and the Coastal and Estuarine Land Conservation Program. National Estuarine Research Reserve System established a system of reserves that serve as field laboratories that provide a greater understanding of estuaries and how humans impact them. The Coastal and Estuarine

Land Conservation Program provides matching funds to state and local governments to purchase threatened coastal and estuarine lands or obtain conservation easements (Washington State Department of Ecology 2015).

The Act also established a voluntary partnership between the federal government and states. Washington State has chosen to participate in this program. Major components of the national program include federal consistency, program enhancements, and nonpoint pollution control. In this context, federal consistency requires that federal actions, within and outside the coastal zone, which have reasonably foreseeable effects on any coastal use (land or water) or natural resource of the coastal zone be consistent with the enforceable policies of a state's federally approved coastal management program (Washington State Department of Ecology 2015). Federal actions include federal agency activities, federal license or permit activities, and federal financial assistance activities. Federal agency activities must be consistent to the maximum extent practicable with the enforceable policies of a state coastal management program, and license and permit and financial assistance activities must be fully consistent.

Program enhancements refer to a process States can engage in to update and make improvements to their Coastal Zone Management programs in one or more of nine specific areas: Wetlands, Coastal Hazards, Public Access, Marine Debris, Cumulative and Secondary Impacts, Special Area Management Planning, Ocean Resources, Energy & Government Facility Siting, and Aquaculture. These updates allow States to access special funding. Washington State has completed an Assessment and Strategy under this provision (Washington State Department of Ecology 2010).

**Implemented by:** United States Environmental Protection Agency, National Oceanic and Atmospheric Administration

**United States Clean Water Act:** The Water Quality section addresses many of the applicable provisions in more detail – this section focuses on protection of estuary areas under the National Estuary program.

With respect to estuary protection, Section 320 of the 1987 Clean Water Act Amendments established the **National Estuary Program** to protect and restore the water quality and ecological integrity of estuaries of national significance. Puget Sound is one of 28 estuaries of national significance as designated by the National Estuary Program. Section 320 requires development and implementation of a Comprehensive Conservation and Management Plan (CCMP). The CCMP is a long-term plan that contains specific targeted actions designed to address water quality, habitat, and living resources challenges in its estuarine watershed. EPA has approved the Puget Sound Action Agenda as the federally recognized CCMP for Puget Sound (Puget Sound Partnership 2014).

In addition, each NEP has a Management Conference made up of diverse stakeholders including citizens, local, state, and Federal agencies, as well as with non-profit and private sector entities. For the purposes of the National Estuary Program, the Puget Sound Management Conference includes:

- The Puget Sound Partnership state agency, Leadership Council, Ecosystem Coordination Board, and Science Panel, as well as the Education, Communication and Outreach Network and Local Integrating Organizations created by the Partnership; and
- The broader partnership coalition that includes the Puget Sound caucuses affiliated with the Ecosystem Coordination Board, the Salmon Recovery Council, Northwest Straits Commission,

implementing networks, formal and informal interest groups, watershed groups, individual local governments, and representatives from Canadian agencies.

Under this program, the US Environmental Protection Agency receives federal funding to support local efforts to protect and restore Puget Sound. These funds are used for financial assistance to state, local and Tribal governments for their efforts to implement the Puget Sound Action Agenda.

**Implemented by:** United States Environmental Protection Agency, Washington State Department of Ecology, Puget Sound Partnership (National Estuary Program)

**National Ocean Policy:** Issued under Executive order 13547, establishes the Nation's first comprehensive National Policy for the stewardship of the ocean, coasts, and the Great Lakes. (Note: It is unclear the extent to which this policy will address the Puget Sound area, but it does address shared ocean health issues such as sea level rise and ocean acidification that are stressors to the Puget Sound). Since issuance of the Policy, an implementation plan has been released, which calls (in part) for protection of wetlands and a reduction in coastal wetland loss, improvement in coastal and estuarine water quality, and prevention and/or reduction in the impacts from invasive species. The implementation plan also calls for local decision making (e.g. strengthening regional partnerships) as well as advancing scientific understanding of ocean and coastal systems (National Ocean Council 2013).

**Implemented by:** National Ocean Council, a body comprised of federal agencies with ocean-related activities designed to coordinate activities to achieve greater efficiency and effectiveness.

**National Sea Grant College Program:** Encourages the wise use and stewardship of marine and coastal environmental resources through research, education, and outreach and technology transfer (NOAA 2015). Sea Grant works in partnership between the nation's universities and the National Oceanic and Atmospheric Administration. Sea Grant serves as a bridge between government, academia, industry, scientists, and private citizens to promote the sustainable use of ocean waters for long-term economic growth.

**Implemented by:** United States National Oceanic and Atmospheric Administration (NOAA)

### Other Policy Actors:

**Puget Sound Federal Caucus:** Body made up of 15 federal agencies that have entered into a memorandum of understanding to better integrate, organize and focus efforts. The Caucus is involved in the Puget Sound Partnership efforts to restore the health of the Puget Sound (US EPA 2015).

**Large Aquatic Ecosystems Council:** Council comprised of representatives from each of the 10 designated large aquatic ecosystems (including Puget Sound), as well as representatives from EPA. Established to advance the health of the Nation's large aquatic ecosystems and strengthen national water programs by integrating work in large aquatic ecosystems (US EPA 2015).

Preservation and Restoration – United States

**United States Marine Protection, Research, and Sanctuaries Act:** Among other provisions, establishes system for the designation and regulation of marine sanctuaries (US Department of Commerce 2015). There currently are 110 officially designated marine protected areas (MPAs) in Puget Sound; these are

## ISSUES IN ENVIRONMENTAL MANAGEMENT: MARINE & NEARSHORE ECOSYSTEMS

areas where natural and/or cultural resources are given greater protection than the surrounding waters. Most MPAs have legally established goals, conservation objectives, and intended purpose(s).

### ***Implemented By:***

- United States Environmental Protection Agency
- United States National Oceanic and Atmospheric Administration (NOAA)

**United States Estuary and Clean Waters Act of 2000 (Estuary Restoration Act of 2000):** Encourage the restoration of estuary habitat through more efficient project financing and enhanced coordination of Federal and non-Federal restoration programs (US EPA 2015).

- Promotes the restoration of estuary habitat by implementing a coordinated Federal approach to estuary habitat restoration activities, including the use of common monitoring standards and a common system for tracking restoration acreage
- Develops and implements a national estuary habitat restoration strategy for creating and maintaining effective estuary habitat restoration partnerships among public agencies at all levels of government and to establish new partnerships between the public and private sectors. Puget Sound Partnership is the local National Estuary Partnership.
- Provides Federal assistance for estuary habitat restoration projects through cooperative agreements and to promote efficient financing of such projects; and
- Develops and enhances monitoring and research capabilities through the use of the environmental technology innovation program associated with the National Estuarine Research Reserve System to ensure that estuary habitat restoration efforts are based on sound scientific understanding and innovative technologies.

### ***Implemented By:***

- United States National Oceanic and Atmospheric Administration (NOAA)
- United States Army Corps of Engineers
- United States Fish and Wildlife Service
- United States Department of Agriculture Natural Resources Conservation Service
- Puget Sound Partnership (as local National Estuary Partnership)

### Pollution Prevention – United States

**Marine Debris Research, Prevention, and Reduction Act:** Establishes programs to help identify, determine sources of, assess, reduce, and prevent marine debris and its adverse impacts on the marine environment and navigation safety (US EPA 2015).

**Implemented by:** United States National Oceanic and Atmospheric Administration (NOAA) and United States Coast Guard

**Shore Protection Act:** Regulates the transportation of municipal and commercial wastes in coastal waters. It is designed to minimize trash, medical debris, and other harmful material from being deposited into coastal waters as a result of inadequate waste handling procedures by vessels transporting waste (US EPA 2015).

**Implemented by:** United States Environmental Protection Agency and United States Coast Guard

**Beaches Environmental Assessment and Coastal Health Act of 2000:** Amended the Clean Water Act designed to reduce the risk of disease to users of the Nation's coastal recreation waters. Authorizes the EPA to award program development and implementation grants to eligible states, territories, tribes, and local governments to support microbiological testing and monitoring of coastal recreational waters (US EPA 2015). Under this program, the Washington State Department of Ecology monitors marine beaches from Memorial Day to Labor Day.

**Implemented by:** United States Environmental Protection Agency

**Clean Boating Act:** Act passed as an amendment to the Clean Water Act requiring EPA to establish best management practices for operation of recreational vessel discharges. These management practices are to be followed by recreational vessel users.

**Implemented by:** United States Coast Guard

Marine Transportation – United States

**United States Rivers and Harbors Act:** Addresses the construction of structures over or in navigable waterways of the U.S., including bridges, dams, dikes or causeways, wharfs, piers, jetties, and other structures.

**Implemented by:** U. S. Army Corps of Engineers (Corps)

Nearshore – United States

General Information – United States

**United States Coastal Zone Management Act:** Congress established land use policies for land development in coastal areas under the Coastal Zone Management Act. It provides planning grants to states which in turn grant funds to localities to adopt coastal development plans and adopt regulations that comply with the federal and state coastal protection principles.

**Implemented by:** United States Environmental Protection Agency, National Oceanic and Atmospheric Administration

Preservation and Restoration – United States

**United States Clean Water Act:** Under the National Estuary Program, the Washington Department of Fish & Wildlife and Washington State Department of Natural Resources operate the Puget Sound Marine

and Nearshore Grant Program to fund projects that protect the nearshore habitat area (Washington Department of Fish and Wildlife 2015).

**Implemented by:** United States Environmental Protection Agency, in cooperation with Washington Department of Fish & Wildlife and Washington State Department of Natural Resources

**Puget Sound Coastal Program:** One of 22 US Fish and Wildlife Service Coast Programs established to conserve coastal habitat to support fish, wildlife, and plants across the United States (U.S. Department of the Interior, Fish and Wildlife Service 2015). This program is focused on Puget Sound, an Estuary of National Significance under the National Estuary Program. The program works with partners to protect, restore, and enhance fish, wildlife and plant resources in Washington's coastal watersheds.

**Implemented by:** United States Fish and Wildlife Service

Pollution Prevention – United States

**Marine Mammal Protection Act/Magnuson Amendment:** Limits authority of federal government to issue, renew, grant, or otherwise approve any permit, license, or other authority for constructing, renovating, modifying, or otherwise altering a terminal, dock, or other facility in, on, or immediately adjacent to, or affecting the navigable waters of Puget Sound, or any other navigable waters in the State of Washington east of Port Angeles, which will or may result in any increase in the volume of crude oil capable of being handled at any such facility (measured as of October 18, 1977), other than oil to be refined for consumption in the State of Washington ("BP Cherry Dock Draft EIS: Magnuson Amendment Discussion" 2014).

**Implemented by:** U. S. Army Corps of Engineers (Corps)

State Scale – Washington State

*Marine Waters – Washington State*

#### Laws and Policies

**Puget Sound Water Quality Authority:** In 2007, the Washington State Legislature amended this Act, creating the **Puget Sound Partnership** as a state agency, charged with overseeing the restoration of the environmental health of Puget Sound by 2020 (Puget Sound Partnership 2014). The agency was established with a leadership council, an executive director, an ecosystem coordination board, and a Puget Sound science panel:

- **Executive Director:** Administers the Partnership. Acts as a critical link between the Leadership Council, Ecosystem Coordination Board, and Science Panel. The Director also communicates directly with other interests such as governments, the private sector, tribes, academic institutions, non-governmental organizations, and citizens not specifically represented on the advisory boards.
- **Leadership Council:** Governing body of Puget Sound partnership comprised of representatives from each of the 14 watershed areas, the environmental and business community, Indian tribes, and state and federal agencies involved in salmon recovery

- **Science Panel:** Advisory board, comprised of scientists appointed by the Leadership Council, to advise on recovery planning
- **Ecosystem Coordination Board:** Advisory board to the Leader Council, made up of individuals representing specific interests (e.g. environment, business, cities, counties, legislative caucuses, port districts, tribal governments, state agencies, and action areas).

The agency has created the following additional bodies:

- **Local Integrating Organizations:** Local coordinating bodies established to identify locally relevant strategies and actions to implement the Puget Sound Action Agenda and accomplish the sound-wide objectives. LIOs are a coordinating body and each has different membership. Example members include salmon recovery watershed groups, marine resource committees, tribes, local governments, local utilities, farming interests, environmental interests and others.
- **ECO Network Member Organizations:** The Education, Communication and Outreach Network (ECO Net) is an initiative under the Puget Sound Partnership (Puget Sound Partnership 2015a). The network is a collaborative, multi-disciplinary network of individuals and organizations bound together by a vested interest in protecting and enhancing the health and vitality of the Puget Sound region. It serves as a regional planning and communications forum and the organizations involved provide many of the long-term public outreach strategies. Members work on a wide variety of issues that positively impact the health of the Puget Sound, ranging from ecosystem restoration and environmental health to sustainable communities and healthy economies. The network consists of more than 470 organizations across the region and has a diverse membership representing non-profit organizations, community groups, learning centers, conservation districts, public and private schools, businesses, local and regional governments, tribes, and individuals. Members are organized into 12 regional chapters across the 12-county Puget Sound region. Appendix A contains a list of members.

The Puget Sound Partnership, has been developed serving as the coordinating body for Puget Sound recovery, as well as the National Estuary Program, and the Regional Recovery Organization to coordinate salmon recovery efforts. The following are several key documents from this agency:

**Action Agenda for Puget Sound:** The Action Agenda addresses water quality and contains a number of strategies aimed at improving water quality (Puget Sound Partnership 2014).

**Implemented by:** Puget Sound Partnership and Associated Agencies and NGOs.

**Puget Sound Salmon Recovery Plan:** Contains strategies and actions associated with marine and freshwater habitat protection and restoration, hatchery management, and harvest management. This Plan addresses water availability issues that are likely to be further strained under climate change conditions (Puget Sound Partnership 2015b).

**Implemented by:** Puget Sound Partnership and Associated Agencies and NGOs.

**Washington's Ocean Action Plan:** Provides recommendations to protect Washington's ocean resources (Washington State Ocean Policy Work Group 2006). Some of the key recommendations include:

- Establishing a collaborative governance process to continue coordinated management of ocean resource issues
- Prioritizing ocean research and monitoring by developing a strategic plan
- Increasing collection of groundfish and benthic habitat data
- Improving marine safety through better weather and ocean information by seeking support for Doppler RADAR and buoy sensors
- Conducting a detailed ecosystem assessment to facilitate ecosystem-based management
- Educating the general public and children about our ocean resources

**Implemented by:** Washington State Ocean Caucus, comprised of state agencies, as well as local and tribal governments, stakeholders, and the general public

**West Coast Governors' Agreement on Ocean Health:** Established the framework for regional collaboration to protect and manage the ocean and coastal resources along the entire West Coast. Key initiatives being addressed include marine debris, climate change, and ocean acidification (West Coast Governors' Agreement on Ocean Health 2015).

**Implemented by:** West Coast Governors Alliance on Ocean Health Executive Committee, comprised of three state leads, including the offices of the Governors of California, Oregon, and Washington, and three federal leads, including the Department of Commerce (National Oceanic and Atmospheric Administration), the Environmental Protection Agency, and the Department of the Interior (Bureau of Ocean Energy Management)

### Other Policy Actors

**Washington Coastal Marine Advisory Council:** Council within the Governor's Office to serve as a forum for communication concerning coastal waters issues, including issues related to: Resource management; shellfish aquaculture; marine and coastal hazards; ocean energy; open ocean aquaculture; coastal waters research; education; and other coastal marine-related issues. Membership includes legislative, executive, and elected officials, nongovernmental organizations, and private sector (Washington State Department of Ecology 2015).

Serve as a point of contact for, and collaborate with, the federal government, regional entities, and other state governments regarding coastal waters issues.

**Washington Marine Resources Advisory Council:** Council within the Governor's Office to serve as a forum for communication concerning ocean acidification. Membership includes legislative, executive, and elected officials, nongovernmental organizations, and private sector (Washington State Department of Ecology 2015). Representatives from academic institutions and federal agencies have been invited by the Governor to participate.

*Nearshore – Washington State*

**Washington State Shoreline Management Act:** Manage and protect the shorelines of the state by regulating development in the shoreline area (Washington State Department of Ecology 2015). A major goal of the Act is "to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines."

This State legislation regulates development near "shorelines of the state" including marine waters, certain streams and lakes, uplands within 200 feet of said waters, and some associated wetlands, deltas and floodplains. The act is concerned with three main subjects: shoreline use (what types of uses are appropriate for a shoreline, based on its characteristics), environmental protection (mitigation of impacts allowed uses might have) and public access (provision of access to publicly owned areas). Jurisdictions must create a Shoreline Master Plan (SMP) that acts as a comprehensive plan for shoreline areas, defining what uses may be located in different shoreline zones, based on local conditions and circumstances. The local SMP is essentially a shoreline-specific combined comprehensive plan, zoning ordinance, and development permit system. It is also required to have a restoration plan.

The SMA establishes a balance of authority and partnership between local and state government. Towns, cities, and counties are the primary regulators. The state Department of Ecology acts primarily in a support and review capacity. Ecology provides technical assistance to local governments. Ecology also provides funding in the form of grants. Finally, Ecology is also required to review certain kinds of permits (conditional use and variance permits) for compliance with the law, and must review local shoreline master programs to ensure they also comply.

**Implemented by:** Washington State Department of Ecology and local jurisdictions

**Washington State Hydraulic Code:** Primary fish and shellfish habitat protection law in Washington State (Washington State Department of Ecology 2015). Under this statute, all projects that involve in-water development, which includes any work that would use, divert, obstruct or change the natural flow or bed of any river or stream or utilize any waters of the state require a Hydraulic Project Approval – commonly called an HPA.

Agency rules to administer, interpret, or clarify the Hydraulic Code are found in WAC chapter 220-110. These rules specify the department requirement to provide protection for all fish life and habitats through the development of a statewide system of consistent and predictable rules and establish a baseline requirement which directs no-net-loss of productive capacity of fish and shellfish habitat in order for a project to be approved. Per statute "No-net-loss" is defined as:

- (a) Avoidance or mitigation of adverse impacts to fish life; or
- (b) Avoidance or mitigation of net loss of habitat functions necessary to sustain fish life; or
- (c) Avoidance or mitigation of loss of area by habitat type.

WACs also define the criteria and technical provisions to be used by the department for project review and for conditioning of HPAs to ensure the no-net loss requirements of the law.

**Implemented by:** Washington State Department of Fish and Wildlife

**Washington State Aquatic Lands:** Act to protect and manage the use of state-owned aquatic lands (Washington State Department of Ecology 2015). Establishes leasing program for activities taking place on state-owned aquatic lands. Also establishes requirement for license for short-term activities on state-owned aquatic lands.

**Implemented By:** Washington State Department of Natural Resources

Local Scale - Regional and subregional policymaking in Washington State

*Marine Waters - Regional and subregional in Washington State*

**Marine Resources Committees:** County-based committees that carry out local projects and activities and advise the county on issues pertaining to marine resources (Washington Department of Fish and Wildlife 2015). MRCs are created and defined by county resolution or ordinance. Counties determine operational procedures and appoint committee members. Funding from Northwest Straits Initiative supports the MRCs.

*Nearshore - Regional and subregional in Washington State*

**Shoreline Management Plans:** Local government agencies throughout the region adopt and implement long- and short-range plans and ordinances addressing shoreline development (e.g. Shoreline Master Program and critical areas ordinances). The Shoreline Plans address a number of issues in the nearshore environment, including: shoreline armoring, overwater structures, shoreline restoration, and protection of wetlands, erosion hazards, and flood and landslide hazard areas within the shoreline jurisdiction.

*Indigenous Peoples – United States*

Tribal governments manage natural resources on reservations and nearby federal trust lands. Tribes also have interests in off-reservation aquatic resources that provide habitat, material, and cultural resources. Washington's Treaty Tribes have constitutionally protected, federally adjudicated, treaty-reserved rights to harvest and manage natural resources in their usual and accustomed areas. For those tribes, their resource management rights extend beyond their territorial reservation boundaries and can include marine and nearshore areas that support treaty reserved or protected rights and species.

In an effort to ensure that their reserved rights are protected, many tribes review activities that have the potential to affect trust resources via local, state, and federal environmental review and permitting processes. For example, tribes may review Clean Water Act Section 404 permits, Section 401 certifications, and State Environmental Policy Act (SEPA) or National Environmental Policy Act reviews, and then provide state and federal agencies with comments and direction to ensure that proposed projects and attending mitigation are protective of their reserved rights and resources and do not impede access to their usual and accustomed areas. Tribes are also engaged in reviewing new regulations and plans.

*Marine Waters – Indigenous Peoples – United States*

The [Northwest Indian Fisheries Commission \(NWIFC\)](#) have cooperative agreements with EPA to assist in Puget Sound recovery. NWIFC funding provides sub-awards to 20 federally-recognized tribes located

within the greater Puget Sound Basin to implement high priority projects that will contribute directly to the restoration and protection of Puget Sound (Northwest Indian Fisheries Commission 2015).

Tribal representatives have also established **Tribal Habitat Conferences** to bring together different stakeholders and discuss issues relative to tribal treaty rights (2015 Tribal Habitat Conference 2015).

*Nearshore – Indigenous Peoples – United States*

Treaty Tribes in Washington co-manage fisheries. By treaty, they are guaranteed the right to fish in their usual and accustomed areas. Tribes have established the **Treaty Rights at Risk** initiative to organize and advocate for protection of these tribal rights. As part of this initiative, Treaty tribes in Washington State have prepared a white paper to address ongoing habitat loss and the decline of the salmon resource and to provide recommendations for changes (TREATY INDIAN TRIBES IN WESTERN WASHINGTON 2011). The Northwest Indian Fisheries Commission (NWIC) has requested that the Treaty Rights at Risk initiative be institutionalized in the U.S. government via President Obama's Council on Native American Affairs (Northwest Indian Fisheries Commission 2015). This report raises concerns about the condition of the nearshore, as well as federal government's protection of the nearshore environment from the adverse effects of development activities along the nearshore.

*Government/Non-Government Collaborations – United States*

*Marine Waters - Government/Non-Government Collaborations – United States*

**Northwest Straits Marine Conservation Initiative:** Federally-funded conservation initiative established to improve efforts to Save Puget Sound, whose focus on combining science with grassroots consensus building (Northwest Straits Commission 2015). Key issue areas this organization is focused on include:

- Ocean acidification
- Olympia oyster restoration
- Kelp recovery
- Forage fish
- Derelict gear, and
- Marine debris

**Implemented by:** Northwest Straits Commission, together with the local Marine Resource Committees operating in 7 counties surrounding Puget Sound (Clallam, Island, Jefferson, San Juan, Skagit, Snohomish and Whatcom).

*Nearshore - Government/Non-Government Collaborations – United States*

**Puget Sound Nearshore Ecosystem Restoration Project:** Partnership between the U.S. Army Corps of Engineers (Corps), state, local, and federal government organizations, tribes, industries, and environmental organizations focused on restoration of the nearshore ecosystem of Puget Sound (Puget Sound Nearshore Ecosystem Restoration Project 2015).

**Implemented by:** Washington Department of Fish and Wildlife and the U.S. Army Corps of Engineers

**Coastal and Estuarine Land Conservation Program:** Provides funding and establishes a planning framework to guide the protection of important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses (Washington State Department of Ecology 2015). Under the program, Washington State has developed a plan to guide selection of state priority projects for funding. Federal funding is required to match 1:1 by state, local, and non-governmental funds to complete the projects.

**Implemented by:** National Oceanic and Atmospheric Administration and Department of Ecology

### *Non-Governmental Organizations – United States*

#### *Marine Waters - Non-Governmental Organizations – United States*

The Environmental Protection Agency has established a database of over 100 non-governmental organizations working within the Puget Sound area to improve water quality (US EPA 2015).

#### *Nearshore Non-Governmental Organizations – United States*

There are a number of non-governmental organizations that are involved in restoration activities along Puget Sound's nearshore. An example is the Puget Sound Restoration Fund, which has been involved in a number of shellfish restoration projects.

## Canada – Marine and Nearshore Ecosystems

The protection of the marine environment in Canada is a responsibility shared by all levels of government. Inland marine waters within provincial boundaries are part of the provincially-owned lands. However, the federal government still has jurisdiction to regulate marine pollution and fisheries. Under the fisheries power, the federal government has jurisdiction to regulate not only fish and fisheries, but also fish habitat and the quality of fish-bearing waters. The federal power to regulate navigation means that the federal government is responsible for determining which works that interfere with navigation, such as dams and bridges, will be allowed (Beckplumb 2013).

### *Government Entities - Canada*

#### Federal Scale - Canada

##### *Marine Waters - Canada*

##### General Information - Canada

**Canada Oceans Act:** The federal government has jurisdiction over offshore waters—from the low watermark out to 12 nautical miles. This is an Act addressing protection and development of oceans and coastal waters (Fisheries and Oceans Canada 2009). The Act appears to be more specifically focused on the Pacific Coast off of the northern BC mainland, but contains several provisions that may address the Salish Sea, including:

- Directing use of Integrated Management strategies
- Directing the development of a national oceans strategy to guide the management of Canada's estuarine, coastal and marine ecosystems;
- Authorizing the Minister of Fisheries and Oceans to establish a national system of marine protected areas in order to protect and conserve:
  - Commercial and non-commercial fishery resources and their habitats;
  - Endangered marine species and their habitats;
  - Unique habitats;
  - Marine areas of high biodiversity or biological productivity; and
  - Any other marine resource or habitat necessary to fulfill the Minister's mandate.

Using ecosystem-based management, Canada has identified nineteen eco-regions and five Large Oceans Management Areas (LOMAs). (Note: The Salish Sea is not specifically addressed, though the Pacific Northwest Coast Integrated Management Area (PNCIMA) has been designated on the coastal waters around the north portion of Vancouver Island, from Bute Inlet on the mainland, across to Campbell River on the east side of Vancouver Island and the Brooks Peninsula on the west side of Vancouver Island. Its western boundary is the base of the shelf slope).

For each LOMA, Canada has developed an Ecosystem Overview and Assessment Report (EOAR) which describes the status and trends of physical and biological aspects of their respective ecosystems, and identifies key linkages between the two (e.g. trophic structure). Each EOAR supports the identification of Ecologically and Biologically Significant Areas (EBSAs), degraded areas, depleted species, and Ecologically Significant Species/Community Properties (ESS/CPs). EBSAs are areas that have a particularly high ecological or biological significance and require the provision of a greater-than-usual degree of risk aversion in the management of activities. Some of these areas may be sensitive to particular threats posed by human activities and require special management measures to achieve the protection required to maintain their ecological character. For the PNCIMA area, a draft integrated management plan has been developed.

In addition to LOMAS, the Ocean Act also established a network of marine protected areas, including:

- Marine Protected Areas established by Fisheries and Oceans Canada under the Oceans Act to protect and conserve important fish and marine mammal habitats, endangered marine species, unique features and areas of high biological productivity or biodiversity. (Note: Red Rocks is under consideration of being designated as a Marine Protected Area).
- Marine Wildlife Areas established by Environment Canada to protect and conserve habitat for a variety of wildlife, including migratory birds and endangered species.
- National Marine Conservation Areas established by Parks Canada to protect and conserve representative examples of Canada's natural and cultural marine heritage, and to provide

opportunities for public education and enjoyment. (Note: The southern Strait of Georgia is under study for designation as a National Marine Conservation Area).

The Act also legally defines Canada's ocean boundaries and assigns federal responsibility to the Minister of Fisheries and Oceans Canada for new and emerging ocean-related activities not previously assigned by Parliament. Resulted in development of Canada's Ocean Strategy.

**Implemented by:** Fisheries and Oceans Canada

**Canada's Ocean Strategy:** Establishes policy for the management of estuarine coastal and marine ecosystems (Government of Canada 2002). Emphasizes the following three policy objectives:

- Understanding and Protecting the Marine Environment;
- Supporting Sustainable Economic Opportunities; and
- International Leadership

**Canada-BC Memorandum of Understanding Respecting the Implementation of Canada's Oceans Strategy on the Pacific Coast of Canada:**

**Strategy on the Pacific Coast of Canada:** Commits federal and provincial governments to collaborate on the delivery of the federal Oceans Strategy on the Pacific coast.

Preservation and Restoration - Canada

**Canada National Marine Conservation Areas Act:** Authorizes protection of designated marine areas for sustainable use (Government of Canada 2008).

NMCA are protected from such activities as ocean dumping, undersea mining, and oil and gas exploration and development. Traditional fishing activities would be permitted, but managed with the conservation of the ecosystem as the main goal. (Note: The southern Strait of Georgia is under study for designation as a National Marine Conservation Area).

**Implemented by:** Parks Canada

**Canada-British Columbia Marine Protected Area Network Strategy:** Developed jointly by federal and provincial agencies to address coordination in the management of marine protected areas (Minister of Fisheries and Oceans 2015). The Strategy proposes three elements:

- A joint federal-provincial approach: All relevant federal and provincial agencies will work collaboratively to exercise their authorities to protect marine areas.
- Collaborative decision-making: Government agencies will employ a collaborative decision-making process with First Nations from the onset of the planning process and throughout, respecting existing authorities and building on existing governance structures and processes.
- A participatory process: Government agencies will provide meaningful opportunities for participation, consultation and information exchange with marine stakeholders, coastal communities and the public from early planning stages through to design and implementation.

Pollution Prevention - Canada

**Canada Fisheries Act:** Protects fish populations that have First Nations cultural significance and economic opportunity. (Note: Recent changes under Bill C-38 limited application of the provisions of this Act to certain fish populations) (Blakes 2015).

Under the Act, it is an offence for anyone to deposit or permit the deposit of any type of deleterious substance in water frequented by fish without a permit or under a regulation.

Under the Act, it is an offence for anyone to carry on a work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or aboriginal fishery, or to fish that support such a fishery. Serious harm to fish includes harm to fish and permanent alteration or destruction of fish habitat.

The Act imposes reporting requirements.

**Implemented By:** Environment Canada and Canada Department of Fisheries and Oceans

**Canadian Environmental Protection Act (CEPA):** CEPA is Canada's main federal law to protect the environment (Blakes 2015). CEPA prohibits the disposal of any material at sea without a permit issued under the Act. Only those substances listed in Schedule 5 of CEPA 1999 may be considered for disposal at sea. These include dredged material, fisheries waste, ships, inert geological matter, uncontaminated organic matter and bulky substances that are primarily composed of iron, steel, concrete or other similar matter. Incineration at sea is banned except under emergency situations or if it is waste generated on board the ship or structure.

CEPA also allows for the development of objectives, guidelines and codes of practice for protecting the marine environment from land-based sources of marine pollution, such as run off of harmful substances from an industrial site. Substances released from Canadian sources that pollute water beyond Canadian borders are also addressed under CEPA.

Permits are granted on a case-by-case basis after an application and review process.

**Implemented by:** Environment Canada

**Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities:** Plan established to prevent pollution from land-based sources and to protect habitat in the nearshore or coastal zone (Government of Canada 2009). This was part of a United Nations effort and it is unclear whether there has been recent activity to monitor progress in meeting the actions identified.

**Implemented by:** Environment Canada

Marine Transportation - Canada

**Canada Shipping Act:** Primary legislation governing marine transport, pollution and safety (Blakes 2015). The following are some key issues addressed in the Act that may have impact on the Salish Sea:

- Pollution Prevention and Response

- Ballast Water Control and Management
- Environmental Response

**Implemented By:** Transport Canada

**Canada Navigation Protection Act:** Act of Parliament that authorizes and regulates interferences with the public right of navigation (Blakes 2015). A primary purpose of the NPA is to regulate works and obstructions that risk interfering with navigation in the navigable waters listed on the schedule to the Act. Prohibits the depositing or throwing of materials that risk impacting navigation in navigable waters and the dewatering of navigable waters.

**Implemented By:** Transport Canada

*Nearshore - Canada*

See Marine Water provisions above.

Provincial Scale – British Columbia

*Marine Waters – British Columbia*

**Marine Planning Partnership for the North Pacific Coast (MaPP)** - The MaPP initiative is a partnership between British Columbia and 18 member First Nations that is planning for marine uses and long - term ocean health on B.C.'s North Pacific Coast (Marine Planning Partnership for the North Pacific Coast 2015). The study is divided into four subareas, one of which is located in the marine waters between the northern portion of Vancouver Island and the mainland.

The MaPP initiative focuses on First Nation and provincial marine interests where the provincial government has legal jurisdiction and regulatory authority, namely the foreshore (intertidal zone), coastal “inland waters” on the outer coast and the lands covered by these waters.

**North Vancouver Island Marine Plan:** Under the MaPP initiative, a marine plan has been completed for the North Vancouver Island. The Plan includes recommendations for developing and maintaining marine ecosystems and sustainable economies for North Vancouver Island communities. It focuses on providing direction for managing marine areas, uses and activities within provincial government jurisdiction (Marine Planning Partnership for the North Pacific Coast 2015).

*Nearshore – British Columbia*

**Land Act and Crown Land Policies:** The nearshore area, including the foreshore (intertidal zone), coastal “inland waters” on the outer coast and the lands covered by these waters, are considered Crown Lands<sup>6</sup>. As such, the provincial government owns these lands (Green Shores 2009). The Province of British Columbia operates within a framework of policies that govern the disposition, administration and

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<sup>6</sup> In large sections of British Columbia, federal and provincial ‘ownership’ of crown land is contested, as formal treaties ceding land were not established with First Nations and the land was not acquired by the federal or provincial government. These issues are being addressed as part of ongoing legal challenges and treaty negotiations.

management of Crown land (Ministry of Forests Lands and Natural Resource Operations 2015). There are general policies that apply to all proposed uses, as well as policies that have been developed for particular land uses. The policies are developed in consultation with other provincial agencies and stakeholder groups. Parties must apply to use Crown Land. In order for the land to be allocated for the proposed land use, the application must comply with established policies.

**Coastal Marine Plans** - The Coastal Plans focus primarily on the provincial jurisdiction of foreshore areas and address economic development and diversification, environmental threats, land and resource conflicts, First Nations issues, and supporting informed decision-making in coastal areas (Government of British Columbia 2015). There are two distinct levels of planning: local coastal planning and strategic coastal planning.

Strategic coastal planning focuses on identifying broad goals, objectives and strategies for coastal and marine resources. A strategic level coastal plan has been developed for:

- Central Coast Land and Resource Management Plan

There are three types of local plans: coastal plans to identify land tenure opportunities to guide decision-makers; issue-resolution plans to resolve conflicts or issues associated with coastal land uses and activities; and special management plans that provide detailed direction for management of specific uses or distinct areas. The following are local plans that have been developed:

- Baynes Sound Coastal Plan
- Cortes Island Coastal Plan
- Johnstone-Bute Coastal Plan
- Kyuquot Sound Coastal Plan
- Malaspina Okeover Coastal Plan
- Nanaimo Estuary Management Plan
- Nootka Coastal Land Use Plan
- North Island Straits Coastal Plan
- Quatsino Sound Coastal Plan (Government of British Columbia 2015)

### Local Scale - Regional and subregional policymaking in British Columbia

Local governments (municipalities and regional districts) hold the authority to plan and regulate land use within their respective boundaries, which may extend over foreshore and nearshore areas. They do this through official community plans, zoning, development permits, subdivision authority, building permits, and a variety of regulatory bylaws that affect land development (Green Shores 2009).

*Indigenous Peoples - Canada*

First Nations have authorities similar to provincial and local governments over upland and aquatic lands within Reserves. Outside Reserves, traditional rights to marine resources are the subject of ongoing Treaty negotiations for many of the First Nations along BC's coast. The provincial and federal governments have a duty to consult with First Nations on any shoreline tenure applications to ensure that they do not significantly affect Indigenous or treaty rights. First Nations have also been involved in the development of coastal and marine plans.

*Government/Non-Government Collaborations - Canada*

*Marine Waters - Canada*

Non-governmental organizations have been involved in coastal and marine planning efforts. As an example, Tides Canada provides project administration for the implementation of MaPP plans, and hosts a donor advised fund, The Great Bear Sea Fund, to receive private contributions in support of MaPP.

*Nearshore - Canada*

**Pacific Estuary Conservation Program (PECP):** Coordinates efforts to protect environmentally valuable estuaries along the B.C. coast. The partners of the PECP include Environment Canada (Canadian Wildlife Service), Ducks Unlimited Canada, the Ministry of Environment, the Habitat Conservation Trust Foundation, the Nature Conservancy of Canada, The Land Conservancy of Canada and The Nature Trust of British Columbia (Province of British Columbia 2015). The PECP is also the main delivery program for land securement and enhancement for the Pacific Coast Joint Venture in B.C. PECP partners have secured thousands of hectares of shoreline and intertidal habitats in many of BC's major estuaries. (Note: In 2015 the Pacific Coast Joint Venture is changing to the Pacific Birds Habitat Joint Venture, for focus on issues associated with the North American flyway).

**Vancouver Island Conservation Land Management Program:** Involves the management of over 50 conservation areas – mostly coastal wetlands and estuaries owned by The Nature Trust and managed by the BC Ministry of Environment. The focus is to protect, manage, and rehabilitate key estuarine, wetland, coastal headlands, and riparian habitats on Vancouver Island. Projects are implemented by the program's Vancouver Island Conservation Land Manager through planning and funding support of the program partners, including The Nature Trust, BC Ministry of Environment, Ducks Unlimited Canada, Habitat Conservation Trust Foundation, and Canadian Wildlife Service (Province of British Columbia 2015).

**Stewardship Center B.C.:** Promotes sustainable use of shoreline ecosystems through education, planning, and design and that recognizes the ecological features and functions of shoreline systems (Stewardship Centre for BC 2015). Operates the Green Shores initiative to provide options and tools for a wide range of planning, design and construction professionals who are interested in minimizing the environmental impacts of their projects in a cost effective manner.

*Non-Governmental Organizations - Canada*

**Georgia Strait Alliance:** Works to protect and restore the marine environment and promote the sustainability of Georgia Strait, its adjoining waters, and communities. The Alliance is currently focused on protecting Vancouver's waterfront as one of its initiatives (Georgia Strait Alliance 2015).

**Coastal Zone Canada Association:** Non-profit society of coastal zone management professionals and others interested in and supportive of Integrated Coastal Zone Management goals in Canada. Sponsors conferences and promotes improvements in coastal zone management (Coastal Zone Canada Association 2015).

**Marine Life Sanctuaries Society:** Works to create more marine sanctuaries in Canada. Undertakes science and education programs (Marine Life Sanctuaries Society 2015).

**Underwater Council of British Columbia:** Undertakes citizen science projects and works to remove mooring buoys (Underwater Council of British Columbia 2015).

Transboundary Policymaking – Marine and Nearshore Ecosystems

**U.S.-Canada Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem:**

Bilateral agreement between the United States and Canada that outlines common goals and objectives and provides a context for federal agency collaboration on transboundary ecosystem management of the Salish Sea. Focus on knowledge and information sharing as well as transboundary demonstration projects that contribute to improved air quality, water quality, habitat and species health. Action plans are generated, updated, and monitored to identify policy activities for focus areas. Key activities include:

- Canadian-US (transboundary) collaboration
- Engaging Coast Salish First Nations and Tribes
- Information and knowledge sharing
- Transboundary demonstration projects that contribute to improved air quality, water quality and habitat and species health

The current action plan (2015-2016) focuses on promoting knowledge and information exchange and on spotlighting transboundary demonstration projects (US EPA 2015).

***Implemented by:*** EPA and Environment Canada

**Transboundary Ecosystem Indicators Project/Health of Salish Sea Ecosystem Report:** Uses shared set of ecosystem indicators to report of the health of the Salish Sea. Emphasis on collaboration across the U.S.-Canada international border, and across various levels of government, non-profits, First Nations and tribes (US EPA 2015).

***Implemented by:*** EPA and Environment Canada

**Salish Sea Ecosystem Conference:** Form for collaboration on science and policy issues related to Salish Sea recovery. The conference serves as the primary conduit for coordination and collaboration between Washington State and British Columbia (Salish Sea Ecosystem Conference 2015).

**Implemented by:** Conference Leadership Committee comprised of representatives from United States and Canadian agencies and Tribal representatives

**Pacific Coast Collaborative Agreement:** Agreement establishing the Pacific Coast Collaborative, which provides a framework for collaboration and coordination to review joint and individual actions on:

- Clean energy;
- Regional transportation;
- Innovation, research and development;
- Regional economy;
- Emergency management; and
- Other areas deemed appropriate for cooperative action (Pacific Coast Collaborative 2015).

**Implemented by:** Governments of Alaska, British Columbia, California, Oregon and Washington

**British Columbia-Washington Coastal and Ocean Task Force:** Established to replace the Puget Sound-Georgia Basin Task Force. This effort now covers a range of activities in both inner marine waters and open ocean coasts. Through the Task Force, B.C. and Washington share information and collaborate on activities that protect and restore coastal and marine habitats; encourage the development of ecosystem management approaches for ocean and coastal resources; and foster sustainable coastal communities and development.

**Implemented by:** British Columbia Ministry of Environment and Washington State Department of Ecology

**SeaDoc Society:** Conducts and sponsors scientific research in the Salish Sea (The SeaDoc Society 2015).

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## PUBLIC LANDS

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### 3.11 PUBLIC LANDS (E.G. CONSERVATION, PRESERVATION AND RECREATION)

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Public lands serve a variety of different needs, sometimes competing, including: recreation and public access; ecosystem services, such as protection of water and air quality, flood protection, shoreline stabilization, groundwater recharge and streamflow maintenance, fish and wildlife habitat, carbon sinks, etc.; revenue generation and economic development; and cultural benefits. As such, preservation, conservation, and managed use of public lands provide valuable functions and values to the Salish Sea region.

Public lands provide important opportunities for conservation and preservation. They also provide opportunities for restoration activities, as they can be completed without land acquisition costs or negotiations, which can lengthen the time to implement projects.

Patterns of land ownership vary significantly between the United States and Canada. The majority of all lands in Canada are held by the government and are called Crown Lands<sup>7</sup>. This is significantly different than in the United States, where a large percentage of lands are held privately (Washington State Recreation and Conservation Office 2015).

#### United States – Public Lands

In the United States governmental entities including cities, counties, states, and the federal government all manage land which are referred to as either public lands or the public domain.

##### *Government Entities – United States*

##### Federal Scale – United States

Major categories of federally managed public land (Gorte et al. 2012) include:

- National parks and monuments, governed by the National Park Service (NPS);
- Natural resource or rangelands, governed by the Bureau of Land Management (BLM);
- National forests, administered by the U.S. Forest Service (USFS),
- National wildlife refuges, administered by the U.S. Fish and Wildlife Service (USFWS) (e.g. San Juan Island NWR, Protected Island NWR, and Dungeness NWR)
- Wild and scenic rivers, administered by each of the agencies,
- Wilderness areas designated within other public lands; Wilderness areas can be managed by any of the above Federal agencies, and some parks and refuges are almost entirely designated

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<sup>7</sup> In large sections of British Columbia, federal and provincial ‘ownership’ of crown land is contested, as formal treaties ceding land were not established with First Nations and the land was not acquired by the federal or provincial government. These issues are being addressed as part of ongoing legal challenges and treaty negotiations.

wilderness. A wilderness study area is a tract of land that has wilderness characteristics, and is managed as wilderness, but has not received a wilderness designation from Congress.

- National Marine Sanctuaries and National Estuarine Reserves, managed by the National Oceanic and Atmospheric Administration; and,
- Military lands, administered by the Department of Defense (DOD)

Typically each parcel is governed by its own set of laws and rules that explain the purpose for which the land was acquired, and how the land may be used.

