

A Guide to Indigenous Co-Management and Food Sovereignty in the Pacific Coast of North America

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Resource Overview

Indigenous people are the original stewards of the coast and seas of the Pacific Coast region. They maintain a font of knowledge that is essential in understanding the state of coastal ecosystems and their fate in a changing climate. This resource seeks to honor that legacy by collecting different accounts, studies, and programs that promote Indigenous perspectives in coastal ecosystem stewardship. It seeks to both explore existing examples where Indigenous communities are managing resources in tandem with settler governments (or “co-management”) as well as issues related to food sovereignty with respect to both wild harvest and cultivated foods. While focused on multiple regions of the Pacific Coast, the resource will highlight resources with particular relevance to California.

Co-management is becoming a reality across fisheries, aquaculture operations, and protected area management throughout the Pacific Coast. Government-to-government relationships have been strengthened in several regions with Native people (re)gaining decision making power in some cases. There are several formalized examples of this in Washington and Canada, with other important lessons from regions with strong Indigenous fishing, aquaculture, and coastal stewardship practices like Alaska and Hawai’i. California, while behind other states, is beginning to explore this model in the governance of the state’s marine protected area (MPA) network.

There are many pathways towards restoring the ancestral responsibilities of coastal Indigenous people, and co-management is not always the preferred outcome. The government-to-government agreement does not fit cases where Indigenous groups do not have federal recognition in the United States. The second section of this guide is dedicated to food sovereignty, seen as an essential component of cultural connectivity and self-determination for Indigenous people around the world. Food sovereignty can exist both within and outside of conversations of c-management. This guide explores perspectives on food sovereignty through both wild harvest of marine resources as well as long-practiced aquaculture methods throughout the region.

The guide concludes with a review of existing partnerships across Indigenous communities that sometimes include collaboration with non-Indigenous entities. These collaborative efforts are becoming more visible and providing opportunities to pursue research and policy that incorporate both Western and Indigenous ways of knowing.

This is not a comprehensive account of all co-management or food sovereignty cases in the Pacific Coast. It should be noted that resources pertaining to Mexico have been left out of this list. I made this decision for two reasons: 1) a lack of personal familiarity with Indigenous

perspectives and scholarship in Mexico, and 2) differences in political contexts that make policy transferability unclear. There are countries with more policy resonance (New Zealand and Australia, in particular), that were excluded at this time following the intention to highlight connections between dispersed geographies. It is my hope that this resource will be continually improved and others with more knowledge will be able to fill in the gaps.

Conner Smith, the primary author of this resource, is a white settler residing in unceded Chumash lands. He hails from unceded lands of the Catawba, Sugaree, and Waxhaw in what is now North Carolina. Inspiration for this project was drawn from the work of Phoebe Racine on cataloging resources pertaining to Indigenous data sovereignty

A Note on Language

This resource will use “Indigenous,” “Native,” and “First Nations” somewhat interchangeably throughout. “Indigenous” is meant to confer the broadest recognition across cultures. “Native” is more contextual to the United States, where “Native American” is a term often used by the federal government. “First Nations” is an analogous term common in Canada. “Tribe” will be used sparingly and specifically in the context of legal agreements or self-identifications (e.g. Coast Treaty Tribes). This generally follows guidance from the [Native Governance Center](#).

Open Access

This is meant to be a “living” document. This book was produced using [Quarto](#) in R Studio and all code can be accessed in this [GitHub repository](#). Any researchers wishing to become a collaborator on this repository can reach out to the primary author at connermuir@berkeley.edu. Contributors wishing to add a resource or provide comments on the presentation of the material in the list can also pass requests through to the email address above.

1 Native Lands

All lands and seas in North America were once stewarded by Indigenous peoples before the arrival of colonists from Europe. Roxanne Dunbar-Ortiz's [An Indigenous Peoples' History of the United States](#) (2015) is one resource that provides an overview of Native nations and cultures and the legacy of oppression that led to the removal of many from their ancestral lands. The following resources provide an introduction to whose lands are occupied by settler governments with a focus on the United States and Canada.



Figure 0.1: Chumash villages and surrounding Native lands (Source: [Wikipedia Commons](#))

[Native Land Interactive Map](#)

[Native Land Digital. 2023.](#)

This global map – produced by a Canadian non-profit led by First Nations people – provides an overlapping view of Indigenous territory throughout the world. This is more inclusive of different subgroups compared with other resources and provides a way to view ancestral territory throughout the Pacific Coast region.