### Laws and Policies

**National Park Service Act:** Act establishing the national park system. The NPS has a dual mission—to preserve unique resources and to provide for their enjoyment by the public (Gorte et al. 2012). The region has the following designated National Parks: North Cascades National Park, Olympic National Park and Mount Rainier National Park.

**Implemented by:** United States Department of the Interior National Park Service

**National Forest Management Act:** Establishes standards for how the Forest Service manages the national forests, requires the development of land management plans for national forests and grasslands, and directs the Forest Service to develop regular reports on the status and trends of the Nation's renewable resources on all forest and rangelands. (Note: A new National Forest System land management planning rule was put into place in 2012 (US Department of Agriculture Forest Service 2015)). The region has the following designated National Forests: Olympic National Forest and Mount Baker National Forest.

**Implemented by:** United States Department of Agriculture U.S. Forest Service

**Wilderness Act of 1964:** Created the National Wilderness Preservation System and recognized wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain" (U.S. Department of the Interior 2015). The Act further defined wilderness as "an area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions . . ." (U.S. Department of the Interior 2015). This is the highest level of conservation protection for federal lands. The region has the following designated Wilderness Areas: Mt. Baker Wilderness, Noisy-Diobaud Wilderness, Boulder River Wilderness, Henry M. Jackson Wilderness, Clearwater Wilderness, Glacier View Wilderness, Mt. Skokomish Wilderness, The Brothers Wilderness, and Buckhorn Wilderness.

**Implemented by:**

- United States Fish and Wildlife Service
- United States Department of the Interior Bureau of Land Reclamation
- United States Department of the Interior National Park Service

- United States Department of Agriculture U.S. Forest Service

**Wild and Scenic Rivers Act:** Act established to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection (National Wild and Scenic River System 2015).

Rivers are classified as wild, scenic, or recreational. Classified rivers that discharge into Salish Sea include:

- Illabot Creek
- Pratt River
- Skagit River
- Snoqualmie (Middle Fork) River

***Implemented by:***

- United States Fish and Wildlife Service
- United States Department of the Interior Bureau of Land Reclamation
- United States Department of the Interior National Park Service
- United States Department of Agriculture U.S. Forest Service

**United States Federal Land Policy and Management Act:** Guides the management of Bureau of Land Management (BLM) properties for public use. BLM-managed public lands in the Salish Sea are found in San Juan County (San Juan Islands National Monument), which are managed for their Area of Critical Environmental Concern values (U.S. Department of the Interior Bureau of Land Management 2015).

***Implemented by:*** United States Department of the Interior Bureau of Land Reclamation

**United States Marine Protection, Research, and Sanctuaries Act:** Among other provisions, establishes system for the designation and regulation of marine sanctuaries (US Department of Commerce 2015). The Olympic Coast National Marine Sanctuary is located off the Olympic Peninsula coastline (US Department of Commerce 2015).

***Implemented By:***

- United States Environmental Protection Agency
- United States National Oceanic and Atmospheric Administration (NOAA)

**National Wildlife Refuge System Improvement Act:** First comprehensive legislation addressing management of nation's wildlife refuge system (US Department of Agriculture Forest Service 2015). The Act's main components include:

- A strong and singular wildlife conservation Mission for the Refuge System;
- A requirement that the Secretary of the Interior maintain the biological integrity, diversity and environmental health of the Refuge System;
- A new process for determining compatible uses on refuges;
- A recognition that wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation, when determined to be compatible, are legitimate and appropriate public uses of the Refuge System;
- That these compatible wildlife-dependent recreational uses are the priority general public uses of the Refuge System; and
- A requirement for preparing a comprehensive conservation plan for each refuge.

The Salish Sea region contains the following national wildlife refuges: San Juan Islands, Dungeness, Protection Island, and Nisqually National Wildlife Refuge (US Department of Agriculture Forest Service 2015).

**Implemented by:** United States Fish and Wildlife Service

**United States Migratory Bird Conservation Act:** Act, as amended, which establishes system of national wildlife refuges for protection of habitat for migratory birds. Established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds.

**Implemented by:** United States Fish and Wildlife Service

#### Other

- Antiquities Act of 1906
- Archaeological Resources Protection Act
- Concessions Policy Act of 1970
- Federal Land Policy and Management Act of 1976 (FLPMA)
- Historic Sites, Buildings and Antiquities Act of 1935
- Mining in Parks Act of 1976
- Multiple Use Sustained Yield Act (MUSYA)
- National Historic Preservation Act of 1966 (NHPA)

- Native American Graves Protection Act
- The Public Rangelands Improvement Act of 1978 (PRIA)
- Taylor Grazing Act of 1934

### **Acquisition**

**The Land and Water Conservation Fund (LWCF):** This law established a fund for providing federal assistance to the States in planning, acquisition, and development of needed land and water areas and facilities as well as providing funds for the Federal acquisition and development of certain lands and other areas. Funds are generated from a portion of revenues from offshore drilling paid by oil companies, sale of surplus land and other sources (U.S. Department of the Interior 2015). (Note: In 2014, the LWCF Coalition formed to advocate for dedicated funding for the program).

### State Scale – Washington State

Major categories of state managed public land (Washington State Recreation and Conservation Office 2015) include:

- Natural Resource Conservation Areas managed by the Washington State Department of Natural Resources to protect native ecosystems, habitat for endangered, threatened and sensitive plants and animals, and scenic landscapes
- Natural Area Preserves managed by the Washington State Department of Natural Resources to protect rare plant and animal habitat.
- State Trust Lands managed by the Washington State Department of Natural Resources. These are lands that the state received from the federal government as trust lands designated for specific beneficiaries, like schools, State Universities, capitol buildings, and Charitable, Educational, Penal & Reformatory Institutions. Revenue from these trust lands is distributed to the trust beneficiaries, with some withheld for resource management on the lands.
- State forest lands managed by the Washington State Department of Natural Resources. Revenue from these lands helps to fund services in many counties and contribute to the state General Fund—earmarked for education.
- Community forest trust lands, managed by the Washington State Department of Natural Resources. These lands are managed for other benefits, including watershed protection, recreation, fish and wildlife habitat, grazing, and timber production.
- Aquatic Reserves, which the Washington State Department of Natural Resources manages to protect important native ecosystems on state-owned aquatic lands
- Washington State Parks also owns a number of State Parks managed for recreation, as well as habitat in many cases.
- The Washington State Department of Fish and Wildlife manages wildlife areas in Washington State.

- WDFW also owns or manages Water Access Sites that provide boating access to lakes, rivers and marine areas. Under state law, these lands are managed the state's fish and wildlife species, as well as recreation. WDFW is currently developing a Habitat Conservation Plan (HCP) for lands in Wildlife Areas owned and managed by the department.

### Laws and Policies

**Wildlife Area Management Plans:** The Washington Department of Fish and Wildlife owns designated Wildlife Areas that have been acquired to preserve habitat for fish and wildlife. These areas are located throughout the Salish Sea region. Each area is guided by a management plan that addresses the status of wildlife species and their habitat, habitat restoration, public recreation, weed management, and other activities to meet the department's mission of preserving, protecting and perpetuating fish, wildlife and ecosystems. Plans are revised periodically to reflect current conditions and the progress of past activities, and to identify new management priorities and actions.

**Implemented by:** Washington State Department of Fish and Wildlife

**Washington State Department of Fish and Wildlife Forest's Management Strategy:** Establishes overall strategy, policies and procedures to achieve WDFW's goal of preserving, protecting and perpetuating the forests the agency manages while providing sustainable fish and wildlife recreational and commercial opportunities.

**Implemented by:** Washington Department of Natural Resources

**Washington State Aquatic Lands:** Act to protect and manage the use of state-owned aquatic lands. Establishes leasing program for activities taking place on state-owned aquatic lands. Also establishes requirement for license for short-term activities on state-owned aquatic lands.

**Implemented By:** Washington State Department of Natural Resources

### Local Scale - Regional and subregional policymaking in Washington State

Counties and cities also own and manage public lands for a variety of purposes.

### *Indigenous Peoples – United States*

Tribal lands have different status, depending upon its ownership. For instance, while generally tribal reservation land is held in trust by the federal government, there may be parcels within a reservation that are owned by non-Tribal members and held in fee status. In addition, there may be land owned in trust status or fee status by individual Tribal members, rather than by a Tribe. Trust lands may also exist on and off reservations. Tribes may also acquire and own land in fee status, which are not held in trust (Washington State Recreation and Conservation Office 2014).

Agencies must conduct Government to Government consultation for activities may affect Tribal treaty rights.

*Government/Non-Government Collaborations – United States*

Federal Scale – Government/Non-Government Collaborations – United States

A number of partnerships are being developed to deliver public education programs, complete restoration projects, or complete other cooperative projects. The following are examples:

*National Estuary Program*

NEP brings together citizens, scientists, businesses and government to solve environmental problems and promote healthy, vibrant communities. The stakeholders of each program work together to identify important coastal resources and develop science-based action plans to ensure the estuary's long-term ecosystem and economic health. In the Salish Sea, the Puget Sound Partnership serves as the National Estuary Program.

*National Wildlife Refuge System*

The Fish and Wildlife Service enters into agreements with a wide range of organizations at the national, regional and local levels. These agreements are intended principally to encourage cooperative projects that benefit the National Wildlife Refuge System and the nation's wildlife resources. It allows organizations to contribute funds for facilities, projects or materials to benefit refuge visitors and to improve wildlife habitats (U.S. Department of the Interior, Fish and Wildlife Service 2015).

Because of personnel and funding constraints, agencies increasingly rely on volunteers and cooperating organizations to help in the successful execution of projects that would not otherwise be possible. Examples of existing agreements include the following:

- The National Audubon Society and the Fish and Wildlife Service agreement commits the two organizations to collaborate on local and national projects that will benefit individual wildlife refuges and the Refuge System. Typical projects include conducting nesting, breeding, and bird population studies, restoring habitat, preparing bird lists, and guiding birding and wildlife interpretive tours. Audubon chapters, affiliates, and members will be encouraged to meet with local refuge personnel to identify opportunities to work together and to volunteer their services and expertise. The Refuge Campaign helps to inform the public about the National Wildlife Refuge System (U.S. Department of the Interior, Fish and Wildlife Service 2015).
- The National Wildlife Refuge Association works in partnership with the National Wildlife Refuge System to increase awareness of and appreciation for national wildlife refuges. Includes information on refuge events (U.S. Department of the Interior, Fish and Wildlife Service 2015).

USFWS also has agreements in place with: Earthwatch, Leave No Trace, The National Rifle Association, North American Nature Photography Association, and Safari Club International (U.S. Department of the Interior, Fish and Wildlife Service 2015).

Another recently established program is aimed at urban areas. The US Fish and Wildlife Service Urban Wildlife Refuge Initiative works at establishing partnerships to advance conservation, restoration, and public access and recreation goals in urban communities. A partnership has been formed in the Lake Sammamish Watershed to bring partners together and provide information on how the public can help

conserve native species and their habitats for future generations. Partners are working together to develop an interpretive plan and concept design that will address the goals of this partnership. Members include: US Fish and Wildlife Service, Washington Department of Fish and Wildlife, local cities and King County, Snoqualmie Tribe, as well as several NGOs including Lake Sammamish Kokanee Work Group, Trout Unlimited, Mountains to Sound Greenway, Save Lake Sammamish, and Friends of Pine Lake (U.S. Department of the Interior, Fish and Wildlife Service 2015).

*Wild and Scenic Rivers*

An interagency council administers the Wild and Scenic Rivers Act. American Rivers and other river advocates across the country have joined to create the National Wild and Scenic Rivers Network (American Rivers 2015). The Network serves as both a hub for those working to protect Wild and Scenic rivers across the country and a place to share information and provide a collective voice at the national level for good river management across the Wild and Scenic River System. Several local organizations are engaged in this effort as part of their work protecting the Skagit River, including:

- The Nature Conservancy - Skagit River Office
- Skagit Audubon Society
- Friends of the White Salmon
- Skagit River System Cooperative
- American Whitewater
- Skagit Watershed Council
- Skagit Land Trust
- USDA Forest Service

*Forest Service*

The USFS partners with public and private agencies to plant trees, improve trails, educate the public, and improve conditions in wildland/urban interfaces and rural areas, just to name a few.

State Scale Government/Non-Government Collaborations – Washington State

The Washington State Department of Natural Resources partners with a variety of regional and local conservation groups (Washington State Department of Natural Resources 2015). These partnerships are active in setting conservation priorities. The following are some of the existing partnerships:

- NatureServe Partners with DNR in the collection and management of data on sensitive plants, animals, and ecosystems.
- Washington Natural Areas Program partners with DNR in the selection and nomination of Natural Area Preserves and Natural Resources Conservation Areas.

- Washington Rare Plant Care and Conservation Program partners with DNR by coordinating volunteer efforts to survey rare plant occurrences that have not been visited in recent years.
- Audubon Washington partners with DNR in the effort to identify and nominate Important Bird Areas (IBAs).
- LandScope America: DNR is partnering with four other state heritage programs, NatureServe, and National Geographic to create an online encyclopedia of America's natural places.
- The Nature Conservancy partners with DNR in data development, planning, and Natural Areas management.
- To support DNR's management of the Aquatic Reserves, local partners have formed citizen stewardship committees for five of the Aquatic Reserves: Cherry Point Fidalgo Bay Maury Island Nisqually Reach Smith and Minor Islands. Citizens serving on these committees help implement the management actions for their local Aquatic Reserve in accordance with DNR's objectives. They are involved in community education and outreach, as well as citizen science projects.

In Washington, the State Legislature created the Washington State Parks Foundation, a private, non-profit organization to build wide-ranging support for State Parks (Washington State Parks Foundation 2015). This organization helps to raise operating revenues for parks, build a constituency of advocates, support education and events, and funding exhibits, trail maintenance, facilities improvements and habitat restoration. Washington State Parks also partners with other NGOS. For instance, it completes the annual Coastal Cleanup together with an alliance of agencies and organizations called the Washington Clean Coast Alliance (Washington State Parks 2015).

Some organizations have participated in land acquisition, and then transfer lands over to public agencies for public use. The Trust for Public Lands is a key organization engaged in this issue.

### Local Scale - Government/Non-Government Collaborations – Regional and subregional

Other organizations assist government agencies with programs designed to protect, conserve, or restore public lands. An example of this is work done by Forterra. Forterra has official partnerships with the cities of Everett, Kent, Kirkland, Redmond, Seattle, and Tacoma in leading stewardship projects at city parks and urban forests. Forterra also partners with the City of Seattle under the Green Seattle in order to combat invasive species and preserving parklands (Forterra 2015).

### *Non-Governmental Organizations – United States*

There are many non-governmental organizations with an interest in the conservation and management of the public lands. Examples of conservation focused organizations include:

- Wilderness Society
- Defenders of Wildlife
- Conservation Northwest
- National Parks Conservation Association (NPCA)

- American Forests
- American Rivers
- Northwest Ecosystem Alliance
- Wilderness Watch
- American Farmland Trust
- Washington Wilderness Coalition
- National Wildlife Refuge Association (which also includes a number of local, affiliated groups promoting national refuges)

NGOs are increasingly united their efforts into consortiums to advocate for different issues. The Cooperative Alliance for Refuge Enhancement (CARE), is an example of a consortium that has united 22 diverse conservation, sporting and scientific organizations and their combined 15 million members around the need for increased Refuge System funding (Cooperative Alliance for Refuge Enhancement 2015).

Finally, organizations also purchase land and allow public access. Examples include:

- The Nature Conservancy
- Forterra

### Canada – Public Lands

The provinces own most of the land and natural resources in Canada, and this is the case in British Columbia.

Land in Canada is owned by the "Crown" (the federal or provincial governments) except where the Crown has granted the land or legal interests in it to private individuals or companies, or where the land is subject to treaty or other rights of Indigenous peoples. Some land is also held in trust by the federal Crown as reserves for First Nations under the federal Indian Act, or have been transferred to First Nations as part of land claim agreements. A small amount of provincial lands are owned by the federal government, such as national parks and Department of National Defense lands.

This, combined with their extensive legislative powers, gives the provinces the dominant role in the environmental management of public lands in Canada.

#### *Government Entities - Canada*

#### Federal Scale - Canada

#### **Laws and Policies**

**National Parks Act:** National parks are "dedicated to the people of Canada for their benefit, education and enjoyment" and "shall be maintained and made use of so as to leave them unimpaired for the enjoyment of future generations." The Act governs all national parks and assigns management powers to Parks Canada. The Act ensures that any attempt to increase, reduce, or delete national parks is subject to a political and public review. It also requires that the federal government own all rights to national parkland. Thus, if a park is to be established or extended within a province, the provincial government must agree to transfer such rights to the federal government (Legislative Services Branch 2015).

Includes:

- Gulf Islands National Park Reserve of Canada
- Pacific Rim National Park Reserve of Canada (Parks Canada Agency 2014)

**Implemented by:** Parks Canada

**Canada Wildlife Act:** The Canada Wildlife Act promotes wildlife research, interpretation, and the conservation of wildlife habitat. The federal Minister of the Environment is given the authority to purchase, lease, or accept through donation, lands for research, conservation, and interpretation of wildlife. The Minister may enter into agreements with provincial and municipal governments, as well as non-governmental organizations, to achieve these goals (Environment Canada Government of Canada 2008). Unlike the National Parks Act, the Minister can make changes to the boundaries of national wildlife areas and permit the extraction of natural resources without the approval of Parliament.

The federal government administers two types of wildlife reserves: national wildlife areas (NWA) and migratory bird sanctuaries (MBS) (Environment Canada Government of Canada 2007). These two types of reserves provide an opportunity for federal-provincial cooperation in the protection of natural areas and wildlife habitats of national and international value.

The following areas are located in British Columbia:

- Alaksen National Wildlife Area (NWA)
- Columbia NWA
- Qualicum NWA
- Vaseux-Bighorn NWA
- Widgeon Valley NWA
- Christie Islet Migratory Bird Sanctuary (MBS)
- Victoria Harbour MBS
- George C. Reifel MBS (also known as Fraser River Estuary)
- Nechako River MBS

- Shoal Harbour MBS
- Vaseux Lake MBS
- Esquimalt Lagoon MBS

The Wildlife Area Regulations prohibits all activities that could be harmful to species and to their habitat, unless a permit is issued indicating the permitted activity.

**Implemented by:** Environment Canada

#### Provincial Scale – British Columbia

##### *BC Parks*

British Columbia has established a system of parks, ecological reserves and protected areas in order to conserve habitat and provide for recreational opportunities. BC completes a management plan for protected areas. A management plan is a document that outlines the vision and direction for a protected area. This will include direction on the types, location and threshold of uses and activities appropriate within different parts of a protected area including appropriate levels of visitor use and facility development.

A management plan is the result of a management planning process and is developed with First Nations, local governments, the public and other interest groups (BC Parks - Province of British Columbia 2015).

**British Columbia Park Act:** Provides for the establishment, classification and management of parks, conservancies and recreation areas (BC Parks - Province of British Columbia 2015). Under the authority of the Park Act, there are four classes of provincial parks: Class A, B, C, and D:

- Class A parks and conservancies are established by inclusion in the schedules to the Protected Areas of British Columbia Act or by order in council under the Act. The majority of the provincial parks in the system are Class A parks. These parks are lands dedicated to the preservation of their natural environments for the inspiration, use and enjoyment of the public.
  - Development in a Class A park is limited to that which is necessary for the maintenance of its recreational values. Activities such as grazing, hay cutting and other uses (except commercial logging, mining or hydroelectric development) that existed at the time the park was established may be allowed to continue in certain parks.
- Class B and C parks and recreation areas are established by order in council under the Act.
- Class B parks differ from Class A parks in that a Class B park may permit a broader range of activities and uses provided that such uses are not detrimental to the recreational values of the park.
- The requirements for the management of Class C parks with respect to restricting the alienation of interests and protecting natural resources is identical to those for Class A parks. Class C parks differ from Class A parks in that a Class C park must be managed by a local board appointed by the minister. They are generally small parks providing local recreational amenities.

- Class D includes newer Class A parks established since 1995 or older parks which have had recent additions which require the enabling provisions of section 30 of the Park Act to allow pre-existing uses and range tenures to continue.
- Conservancies are Crown lands set aside for:
  - The protection and maintenance of their biological diversity and natural environments;
  - The preservation and maintenance of social, ceremonial and cultural uses of First Nations;
  - The protection and maintenance of their recreational values; and
  - Development or use of natural resources in a manner consistent with the purposes of noted above.

Conservancies provide for a wider range of low impact, compatible economic opportunities than Class A parks, however, commercial logging, mining and hydroelectric power generation, other than local run-of-the-river projects, are prohibited. These economic opportunities must still not restrict, prevent or hinder the conservancy from meeting its intended purpose with respect to maintaining biological diversity, natural environments, First Nations social, ceremonial and cultural uses, and recreational values.

- Protected areas generally have one or more existing or proposed activities that are not usually allowed in a park (e.g., proposed industrial road, pipeline, transmission line or communication site).
- Recreation areas are Crown lands set aside for public recreational use. The majority of these areas were established to allow a mineral resource evaluation under a time-limited tenure; no other industrial activities are permitted.

**Implemented by:** British Columbia Parks

**British Columbia Ecological Reserves Act:** Provides for the establishment and administration of ecological reserves (BC Parks - Province of British Columbia 2015). Ecological reserves are Crown lands reserved for ecological purposes including the following:

- Areas suitable for scientific research and educational purposes associated with studies in productivity and other aspects of the natural environment;
- Areas that are representative examples of natural ecosystems in British Columbia;
- Areas that serve as examples of ecosystems that have been modified by human beings and offer an opportunity to study the recovery of the natural ecosystem from modification;
- Areas where rare or endangered native plants and animals in their natural habitat may be preserved; and,
- Areas that contain unique and rare examples of botanical, zoological or geological phenomena.

The legislation guiding the ecological reserve program is very restrictive and all extractive activities are prohibited. As such, ecological reserves are considered to be the areas most highly protected and least subject to human influence.

Ecological reserves can be established by two means: (i) by order in council under the Ecological Reserve Act or (ii) by inclusion in schedules to the Protected Areas of British Columbia Act.

While most ecological reserves are open to the public, they are not established for outdoor recreation and no extractive activities are allowed.

**Implemented by:** British Columbia Parks

**British Columbia Environment and Land Use Act:** Authorizes the Environment and Land Use Committee, a cabinet level committee which can advise on environmental issues (BC Parks - Province of British Columbia 2015). Environment and Land Use Committee of Cabinet has broad powers to ensure that all aspects of the preservation and maintenance of the natural environment are fully considered in the administration of land use and resource development. Also establishes a number of designations for conservancies, protected areas, etc.

### *Other Protected Areas*

Conservation lands that are not parks or protected areas are the responsibility of the Ministry of Forests, Lands and Natural Resource Operations.

**British Columbia Land Act:** Primary article of legislation that is used by the government to convey land to the public for community, industrial and business use (Operations 2015). The Act allows the granting of land, and the issuance of Crown land tenure in the form of leases, licenses, permits and rights-of-way, including (but not limited to) oil and gas, agriculture, aquaculture, forestry, mining, wind power, ocean energy, recreation, residential, etc.)

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

**British Columbia Wildlife Act:** Regulates the management of wildlife in British Columbia, other than on federal lands, including:

- Provisions regulating hunting,
- Protections for raptors and their habitats, and
- Provisions for protecting public and native wildlife.

This can include designation of wildlife management areas (WMA) (Ministry of Forests, Lands and Natural Resource Operations 2015). A WMA is an area of land designated for the benefit of regionally to internationally significant fish and wildlife species or their habitats. Conservation and management of fish, wildlife and their habitats is the priority in a WMA but other compatible land uses may be accommodated. Within these designated areas, certain activities can be prohibited or limited. A Wildlife Management Area permit may need to be obtained for activities. A management plan, developed in consultation with partners, First Nations, agencies, stakeholders and the public is used to help guide activities in a WMA.

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

#### Local Scale - Regional and subregional policymaking in British Columbia

At the municipal level, management powers are limited. In BC, municipalities do have the power to manage regional parks.

#### *Indigenous Peoples - Canada*

In large sections of British Columbia, federal and provincial 'ownership' of crown land is contested, as formal treaties ceding land were not established with First Nations and the land was not acquired by the federal or provincial government. These issues are being addressed as part of ongoing legal challenges and treaty negotiations.

Despite the continuing evolution of First Nation Land Claims and associated sovereignty over these lands, the Province of British Columbia has a duty to consult and where required, accommodate First Nations whenever a decision or activity could impact Treaty rights or asserted or established Indigenous Rights and Title (even if land claims for areas where the activity is occurring are unresolved).

In 2005, the B.C. government and the First Nations Leadership Council entered into a New Relationship based on three things:

- Respect, recognition and accommodation of Indigenous title and rights
- Respect for each other's laws and responsibilities
- The reconciliation of Indigenous and Crown titles and jurisdictions

The New Relationship is a vision for improved government-to-government relations between the BC government and First Nations. The New Relationship Accord suggests new processes and structures for working together on decisions about the use of land and resources (Reconciliation 2015). It also discusses revenue-sharing to reflect Indigenous rights and title interests, and to help First Nations with economic development. Discussions related to the New Relationship are underway that include engagement with First Nations and leaders from industry, local governments, and other key stakeholders. Under the agreement, a number of joint land-use agreements, revenue-sharing, and economic benefit agreements have been negotiated between First Nations and the BC government.

#### *Government/Non-Government Collaborations - Canada*

#### Federal Government/Non-Government Collaborations - Canada

Environment Canada has entered into partnerships for management of lands. For instance, George C. Reifel Migratory Bird Sanctuary is managed by the British Columbia Waterfowl Society under a long-term lease (British Columbia Waterfowl Society 2015).

**Canadian Heritage Rivers System:** In 1984, the federal, provincial, and territorial Parks Ministers established the Canadian Heritage Rivers System to give national recognition to important Canadian rivers and to ensure that they are managed so as to conserve and interpret the natural and cultural

heritage they represent. Provinces are invited to participate on a voluntary basis. No new legislation is created when a river is designated to the CHRS. All protective actions on Canadian Heritage Rivers depend on existing laws and regulations. The Fraser and Cowichan Rivers have been designated under this program (Canadian Heritage Rivers System 2015).

**Implemented by:** Canadian Heritage Rivers Board, which is made up of private citizens and senior officials appointed by federal, provincial and territorial governments.

### Provincial Government/Non-Government Collaborations – British Columbia

#### *BC Parks*

BC Parks engages in a number of partnership programs (BC Parks - Province of British Columbia 2015), including:

- Land Acquisition Program – Land acquisition partnerships may involve non-governmental conservation organizations, various levels of government, industry, communities, First Nations, and other interested parties or individuals. Some of the ministry's recent land acquisition partners include:
  - Land Trusts/Conservation organizations such as Ducks Unlimited Canada, The Nature Trust of BC, Nature Conservancy of Canada, The Land Conservancy of BC, Princess Louisa Society, Marine Parks Forever Society, Pacific Salmon Foundation, Hornby Island Conservancy, Habitat Conservation Trust Foundation, and Living Rivers Trust Fund.
  - Local and Federal Government Agencies
  - Industry such as Teck-Cominco, TimberWest, Western Forest Products, and Merrill and Ring

This also includes multi-partner conservation programs that address a number of conservation-related activities, including land acquisition, management, stewardship and outreach. An example is the Pacific Estuary Conservation Program (PECP), which coordinates efforts to protect environmentally valuable estuaries along the B.C. coast. The partners of the PECP include Environment Canada (Canadian Wildlife Service), Ducks Unlimited Canada, the Ministry of Environment, the Habitat Conservation Trust Foundation, the Nature Conservancy of Canada, The Land Conservancy of Canada and The Nature Trust of British Columbia. The PECP is also the main delivery program for land securement and enhancement for the Pacific Coast Joint Venture in B.C. PECP partners have secured thousands of hectares of shoreline and intertidal habitats in many of BC's major estuaries. (Note: In 2015 the Pacific Coast Joint Venture is changing to the Pacific Birds Habitat Joint Venture, for focus on issues associated with the North American flyway).

- Long-Term Ecological Monitoring Program – BC Parks partners with Universities and Colleges, community groups, NGOs, Ecotourism Operators, and professional associations to undertake monitoring within the lands it manages (BC Parks - Province of British Columbia 2015). Examples include:

- Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) - Group of American Universities (Oregon State, Stanford, UCSC and UCSB) which have partnered with BCParks to put in monitoring plots in the intertidal zone. The plots in BC are part of a series of plots that runs from Baja California to Alaska and will give us information about changes in coastal ecological communities.
- Semiahoo Naturalists is a community group that works on a number of projects in Boundary Bay Wildlife Management Area including mapping and monitoring eel grass, and mapping and monitoring forage fish spawning habitat.
- Sea Change is an NGO that has partnered with BCParks in their significant efforts to monitor and restore Eel grass beds in the Salish Sea.
- The BC Protected Areas Research Forum brings together park managers and researchers from universities, colleges and First Nations in a biannual forum to provide a way to link the information needs of park managers with the knowledge and research capabilities of universities and First Nations. It includes all levels of protected areas from municipal and regional district parks to provincial and federal parks.

### *Other Protected Areas*

Management of conservation lands relies on stakeholder consultations, partnerships with external agencies, and working agreements to facilitate habitat-sensitive resource use. As a result, the BC Ministry of Forests, Lands and Natural Resource Operations has recognized that various arrangements with non-governmental organizations, various levels of government, industry, and others involved in land acquisition and habitat protection play a central role in the conservation lands program.

The ministry cites the following as some of their key conservation land partners (Ministry of Forests Lands and Natural Resource Operations 2015):

- Ducks Unlimited Canada
- The Nature Trust of BC
- Habitat Conservation Trust Foundation
- Nature Conservancy of Canada
- The Land Conservancy of BC
- Environment Canada/Canadian Wildlife Service
- Pacific Salmon Foundation

To take advantage of efficiencies between organizations with similar mandates and to avoid potentially costly competition, many of these long-standing partnerships have been formalized in regional, provincial or international multi-party initiatives focused on acquiring and managing conservation lands. These initiatives include, for example:

- Conservation Partners of BC
- Pacific Estuary Conservation Program
- Crown Land Securement Partner Program: Focused on conserving land for fish and wildlife habitat, includes both acquiring private land and securing complementary Crown land.
- Vancouver Island Conservation Land Management Program
- North American Waterfowl Management Plan (including Pacific Coast Joint Venture)

Conservation lands staff are also involved in more specialized habitat compensation initiatives designed to help offset the impacts of major development projects, such as the Columbia Basin Fish and Wildlife Compensation Program.

#### *Non-Governmental Organizations - Canada*

There are many non-governmental organizations with an interest in the conservation and management of the public lands. These include environmental NGOs, watershed councils, coalitions of researchers and scientists, and community organizations. Examples of conservation focused organizations (GoodWork.ca 2015) include:

- [Canadian Council on Ecological Areas](#)
- [Canadian Land Trust Alliance](#)
- [Canadian Parks & Wilderness Society](#) (CPAWS)
- [Canadian Wildlife Federation](#)
- [Ducks Unlimited Canada](#)
- [Mining Watch](#)
- [Nature Canada](#)
- [Nature Conservancy of Canada](#)
- [The Land Conservancy of BC](#)
- [Sierra Club of Canada](#)
- [Sierra Club of BC](#)
- [Stewardship Canada](#)
- [Wildlife Habitat Canada](#)
- [World Wildlife Fund Canada](#)

- [David Suzuki Foundation](#)
- [Greenpeace Canada](#)
- [Canadian Boreal Initiative](#)
- [Canadian Model Forest Network](#)
- [Ecoforestry](#)
- [Forest Ethics](#)
- [Forest Management Certification in Canada](#)
- [Forest Stewardship Council / FSC Canada](#)
- [Sustainable Forest Management Network](#)
- [Tree Canada Foundation](#)

### Transboundary Policymaking – Public Lands

**North American Wetlands Conservation Act:** Conserve North American wetland ecosystems and waterfowl and the other migratory birds and fish and wildlife that depend upon such habitats (U.S. Department of the Interior, Fish and Wildlife Service 2015). The program, which is administered by the USFWS, provides grants to protect and manage wetland habitats for migratory birds and other wetland wildlife in the United States, Mexico and Canada. Encourages partnerships to conserve North American wetland ecosystems for waterfowl, other migratory birds, fish, and wildlife.

Encourages the formation of public-private partnerships to develop and implement wetland conservation projects consistent with the North American Waterfowl Management Plan (NAWMP), a blueprint for continental waterfowl and wetlands conservation, and other North American migratory bird conservation agreements.

Creates the North American Wetlands Conservation Fund to help support projects through grants.

Establishes a nine-member North American Wetlands Conservation Council (Council) to review and recommend grant proposals to the Migratory Bird Conservation Commission for funding.

#### ***Implemented By***

- United States Fish and Wildlife Service
- North American Wetlands Conservation Council
- Environment Canada
- Migratory Bird Conservation Commission

There are some advocacy-based NGOs that appear to work cross-boundary including:

- Conservation Northwest (Conservation Northwest 2015)
- Rivers Without Borders (note: operates in Alaska /BC) (Rivers Without Borders 2015)

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## SALMON RECOVERY

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### 3.12 SALMON RECOVERY

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Salmon are an iconic species of the Salish Sea. Yet, beyond their cultural status, they play a critical role in supporting and maintaining ecological health, and in the social fabric of First Nations and tribal culture. Commercial and recreational salmon fisheries also make salmon an important economic resource.

Salmon populations have been declining in the Salish Sea. Chinook, Bull trout, and Steelhead in Puget Sound have been listed as endangered or threatened under the United States Endangered Species Act. Some populations of Coho and Sockeye have been identified as endangered in Canada. As reported by the EPA (2015), Chinook salmon populations are down 60% since the Pacific Salmon Commission began tracking salmon data in 1984.

The reduction in salmon populations have subsequent impacts to other species in the Salish Sea. During their life cycle, salmon transfer energy and nutrients between the Pacific Ocean and freshwater and land habitats. Salmon provide food for a variety of wildlife, from bald eagles to killer whales to grizzly bears. Because salmon die after spawning, their carcasses also provide abundant food and nutrients to plants and animals, including tiny aquatic insects and other invertebrates that in turn provide food for other animals.

The steep decline in salmon is associated with three main factors:

- Habitat change
- Harvest rates
- Hatchery influence

Additional factors increasingly recognized as contributing to declining salmon populations include climate change, ocean conditions, and marine mammal interactions (US EPA 2015).

As a result, significant efforts are underway in both countries to support salmon recovery.

The Fisheries and Aquaculture topic area addresses the management and regulation of fish and fish habitat more specifically. This section, in contrast, more specifically addresses habitat restoration and other recovery efforts.

#### United States – Salmon Recovery

Salmon recovery efforts in the United States have involved both federal and state authorities, as well as Tribes and non-governmental organizations.

##### *Government Entities – United States*

##### Federal Scale – United States

##### **Laws and Policies**

**United States Endangered Species Act:** Under the Endangered Species Act, NOAA Fisheries has listed salmon and steelhead species in Puget Sound and the Washington coast (Washington State Recreation and Conservation Office 2015c), including:

- Puget Sound Chinook – listed as threatened in 1999
- Hood Canal & Strait of Juan de Fuca summer chum – listed as threatened in 1999
- Puget Sound steelhead – listed as threatened in 2007
- Coastal-Puget Sound Bull Trout, listed as threatened in 2009

Once listed, Section 4(f) of the Endangered Species Act (ESA) directs NOAA's National Marine Fisheries Service (NMFS) to develop and implement recovery plans for threatened and endangered species, unless such a plan would not promote conservation of the species. Recovery planning is intended to be a collaborative process that provides a forum for a wide spectrum of stakeholders (e.g. federal, state, tribal, local, and private entities) to find common ground and share knowledge, expertise, and actions of communities and partnerships (NOAA Fisheries 2015a). The federal government requires that recovery plans be based on an Evolutionarily Significant Unit (ESU). An ESU is a population, or group of populations of salmon, that is substantially, reproductively isolated from other populations and contributes substantially to the evolutionary legacy of the biological species. In Washington State, seven regional organizations formed to develop recovery plans and coordinate implementation (Washington State Recreation and Conservation Office 2015a). Regional organizations are made up of local, state, and federal agencies; tribes; citizens; and others interested in salmon recovery. In the Puget Sound area, there are two salmon recovery regional organizations:

- Puget Sound Partnership (for Puget Sound Chinook and Steelhead)
- Hood Canal Coordinating Council (for Hood Canal & Eastern Strait of Juan de Fuca Summer-run Chum)

The following recovery plans have been adopted to meet these requirements, including:

- Puget Sound Chinook Recovery Plan
- Hood Canal & Eastern Strait of Juan de Fuca Summer-run Chum Recovery Plan
- (Note: The Recovery Plan for Puget Sound Steelhead is currently underway, with a plan anticipated in 2016).
- Bull Trout Recovery Plan

Implementation of recovery actions tends to fall largely on Federal, state, and local agencies, as well as tribes and interested organizations or individuals within the range of the species.

Washington State has entered into a cooperative agreement with NOAA Fisheries to provide assistance to the state in implementing their conservation programs, including providing funding for management, research, and monitoring. Funding is provided through the [Pacific Coastal Salmon Recovery Fund](#) which

is matched with state funding to support recovery efforts across Washington (NOAA Fisheries West Coast Region 2015a).

Conservation actions may also be carried out by Federal agencies as part of their obligations under section 7(a)(1) of the ESA, or as a means to minimize activities that adversely affect a species as part of an interagency consultation. States, local agencies and private entities may conduct conservation actions as a means to minimize or mitigate "incidental take" of species as part of a Conservation Plan under section 10 of the ESA.

**Implemented by:** At the federal level, NOAA Fisheries, U.S. Fish and Wildlife Service, Environmental Protection Agency, the U.S. Army Corps of Engineers, and the Natural Resources Conservation Service are the key Federal agencies engaged in recovery efforts. Together these entities work the Washington Governor's Office, Puget Sound Partnership, Hood Canal Coordinating Council, Puget Sound treaty tribes, state natural resources agencies, local governments, and key non-government organizations.

**Puget Sound Salmon Recovery Plan:** Contains strategies and actions associated with marine and freshwater habitat protection and restoration, hatchery management, and harvest management. The Plan contains an overall regional plan, together with Watershed-specific Plans and a Nearshore plan (Puget Sound Partnership 2015c).

**Promoting United Government Efforts to Save Our Sound (Puget Sound SOS Act):** This is proposed legislation that was introduced in 2015 by U.S. Reps. Denny Heck and Derek Kilmer, which would designate the Puget Sound a nationally significant body of water under the Clean Water Act and align federal agencies for its protection (Congressman Denny Heck 2015). The bill proposes to integrate and align federal restoration efforts with the ongoing efforts of state, local, and tribal governments. To enhance national awareness and contribution, the bill proposes to amend the Clean Water Act by adding a new section dedicated to Puget Sound recovery, providing lasting and structural recognition of the Puget Sound as a waterbody of national significance on par with the Chesapeake Bay and the Great Lakes. The bill also would create a Puget Sound Recovery Office at the Environmental Protection Agency.

## Other

**Congressional Puget Sound Recovery Caucus:** Caucus of federal representatives to US Legislature from Washington and Oregon established to promote Puget Sound cleanup efforts and to better integrate, organize, and focus federal efforts in the Puget Sound (Congressional Puget Sound Recovery Caucus 2014).

**Bonneville Power Administration:** The BPA and its Fish and Wildlife Group have responsibilities for ensuring compliance with ESA obligations, as specified in National Marine Fisheries Service (NMFS) Biological Opinions and U.S. Fish & Wildlife Service (USFWS) Biological Opinions (Municipal Research and Services Center 2015).

**Pacific Coastal Salmon Recovery Fund:** Established by Congress in 2000 to reverse the declines of Pacific salmon and steelhead, supporting conservation efforts in California, Oregon, Washington, Alaska, Idaho, and Nevada (NOAA Fisheries West Coast Region 2015a). NOAA Fisheries administers PCSRF's competitive grants process. Funds awarded to Washington State are managed by the Washington State Recreation and Conservation Office and are allocated through the Salmon Recovery Funding Board. The funding has been used for a variety of projects, including in-stream, wetland, estuarine, riparian, and upland habitats, as well as land acquisition, fish passage and monitoring projects.

### State Scale – Washington State

**Salmon Recovery Act:** Provides for a planning and implementation process that is focused on fish habitat, including:

- Establishing Governor's Office of Salmon Recovery to provide overall coordination of the state's response.
- Designated the Puget Sound Partnership as the state's designated lead agency for Puget Sound salmon recovery.
- Authorized the Sea Grant program to provide technical assistance to volunteer groups and other project sponsors in designing and implementing habitat projects
- Authorized the establishment of a science panel on salmon recovery to provide scientific review and oversight
- Authorized the establishment of the Salmon Recovery Funding Board
- Authorized the establishment of new regional salmon recovery organizations to guide locally-driven salmon recovery

Created lead entities in each watershed in the state to address salmon and steelhead recovery. The lead entities listed factors limiting production of salmon and steelhead and created prioritized lists of habitat recovery projects that would benefit their watersheds (Washington State Recreation and Conservation Office 2015a). These local plans are then consolidated into Watershed Plans; Watershed Plans are subsequently combined into Regional Management Plans for each Distinct Population Segment listed under the Endangered Species Act. Projects listed in the plans are eligible for state grants submitted to the Salmon Recovery Funding Board.

***Implemented by:***

- Puget Sound Partnership. The Partnership is a state agency established under RCW 90.71, designated to act as the lead agency for salmon recovery. The Partnership includes the Leadership Council, Ecosystem Coordination Board, Science Panel, and Executive Director, described as follows:
- Leadership Council, which is the governing body of Puget Sound Partnership comprised of representatives from each of the 14 watershed areas, the environmental and business community, Indian tribes, and state and federal agencies involved in salmon recovery.
- Science Panel: Advisory board, comprised of scientists appointed by the Leadership Council, to advise on recovery planning
- Ecosystem Coordination Board: Advisory board to the Leader Council, made up of individuals representing specific interests (e.g. environment, business, cities, counties, legislative caucuses, port districts, tribal governments, state agencies, and action areas).

- Washington Salmon Coalition: Comprised of Lead entities, which are watershed-based organizations created by RCW 77.85 to solicit, develop, prioritize and submit habitat protection and restoration projects for funding by the state's Salmon Recovery Funding Board (SRFB). The intent of the Washington State Legislature was to empower citizens at the community level to engage in salmon recovery through a locally driven habitat protection and restoration program. The Act created the Lead Entity program to coordinate the local effort by soliciting, developing, prioritizing and submitting salmon habitat and restoration projects at the watershed level. The major watershed basins of Washington State were divided into 62 Water Resource Inventory Areas (WRIs). The Lead Entity works at the watershed level to develop a strategic plan to guide the selection and ranking of restoration and protection projects based on the input of a technical committee (made up of local experts that are knowledgeable about the local watershed, habitat and fish conditions) and a citizens committee (made up of local, state, federal and tribal government representatives, community groups, environmental and fisheries groups, conservation districts and regional fisheries enhancement groups).
- Puget Sound Salmon Recovery Council, comprised of representative leaders from each of the 14 watershed areas in the regional Salmon Recovery Plan that meet as a regional body to provide strategic input for Plan implementation
- Salmon Recovery Funding Board, who evaluates proposals and distributes federal and state funding to implementers across the state. Comprised of gubernatorial appointees from across the state and non-voting state agency representatives.
- Governor's Salmon Recovery Office, which coordinates policy, statewide strategy, and provides network support. Assists with securing funds for recovery efforts. Works with regions to produce biennial State of Salmon in Watersheds report.
- Recreation and Conservation Office, which ensures fiscal responsibility for the network and staffs the Salmon Recovery Funding Board and Governor's Salmon Recovery Office.

**Action Agenda for Puget Sound:** The Action Agenda addresses specific programs and projects to be implemented over a 2-year time frame in support of salmon recovery (Puget Sound Partnership 2015a). Plans are developed through a collaborative process, through which the Puget Sound Partnership coordinates with several different organizations, including:

- Executive Director: Administers the Partnership. Acts as a critical link between the Leadership Council, Ecosystem Coordination Board, and Science Panel. The Director also communicates directly with other interests such as governments, the private sector, tribes, academic institutions, non-governmental organizations, and citizens not specifically represented on the advisory boards.
- Leadership Council: Governing body of Puget Sound partnership comprised of representatives from each of the 14 watershed areas, the environmental and business community, Indian tribes, and state and federal agencies involved in salmon recovery
- Local Integrating Organizations: Organizations comprised of local governments, tribes, non-profit organizations, watershed, marine resource, and salmon recovery groups, interest groups, businesses, educational organizations, and citizens to guide the implementation of Action Agenda priorities at an ecosystem scale, and to prioritize local actions for investment. Note:

EPA is supporting development of LIO 5-year Ecosystem Recovery Plans and associated 2-year Implementation Plans.

- Science Panel: Advisory board, comprised of scientists appointed by the Leadership Council, to advise on recovery planning
- Ecosystem Coordination Board: Advisory board to the Leader Council, made up of individuals representing specific interests (e.g. environment, business, cities, counties, legislative caucuses, port districts, tribal governments, state agencies, and action areas).

EPA provides funding for implementation of the plans under the National Estuary Program. The Washington State Legislature also appropriates money every 2 years to help with Puget Sound recovery. Local governments and non-profit organizations also contribute significantly to recovery funding. (Puget Sound Partnership 2014).

**Implemented by:** Puget Sound Partnership, which serves as the coordinating body for Puget Sound recovery, as well as the National Estuary Program, and the Regional Recovery Organization to coordinate salmon recovery efforts. The Puget Sound Partnership works with a number of state and federal agencies and NGOs.

### Other Policy Actors

**Washington Department of Fish and Wildlife:** Together with Tribes, co-manages fisheries to preserve, protect, and perpetuate the state's salmon and steelhead populations. They operate and manage hatcheries, and provide technical and scientific expertise that supports implementation of salmon recovery plans, fisheries management, and protection of fish habitat (Washington State Department of Fish and Wildlife 2015).

**Washington State Department of Ecology:** Monitors water quality, manages the wastewater discharge permits system, participates in state efforts classify and clean up contaminated sediments, provides guidance and assistance for local stormwater programs, and works on wetlands, spills, watershed plans, fish habitat, and shellfish issues (Municipal Research and Services Center 2015).

### Local Scale - Regional and subregional policymaking in Washington State

Counties, Cities, and local Jurisdictions implement many restoration projects and programs. In addition, these organizations adopt and implement zoning and stormwater regulations in support of recovery efforts.

### *Indigenous Peoples – United States*

Treaty Tribes in Washington State co-manage the salmon resource. By treaty, they are guaranteed the right to fish in their usual and accustomed areas. Tribes have established the **Treaty Rights at Risk** initiative to organize and advocate for protection of these tribal rights. As part of this initiative, Treaty tribes in Washington State have prepared a white paper to address ongoing habitat loss and the decline of the salmon resource and to provide recommendations for changes (TREATY INDIAN TRIBES IN WESTERN WASHINGTON 2011). The Northwest Indian Fisheries Commission (NWIC) has requested that the Treaty Rights at Risk initiative be institutionalized in the U.S. government via President Obama's Council on Native American Affairs (Northwest Indian Fisheries Commission 2015).

At the State level, Tribal leaders have been appointed to the Puget Sound Partnership Leadership Council and the Partnership includes tribal input on the Ecosystem Coordination Board. Tribal representatives also serve on the Regional Salmon Recovery organizations that have been established under the Endangered Species Act to recover salmon populations, including the Puget Sound Partnership (for Puget Sound Chinook and Steelhead) and Hood Canal Coordinating Council (for Hood Canal & Eastern Strait of Juan de Fuca Summer-run Chum). In addition, the Puget Sound Partnership has a duty to consult with each individual tribe. The Partnership also works with the Northwest Indian Fisheries Commission.

Under the State's Salmon Recovery Act, Tribal governments participate as lead agencies or members in many of the Watershed Resource Inventory Areas (WRIs) established around Puget Sound. Tribes with fisheries-resource rights in the WRIA must be offered a seat on planning unit in order for the watershed plan to address the required analysis and strategies regarding federally reserved rights and instream flows for fish (Washington State Department of Ecology 2015). Tribal representatives also serve on several boards that are part of the Puget Sound Partnership governance framework, including the Ecosystem Coordination Board and Local Integrating Organizations.

Tribal representatives have been active in a number of different initiatives that address salmon habitat (TREATY INDIAN TRIBES IN WESTERN WASHINGTON 2011), including:

- Pursuing changes to administration of the National Flood Insurance program to protect salmon habitat;
- Pursuing legal action against Washington State to address fish passage barriers. The US District Court for the Western District of Washington has ruled in favor of tribes, noting that the State has built and operates stream culverts that block fish passage to and from the Tribes' usual and accustomed fishing places, and these culverts deprive the Tribes of the fishing rights reserved by the Stevens Treaties. (Note: The state has appealed this ruling).
- Advocating that Washington State revise its fish consumption rate, which is used to establish water quality standards under the Clean Water Act.
- Submitting comments on different Shoreline Master Programs in development at local jurisdictions under Washington State's Shoreline Master Program.

Tribes are also actively involved in implementing salmon recovery actions. Tribes partner with state agencies, industries and property owners through collaborative habitat protection, restoration and enhancement efforts. Tribes also operate hatchery programs to restore runs of salmon. Federally recognized tribes are also eligible for **Species Recovery Grants** to support tribally-led recovery efforts that directly benefit the following eligible species under NMFS, or joint NMFS-U.S. Fish and Wildlife Service (USFWS) (NOAA Fisheries 2015b), jurisdiction:

- Species listed under the Endangered Species Act (ESA), excluding Pacific salmonids\*
- Recently de-listed species
- Candidate species
- Species proposed for listing under the ESA

Tribes are also actively involved in on-going salmon inventories and assessments, such as the NWIFC Salmon and Steelhead Habitat Inventory and Assessment Program, which compiles information on local and regional habitat conditions (Northwest Indian Fisheries Commission 2015).

Tribes also operate a number of programs and ceremonial activities that provide opportunities to share information and promote outreach on salmon restoration and protection. An example of this is the **Salmon Homecoming Alliance** (Salmon Homecoming Alliance 2015), which operates as a non-profit foundation, established to organize, plan, develop and facilitate programs and events associated with Salmon Homecoming.

#### *Governmental/Non-Governmental Collaborations – United States*

Collaboration is occurring between government and non-government organizations, particularly in the areas of habitat preservation and restoration. The following are several key programs, operated at the state level:

**ECO Network Member Organizations:** The Education, Communication and Outreach Network (ECO Net) is an initiative under the Puget Sound Partnership (Puget Sound Partnership 2015a). The network is a collaborative, multi-disciplinary network of individuals and organizations bound together by a vested interest in protecting and enhancing the health and vitality of the Puget Sound region. It serves as a regional planning and communications forum and the organizations involved provide many of the long-term public outreach strategies. Members work on a wide variety of issues that positively impact the health of the Puget Sound, ranging from ecosystem restoration and environmental health to sustainable communities and healthy economies. The network consists of more than 470 organizations across the region and has a diverse membership representing non-profit organizations, community groups, learning centers, conservation districts, public and private schools, businesses, local and regional governments, tribes, and individuals. Members are organized into 12 regional chapters across the 12-county Puget Sound region. Appendix A contains a list of members.

**Regional Fisheries Enhancement Group Program:** Program was created by the Washington State Legislature to involve local communities, citizen volunteers, and landowners in the state's salmon recovery efforts. Each RFEG works within a specific geographic region based on watershed boundaries. Every group is a separate, nonprofit organization led by their own board of directors and supported by their members (Washington State Department of Fish and Wildlife 2015). There are several RFEGs working in the Puget Sound area, including:

- Nooksack Salmon Enhancement Association
- Skagit Fisheries Enhancement Group
- Sound Salmon Solutions
- Mid-Sound Fisheries Enhancement Group
- South Puget Sound Salmon Enhancement Group
- Hood Canal Salmon Enhancement Group
- North Olympic Salmon Coalition

## Other

**Conservation Districts:** Non-regulatory and supported by the Washington State Conservation Commission, local districts provide technical and scientific assistance to land owners and other local partners to design, implement, and monitor on-the-ground recovery projects (Washington State Department of Fish and Wildlife 2015).

**Salmon Recovery Conference:** The Washington State Salmon Recovery Funding Board holds a biennial conference to provide opportunities to exchange information and look at lessons learned from restoration projects across the state (Salmon Recovery Funding Board 2015). The conference is attended by a range of representatives working on salmon recovery, including scientists, government agency staff, non-governmental organizations, business, Tribes, and others.

## *Non-Governmental Organizations – United States*

Non-governmental organizations are active in salmon conservation and restoration activities. Land trusts, environmental and community groups, foundations, and others implement on-the-ground projects. Many of these projects are funded by grants to local organizations in watersheds to restore and protect salmon habitat. Lists of grant recipients are available [here](#).

Many organizations are participating through **Puget Sound Starts Here**, a web resource intended to provide public information and connect organizations working on issues surrounding Puget Sound.

Other organizations advocate for policy changes. As example is the **Wild Salmon Recovery Initiative**, which was formed with the intent of influencing federal, state, and local agencies to fully implement and comply with the Endangered Species Act, the Clean Water Act, and other local, state, and federal statutes (Wild Fish Conservancy 2015).

Some organizations have been active in taking legal action. For example, the **Wild Fish Conservancy** recently settled a pending lawsuit under the Endangered Species Act with the Washington State Department of Fish and Wildlife over releases from WDFW's steelhead hatchery program. Wild Fish Conservancy was concerned about the impact of the introduction of hatchery stocks on remaining native Puget Sound steelhead runs. Under the settlement, WDFW will cease planting Chambers Creek hatchery steelhead in all Puget Sound rivers but one, until NOAA approves each specific hatchery program. The settlement also establishes a twelve-year moratorium of such hatchery plants in the Skagit River system.

(Note: A senate bill proposed in Washington State Legislature in 2015 would deny wild fish organizations state Salmon Recovery Funding Board contributions if they have brought legal action against the state concerning hatchery production within ten calendar years).

## Canada – Salmon Recovery

The responsibility for managing salmon and salmon habitat in BC is predominately a federal role. The federal government has authority to regulate for all parts of the oceans under Canadian jurisdiction, as well as lakes, rivers and streams within the provinces and territories. Federal jurisdiction applies to waters that are owned by the federal Crown or the provincial Crown or are privately owned. The federal government has jurisdiction to regulate not only fish and fisheries, but also fish habitat and the quality

of fish-bearing waters, as well as marine plants and marine mammals (Beckplumb 2013). The federal government has delegated authority to manage fisheries in inland waters, which would include Steelhead and Bull Trout.

*Government Entities - Canada*

Federal Scale - Canada

**Laws and Policies**

**Canada Species at Risk Act:** The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has identified several BC salmon populations as endangered (e.g. Interior Fraser coho (*Oncorhynchus kisutch*), Sakinaw sockeye (*O. nerka*) and Cultus sockeye), yet these species have not been included on the SARA list by the Federal Cabinet, due to social considerations, including potential impact on commercial, recreational and Indigenous fisheries. Despite not being listed under SARA Schedule 1, Fisheries and Oceans Canada has committed to salmon recovery efforts (Irvine et al 2005).

**Implemented by:** Environment Canada, Parks Canada, and Fisheries and Oceans Canada

**Canada's Policy for Conservation of Wild Pacific Salmon:** Canada's policy for conservation of wild Pacific Salmon (WSP). Addresses five species of Pacific Salmon found in British Columbia and the Yukon (Government of Canada, Fisheries and Oceans 2010). Serves as the blueprint that will govern how existing statutory authorities (e.g. Fisheries Act) will be implemented.

The objectives of the WSP are as follows:

- Safeguard the genetic diversity of wild Pacific Salmon
- Maintain habitat and ecosystem integrity
- Manage fisheries for sustainable benefits

Key guiding principles:

- Conservation of wild salmon and their habitats is the highest priority
- Honor obligations to First Nations
- Sustainable use
- Open and transparent decision-making

Key implementation strategies include:

- Standardized monitoring of wild salmon status.
- Assessment of habitat status.
- Inclusion of ecosystem values and monitoring.

- Integrated strategic planning.
- Annual program delivery.
- Performance review.

Initial efforts have focused on identifying functionally distinct groups of salmon, called Conservation Units, and defining formal benchmarks for each. Under this strategy, a process has begun to organize all Pacific salmon streams and lakes into geographic units for conservation and specification of the means to monitor abundance and distribution of Pacific salmon within those units over time. At the same time, there have been on-going initiatives to incorporate habitat and ecosystem considerations into salmon management, and to establish local processes for collaborative planning throughout British Columbia.

Note: The Cohen Commission found that little progress had been made in implementing the WSP, beyond developing the methodologies required to monitor and assess the status of salmon Conservation Units (CUs) and some habitats.

**Implemented by:** Fisheries and Oceans Canada

**National Conservation Strateg(ies):** Identify conservation goals and objectives for salmonid species. To date, three conservation strategies have been prepared for endangered species, including: Cultus Lake Sockeye, Sakinaw Lake Sockeye, and Interior Fraser Coho.

**Implemented by:** Fisheries and Oceans Canada

**Salmonid Enhancement Program:** Program with aim to rebuild vulnerable salmon stocks, provide harvest opportunities, work with First Nations and coastal communities in economic development, and improve fish habitat to sustain salmon populations (Fisheries and Oceans Government of Canada 2008). Three key program activities include: fish hatcheries, resource restoration, and community involvement.

**Implemented by:** Fisheries and Oceans Canada

**Canada's Ocean Act:** Act calls for integrated resource management and an ecosystem perspective

**Implemented by:** Fisheries and Oceans Canada

## Other

**Cohen Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River:** Organized by the Canadian government to identify potential contributing factors to the decline of Fraser River sockeye salmon productivity and survival, as well as existing gaps in knowledge (Cohen Commission. 2015). The Cohen Commission's Final Report, "*The Uncertain Future of the Fraser River Sockeye*", was released on October 31, 2012. The Final Report serves as a guide for salmon conservation, with [75 recommendations to Government](#), many of which involve deadlines and milestones.

Note: Many of recommendations appear to not have been implemented. As a result Watershed Watch Salmon Society & SOS Marine Conservation Foundation have submitted petitions to the Office of the Auditor General addressing their concerns about the status of the recommendations (Watershed Watch

Salmon Society & SOS Marine Conservation Foundation 2014). DFO has responded this inquiry. In their response, DFO has indicated that they plan to develop a new implementation plan for the Wild Salmon Policy which is aligned with Cohen Commission recommendations.

#### Provincial Scale – British Columbia

The province has been delegated authority for freshwater fisheries, including Steelhead and Cutthroat Trout, which includes activities such as issuing licenses, opening and closing fishing seasons, etc.

#### **Other**

**BC Hydro:** A provincial Crown corporation with a mandate to generate, purchase, distribute and sell electricity. BC Hydro operates the following programs in order to compensate for impacts from its facilities:

- Fish and Wildlife Compensation Program - The Fish and Wildlife Compensation Program is a partnership between BC Hydro, the Province, Fisheries and Oceans Canada, First Nations and public stakeholders to conserve and enhance fish and wildlife impacted by the construction of BC Hydro dams (BC Hydro 2015a).
- Water Use Plans - Water use plans were developed for most of BC Hydro's hydroelectric facilities through a consultative planning process involving participants, such as government agencies, First Nations, local citizens and other interest groups. A review of implementation of the Water Use Plans is starting in 2015 (BC Hydro 2015b).

#### Local Scale - Regional and subregional policymaking in British Columbia

Regional districts and municipalities implement many restoration projects and programs. As an example, the Fraser Valley River District is working with Fisheries and Oceans Canada and the Fraser Valley Watersheds Coalition to form the **Fraser Valley Watersheds Program**. The goal of the Watersheds Program is to help improve the health and sustainability of watersheds throughout the Fraser Valley using watershed planning, enhancement and restoration projects, partnership building, and community stewardship, education, and awareness (Fraser Valley Regional District 2015).

In addition, these organizations adopt and implement zoning and stormwater bylaws in support of recovery efforts.

#### *Indigenous Peoples - Canada*

First Nations have constitutionally protected and recognized rights to fisheries access, fish harvesting, and fish use. In court cases, such as the Sparrow case, the rights of First Nations to fish for Food, Social, and Ceremonial (FSC) purposes has been recognized.

First Nations in BC have been advocating for more meaningful involvement in the governance and management of wild salmon in their traditional territories. In the Fraser River Watershed, First Nations have formed the **Fraser Salmon Management Council**, and have delegated this organization with negotiating with Fisheries and Oceans Canada on a management agreement over Fraser salmon (Fraser River Aboriginal Fisheries Secretariat 2015c).

First Nations also work collaboratively through different organizations on fisheries issues. An example of this is the development of the **BC First Nations Fisheries Action Plan**, which contains an overarching vision statement, goals, and principles relating to the Pacific fishery (First Nations Leadership Council: n.d.) One of the priorities identified in the Action Plan was the establishment of the **First Nations Fisheries Council**, which works with and on behalf of BC First Nations to protect and reconcile First Nations rights and title as they relate to fisheries and the health and protection of aquatic resources (First Nations Fisheries Council 2015). The Council works to:

- Advance and protect First Nations Title and Rights related to fisheries and aquatic resources, including priority access for food, cultural and economic purposes;
- Support First Nations to build and maintain capacity related to fishing, planning, policy, law, management, and decision-making at a variety of scales (local, regional, national and international); and
- Facilitate discussions related to the development of a British Columbia-wide First Nations-based collaborative management framework that recognizes and respects First Nations jurisdiction, management authority and responsibilities.

Another example is the **First Nations Wild Salmon Alliance**, which seeks to bring First Nations together to speak with a common voice for the protection and conservation and enhancement of wild salmon throughout British Columbia (Union of British Columbia Indian Chiefs 2015). The FNWSA will work to conserve wild stocks, advocate and support recovery and restoration.

In addition, the **Fraser River Aboriginal Fisheries Secretariat** provides communications and biological support services to First Nations, and coordinates the *Forum on Conservation and Harvest Planning for Fraser Salmon* and the *Fraser Salmon Roadmap (Fraser Salmon Management Agreement)* processes (Fraser River Aboriginal Fisheries Secretariat. 2015b).

First Nations have also collaborated with Fisheries and Oceans Canada (DFO) to develop **the Southern BC Chinook Strategic Planning Initiative** (Fraser River Aboriginal Fisheries Secretariat 2015d), with the objective of developing an Integrated Strategic Plan that:

- Accounts for the biological status;
- Addresses causes of recent declines in productivity and abundance; and
- Identifies management actions to improve status.

First Nations are also active in completing restoration projects. The **Aboriginal Fund for Species at Risk Agreements** contributes funding for approved projects, which are directed at Indigenous capacity building and habitat protection and recovery for species at risk (Pacific Region Fisheries and Oceans Canada 2015). The key objective is to encourage meaningful involvement of Indigenous people and communities in the implementation of the Species at Risk Act.

#### *Government/Non-Government Collaboration - Canada*

**Wild Salmon Policy:** Environmental non-governmental organizations, such as the Nature Conservation of Canada collaborated with Fisheries and Oceans in development and implementation of the policy,

such as creating a method to identify the conservation units for the five species of Pacific salmon. In addition, it is anticipated that planning and governance models to implement the Wild Salmon Policy will draw on existing structures, processes and information where possible (e.g. local watershed roundtables, Integrated Harvest Planning working groups etc.).

**Salmonid Enhancement Program:** This program is designed to include stewardship and community involvement activities (Government of Canada, Fisheries and Oceans 2009b). It includes support for a Community Involvement Program which brings people from communities throughout the province together to participate in locally-based stewardship efforts. This Program has a number of different initiatives, including:

- Community Advisors provide technical advice and financial support to community volunteers wishing to pursue salmon restoration efforts.
- The Community Economic Development Program (CEDP), which works with First Nation communities to rebuild salmon stocks through enhancement, restoration, and education efforts. There are currently 19 arrangements in British Columbia, an example of which is the Cowichan River Hatchery Project.
- The Public Involvement Program (PIP) supports local communities in their efforts to re-establish salmonid populations in rivers and streams in their communities. This program taps into and supports volunteer activities.
- A range of educational material is available to educate children on the value of the salmon resource.
- StreamTalk stewardship newsletter.
- Storm Drain Marking Program.
- Operation of community hatcheries.
- Streamkeepers Program, which trains and supports citizens in the monitoring, protection and improvement of aquatic habitat.

**Salmon Enhancement and Habitat Advisory Board:** A public advisory group which works with Fisheries and Oceans in the conservation of salmon and salmon habitat.

**Pacific Salmon Endowment Fund Society:** Non-profit created by the Government through an endowment to fund salmon enhancement activities (Pacific Salmon Foundation 2015).

#### *Non-Governmental Organizations - Canada*

Many non-governmental organizations participated in the Cohen Commission process, including Ecojustice, The Coastal Alliance for Aquaculture Reform, the David Suzuki Foundation, Fraser Riverkeeper Society, Georgia Strait Alliance, Raincoast Conservation Foundation, and Watershed Watch Salmon Society. Watershed Watch Salmon Society now maintains a website to chart the progress in meeting the Cohen Commission recommendations.

Non-governmental organizations are active in salmon conservation and restoration activities. Land trusts, environmental and community groups, foundations, and others implement on-the-ground projects. Examples of organizations working to implement projects includes the Squamish River Watershed Society, a non-profit organization, working in the Squamish and surrounding watersheds to implement restoration projects, provide education and outreach, and facilitate technical, academic and citizen science watershed stewardship opportunities.

Another example is the Pacific Salmon Foundation, a non-profit charitable organization dedicated to the conservation and restoration of wild Pacific salmon and their natural habitats in British Columbia and the Yukon. This Foundation provides financial contribution to stewardships groups across British Columbia, focusing on sustaining wild Pacific salmon. Funding is generated by sales of the Salmon Conservation Stamp.

### Transboundary Policymaking – Salmon Recovery

#### Laws and Policies

**Pacific Salmon Treaty:** Treaty between United States and Canada which laid out the foundation for cooperation in the management, research and enhancement of Pacific salmon stocks of mutual concern. Established a forum for equitable sharing of harvest benefits and conservation constraints on fisheries in Canada and the United States. Separate agreements – or “Annexes” to the Treaty – govern fisheries for chinook, coho, chum, and sockeye.

#### *Implemented by:*

- Pacific Salmon Commission

#### Policy Actors

**Long Live the Kings and the Pacific Salmon Foundation:** Through the Salish Sea Marine Survival Project and Steelhead Research Planning effort, Long Live the Kings and the Pacific Salmon Foundation are working with a multi-disciplinary group of scientists from federal and state agencies, tribes, and academia, with managers, and with funders from the public and private sectors, to develop a joint United States and Canada research program, utilizing intellectual and capital resources from both countries to evaluate the causes of weak juvenile salmon and steelhead survival in the Salish Sea marine environment (NOAA Fisheries West Coast Region 2015). Organizations involved in the project include:

#### Tribes

- Nisqually Indian Tribe
- Tulalip Tribes
- Lummi Nation
- Port Gamble S'Klallam Tribe
- Muckleshoot Indian Tribe
- Skagit River System Cooperative
- Squaxin Island Tribe
- Cowichan Tribes
- The Puyallup Tribe of Indians
- Jamestown S'Klallam Tribe

### Private

- Pacific Salmon Endowment Fund Society
- Goldcorp
- Sitka Foundation
- Canfisco
- Pacific Crest Seafoods
- Northwest Marine Technology
- Finest at Sea
- Eagle Wing Tours
- Kintama

### International

- Southern Endowment Fund of the US-Canada Pacific Salmon Treaty

### State

- Washington Department of Fish and Wildlife (including the Puget Sound Salmon Recovery Council)
- Puget Sound Partnership
- Northwest Indian Fisheries Commission
- Salmon Recovery Funding Board

### Academic

- University of British Columbia
- University of Washington
- University of Victoria
- Simon Fraser University

### Local

- King County
- Seattle City Light
- City of Bellingham
- Port Metro Vancouver
- Port of Seattle

### Federal

- National Oceanic and Atmospheric Administration
- Fisheries and Oceans Canada
- US Geological Survey

## ISSUES IN ENVIRONMENTAL MANAGEMENT: SALMON RECOVERY

- Environmental Protection Agency
- US Fish and Wildlife Service
- National Fish and Wildlife Foundation
- Washington Sea Grant

### Nonprofit

- Genome British Columbia
- Kwiht
- Trout Unlimited
- Pacific Northwest Salmon Center

**Wild Salmon Center:** International organization dedicated to the conservation and sustainable use of wild salmon and their ecosystems across the Pacific Rim (Wild Salmon Center 2015).

### Other

**Salmon 2100 Project:** Project undertaken at Oregon State University to bring together policy analysts, policy makers, policy advocates, and fisheries scientists in many organizations to develop long-term and broad-scale policy prescriptions for salmon recovery in California, Oregon, Washington, Idaho, and southern British Columbia (Oregon State University 2015).

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## **TOXIC SUBSTANCES**

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### 3.13 TOXIC SUBSTANCES, INCLUDING PESTICIDES/INSECTICIDES

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Harmful chemicals enter the Salish Sea through a number of different ways: through stormwater runoff, from industrial or agricultural activities, from marine spills, and from treated water effluent from sewage treatment facilities, to name a few. Harmful chemicals can also be present naturally in the environment. These chemicals can be directly deposited to marine water, or can runoff into fresh or ground water sources before entering the marine environment. Atmospheric deposition can also be a pathway for chemicals to enter the marine environment. These chemicals can pose hazards to species that rely upon the Salish Sea in a number of different ways (both directly and indirectly), including exposure to hazards present in surface waters, exposure through chemicals suspended in sediment, and ingestion via food, water, or sediment. The sources for these pollutants vary across the Salish Sea, as does the potential for biological and ecological harm.

Persistent bio accumulative toxic chemicals in the Salish Sea are of particular concern because of their longevity and ability to enter food webs and, thus, pose risks to human health and ecosystems. There are also concerns that these types of chemicals, which include mercury, polychlorinated biphenyls (PCBs) and polybrominated diphenyl ethers (PBDEs) (commonly used to make fire resistant products), can transfer easily among air, water, and land, and therefore span great distances and last for generations (US EPA Region 10 2015f).

A Toxics Assessment of selected chemicals identified several key sources for toxics in the Salish Sea area (Washington State Department of Ecology and King County Department of Natural Resources 2011), including:

- Copper, cadmium, zinc, and phthalates from roofing materials.
- Copper from pesticide and fertilizer use in urban areas.
- Polycyclic aromatic hydrocarbons from creosote-treated wood, wood smoke, and vehicle exhaust.
- Petroleum-related compounds from minor fuel and oil spills, and drips and leaks from our cars and trucks.

Stormwater was the most common source for these pollutants. Regulations addressing stormwater are more fully addressed in the Water Quality, Quantity and Restoration section of this report. Instead, this section will more specifically address governance mechanisms in place to address the production and use/application of chemicals.

Due to the potential harm of toxic chemicals, action is being taken on both sides of the border to address pollution sources, detailed further below. Yet, both countries still have significant gaps in their knowledge base and regulatory authorities, and therefore may not address fully address the potential cumulative environmental and biological impacts of chemical releases, including compounds created due to chemical interactions, emerging problematic chemicals, concentration hot spots, and challenges with risk assessment.

## United States – Toxic Substances

In general, chemicals (including pesticides) and their uses are regulated by the federal and state governments.

### *Government Entities – United States*

#### Federal Scale – United States

##### *Pesticides – United States*

##### **Laws and Policies**

**Federal Insecticide, Fungicide, and Rodenticide Act:** Provides for federal regulation of pesticide distribution, sale, and use. Regulates the manufacture and use of all pesticides (including insecticides, herbicides, rodenticides, disinfectants, sanitizers and more) in the United States.

All pesticides distributed or sold in the United States must be registered (licensed) by EPA (US EPA, Office of Pesticide Programs 2015d). Before EPA may register a pesticide under FIFRA, the applicant must show, among other things, that using the pesticide according to specifications "will not generally cause unreasonable adverse effects on the environment." (US EPA, OECA. 2015b)

FIFRA defines the term "unreasonable adverse effects on the environment" to mean: "(1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under section 408 of the Federal Food, Drug, and Cosmetic Act." The process EPA uses for evaluating the potential for health and ecological effects of a pesticide is called risk assessment.

FIFRA establishes the ability to regulate pesticide use through labeling, packaging, composition, and disposal. For example, FIFRA has required training for farmers and/or their pesticide applicators that use 'restricted use' pesticides. Restricted use pesticides have the potential to cause unreasonable adverse effects to the environment and injury to applicators or bystanders without added restrictions. Pesticides are regulated under FIFRA until they are disposed, after which they are regulated under the Resource Conservation and Recovery Act (RCRA), which ensures responsible management of hazardous waste and non-hazardous solid waste.

It has an emergency exemption authority, which permits approval of unregistered uses of registered products on a time limited basis. It also authorizes EPA to suspend or cancel a product's registration. (Note: EPA does not maintain a list of products whose registration have been cancelled).

**Implemented by:** United States Environmental Protection Agency

**Endangered Species Act:** Prohibits any action that can adversely affect an endangered or threatened species or its habitat.

Under the Endangered Species Act, EPA must ensure that use of pesticides it registers will not result in harm to the species listed as endangered or threatened by the U.S. Fish and Wildlife Service, or to habitat critical to those species' survival (US EPA, Office of Pesticide Programs. 2015c). For example,

Diazinon, Malathion, 2,4-dichlorophenoxyacetic acid (2,4-D) and others have been assessed for their effects on salmon. EPA generally conducts these analysis when a pesticide is required to be re-registered, which occurs every 15 years. In special circumstances, EPA may conduct review outside of this process.

**Implemented by:** United States Environmental Protection Agency

*Other Chemicals – United States*

**Toxic Substances Control Act:** Addresses the manufacturing, processing, distribution, use, and disposal of commercial and industrial chemicals. Authorized the Environmental Protection Agency to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures US EPA. OCSPP. 2015d). (Note: Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics and pesticides).

Under Section 5 of the Act, EPA has the authority to assess new chemical substances before they are manufactured or imported, using a risk assessment process (US EPA. 2015d). If EPA determines that a new chemical will present unreasonable risk, EPA may (1) limit the amount or impose other restrictions on the substance via an immediately effective proposed rule, or (2) completely prohibit the substance by issuing a proposed order or applying to a U.S. District Court for an injunction. While TSCA does not define the term “unreasonable risk,” the legislative history indicates that unreasonable risk involves the balancing of the probability that harm will occur and the magnitude and severity of that harm against the effect of a proposed regulatory action on the availability to society of the expected benefits of the chemical substance.

Section 4 of TSCA gives EPA the authority to require chemical manufacturers and processors to test existing chemicals (US EPA. 2015a). (Note – many existing chemicals in place at the time of adoption were not required to be tested and allowed to stay on the market). Under Section 4, EPA can by rule require testing after finding that (1) a chemical may present an unreasonable risk of injury to human health or the environment, and/or the chemical is produced in substantial quantities that could result in significant or substantial human or environmental exposure, (2) the available data to evaluate the chemical are inadequate, and (3) testing is needed to develop the needed data.

Under Section 6, EPA is authorized to regulate and ban existing chemicals. Five existing chemicals have been restricted under TSCA, including: polychlorinated biphenyls (PCBs), fully halogenated chlorofluoroalkanes, dioxin, asbestos and hexavalent chromium.

TSCA Section 8(b) directs EPA to "compile, keep current, and publish a list of each chemical substance which is manufactured or processed in the United States." This list is known as the TSCA Chemical Substance Inventory (TSCA Inventory).

Note: EPA plans to reauthorize the Toxic Substances Control Act.

**Implemented by:** United States Environmental Protection Agency

**Other**

**Resource Conservation and Recovery Act:** Governs the management of solid and hazardous waste and underground storage tanks (USTs) to ensure that wastes are managed in an environmentally safe manner.

*Implemented by:* United States Environmental Protection Agency

**Pollution Prevention Act:** Establishes pollution prevention as the national policy for controlling industrial pollution at its source (US EPA, OCSPP. 2015c). Under the policy:

- Pollution should be prevented or reduced at the source whenever feasible;
- Pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible;
- Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and
- Disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

*Implemented by:* United States Environmental Protection Agency

**United States Emergency Planning & Community Right-to-Know Act:** Establish national legislation on community safety. This law is designed to help local communities protect public health, safety, and the environment from chemical hazards. Requires hazardous chemical emergency planning by federal, state and local governments, Indian tribes, and industry (OSWER US EPA 2015). It also requires industry to report on the storage, use and releases of hazardous chemicals to federal, state, and local governments.

Key provisions:

- Sections 301 to 303. Emergency Planning - Local governments are required to prepare chemical emergency response plans, and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts. Facilities that maintain Extremely Hazardous Substances (EHS) on-site in quantities greater than corresponding threshold planning quantities must cooperate in emergency plan preparation.
- Section 304. Emergency Notification - Facilities must immediately report accidental releases of EHS chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities (RQs) defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to state and local officials. Information about accidental chemical releases must be available to the public. See also Continuous Release Reporting.
- Sections 311 and 312. Community Right-to-Know Requirements - Facilities manufacturing, processing, or storing designated hazardous chemicals must make Material Safety Data Sheets (MSDSs) available to state and local officials and local fire departments. MSDSs describe the properties and health effects of these chemicals. Facilities must also report, to state and local officials and local fire departments, inventories of all on-site chemicals for which MSDSs exist. Information about chemical inventories at facilities and MSDSs must be available to the public.

- Section 313. Toxic Release Inventory. Facilities that meet certain thresholds are required to report their emissions of certain chemicals, of which there are currently 594 individually-listed chemicals and 31 chemical categories (including four categories containing 68 specifically-listed chemicals). The EPA can make changes to this list. This information is published by the Environmental Protection Agency and is publicly available via the internet.

***Implemented By:***

- United States Environmental Protection Agency
- Local Emergency Planning Committees (LEPCs), which includes representatives from state and local government; as well as Police, fire, civil defense, and public health professionals; environment, transportation, and hospital officials; facility representatives; and representatives from community groups and the media

State Scale – Washington State

*Pesticides – Washington State*

**Washington Pesticide Control Act:** Authorizes the Department of Agriculture to regulate formulation, distribution, storage, and disposal of pesticides (Washington State Department of Agriculture 2013).

***Implemented by:*** Washington State Department of Agriculture

**Washington Pesticide Application Act:** Authorizes the Department of Agriculture to regulate pesticide application and use, including applicator recordkeeping and licensing, landscape posting and the pesticide sensitive registry (Washington State Department of Agriculture 2013).

***Implemented by:*** Washington State Department of Agriculture

**Washington State General Pesticide Rules:** Regulate pesticide use, including recordkeeping, storage, registration, licensing, vertebrate pest control, and Wood Destroying Organism (WDO) inspection requirements (Washington State Department of Agriculture 2013). These rules also contain the state list of restricted use pesticides (Note: There are both federal and state restricted use pesticides. All federal RUPs are also state restricted use pesticides).

***Implemented by:*** Washington State Department of Agriculture

**Washington Commercial Fertilizer Act:** Requires product registration, distribution, and recordkeeping (Washington State Department of Agriculture 2013).

***Implemented by:*** Washington State Department of Agriculture

**Integrated Pest Management Act:** Established that all state agencies that have pest control responsibilities must follow the principles of integrated pest management.

***Implemented by:*** Washington State agencies

*Other Chemicals – Washington State*

Note: The Governor of Washington State has proposed new legislation addressing toxics reduction, which is still under review in the Washington State Legislature.

**Persistent Bioaccumulative Toxics Rule:** Established criteria for classifying Persistent Bioaccumulative Toxics (PBTs) and a list of PBTs that meet these criteria, as well as procedures to periodically update the list (Washington State Department of Ecology. 2015a). Directs the Department of Ecology to prepare chemical action plans, a plan that identifies, characterizes and evaluates uses and releases of a specific PBT, a group of PBTs or metals of concern and recommends actions to protect human health or the environment. Under this rule, the Department of Ecology has issued Chemical Action Plans for PCBs, PAHs, Lead, Flame Retardants, and Mercury.

**Implemented by:** Washington State Department of Ecology

**Assessment of Selected Toxic Chemicals in the Puget Sound Basin: 2007–2011:** Assessment of toxic chemical pollution in the Puget Sound region, included recommended actions to reduce and control pollution from key sources (Washington State Department of Ecology, and King County Department of Natural Resources. 2011).

**Other**

Washington State has passed a number of laws restricting use of certain types of dangerous materials. An example is the **Law limiting Manufacture, Sale and Distribution of Products containing Polybromonated Diphenyl Ethers (PDBEs) – RCW 70.76**. This law restricts the use of PBDEs in products sold in Washington State (Washington State Department of Ecology. 2015b). (Note: According to the Department of Ecology, this law helped to inform a national agreement in 2009 between manufacturers of Deca-BDE and the U.S. Environmental Protection Agency to stop producing, importing, and selling Deca-BDE by the end of 2012).

Another example is the **Better Breaks Law**, which limits copper used in vehicle brake friction material.

**Implemented by:** Washington State Department of Ecology

**Washington State Dangerous Waste Regulations:** Regulates the storage and disposal of dangerous wastes, which are wastes that are potentially harmful to our health and environment.

**Implemented by:** Washington State Department of Ecology

**Washington State Hazardous Waste Management Act:** Establishes requirements for generators, transporters and disposal facility operators of hazardous waste. It also prohibited the disposal of extremely hazardous waste at any location other than the Hanford site which was purchased by the state for the purpose of developing a disposal site.

**Implemented by:** Washington State Department of Ecology

**Washington State Hazardous Waste Reduction Act:** Established state policies and goals that encourage the reduction of hazardous substance use and hazardous waste generation. Under this law:

- Facilities that generate 2,640 lbs. or more of hazardous waste per year or facilities required to report under the federal law called the “Emergency Planning and Community Right-to-Know Act” (EPCRA) must prepare a Pollution Prevention Plan.
- Pollution Prevention (P2) Plans must include a description of the facility, the processes used and the products or services provided. P2 Plans are five-year plans that must also identify hazardous substances used and hazardous wastes generated.
- The focus of P2 Plans is the identification and evaluation of all reasonable opportunities for reductions in the use of hazardous substances and the reduction, recycling and treatment of hazardous substances. The plan must also list those opportunities selected for implementation, performance goals for the five-year plan, and an implementation schedule.
- Authorized Washington State Department of Ecology’s Pollution Prevention Planning program

**Implemented by:** Washington State Department of Ecology

#### Local Scale - Regional and subregional policymaking in Washington State

##### *Pesticides - Regional and subregional in Washington State*

The Washington Pesticide Application Act preempts cities and counties from regulating pesticide application and use. Many local governments have established policies supporting the use of integrated pest management on properties managed by the local government (MRSC 2015). Many local governments also provide public outreach information about pesticide reduction, often through their Stormwater Management plan responsibilities under the Clean Water Act.

##### *Other Chemicals - Regional and subregional in Washington State*

Many jurisdictions have ordinances prohibiting the discharge of toxic or hazardous substances into the sanitary sewer system.

#### *Indigenous Peoples – United States*

##### *Pesticides – Indigenous Peoples - United States*

Pesticide use on tribal lands is addressed under the Federal Insecticide, Fungicide, and Rodenticide Act. As such, the EPA generally is the primary enforcement authority for pesticide use. But several tribes have cooperative agreements with EPA to help enforce FIFRA.

Under FIFRA section 23, EPA may enter into cooperative agreements with tribes. These agreements may include provisions for tribes to assist EPA in ensuring compliance with FIFRA by obtaining federal inspector credentials, conducting inspections, and recommending enforcement actions to EPA. Additionally, some tribes have their own inspection and enforcement authorities to ensure compliance with their own pesticide codes and ordinances.

Under the National Pesticide Tribal Program, EPA and Tribes work cooperatively on pesticide issues. EPA provides funding to some tribes to offer pesticide education, technical assistance, and compliance

and enforcement, and to develop and implement pesticide programs under tribal law (OCSPP US EPA 2015).

**Tribal Pesticide Program Council** is a forum where tribal pesticide and environmental officials can raise pesticide program implementation issues to EPA, offer input on national pesticide policy that affects tribes, offers a network for tribal pesticide officials to share information, and promote and enhance tribal pesticide program development (Tribal Pesticide Program Council 2015).

In the Treaty Rights at Risk, a report from the Treaty Indian Tribes in Western Washington, tribes were critical of NOAA Fisheries evaluation of the impacts of pesticides and Chinook salmon and Orca (TREATY INDIAN TRIBES IN WESTERN WASHINGTON 2011).

*Other Chemicals – Indigenous Peoples - United States*

Washington State Tribes have been active in advocating for stricter water quality standards within Washington State. One of the variables used to calculate ambient water quality criteria is fish consumption rate, an estimated average of the amount of fish eaten in a given area. Tribes are arguing that in the Pacific Northwest, fish consumption can be high among tribal members. Washington State still uses an old(er) value of 6.5 g/day. In contrast, in Oregon, the standard has been set at 175 g/day. Governor Inslee recently approved an increase to 175 g/day, but also increased the risk of getting cancer from water pollution, which effectively cancelled out the benefit of the modified fish consumption rate (Northwest Indian Fisheries Commission 2015).

*Government/Non-Government Collaboration – United States*

*Pesticides - Government/Non-Government Collaboration – United States*

Representatives from NGOs serve on advisory committees that provide advice to EPA on pesticide regulatory, technical, and policy issues. This includes the **Pesticide Program Dialogue Committee**, which meets regularly with EPA to discuss pesticide regulatory, policy, and program implementation issues (OCSPP US EPA 2015).

The EPA also funds programs conducted by NGOs to conduct outreach and education on pesticide use and reduction.

*Other Chemicals - Government/Non-Government Collaboration – United States*

There are efforts underway to introduce less toxic alternatives into production processes. These are typically referred to as green chemistry and green design initiatives, such as **EPA's Design for Environment Program**, **NW Product Stewardship Council**, and **Interstate Chemicals Clearinghouse**.

The Washington State Department of Ecology convened a multi-stakeholder committee (**Washington Toxics Reduction Strategies Workgroup**) to address toxics policy reform in Washington State.

In Washington State, the Department of Ecology also partners with organizations to reduce chemicals. An example of this is the partnership between the Department of Ecology and Impact Washington to offer Lean manufacturing assistance to Washington businesses, which has resulted in reductions in chemical uses.

Another example is the Local Source Control Partnership, in which government staff provide hands-on pollution prevention advice and regulatory assistance to businesses and other organizations that generate small quantities of dangerous waste.

Similarly, EnviroStars is a program in which local governments in six Puget Sound counties provide assistance and incentives for small businesses to reduce hazardous materials and waste, in order to protect public health, municipal systems, and the environment.

#### *Non-Governmental Organizations – United States*

##### *Pesticides - Non-Governmental Organizations – United States*

Environmental non-governmental organizations have been active in challenging pesticide use under the Endangered Species Act listing of Pacific Salmon and Steelhead. As an example, the Washington Toxics Coalition and later the Northwest Center for Alternatives to Pesticides have both challenged EPA around pesticide use around aquatic areas (US EPA, Office of Pesticide Programs. 2015d). As a result, EPA has established streamside no-spray buffer zones to protect endangered or threatened Pacific salmon and steelhead in California, Oregon and Washington State. The buffer zones apply to carbaryl, chlorpyrifos, diazinon, malathion, methomyl and 7 additional pesticides.