U.S. Domestic Sovereign Nations: Land Areas of Federally-Recognized Tribes

Bureau of Indian Affairs. 2023.

This resource is maintained by the Bureau of Indian Affairs under the U.S. Department of the Interior. According to the Bureau, it shows “the external extent of Federal Indian reservations, land held in ‘trust’ by the United States, ‘restricted fee’ or ‘mixed ownership’ tracts for Federally-recognized tribes and individual Indians.” This is not a complete listing of Native lands in the United States. Rather, it shows the *current extent of what the federal government recognizes as Native Land*.

California Native American Ancestral Lands

Los Padres Forest Watch. 2021.

This interactive map, built by a non-Indigenous organization in ArcGIS, provides an incomplete, high-level overview of traditional Native territory throughout California. It does not include all of the Native nations and cultures in the State, but provides a helpful interactive tool to explore the overlay of traditional territory with current land use patterns including state and federally designated protected lands.

NAHC Digital Atlas

California Native American Heritage Commission. 2023.

This is a state-produced resource with additional information on population distribution, historical events, trade routes, missions, and other data pertaining to Native history in California. The Commission also hosts a written summary of this history and database of Native groups [available on the main website](#).

2 Co-Management

Co-management is a term that is appearing increasingly in both the literature and policy around coastal governance on the Pacific Coast. It is more widely used in Canada, where there are more examples of formal co-management agreements around fisheries and other coastal resources compared to the United States. Co-management often involves the formalization of a nation-to-nation or government-to-government agreement outlined in the context of treaties and settler state policy. Strengthening nation-to-nation relationships has been stressed as a priority for the Biden administration ([White House Fact Sheet](#)). This language implies that Native people without federal recognition in the United States are not afforded the same opportunities to engage in policy and management decisions. However, this is complicated by recent developments including the proposed designation of the [Chumash Heritage National Marine Sanctuary](#), which is overseen by the federal government and was initially proposed by an unrecognized Chumash group.

2.0.1 Definitions

“The vision of tribes, the California Fish and Game Commission, and the California Department of Fish and Wildlife is to engage in a collaborative effort between sovereigns to jointly achieve and implement mutually agreed upon and compatible governance and management objectives to ensure the health and sustainable use of fish and wildlife.”

– [California Fish and Game Commission](#), 2020

Since California is my state of residence, I have adapted and expanded this definition to outline what I feel is a more inclusive understanding of co-management that is applicable throughout the Pacific Coast:

Co-management is the embodiment of a consensual and collaborative relationship between Indigenous Peoples and settler state governments to share responsibility for the stewardship of coastal lands, waters, and wildlife. This stewardship recognizes the value that both Indigenous and Western ways of knowing hold and provides opportunity for Indigenous people to reclaim ancestral practices and authority to guide how humans interact with non-human communities.

It is important to note that co-management on the ground – or rather, in the water – looks quite different from place to place. My (partial) definition is aspirational in the sense that Indigenous People are not often granted real decision-making power or engaged in relationships rooted in

consent. The following cases help to illuminate the complexity in current conservations around co-management.

2.1 Deconstructing Management Regimes

Co-management can only be understood in the context of ongoing, intentional exclusion of Indigenous perspectives in existing frameworks of conservation and management. Co-management is one step towards rectifying this problem, with increasing acknowledgment that Indigenous people are often the first to experience negative outcomes from extractive resource management and climate change. The following selection highlights how this conversation is shifting to acknowledge, and sometimes incorporate, Indigenous ways of knowing.

Unsettling marine conservation: Disrupting manifest destiny-based conservation practices through the operationalization of Indigenous value systems

Lara Jacobs et al. *Parks Stewardship Forum 38.2. 2022.*



Indigenous Knowledge has been undervalued and excluded from coastal and marine conservation for generations. In this paper, the authors note that existing systems were born of a colonial campaign explicitly designed to disenfranchise Indigenous People. Resource management was, and largely still is, centered around an extractive mindset that viewed humans as separate from nature. This is embodied in the establishment of parks and reserves that restricted the ability of Indigenous People to exercise their ancestral stewardship practices, some of which are codified in treaty rights. This paper proposes an alternative framework, one that integrates Indigenous understandings and knowledge with principles of Western science. Referred to as “Two-Eyed Seeing,” this repositioning of conservation efforts through an Indigenous lens is described through the “Seven R’s.”