NGOs are also involved in delivering education and outreach materials focused on reducing impacts from pesticide use. For example, Seattle Tilth has been conducting a pilot study to develop a Pesticide Reduction Retailer toolkit.

Washington Environmental Council and Futurewise have been developing communication resources on toxics threatening Puget Sound.

The Puget Sound Partnership operates the Puget Sound Partnership Stewardship Program to help people understand the threats to the Puget Sound ecosystem and what actions they can take to reduce toxic contaminants, nutrients, and other pollution into Puget Sound.

##### *Other Chemicals - Non-Governmental Organizations – United States*

There are numerous NGOs advocating for reform of the Toxic Substances Control Act, including the Environmental Defense Fund. Reform measures are pending in Congress.

At the state level, there are also NGOs working on advocacy efforts, including the Washington Toxics Coalition.

#### **Canada – Toxic Substances**

The federal government is the primary regulator of toxic substances, affirmed by the Supreme Court of Canada when it ruled that controlling toxic substances is a valid exercise of federal jurisdiction to make criminal laws (Beckplumb 2013).

*Government Entities - Canada*

Federal Scale - Canada

*Pesticides - Canada*

**Pest Control Products Act:** Regulates the import, sale and use of pesticides in Canada (Government of Canada, Health Canada 2009b). Under this Act, pesticides must be registered. Prior to registration, companies are required to submit detailed information for determining that the product is acceptable in terms of safety, merit and value. The evaluation is composed of several main areas:

- Toxicological Evaluation to identify possible human health effects of pesticides, and establish the levels at which humans can be exposed to the products without any harm.
- Occupational Exposure Assessment which performs exposure assessments on all new active ingredients and all major new uses of a pesticide in order to determine how much exposure to a pesticide could occur in a typical day.
- Food Residue Exposure Assessment in order to determine where a product could come in contact with food, including field crops, meat and dairy products, and processed foods.
- Environmental assessment to evaluate data on the environmental chemistry and toxicology of products, as well as their environmental fate i.e., what happens to the pesticide once it enters the environment. To address environmental concerns that may arise from the intended use of a product, recommendations may be made for restrictions on use that would lessen risk. This could include label statements outlining buffer zones, timing and frequency of applications, rate at which the product can be applied, etc.

Only if there is sufficient scientific evidence to show that a product does not pose unacceptable health or environmental risks and that it serves a useful purpose will a decision to register be made. The Act also requires that the Government of Canada's Toxic Substances Management Policy (TSMP) be applied to pesticide regulation. Under the TSMP, a pesticide's potential for toxicity, bioaccumulation and persistence are taken into account when conducting environmental risk assessments as part of the pre-market evaluation for pesticide registration. If a newly proposed pesticide is found to meet the criteria for toxicity, bioaccumulation and persistence, it will not be registered.

The Act also provides a mandate to minimize health and environmental risks by encouraging the development and implementation of sustainable pest-management strategies and by facilitating access to reduced-risk pesticides.

The Act provides the authority for new regulations that require mandatory reporting of incidents of adverse effects, as well as regulations that require safety information be provided to workers.

A registry has been created containing information on pesticides, including information about applications, registrations, re-evaluations and special reviews.

**Implemented by:** Health Canada (Pest Management Regulatory Agency)

**Fertilizers Act:** Regulates all fertilizers used in Canada, including fertilizers containing pesticides. Before a fertilizer/pesticide combination can be sold or used in Canada, it must be registered under the Fertilizers Act.

**Implemented by:** Canadian Food Inspection Agency

*Other Chemicals - Canada*

**Canadian Environmental Protection Act, 1999:** Establishes an assessment process for new substances to determine whether or not they are toxic or capable of becoming toxic to the environment or human health (Government of Canada, Environment Canada 2009a). The risks of substances determined to be or suspected of being toxic or capable of becoming toxic may be managed, as necessary, through conditions or prohibitions imposed on their import or manufacture.

Substances that are considered to be existing prior to the adoption of the Act have been placed on a Domestic Substances List. Substances on this list that are categorized as being inherently toxic and display either the characteristics of persistence or bioaccumulation; or substances that may present the greatest potential for exposure. Substances that meet these criteria are required to undergo a screening level risk assessment. A screening assessment involves an analysis of a substance to determine whether the substance is toxic or capable of becoming toxic. A substance is considered toxic if it "is entering or may enter the environment in a quantity or concentration or under conditions that:

- Have or may have an immediate or long-term harmful effect on the environment or its biological diversity;
- Constitute or may constitute a danger to the environment on which life depends; or
- Constitute or may constitute a danger in Canada to human life or health."

Substances can be added to the [Priority Substances List](#) when a more comprehensive assessment is required following a screening assessment or review of another jurisdiction's decision. Also, any person may ask the Minister to add a substance to that list.

Substances that meet the definition of toxic can be placed on Schedule 1 of the Act, the List of Toxic Substances. This does not control the substance but allows the Government to proceed with regulations, pollution prevention plans or environmental emergency plans.

Toxic substances may also be recommended for addition to the Virtual Elimination List. Virtual elimination is the reduction of releases to the environment of a substance to a level below which its release cannot be accurately measured (the level of quantification).

The Act provides explicit direction on the assessment of toxic substances and the assessment of wastes and other matter that are destined for disposal at sea.

The Act also requires the maintenance of a National Pollutant Release Inventory. Owners or operators of facilities that manufacture, process, use or release any of over 300 listed substances must report their pollutant releases, disposals and transfers each year to the National Pollutant Release Inventory (NPRI). Currently, over 8500 facilities report to the NPRI. This information is published by Environment Canada and is publicly available via the internet.

Finally, CEPA also addresses pollution prevention and hazardous waste transport.

(Note: The Act applies in cases where specific substances are not otherwise addressed through other Acts and regulations, such as the Pest Control Products Act. In addition, there are a number industry or chemical specific regulations under the act. For example, for pulp mills and dry cleaners, specific regulations are in place aimed at reducing toxic substances such as dioxins, furans, and tetrachloroethylene).

**Implemented by:** Environment Canada

**Chemicals Management Plan:** Sets priorities and timelines for risk assessment and management for chemicals of concern, as well as the supporting research and bio-monitoring initiatives.

**Implemented by:** Environment Canada and Health Canada

**Prohibition of Certain Toxic Substances Regulations, 2012:** Prohibit the manufacture, use, sale, offer for sale or import of certain toxic substances and products containing these substances, unless authorized by exemption. Twenty-two substances are included on this list, and five more are proposed to be added (Government of Canada, Environment Canada 2012).

**Implemented by:** Environment Canada

Provincial Scale – British Columbia

*Pesticides – British Columbia*

**British Columbia Integrated Pest Management Act:** Regulates the sale, containment, transportation, storage, preparation, mixing, application and disposal of pesticides within B.C. (Ministry of Environment 2015b). An authorization is required to sell pesticides, apply pesticides to public land or water, to apply pesticides as a service, or for specified industrial uses. This legislation requires certain pesticide applicators be certified. It also prohibits the use of a pesticide in a way that would cause an unreasonable adverse effect.

**Implemented By:** British Columbia Ministry of Environment

*Other Chemicals – British Columbia*

CEPA also contains provisions for mandatory consultation with provincial governments on issues such as toxic substances and environmental emergency regulations

**British Columbia Environmental Management Act:** Prohibits the introduction of waste into the environment in a way that will cause pollution, except in accordance with a regulation, permit, approval or code of practice issued under the Act. This Act addresses hazardous waste, which may include toxic substances. The EMA also includes numerous regulations related to specific activities and/or substances.

**Implemented By:** British Columbia Ministry of Environment

Local Scale - Regional and subregional policymaking in British Columbia

*Pesticides - Regional and subregional in British Columbia*

Many municipalities in B.C. have passed bylaws restricting pesticide use on ornamental plants and lawns (Ministry of Environment 2015b).

*Other Chemicals - Regional and subregional in British Columbia*

Many local municipalities have adopted bylaws that regulate discharge of waste into a sewer that is connected to a municipal sewer facility. These bylaws typically establish certain types of wastes that are prohibited or restricted.

*Indigenous Peoples - Canada*

*Pesticides - Indigenous Peoples - Canada*

Under the Integrated Pest Management Act, confirmations are necessary for large-scale industrial operations. If a confirmation is required, a Pest Management Plan must be prepared and subjected to First Nation consultation. Only then can it be registered with the Ministry ((Ministry of Environment 2015a).

The Assembly of First Nations has identified pesticide use as an area of concern, based upon higher risk of exposure to pesticides than the general population because of First Nation dependence on the land and traditional foods, in addition to pesticide use in forestry, and pesticide contamination of ground water, soil and air. There have been biomonitoring projects conducted to try and assess the impact of pesticide use to Indigenous peoples (Assembly of First Nations n.d.).

*Other Chemicals - Indigenous Peoples - Canada*

CEPA 1999, unlike many other environmental laws, applies to activities on Government of Canada lands. This includes federal departments, boards and agencies, federal works and undertakings, Crown corporations, federal land, persons on that land and other persons in so far as their activities involve that land. This part of the Act also applies to Indigenous lands.

CEPA also contains provisions for mandatory consultation with First Nation governments on issues such as toxic substances and environmental emergency regulations.

The Assembly of First Nations has been active in advocating for issues that may impact toxic exposure, contaminants in food, water, air and soil and general concerns regarding the use and presence of chemicals in the environment.

The **National First Nations Environmental Contaminants Program** is a collaborative research program between the Assembly of First Nations and Health Canada designed to help First Nations' of Canada assess the extent of their exposure to environmental contaminants and the potential for associated risk to their health and well-being (Assembly of First Nations. 2012).

*Government/Non-Government Collaboration - Canada*

Organizations in British Columbia are delivering programs aimed at changing behavior and encouraging recycling of special wastes, such as pesticides and other wastes containing dangerous chemicals. An example of this is **Product Care Association**. These programs work under the authority of the Environmental Management Act, which sets out the requirements for Product Stewardship in B.C. In some cases, producers of designated products may appoint a stewardship agency to carry out their duties in accordance with an approved plan (Ministry of Environment 2015c).

The **National Contaminants Advisory Group** (NCAG) provides scientific advice for Fisheries and Oceans Canada respecting the biological effects of contaminants on aquatic species (Fisheries and Oceans Canada 2015).

*Non-Governmental Organizations - Canada*

*Pesticides - Non-Governmental Organizations - Canada*

Non-governmental organizations are involved in a variety of public outreach initiatives or targeted outreach to different pesticide users in order to reduce use and promote alternatives. Examples include the work of the **Pacific Salmon Foundation** and **Fraser Basin Council** on Salmon-Safe BC — an eco-certification program that recognizes environmentally friendly management practices to protect Pacific salmon habitat and water quality (Fraser Basin Council 2015).

*Other Chemicals - Non-Governmental Organizations - Canada*

Organizations provide information resources for the public, including **PollutionWatch**, a collaborative project of Environmental Defense and the Canadian Environmental Law Association (PollutionWatch 2015).

**Transboundary Policymaking – Toxic Substances**

Pesticides – United States and Canada

**North American Free Trade Agreement Technical Working Group on Pesticides:** Collaboration among the pesticides regulatory government agencies of the United States, Canada, and Mexico (US EPA, OCSP. 2015a).

**Regulatory Cooperation Council:** Environmental Protection Agency and Pesticide Management Regulatory Agency are collaborating on a bilateral pesticide re-evaluation process for neonicotinoid pesticides, and implementing a risk assessment framework. Discussions about harmonizing re-evaluation schedules and aligning risk assessment approaches are ongoing (US Canada Regulatory Cooperation Council. 2015).

Other Chemicals – United States and Canada

**Regulatory Cooperation Council:** EPA, Health Canada, and Environment Canada are collaborating on two initiatives for chemical substances management (US Canada Regulatory Cooperation Council. 2015), including:

- Developing common approaches for regulatory reporting requirements for new uses of chemical substances; and
- Aligning chemical regulatory processes, including risk assessment processes.

**Stockholm Convention on Persistent Organic Pollutants:** Treaty is to protect human health and the environment from persistent organic pollutants (US EPA, OCSPP. 2015a).

**Rotterdam Convention – Prior Informed Consent Chemicals:** Permits international monitoring and control of trade in very dangerous substances. The Convention gives importing countries the power to decide which chemicals they want to receive and to exclude those substances they cannot manage safely (US EPA, OCSPP. 2015a).

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## **WASTEWATER MANAGEMENT**

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### 3.14 WASTEWATER MANAGEMENT

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Uncontrolled sources of sewage and septic wastes or sewage from malfunctioning or aging treatment plants, sewer overflows from combined sewer systems, and failure of home septic systems can release human waste and other dangerous bacteria and pathogens into the Salish Sea, stressing marine aquatic species like shellfish (US EPA 2015). The release of these biological sources of pollution has the potential to impact marine water quality conditions by lowering oxygen levels, which can also impact marine aquatic species and water quality. Discharges from industrial and municipal wastewater treatment plants also can carry chemical residues, such as contaminants from pharmaceuticals, pesticides, personal care products, consumer product additives, and other chemicals that were not fully treated (US EPA 2015). New research is beginning to highlight the potential health and environmental impacts from these types of emerging contaminants.

#### United States – Wastewater Management

Under the Clean Water Act, EPA works in partnership with EPA Regions, states, local governments, tribes, the private sector, and non-governmental organizations to regulate discharges into surface waters. Wastewater treatment plants within the Puget Sound area have both primary and secondary treatment processes, and many also have tertiary treatment (additional contaminant removal). Some treatment plans include employ additional treatment methods to address specific sources of pollution. As an example, the LOTT treatment plant in Olympia employs chemical addition and filtration to reduce the phosphorous levels in their effluent.

#### *Government Entities – United States*

#### Federal Scale – United States

**United States Clean Water Act:** As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters (US EPA 2015). In Washington State, the NPDES permit program is administered by the Department of Ecology.

**Implemented by:** Environmental Protection Agency (federal and tribal lands) and Washington State Department of Ecology

**Combined Sewer Overflow Control Policy:** National framework for control of combined sewer overflows through the National Pollutant Discharge Elimination System (NPDES) permitting program. The Policy resulted from negotiations among municipal organizations, environmental groups, and State agencies. It provides guidance to municipalities and State and Federal permitting authorities on how to meet the Clean Water Act's pollution control goals. Communities with combined sewer systems are also expected to develop long-term CSO control plans that will ultimately provide for full compliance with the Clean Water Act, including attainment of water quality standards (Washington State Department of Ecology 2015).

CSO communities are now in various stages of developing and implementing their long-term control plans, including characterizing their combined sewer systems, monitoring the impacts of CSOs on waterways, and discussing water quality and CSO control goals with permitting authorities, water quality standards authorities, and rate payers.

Municipalities with CSO outfalls in the Puget Sound area include:

- Anacortes
- Bellingham
- Bremerton
- Everett
- King County
- Olympia
- Mount Vernon
- Port Angeles
- Seattle
- Snohomish County

Note: The EPA has established voluntary guidance for integrating municipal stormwater and wastewater planning. The concept behind the development of integrated plans is to focus limited public funding towards the projects that will have the most benefit, regardless of whether certain projects may be necessary to address combined sewer overflow violations under the Clean Water Act. The City of Seattle has received approval for an integrated plan allows the City to prioritize implementation of stormwater control projects that will high-benefit to water quality in receiving water bodies, while deferring lower-benefit projects on the City's Combined Sewer Overflow Long-Term Control Plan, which was required under a consent decree that the City entered into in order to resolve enforcement actions under the Clean Water Act (Brown and Caldwell 2015).

**Implemented by:** Environmental Protection Agency and Washington State Department of Ecology

**National Pretreatment Program:** The General Pretreatment Regulations under the Clean Water Act establish responsibilities among federal, state, and local government; industry; and the public to implement pretreatment standards to control pollutants that pass through or interfere with publicly owned treatment facility processes or that can contaminate sewage sludge (US EPA 2011).

A publicly owned treatment facility is required to establish local pretreatment programs to control discharges from nondomestic sources. These programs must be approved by the Department of Ecology, which is also responsible for overseeing implementation and enforcement of the programs.

**Implemented by:** Environmental Protection Agency and Wastewater Facility Operators

State Scale – Washington State

**2014/2015 Action Agenda for Puget Sound:** Contains a number of recommended actions addressing municipal and on-site septic systems. Strategies for reducing pressures on Puget Sound from wastewater include efforts to prevent and control pollution from onsite sewage systems, wastewater treatment plants, and boats and vessels. They also include consideration of overarching approaches to promote watershed-based and integrated approaches to better manage the region's wastewater treatment needs (Puget Sound Partnership 2014).

**Implemented by:** Puget Sound Partnership

**United States Clean Water Act and/or Washington State Water Pollution Control Act:** In Washington State anyone discharging wastewater (including contaminated stormwater) must have a wastewater discharge permit (Washington State Department of Ecology 2015). There are different types of wastewater discharge permits:

- State Waste Discharge Permit: Required for discharges of wastewater to waters of the state, which includes groundwater. This permit is also required for industrial or commercial operators who discharge to a sewage system that discharges to state waters.
- NPDES/State Waste Discharge Permit: Required for a discharge of wastewater to surface waters of the United States. Authority to issue the permit has been delegated to the Washington State Department of Ecology.

Wastewater treatment plants must comply with effluent limits. Effluent limits are specific restrictions on the mass and concentration of certain pollutants discharged. Regulations require effluent limits to be either technology-based or water quality-based (US EPA 2015), whichever is more stringent:

- For municipal facilities (publicly owned treatment works or POTWs), technology-based effluent limits are derived from national secondary treatment standards.
- Water quality-based limits are based on compliance with water quality standards. Water quality-based effluent limits are set to be protective of factors, including human health, aquatic uses, and recreational uses. Washington has not adopted its own water quality criteria to protect human health; as a result, the federal human health criteria apply to Washington's waters. EPA is in the process of revising these standards. At the same time, Ecology has initiated rulemaking to amend the Water Quality Standards in order to add health criteria (Washington State Department of Ecology 2015).

**Implemented by:** Washington State Department of Ecology

**Washington State Combined Sewer Overflow Strategy:** Strategy developed to assist communities with CSOs to undertake improvements to address this problem (Washington State Department of Ecology 2015). Washington's rule allows an average of one combined sewer overflow per year per outfall. The state also has taken a flexible approach in the time allowed for communities to build their CSO control programs. Strategies for controlling CSOs include separation, storage or treatment of flows. More recently, cities have built green stormwater infrastructure – alone or in concert with other control strategies — as a cost effective approach for some CSO reduction projects.

**Implemented by:** Washington State Department of Ecology

**Reclaimed Water Rules:** Establishes rules and review process addressing the use of reclaimed water. Requires an evaluation to determine whether or not there is a potential to impair existing water rights when a wastewater facility decreases or stops its discharge to state waters and reclaims the water for a new beneficial use (such as irrigation).

**Implemented by:** Washington State Department of Ecology and Washington Department of Health

**Large On-Site Sewage Systems:** The Department of Health implements rules to regulate and permit large onsite sewage systems with flows between 3,500 and 100,000 gallons per day (Washington State Department of Ecology 2014). Requires annual operating permits. Requires protection of public health and the environment.

**Implemented by:** Washington Department of Health

**Small On-Site Sewage Systems:** Small on-site sewage systems, also known as septic systems, treat domestic sewage from private residences, restaurants, and other small-scale development, with peak flows below 3,500 gallons per day (Washington State Dept. of Health 2015). They are used extensively statewide in rural and suburban infill settings. The state OSS rule is adopted by the State Board of Health and administered by the State Department of Health. Local codes must be consistent with, and at least as stringent as the state laws. The rule sets standards for siting, designing, installing, operating and maintaining onsite sewage systems. Once systems are in use, onsite sewage system owners are responsible for operating, monitoring, and maintaining their systems to make sure they function properly. Rules also require counties along Puget Sound to prepare comprehensive plans to help ensure that systems are properly developed and managed. All 12 Puget Sound counties have developed local management plans and submitted them to the DOH for approval.

**Implemented by:** Washington Department of Health and local health officer

**Marine Recovery Areas:** Areas adjacent to Puget Sound that have pollution problems linked to on-site sewage systems (OSS) are called Marine Recovery Areas (King County 2015). State rules, Chapter 70.118A RCW, requires local health jurisdictions have enhanced OSS management programs for these areas to protect public health and Puget Sound water quality. As part of the enhanced program they must:

- Inventory and inspect all OSS in Marine Recovery Areas.
- Identify failing systems and ensure they are either repaired or replaced.
- Develop and maintain electronic data systems capable of sharing OSS information with other regulators.

Enhanced Management Areas are areas sensitive to pollution from OSS. These areas need an OSS inspection reporting program to protect public health and the environment. State rules, Chapter 246-272A-0015 WAC, requires local health jurisdictions (LHJs) to develop a written plan that provides guidance regarding development and management activities for all OSS within their jurisdiction.

Nine counties have designated one or more marine recovery areas.

**Implemented By:** Washington Department of Health and local health jurisdictions

### Local Scale - Regional and subregional policymaking in Washington State

Local jurisdictions are, in many cases, the operator of municipal wastewater systems. As such, municipal staff are responsible for meeting NPDES permit obligations. Jurisdictions also manage connections to municipal systems or conduct permit review for private development of large or small on-site systems.

Local jurisdictions, like King County's Industrial Waste Program, administer the pretreatment regulations for businesses, government entities and other facilities that discharge industrial wastewater to municipal sewage treatment plants.

There are a number of existing programs that focus on public outreach campaigns to reduce pollutants to wastewater systems or to encourage maintenance for private systems. As an example, EnviroStars is a program in which local governments in six Puget Sound counties provide assistance and incentives for small businesses to reduce hazardous materials and waste, in order to protect public health, municipal systems, and the environment (EnviroStars 2015).

### *Indigenous Peoples – United States*

Tribal governments are, in many cases, the operator of wastewater systems on tribal reservations. As such, tribal government staff are responsible for meeting NPDES permit obligations.

EPA directly implements the Clean Water Act on tribal lands. Tribes are eligible for delegation of certain CWA programs, and many tribes in Washington have been approved to implement CWA provisions. For example, the Lummi Nation has established water quality standards for surface water that are applicable to the Lummi Reservation. The EPA issues all NPDES permits on tribal lands.

### *Government/Non-Government Collaboration – United States*

In many cases, government and non-governmental agencies partner to provide public education and outreach materials related to wastewater management issues, including campaigns to minimize toxic pollutants entering the municipal sewer system, as well as maintenance of privately owned systems. An example is Puget Sound Starts Here which has materials addressing septic system maintenance (Puget Sound Starts Here, n.d.).

### *Non-Governmental Organizations – United States*

NGOs may be involved through various mechanisms, including advocacy and public outreach. The following are some examples:

**National Association of Clean Water Agencies:** National organization comprised of member municipal sewerage agencies and corporate affiliates that advocate on issues of water quality protection (National Association of Clean Water Agencies 2015).

**Washington On-Site Sewage Association:** Non-profit trade association serving the on-site wastewater industry (Washington On-Site Sewage Association 2015).

**Take Back Your Meds** is a group of organizations that support a statewide program for safe return and disposal of unused medicines to reduce access to addictive drugs, prevent poisonings, and reduce environmental contamination; it has a series of locations such as pharmacies where medicines can be dropped off (Take Back Your Meds 2015).

### Canada – Wastewater Management

Provincial, territorial and municipal governments have primary jurisdiction, though the federal government is involved in regulating effluent from wastewater treatment under the Fisheries Act. The federal government has jurisdiction over wastewater on federal lands and on First Nations reserves. Most wastewater treatment plants in the province use primary and secondary levels of treatment, and some also use tertiary treatments (Dore 2015). The core area of Victoria is currently only served by preliminary treatment (screening). Funding has been approved to develop a secondary treatment plant, with deadlines that the plant be constructed by 2020.

#### *Government Entities - Canada*

##### Federal Scale - Canada

**Fisheries Act:** Under the Water Systems Effluent Regulation, establishing national effluent quality standards for biological oxygen demand (BOD) and total suspended solids (TSS) that can be achieved through secondary wastewater treatment (Government of Canada 2014). Applies to a facility which collects an average daily volume of 100 m<sup>3</sup> or more of influent and discharges to surface water (e.g., river, stream, lake); regulations are phased in over time. The regulations also include requirements concerning toxicity, effluent monitoring, record-keeping and reporting. The WSER sets out the criteria and point scheme for establishing the risk rankings for wastewater systems needing upgrades as well as the timelines for upgrades. The WSER requires the recording and reporting on the quantity and frequency of combined sewer overflows.

These new regulations will require upgrades at two facilities in greater Vancouver, including the Lions Gate Wastewater Treatment Plant in North Vancouver and the Iona Island Wastewater Treatment Plant in Richmond.

In 2012 new authorities added to the Fisheries Act allow Canada to enter into equivalency agreements if provincial provisions are deemed to be equivalent in effect to federal provisions. In 2012 Canada and British Columbia signed an agreement to collaborate on wastewater management. The two parties are actively working towards an equivalency agreement that will clarify the roles and responsibilities for wastewater management in the province.

**Implemented By:** Fisheries and Oceans Canada and Environment Canada

**Canada-wide Strategy for the Management of Municipal Wastewater Effluent:** Endorsed by a majority of the members of the Canadian Council of Ministers of the Environment. The Strategy is designed to provide a harmonized framework to manage municipal wastewater discharges to surface waters with federal discharge criteria. It addresses combined sewer overflows and sanitary sewer overflows (Canadian Council of Ministers of the Environment 2014).

Provincial Scale – British Columbia

**British Columbia Environmental Management Act:** Authorizes municipal wastewater discharges to surface waters, groundwater, as well as reclaimed use of water (Environment 2015). The Municipal Wastewater Regulation establishes municipal effluent quality requirements on 1) the amount of treated wastewater that can be released into water bodies, and 2) the amount of biological oxygen demand (BOD) and total suspended solids (TSS) that can be present in treated water. The regulation applies to all discharges to the ground, sewer system or combination of sewer systems, and to water and to all uses of reclaimed water. It prohibits the discharge of non-domestic waste to a municipal wastewater facility unless the pre-discharge quality of the waste meets the standard or is within the range specified in the Hazardous Waste Regulation.

**Implemented By:** Ministry of Environment

Under the **Environmental Management Act**, local governments are required to develop a Liquid Waste Management Plan (LWMP) for approval by the Minister of Environment (Metro Vancouver 2010). The approved LWMP authorizes a local government, in accordance with operational certificates, to proceed with measures in the plan to accommodate existing or future development with a strategy to ensure the management, resource recovery and disposal of treated waste is sufficiently protective of public health and the environment.

The construction and expansion of combined sewers is not permitted under existing provincial regulation and existing combined sewers must be separated upon repair or renewal. Sanitary sewer overflows also must not occur at a frequency exceeding a 5-year return period, unless a liquid waste management plan is developed which commits to a long term management and reduction plan for overflows.

**Implemented By:** Ministry of Environment

- **British Columbia Public Health Act:** Addresses on-site Sewage Systems. The Sewage System Regulations address systems that process sewage flow of less than 22,700 liters per day (Ministry of Health 2015). The regulations establish performance standards for systems, requiring that systems do not cause or contribute to a health hazard. The regulations required applications be filed with the regional health authority. In addition, maintenance of the system is required; records are required to be kept to document maintenance.

**Implemented By:** Ministry of Health and regional health authority

Local Scale - Regional and subregional policymaking in British Columbia

Local municipalities and/or regional districts are often responsible for providing wastewater collection services under their Community Charter. As a result, many local municipalities have adopted bylaws that regulate discharge of waste into a sewer that is connected to a municipal sewer facility. These bylaws typically establish certain types of wastes that are prohibited or restricted.

Many local communities and/or regional districts with combined sewer outflows, such as Metro Vancouver, are also working to complete capital improvements to correct these problems. For example,

Metro Vancouver is working with municipalities to implement plans to prevent combined sewer overflows by 2050 for the Vancouver Sewerage Area and 2075 for the Fraser Sewerage Area.

### *Indigenous Peoples - Canada*

The federal government has the authority to regulate environmental threats on reserves, including wastewater discharges, except on reserves that have approved land codes under the First Nations Land Management Act, which are instead managed under local First Nation codes. If the First Nation does not have an approved land code, then wastewater standards noted above under the federal acts would apply.

The Federal Crown also has a fiduciary responsibility for building capacity and providing adequate resources to First Nations. In 2009, the Federal government launched the National Assessment of First Nations Water and Wastewater Systems in order to conduct a detailed assessment of existing public and private water and wastewater facilities operating on First Nation lands across the country.

Recommendations from the National Assessment were released in July 2011 and stated the need for a water and wastewater regulatory regime on First Nation lands. The following Act was approved as a response to this report:

**Safe Drinking Water for First Nations Act:** Requires effective treatment of wastewater, handling of biosolids, and other provisions (Government of Canada; Aboriginal Affairs and Northern Development Canada 2012).

In addition, the following would apply:

**Indian Reserve Waste Disposal Regulations:** Enacted under the Indian Act, these regulations establish permitting requirements for use of reserve land for the disposal or storage of waste (Government of Canada; Aboriginal Affairs and Northern Development Canada 2015).

### *Government/Non-Government Collaboration - Canada*

As part of their Liquid Waste Management Plans, many municipalities have established policies for collaborating with other governments, academic institutions and industry in research on wastewater treatment technology and stormwater management and associated demonstration projects, training and development of public outreach and educational materials.

### *Non-Governmental Organizations - Canada*

The construction of a secondary sewage treatment plant to serve the Victoria area has been contentious, with different organizations advocating for different solutions. As an example, **Responsible Sewage Treatment Victoria** (Responsible Sewage Treatment Victoria 2015) and **Association for Responsible and Environmentally Sustainable Sewage Treatment** (Association for Responsible and Environmentally Sustainable Sewage Treatment 2015) advocate for continuation of existing natural treatment system, with improved source controls and infrastructure upgrading.

In contrast, the **Georgia Strait Alliance**, the **T.Buck Suzuki Foundation**, and **Victoria Sewage Treatment Alliance** (Responsible Sewage Treatment Victoria 2015), are examples of non-governmental organizations advocating for the need for treatment. Environmental NGOs have also been involved in

the siting process. As an example, **Ecojustice** has tried to persuade the local municipality where the treatment plant would be located to permit the facility.

**People Opposed to Outfall Pollution** also works to raise awareness and financial support for issues associated with raw sewage outfalls in the greater Victoria region. Their mascot, Mr. Floatie, is used to raise awareness.

Other organizations have become involved in issues relating to combined sewer outflows. For example, T. Buck Suzuki has issued a report that addresses sewage from combined sewer outflows occurring in Greater Vancouver (Lane, n.d.).

### Transboundary Policymaking – Wastewater Management

The issue of Victoria's wastewater treatment has sparked written exchanges between elected officials in Washington State and members of the Province of BC government (Meissner 2015).

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**WATER QUALITY,  
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### 3.15 WATER QUALITY, QUANTITY AND RESTORATION

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Salish Sea is impacted by a number of different pollutants that enter the water from different sources, including freshwater resources that drain into the marine environment. These pollutants include human and animal wastes, fertilizers, pesticides, and toxic chemicals that run off pavement during storms and are discharged from industrial facilities. These pollutants can harm aquatic life, and also pose several health and safety problems to humans.

Despite the efforts underway on both sides of the border, many sources continue to release contaminants to the water, air, and lands of the Salish Sea. Contaminants of concern for the Salish Sea include excess nutrients, pathogens, sediments, and toxic chemicals (US EPA Region 10 2015). Human-caused releases of excess nutrients, pathogens, and sediments can harm aquatic life and the human uses of fresh and marine waters. One resulting concern is lack of dissolved oxygen, which can result from an excess supply of organic material from natural and human-made sources (such as discharges from wastewater treatment plants and septic systems, and stormwater runoff). Another concern is the presence of toxic chemicals (e.g., pesticides, industrial chemicals), which when released to the Salish Sea can be harmful to aquatic life and humans. Additional contaminants of emerging concern, such as those from pharmaceutical waste, personal care products, and plastic pollution, may also be important toxic threats, although much less is known about the exposures and effects of those contaminants.

In addition to pollution, water quantity is becoming an increasing concern, particularly with the threat of climate change. Lower summer flows are being observed in area streams and rivers, which affects salmon runs, wildlife, and residential, agricultural and industrial water supplies (US EPA Region 10 2015).

This is a brief overview of some of the key water quality and quantity issues. Though both governments have legislation in place to address water management, there are significant differences in the approaches used in the respective countries. Indigenous communities also have different relationships and roles with respective federal governments. With respect to water governance, both nations, particularly at the subnational level, appear to be increasingly incorporating more integrated and collaborative governance approaches.

The following discussion outlines some of the key laws, policies, and political actors involved in governing water quality and quantity. Discussion has been grouped into the following general categories: General Water Quality Issues, Point and Non-Point Source Pollution, Drinking Water, Groundwater, and Water Quantity. Protection of freshwater resources such as wetlands and streams will be addressed under a separate section. Similarly, protection of marine and nearshore areas will be addressed under a separate section. The breakout of these different sections is guided by some of the different legislative mechanisms, but it is important to recognize that there are important overlaps and synergies between these issues.

#### Water Quality Standards

Water quality standards are risk-based requirements which set site-specific allowable pollutant levels.

*United States – Water Quality Standards*

Government Entities – Water Quality Standards - United States

*Federal Scale – Water Quality Standards - United States*

**Key Policies and Laws**

**United States Clean Water Act:** Under the Clean Water Act and its amendments, states were required to establish numeric water quality standards, which are ambient water quality criteria that would provide for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water (referred to as the fishable/swimmable clause) (Washington State Department of Ecology 2015a). Washington State has established water quality criteria for the following parameters: temperature, dissolved oxygen, total dissolved gas (does not apply to marine waters), pH, turbidity, bacteria, nutrients, toxics, radioactive substances, as well as other narrative criteria.

Section 303(d) of the Clean Water Act established a process to identify and clean up polluted waters. Every two years (alternating between fresh and marine waters), all states are required to perform a *water quality assessment* of the quality of surface waters in the state, including all the rivers, lakes, and marine waters where data were available. Section 303(d) of the Clean Water Act established a process to identify and clean up polluted waters. Washington State completed its water quality assessment of marine waters in 2012. (Note: How to include ocean acidification in the marine water quality assessment has been a significant issue – the EPA is currently researching this issue). An update to the freshwater standards is in process. One of the key issues that has arisen is the establishment of human health criteria for water quality. EPA has yet to approve Washington State's human health criteria.

From this assessment, waters whose beneficial uses – such as for drinking, recreation, aquatic habitat, and industrial use – are impaired by pollutants are placed in the [polluted water](#) category on the water quality assessment. These water bodies fall short of state [surface water quality standards](#) and are not expected to improve within the next two years. The *303(d) list*, so called because the process is described in Section 303(d) of the Clean Water Act, comprises waters in the polluted water category.

Waters placed on the 303(d) list require the preparation of a water cleanup plan, like a total maximum daily load (TMDL) or [other approved water quality improvement projects](#). The TMDL identifies how much pollution needs to be reduced or eliminated to achieve clean water. It identifies the maximum amount of a pollutant to be allowed to be released into a water body so that the beneficial uses of the water are not impaired. The TMDL allocates that amount of the pollutant among various sources.

A TMDL approach may also designate Best Management Practices (BMPs) to reduce pollutant loads. (Note: Ecology has submitted a new 303(d) list for freshwater to EPA for review; the new list would increase the number of listings).

**Implemented by:** Washington State Department of Ecology and United States Environmental Protection Agency

*State Scale – Water Quality Standards – Washington State*

**Key Policies and Laws**

**Washington State Water Pollution Control Act:** The state of Washington Department of Ecology, Water Quality Program, is delegated by the U.S. EPA as the state water pollution control agency, responsible for implementing all federal and state water pollution control laws and regulations (Washington State Department of Ecology 2015). Under this authority, Washington State establishes water quality standards, completes water quality assessments, and creates Total Maximum Daily Load (TMDL) plans.

Note: Washington State is in the process of updating its water quality standards to comply with Clean Water Act requirements. Specifically, revisions will address Clean Water Act human health water quality criteria applicable to waters under the state of Washington's jurisdiction to ensure that the criteria are set at levels that will protect fish consumers in Washington from exposure to toxic pollutants.

**Implemented by:** Washington State Department of Ecology

*Local Scale – Water Quality Standards - Regional and subregional policymaking in Washington State*

Local jurisdictions are involved in implementing the best management practices (BMPs) that come out of a NPDES permit for stormwater facilities or a Total Maximum Daily Load (TMDL) reduction plan (Washington State Department of Ecology 2015). One of the main areas that are addressed for municipalities includes stormwater. Jurisdictions may also receive grant funding from EPA to help integrate BMPs that prevent or mitigate pollution.

Indigenous Peoples – Water Quality Standards - United States

Federally recognized tribes can administer the Clean Water Act's water quality standards (WQS) program on Tribal Land. With an approved WQS program, an Indian tribe can set the water quality goals for all surface waters (e.g., streams, rivers, lakes, and wetlands) on the reservation. The tribe will also determine whether activities located on reservation lands which require a federal license or permit are consistent with the tribe's WQS. Under the Water Quality Standards program, authorized tribes can set the water quality goals for all surface water sources on the reservation (US EPA, OW. 2015c). Several tribes in the Salish Sea region have set their own standards, including the Lummi Nation and Port Gamble S'Klallam Tribe (US EPA, OW. 2015a).

**Other:**

Washington State Tribes have been active in advocating for stricter water quality standards within Washington State. One of the variables used to calculate ambient water quality criteria is fish consumption rate, an estimated average of the amount of fish eaten in a given area. Tribes are arguing that in the Pacific Northwest, fish consumption can be high among tribal members. Washington State still uses an old(er) value of 6.5 g/day. In contrast, in Oregon, the standard has been set at 175 g/day. Governor Inslee recently approved an increase to 175 g/day, but also increased the risk of getting cancer from water pollution, which effectively cancelled out the benefit of the modified fish consumption rate (Northwest Indian Fisheries Commission 2015).

A partnership of tribes and environmental groups have threatened to sue Washington State for not enforcing the Clean Water Act concerning this issue. They have also asked EPA to step-in and enact new water quality rules for the state.

Tribes have also been involved in a number of multi-party programs, discussed below.

### Government/Non-Government Collaborations – Water Quality Standards - United States

**National Water Quality Monitoring Council:** Provides forum for bringing together diverse expertise needed to develop collaborative, comparable, and cost-effective approaches for monitoring and assessing water quality. The Council brings together scientists, managers, and citizens to ensure information about the quality of our water resources is accurate, reliable, and comparable. The Council fosters collaborative and cost-effective approaches to improve and advance the science of water-resources monitoring. The Council is chartered as a subgroup of the Advisory Committee on Water Information (ACWI).

**Water on the Web:** Web resource designed by universities, private industry, community and tribal groups, as well as high schools, community colleges, technical colleges, and natural resource and regulatory agencies across the nation.

### Non-Governmental Organizations – Water Quality Standards - United States

The Clean Water Act allows citizen suits. Under the CWA, a citizen can bring a civil action against any person who violates any effluent standard or any limitation under the Act. Citizens can also sue to force EPA to carry out any non-discretionary duty under the CWA. This mechanism has been used by NGOs to pressure enforcement of the CWA.

NGOs working with Tribes to advocate for changes to the water quality standards include:

- Spokane Riverkeeper
- Columbia Riverkeeper
- Puget Soundkeeper Alliance
- North Sound Baykeeper,
- The Institute for Fisheries Resources, and
- Pacific Coast Federation of Fishermen's Associations

### *Canada – Water Quality Standards*

### Government Entities – Water Quality Standards - Canada

#### *Federal Scale – Water Quality Standards - Canada*

While most direct water related activities fall under the jurisdiction of provinces and territories, federal lands, boundary and transboundary waters, ocean and inland fisheries, and commercial navigation are exceptions that fall within federal jurisdiction. It has enacted laws dealing with the prevention of water pollution: the Canadian Environmental Protection Act, 1999 (CEPA 1999), the Fisheries Act, the Canada Water Act, and the Canada Shipping Act.

**Canadian Water Quality Guidelines:** Contains guidelines for the protection of freshwater life, marine water quality, agricultural water uses for irrigation and livestock, raw water for drinking water supply, recreational water quality and aesthetics, and industrial water supplies. Note: These guidelines are developed by the Canadian Council of Ministers for the Environment, and are intended to serve as guidelines for harmonization across the provinces and territories; as a result, the guidelines may be modified due to specific, local context.

These WQGs are derived for the protection of four major water uses, including:

- Drinking water supply;
- Recreational use and aesthetics;
- Freshwater and marine aquatic life and wildlife; and,
- Agricultural water uses (irrigation and livestock watering).

The water quality guidelines relating to recreational use include the following parameters: microbiological, chemical temperature, clarity, pH, turbidity, oil and grease, aesthetics, aquatic plants, and nuisance organisms.

Guidelines for the protection of aquatic life are effluent based; for most water quality variables, a single maximum value, which is not to be exceeded, is recommended, based on a long-term no-effect concentration.

**Implemented by:** Environment Canada

**Canada Water Act:** Aims to ensure that water issues of national significance are conserved, developed and managed. It enables the federal government to collect data, conduct research, and undertake cooperative arrangements with the provinces with respect to the comprehensive planning of water resources (Government of Canada 2015).

**Implemented by:** Environment Canada

*Provincial Scale – Water Quality Standards – British Columbia*

**Water Quality Guidelines and Objectives:** In Canada, governments use various measures to protect water quality, among them guidelines and objectives. The two measures are similar in that both describe how much of a substance is allowed within a water source, but the guidelines and objectives are arrived at and applied differently (Ministry of Environment 2013). In essence, the water quality guidelines have broad application throughout the province, but in areas where they may not be appropriate (e.g. either under-protective or over-protective) they can be modified as water quality objectives.

**Guidelines** - Water quality guidelines are scientifically determined and indicate the maximum allowable concentration of substances for a *particular water use* such as livestock watering or swimming. These guidelines serve as the targets for environmental protection. Guidelines are established for both long-term average and short-term maximum exposures.

In British Columbia, water quality guidelines have been established for over 40 substances and parameters and for different water uses, including: drinking water, recreation, aquatic life, wildlife and agriculture. (Note: There is a larger list of substances that are covered under working water quality guidelines and are used with caution because of the lack of more specific and recent studies). In BC, the definition of water quality include the sediments, therefore WQG documents may include sediment quality values. The Guidelines do not have legal standing, but they are considered in any decision affecting water quality in order to determine allowable waste discharge limits.

*Objectives* - Water quality objectives, on the other hand, specify the concentrations of substances permissible for all intended water uses at a *specific location* on a lake, river, or estuary. The objectives are based on the water quality guidelines for the uses at that location, as well as on public input and socio-economic considerations.

Water quality objectives are typically only established if the existing background concentration of a given variable exceeds the British Columbia water quality guideline.

Water quality objectives have been established by region. In the South Coast Region, water quality objectives have been established for Boundary Bay, Coquitlam and Pitt Rivers, Desolation Sound, False Creek, Fraser River, Okeover Inlet, Pender Harbor, and Sechelt Inlet. Water quality objectives have also been established for several areas in the West Coast region, including several areas on Vancouver Island (e.g. Cowichan Lake, Comox Lake, etc.). For each of these areas, an objective report has been created which includes a waterbody's water uses, impacts to water quality, water quality assessments, rationale for recommended water quality objectives values, and a recommended monitoring program. Water quality objectives in different areas can address varying water uses and therefore have different substances and parameters of concern.

Water quality objectives (WQOs) have no legal standing at this time and, therefore, are not enforced directly. Instead, WQOs are often used in the permitting and licensing processes in the region. For example, the discharges of contaminants into surface water systems are regulated through permits and authorizations issued under the BC Environmental Management Act.

In addition, decisions on the need for habitat restoration and other remedial actions may be based, in part, on the WQOs. Water quality objectives are usually a starting point for conducting water quality assessments and determining the acceptability of project proposals.

**Implemented by:** British Columbia Ministry of the Environment

**Water Sustainability Act:** Section 43 provides authority to establish objectives in a regulation to provide a more consistent approach to considering water in natural resource decisions and local government planning. The objectives would support decision making to help reduce impacts to and to help sustain water quantity, water quality and aquatic ecosystems. Regulations are still under development.

**Implemented by:** British Columbia Ministry of the Environment

**British Columbia Fish Protection Act:** The Act authorizes the designation of sensitive streams for managing land use and development that impacts fish habitat. Sensitive Stream designation will ensure that fish have enough water to survive. Recovery plans, an essential tool of the Fish Protection Act, may be required on Sensitive Streams that are unable to rehabilitate naturally. Based on public consultation and scientific information, streams across the province will be identified that warrant special management attention because of risk to fish populations due to inadequate water flows and other habitat concerns. Plans for the protection and recovery of fish in sensitive streams are to be developed co-operatively with interested stakeholders.

*Local Scale – Water Quality Standards - Regional and subregional policymaking in British Columbia*

**Area-Specific Studies:** A number of area-specific studies have been completed, establishing water quality objectives or conducting water quality monitoring. An example of one of these studies is the

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

Fraser River Action Plan (FRAP) (Ministry of Environment 2015). The development of this plan involved a wide array of partners. Results of FRAP include the protection of wild bird habitat; a reduction in the release of toxic wood preservatives; and the implementation of best management practices and pollution prevention plans in many business and industry sectors. Following the end of FRAP, the [Fraser Basin Council](#), a long-term and broadly representative nongovernmental organization, was established to continue to promote water quality and other issues.

### Indigenous Peoples – Water Quality Standards - Canada

The federal water quality guidelines may apply to decisions about development activities on reserve lands.

As part of the process to establish a new Water Sustainability Act, First Nations have advocated for greater involvement in the establishment of new water objectives that will be used in making land use decisions.

### Government/Non-Government Collaborations – Water Quality Standards - Canada

The provincial government works with the private sector and supports communities to conserve and restore stream function, for example:

- Coordinating conservation and watershed restoration efforts through processes such as watershed-based fish sustainability planning.
- Implementing watershed and habitat restoration projects through the Living Rivers Trust Fund, Habitat Conservation Trust Fund, and other partnerships.

### Non-Governmental Organizations – Water Quality Standards - Canada

There are numerous NGOs advocating for water quality issues in BC.

**British Columbia Living Water Smart:** Many NGOs were involved in advocating for changes to BC water laws. Prior to its adoption, the following organizations submitted a statement of expectations on reform ("STATEMENT OF EXPECTATIONS on Reform of the BC Water Act from BC Nongovernmental Organizations," n.d.) of the BC Water Act:

- Alouette River Management Society
- B.C. Federation of Drift Fishers
- BC Nature (Federation of BC Naturalists)
  - Burns Bog Conservation Society
- Burke Mountain Naturalists
- Canadian Parks and Wilderness Society
- David Suzuki Foundation
- Ecojustice
- Environmental Law Centre, University of Victoria
- Fraser River Coalition
- Georgia Strait Alliance
- North Shore Wetland Partners

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- Pacific Streamkeepers Federation
- POLIS Water Sustainability Project
- Raincoast Conservation Foundation
- Salmon River Enhancement Society
- Shuswap Environmental Action Society
- Sierra Club BC
- Skeena Watershed Conservation Coalition
- Smart Growth BC
- Squamish River Watershed Society
- Steelhead Society of British Columbia
- T. Buck Suzuki Environmental Foundation
- The Pembina Institute
- WA:TER (Wetland Alliance: The Ecological Response)
- Watershed Watch Salmon Society
- West Coast Environmental Law Association
- Wilderness Committee
- WWF-Canada

### *Transboundary Policymaking – Water Quality Standards*

There are no agreements in place that harmonize water quality standards in the Salish Sea.

### Water Pollution Prevention: Point Sources (Land-based)

#### *United States – Water Pollution Prevention (Point Source)*

#### Government Entities – Water Pollution Prevention (Point Source) – United States

#### *Federal Scale – Water Pollution Prevention (Point Source) – United States*

**United States Clean Water Act:** The Clean Water Act prohibits any person from discharging a pollutant from a point source into "Waters of the United States" without a National Pollution Discharge Elimination System (NPDES) permit (Sachar and Currey n.d.). The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. "Point source" is defined very broadly to include any "discernible, confined and discrete conveyance," including, for example, any pipe, ditch, channel, tunnel, conduit, well, or container from which pollutants are or may be discharged. Typical point source discharges include discharges from publicly owned treatment works (e.g. wastewater treatment plants or POTWs), discharges from industrial facilities, and stormwater discharges. "Waters of the United States" includes navigable waters, tributaries of navigable waters, interstate waters, and interstate lakes, rivers and streams.

The definition has been interpreted to include virtually all surface waters in the United States, including wetlands and ephemeral streams. As a general matter, groundwater is not considered a water of the United States; therefore, discharges to groundwater are not subject to NPDES requirements. If, on the other hand, there is a discharge to groundwater that has a "hydrological connection" to a nearby surface water, the discharger may be required to apply for an NPDES permit because the discharge is then considered a water of the United States. States may choose to require NPDES permits for discharges to groundwater; jurisdiction over groundwater resources is maintained by States.

Pollutant contributions to waters of the United States may come from both direct and indirect sources. Direct sources discharge wastewater directly into the receiving water body, whereas indirect sources discharge wastewater to a POTW, which in turn discharges into the receiving water body. Under the national program, NPDES permits are issued only to direct point source discharges. Industrial and commercial indirect dischargers are addressed by the National Pretreatment Program.

(Note: NPDES regulations exclude irrigated agriculture and agricultural stormwater runoff from the universe of entities requiring permit coverage. Discharges from concentrated animal feeding operations, concentrated aquatic animal production facilities, and silviculture, as well as discharges to aquaculture projects are not excluded from permitting requirements).

Different types of permits are issued allowing a facility to discharge a specified amount of pollutant into a receiving body, including an individual permit (tailored to an individual facility) and a general permit (for a facility within a category).

Effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters. Effluent limits are specific restrictions on the mass and concentration of certain pollutants discharged. Regulations require effluent limits to be either technology-based or water quality-based, whichever is more stringent:

- Technology-based effluent limits require a minimum level of treatment of pollutants for point source discharges based on available treatment technologies, while allowing the discharger to use any available control technique to meet the limits. Effluent limitations guidelines and standards for approximately 50 industries have been established by EPA (e.g., metal finishing facilities, steam electric power plants, iron and steel manufacturing facilities).
- Water quality-based limits are based on compliance with water quality standards. Water quality-based effluent limits are set to be protective of factors, including human health, aquatic uses, and recreational uses. Washington has not adopted its own water quality criteria to protect human health; as a result, the federal human health criteria apply to Washington's waters. EPA is in the process of revising these standards. At the same time, Ecology has initiated rulemaking to amend the Water Quality Standards in order to add health criteria.

Where a watershed is listed as impaired (e.g. on the Section 303d list), NPDES permits may need to reflect the results of completed Total Maximum Daily Load plans.

Under 403, any discharge to the territorial seas or beyond must comply with Ocean Discharge Criteria, including guidelines for determining degradation of waters.

**Implemented by:** Washington State Department of Ecology and United States Environmental Protection Agency

**National Pretreatment Program:** The General Pretreatment Regulations under the Clean Water Act establish responsibilities among federal, state, and local government; industry; and the public to implement pretreatment standards to control pollutants that pass through or interfere with publicly owned treatment facility processes or that can contaminate sewage sludge.

The publicly owned treatment facility is required to establish local pretreatment programs to control discharges from nondomestic sources. These programs must be approved by the Department of Ecology, which is also responsible for overseeing implementation and enforcement of the programs.

**Implemented by:** Environmental Protection Agency and Wastewater Facility Operators

### **Stormwater Specific**

**United States Clean Water Act:** The NPDES Stormwater Program regulates stormwater discharges from three potential sources: municipal separate storm sewer systems (MS4s), construction activities (greater than one acre in size), and industrial activities. Most stormwater discharges are considered point sources, and operators of these sources may be required to receive an NPDES permit before they can discharge. This permitting mechanism is designed to prevent stormwater runoff from washing harmful pollutants into local surface waters such as streams, rivers, lakes or coastal waters. Washington State is authorized to implement the NPDES Stormwater Program and administer their own stormwater permitting programs.

The provisions noted above apply to the NPDES permitting. Best management practices (BMPs) have been developed to reduce stormwater pollution and are incorporated into NPDES permits.

**Implemented by:** Washington State Department of Ecology and United States Environmental Protection Agency

### *State Scale – Water Pollution Prevention (Point Source) – Washington State*

**Washington State Water Pollution Control Act:** The state of Washington, Department of Ecology, Water Quality Program, is delegated by the U.S. EPA as the state water pollution control agency, responsible for implementing all federal and state water pollution control laws and regulations. As the pollution control agency, the Department of Ecology issues NPDES permits. There are two types of NPDES permits: general (which address a class of activities and establishes a standard set of permit requirements) and individual (which are permits tailored to a specific discharge at a specific location).

Washington State issues general permits for the following point source discharges:

- Aquatic Pesticides
- Boatyards
- Bridge and Ferry Terminal Washing
- Concentrated Animal Feeding Operation (CAFO)
- EPA Vessel General Permits (addresses ballast water, from the normal operation of commercial vessels greater than 79 feet in length and operating as a means of transportation. Presently, there is a moratorium in place on regulating discharges from commercial vessels smaller than 79 feet, but starting in 2017 they must also be covered under an NPDES permit. Recreational vehicles are exempt from the NPDES permitting requirement)
- Fresh Fruit Packing

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- Sand and Gravel
- Stormwater (which includes construction activities, municipal stormwater, industrial stormwater, sand and gravel operations, and Washington State Department of Transportation stormwater)
- Upland Fin-Fish
- Vessel Deconstruction
- Water Treatment Plants
- Winery

Other discharges would require individual permits (Washington State Department of Ecology 2015).

**Implemented by:** Washington State Department of Ecology

*Local Scale – Water Pollution Prevention (Point Source) – Regional and subregional policymaking in Washington State*

Washington State issues NPDES permits to local municipalities for their stormwater discharges (Washington State Department of Ecology 2015). The permits include requirements for local jurisdictions to inventory stormwater facilities; inspect and maintain facilities; reduce pollutants at their sources; conduct public education; report NPDES permit compliance, and apply protective design standards to new development of impervious surfaces. The permits may also address requirements for water quality monitoring and retrofits of existing facilities.

Reissued Municipal Stormwater Permits under the NPDES permit program will require local jurisdictions to include Low Impact Development (LID) requirements in local codes, ordinances, and standards. LID is a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices (BMPs) that are integrated into a project design.

Local ordinances can supplement federal and state law. Planning and development codes and regulations can provide authority to address NPS pollution. For example, critical area ordinances can provide protection to critical areas that have a nexus with water quality.

Also, local solid waste regulations, illicit discharge ordinances, and animal or pet waste disposal ordinances all address NPS.

Local municipalities are also working together to share information and resources. For instance, the **Stormwater Outreach for Regional Municipalities** (STORM) is a coalition of more than 60 municipal stormwater permittees in the Puget Sound region. These counties and cities work collaboratively to deliver relevant, vetted, coordinated stormwater messages and social marketing to the region.

Indigenous Peoples – Water Pollution Prevention (Point Source) – United States

EPA is authorized to treat eligible federally-recognized Indian tribes in a similar manner as a state for implementing and managing certain environmental programs, including the NPDES program (US EPA 2015). Authorized Tribes may also establish their own laws to regulate discharges.

In addition, Tribal governments are required to be consulted on projects requiring NPDES permits.

Government/Non-Government Collaborations – Water Pollution Prevention (Point Source) – United States

**Washington Stormwater Center:** Serves NPDES permittees and stormwater by providing tools for stormwater management and supporting municipalities, stormwater permittees, and businesses in their efforts to control stormwater and protect water quality.

Non-Governmental Organizations – Water Pollution Prevention (Point Source) – United States

A number of non-governmental organizations, among them Puget Soundkeeper Alliance and People for Puget Sound, have been involved in legal challenges to Washington State's issuance of a General Permit addressing stormwater systems under the National Pollutant Discharge Elimination System. The issues being challenged focused on existing developed land uses and whether permittees should be required to develop a retrofit program to address impacts from stormwater releases, as well as require incorporation of low impact development techniques into local development codes. The issue was heard before the Pollution Control Hearings Board, who ultimately required the permit to be revised to address more specifically incorporation of low-impact development techniques.

*Canada – Water Pollution Prevention (Point Source)*

Government Entities – Water Pollution Prevention (Point Source) – Canada

*Federal Scale – Water Pollution Prevention (Point Source) – Canada*

**Canadian Environmental Protection Act (CEPA):** CEPA is Canada's main federal law to protect the environment (Blakes 2015). With respect to water resources, CEPA empowers the federal government to create and enforce regulations regarding toxic substances, fuels, and nutrients from cleaning products. CEPA enables the federal government to undertake environmental research, develop guidelines and codes of practice, and conclude agreements with provinces and territories. Under this Act, Environment Canada maintains a list of substances that are considered toxic under the Act. The Government of Canada has the authority to regulate and authorize other instruments to prevent or control the use and/or release of these substances. This can include establishment of regulations that create effluent limits for different substances. It can also include the development of pollution prevention plans or, in some cases, the prohibition of a substance for use, sale or import. For instance, CEPA 1999 prohibits the manufacture for use, sale or import of a cleaning product or water conditioner that contains a prescribed nutrient in a concentration or quantity that exceeds the regulated limit; this provision regulates the level of phosphates in laundry detergent. CEPA 1999 cannot be used to regulate sources of nutrients already regulated under other federal Acts that provide sufficient protection of the environment.

**Implemented by:** Environment Canada

**Canada Fisheries Act:** Protects fish populations that have First Nations cultural significance and economic opportunity. (Note: Recent changes under Bill C-38 limited application of the provisions of this Act to certain fish populations) (Blakes 2015).

Under the act, it is an offence for anyone to deposit or permit the deposit of any type of deleterious substance in water frequented by fish without a permit or under a regulation, unless the deposits are of a type, quality, or concentration authorized by regulation (Government of Canada 2015). Deleterious substances can include industrial effluent and municipal sewage discharges, as well as bunker oil, ammonia, sewage, gravel, wood preservatives (such as tetrachlorophenol and pentachlorophenol), and diesel fuel. The Act also imposes a duty to report any deposit of a deleterious substance, or any serious and imminent danger of such a deposit.

The Act imposes reporting requirements.

**Implemented By:** Environment Canada and Canada Department of Fisheries and Oceans

**Navigation Protection Act:** Prohibits the unauthorized construction or placement of a “work” on, over, under, through or across any navigable waters that are listed in a schedule to the Act. This list includes Canada’s major rivers, lakes and the three oceans it borders (Blakes 2015). Where a project falls into the definition of “work” and is on a prescribed water body, the federal government must approve it before it is undertaken. Work includes the dumping of fill or excavation of materials from the bed of a navigable water.

**Implemented by:** Transport Canada

*Provincial Scale – Water Pollution Prevention (Point Source) – British Columbia*

**British Columbia Environmental Management Act:** Regulates industrial and municipal waste discharge, pollution, hazardous waste, and contaminated site remediation. This Act requires a waste discharge permit to be issued to introduce waste to the environment (Blakes 2015). Only introductions of waste from “prescribed” industries, trades, businesses, operations and activities require authorization. Industries, trades, businesses, operations and activities are “prescribed” in the Waste Discharge Regulation. If an industry, trade, business, activity or operation is not “prescribed” by the regulation, it does not require an authorization to introduce waste into the environment; however, the discharge must not cause pollution. Examples of prescribed industries include the following:

- Concrete and concrete products industry
- Fruit and vegetable industry.
- Pulp mills,
- Mines and smelters.

**Implemented by:** British Columbia Ministry of the Environment

**Water Sustainability Act:** This Act, which comes into effect in 2016, will provide additional protection to the current Environmental Management Act and associated Waste Discharge Regulation for streams and aquifers by prohibiting dumping of debris and creating associated penalties (Province of British Columbia 2015).

**Implemented by:** British Columbia Ministry of the Environment

*Local Scale - Water Pollution Prevention (Point Source) – Regional and subregional policymaking in British Columbia*

Local municipalities are responsible for managing stormwater. They operate and maintain the storm sewer systems that carry stormwater from private property to the nearest waterway.

This responsibility includes:

- Enacting bylaws that encourage more natural drainage in new developments
- Sweeping streets and cleaning storm drains
- Maintaining creeks and watercourses, and improving habitat for aquatic life
- Monitoring stormwater quality and quantity
- Education programs (e.g. marking storm drains with yellow fish to remind residents that materials dumped into storm drains can kill fish and damage habitat)

**Liquid Waste Management Plans:** Under the Environmental Management Act, stormwater systems operated by local governments must be authorized under a Liquid Waste Management Plan; Liquid Waste Management Plans usually also include an Integrated Stormwater Management Plan (British Columbia Ministry of Water, Land and Air Protection 2002). (If the stormwater plan is developed separately, the Liquid Waste Management Plan is still required to summarize the plan). The degree to which stormwater is addressed will vary from community to community.

Stormwater planning has increasingly become more integrated, resulting in the term Integrated Stormwater Management Plan (ISMP), which addresses how land use planning tools are incorporated into stormwater planning. ISMP includes similar concepts to the Low Impact Development (LID) approaches now required as part of NPDES permits in Washington State.

The stormwater management plan should be linked to other LWMP initiatives, so that activities such as source control and education programs can be coordinated. In the absence of a separate stormwater management plan, the LWMP should incorporate, as a minimum, a commitment to initiate stormwater management planning with a proposed budget and schedule. Stormwater management tools include land use and zoning restrictions, cluster developments, limits on effective impervious area, control of construction activities, public and private sector education, source control programs, requirements for treatment of industrial or commercial runoff, changes to local government operation and maintenance procedures, and supporting bylaws.

**Stormwater Interagency Liaison Group:** Provides interagency forum for coordination on stormwater issues throughout Metro Vancouver.

**Community Charter:** The Act provides a legal framework for municipalities to identify and meet community needs. Of particular significance in relation to water management is the authority to establish bylaws in “spheres of concurrent authority” such as protection of the natural environment and protection of public health (Blakes 2015).

**Local Government Act:** The Act sets out the corporate authority of various types of local governments (municipalities, regional districts, improvement districts, etc.). From the perspective of water management, of greatest significance are powers and responsibilities relating to land use, growth, infrastructure (e.g. storm water management), works, and similar matters (Blakes 2015).

#### Indigenous Peoples – Water Pollution Prevention (Point Source) – Canada

First Nations must be consulted if a decision or activity that has the potential to affect Indigenous interests or treaty rights.

#### Government/Non-Government Collaborations – Water Pollution Prevention (Point Source) – Canada

See Water Quality Preservation and Restoration section below.

#### Non-Governmental Organizations – Water Pollution Prevention (Point Source) – Canada

See Water Quality Preservation and Restoration section below.

#### *Transboundary Policymaking – Water Pollution Prevention (Point Source)*

See Water Quality Preservation and Restoration section below.

#### Water Pollution Prevention: Non-Point Sources (Land-based)

##### *United States – Water Pollution Prevention (Non-Point Source)*

#### Government Entities – Water Pollution Prevention (Non-Point Source) – United States

*Federal Scale – Water Pollution Prevention (Non-Point Source) – United States*

#### **Primary Laws and Policies**

##### ***General***

**Clean Water Act:** The CWA delegates non-point source pollution to each State (Washington State Department of Ecology 2015). Nonpoint source pollution (NSP) can include:

- Excess fertilizers, herbicides and insecticides from agricultural lands and residential areas
- Oil, grease and toxic chemicals from urban runoff and energy production
- Sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks

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- Bacteria and nutrients from livestock, pet wastes and faulty septic systems

Congress established the NPS Pollution Management Program under section 319 of the amendments. The program provides states, territories, and tribes with grants to implement NPS pollution controls described in approved NPS pollution management programs.

The State Revolving Fund Program (CWSRF) has been established as part of the Clean Water Act. The CWSRF supports a variety of water quality projects, including NPS BMP implementation projects, on-site septic system projects, stormwater projects, and wastewater facility projects.

**Implemented by:** United States Environmental Protection Agency and Washington State Department of Ecology

**Coastal Zone Management Act:** Under the CZMA, states that want to continue to receive full federal funding for their coastal zone management programs must adopt a coastal non-point source pollution control program. The programs are intended to encourage land use practices and better management of critical coastal areas to stop degradation of coastal waters (Washington State Department of Ecology. 2015).

In its program, a state or territory describes how it will implement nonpoint source pollution controls, known as management measures, that conform to those described in Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters.

Washington State's Final Plan has not been authorized, but in July 2015 the State released the Water Quality Management Plan to Control Nonpoint Sources of Pollution.

**Implemented By:** United States National Oceanic and Atmospheric Administration (NOAA)

**Safe Drinking Water Act:** Main federal law that ensures the quality of Americans' drinking water. Under SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. Local jurisdictions may limit activities near drinking water sources.

As it relates to NPS, under the Sole Source Aquifer Protection Program, federally financially-assisted projects in areas where a sole or principal source aquifer has been identified are subject to additional federal review by EPA (Washington State Department of Ecology. 2015).

**Implemented By:** United States Environmental Protection Agency and Washington Department of Health

### Agriculture Specific

**Soil and Water Resources Conservation Act:** Provides the United States Department of Agriculture (USDA) broad strategic assessment and planning authority for the conservation, protection, and enhancement of soil, water, and related natural resources (US Department of Agriculture Natural Resources Conservation Service 2015).

Through RCA, USDA:

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- Appraises the status and trends of soil, water, and related resources on non-Federal land and assesses their capability to meet present and future demands;
- Evaluates current and needed programs, policies, and authorities; and
- Develops a national soil and water conservation program to give direction to USDA soil and water conservation activities.

**Implemented By:** United States Department of Agriculture Natural Resources Conservation Service

**Federal Farm Bills:** The 2014 Farm Bill funds several conservation programs that can benefit agricultural producers and forest landowners along with the environment. Additionally, the 2014 Farm Bill re-linked highly erodible land conservation and wetland conservation with eligibility for premium support paid under the federal crop insurance program (Washington State Department of Ecology. 2015).

**Implemented By:** United States Department of Agriculture Farm Service Agency and United States Department of Agriculture Natural Resources Conservation Service

*State Scale – Water Pollution Prevention (Non-Point Source) – Washington State*

### Primary Laws and Policies

#### *General*

**Washington State Water Pollution Control Act:** Principal law governing water quality in Washington State. It establishes a comprehensive program to protect water quality and the beneficial uses of water.

Under the requirements of the Clean Water Act, the Washington State Department of Ecology has completed a State Plan to control Nonpoint pollution. The Plan, Washington State's Water Quality Management Plan to Control Nonpoint Sources of Pollution, was updated in 2015. The plan describes in detail strategies used to prevent and/or mitigate NPS (Washington State Department of Ecology. 2015).

**Implemented by:** Washington State Department of Ecology

#### *Agriculture Specific*

**Dairy Nutrient Management Program:** Protects water quality of Salish Sea by addressing non-point source pollution from dairy farms. Requires all licensed cow dairies to develop and implement nutrient management plans, register with Washington State Department of Agriculture, and participate in a program of regular inspections and compliance.

The nutrient management plan (NMP) development process is completed by the dairy producer, in consultation with a local conservation district, the Natural Resources Conservation Service (NRCS), or a private planner. The NMP process includes an assessment of animal and nutrient inventory, surface and ground water risk(s), manure, and process waste water collection, conveyance and storage needs, crop production history, and land application acreage needs. The NMP process identifies the producer's goals, resource risk(s), and the selection of best management practices to be implemented, to protect the resource (Washington State Department of Ecology. 2015).

**Implemented by:** Washington State Department of Agriculture and Washington State Department of Ecology

**Secondary containment rules:** Fertilizer and pesticide secondary containment rules were implemented to protect ground and surface water. The rules are intended to contain the spill of bulk pesticides or fertilizers in the event the primary bulk container should fail (Washington State Department of Ecology. 2015).

**Implemented By:** Washington Department of Agriculture

**Washington State Conservation Districts:** Conservation districts work to promote conservation within their borders. Each Conservation District is an independent, non-regulatory local government entity that works with landowners to help them protect water quality, improve fish and wildlife habitat and resource conservation, while sustaining the vital agricultural community (Wetland Program 2015). Their boundaries generally correspond with county boundaries. The work of individual conservation districts is overseen by the Washington State Conservation Commission (WSCC). The WSCC assists and guides districts in the carrying out of programs, coordinates programs used in more than one district, promotes cooperation and sharing between districts, reviews agreements proposed to be entered into by districts with other public or private agencies, informs districts of recent legislation that may affect them, etc.

#### **Forestry Specific**

**Washington State Forest Practices Act:** Regulates forest management activities in Washington State, including those on privately owned forestland. Forest practices are activities related to growing, harvesting or processing timber and requires a permit. They are designed to protect public resources, such as fish, water and wildlife, on state and private land, and also ensuring that a new forest is planted after harvest.

**Implemented By:** Washington Department of Natural Resources

*Local Scale - Water Pollution Prevention (Non-Point Source) – Regional and subregional policymaking in Washington State*

#### Indigenous Peoples – Water Pollution Prevention (Non-Point Source) – United States

Several Tribal governments submitted comments for development of the new Washington State's Water Quality Management Plan to Control Nonpoint Sources of Pollution which was updated in 2015 (Washington State Department of Ecology. 2015).

Tribal representatives participate in the development and implementation of TMDLs, and are also recipients of federal grant funds under the CWA. They provide technical expertise on natural resource issues and are an important partner in implementing the state's nonpoint program.

#### Government/Non-Government Collaborations – Water Pollution Prevention (Non-Point Source) – United States

As part of the new Washington State's Water Quality Management Plan to Control Nonpoint Sources of Pollution, the role of water quality partnerships is stressed (Washington State Department of Ecology.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

2015). Ecology emphasizes the need to coordinate with other agencies, but also partners at the local level. State Advisory groups that Ecology uses to coordinate with stakeholders:

- Agriculture and Water Quality Advisory Committee: The committee includes a broad array of agricultural interests, including representatives from the agriculture industry, environmental organizations, and the tribes. The goal of the committee is to improve working relationships, and ensure both water quality protection and a healthy agricultural industry.
- Water Quality Partnership: This is the standing stakeholder group for the Ecology's Water Quality Program. Stakeholders that attend the Water Quality Partnership meetings include representatives from agricultural producer groups, tribes, environmental groups, state and federal agencies, businesses, and local government.
- Water Quality Financial Assistance Council: Provides Ecology with advice and guidance for the effective and efficient administration of its state and federal grant and loan programs. The Council is comprised of representatives from cities, counties, tribes, conservation districts, special purpose districts, environmental groups, and state and federal agencies.

### Non-Governmental Organizations – Water Pollution Prevention (Non-Point Source) – United States

A number of different NGOs participated in the public comment process for development of the new Washington State's Water Quality Management Plan to Control Nonpoint Sources of Pollution which was updated in 2015 (Washington State Department of Ecology. 2015). NGOs that submitted comments include:

- Washington Environmental Law Center
- Washington State Conservation Commission
- Washington Association of Conservation Districts
- Northwest Environmental Advocates
- Puget SoundKeeper
- Spokane RiverKeeper

Business and industry representatives also participated, including:

- Washington Farm Bureau
- Washington Cattlemen's Association
- Washington Dairy Federation
- Cattle Producers of Washington

*Canada – Water Pollution Prevention (Non-Point Source)*

Government Entities – Water Pollution Prevention (Non-Point Source) - Canada

*Federal Scale – Water Pollution Prevention (Non-Point Source) - Canada*

Not applicable.

*Provincial Scale – Water Pollution Prevention (Non-Point Source) – British Columbia*

The Ministry of Environment takes the lead in addressing NPS pollution. Its predecessor, the Ministry of Water, Land and Air Protection produced an NPS Action Plan titled "Tackling Non-point Source Water Pollution in British Columbia" (British Columbia Ministry of Water, Land and Air Protection 2002). This document outlines approaches to managing NPS pollution to ensure the healthy future of water resources in BC. The ministry is implementing several initiatives under the NSP Action Plan:

- Working with the Ministry of Agriculture, Food and Fisheries and the BC Agriculture Council to address environmental concerns in the agricultural industry
- Managing sewage and stormwater through Liquid Waste Management by municipalities. A stormwater management component is a requirement for approved Liquid Waste Management Plans (LWMPs).
- Promoting "Best Management Practices" for industry
- Implementing a Water Education Program which employs youth to deliver clean water messaging
- Working with Environment Canada and other partners to address NPS under the Georgia Basin Ecosystem Initiative
- Developing and implementing legislation to protect fish and sensitive waterbodies

**Implemented By:** Ministry of Environment

#### **Agricultural Specific**

**Agricultural Waste Control Regulation:** Describes environmentally sound practices for using, storing and managing agricultural wastes and by-products, such as manure and composted materials. The regulations are currently undergoing a comprehensive review. Some key provisions being considered include:

- Provisions encourage beneficial use of agricultural products and byproducts and appropriate agricultural management practices.
- Direct discharges to surface or groundwater will be prohibited.
- Regulatory requirements are based on desired environmental outcomes.

- Corrective measures are incorporated.
- Focus a higher level of protection to higher risk situations.

**Implemented By:** British Columbia Ministry of Agriculture and Food

The **BC Ministry of Agriculture's Sustainable Agriculture Management Branch** programs promote environmentally sustainable agricultural practices including Environmental Farm Planning and Nutrient Management.

#### **Forestry Specific**

**British Columbia Private Managed Forest Land Act:** Creates a mechanism for the regulation of forest practices on private land categorized as managed forest. Provides mechanism to establish and enforce environmentally sustainable forest practices on private managed forest land (Blakes 2015).

**Implemented By:** Managed Forest Council

**British Columbia Forest and Range Practices Act:** Establishes regulations for forestry practices on public land (Blakes 2015), including:

- Requirements for forest operators to set specific targets or strategies for environmental objectives established by the government for soils, timber, fish, biodiversity, cultural heritage, forage and associated plant communities, visual quality, water, wildlife, and resource and recreation features.
- Requirements for preparation of five-year Forest Stewardship Plans designed to achieve the targets or strategies, and must operate on the land base in accordance with both the targets or strategies and their plans.

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

#### **Other**

The BC Ministry of Agriculture's Sustainable Agriculture Management Branch programs promote environmentally sustainable agricultural practices including Environmental Farm Planning and Nutrient Management.

*Local Scale - Water Pollution Prevention (Non-Point Source) – Regional and subregional policymaking in British Columbia*

**Local Government Act:** This Act vested the responsibility for drainage with municipalities. With the statutory authority for drainage, local governments can be held liable for downstream impacts that result from changes to upstream drainage patterns – both volume and rate (British Columbia Ministry of Water, Land and Air Protection 2002). The Act also enables local governments to be proactive in implementing stormwater management solutions that are more comprehensive than past practice.

Indigenous Peoples – Water Pollution Prevention (Non-Point Source) - Canada

See Water Quality Preservation and Restoration section below.

Government/Non-Government Collaborations – Water Pollution Prevention (Non-Point Source) - Canada

Non-Governmental Organizations – Water Pollution Prevention (Non-Point Source) - Canada

As part of the update to the Agricultural Waste Control Regulation, the government has received comments from provincial or regional agricultural organizations from various sectors, including cattle feeders, cattlemen, dairy, pork producers, greenhouse growers and growers associations. A number of responses were received from government agencies, including local, regional, provincial and federal government agencies.

*Transboundary Policymaking – Water Pollution Prevention (Non-Point Source)*

See Water Quality Preservation and Restoration section below.

**Protection of Safe Drinking Water**

*United States – Drinking Water*

Government Entities – Drinking Water – United States

*Federal Scale – Drinking Water – United States*

**United States Safe Drinking Water Act:** Main federal law that ensures the quality of Americans' drinking water. Authorizes EPA to set standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards (Washington State Department of Ecology 2015).

Includes water quality standards, sampling, treatment, and public notification requirements. The 1996 amendments added new requirements related to annual water quality reports, operator certification requirements, system capacity, and source water assessment and protection.

Generally, the SDWA applies to water systems with 15 or more connections, or those regularly serving 25 or more people daily, 60 or more days per year. Approximately 4,200 public water systems in Washington are subject to the SDWA.

Authorizes the Sole Source Aquifer Protection Program. Under this program, if an SSA designation is approved, proposed federal financially assisted projects which have the potential to contaminate the aquifer are subject to EPA review.

**Implemented By:** United States Environmental Protection Agency and Washington Department of Health

*State Scale – Drinking Water – Washington State*

**Municipal Water Supply-Efficiency Requirements Act:** Act designed to give municipal water suppliers more certainty and flexibility with their water rights. The law also required municipal suppliers to use water efficiently.

**State Revolving Fund:** The 1996 SDWA amendments established a state revolving fund (SRF) to make funds available to states and water systems in order to promote the health protection objectives of the SDWA (Washington State Department of Ecology 2015). Funds, provided in the form of grants and low interest loans, are to be used for infrastructure improvements, source water protection, capacity development, and operator certification programs.

*Local Scale – Drinking Water – Regional and subregional policymaking in Washington State*

Local jurisdictions may be involved in establishing and implementing protection area districts around drinking water supplies (Washington State Department of Ecology 2015). For example, Whatcom County has protected watersheds within its boundaries through several overlay zones that impose regulatory controls designed to preserve and protect the drinking water supply. Standards are specific to each of the watershed overlay zones and vary by watershed.

In addition, local jurisdictions are required to identify and establish regulations in their respective Critical Areas Ordinances addressing Critical Aquifer Recharge Areas (Washington State Department of Ecology 2015). This ordinance provides local governments with a mechanism to protect the functions and values of a community's drinking water by preventing pollution and maintaining supply.

Indigenous Peoples – Drinking Water – United States

See Water Quality Preservation and Restoration section below.

Government/Non-Government Collaborations – Drinking Water – United States

See Water Quality Preservation and Restoration section below.

Non-Governmental Organizations – Drinking Water – United States

See Water Quality Preservation and Restoration section below.

*Canada – Drinking Water*

In Canada, provincial governments are generally responsible for ensuring that public drinking water is safe. In most cases, responsibility for the day-to-day operations of treatment facilities has been delegated to municipalities.

Government Entities – Drinking Water - Canada

*Federal Scale – Drinking Water - Canada*

The federal government has a responsibility to ensure safe drinking water is available on lands under federal jurisdiction (e.g. military bases, national parks, and Indigenous reserves), on common carriers (e.g. planes, ships), and in federal facilities. In addition, it establishes guidelines for provincial and territorial governments:

**Guidelines for Canadian Drinking Water Quality:** Contain recommendations for treatment techniques and the maximum allowable concentration (MAC) of various contaminants in drinking water after treatment has taken place (Government of Canada 2015). (Note: guidelines do not have a legislative basis and are not legally enforceable as national standards).

*Provincial Scale – Drinking Water – British Columbia*

**British Columbia Drinking Water Protection Act:** Provides a statutory framework for the protection of drinking water in British Columbia (Blakes 2015). Sets out certain requirements for drinking water operators and suppliers to ensure the provision of safe drinking water to their customers. Key elements of the Act include: the establishment of water quality standards, including tap and source standards; requirements for assessments and response plans in relation to threats to drinking water; inspection; monitoring and order powers; public accountability; appointment of drinking water officers with the authority to investigate complaints; and development of community-based Drinking Water Protection Plans.

**Implemented By:** British Columbia Ministry of Health

**British Columbia Water Utility Act:** Ensure that water systems installed by land developers are properly designed and constructed prior to the sale of lots and to ensure that these utilities provide safe and adequate water service at rates that are fair, reasonable and sufficient to operate their water systems sustainably.

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

*Local Scale – Drinking Water - Regional and subregional policymaking in British Columbia*

**Memorandum of Understanding for the Protection of Drinking Water:** Commits all provincial agencies and local health authorities to consider drinking water protection in their statutory decisions and approvals.

Indigenous Peoples – Drinking Water - Canada

See Water Quality Preservation and Restoration section below.

Government/Non-Government Collaborations – Drinking Water - Canada

See Water Quality Preservation and Restoration section below.

Non-Governmental Organizations – Drinking Water - Canada

See Water Quality Preservation and Restoration section below.

*Transboundary Policymaking – Drinking Water*

See Water Quality Preservation and Restoration section below.

Protection of Groundwater

*United States - Groundwater*

Government Entities – Groundwater – United States

*Federal Scale – Groundwater – United States*

**United States Safe Drinking Water Act:** Main federal law that ensures the quality of Americans' drinking water (Washington State Department of Ecology 2015). The SDWA program covers underground injection and wellhead protection, and establishes a state ground water protection program authorizing the EPA to provide grants to States to develop programs to promote protection of groundwater resources.

The SDWA also encourages states to develop and submit wellhead protection programs aimed at protecting the surface and subsurface areas surrounding a water well or wellfield serving a public water system. Federal grants are available to states that choose to develop a wellhead protection program. A similar program exists to encourage states to adopt critical aquifer protection areas.

**Implemented By:** United States Environmental Protection Agency and Washington Department of Health

*State Scale – Groundwater – Washington State*

**Washington State Water Pollution Control Act:** The Washington State Water Pollution Control Act (Chapter 90.48 RCW) is the principal law governing water quality in Washington State. It establishes a comprehensive program to protect water quality and the beneficial uses of water.

The goal of the Water Pollution Control Act is to:

“Maintain the highest possible standards to ensure the purity of all waters of the state....”

Further, to achieve this goal the state will “require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state....”

The Water Pollution Control Act applies to surface waters, wetlands and groundwater. Discharges to waters of the state, including groundwater, require a State Waste Discharge Permit (Washington State Department of Ecology 2015).

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

Groundwater Quality Standards list criteria for a variety of groundwater contaminants. The numeric criteria values and the narrative standards represent contaminant concentrations which are not to be exceeded in groundwater.

**Ground Water Management Areas:** Washington State Law (RCW 90.44.400) allows the Department of Ecology to identify groundwater management areas in order to protect groundwater quality, to assure groundwater quantity, and to provide for efficient management of water resources for meeting future needs. The intent of GWMA's is to develop partnerships between local, state, tribal and federal interests to cooperatively protect the state's groundwater resources (Washington State Department of Ecology 2015).

*Local Scale – Groundwater – Regional and subregional policymaking in Washington State*

See Protection of Safe Water Drinking

Indigenous Peoples – Groundwater – United States

See Water Quality Preservation and Restoration section below.

Government/Non-Government Collaborations – Groundwater – United States

See Water Quality Preservation and Restoration section below.

Non-Governmental Organizations – Groundwater – United States

See Water Quality Preservation and Restoration section below.

*Canada - Groundwater*

Government Entities – Groundwater - Canada

*Federal Scale – Groundwater - Canada*

In Canada, groundwater does not receive the same statutory protection as surface water, and no federal legislation in this area exists. The 1987 Federal Water Policy states that the federal government will: develop strategies and guidelines for groundwater assessment and protection; conduct research and undertake technological development and demonstration projects; develop exemplary groundwater management practices involving federal lands, responsibilities, facilities, and federally funded projects; develop measures for groundwater quality in transboundary waters; and, provide advice on groundwater issues of federal and national interest.

*Provincial Scale – Groundwater – British Columbia*

**Water Sustainability Act:** This Act, which comes into effect in 2016, changes how groundwater will be regulated in BC. The Act brings groundwater into the provisions to manage surface and ground water as a single resource (Province of British Columbia 2015). The Government is proposing new policies that will be incorporated into new regulations under the WSA and will:

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

- Describe provisions for licensing groundwater use and assigning water rights. The approach will be similar to that for stream water; and
- Specify requirements related to the construction and maintenance of wells, and recognize the types of professionals certified to perform these tasks.

*Local Scale – Groundwater - Regional and subregional policymaking in British Columbia*

See Water Quality Preservation and Restoration section below.

### Indigenous Peoples – Groundwater - Canada

The BC Assembly of First Nations have consulted on the Water Sustainability Act, and have provided comments addressing proposed regulation and protection of groundwater uses. In particular, concerns have been raised about the proposed approach to licensing all existing groundwater uses, which the Assembly has commented is not sustainable and, where water is scarce, could threaten First Nation's water claims.

### Government/Non-Government Collaborations – Groundwater - Canada

See Water Quality Preservation and Restoration section below.

### Non-Governmental Organizations – Groundwater - Canada

See Water Quality Preservation and Restoration section below.

### *Transboundary Policymaking – Groundwater*

See Water Quality Preservation and Restoration section below.

## Water Quantity and Use

### *United States – Water Quantity*

#### Government Entities – Water Quantity – United States

*Federal Scale – Water Quantity – United States*

State law typically governs most water quantity and usage issues.

*State Scale – Water Quantity – Washington State*

**Washington State Water Code:** The waters of Washington State collectively belong to the public; use of water is granted by the State. Any use of surface water (lakes, ponds, rivers, streams, or springs) which began after the state water code was enacted in 1917 requires a water-right permit or certificate. Likewise, withdrawals of underground (ground) water from 1945 onward, when the state groundwater code was enacted, require a water right permit or certificate. A water right is a legal authorization to use a predefined quantity of public water for a designated purpose. This purpose must qualify as a

beneficial use. Beneficial use involves the application of a reasonable quantity of water to a non-wasteful use, such as irrigation, domestic water supply, or power generation, to name a few.

In Washington, the doctrine of prior appropriation is used for water right allocation. Under the prior appropriation doctrine, the first person to divert water and put it to a beneficial use obtains the right to use that water in perpetuity (First in time is first in right). In dry years, there is no pro-rationing of water among users; the person with the oldest right gets the entire amount of water she has historically put to beneficial use. Later appropriators receive water only to the extent it is available in any given year.

Note: Under certain conditions, the law allows a person to drill a well and withdraw groundwater without applying for a water right and receiving a permit from Ecology.

**In-Stream Flow Rules:** Ecology is required by state law to retain adequate amounts of water in streams to protect and preserve instream resources and uses (such as fish, wildlife, recreation, aesthetics, water quality and navigation). One management tool for protecting stream flows is to set flow levels in regulation (Washington State Department of Ecology 2015b). Specific stream flow amounts protected in a regulation are called “instream flows.”

The legal authority to set instream flows by rule comes from laws passed by the state legislature, including:

- Water Code, [Chapter 90.03 RCW](#), in [section 247](#) describes Ecology’s exclusive authority for setting flows and describes conditioning permits to established flows.
- The Minimum Water Flows and Levels Act of 1967 [Chapter 90.22 RCW](#) permits Ecology to establish minimum flows or levels on streams and lakes by regulation for the purpose of protecting fish, game, birds or other wildlife, recreational or aesthetic values or water quality. The Act sets forth a process for protecting instream flows through adoption of rules. Among other provisions, it says Ecology must consult with the Department of Fish and Wildlife and conduct public hearings.
- The Water Resources Act of 1971 [Chapter 90.54 RCW](#) provides that the quality of the natural environment be protected and where possible enhanced through the retention of base flows for preservation of wildlife, fish, scenic, aesthetic, and other environmental values, and navigation values.
- Fishways, flows, and screenings [Chapter 77.57 RCW](#) (formally Chapter 75.20 RCW), [section 020](#) requires Ecology to consult with the Department of Fish and Wildlife prior to Ecology making a decision on any water right application that may affect flows for food and game fish. Fish and Wildlife may recommend denial or conditioning of a water right permit.
- The Watershed Planning Act [Chapter 90.82 RCW](#), in [section 080](#) specifies that local watershed planning groups can recommend instream flows to Ecology for rule-making.