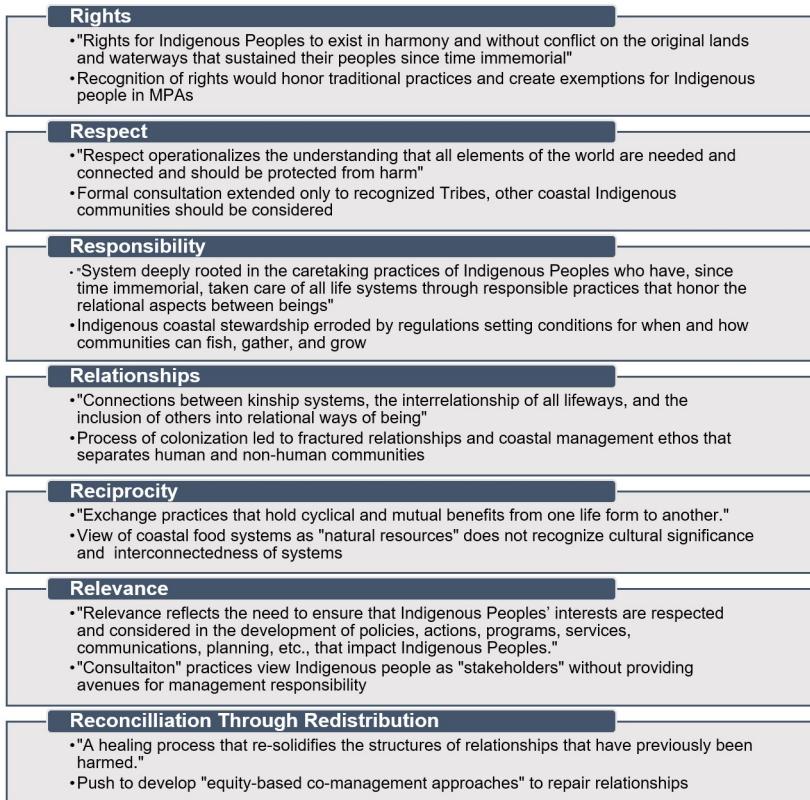


Figure 1.1: *The Seven R's (Jacobs et al., 2022).*

"Two-Eyed Seeing": An Indigenous framework to transform fisheries research and management

Andrea Reid et al. *Fish and Fisheries* 22.2. 2020.

This paper further expands on the notion of Two-Eyed Seeing, integrating experience from Canadian fisheries management. The authors stress the danger in merely "assimilating" Indigenous knowledge into Western systems. Instead, they stress Two-Eye Seeing as a means to position both Indigenous and Western ways of knowing on even ground. The methodology emphasizes the strength in being able to view issues from both angles, acknowledging the important role Indigenous scientists play on advisory councils and management bodies.

"We argue that Two-Eyed Seeing provides a pathway to a plural coexistence, where time-tested Indigenous knowledge systems can be paired with, not subsumed by, Western scientific insights for an equitable and sustainable future."

– Reid et al., 2020

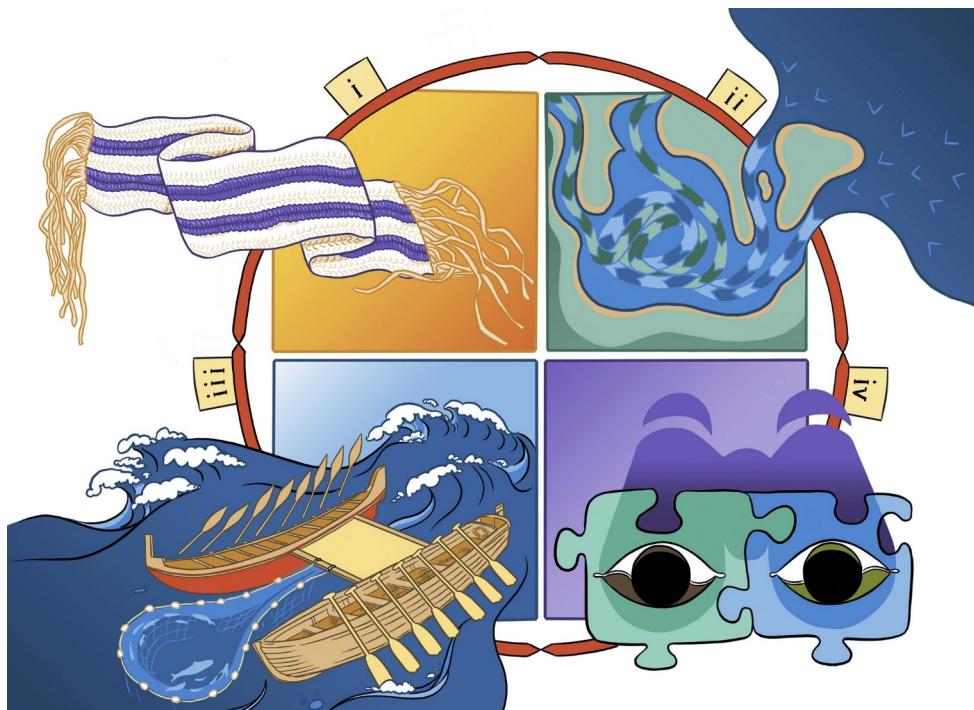
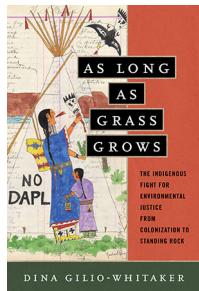