Watershed management groups around the state are examining local water resources and many are working with Ecology to set or revise instream flows in their watersheds. Several in-stream flow rules have been established in watersheds in the Puget Sound area, including: Nooksack, Lower Skagit, Upper Skagit, Stillaguamish, Snohomish, Cedar/Sammamish, Green-Duwamish, Chambers-Clover, Deschutes, Kennedy-Goldsborough, Kitsap, Quilcene-Snow, and Elwha-Dungeness Watersheds.

**Implemented By:** Washington Department of Ecology, with input from Watershed Resource Inventory Areas (WRIs)

**Washington State Trust Water Rights program:** Provides a way to legally hold water rights for future uses without the water right relinquishing (Washington State Department of Ecology 2015). Water is held in trust to benefit groundwater and instream flows, and other beneficial uses. While water is held in trust it retains its original priority date. The Trust Water Rights Program is used to implement the Water Acquisition Program and for holding water for Water Banking activities.

**Implemented By:** Washington Department of Ecology and NGOs

**Washington Water Acquisition Program:** This is a voluntary program to increase stream flows in watersheds with vulnerable salmon and trout populations (Washington State Department of Ecology 2015f). Using state and federal funds, program sponsors are providing an opportunity for farmers, ranchers and other water-right holders to participate in salmon recovery by selling, leasing or donating their water where critically low stream flows limit fish survival.

All water obtained through the program will be returned to the creeks, streams and rivers where it was originally withdrawn. The program is backed by strong interest and support from local, state, federal and tribal governments and private entities. State agencies involved include the departments of Ecology, Fish and Wildlife and Washington Conservation Commission. In Western Washington, the basins where this program is in place include:

Cedar-Sammamish, Chambers-Clover, Elwha-Dungeness, Green-Duwamish, Nooksack, Puyallup-White, Quilcene-Snow and Snohomish.

**Implemented By:** Washington Department of Ecology and NGOs

*Local Scale – Water Quantity – Regional and subregional policymaking in Washington State*

Not applicable.

#### Indigenous Peoples – Water Quantity – United States

Under the Winter's Doctrine, water rights have been reserved in sufficient quantity to meet the needs of Reservations. In addition, Tribes in the Pacific Northwest have off-reservation "instream" water rights that are associated with their treaty fishing rights (Osborn 2009). Tribes have fishing rights in their historic "usual and accustomed areas." A right to productive salmon habitat is asserted along with the right to fish, meaning that flows to support productive fish stocks must be maintained in salmon-producing rivers and streams. The effective date of flows to support salmon habitat and fish production has been characterized in court cases as "time immemorial," making this the most senior of water rights in the state.

As a result, by law, Washington State must consult with tribal governments when establishing instream flow requirements.

In addition to consultation, tribes have been involved in studies to examine in-stream flows. As an example, the USGS, the Northwest Indian Fisheries Commission and its member tribes have collaborated on low flow surveys in small western Washington streams that are not currently part of the regional

streamflow-monitoring network. This information is used to better understand low summer flows in specific streams, as well as to improve low-flow models for the region.

### Government/Non-Government Collaborations – Water Quantity – United States

The issue of water quantity has provided opportunities for new partnerships. For example, in Skagit County, the Washington State Department of Ecology is partnering with the Upper Skagit Tribe to develop a stream flow enhancement/groundwater mitigation program for the Skagit River Basin (Washington State Department of Ecology 2015). The proposed Program plan will include two components: 1) a managed groundwater recharge project to enhance current stream flows and offset flow-related impacts from new groundwater uses in each sub basin; and 2) a fee-based mitigation program to assign “mitigation credits” to individual property owners and to recover the costs of the groundwater recharge project.

An interagency review team (IRT) has been convened to advise the Upper Skagit Tribe on project development and to guide Ecology’s decision making for the project. An Ecology representative will chair the IRT. The following agencies, tribes and other stakeholders will be invited to participate on an interagency review team:

- National Oceanic and Atmospheric Administration
- U.S. Fish and Wildlife Service
- Sauk-Suiattle Tribe
- Swinomish Tribe
- Washington Department of Fish and Wildlife
- Puget Sound Partnership
- Skagit County
- Snohomish County
- Skagit County Public Utility District
- Snohomish County Public Utility District
- City of Anacortes
- Landowner Representative

### Non-Governmental Organizations – Water Quantity – United States

The establishment of in-stream flows has been contentious. For example, in Skagit County, a petition has been submitted by the Washington REALTORS, Building Industry Association of Washington, North Puget Sound Association of REALTORS, Skagit-Island County Building Association, Snohomish-Camano Association of REALTORS, Master Builders of King and Snohomish Counties, Washington State Farm Bureau and the Just Water Alliance to repeal the in-stream flows established in the Skagit Watershed (Washington State Department of Ecology 2015).

NGOs have had different roles in their involvement in this issue, including:

- Advocate for expanded legal protection
- Monitoring and commenting on action proposed by state water agencies to grant and transfer water rights
- Coordination with Land Trusts

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

- Establish Instream Flow Water Trusts, where organizations seek to acquire ownership interest in a water right
- Form coalitions to work on issues of mutual concern
- Build public awareness

Numerous NGOs have been directly or indirectly involved in instream flow issues. National or regional NGOs working in this area include:

- American RiverKeepers
- Center for Environmental Law & Policy (Washington Water Watch)
- Pacific Coast Federation of Fisherman's Association
- Trout Unlimited (Western Water Project)

The Washington Water Trust is an example of an NGO that leases and/or buys water from water rights holder, temporarily or permanently to leave instream, to improve and protect flows, especially during periods that are critical to the survival of imperiled salmon and steelhead. The Trust often works with agricultural producers, conservation districts, irrigation districts, land trust, landowners, legal experts, state agencies, tribes and other stakeholders as part of this acquisition process. The Trust currently works in several watershed basins in the Puget Sound area, including Nooksack, San Juans and others.

Washington Water Trust is also involved in several water banking projects in Washington State, including the Dungeness Water Exchange. Dungeness Water Exchange was created through a collaboration between Clallam County, Department of Ecology, the Dungeness Water Users Association, the Jamestown S'Klallam Tribe, City of Sequim, Clallam PUD No.1, Clallam Conservation District, Washington Department of Fish and Wildlife, and Washington Water Trust (Washington State Department of Ecology 2015).

The Water Bank that has been established allows water users to purchase a certificate that meets state requirements for protecting the Dungeness River. The money raised by the certificates will go to purchase water from willing sellers. That water will go back into the river instead of being used for out of stream needs.

### *Canada – Water Quantity*

#### Government Entities – Water Quantity - Canada

##### *Federal Scale – Water Quantity - Canada*

Apart from federal legislation regarding large scale diversions or export of water, rules governing the allocation of water quantity are set by the provinces.

**Federal Water Policy:** Provides the overall objectives of the Federal Government in managing Canadian waters including to encourage the use of freshwater in an efficient and equitable manner consistent

with the social, economic, and environmental needs of present and future generations (Government of Canada 2015).

**Implemented by:** Environment Canada

*Provincial Scale – Water Quantity – British Columbia*

**Water Sustainability Act:** This Act, which comes into effect in 2016, changes the criteria for water allocation decisions. Environmental flow needs must now be considered in new water allocation decisions (Province of British Columbia 2015). The Act also provides for restrictions to all water users to protect the critical environmental flow threshold.

The Act maintains BC's traditional water allocation model, called First in Time, First in Right (FITFIR). However, FITFIR has been modified slightly to allow a basic amount of water use for essential household needs, and for the protection of critical environmental flows. Otherwise, priority of right is based on the date of precedence of an authorization, with the most senior water licensee having the superior right. (This is different than Washington State's approach, which recognizes beneficial uses in place before the State's authorization process).

Existing and new groundwater users will be brought into the FITFIR system. The process for transitioning existing users, including how the priority date of the groundwater use is determined, will be specified in a proposed new regulation under the WSA.

If the flow of water in a stream becomes so low that the survival of a population of fish is threatened, the Minister may issue a fish population protection order restricting all uses of water from a stream, its tributaries and hydraulically connected aquifers, regardless of precedence under FITFIR.

**Implemented By:** British Columbia Ministry of Environment

**Other:**

**British Columbia Water Protection Act:** Act related to preservation and protection of the water resources in British Columbia. Vests ownership of surface and groundwater with the Crown, except in so far as private rights have been established (Blakes 2015). Prohibits the removal of water from British Columbia (unless under a historical license), and the construction or operation of large-scale projects capable of transferring water from one major watershed to another.

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

**British Columbia Drainage, Ditch and Dike Act:** Authorizes the creation of Drainage, Diking or Development Districts responsible for constructing and maintaining a system of dikes, drains, dams, etc. necessary for the supply of water (and possibly electricity) and/or the prevention of flooding (Blakes 2015).

**Implemented By:** British Columbia Ministry of Environment

**British Columbia Dike Maintenance Act:** Requires review and approval prior to any modification of a dike or area adjacent to a dike (Blakes 2015).

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

**Implemented By:** British Columbia Ministry of Forests, Lands & Natural Resource Operations

*Local Scale – Water Quantity - Regional and subregional policymaking in British Columbia*

Not applicable.

### Indigenous Peoples – Water Quantity - Canada

First Nations and BC have been operating under a series of agreements (Transformative Change Accord and New Relationship Accord) between the Province of British Columbia, Federal Government, and First Nations (BC Assembly of First Nations, First Nations Summit, and the Union of B.C. Indian Chiefs) committing to:

- Respect, recognition and accommodation of Indigenous title and rights
- Respect for each other's laws and responsibilities
- The reconciliation of Indigenous and Crown titles and jurisdictions (Ministry of Aboriginal Relations and Reconciliation 2015)

Yet, water resource management in BC, with respect to First Nations, remains complicated. First Nations in BC argue that they have an inherent and vested title and rights in water resources. Recent court cases seem to have affirmed First Nation title rights. For instance, a ruling in the Supreme Court of Canada recognized Indigenous title to land (CBC News). In addition, in 2015, a Court of Appeal decided in favor of the Saik'uz and Stellat'en First Nation, allowing these Nations to launch lawsuits to protect their territory from private parties, without first proving Indigenous title (Hicks and Millen 2015).

Despite these advances, BC's new Water Sustainability Act has been criticized for its lack of government-to-government consultation with First Nations and for its continued inclusion of "First in Time First in Right" water allocation model, which grants rights based on the issuance of water licenses, not the priority rights of First Nations.

First Nations, independently and through collaborative organizations, continue to advocate for First Nation's rights in water management issues. Several collaborative organizations include:

- British Columbia Assembly of First Nations
- First Nations Leadership Council
- First Nations Summit
- Union of BC Indian Chiefs
- Centre for Indigenous Environmental Resources

### Government/Non-Government Collaborations – Water Quantity - Canada

See Water Quality Preservation and Restoration section below.

Non-Governmental Organizations – Water Quantity - Canada

See Water Quality Preservation and Restoration section below.

*Transboundary Policymaking – Water Quantity*

**Memorandum of Understanding of Referral of Water Right Applications:** Details requirements for information sharing and coordination of water related activities and water right applications between the Ministry of the Environment and the Department of Ecology

See Water Quality Preservation and Restoration section below.

Water Quality Recovery and Restoration

*United States – Water Quality Restoration*

Government Entities – Water Quality Restoration – United States

*Federal Scale – Water Quality Restoration – United States*

**Clean Water Act:** Under the Clean Water Act, one a water body is listed on the state's 303(d) list as being water quality impaired, the State must develop a water quality improvement report to the Environmental Protection Agency for review and approval. The water quality improvement plan will contain a Total Maximum Daily Load (TMDL). The TMDL will:

- Assigns a maximum allowable discharge from all the nonpoint sources (called a load allocation).
- Assigns a maximum allowable discharge from all the point sources (those requiring NPDES permits). This process may require more stringent NPDES permit limits.
- Designates suites of best management practices (BMPs) for various land-use categories.
- Details the actions needed to attain standards and return waters to good health.

TMDLs describe the type, amount and sources of water pollution in a particular water body; they analyze how much the pollution needs to be reduced or eliminated to meet water quality standards; and they provide targets and strategies to control the pollution.

The TMDL process includes outreach to watershed residents, local governments, and other stakeholder groups.

Once the water quality improvement plan is approved by EPA, the next step is to put the TMDL implementation plan into action and monitor the results.

If the sources of pollution are well known and similar in their impacts, a TMDL may not be needed. Rather, the Department of Ecology can work with local landowners to directly identify best management practices to address the pollution source under a Straight To Implementation Plan.

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

Plans for waterbodies on the section 303(d) list are in various stages of completion. For completed plans, there are water quality improvement projects underway in the Puget Sound area. Information about the status of plans and cleanup actions can be found [here](#).

**Implemented by:** Washington State Department of Ecology and Environmental Protection Agency.

**Puget Sound Salmon Recovery Plan:** Contains strategies and actions associated with marine and freshwater habitat protection and restoration, hatchery management, and harvest management. This Plan addresses water availability issues that are likely to be further strained under climate change conditions (Puget Sound Partnership 2015b).

**Implemented by:** Approved by NOAA and implemented by Puget Sound Partnership, Associated Agencies and NGOs.

**Restoration Funding:** The federal government has a wide range of financial assistance sources (grants, loans, and cost-sharing) available to fund a variety of watershed protection projects. A catalog of these resources is available at this [website](#).

Specific to the Puget Sound, the EPA receives money from Congress each year; the fund are distributed through grants to state, local and tribal governments to help implement Washington's Puget Sound Action Agenda (the state's Comprehensive Conservation and Management Plan required by Section 320 of the Clean Water Act.)

**Puget Sound Federal Caucus:** Made up of 15 federal agencies that have entered into a memorandum of understanding to better integrate, organize and focus water quality improvement efforts in the Puget Sound.

### *State Scale – Water Quality Restoration – Washington State*

A new State agency, the Puget Sound Partnership, has been developed serving as the coordinating body for Puget Sound recovery, as well as the National Estuary Program, and the Regional Recovery Organization to coordinate salmon recovery efforts. The following are several key documents from this agency:

**Action Agenda for Puget Sound:** The Action Agenda addresses water quality and contains a number of strategies aimed at improving water quality (Puget Sound Partnership 2014).

**Implemented by:** Puget Sound Partnership and Associated Agencies and NGOs.

**Watershed Planning Act:** Established the framework for local communities to better understand the nature and extent of water resource management issues and to plan and implement solutions to identified and potential problems. The Act lays out general requirements that must be followed including geographic areas that must be covered, technical issues to be considered, who must participate, and time frames that must be met. The specific geographic area that must be covered is referred to as a Water Resource Inventory Area or WRIA.

The plans must balance competing resource demands. They are required to address water quantity by undertaking an assessment of water supply and use within the watershed. This includes recommending long term strategies to provide water in sufficient quantities to satisfy minimum instream flows and to

provide water for future out-of-stream needs. Optional elements that may be addressed in the plan include instream flow, water quality, and habitat.

Twelve State agencies signed a Memorandum of Understanding identifying roles and responsibilities for coordination under the Watershed Planning Act. This memorandum commits these agencies to work through issues in order to speak with one governmental voice when sitting at local planning unit tables. The following agencies signed this document:

- Department of Agriculture
- Conservation Commission
- Department of Community, Trade and Economic Development
- Department of Ecology
- Department of Fish and Wildlife
- Department of Health
- Department of Natural Resources
- Department of Transportation
- Recreation and Conservation Office
- Puget Sound Water Quality Action Team
- Governor's Salmon Recovery Office
- State Parks and Recreation Commission

Numerous WRIs are now located in the Salish Sea region, comprised of State Agency staff, together with a variety of different stakeholder interests and Tribal representatives.

(Note: The 2015 budget funding to support the Watershed Planning Program was eliminated).

(Note: WRIs are also involved in Salmon Recovery efforts).

**Implemented by:** Washington State Department of Ecology.

**Washington State Conservation Districts Law:** Authorizes the formation of conservation districts, which work to promote conservation within their borders (Washington State Department of Ecology 2015). Each Conservation District is an independent, non-regulatory local government entity that works with landowners to help them protect water quality, improve fish and wildlife habitat and resource conservation, while sustaining the vital agricultural community. Their boundaries generally correspond with county boundaries. The work of individual conservation districts is overseen by the Washington State Conservation Commission (WSCC). The WSCC assists and guides districts in the carrying out of programs, coordinates programs used in more than one district, promotes cooperation and sharing between districts, reviews agreements proposed to be entered into by districts with other public or private agencies, informs districts of recent legislation that may affect them, etc.

**Implemented by:** Washington State Conservation Commission and Washington Conservation Districts, including:

- Whidbey Island Conservation District
- Whatcom Conservation District

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

- Thurston Conservation District
- Skagit Conservation District
- Snohomish Conservation District
- San Juan Islands Conservation District
- Pierce Conservation District
- Jefferson County Conservation District
- Mason Conservation District
- King Conservation District
- Kitsap Conservation District
- Clallam Conservation District

**Puget Sound Initiative:** Dedicated funding to support cleanup of sites containing toxic contaminants.

**Implemented by:** Washington State Department of Ecology.

*Local Scale – Water Quality Restoration – Regional and subregional policymaking in Washington State*

Local municipalities are often involved in completing restoration activities. Local municipalities are also involved in implementing best management practices as part of their NPDES permits related to their municipal stormwater system.

Indigenous Peoples – Water Quality Restoration – United States

Tribes function in a number of different capacities with respect to water quality restoration, including:

**Total Maximum Daily Loads:** Tribes must be consulted prior to the establishment of TMDLs.

**Coordinated Tribal Water Quality Program:** The Coordinated Tribal Water Quality Program (CTWQP) was developed between the EPA and federally recognized Tribes in Washington State (Northwest Indian Fisheries Commission 2015). The purpose of CTWQP is to assist Washington tribes in improving water quality, restoring salmon populations, and the protection of shellfish and their respective habitats. Individual tribes participate in the development and implementation of watershed management plans, monitor water quality trends, map problem areas, address contaminants affecting shellfish beds, establish well-head protection programs and develop water quality standards. The Northwest Indian Fisheries Commission (NWIFC) acts as the coordinating entity for the tribes.

**EPA General Assistance Program (GAP):** Designed to improve capacity for environmental protection programs for all tribes in the country (US EPA, American Indian Environmental Office. 2015a). Tribes have undertaken a number of projects, including restoration, oil spill preparedness, nearshore monitoring, etc. Many tribes are now participating in the pilot “Beyond GAP” project to build on the

investments of the last 20 years by creating environmental implementation programs locally while supporting national environmental protection objectives (Northwest Indian Fisheries Commission 2015).

### **Watershed Resource Inventory Areas:**

Tribal governments participate as lead agencies or members in many of the Watershed Resource Inventory Areas (WRIs) established around Puget Sound. Tribes with fisheries-resource rights in the WRIA must be offered a seat on planning unit in order for the watershed plan to address the required analysis and strategies regarding federally reserved rights and instream flows for fish (Washington State Department of Ecology 2015d).

Several decisions require the agreement of all tribal governments on the planning unit, along with members from local and state governments: the final watershed plan; adopting minimum instream flows; changing effective (priority) dates for new instream flows; and whether to request Ecology to modify instream flows.

If Ecology ends up setting instream flows in a WRIA, the department must consult with any tribe that would be "affected" by that decision, even if they are not members of the planning unit.

Watershed plans are prohibited from containing provisions that conflict with existing tribal treaty rights.

### **Government/Non-Government Collaboration – Water Quality Restoration – United States**

At the federal level, a partnership of NGOs has formed to support EPA's Urban Water's Initiative ((“Non-Governmental Organizations (NGOs) Supporting the Urban Waters Federal Partnership” 2015). The Green-Duwamish Watershed was selected to be part of this process, with the United State Forest Service, EPA, and National Recreation Conservation Service comprising the principal federal partners. Local partners have included the Duwamish River Cleanup Coalition, University of Washington and Forterra.

Federal NGOs associated with this program include:

- Alliance for Community Trees
- American Forests
- American Planning Association
- American Rivers
- American Society of Landscape Architects
- Amigos de los Rios
- Arbor Day Foundation
- Chesapeake Conservancy
- City Parks Alliance
- The Conservation Fund
- Earth Force
- Groundwork USA
- The Intertwine Alliance
- Izaak Walton League of America
- National Association of Clean Water Agencies
- National Recreation and Park Association
- National Wildlife Federation
- The Nature Conservancy
- Restore America’s Estuaries
- River Network

## ISSUES IN ENVIRONMENTAL MANAGEMENT: WATER QUALITY, QUANTITY, & RESTORATION

- SavATree
- Sierra Club
- Society of Municipal Arborists
- Tree Care Industry Association
- Trust for Public Land
- U.S. Water Alliance
- Wilderness Inquiry
- Wildlife Conservation Society

### **Watershed Resource Inventory Areas:**

Watershed-based planning has become increasingly embraced by different agencies as an opportunity to establish new collaborative mechanisms and facilitate interaction across varied stakeholders. In 1998, the Washington State legislature passed the Watershed Planning Act to establish a framework for developing local solutions to watershed issues (Washington State Department of Ecology 2015g and h). The law provides a process to allow citizens in a watershed to join together to assess the status of the water resources in their watershed and determine how best to manage them.

### **Irrigation Districts:**

Washington State law also allows the establishment of irrigation districts, sometimes referred to as Watershed Improvement Districts (WIDs). These districts must be established by a public vote of landowners within the proposed district boundaries.

A watershed improvement district is a type of special purpose district, governed by landowners. While legally organized as an “irrigation” district, WIDs have statutory authority to work on a variety of issues, including water supply, water quality, drainage, and habitat restoration. These districts are eligible to receive funding. In addition, there are assessment costs to property owners to cover administrative, technical and operational costs.

A number of Watershed Improvement Districts have been formed in Whatcom County and King County (Whatcom Agriculture District Coalition 2014).

**ECO Network Member Organizations:** The Education, Communication and Outreach Network (ECO Net) is an initiative under the Puget Sound Partnership (Puget Sound Partnership 2015a). The network is a collaborative, multi-disciplinary network of individuals and organizations bound together by a vested interest in protecting and enhancing the health and vitality of the Puget Sound region. It serves as a regional planning and communications forum and the organizations involved provide many of the long-term public outreach strategies. Members work on a wide variety of issues that positively impact the health of the Puget Sound, ranging from ecosystem restoration and environmental health to sustainable communities and healthy economies. The network consists of more than 470 organizations across the region and has a diverse membership representing non-profit organizations, community groups, learning centers, conservation districts, public and private schools, businesses, local and regional governments, tribes, and individuals. Members are organized into 12 regional chapters across the 12-county Puget Sound region. Appendix A contains a list of members.

### **Non-Governmental Organizations – Water Quality Restoration – United States**

Many organizations are participating in restoring the water quality in Puget Sound through [Puget Sound Starts Here](#), a web resource intended to provide public information and connect organizations.

*Canada – Water Quality Restoration*

Government Entities – Water Quality Restoration - Canada

*Federal Scale – Water Quality Restoration - Canada*

**Georgia Basin Action Plan:** The Action Plan officially ended in 2009, but still informs restoration efforts in the region.

The Georgia Basin Action Plan was a partnership initiative led out of Environment Canada with a vision of a “healthy, productive and sustainable ecosystems and communities in the Georgia Basin.” This vision provided opportunities for other agencies and organizations to participate in the Action Plan as project partners. Georgia Basin Action Plan signatory partners included Environment Canada, Fisheries and Oceans Canada, Parks Canada, the British Columbia Ministry of Environment and the Coast Salish First Nations. Collectively these organizations applied their respective mandates to undertake projects supporting the Georgia Basin Action Plan Vision.

The Georgia Basin Action Plan had four goals:

- Collaborative stewardship actions support the sustainability of the Georgia Basin
- Sustainable land, aquatic and resource planning and management support the conservation, protection and restoration of the environment, enhance human well-being and contribute to a strengthened economy
- Scientific and indigenous knowledge supports improved decision-making by enhancing the understanding of key ecosystem stresses
- Targeted ecosystems are protected and restored

**Fraser River Action Plan:** The Action Plan officially ended in March 1998. It included actions to protect wild bird habitat, reduce the release of toxics such as wood preservatives and promote the implementation of best management practices and pollution prevention plans in business and industry sectors. Following the end of FRAP, the Fraser Basin Council, was established to promote a balance between social, economic and environmental well-being within the Fraser Basin.

*Provincial Scale – Water Quality Restoration – British Columbia*

**Water Sustainability Act:** The Water Sustainability Act authorizes the provincial government to make an order to establish a local water planning process for an area or proposed development if the plan will assist in:

- Preventing or addressing conflicts between water users;
- Balancing the needs of water users and environmental flow needs;
- Mitigating risks to water quality or aquatic ecosystem health; or
- Identifying restoration measures in relation to damaged aquatic ecosystems.

The intent is to have a watershed or regional process where interested parties, including local governments, the provincial government, water users, First Nations, and local stakeholders, can come to an agreement about priorities for water management and governance (Province of British Columbia 2015). Work on finalizing the governance process is expected to occur over the course of the next couple of years.

**Water Act - Water management planning:** Water management planning has already been occurring under provisions of the current Water Act. As an example, the Cowichan water use management plan has been completed (Cowichan Watershed Board 2007). The Plan involved a collaboration/partnership between Cowichan Valley Regional District, Fisheries and Oceans Canada, Ministry of Environment, Catalyst Paper Corporation, Cowichan Tribes, and the Pacific Salmon Commission. (Note: This Act will be replaced by the Water Sustainability Act). The plan contains a vision of a desirable future condition of water in the Basin and identifies specific and measurable actions for water management.

### *Local Scale – Water Quality Restoration - Regional and subregional policymaking in British Columbia*

Local municipalities and regional districts may be involved in completing restoration projects. They may also be involved in managing pollution sources as part of their local bylaws and liquid waste management plans.

### Indigenous Peoples – Water Quality Restoration - Canada

The BC Assembly of First Nations has submitted written correspondence as part of the regulation development process underway for the Water Sustainability Act. The Assembly has raised concerns about the lack of legislative requirements or process to meaningfully involve First Nations.

### Government/Non-Government Collaboration – Water Quality Restoration - Canada

There are several examples of government/non-government collaboration occurring around water quality issues:

**Collaborative Watershed Governance Accord:** The accord sets out basic principles to encourage collaboration among all those who have responsibilities for BC watersheds and those actively involved in use of natural resources within watersheds (Fraser Basin Council 2015).

The accord now has support of the Union of BC Municipalities, First Nations Summit, Union of BC Indian Chiefs, BC Assembly of First Nations, Clean Energy BC, Council of Forest Industries, BC Agriculture Council and two federal departments: Fisheries and Oceans Canada and Environment Canada.

The Province of BC and Mining Association of BC have the proposal under review. The accord is intended as a high-level document. It does not prescribe a particular model of collaboration or change the regulatory responsibilities of governments.

The Fraser Basin Council, Pacific Salmon Foundation and BC Conservation Foundation have facilitated development of the accord. The BC Living Rivers Trust Fund has provided funding for this work.

**Local community roundtables:** Local community roundtables have formed for a variety of reasons, including addressing issues of water quality. For example, the Nicola Watershed Community Round Table provides a means for residents of the Nicola River watershed in the southern interior of BC to have a voice in land and resource management to ensure the long term sustainability of the watershed.

**Fraser Basin Council:** The Fraser Basin Council is a non-profit society, comprised of members of federal, provincial, and local government, First Nations, and stakeholders from the private sector that brings people together to advance sustainability in the Fraser Basin and across British Columbia (Fraser Basin Council 2015).

Three council has key areas of focus:

- Taking action on climate change and air quality;
- Supporting healthy watersheds and water resources; and
- Building sustainable, resilient regions and communities.

The Fraser Basin Council is working in collaboration with the BC Wildlife Federation on a three-year project to advance watershed conservation and sustainability in BC.

**Living Rivers:** The Provincial Government of British Columbia has established a trust fund to fulfill the vision - "to create a legacy for the province based on healthy watersheds, sustainable ecosystems and thriving communities."(Living Rivers 2015)

The work has focused on:

- Watershed planning and management
- Stewardship and restoration of freshwater/estuary habitat
- Sustainable fisheries management
- Education and engagement of the public.

Funding for the program appears to have ended in 2013.

### Non-Governmental Organizations – Water Quality Restoration - Canada

BC's Water Plan highlights the role that local governments, tribes, NGOs and other will have to take to help meet the region's future water needs. As part of these efforts, the government highlights the activities of different NGOs, including the following:

- Waterbucket
- Columbia River Basin Trust
- Fraser Basin Council
- Pacific Salmon Foundation
- Stewardship Centre of B.C.
- Pacific Stream Keepers Federation
- Living Rivers Trust Fund

The region also has a number of Watershed Societies that have been formed around local waterbodies. These are non-profit citizen led organizations focused on watershed management. Examples include:

- False Creek Watershed Society
- Como Watershed Group
- Brooklyn Creek Watershed Society
- Cowichan Watershed Society

### *Transboundary Policymaking – Water Quality Restoration*

#### Federal Scale – Water Quality Restoration – United States and Canada

**1909 Boundary Waters Treaty:** Establishes that each country has equal and similar rights in the use of boundary waters. It also maintains that “waters flowing across the boundary shall not be polluted on either side to the injury of health or property of the other.” Establish core principles for management of internationally shared waters between United States and Canada. Establish institutional framework for supervision (International Joint Commission) of these principles.

***Implemented By:*** International Joint Commission

Note: The IJC has traditionally been more active in the Great Lakes region. It has started an International Watershed Initiative. The initiative is intended to collaborate with local watershed boards to focus on joint monitoring, conservation and restoration, and public outreach. The efforts so far have not included the Salish Sea, but the IJC has indicated that it is looking to expand this watershed approach.

**Canada–United States Skagit River Treaty:** Treaty addressing construction height of Ross Dam and associated flooding in British Columbia.

**Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem:** Bilateral agreement between the United States and Canada that outlines common goals and objectives and provides a context for federal agency collaboration on transboundary ecosystem management of the Salish Sea. Focus on knowledge and information sharing as well as transboundary demonstration projects that contribute to improved air quality, water quality, and habitat and species health. Action plans are generated, updated, and monitored to identify policy activities for focus areas. Key activities include:

- Canadian-US (transboundary) collaboration
- Engaging Coast Salish First Nations and Tribes
- Information and knowledge sharing
- Transboundary demonstration projects that contribute to improved air quality, water quality and habitat and species health

The current action plan (2015-2016) focuses on promoting knowledge and information exchange and on spotlighting transboundary demonstration projects.

State/Province Scale – Water Quality Restoration – Washington State and British Columbia

**Environmental Cooperation Agreement between the Province of British Columbia and the State of Washington:**

Ensure coordinated action and information-sharing on environmental matters of mutual concern. Established Environmental Cooperation Council (referred to in document by its original name, the BC/WA Environmental Initiative) with associated taskforces. Committed parties to create an action plan. Authorized adoption of specific arrangements to address environment problems, including:

- Georgia Basin/Puget Sound Water Quality
- Columbia River/Lake Roosevelt Water Quality
- Nooksack River Flooding
- Regional Air Quality Management
- Coordinated Groundwater Management (Sumas-Abbotsford)

**Implemented By:** British Columbia - Washington State Environmental Cooperation Council and associated taskforces:

**Abbotsford-Sumas Aquifer International Task Force:** Established to coordinate efforts directed towards protecting the aquifer across the common border between Canada and the United States. These efforts will establish a managerial approach, develop aquifer management strategies, and facilitate coordinated mechanisms to educate and involve the public in protecting the Aquifer's water quality and water resource values.

**Nooksack River International Task Force:** Recommend actions to reduce flood damage and improve preparedness.

**Georgia Basin/Puget Sound International Task Force:** Established to coordinate efforts underway by both governments to identify and remedy pollution problems in the Georgia Basin and Puget Sound.

All of these organizations appear to be on hiatus.

**Memorandum of Understanding on Environmental Assessment:** Provides mechanism for transnational comments on environmental review applications for major projects (“major project” means, for a project located in British Columbia, a reviewable project as defined in section 1 of the British Columbia Environmental Assessment Act (EA Act), and for a project located in Washington State, a project subject to state jurisdiction under the State Environmental Policy Act (SEPA) for which a Determination of Significance has been made thereby requiring an environmental impact statement).

Parties agree to give prior notice and information exchange related to major project proposals in the vicinity of the other jurisdiction.

Indigenous Peoples

**Coast Salish Gathering:** Forum created by the Coast Salish peoples of the United States and Canada for a trans-boundary integrated response to environmental stress. Representatives of the Coast Salish peoples living in the watersheds of the Salish Sea come together at the annual Gathering where, using a traditional consensus

decision-making process, they determine effective environmental strategies, policies, and practices for the entire Salish Sea homeland.

**Canoe Journey:** A gathering of Northwest indigenous nations, in which communities journey along in the Salish Sea. The Coast Salish Nation, Swinomish Indian Tribal Community, and U.S. Geological Survey have partnered to conduct water quality testing during these journeys.

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**WILDLIFE  
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BIODIVERSITY**

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### 3.16 WILDLIFE AND BIODIVERSITY

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The Salish Sea is a rich ecosystem with many species of birds and mammals that use the marine environment for some or part of their life cycle. Yet, the species that depend on the Salish Sea for food or habitat have experienced serious declines and are at risk or vulnerable to extinction. As reported in the *Health of the Salish Sea Ecosystem Report*, nearly 30 percent of birds and 38 percent of mammals are already listed as either threatened, endangered or are candidates for these designations (US EPA 2011). Further, long term monitoring has shown population declines in species, even if those are not candidates for designation. As an example, population declines are being experienced in nearly 40 percent of the most common marine bird species (including seabirds, sea ducks, and shorebirds) that overwinter in the Salish Sea – this is particularly worrisome because these species are near the top of the food chain. Population declines have not abated and appear to be on the increase. Between 2008 and 2011, 23 new species were listed as either threatened, endangered or are candidates for these designations, including five fish species and 18 birds (US EPA, Region 10 2015).

Many factors can play a role in loss of biodiversity, including sprawling population growth, overfishing, pollution, changes in availability of food sources (which are also being impacted by environmental factors), loss of habitat and other environmental factors such as climate change (US EPA, Region 10 2015).

Governments on both sides of the border are taking actions such as developing species recovery and management plans, establishing catch restrictions, and creating conservation areas to help recover and maintain declining species.

The section on Endangered Species/Species at Risk specifically addresses actions being taken to halt the decline and restore species already identified as in serious decline. This section, in contrast, will more generally address policies, laws and actors that are focused on conservation of wildlife habitat and biodiversity.

#### United States – Wildlife and Biodiversity

Management of wildlife in the United States is shared by the federal and state governments. Federal responsibility includes protection and management of migratory birds, marine mammals as well as nationally significant wildlife habitat, and responsibilities for endangered species, control of international trade in endangered species, research on wildlife issues of national importance, and international wildlife treaties and issues.

For the most part, state agencies are responsible for all other wildlife matters. These include conservation and management of wildlife populations and habitat within their borders, issuing licenses and permits for fishing, game hunting, and trapping, guidelines for safe angling and trapping and outfitting policies.

*Government Entities – United States*

Federal Scale – United States

*General Information – United States*

**National Wildlife Refuge System Improvement Act:** First comprehensive legislation addressing management of nation's wildlife refuge system (US Department of Agriculture Forest Service 2015). The Act's main components include:

- A strong and singular wildlife conservation Mission for the Refuge System;
- A requirement that the Secretary of the Interior maintain the biological integrity, diversity and environmental health of the Refuge System;
- A new process for determining compatible uses on refuges;
- A recognition that wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation, when determined to be compatible, are legitimate and appropriate public uses of the Refuge System;
- Establishing that compatible wildlife-dependent recreational uses are the priority general public uses of the Refuge System; and
- Creating a requirement for preparing a comprehensive conservation plan for each refuge.

The Salish Sea region contains the following national wildlife refuges: San Juan Islands, Dungeness, Protection Island, and Nisqually National Wildlife Refuge (US Department of Agriculture Forest Service 2015).

**Implemented by:** United States Fish and Wildlife Service

*Marine Species – United States*

**United States Marine Mammal Protection Act:** Prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S. It defines "take" to mean "to hunt harass, capture, or kill" any marine mammal or attempt to do so. The Act included protection for population stocks in addition to species and subspecies. A population stock is "a group of marine mammals of the same species or smaller taxa in a common spatial arrangement that interbreed when mature" (NOAA Fisheries 2015). The Act also shifted the burden from resource managers to resource users to show that proposed taking of living marine resources would not adversely affect the resource or the ecosystem (NOAA Fisheries, n.d.). The Act established the concept of "optimum sustainable populations" (OSP) to ensure healthy ecosystems; species or stocks must not be permitted to fall below their optimum sustainable population level. Stock assessments are completed for all marine mammal stocks in waters under U.S. jurisdiction to aid in ensuring that species do not fall below optimum sustainable population levels (Fisheries 2015).

Commercial fishers may apply to receive permits to lawfully "incidentally take" a marine mammal in a commercial fishery.

***Implemented By:***

- United States National Oceanic and Atmospheric Administration (NOAA)
- United States Fish and Wildlife Service (for some species, such as sea otters and walruses)

**United States Marine Protection, Research, and Sanctuaries Act:** Among other provisions, establishes system for the designation and regulation of marine sanctuaries (US Department of Commerce 2015). The Olympic Coast National Marine Sanctuary is located off the Olympic Peninsula coastline (US Department of Commerce 2015).

***Implemented By:***

- United States Environmental Protection Agency
- United States National Oceanic and Atmospheric Administration (NOAA)

*Terrestrial Species – United States*

**Wilderness Act of 1964:** Created the National Wilderness Preservation System and recognized wilderness as “an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain” (U.S. Department of the Interior 2015). The Act further defined wilderness as “an area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions . . . .” (U.S. Department of the Interior 2015). This is the highest level of conservation protection for federal lands. The region has the following designated Wilderness Areas: Mt. Baker Wilderness, Noisy-Diobaud Wilderness, Boulder River Wilderness, Henry M. Jackson Wilderness, Clearwater Wilderness, Glacier View Wilderness, Mt. Skokomish Wilderness, The Brothers Wilderness, and Buckhorn Wilderness.

***Implemented by:***

- United States Fish and Wildlife Service
- United States Department of the Interior Bureau of Land Reclamation
- United States Department of the Interior National Park Service
- United States Department of Agriculture U.S. Forest Service

*Bird Species – United States*

**United States Migratory Bird Conservation Act:** Act, as amended, which establishes system of national wildlife refuges for protection of habitat for migratory birds (U.S. Department of the Interior, Fish and Wildlife Service 2015). Established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds.

***Implemented by:*** United States Fish and Wildlife Service

**Migratory Bird Treaty Act:** Implements the United States' commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. Each of the conventions protect selected species of birds that are common to both countries (i.e., they occur in both countries at some point during their annual life cycle) (U.S. Department of the Interior, Fish and Wildlife Service 2015).

**Duck Stamp Act:** Provides a mechanism for generating money for the acquisition and protection of migratory bird habitats (U.S. Department of the Interior, Fish and Wildlife Service 2015).

**North American Wetlands Conservation Act:** Act established to conserve North American wetland ecosystems and waterfowl and the other migratory birds and fish and wildlife that depend upon such habitats (U.S. Fish and Wildlife Service 2015).

Encourages partnerships to conserve North American wetland ecosystems for waterfowl, other migratory birds, fish, and wildlife.

Encourages the formation of public-private partnerships to develop and implement wetland conservation projects consistent with the North American Waterfowl Management Plan (NAWMP), a blueprint for continental waterfowl and wetlands conservation, and other North American migratory bird conservation agreements.

Creates the North American Wetlands Conservation Fund to help support projects through grants.

Establishes a nine-member North American Wetlands Conservation Council (Council) to review and recommend grant proposals to the Migratory Bird Conservation Commission for funding.

***Implemented By:***

- United States Fish and Wildlife Service
- North American Wetlands Conservation Council
- Environment Canada
- Migratory Bird Conservation Commission

**State Scale – Washington State**

*General Information – Washington State*

**Wildlife Areas:** The Washington Department of Fish and Wildlife owns designated Wildlife Areas that have been acquired to preserve habitat for fish and wildlife. These areas are located throughout the Salish Sea region (U.S. Department of the Interior, Fish and Wildlife Service 2015). Each area is guided by a management plan that addresses the status of wildlife species and their habitat, habitat restoration, public recreation, weed management, and other activities to meet the department's mission of preserving, protecting and perpetuating fish, wildlife and ecosystems (Washington Department of Fish & Wildlife 2015). Plans are revised periodically to reflect current conditions and the progress of past activities, and to identify new management priorities and actions.

**Implemented by:** Washington State Department of Fish and Wildlife

**Priority Habitats and Species List:** Catalog of species and habitats of conservation and management concern, maintained by the Washington State Department of Fish and Wildlife (Washington Department of Fish & Wildlife 2015). Under this program, the WDFW has developed a series of species and habitat management recommendations.

**Implemented by:** Washington State Department of Fish and Wildlife

**Washington State Shoreline Management Act:** This Act requires local jurisdictions containing shorelines of the state to adopt local Shoreline Master Programs. Shoreline Master Programs guide development and protection efforts along the shoreline – which can include streams with over 20 cubic feet per second mean annual flow, wetlands and floodplains within 200 feet of the shoreline, as well as systems that are associated with the shoreline (Wetlands Program 2015). Shoreline Master Programs must contain regulations addressing development in shoreline associated critical areas, such as fish and wildlife habitat conservation areas. These can include:

- Areas with which endangered, threatened, and sensitive species have a primary association.
- Habitats and species of local importance.
- Commercial and recreational shellfish areas.
- Kelp and eelgrass beds.
- Mudflats and marshes.
- Herring, surf smelt and sand lance spawning areas.
- Naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat.
- Waters of the state.
- Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.
- State natural area preserves and natural resource conservation areas
- Areas critical for habitat connectivity.

Strategies for saving critical areas include limiting uses and avoiding development in some areas, transferring development density to another site or a non-sensitive portion of a large site, and public purchase of valuable or unique wetlands. Buffer areas around critical areas are also used to protect the functions of these critical areas. Mitigation of impacts on critical areas involves reducing the adverse impacts of a project to an acceptable level. In addition to critical areas regulations, non-regulatory and incentive programs are also used to protect critical areas. In addition, Shoreline Master Programs are required to demonstrate that the local jurisdiction has planned for No Net Loss of Ecological Functions over the 20-year planning horizon of the shoreline master program. Permits are required to ensure that proposed activities comply with local shoreline master programs and the SMA.

**Implemented by:** Washington State Department of Ecology and various cities and counties

**Washington State Growth Management Act:** Requires the fastest growing counties and the cities within them to develop and adopt Comprehensive Plans and complimentary zoning codes and other development regulations that guide and manage growth (Wetlands Program 2015). The legislation requires local jurisdictions to identify, designate and protect critical areas. "Critical areas" include the following areas and ecosystems: (a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas (riparian areas); (d) frequently flooded areas; and (e) geologically hazardous areas. Classification means defining categories to which natural resource lands and critical areas will be assigned.

Designation establishes for planning purposes: the classification scheme, the general distribution, location, and extent of resource lands and critical areas. Designation means, at least, formal adoption of a policy statement, and may include further legislative action.

The GMA requires that best available science (BAS) be included in developing policies and development regulations to protect the functions and values of critical areas (Washington State Department of Commerce 2015). Regulations are contained in a Critical Areas Ordinance (CAO) to protect critical areas from development impacts. Strategies for saving critical areas incorporate the concept of environmental mitigation sequencing and no net loss, and include limiting uses and avoiding development in some areas, transferring development density to another site or a non-sensitive portion of a large site, and public purchase of valuable or unique critical areas. In addition to critical areas regulations, non-regulatory and incentive programs are also used to protect critical areas. Regulations must be periodically updated to reflect changes in best available science.

The Department of Commerce provides guidance to local governments in how to identify what constitutes BAS for critical areas protection and how local governments should include science in their policies and development regulations (Washington State Department of Commerce 2015).

During review of a development permit, local agencies must determine how potential development applications could affect the lands within their jurisdiction.

**Implemented by:** Washington State Department of Commerce and various cities and counties

*Marine Species – Washington State*

**Marine Protected Areas:** Marine areas designated by the Washington State Department of Fish and Wildlife for protection and preservation of species and/or habitat (Washington Department of Fish & Wildlife 2015). WDFW has established several forms of marine reserves that affect non-tribal citizens including:

- Conservation Areas where the harvest of all marine resources is prohibited,
- Marine Preserves where the harvest of some marine resources is prohibited, and
- Sea Urchin and Cucumber Reserves where the commercial harvest of these species is prohibited.

There are numerous Marine Protected Areas in the Puget Sound (Washington Department of Fish & Wildlife 2015).

**Implemented by:** Washington State Department of Fish and Wildlife

**Aquatic Reserve Program:** Marine areas established by the Department of Natural Resources to protect habitat and embedded resources (Washington Department of Fish & Wildlife 2015).

**Implemented by:** Washington Department of Natural Resources

*Bird Species – Washington State*

**Washington State Forest Practices Act:** Regulates forest management activities in Washington State, including those on privately owned forestland. Forest practices are activities related to growing, harvesting or processing timber and requires a permit. They are designed to protect public resources, such as fish, water and wildlife, on state and private land, and also ensuring that a new forest is planted after harvest (Washington State Department of Ecology 2015).

**Implemented by:** Washington Department of Natural Resources

**Washington State Department of Fish and Wildlife Forest's Management Strategy:** Establishes overall strategy, policies and procedures to achieve WDFW's goal of preserving, protecting and perpetuating the forests the agency manages while providing sustainable fish and wildlife recreational and commercial opportunities (Tveten 2014).

**Implemented by:** Washington Department of Natural Resources

**Western Governors Association:** Represents the Governors of 19 Western states and 3 U.S.-flag islands. The association is an instrument of the Governors for bipartisan policy development, information exchange and collective action on issues of critical importance to the Western United States. One of the initiatives that the group works on is wildlife corridors and crucial habitat. As part of this initiative, the Association has established the Western Governors' Wildlife Council, which has developed tools to assist states in identifying and conserving crucial wildlife habitat and corridors across the region (Western Governors Association 2015).

*Bird Species – Washington State*

Local Scale - Regional and subregional policymaking in Washington State

**County and local governments:** Local government agencies throughout the region adopt and implement long- and short-range plans and ordinances addressing land development (e.g. Comprehensive Plans, zoning and critical areas ordinances, and stormwater plans and regulations), which address protection of fish and wildlife habitat conservation areas (Municipal Research and Services Center 2015).

In general, these ordinances address new development activities or activities that substantially change existing land uses. As a result, ongoing uses such as agricultural activities, are not required to be modified to be restored and existing agricultural activities can continue. New development or

construction associated with these uses (e.g. expansion of agricultural activities or construction of livestock manure storage facilities) may be subject to local zoning rules.

As landowners of city parks and other locally owned public lands, cities also can manage these resources to protect and restore wildlife habitat. In addition, several cities including Seattle, Tacoma, and Des Moines have established a number of no-take reserves in their shoreline parks.

### *Indigenous Peoples – United States*

Tribal governments take an active role in environmental planning and implement natural resource programs to restore and protect important cultural and natural resources (Washington Tribes 2015). One example is work being conducted by the Nisqually Tribe to restore the Nisqually Delta. The Nisqually Delta Restoration Project, led by the Nisqually National Wildlife Refuge, Ducks Unlimited, and the Nisqually Indian Tribe, represents the single largest tidal marsh restoration project in the Pacific Northwest. The river delta, nearly destroyed by human development, is being restored to natural salt marsh and estuarine flood plain habitat for migratory waterfowl, aquatic mammals, native fish, resident birds and wildlife, and the people who seek to enjoy this remarkable environment (Washington Tribes 2015).

The Nisqually Tribe and its members have been major contributors to this effort, removing dikes and restoring flood plains to 57 acres of the delta owned by the tribe. The tribe has also been instrumental in restoring native plants and conducting fish and animal surveys to aid the resurgence of fish and wildlife to the Nisqually River ecosystem, including salmon and other species whose young require fragile estuarine habitat to develop (Washington Tribes 2015).

Federally recognized tribes are eligible for funding through a number of different programs to complete land acquisition as well as habitat conservation and restoration projects. An example is the Tribal Wildlife Grants issued by the US Fish and Wildlife Service that fund projects that benefit fish and wildlife resources and their habitats (U.S. Department of the Interior, Fish and Wildlife Service 2015).

Tribes with off-reservation hunting rights may have a tribal hunting committees that develop regulations and management strategies for their tribal members (Washington Department of Fish & Wildlife 2015). Tribes have taken the lead in several areas on research projects to gather the information that is needed to better manage wildlife resources. Tribes also work collaboratively with agencies such as the Washington State Department of Fish and Wildlife to develop plans for key wildlife populations. Some tribes have also entered into hunting cooperative agreements with the Washington State Department of Fish and Wildlife.

### *Government/Non-Government Collaboration – United States*

The USFWS has identified a number of partnerships with NGOs involved in species conservation (US Fish and Wildlife Service 2015), including:

- Association of Zoos and Aquariums (AZA)
- Bat Conservation International (BCI)
- Center for Plant Conservation

- National Fish and Wildlife Foundation (NFWF)
- The Nature Conservancy
- NatureServe
- North American Native Fishes Association

In addition, USFWS operates the Partners for Fish and Wildlife Program, which is a national, voluntary habitat restoration program that provides financial and technical assistance to private landowners, Tribes, and other conservation partners. It focuses on restoring habitat for migratory birds, anadromous fish, and declining plant and animal species. Focus habitats in Washington include prairies, wetlands, and riparian and instream habitats (US Fish and Wildlife Service 2015).

There are also a number of land trusts and conservation organizations that have acquisition programs, or conduct partial acquisition of development rights or conservation easements, and conservation leasing (The National Conservation Easement Database 2015).

### *Non-Governmental Organizations – United States*

There are a number of non-governmental organizations that have traditionally worked to conserve wildlife species and habitats, among them:

- Environmental Defense
- Sierra Club
- Wildlife Conservation Society
- Greenpeace
- World Wildlife Federation
- Natural Resources Defense Council
- Nature Conservancy
- International Fund for Animal Welfare
- World Society for the Protection of Animals
- Defenders of Wildlife

Other organizations have been focused on marine mammal protection:

- The Oceans Conservancy
- Whale and Dolphin Conservation Society
- American Cetacean Society

- Ocean Mammal Institute
- International Marine Mammal Project
- Seaflow
- Wildlife Trust

Finally, others have focused on protection of birds and their habitat:

- National Audubon Society
- American Bird Conservancy
- Ducks Unlimited

## Canada – Wildlife and Biodiversity

Management of wildlife in Canada is shared by the federal, provincial, and territorial governments (Beckplumb 2013). Federal responsibility includes protection and management of migratory birds as well as nationally significant wildlife habitat, and responsibilities for endangered species, control of international trade in endangered species, research on wildlife issues of national importance, and international wildlife treaties and issues.

For the most part, provincial and territorial wildlife agencies are responsible for all other wildlife matters (Beckplumb 2013). These include conservation and management of wildlife populations and habitat within their borders, issuing licenses and permits for fishing, game hunting, and trapping, guidelines for safe angling and trapping and outfitting policies.

### *Government Entities - Canada*

#### Federal Scale - Canada

##### *General Information - Canada*

**Canada Wildlife Act:** Allows for the conservation and study of wildlife and the creation of National Wildlife Areas. The purpose of wildlife areas is to preserve habitats that are critical to migratory birds and other wildlife species, particularly those that are at risk. National Wildlife Areas can only be designated on lands owned by the federal government. Where lands are not federally owned, Environment Canada may enter into an agreement with the landowner to establish and cooperatively manage a wildlife area, which would not be designated under the Regulations.

The Wildlife Area Regulations prohibits all activities that could be harmful to species and to their habitat, unless a permit is issued indicating the permitted activity. Activities such as hiking, canoeing, photography and bird watching can be carried out without a permit in most areas (Government of Canada 2008).

The following National Wildlife Areas are located in British Columbia:

- Alaksen National Wildlife Area (NWA)
- Columbia NWA
- Qualicum NWA
- Vaseux-Bighorn NWA
- Widgeon Valley NWA

*Marine Species - Canada*

**Canada Oceans Act:** The federal government has jurisdiction over offshore waters—from the low watermark out to 12 nautical miles. This is an Act addressing protection and development of oceans and coastal waters (Fisheries and Oceans Canada 2009). The Act contains several provisions that may address the Salish Sea, including:

- Directing use of Integrated Management strategies
- Directing the development of a national oceans strategy to guide the management of Canada's estuarine, coastal and marine ecosystems;
- Authorizing the Minister of Fisheries and Oceans to establish a national system of marine protected areas in order to protect and conserve:
  - Commercial and non-commercial fishery resources and their habitats;
  - Endangered marine species and their habitats;
  - Unique habitats;
  - Marine areas of high biodiversity or biological productivity; and
  - Any other marine resource or habitat necessary to fulfill the Minister's mandate.

Using ecosystem-based management, Canada has identified nineteen eco-regions and five Large Oceans Management Areas (LOMAs). The Pacific Northwest Coast Integrated Management Area (PNCIMA) has been designated on the coastal waters around the north portion of Vancouver Island, from Bute Inlet on the mainland, across to Campbell River on the east side of Vancouver Island and the Brooks Peninsula on the west side of Vancouver Island. Its western boundary is the base of the shelf slope.

For each LOMA, Canada has developed an Ecosystem Overview and Assessment Report (EOAR) which describes the status and trends of physical and biological aspects of their respective ecosystems, and identifies key linkages between the two (e.g. trophic structure). Each EOAR supports the identification of Ecologically and Biologically Significant Areas (EBSAs), degraded areas, depleted species, and Ecologically Significant Species/Community Properties (ESS/CPS). EBSAs are areas that have a particularly high ecological or biological significance and require the provision of a greater-than-usual degree of risk aversion in the management of activities. Some of these areas may be sensitive to particular threats posed by human activities and require special management measures to achieve the protection

required to maintain their ecological character. For the PNCIMA area, a draft integrated management plan has been developed.

In addition to LOMAS, the Ocean Act also established a network of marine protected areas, including:

- Marine Protected Areas established by Fisheries and Oceans Canada under the Oceans Act to protect and conserve important fish and marine mammal habitats, endangered marine species, unique features and areas of high biological productivity or biodiversity. (Note: Red Rocks is under consideration of being designated as a Marine Protected Area).
- Marine Wildlife Areas established by Environment Canada to protect and conserve habitat for a variety of wildlife, including migratory birds and endangered species.
- National Marine Conservation Areas established by Parks Canada to protect and conserve representative examples of Canada's natural and cultural marine heritage, and to provide opportunities for public education and enjoyment. (Note: The southern Strait of Georgia is under study for designation as a National Marine Conservation Area).

The Act also legally defines Canada's ocean boundaries and assigns federal responsibility to the Minister of Fisheries and Oceans Canada for new and emerging ocean-related activities not previously assigned by Parliament. Resulted in development of Canada's Ocean Strategy.

***Implemented by:*** Fisheries and Oceans Canada

**Canada National Marine Conservation Areas Act:** Authorizes protection of designated marine areas for sustainable use (Government of Canada 2008).

NMCA are protected from such activities as ocean dumping, undersea mining, and oil and gas exploration and development. Traditional fishing activities would be permitted, but managed with the conservation of the ecosystem as the main goal. (Note: The southern Strait of Georgia is under study for designation as a National Marine Conservation Area).

***Implemented by:*** Parks Canada

**Canada-British Columbia Marine Protected Area Network Strategy:** Developed jointly by federal and provincial agencies to address coordination in the management of marine protected areas (Minister of Fisheries and Oceans 2015). The Strategy proposes three elements:

- A joint federal-provincial approach: All relevant federal and provincial agencies will work collaboratively to exercise their authorities to protect marine areas.
- Collaborative decision-making: Government agencies will employ a collaborative decision-making process with First Nations from the onset of the planning process and throughout, respecting existing authorities and building on existing governance structures and processes.
- A participatory process: Government agencies will provide meaningful opportunities for participation, consultation and information exchange with marine stakeholders, coastal communities and the public from early planning stages through to design and implementation.

*Bird Species - Canada*

**Migratory Birds Convention Act:** Most species of birds in Canada are protected under this Act, which was first enacted in 1917 to implement the Migratory Birds Convention with the United States. Established authority to create Migratory Bird Sanctuaries (Government of Canada 2011). Regulations enacted under the Act prescribe rules and prohibitions regarding the taking, injuring, destruction or molestation of migratory birds or their nests or eggs in the sanctuaries. Hunting of listed species under the Act is not permitted in any Migratory Bird Sanctuary.

The following Migratory Bird Sanctuaries are located in British Columbia:

- Christie Islet Migratory Bird Sanctuary (MBS)
- Victoria Harbour MBS
- George C. Reifel MBS (also known as Fraser River Estuary)
- Nechako River MBS
- Shoal Harbour MBS
- Vaseux Lake MBS
- Esquimalt Lagoon MBS

Provincial Scale – British Columbia

*General Information – British Columbia*

**British Columbia Conservation Framework:** Guides efforts to conserve species and ecosystems by establishing priorities for action (Ministry of Environment 2015). The tools within the Conservation Framework use the best available data from provincial, and international databases to assess species and ecosystems for conservation action. The Framework recommends actions such as ecosystem and habitat protection, invasive species control, stewardship, population management, and planning processes.

**Implemented by:** Ministry of Environment

**Environment and Land Use Act:** Empowers a Land Use Committee of Cabinet to ensure all aspects of the preservation and maintenance of the natural environment are fully considered in the administration of land use and resource development (BC Parks - Province of British Columbia 2015). Orders can be made respecting the environment or land use, including the establishment of protected areas.

**Implemented by:** Minister of Forests, Lands and Natural Resource Operations

**British Columbia Ecological Reserves Act:** Provides for the establishment and administration of ecological reserves (BC Parks - Province of British Columbia 2015). Ecological reserves are Crown lands reserved for ecological purposes including the following:

- Areas suitable for scientific research and educational purposes associated with studies in productivity and other aspects of the natural environment;
- Areas that are representative examples of natural ecosystems in British Columbia;
- Areas that serve as examples of ecosystems that have been modified by human beings and offer an opportunity to study the recovery of the natural ecosystem from modification;
- Areas where rare or endangered native plants and animals in their natural habitat may be preserved; and,
- Areas that contain unique and rare examples of botanical, zoological or geological phenomena.

The legislation guiding the ecological reserve program is very restrictive and all extractive activities are prohibited. As such, ecological reserves are considered to be the areas most highly protected and least subject to human influence.

Ecological reserves can be established by two means: (i) by order in council under the Ecological Reserve Act or (ii) by inclusion in schedules to the Protected Areas of British Columbia Act.

While most ecological reserves are open to the public, they are not established for outdoor recreation and no extractive activities are allowed.

**Implemented by:** British Columbia Parks

**British Columbia Wildlife Act:** Regulates the management of wildlife in British Columbia, other than on federal lands (Blakes 2015), including:

- Provisions regulating hunting,
- Protections for raptors and their habitats, and
- Provisions for protecting public and native wildlife. This can include designation of wildlife management areas (WMA). A WMA is an area of land designated for the benefit of regionally to internationally significant fish and wildlife species or their habitats. Conservation and management of fish, wildlife and their habitats is the priority in a WMA but other compatible land uses may be accommodated. Within these designated areas, certain activities can be prohibited or limited. A Wildlife Management Area permit may need to be obtained for activities. A management plan, developed in consultation with partners, First Nations, agencies, stakeholders and the public is used to help guide activities in a WMA.

*Marine Species – British Columbia*

**Marine Planning Partnership for the North Pacific Coast (MaPP)** - The MaPP initiative is a partnership between British Columbia and 18 member First Nations that is planning for marine uses and long - term ocean health on B.C.'s North Pacific Coast (Marine Planning Partnership for the North Pacific Coast 2015). The study is divided into four subareas, one of which is located in the marine waters between the northern portion of Vancouver Island and the mainland.

The MaPP initiative focuses on First Nation and provincial marine interests where the provincial government has legal jurisdiction and regulatory authority, namely the foreshore (intertidal zone), coastal “inland waters” on the outer coast and the lands covered by these waters.

*Terrestrial Species – British Columbia*

**British Columbia Private Managed Forest Land Act:** Creates a mechanism for the regulation of forest practices on private land categorized as managed forest. Provides mechanism to establish and enforce environmentally sustainable forest practices on private managed forest land (Blakes 2015).

***Implemented By:*** Managed Forest Council

**British Columbia Forest and Range Practices Act:** Establishes regulations for forestry practices on public land (Blakes 2015), including:

- Requirements for forest operators to set specific targets or strategies for environmental objectives established by the government for soils, timber, fish, biodiversity, cultural heritage, forage and associated plant communities, visual quality, water, wildlife, and resource and recreation features.
- Requirements for preparation of five-year Forest Stewardship Plans designed to achieve the targets or strategies, and must operate on the land base in accordance with both the targets or strategies and their plans.

***Implemented By:*** British Columbia Ministry of Forests, Lands & Natural Resource Operations

**Identified Wildlife Management Strategy:** The IWMS provides direction, policy, procedures and guidelines for managing Identified Wildlife. The goals of the Strategy are to minimize the effects of forest and range practices on Identified Wildlife situated on Crown land and to maintain their limiting habitats throughout their current ranges and, where appropriate, their historic ranges. Statutory authority is provided under provisions of the *Forest and Range Practices Act*. Identified wildlife can include species at risk and regionally important wildlife.

***Implemented By:*** British Columbia Ministry of Environment in partnership with Ministry of Forests, Lands & Natural Resource Operations

Local Scale - Regional and subregional policymaking in British Columbia

Local governments (municipalities and regional districts) hold the authority to plan and regulate land use within their respective boundaries. They do this through official community plans, zoning, development permits, subdivision authority, building permits, and a variety of regulatory bylaws that affect land development.

*Indigenous Peoples - Canada*

Court decisions have confirmed that First Nations have constitutionally protected rights to hunt and fish for food, social and ceremonial purposes.

On Reserves, First Nation regulate wildlife, under by-law-making powers authorized by the *Indian Act*. Yet, most hunting and gathering usually takes place off reserve within the boundaries of a Nation's traditional territory and beyond. All Nations that have entered into comprehensive governance arrangements with the Crown under treaty have reached agreement on issues of wildlife management and the regulation of hunting within their broader territories. Other comprehensive arrangements are restricted to reserve lands. Most, if not all, Nations will want to discuss jurisdiction over wildlife as part of any comprehensive governance negotiations.

Under the New Relationship, the Ministry of the Environment has indicated that it is engaging with First Nations to determine how to cooperatively manage wildlife in a manner consistent with the constitutional recognition of First Nations hunting rights and the New Relationship with First Nations and Indigenous People.

### *Government/Non-Government Collaboration - Canada*

British Columbia's Ministry of Forests, Lands & Natural Resource Operations has specifically noted the importance of stakeholder consultations, partnerships with external agencies, and working agreements to facilitate habitat-sensitive resource use (Ministry of Forests Lands and Natural Resource Operations 2015).

The Ministry engages in a number of different partnerships and multi-partner arrangements with non-governmental organizations, various levels of government, industry, and others involved in land acquisition and habitat protection as part of its conservation lands program (Ministry of Forests Lands and Natural Resource Operations 2015).

Some of the Ministry's identified conservation land partners include:

- Ducks Unlimited Canada
- The Nature Trust of BC
- Habitat Conservation Trust Foundation
- Nature Conservancy of Canada
- The Land Conservancy of BC
- Environment Canada/Canadian Wildlife Service
- Pacific Salmon Foundation
- First Nations and other federal, Provincial and local government agencies
- Other non-governmental organizations and industry

Many of these long-standing partnerships have been formalized in regional, provincial or international multi-party initiatives focused on acquiring and managing conservation lands (Ministry of Forests Lands and Natural Resource Operations 2015). These initiatives include, for example:

- Conservation Partners of BC
- Pacific Estuary Conservation Program
- Crown Land Securement Partner Program
- Vancouver Island Conservation Land Management Program
- North American Waterfowl Management Plan (including Pacific Birds)

*Non-Governmental Organizations - Canada*

There are a number of non-governmental organizations that have traditionally worked to conserve wildlife species and habitats, among them:

- Canadian Council on Ecological Areas
- Canadian Land Trust Alliance
- Canadian Parks & Wilderness Society
- Canadian Wildlife Federation
- Nature Canada
- Nature Conservancy of Canada
- The Land Conservancy of BC
- Sierra Club of Canada
- Sierra Club of BC
- Stewardship Canada
- Wildlife Habitat Canada
- World Wildlife Fund Canada
- David Suzuki Foundation
- Ecoforestry
- Forest Ethics
- Sustainable Forest Management Network
- Tree Canada Foundation

Other organizations have been focused on marine mammal protection:

- Greenpeace Canada
- Georgia Strait Alliance
- Marine Life Sanctuaries Society
- Underwater Council of British Columbia

Finally, others have focused on protection of birds and their habitat:

- Ducks Unlimited Canada

### Transboundary Policymaking – Wildlife and Biodiversity

#### Laws and Policies:

**Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** Establishes a system of import/export regulations to prevent the over-exploitation of plants and animals listed in three appendices to the Convention. Different levels of trade regulations are provided depending on the status of the listed species and the contribution trade makes to decline of the species (U.S. Department of the Interior, Fish and Wildlife Service 2015).

**Convention on Wetlands of International Importance (Ramsar Convention):** Identifies and recognizes wetlands of international importance.

**Convention between the United States and Great Britain (for Canada) for the Protection of Migratory Birds:** Establishes a uniform system of protection for certain species of birds which migrate between the United States and Canada, in order to assure the preservation of species either harmless or beneficial to man (U.S. Department of the Interior, Fish and Wildlife Service 2015).

**International UNESCO biosphere reserve program:** Aims to conserve biodiversity while taking human development into account (U.S. Department of the Interior, Fish and Wildlife Service 2015).

**U.S.-Canada Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem:** Bilateral agreement between the United States and Canada that outlines common goals and objectives and provides a context for federal agency collaboration on transboundary ecosystem management of the Salish Sea. Focus on knowledge and information sharing as well as transboundary demonstration projects that contribute to improved air quality, water quality, and habitat and species health. Action plans are generated, updated, and monitored to identify policy activities for focus areas. Key activities include:

- Canadian-US (transboundary) collaboration
- Engaging Coast Salish First Nations and Tribes
- Information and knowledge sharing
- Transboundary demonstration projects that contribute to improved air quality, water quality and habitat and species health

The current action plan (2015-2016) focuses on promoting knowledge and information exchange and on spotlighting transboundary demonstration projects (US EPA 2015).

***Implemented by:*** EPA and Environment Canada

**Transboundary Ecosystem Indicators Project/Health of Salish Sea Ecosystem Report:** Uses shared set of ecosystem indicators to report of the health of the Salish Sea. Emphasis on collaboration across the U.S.-Canada international border, and across various levels of government, non-profits, First Nations and tribes (US EPA 2015).

***Implemented by:*** EPA and Environment Canada

**Policy Actors:**

**Conservation Northwest:** Non-governmental organization working in Washington State and British Columbia to protect wildlife species and habitat.

Note: There have been efforts to link transboundary wildlife conservation across the Cascadia area, most notably in talks revolving around the expansion of the Ross Dam on the Upper Skagit River, in which an environmental group testifying before the International Joint Commission advocated for a Salish National to be established in BC, that would be parallel with and managed together with the North Cascades Park complex (Abel et al. 2011). More recently, the **Washington Wildlife Habitat Connectivity Working Group** has formed a Transboundary Subgroup to inventory and summarize existing habitat connectivity assessments that included Washington and British Columbia, gather stakeholder input, and summarize recommendations for connectivity needs in the British Columbia-Washington transboundary region (Washington Wildlife Habitat Connectivity Working Group 2013).

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## APPENDICES

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## APPENDICES

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### APPENDIX A: LIST OF PUGET SOUND PARTNERSHIP ECO NET MEMBERS

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The following list of ECO Net members is available at [Puget Sound Starts Here](#):

- [10,000 Years Institute](#)
- [12,000 Rain Gardens](#)
- [A Gift of Green](#)
- [Adopt-A-Stream Foundation](#)
- [AMEC Earth & Environmental, Inc.](#)
- [American Family Stories](#)
- [Antioch University – Center for Creative Change](#)
- [Applied Research Northwest](#)
- [Association of Washington School Principals](#)
- [Audubon Washington](#)
- [Bainbridge Island Land Trust](#)
- [Bainbridge Island Sportsmen's Club](#)
- [Bainbridge Island Watershed Council](#)
- [Beam Reach – Marine Science and Sustainability School](#)
- [Bellevue Stream Team](#)
- [Bellingham Parks and Recreation](#)
- [Blue Heron School](#)
- [Built Green Clallam County](#)
- [Burke Museum of Natural History and Culture](#)
- [Calyx Sustainable Tourism](#)
- [Cama Beach Foundation](#)
- [Capitol Land Trust](#)
- [Cascade Interpretive Consulting LLC](#)
- [Cascadia Environmental Science Center](#)
- [Cascadia Pacific Group](#)
- [Cedar River Council](#)
- [Cedar River Watershed Education Center](#)
- [Center For Ocean Sciences Education Excellence-OLC](#)
- [Center for Whale Research](#)
- [Citizens for a Healthy Bay](#)
- [City of Arlington](#)
- [City of Auburn](#)
- [City of Bellevue](#)
- [City of Bellingham](#)
- [City of Bothell](#)
- [City of Covington](#)
- [City of DuPont](#)
- [City of Edmonds](#)

- [City of Everett](#)
- [City of Federal Way](#)
- [City of Ferndale](#)
- [City of Gig Harbor](#)
- [City of Issaquah](#)
- [City of Kenmore](#)
- [City of Kent](#)
- [City of Kirkland](#)
- [City of Lacey](#)
- [City of Mercer Island](#)
- [City of Milton](#)
- [City of Mountlake Terrace](#)
- [City of Newcastle](#)
- [City of Oak Harbor](#)
- [City of Olympia](#)
- [City of Port Angeles](#)
- [City of Port Townsend](#)
- [City of Puyallup](#)
- [City of Renton](#)
- [City of Seattle](#)
- [City of Seattle Restore Our Waters](#)
- [City of Shoreline](#)
- [City of Snohomish](#)
- [City of Tacoma](#)
- [City of Tacoma – Environmental Services](#)
- [City of Tacoma Open Space Program](#)
- [City of Tumwater](#)
- [City of Woodinville](#)
- [Clallam Conservation District](#)
- [Clallam County](#)
- [Clean Water Kitsap](#)
- [Climate Solutions](#)
- [Clinton Progressive Assoc.](#)
- [Clover Park Tech College](#)
- CommEn Space
- Common Threads Farm
- Community Coalition for Environmental Justice
- Conservation Commission
- Coupeville School District
- Deception Pass Park Foundation
- Demeter Matrix Alliance
- Divine Earth Gardening Project
- Drayton Harbor Community Oyster Farm
- Dungeness River Audubon Center
- Duwamish River Cleanup Coalition
- EarthCorps
- Earthlife
- Earth Ministry

- [ECOSS](#)
- [Edmonds Community College](#)
- [Edmonds Parks & Recreation – Discovery Programs](#)
- Enviro-Ed
- [EnviroIssues](#)
- [EnviroMedia](#)
- [Environmental Education Assoc. of WA](#)
- [Environmental Outreach and Stewardship Alliance](#)
- [Environmental Protection Agency, Region 10](#)
- [The Evergreen State College](#)
- [ESM Consulting Engineers](#)
- [Everett Schools](#)
- [Farallon Consulting, L.L.C.](#)
- [Feet First](#)
- [Feiro Marine Life Center](#)
- [Fennel Creek Habitat Team](#)
- [First Creek Watershed Forterra](#)
- [Foss Waterway Seaport](#)
- [Frause](#)
- [Friends of Cedar River Watershed](#)
- [Friends of Cottage Lake](#)
- [Friends of Deschutes Watershed Center](#)
- [Friends of Skagit Beaches](#)
- [Friends of the Earth](#)
- [Friends of the Hidden River](#)
- [Friends of the Hylebos](#)
- [Friends of the Issaquah Salmon Hatchery](#)
- [Friends of the Lower White River](#)
- [Friends of the San Juans](#)
- [Full Circle Environmental, Inc.](#)
- [Geneva Consulting](#)
- [Good Nature Publishing Company](#)
- [Grapeview School](#)
- [Great Peninsula Conservancy](#)
- [Green Diamond Resource County](#)
- Grizzly Septic Services
- [Harbor WildWatch](#)
- [Homewaters Project](#)
- [Hood Canal Coordinating Council](#)
- [Hood Canal Marina](#)
- [Hood Canal Salmon Enhancement Group](#)
- [Hood Canal Watershed Education Network](#)
- [Horses for Clean Water](#)
- [Institute for Children's Environmental Health](#)
- [Intercity Transit – Smart Moves Youth Ed.Program](#)
- [International Community School](#)
- [ISE Consultants](#)
- [Island County Public Health](#)

- [Island County Shore Stewards](#)
- [IslandWood](#)
- [Jamestown S'Klallam Tribe](#)
- [Jefferson County 4-H](#)
- [Jefferson County Water Quality](#)
- [Jones and Jones](#)
- [Kayak Education Leadership Program](#)
- [Killer Whale Tales](#)
- [King Conservation District](#)
- [King County](#)
- [King County Dept. of Natural Resources & Parks](#)
- [King County Metro](#)
- [King County Noxious Weed Control Program](#)
- [King County Watershed Stewardship Program](#)
- [King/Snohomish Master Builders Association](#)
- [Kitsap Audubon Society](#)
- [Kitsap County Dept. of Community Development](#)
- [Kitsap County Health District](#)
- [Kitsap County Natural Resources](#)
- [Kitsap County Parks](#)
- [Kitsap County Public Works](#)
- [Kitsap County Stream Team](#)
- [Kitsap Homebuilders Assoc.](#)
- [Kitsap Peninsula Visitor & Convention Bureau](#)
- [Klarlegan Consulting](#)
- [Komachin Middle School](#)
- [Lake Stevens School District](#)
- [Lake WA Girls Middle School](#)
- [Lead Entity for Salmon Recovery, San Juan County](#)
- [Lesley University](#)
- [LightHawk](#)
- [Lime Kiln Point State Park](#)
- [LOTT Alliance](#)
- [Madison Family Literacy](#)
- [Maple Elementary](#)
- [Marine Resource Committee – Skagit County](#)
- [Marine Resource Committee, Snohomish County](#)
- [Marine Resources Committee, San Juan County](#)
- [Highline Community College – MaST](#)
- [Mason Conservation District](#)
- [Mason County](#)
- [Mason County Public Health – Environmental Health](#)
- [Meerkerk Rhododendron Gardens](#)
- [Mercer Island Habitat](#)
- [Mercer Slough Environmental Education Center](#)
- [Mid Puget Sound Fisheries Enhancement Group](#)
- [Mountain Visions](#)
- [Mountains to Sound Greenway Trust](#)

- [Mukilteo Wildlife Habitat Project](#)
- [Nahkeeta NW](#)
- [National Wildlife Federation – Pacific Regional Center](#)
- [Native Growth Consulting and Education](#)
- [Native Plant Salvage Alliance](#)
- [Natural Resource Conservation Service](#)
- [Natural Resources Youth Camp](#)
- [Nature Vision](#)
- [Newcastle Weed Warriors](#)
- [Nisqually River Council](#)
- [Nisqually Stream Stewards](#)
- [NOAA Ocean Service](#)
- [NOAA Restoration Center](#)
- [Nonprofits Unlimited](#)
- [Nooksack Salmon Enhancement Assoc.](#)
- [Normandy Park City Council](#)
- [North Cascades Institute](#)
- [North Cascades National Park](#)
- [North Olympic Land Trust](#)
- [North Olympic Lead Entity for Salmon](#)
- [North Olympic Peninsula Skills Center](#)
- [North Olympic Salmon Coalition](#)
- [NW Aquatic and Marine Educators](#)
- [NW Indian Fisheries Commission](#)
- [NW Marine Trade Association](#)
- [NW Maritime Center](#)
- [NW Straits Commission](#)
- [Ocean Inquiry Project](#)
- [Ocean Research College Academy](#)
- [Oceans For Youth](#)
- [Office of Superintendent of Public Instruction](#)
- [Olympia School District](#)
- [Olympic Broadcasting, Inc.](#)
- [Olympic Coast National Marine Sanctuary](#)
- [Olympic College](#)
- [Olympic Educational Service District 114](#)
- [Olympic Environmental Council Coalition](#)
- [Olympic National Park](#)
- [Olympic Outdoor Center](#)
- [Olympic Park Institute](#)
- [Olympic Peninsula Environmental News](#)
- [ONE/Northwest](#)
- [Orca Network](#)
- [Oysters For Salmon](#)
- [Pacific Education Institute](#)
- [Pacific NW Salmon Center](#)
- [Pacific Rim Institute](#)

- [Pacific Shellfish Institute](#)
- [Padilla Bay Foundation](#)
- [Padilla Bay National Estuarine Research Reserve](#)
- [Peninsula College](#)
- [PERK in Kenmore](#)
- [Pierce Conservation District](#)
- [Pierce County](#)
- [Pierce County Public Works and Utilities](#)
- [Pierce County Water Programs](#)
- [Piper's Creek Watershed Project](#)
- [Point Defiance Zoo and Aquarium](#)
- [Port of Bellingham](#)
- [Port of Everett](#)
- [Port of Seattle](#)
- [Port Townsend Marine Science Center](#)
- [Puget Consumer Co-op](#)
- [Puget Sound Bird Observatory](#)
- [Puget Sound Car Wash Association](#)
- [Puget Sound Energy](#)
- [Puget Sound Magazine](#)
- [Puget Sound Nearshore Ecosystem Restoration Project](#)
- [Puget Sound Partnership](#)
- [Puget Sound Regional Council](#)
- [Puget Sound Restoration Fund](#)
- [Puget Soundkeeper Alliance](#)
- [Puyallup River Watershed Council](#)
- [Puyallup School District](#)
- [RE Sources](#)
- [Washington State Recreation and Conservation Office](#)
- [Reef Environmental Education Foundation](#)
- Regeneration Productions
- [REI](#)
- [Resource Stewards, LLC](#)
- [Resource-Media](#)
- [Room Nine Community School](#)
- [Ross & Associates](#)
- [Royal Roads University](#)
- [Russell Family Foundation](#)
- [Salish Sea Expeditions](#)
- [Salmon People](#)
- [Salmon Recovery Funding Board](#)
- [Samish Indian Nation Dept. of Natural Resources](#)
- [San Juan County Land Bank](#)
- [San Juan Islands Visitors Bureau](#)
- [San Juan Preservation Trust](#)
- [Save Lake Sammamish](#)
- Scow Bay Stewards
- [Seattle Aquarium Society](#)

- [Seattle Art Museum](#)
- [Seattle Girls School](#)
- [Seattle Parks and Recreation](#)
- [Seattle Public Schools](#)
- [Seattle Public Utilities](#)
- [Seattle Waldorf School](#)
- [Sequalitchew Creek Watershed Council](#)
- [Service, Education & Adventure](#)
- [Shannon Point Marine Center](#)
- [Shoreline Solar Project](#)
- [Silverdale Water District](#)
- Skagit Alternative Futures Project
- [Skagit Conservation District](#)
- [Skagit Conservation Education Alliance](#)
- [Skagit County](#)
- [Skagit County Marine Resources Committee](#)
- [Skagit County Public Works](#)
- [Skagit Fisheries Enhancement Group](#)
- [Skagit Public Utilities District](#)
- [Skagit River Bald Eagle Awareness Team](#)
- [Skagit River System Cooperative](#)
- [Skagit Watershed Council](#)
- [Sno-King Watershed Council](#)
- [Snohomish Conservation District](#)
- [Snohomish County](#)
- [Snohomish County Public Works](#)
- [Snohomish County Solid Waste Division](#)
- [Snohomish County Surface Water Management](#)
- [Snoqualmie Watershed Forum](#)
- [Social Marketing Services](#)
- [Sonoji Sakai Intermediate School](#)
- [Sound Experience](#)
- [Sound Salmon Solutions](#)
- [Soundwide Starrfish Environmental Consulting](#)
- [South Puget Sound Community College](#)
- [South Puget Sound Salmon Enhancement Group](#)
- [South Sound Estuary Assoc.](#)
- [South Sound GREEN](#)
- [South Whidbey Tilth Assoc.](#)
- [Sportsman for the Pres. of our Rivers and Streams](#) (Facebook)
- [Stadium High School](#)
- [Starbucks Corporation](#)
- [State of WA](#)
- [Stewardship Partners](#)
- [Stewart Strategies](#)
- [Still Hope Productions](#)
- [Stillaguamish Tribe](#)
- [Stillwaters Environmental Education Center](#)

- [Streamkeepers of Clallam County](#)
- [Sudden Valley Community Association](#)
- [Surfrider Foundation](#)
- Sustainability Education and Planning Consultant
- [Sustainability Foundation](#)
- [Sustainable Cascadia](#)
- [Sustainable Connections](#)
- [Sustainable Edmonds](#)
- [Sustainable Fisheries Foundation](#)
- Sustainable Hotel & Tourism Consultants
- [Sustainable Seattle](#)
- [Swan Lake Watershed Preservation Group](#)
- [Swan School](#)
- [Symbiosis Tree Care](#)
- [Tacoma Liveabards](#)
- [Tacoma-Pierce County Health Dept.](#)
- [Tahoma Audubon Society](#)
- [Tahoma School District](#)
- [Taylor Shellfish Company](#)
- [Thalassa Consulting](#)
- [Thalassa Education & Outreach](#)
- [The Center for Wooden Boats](#)
- [The Evergreen State College](#)
- [The Nature Conservancy](#)
- [The Public Advocate](#)
- [The Whale Museum](#)
- [The Whale Trail](#)
- [Thurston Conservation District](#)
- [Thurston County Dept of Water and Waste Management](#)
- [Thurston County Environmental Health](#)
- Transition Whidbey
- [Triangle Associates, Inc.](#)
- [Trust for Public Land](#)
- [Tulalip Tribe Natural Resources](#)
- [Tulalip Tribes](#)
- Unicorn Studios of Poulsbo
- [University of Puget Sound](#)
- [University of WA](#)
- [Urban Waters](#)
- [Urban Wilderness Project](#)
- [US Fish and Wildlife](#)
- [US Forest Service, Pacific NW Research Station](#)
- [USDA Forest Service](#)
- [UW Family Medicine](#)
- [UW School of Marine Affairs](#)
- [UWEO Engineering and Technology Programs](#)
- [Veterans Conservation Corp](#)
- [WA Parks and Recreation](#)

- [WA Public Utility](#)
- [WA Agriculture and Forestry Education Foundation](#)
- [WA BEACH Program](#)
- [WA Biodiversity Council](#)
- [WA Conservation Corps](#)
- [WA Dept. of Fish and Wildlife](#)
- [WA Dept. of Natural Resources](#)
- [WA Hunter Education Instructors Assoc.](#)
- [WA Native Plant Society – Koma Kulshan Chapter](#)
- [Cama Beach State Park](#)
- [WA Sea Grant](#)
- [WA State Dept. of Ecology](#)
- [WA State Dept. of Health](#)
- [WA State Historical Society](#)
- [WA State Lake Protection Assoc.](#)
- [WA State University](#)
- [WA Toxics Coalition](#)
- [WaterTenders](#)
- [West Seattle Sound Angels](#)
- West Seattle Wildlife Habitat Project
- [West Sound Watersheds Lead Entity](#)
- [Huxley College of the Environment, WWU](#)
- [Whatcom County Marine Resources Committee](#)
- [Whatcom County Public Works](#)
- [Whidbey Audubon Society](#)
- [Whidbey Institute at Chinook](#)
- [Whidbey Island Conservation District](#)
- [Whidbey Island Wildlife Habitat Project](#)
- [Whidbey Watershed Stewards](#)
- [Wild Fish Conservancy](#)
- [Wilderness Awareness School](#)
- [Wings Over Watersheds](#)
- [Wolf Hollow Wildlife Rehabilitation Center](#)
- [Woodland Park Zoo](#)
- [WRIA 8 – Lake Washington/Cedar/Sammamish Watershed](#)
- [WSU Beach Watchers – Clallam County](#)
- [WSU Beach Watchers – San Juan County](#)
- [WSU Beach Watchers – Whatcom County](#)
- [WSU Extension – Island County Beach Watchers](#)
- [WSU Extension – Island County Waste Wise](#)
- [WSU Extension – Jefferson County](#)
- [WSU Extension – King County](#)
- [WSU Extension – Kitsap County](#)
- [WSU Extension – Mason County](#)
- [WSU Extension – Skagit County](#)
- [WSU Extension – Snohomish County](#)
- [WSU Extension – Thurston County](#)
- [WSU Extension – Whatcom County](#)

- [WSU Extension – Pierce County](#)
- [WSU Extension Rain Garden Program](#)
- [WSU Puyallup Research and Extension](#)

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## APPENDIX B: HIGH-LEVEL COMPARISON OF ISSUES AREAS – UNITED STATES AND CANADA

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### Overview

The *Inventory of Policy Actors and Instruments Relevant to the Salish Sea* has not attempted to analyze or rigorously compare the environmental policies of British Columbia and Washington. This Appendix is an attempt to develop a preliminary, high-level comparison of the different management approaches used in the United States and Canada. The Appendix is organized by the 16 different environmental issue areas included in the *Inventory of Policy Actors and Instruments Relevant to the Salish Sea*. For each issue area, a number of key topic areas are identified for comparison – for each topic area, a brief summary of applicable information from the United States and Canada is included. Different scales may be included (e.g. federal, state/provincial, or local), depending on the scale most appropriate to the topic area. Topic areas vary for each issue area, and could include the principal laws and policies that are used in managing a particular environment issue, as well as mechanisms in place for transboundary collaboration. For more detailed information on the policy actors, laws or policies mentioned, please consult the specific issue area in the *Inventory of Policy Actors and Instruments Relevant to the Salish Sea*.

The comparison is based upon the basic information inventoried (e.g. existence of laws and policies), and does not consider policy implementation, which could impact a final, detailed comparison. Due to the wide range of issues addressed in the *Inventory of Policy Actors and Instruments Relevant to the Salish Sea*, the comparisons contained in this Appendix are not based upon a consistent framework. The topic areas called out for comparison are subjective, and there may be differences in opinion about the key similarities or differences in governance approaches that should be highlighted. Future work could further develop a standardized, robust framework for comparison, as well as examine factors that could impact implementation of laws and policies, such as staff and funding support, leadership, and public support, to name a few.