Figure 1.2: “Indigenous conceptual frameworks for promoting knowledge coexistence: (i) the “Two Row Wampum” or Kaswenthwa in Haudenosaunee; (ii) the “Two Ways” or Ganma in Yolngu; (iii) the “Double-Canoe” or Waka-Taurua in Māori; and (iv) “Two-Eyed Seeing” or Etuaptmumk in Mi’kmaw. Refer to main text (section 3) for full descriptions of each framework (Subsections 1–4, respectively). Artwork by Nicole Burton” (Reid et al., 2020).

As Long As Grass Grows: The Indigenous Fight for Environmental Justice, from Colonization to Standing Rock

Dina Gilio-Whitaker. Beacon Press. 2019.



This book endeavors to reimagine contemporary environmental justice movements to account for the unique aspects of Indigenous experiences of colonization and genocide. This process, called “Indigenizing” by Gilio-Whitaker, goes beyond philosophical conversations and looks closely at how different grassroots movements and processes in environmental management

work for (or against) self-determination and sovereignty for Indigenous people. It emphasizes the often overlooked role Indigenous people play in raising environmental consciousness, especially in California. It also examines the ways in which entities such as non-profits and other settler organizations can both help and hinder Indigenous self-determination. The book emphasizes the need for stronger coalitions that respect the power of Indigenous resistance to reimagine our relationships with the natural world. XXX

2.2 Co-management Guidance and Cases

Across the Pacific Coast, Indigenous people are reclaiming their ancestral rights to steward their lands and waters. While there is a clear concentration of these government-to-government agreements in Alaska, Canada, and the Pacific Northwest, there is a growing movement towards greater Native leadership in coastal management in California as well. This section highlights some of these cases.

Best Practices for Tribal Engagement in Marine Protected Area Stewardship

North Coast Native Protectors, RAM Consulting, Humboldt County MPA Collaborative, Del Norte County MPA Collaborative, MPA Collaborative Network. 2022.

This Native-led guide seeks to strengthen the engagement process and work towards healthier collaborations in the management of MPAs in California. The following figure highlights the key recommendations.



Figure 1.3: Pathway to collaborative stewardship (NCNP, 2022).

This document includes multiple sections of additional resources, some of which are included in this list, for further exploration of best practices in collaborative stewardship. It also includes an overview of the history of MPA management in California. It found that no indigenous People were included in the Science Advisory Team that guided the MLPA process. This is also further highlighted in an article titled [A Clash of Cultures: The Struggle of Native Americans to Participate in Traditional Ecological Knowledge and Western Science Under California's Marine Life Protection Act](#) (Maloney and Corbett, 2021).

Guidance and Responsibilities for Effective Tribal Consultation, Communication, and Engagement

West Coast Ocean Alliance. 2020.

Summary of guidance: “*In 2019, the Tribal Caucus of the West Coast Ocean Alliance (WCOA) developed this document to serve as a guide to federal and state agencies seeking to engage with Tribal Governments on ocean and coastal issues on the West Coast. It is a Tribally developed document intended to complement individual Tribes’ consultation policies by providing background, context, best practices, and resources for working with Tribal Governments. When working with Tribes in any context, it is essential that agencies build relationships with their Tribal counterparts and learn about the policies and protocols of specific Tribal Governments; this guide cannot substitute for the knowledge and connections gained from such efforts.”*

The guide, developed in partnership and with the approval of multiple Tribal representatives, outlines the steps towards effective collaboration:

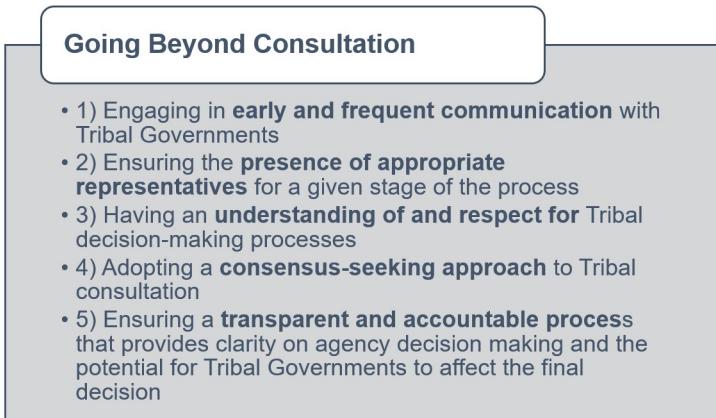


Figure 1.4: Key recommendations for cross-cultural collaboration (WCOA, 2020).

The document is broken into sections that provide a review of existing federal and state-by-state “consultation policies.” It stresses that the principle of establishing free, prior, and informed consent (FPIC) as outlined in the 2007 United Nations Declaration on the Rights

of Indigenous Peoples (UNDRIP) has not been formalized in U.S. law. The document provides helpful definitions of key terms and laws that make up the foundation of current co-management agreements.

2.2.1 California Cases

California Agencies have expressed explicit interest in pursuing co-management agreements with Native governments and organizations. The California Fish and Game Commission has adopted the following “[Co-management Vision Statement](#)”:

“The vision of tribes, the California Fish and Game Commission, and the California Department of Fish and Wildlife is to engage in a collaborative effort between sovereigns to jointly achieve and implement mutually agreed upon and compatible governance and management objectives to ensure the health and sustainable use of fish and wildlife.”

– California Fish and Game Commission, 2020

A key element of this definition is the word “sovereigns”, which implies the exclusion of unrecognized tribes. This does not reflect any legislative requirement in fisheries or protected area policy to grant decision-making power to Native people. California statute, as it currently stands, only requires “meaningful consultation with California Native American tribes” on a range of actions ([California NAHC](#), 2023).

[California Indian Tribes and the Marine Life Protection Act: The Seeds of a Partnership to Preserve Natural Resources](#)

Curtis Berkey and Scott Williams. *American Indian Law Review* 43.2. 2018.

This paper, written by non-Native authors, reviews the process of the implementation of the Marine Life Protection Act (MLPA) in California and the network of marine protected areas (MPAs) that it spawned. After initial exclusion from the planning process, several Tribes advocated for and secured specific allowances for Tribal harvest (or “Tribal Take”) of marine resources in certain protected areas. More importantly, the advocacy of the Tribes laid the foundation for a more robust government-to-government relationship and opened the door for future co-management opportunities. The key outcome from this process was a recognition on the part of the state that Tribes represent a distinct and specific group that should not be lumped together with non-Native interests or “stakeholders.” The [2016 MPA Master Plan](#) also formally recognized that “Tribal Knowledge (TK)” is a valuable aspect of environmental management and the future of marine resources in the state.

[MPA Network Decadal Management Review: Appendix C – Tribal Summary](#)

DMR Tribal Steering Committee. 2022.

Co-management is being defined by Native people in California themselves through different aspects of the MPA Network Decadal Management Review (DMR). This report represents ten

years of assessment of the 124-site network and includes a separate Appendix produced by Tribal representatives. It states:

“Native Tribes are the original stewards of California’s coast and ocean despite a history of genocide, forced relocation, and systematic oppression. Tribes rely on the coast and ocean for food, medicine, ceremony, and other customary and beneficial uses, responsibly using natural and cultural resources in accordance with traditional practice. Tribes have never ceded their inherent rights to harvest and gather from, or hold religious ceremonies in, the marine environment. Nor have they surrendered their obligation to manage marine resources sustainably in support of a resilient ocean for all beings.”