### High-Level Comparison by Issue Area

#### *Air Quality*

Figure B.1 provides a high-level comparison of the different context for air quality management that exist in the United States and Canada

Topic Area	United States	Canada
Principal Law(s)	Clean Air Act	No Singular Act, mostly BC Environmental Management Act and regulations
Authority	Shared between Federal/State/Regional Air Quality Agencies/Tribal Gov't	More defined roles for Federal/Province, with BC lead on emissions from most facilities

<b>Ambient Air</b>	Air Quality Standards – Legally Enforceable	Air Quality Objectives – Not Legally Enforceable, but used to guide decisions
<b>Ambient Air Pollutants</b>	<ul style="list-style-type: none"> <li>• Carbon monoxide (CO), Nitrogen oxides (NOX), Ozone (O3), Sulfur dioxide (SO2), Lead, and Particulate matter (PM 2.5/PM 10)</li> </ul>	<p>Federal: Particulate matter (PM2.5) and Ozone (O3) Province:</p> <ul style="list-style-type: none"> <li>• Carbon monoxide (CO),</li> <li>• Nitrogen oxides (NOX),</li> <li>• Sulfur dioxide (SO2),</li> <li>• Particulate matter (PM 10)</li> <li>• Formaldehyde</li> <li>• Total reduced Sulphur</li> </ul>
<b>Hazardous Air Pollutants</b>	Lists established at federal level, require control technologies	Lists established at federal levels, which allows government to proceed with regulations
<b>Permitting (Industries)</b>	New/Remodels of a certain emission level Operating of a certain emission level	High risk and some median risk facilities (permit and/or operational certificate)
<b>Mobile Source Standards</b>	Fuel composition, vehicle emission standards	Fuel composition, vehicle emission standards
<b>Airshed planning</b>	Statewide plan, and regional plans for areas not in compliance with ambient standards	Lower Fraser Airshed, with local efforts underway in some areas
<b>Transboundary Collaboration</b>	Federal and state/province agreements in place Key issues: Notification of projects; fine particles, ground level ozone, airshed monitoring, information sharing	

*Figure B.1: High-Level Comparison of Air Quality Management in the United States and Canada*

### Climate Change

Figure B.2 provides a high-level comparison of the different context for climate change governance that exist in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> None, largely addressing sector-by-sector</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> CEPA has listed 6 GHG as toxic, which provides authority to regulate (no steps taken to</li> </ul>

	<ul style="list-style-type: none"> <li><b>State:</b> Regulatory emission cap regulations in development</li> </ul>	<p>implement). Signed on to Kyoto Protocol, but has not implemented. Otherwise, primarily sector-by-sector approach.</p> <ul style="list-style-type: none"> <li><b>Province:</b> GHG Reduction Targets Act and Climate Action Plan, Carbon Fuels Tax, Cap and Trade Act (associated with Western Climate Initiative, which does not appear to be moving forward)</li> </ul>
<b>Authority</b>	Shared authority between Federal/State/Local	Shared authority between Federal/State/Local
<b>Energy Sector Approaches</b>	<ul style="list-style-type: none"> <li>Clean Power Plan – state-specific goals to reduce carbon pollution from power plants (still under development) (Federal)</li> <li>Energy conservation and renewable energy targets (State)</li> <li>Mitigation of increases to fossil-fueled facilities (State)</li> </ul>	<ul style="list-style-type: none"> <li>Coal-fired plants (Federal)</li> <li>Clean Energy Act (Province)</li> <li>Carbon Fuels Tax (Province)</li> </ul>
<b>Transportation Sector Approaches</b>	Emission standards and renewable fuels (Federal and State, which has adopted stricter CA standards)	Emission standards and renewable fuels (federal and Province, which has adopted stricter CA standards)
<b>Emissions Reporting</b>	Yes	Yes
<b>Other Sector Approaches</b>	Numerous government initiatives and initiatives aimed at construction and local governments (State)	Other initiatives aimed at utilities sector, construction, government, etc. (Province)
<b>Non-governmental organization involvement</b>	Significant	Significant
<b>Transboundary Collaboration</b>	<p>Federal and state/province agreements in place (most are subnational)</p> <p>Key issues: Energy and Transportation (federal), Coastal impacts, climate change adaptation, awareness and outreach and carbon neutral government (provincial-state)</p>	

Figure B.2: High-Level Comparison of Climate Change Governance in the United States and Canada

*Contaminated Sites (Identification and Restoration)*

Figure B.3 provides a high-level comparison of the different context for management of contaminated sites that exist in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<ul style="list-style-type: none"> <li>• Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) (Federal)</li> <li>• Model Toxics Control Act (State)</li> </ul>	<ul style="list-style-type: none"> <li>• British Columbia Environmental Management Act</li> </ul>
<b>Authority</b>	<p>Shared authority between Federal/State</p>	<p>Mostly provincial responsibility, except on federal land or on First Nations reserves, or their contamination has been caused by federal government operations.</p> <p>Local jurisdictions have role in screening process to identify sites.</p>
<b>Liability Principle</b>	Polluter Pays	Polluter Pays
<b>Cleanup Levels</b>	Numerical and risk-based standards	Numerical and risk-based standards
<b>Cleanup Action</b>	<ul style="list-style-type: none"> <li>• Remove or destroy the contamination,</li> <li>• Restore the site to cleanup levels, or</li> <li>• Contain the contamination in such a way that will minimize future exposure of humans and ecological receptors (plants and animals).</li> </ul>	<ul style="list-style-type: none"> <li>• Removed so that it no longer remains at a site – where the numerical standards for soil, water, and sediment apply, or</li> <li>• Contained and managed onsite – where the risk-based standards apply.</li> </ul>
<b>Indigenous Lands</b>	<p>Eligible tribes may perform site response activities on reservations;</p> <p>Government-to-government consultation on cleanup activities that may affect tribal treaty rights</p>	Federal Approach to Contaminated Sites on Reserves
<b>Special Focus on Cleanup along Salish Sea</b>	Puget Sound Initiative, targeted funding for cleanup along shoreline	None Identified
<b>Transboundary Collaboration</b>	Predominately through informal networks	

*Figure B.3: High-Level Comparison of Contaminated Site Management in the United States and Canada*

### *Development Permitting and Land Use Planning*

Figure B.4 provides a high-level comparison of the different context for development permitting and land use planning that exist in the United States and Canada.

Topic Area	United States	Canada
<b>Land Use Planning Authority</b>	<ul style="list-style-type: none"> <li>• <b>Upland:</b> Local jurisdictions have been delegated authority for planning. Fast-growing communities require Comprehensive Plan for managing growth.</li> <li>• <b>Coastal:</b> Partnership between local and state government, with federal funding and technical support</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Upland:</b> Local jurisdictions have been delegated authority for planning. Regional districts can adopt regional growth strategy, and local plans must be consistent with.</li> <li>• <b>Coastal:</b> Local, with some federally supported planning in Pacific Northwest Coast Integrated Management Area (north of Salish Sea)</li> <li>• <b>Crown Lands:</b> Provincial planning</li> </ul>
<b>Stormwater Planning</b>	<p>Local jurisdictions must receive permit to discharge piped stormwater – permits trigger numerous requirements (e.g. use of low impact development, educational campaigns, etc.)</p>	<p>Local jurisdictions must receive approval of Liquid Waste Management Plan to discharge piped stormwater – integrated planning process</p>
<b>Environmental Assessment</b>	<ul style="list-style-type: none"> <li>• Federal assessment for federal activities (any function performed by or for a federal agency), state and local assessment for certain activities.</li> <li>• Project may require review at multiple levels (Federal/Province/Local), with dispersed review by different agencies</li> <li>• Public Involvement core component of all reviews</li> </ul>	<ul style="list-style-type: none"> <li>• Federal assessment limited to issues under federal jurisdiction, but province may request substitution with Provincial EA process; otherwise Provincial EA process</li> <li>• Reviews are centralized within particular agencies;</li> <li>• Some reviews (e.g. National Energy Board) have limited public involvement</li> </ul>
<b>Floodplain Management</b>	<ul style="list-style-type: none"> <li>• National Insurance Program (legal challenge re: Endangered Species)</li> <li>• Floodplain mapping (updating per lawsuit)</li> <li>• 100-year floodplain and floodways, in some cases limiting development as critical area</li> </ul>	<ul style="list-style-type: none"> <li>• No National Insurance Program</li> <li>• Floodplain mapping</li> <li>• 200-year floodplain and floodways, mainly addressing areas where floodproofing is required</li> </ul>

<b>Natural Resources Planning</b>	State goal to protect farm and forest lands from conversion, planning and zoning done at County level	Agricultural lands protected in Provincial Agricultural Land Reserves, local bylaws expected to plan to preserve agricultural lands
<b>Permitting Authority</b>	<ul style="list-style-type: none"> <li><b>Upland:</b> Local jurisdictions have been delegated authority for permitting.</li> <li><b>Coastal:</b> Multiple overlapping jurisdictions (Federal/Province/Local)</li> </ul>	<ul style="list-style-type: none"> <li><b>Upland:</b> Local jurisdictions have been delegated authority for planning (exception: Environmental Assessment).</li> <li><b>Coastal:</b> Multiple overlapping jurisdictions (Federal/Province/Local)</li> <li><b>Crown Lands:</b> Provincial issuance of land tenure.</li> </ul>
<b>Transboundary Collaboration</b>	<p>Federal and state/province agreements in place</p> <p>Key issues: Notification regarding major projects; coastal planning; flood protection</p>	

*Figure B.4: High-Level Comparison of Development Permitting and Land Use Planning in the United States and Canada*

#### *Dredging and Ocean Dumping/Dredge Material Disposal*

Figure B.5 provides a high-level comparison of the different context for dredging and ocean dumping that exist in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<p>Two key laws:</p> <ul style="list-style-type: none"> <li>Marine Protection, Research, and Sanctuaries Act (MPRSA, also called the Ocean Dumping Act) governs transportation for the purpose of disposal into ocean waters.</li> <li>Clean Water Act (CWA) Section 404 governs discharge of dredged or fill material into U.S. coastal and inland waters.</li> </ul>	<p>Two key laws:</p> <ul style="list-style-type: none"> <li>Canada Fisheries Act governs activities that may impact fish and fish habitat.</li> <li>Canada Environmental Protection Act contains specific Disposal at Sea regulations</li> </ul>
<b>Authority</b>	<ul style="list-style-type: none"> <li>Multi-agency, shared between Federal and State agencies, with local involvement (e.g. municipality and port authorities) on dredging issues</li> </ul>	<ul style="list-style-type: none"> <li>Multi-agency, shared between Federal and Provincial agencies, with local involvement (e.g. municipality and port authorities) on dredging issues.</li> </ul>

	<ul style="list-style-type: none"> <li>• Government-to-government consultation with Tribes</li> </ul>	<ul style="list-style-type: none"> <li>• Consultation with First Nations for decisions affecting their resource interests</li> </ul>
<b>Ocean Dumping – Allowed Materials</b>	<ul style="list-style-type: none"> <li>• Dredged material</li> <li>• Vessels</li> <li>• Fish wastes</li> <li>• Human remains</li> </ul>	<ul style="list-style-type: none"> <li>• Dredged material</li> <li>• Dredged material</li> <li>• Vessels</li> <li>• Fish wastes</li> <li>• Inert geological matter</li> <li>• Uncontaminated organic matter and bulky substances that are primarily composed of iron, steel, concrete or other similar matter</li> </ul>
<b>Beneficial Re-Use of Dredged Materials</b>	Yes	No specific provisions identified.
<b>Transboundary Collaboration</b>	International treaty governing ocean dumping.	

*Figure B.5: High-Level Comparison of Dredging and Ocean Dumping in the United States and Canada*

#### *Endangered Species/Species at Risk*

Figure B.6 provides a high-level comparison of the different context for protection and recovery of endangered species/species at risk that exist in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> Endangered Species Act (ESA)</li> <li>• <b>State:</b> Washington State Species of Concern Lists</li> <li>• <b>Local:</b> Critical area regulations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> Species at Risk Act (SARA)</li> <li>• <b>Provincial:</b> Various, such as Wildlife Act and Forest and Range Practices Act</li> </ul>
<b>Authority</b>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> ESA applies to “take” of species on both public and private lands. Federal agencies are required to avoid “destruction” or “adverse modification” of designated critical habitat.</li> <li>• <b>State:</b> Develops detailed recovery plans outlining actions necessary to ensure species survival. Regulates activities in natural flow or bed of state waters.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> SARA applies to federal lands or to migratory birds and aquatic species and their habitat (limited)</li> <li>• <b>Provincial:</b> Responsible for most wildlife and habitat, but Wildlife Act lists and protects small number of species. Forest and Range Practices Act focused on forestry activities.</li> </ul>

	<ul style="list-style-type: none"> <li><b>Local:</b> Regulates land use development in endangered species habitat under Critical area regulations (e.g. limitations on development, mitigation, timing restrictions, etc.)</li> </ul>	
<b>Status Categories</b>	<ul style="list-style-type: none"> <li>Endangered, threatened, warranted but precluded by other actions; agency-specific candidate species and species of concern categories</li> </ul>	<ul style="list-style-type: none"> <li>Extirpated, endangered, threatened, special concern</li> </ul>
<b>Initiation of Assessment</b>	US Fish and Wildlife Service (USFWS) and the NMFS conduct most status reviews in response to petitions; however, reviews can also be initiated by the services	Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
<b>Authority for Assessing Species' Status</b>	Staff in the USFWS and the NMFS, following input from government scientists and others	Independent advisory body (COSEWIC)
<b>Authority for Listing Decisions</b>	The Secretary of the Interior (USFWS species) or of Commerce (NMFS species)	The governor in council, a subcommittee of ministers of the federal cabinet
<b>Status Assessment Criteria</b>	No standardized criteria, based solely on best scientific and commercial data available	IUCN criteria are used as a guide, also includes socioeconomic consequences of listing decisions
<b>Recovery Planning</b>	No statutory time frame, but the USFWS and the NMFS are required to develop and implement recovery plans unless doing so would not promote conservation; a progress report to Congress is required every 2 years	<p>Endangered species: 12 months after listing;</p> <p>Extirpated and threatened species: 24 months after listing</p>
<b>Transboundary Collaboration</b>	<ul style="list-style-type: none"> <li>International agreements</li> <li>Tri-lateral agreement with Mexico</li> <li>Bi-national agreements addressing Southern Resident Orca Whales and other species</li> <li>Significant NGO and academic linkages</li> </ul>	

Figure B.6: High-Level Comparison of Endangered Species/Species at Risk Protection and Recovery in the United States and Canada

*Energy Transport (e.g. Marine, Rail, and Pipeline)*

Figure B.7 provides a high-level comparison of the different context for energy transport that exist in the United States and Canada.

Topic Area	United States	Canada
Principal Law(s)	No principal law	No principal law
<b>Authority</b>	<ul style="list-style-type: none"> <li>• Shared Federal/State government responsibility for directing oil spill responses in marine waters</li> <li>• Shared Federal/State government regulation of vessels in marine waters</li> <li>• Federal regulation of rail transportation</li> <li>• Pipeline regulation varies, and may involve both Federal/State government depending on route</li> <li>• New law requires advance notice of oil shipments to local first responders</li> </ul>	<ul style="list-style-type: none"> <li>• Federal government has the primary responsibility for directing oil spill responses in marine waters</li> <li>• Federal government oversight of transport in marine waters</li> <li>• Federal regulation of rail transportation</li> <li>• Federal regulation of pipeline transportation (except intra-province)</li> </ul>
<b>Oil Spill Response</b>	<ul style="list-style-type: none"> <li>• Federal and regional blueprint for response in place, containing spill contingency plans and identifying roles and responsibilities</li> <li>• Authorization to collect damages and fines for spills</li> <li>• Authorization to implement spill prevention measures (e.g., double hulls on tankers)</li> </ul>	<ul style="list-style-type: none"> <li>• National Oil Spill Preparedness and Response Regime standards and organization structure for preparedness and response to marine oil spills</li> <li>• Province has spill response plan defining scope and structure for provincial involvement</li> <li>• Vessels required to have oil pollution emergency plan and arrangement with certified response organization that would respond to a spill on the polluter's behalf</li> <li>• Authorization to collect damages and fines for spills</li> <li>• Authorization to implement spill prevention measures (e.g., double hulls on tankers)</li> </ul>
<b>Marine Transport</b>	<ul style="list-style-type: none"> <li>• Restricts vessels greater than 125,000 deadweight tons from access Puget Sound and adjacent</li> </ul>	<ul style="list-style-type: none"> <li>• Voluntary Tanker Exclusion Zone off the B.C. coast that applies to loaded oil tankers servicing the Trans-Alaska Pipeline System</li> </ul>

	<p>waters, when bound for a port or place in the United States</p> <ul style="list-style-type: none"> <li>• Regulates discharges from vessels greater than 79'</li> <li>• Controls vessel activity in national marine sanctuaries and in areas with congested vessel traffic</li> <li>• Authority for vessel inspections</li> </ul>	<p>between Valdez, Alaska, and Puget Sound, Washington</p> <ul style="list-style-type: none"> <li>• Regulates discharges from vessels (does not apply to tankers traveling to or from BC ports)</li> <li>• Controls vessel activity in areas with congested vessel traffic (e.g. pilotage requirements)</li> </ul>
<b>Rail Transport</b>	<ul style="list-style-type: none"> <li>• New tank car safety standards for trains carrying crude oil and other flammable liquids</li> <li>• New law requiring railroads hauling crude oil to show their ability to pay for oil spill cleanup and equipment</li> <li>• Railroads required to complete oil spill contingency plans</li> </ul>	<ul style="list-style-type: none"> <li>• New tank car safety standards for trains carrying crude oil and other flammable liquids</li> <li>• Requirements for railways to implement a safety management system</li> <li>• Minimum insurance requirements</li> </ul>
<b>Pipeline Transport</b>	<ul style="list-style-type: none"> <li>• Certificate of Public Convenience and Necessity for natural gas pipelines</li> <li>• Pipeline inspections and plans for pipeline damage response</li> </ul>	<ul style="list-style-type: none"> <li>• Certificate of Public Convenience and Necessity for large facilities</li> <li>• Protection zones around pipelines to prevent accidental damage</li> </ul>
<b>Special Focus on Salish Sea</b>	Restriction on increasing volume of crude oil capable of being handled at facilities situated on Puget Sound, other than oil to be refined for in-state consumption	None Identified
<b>Transboundary Collaboration</b>	<ul style="list-style-type: none"> <li>• Numerous mechanisms at federal and state/provincial levels for coordinating planning, preparation, and response to spills</li> <li>• Agreement for cooperative vessel traffic management in Juan de Fuca</li> <li>• Coordination on new rail tank car safety standards and harmonization of rail safety standards</li> <li>• Alliance of Coast Salish Indigenous Peoples mobilizing to respond to proposed energy transport projects in region</li> </ul>	

*Figure B.7: High-Level Comparison of Energy Transport provisions in the United States and Canada*

#### *Freshwater Resources (e.g. Wetlands and Riparian Areas)*

Figure B.8 provides a high-level comparison of the different context for energy transport that exist in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> Clean Water Act (does not apply to isolated wetlands)</li> <li>• <b>State:</b> Hydraulic Project Approval</li> <li>• <b>Local:</b> Critical area regulations and Shoreline Master Program</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> Fisheries Act (if fish bearing or connected to fish bearing water resource)</li> <li>• <b>Province:</b> Riparian Area Regulation (RAR) and Water Act (for in-stream work only)</li> <li>• <b>Local:</b> Streamside Protection Bylaw (if applicable)</li> </ul>
<b>Authority</b>	Federal, state, and local governments all have authority to regulate streams and wetlands, resulting in multiple, overlapping regulations and agency oversight.	<ul style="list-style-type: none"> <li>• Federal and provincial authority</li> <li>• Local jurisdictions may opt in and assert regulatory authority if they adopt a bylaw with equivalent or greater protections than RAR</li> </ul>
<b>In-Stream Work</b>	Requires Federal, state, and local governments approval	Requires Federal and Provincial approval. Local government approval required if jurisdiction opted to adopt regulations equivalent or more stringent than Riparian Area Regulation
<b>Buffers (e.g. protected areas along stream banks)</b>	<p>Established independently by each local jurisdiction, according to the functions of the feature, using Best Available Science</p> <p>Typically ranges from 50-300 feet for wetlands and 50-150 feet for streams</p>	Generally 30 meters, unless local jurisdiction has adopted larger buffer requirement.
<b>Buffer Reduction</b>	Requires mitigation sequencing, in which proponent needs to show that impacts cannot be avoided and mitigates for reduced functions. If all reasonable use of property is impacted by buffer, reduction may be granted.	If development occurs within 30 meters (approximately 98 feet), a Qualified Environmental Professional must determine the development setback to prevent degradation of fish habitat. Federal approval (DFO) required. If jurisdiction has established larger buffer, a variance from local jurisdiction may be required.
<b>Agricultural uses</b>	Ongoing farming activities may continue to operate within buffer	Farming activities are not subject to RAR.

	areas, with use of watercourse protection measures.	All agricultural uses below the Riparian Areas Regulation minimum setbacks are approved by DFO.
<b>Transboundary Collaboration</b>	<ul style="list-style-type: none"> <li>• North American Waterfowl Management Plan</li> <li>• International partnership between the U.S. and Canada committed to conserving habitats for migratory birds, including wetland areas</li> </ul>	

*Figure B.8: High-Level Comparison of Freshwater Resource management in the United States and Canada*

### *Fisheries and Aquaculture*

Figure B.9 provides a high-level comparison of the different context for fisheries and aquaculture that exist in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<ul style="list-style-type: none"> <li>• Fisheries: Magnuson-Stevens Act</li> <li>• Aquaculture: Clean Water Act (federal), Coastal Zone Management (federal), Hydraulic Code (state), Shoreline Master Program (local)</li> </ul>	<ul style="list-style-type: none"> <li>• Fisheries: Canada Fisheries Act</li> <li>• Aquaculture: Canada Fisheries Act</li> </ul>
<b>Authority</b>	<ul style="list-style-type: none"> <li>• Fisheries: Cooperative process involving Federal, State, and Tribal representatives</li> <li>• Aquaculture: Overlapping federal, state, and local jurisdiction</li> </ul>	<ul style="list-style-type: none"> <li>• Fisheries: Cooperative process involving Federal, Provincial, and First Nations representatives</li> <li>• Aquaculture: Regulatory control by Federal government, with Provincial leasing for activities on Crown Land</li> </ul>
<b>Tribal/First Nation Role</b>	Federally-recognized Tribes are Co-Managers of fisheries resource	Fishing right protected by Constitution. Role of First Nations in fisheries management remain unresolved, pending treaty negotiations. First Nations are involved in consultation, cooperative management and stewardship activities.
<b>Transboundary Collaboration</b>	<ul style="list-style-type: none"> <li>• Fisheries: Extensive cooperation involving federal, provincial/state, and Tribal/First Nations representatives from both countries under the Pacific Salmon Treaty and implemented by the Pacific Salmon Commission. Collaborative research planning efforts are also underway.</li> <li>• Aquaculture: Binational partnership established to compare regulatory objectives and outcomes of net pen aquaculture, cooperate on farmed to wild</li> </ul>	

	fish interactions, and cooperate on regulatory oversight and management of offshore aquaculture.
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*Figure B.9: High-Level Comparison of Fisheries and Aquaculture management in the United States and Canada*

### *Marine and Nearshore Ecosystems*

Figure B.10 provides a high-level comparison of the different context for marine and nearshore management that exist in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> Coastal Zone Management Act and Clean Water Act</li> <li>• <b>State:</b> Puget Sound Water Quality Authority</li> <li>• <b>Local:</b> Shoreline Master Program</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Federal:</b> Oceans Act and Fisheries Act</li> <li>• <b>Province:</b> Land Act (Crown lands)</li> <li>• <b>Local:</b> Official community plans and bylaws</li> </ul>
<b>Authority</b>	Federal, state, and local governments all have authority, resulting in multiple, overlapping regulations and agency oversight.	Shared jurisdiction. Federal authority extends from oversight of fish habitat and marine transportation. Province owns the seabed of the Strait of Georgia and the seabed within the “jaws of land”. Local land use management.
<b>Coordinated Planning</b>	Coastal Zone Management Act provides mechanism for coordinated planning.	No similar coordinated planning as exists under Coastal Zone Management Act. Planning efforts done for specific management areas (e.g. local coastal planning and strategic coastal planning).
<b>Pollution Prevention</b>	Addressed through multiple laws, including Clean Water Act and Coastal Zone Management Act. Non-point source pollution is a particular area of concern under Coastal Zone Management Act.	Addressed through multiple laws, including Fisheries Act and CEPA.
<b>Preservation and Conservation</b>	National Estuarine Research Reserve System and Marine protected areas	Ocean's Act has established network of marine protected areas.
<b>Restoration</b>	Programs to restore marine and nearshore areas at federal, state, and local levels	Focus appears to be on conservation and preservation

<b>Transboundary Collaboration</b>	Various formal and informal mechanisms for collaboration and information exchange. Examples include: <ul style="list-style-type: none"> <li>• Bilateral agreement for cooperation on the Salish Sea</li> <li>• BC-WA Coastal and Ocean Task Force</li> <li>• Pacific Coast Collaborative</li> <li>• Health of Salish Sea Ecosystem Report</li> <li>• Salish Sea Ecosystem Conference</li> </ul>
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*Figure B.10: High-Level Comparison of Marine and Nearshore Ecosystem management in the United States and Canada*

*Public Lands (e.g. Conservation, Preservation, and Recreation)*

Figure B.11 provides a high-level comparison of the different context for marine and nearshore management that exist in the United States and Canada.

<b>Topic Area</b>	<b>United States</b>	<b>Canada</b>
<b>Principal Law(s)</b>	Various, depending on the purpose for which the land was preserved/acquired, and how the land may be used.	Various, depending on the purpose for which the land was preserved/acquired, and how the land may be used.  Note: Significant portion of land in BC is held by Provincial Government as Crown Lands. Land in Canada is owned by the "Crown" (the federal or provincial governments) except where the Crown has granted the land or legal interests in it to private individuals or companies, or where the land is subject to treaty or other rights of Indigenous peoples.  In large sections of British Columbia, federal and provincial 'ownership' of crown land is contested, as formal treaties ceding land were not established with First Nations and the land was not acquired by the federal or provincial government. These issues are being addressed as part of ongoing legal challenges and treaty negotiations.
<b>Authority</b>	Lands are managed by different agencies/jurisdictions at the Federal, State and local government.	Lands are managed by different agencies/jurisdictions at the Federal, Provincial and local government.

<b>Types of Federal Lands</b>	<ul style="list-style-type: none"> <li>• National parks and monuments</li> <li>• National forests</li> <li>• National wildlife refuges</li> <li>• Wild and scenic rivers</li> <li>• Wilderness areas</li> <li>• National Marine Sanctuaries</li> <li>• National Estuarine Reserves</li> <li>• Other</li> </ul>	<ul style="list-style-type: none"> <li>• National parks</li> <li>• National wildlife areas</li> <li>• Migratory Bird Sanctuaries</li> </ul>
<b>Types of State Lands</b>	<ul style="list-style-type: none"> <li>• Natural Resource Conservation Areas</li> <li>• Natural Area Preserves</li> <li>• State Trust Lands</li> <li>• State forest lands</li> <li>• Community forest trust lands</li> <li>• Aquatic Reserves</li> <li>• Aquatic Lands</li> <li>• State Parks</li> <li>• Wildlife Areas</li> </ul>	<ul style="list-style-type: none"> <li>• Crown Lands</li> <li>• BC Parks, Conservancies and Recreation Areas</li> <li>• Ecological Reserves</li> <li>• BC Wildlife Management Areas</li> </ul>
<b>Transboundary Collaboration</b>	Limited existing transboundary collaboration	

*Figure B.11: High-Level Comparison of Public Land management in the United States and Canada*

### *Salmon Recovery*

Figure B.12 provides a high-level comparison of the different context for salmon recovery that exists in the United States and Canada

Topic Area	United States	Canada
<b>Principal Law</b>	<ul style="list-style-type: none"> <li>• Endangered Species Act (Federal), together with Puget Sound Salmon Recovery Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Policy for Conservation of Wild Pacific Salmon (Federal) – To be revised based on recommendations from the Cohen Commission</li> </ul>

	<ul style="list-style-type: none"> <li>• Salmon Recovery Act (State), together with Action Agenda for Puget Sound</li> </ul>	
<b>Authority</b>	Federal and State authorities, as well as Tribes and non-governmental organizations.	Predominately Federal role, except for inland species such as Bull Trout.
<b>Species of Concern</b>	Certain Populations of Chinook, Bull trout, Chum and Steelhead	Certain Populations of Chinook, Coho and Sockeye (though not presently included on SARA list)  Bull Trout listed Provincially.
<b>Strategies</b>	<p>Three key priority areas for near term action:</p> <ul style="list-style-type: none"> <li>• Prevent pollution from stormwater.</li> <li>• Protect and restore habitat.</li> <li>• Protect and recover shellfish beds.</li> </ul>	<p>Key implementation strategies:</p> <ul style="list-style-type: none"> <li>• Standardized monitoring of wild salmon status.</li> <li>• Assessment of habitat status.</li> <li>• Inclusion of ecosystem values and monitoring.</li> <li>• Integrated strategic planning.</li> <li>• Annual program delivery.</li> <li>• Performance review.</li> </ul> <p>Note: Criticisms that there has been little to no implementation of WSP, beyond assessing status of salmon species and some habitats.</p>
<b>Tribal/First Nation Role</b>	Federally-recognized Tribes are Co-Managers of fisheries resource	Fishing right protected by Constitution. Role of First Nations in fisheries management remain unresolved, pending treaty negotiations. First Nations are involved in consultation, cooperative management and stewardship activities.
<b>Transboundary Collaboration</b>	<ul style="list-style-type: none"> <li>• Bi-national efforts to cooperate on Pacific salmon management (e.g. Pacific Salmon Treaty)</li> <li>• Development of a joint research program (Salish Sea Marine Survival Project)</li> </ul>	

*Figure B.12: High-Level Comparison of Salmon Recovery in the United States and Canada*

#### Toxic Substances

Figure B.13 provides a high-level comparison of the different context for toxic substance management that exists in the United States and Canada

Topic Area	United States	Canada
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<b>Principal Law</b>	<p><b>Federal:</b></p> <ul style="list-style-type: none"> <li>• Federal Insecticide, Fungicide, and Rodenticide Act (Pesticides)</li> <li>• Toxic Substances Control Act (Other Chemicals)</li> </ul> <p><b>State:</b></p> <ul style="list-style-type: none"> <li>• Washington Pesticide Control Act (Pesticides)</li> <li>• Persistent Bioaccumulative Toxics Rule (Other Chemicals), with new legislation addressing toxics reduction under review</li> </ul>	<p><b>Federal:</b></p> <ul style="list-style-type: none"> <li>• Pest Control Products Act (Pesticides)</li> <li>• Canadian Environmental Protection Act and Prohibition of Certain Toxic Substances Regulations (Other Chemicals)</li> </ul> <p><b>Provincial:</b></p> <ul style="list-style-type: none"> <li>• Integrated Pest Management Act (Pesticides)</li> </ul>
<b>Authority</b>	Primarily regulated by the federal and state governments.	Federal government is the primary regulator of toxic substances. Many local governments have bylaws restricting pesticide use.
<b>Risk-Assessment/Risk-Management Approach</b>	<p>Both countries have authority to evaluate risks of chemicals that were existing prior to new regulations. CEPA requires systematic categorization and screening of existing chemicals, while TSCA does not.</p> <p>Both countries have risk assessment evaluation process in place for new substances, which establishes a process for evaluating the risk of new substances and authorizes conditions of use or prohibitions if a substance is deemed to pose an unacceptable risk to health or the environment.</p>	
<b>Inventorying Releases</b>	<ul style="list-style-type: none"> <li>• Facilities that meeting certain thresholds are required to report their emissions of certain chemicals, of which there are currently 594 individually-listed chemicals and 31 chemical categories to the Toxic Release Inventory (TRI).</li> </ul>	<ul style="list-style-type: none"> <li>• Owners or operators of facilities that manufacture, process, use or release any of over 300 listed substances must report their pollutant releases, disposals and transfers each year to the National Pollutant Release Inventory (NPRI).</li> </ul>
<b>Prohibited Substances (Examples)</b>	<p>Five ‘existing’ chemicals banned under TSCA:</p> <ul style="list-style-type: none"> <li>• Polychlorinated Biphenyls (PCBs)</li> <li>• Fully halogenated chlorofluoroalkanes</li> </ul>	<p>22 banned chemicals including:</p> <ul style="list-style-type: none"> <li>• Polybrominated Biphenyls (PCBs)</li> <li>• Chlorinated Alkanes</li> <li>• Polychlorinated Naphthalenes</li> <li>• Tributyltins (for non-pesticidal uses)</li> </ul>

	<ul style="list-style-type: none"> <li>• Dioxin</li> <li>• Asbestos</li> <li>• Hexavalent chromium</li> </ul>	
<b>Tribal/First Nation Role</b>	<p>Cooperative agreements to enforce pesticide regulations.</p> <p>Tribes have been critical of evaluation of the impacts of pesticides and Chinook salmon and Orca</p>	<p>Consultation with First Nations on toxic substances regulated under CEPA or large-scale industrial pesticide operations.</p> <p>First Nation advocacy and research concerning exposure risks.</p>
<b>Transboundary Collaboration</b>	Multinational and bi-national forums for pesticide and chemical substance management collaboration.	

*Figure B.13: High-Level Comparison of Toxic Substance management in the United States and Canada*

### *Wastewater Management*

Figure B.14 provides a high-level comparison of the different context for wastewater management that exists in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<ul style="list-style-type: none"> <li>• Clean Water Act (wastewater facilities)</li> <li>• Regulations (on-site sewage systems)</li> </ul>	<ul style="list-style-type: none"> <li>• Fisheries Act (wastewater facilities)</li> <li>• British Columbia Environmental Management Act (wastewater facilities)</li> <li>• British Columbia Public Health Act (on-site sewage systems)</li> </ul>
<b>Authority</b>	Shared federal, state and local authority.	Provincial and municipal governments have primary jurisdiction, though the federal government is involved in regulating effluent from wastewater treatment under the Fisheries Act.
<b>Treatment threshold</b>	Municipal facilities must meet secondary treatment standards.	National effluent quality standards for biological oxygen demand (BOD) and total suspended solids (TSS) that can be achieved through secondary wastewater treatment (NEW – to be phased in over time)
<b>Pre-treatment</b>	Publicly-owned treatment facility must have pretreatment programs to	Many local municipalities have adopted bylaws that regulate discharge of waste

	control discharges from nondomestic sources.	into a sewer that is connected to a municipal sewer facility
<b>Combined Sewer Overflow</b>	State rules allow average of one combined sewer overflow per year per outfall. Communities with combined sewer systems are also expected to develop long-term CSO control plans that will ultimately provide for full compliance with the Clean Water Act, including attainment of water quality standards	Sanitary sewer overflows also must not occur at a frequency exceeding a 5-year return period, unless a liquid waste management plan is developed which commits to a long term management and reduction plan for overflows.
<b>Use of reclaimed water</b>	Addressed under Washington State Reclaimed Water Rules	Addressed under British Columbia Environmental Management Act
<b>Special Focus on Salish Sea</b>	Marine recovery areas have been established that require enhanced on-site sewage system management programs to protect public health and Puget Sound water quality.	None identified.
<b>Transboundary Collaboration</b>	None identified.	

*Figure B.14: High-Level Comparison of Wastewater management in the United States and Canada*

#### *Water Quality, Quantity, and Restoration*

Figure B.15 through B.17 provide a high-level comparison of the different context for water quality, quantity, and restoration that exists in the United States and Canada.

#### Water Quality

Topic Area	United States	Canada
<b>Principal Law(s)</b>	Clean Water Act	Fisheries Act (Federal); otherwise, water quality guidelines and objectives considered through permits and authorizations issued under BC Laws, such as British Columbia Environmental Management Act.

<b>Authority</b>	Shared federal and state authority. Ecology has been delegated state water pollution control agency, responsible for implementing all federal and state water pollution control laws and regulations	The federal government has authority to regulate in relation to fisheries; otherwise provincial authority.
<b>Water Quality Standards, Guidelines or Objectives</b>	<p>Numeric <b>standards</b> established for the following parameters: temperature, dissolved oxygen, total dissolved gas (does not apply to marine waters), pH, turbidity, bacteria, nutrients, toxics, radioactive substances, as well as other narrative criteria.</p> <p>Designed to provide for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water (referred to as the fishable/swimmable clause).</p>	<p>Numeric <b>guidelines</b> established for over 40 substances and parameters and for different water uses, including: drinking water, recreation, aquatic life, wildlife and agriculture. The Guidelines do not have legal standing, but they are considered in any decision affecting water quality in order to determine allowable waste discharge limits.</p> <p>Water quality <b>objectives</b> specify the concentrations of substances permissible for all intended water uses at a specific location on a lake, river, or estuary.</p>
<b>Water Quality Assessment</b>	Every two years (alternating between fresh and marine waters), all states are required to perform a water quality assessment of the quality of surface waters in the state, including all the rivers, lakes, and marine waters where data were available. Waters whose beneficial uses – such as for drinking, recreation, aquatic habitat, and industrial use – are impaired by pollutants are placed on the Section 303(d) list	<p>The Province conducts regular monitoring of streams and lakes around B.C.</p> <p>Under the BC Fish Protection Act, streams may be designated as Sensitive and managed with fish sustainability as a key management goal.</p>
<b>Cleanup</b>	Waters placed on the 303(d) list require the preparation of a water cleanup plan, like a total maximum daily load (TMDL) to reduce pollutant loads.	Some area-specific studies have been completed, such as the Fraser River Action Plan.
<b>Point-Source Pollution</b>	Discharges into waters of the United States require a National Pollution Discharge Elimination System (NPDES) permit. Effluent limitations	Requires a waste discharge permit to be issued for certain industries to introduce waste to the environment.

	control discharges of pollutants to receiving waters; limitations may be technology or water quality based limits.	
<b>Non-Point Source Pollution</b>	Coastal non-point source pollution control program required under the Coastal Zone Management Act to describes how State will implement nonpoint source pollution controls.  Specific programs and regulations addressing stormwater, agriculture and forestry activities.	Non-point Source Water Action Plan adopted at Provincial level.  Specific programs and regulations addressing stormwater, agriculture and forestry activities.
<b>Transboundary Collaboration</b>	None identified.	

*Figure B.15: High-Level Comparison of Water Quality Management in the United States and Canada*

#### Water Quantity

Topic Area	United States	Canada
<b>Principal Law(s)</b>	Washington State Water Code	Water Sustainability Act (in effect in 2016; rule development is underway)
<b>Authority</b>	State law typically governs most water quantity and usage issues. The waters of Washington State collectively belong to the public; use of water is granted by the State.	Apart from federal legislation regarding large scale diversions or export of water, rules governing the allocation of water quantity are set by the provinces.
<b>Water right allocation</b>	Doctrine of prior appropriation - first person to divert water and put it to a beneficial use obtains the right to use that water in perpetuity (First in time is first in right)	First in Time, First in Right - priority of right is based on the date of precedence of an authorization, with the most senior water licensee having the superior right.  New rules will allow a basic amount of water use for essential household needs, and for the protection of critical environmental flows.
<b>In-stream flow</b>	Ecology is required by state law to retain adequate amounts of water in streams to protect and preserve instream resources and uses (such as	Under new Water Sustainability Act, environmental flow needs must now be considered in new water allocation decisions

	<p>fish, wildlife, recreation, aesthetics, water quality and navigation).</p> <p>Programs established to acquire additional water rights to protect fish.</p>	
<b>Water Export</b>	Prior appropriation could allow the transfer of water rights between basins, but Ecology would need to determine that the change to the water right does not impair any other water right	British Columbia Water Protection Act prohibits the removal of water from British Columbia (unless under a historical license), and the construction or operation of large-scale projects capable of transferring water from one major watershed to another.
<b>Tribal/First Nation Role</b>	Under the Winter's Doctrine, water rights have been reserved in sufficient quantity to meet the needs of Reservations. In addition, Tribes in the Pacific Northwest have off-reservation "instream" water rights that are associated with their treaty fishing rights.	Water rights are disputed. First Nations in BC argue that they have an inherent and vested title and rights in water resources. Recent court cases seem to have affirmed First Nation title rights.
<b>Transboundary Collaboration</b>	<ul style="list-style-type: none"> <li>• Memorandum of Understanding of Referral of Water Right Applications</li> </ul>	

*Figure B.16: High-Level Comparison of Water Quantity Management in the United States and Canada*

### Water Quality Restoration

Topic Area	United States	Canada
<b>Principal Law(s)</b>	<ul style="list-style-type: none"> <li>• Clean Water Act (Federal)</li> <li>• Watershed Planning Act (State)</li> </ul>	Water Sustainability Act (in effect in 2016; rule development is underway)
<b>Authority</b>	Shared federal and state authority. Ecology has been delegated state water pollution control agency, responsible for implementing all federal and state water pollution control laws and regulations	The federal government has authority to regulate in relation to fisheries; otherwise provincial authority.
<b>Cleanup</b>	Waters placed on the 303(d) list (polluted waters) require the preparation of a water cleanup plan, like a total maximum daily load (TMDL) to reduce pollutant loads.	Some area-specific studies have been completed, such as the Fraser River Action Plan.

<b>Collaborative governance</b>	Examples include: Watershed-based planning and Conservation Districts	Examples include: Collaborative Watershed Governance Accord and Local community roundtables
<b>Transboundary Collaboration</b>	<p>Formal and informal mechanisms for cooperation, including:</p> <ul style="list-style-type: none"> <li>• Joint Statement of Cooperation on the Georgia Basin and Puget Sound Ecosystem (Federal)</li> <li>• Environmental Cooperation Agreement between the Province of British Columbia and the State of Washington (State-Provincial)</li> <li>• Coast Salish Gathering (Indigenous)</li> </ul>	

*Figure B.17: High-Level Comparison of Water Quality Restoration in the United States and Canada*

#### *Wildlife and Biodiversity*

Figure B.18 provides a high-level comparison of the different context for wildlife and biodiversity management that exists in the United States and Canada.

Topic Area	United States	Canada
<b>Principal Law(s)</b>	Different laws in place depending on type of wildlife.	Different laws in place depending on type of wildlife.
<b>Authority</b>	Shared by the federal and state governments.	Shared by the federal and provincial governments
<b>Protection Strategies</b>	<ul style="list-style-type: none"> <li>• Restrictions on harming individual species</li> <li>• Habitat protection</li> <li>• Management of land development activities</li> </ul>	<ul style="list-style-type: none"> <li>• Restrictions on harming individual species</li> <li>• Habitat protection</li> <li>• Management of land development activities</li> </ul>
<b>Types of Habitat Protected Areas</b>	<ul style="list-style-type: none"> <li>• National Wildlife refuges</li> <li>• Marine sanctuaries</li> <li>• Wilderness areas</li> <li>• State Wildlife areas</li> <li>• State Marine Protected Areas</li> <li>• Aquatic Reserves</li> </ul>	<ul style="list-style-type: none"> <li>• National Wildlife Areas</li> <li>• Marine Protected Areas</li> <li>• Marine Wildlife Areas</li> <li>• National Marine Conservation Areas</li> <li>• Migratory Bird Sanctuaries</li> <li>• Ecological Reserves (crown land)</li> </ul>

		<ul style="list-style-type: none"> <li>• Wildlife Management Areas</li> </ul>
<b>Tribal/First Nation Role</b>	On Reserves, Tribes regulate wildlife  Tribes with off-reservation hunting rights may have a tribal hunting committees that develop regulations and management strategies for their tribal members	On Reserves, First Nation regulate wildlife, under by-law-making powers authorized by the Indian Act.  Off Reserves, jurisdiction over wildlife is evolving as part of treaty negotiations.
<b>Transboundary Collaboration</b>	Multinational and bi-national agreements in place	

*Figure B.18: High-Level Comparison of Wildlife and Biodiversity management in the United States and Canada*

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