It specifically addresses the absence of Native contribution to the MLPA process (highlighted in the previous resource) and provides a more updated picture on the current state of Tribal engagement in coastal protection in California. This was a key conversation at the [DMR review meetings](#) held in March 2023. The following are key recommendations from a synthesis of public comments provided by Native people. They closely reflect the language in the WCOA guidance above.

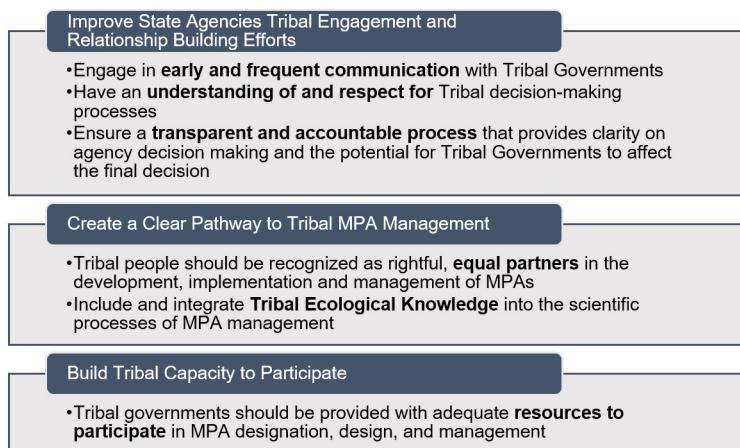


Figure 1.5: Recommendations from Native participants in the DMR process (DMR Tribal Appendix, 2022).

[Informing the North Coast MPA Baseline: Traditional Ecological Knowledge of Keystone Marine Species and Ecosystems](#)

[Tolowa Dee-ni’ Nation, Intertribal Sinkyone Wilderness Council, Cher-Ae Heights Indian Community of the Trinidad Rancheria, Wiyot Tribe. 2017](#)

This document, partially an outcome of consultation through the MLPA Initiative “applies Tribal/Indigenous Traditional Knowledge (T/ITK) to inform the baseline characterization for State Marine Protected Area (MPA) monitoring.” It stresses the unique value of T/ITK, especially for establishing historically relevant baselines for coastal ecosystems and identifying threats. A selection of key policy recommendations are paraphrased as follows:

- 1 Tribes must lead in defining how T/ITK is to be accessed and applied.
- 2 State policy should center “sovereign Rights of Tribal Nations” and “Rights of Nature”
- 3 Co-management Agreements with clear management roles is a favored approach
- 4 Culturally significant species warrant greater Tribal stewardship recognition
- 5 Initiatives to synthesize and analyze T/ITK should be conducted at the direction of the Tribes
- 6 Population monitoring should take into account differences in impacts across harvest methods

Figure 1.6: *Policy recommendations for coastal management process (North Coast Baseline, 2017).*

[Yurok Tribal Fisheries Program](#)

Yurok Tribe. 2023.

As the largest federally recognized tribe in California, the Yurok run a comprehensive fisheries program designed to monitor and manage the fisheries in the Klamath River watershed. This includes partnerships with different state and federal agencies, especially around issues of shared jurisdiction including recently finalized decisions to remove dams to restore fish runs on the river. The [final approval for the removal of four dams](#) was issued in November 2022. The decommissioning of the dams is accompanied by [\\$5.8 million in federal funding](#) for restoration projects led by Tribes in the region. This includes both the Yurok and Karuk who were active participants throughout the 15-year planning process. Dam removal and restoration is being organized under the [Klamath River Renewal Corporation](#), a conglomerate of representatives for Tribal, State, and NGO interests.

[Proposed Designation of Chumash Heritage National Marine Sanctuary](#)

NOAA National Marine Sanctuaries. 2023.



Figure 1.7: Proposed area for Chumash Heritage National Marine Sanctuary (NOAA, 2023).

The Chumash Heritage National Marine Sanctuary (CHNMS), initially proposed by members of the unrecognized [Northern Chumash Tribal Council](#), seeks to secure sanctuary status for a large stretch of the Central Coast. Tribes and Bands of both Chumash and Salinan descent have issued comments about the designation process, with most expressing support under the condition that Native people are considered co-managers of this area. The Santa Ynez Chumash, the only federally recognized tribe in the region, has pointed to co-management agreements established in other sanctuaries like the Olympic Coast National Marine Sanctuary as potential models in [comments submitted to NOAA](#).

2.2.2 Other U.S. West Coast Cases

[Intergovernmental Policy Committee - Olympic Coast National Marine Sanctuary](#)

NOAA National Marine Sanctuaries. 2023.

Referenced in the proceedings around the proposed CHNMS, the Olympic National Marine Sanctuary (OCNMS) is an oft-cited case of effective Tribal engagement in marine management. Since 2007, the sanctuary governance has included an Intergovernmental Policy Committee (IPC) including the four “Coast Treaty Tribes” (Hoh, Makah, Quileute, and Quinault), the State of Washington, and NOAA. The IPC recognizes the original fishing rights and co-management responsibilities of Native people on the Olympic Coast, whose traditional harvest territory encompasses the sanctuary.

The sanctuary is undergoing a [review of their management plan](#) and is currently receiving public comments. The 2008-2019 OCNMS Conditions Report recognized that treaty-protected fishing grounds overlap with the sanctuary. As such, the IPC works to enhance “collaborative research” partnerships that achieve the following.

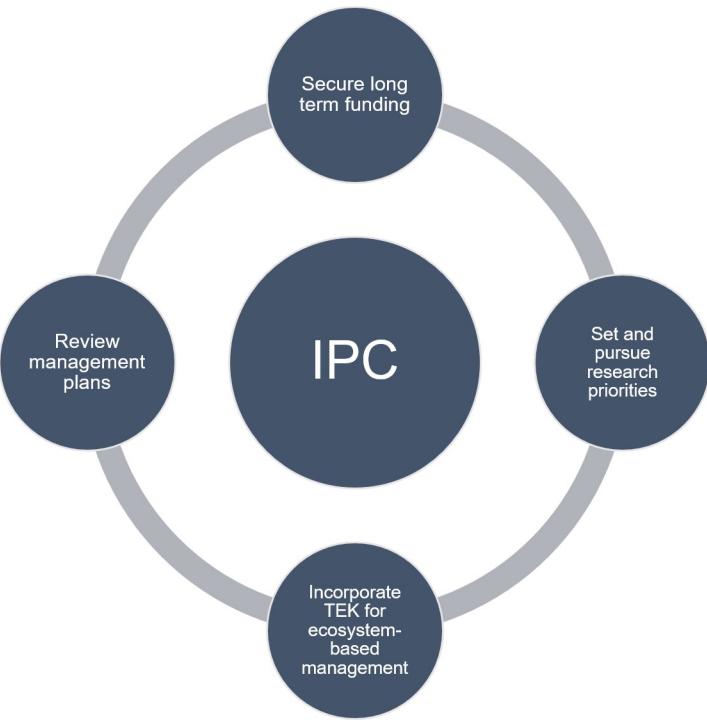


Figure 1.8: Priorities of the Intergovernmental Policy Council (NOAA, 2023).

Tribes - Pacific Fishery Management Council

PFMC. 2023.

Tribes in Washington, Oregon, Idaho, and California work together with the Pacific Fishery Management Council (PFMC) to jointly manage key fisheries, especially around salmon. The council recognizes and upholds the rights of Tribes with established treaties to fish in “usual and accustomed (U&A) areas.” In these situations, Tribes are entitled to half of the surplus stocks in those areas. While these arrangements are more common in Oregon and Washington, this applies to the Yurok and Hoopa Valley Tribes in the Klamath River basin in California. There is a permanent Tribal voting seat on the PFMC board staffed by a member of any federally recognized tribe in the region. The [Sustaining America’s Fisheries for the Future Act](#), the name for the [Magnuson-Stevens Act Reauthorization](#) that is currently under consideration by the House, would add a similar requirement for the Northern Pacific Fishery Management Council in Alaska. The following figure provides a state-by-state view of the PFMC management process and related co-management agreements.

Agreement	State	Description
North of Falcon	WA	Sets salmon limits for inland areas (Puget Sound, Willapa Bay, Grays Harbor, and state rivers)

Agreement	Description
Shellfish Agreement	WA From U.S. v Washington : reaffirmed Tribal right to equal harvest of shellfish including crabs
Colombia River-Inter Tribal Fish Commission	OR, From U.S v Oregon : co-management of salmon between WA, states, four treaty Tribes, and other Native groups
Northwest Indian Fisheries Commission	ID WA From Boldt Decision : coalition of 20 treaty Tribes in Western Washington recognized them as natural resources co-managers with the State of Washington with an equal share of the harvestable number of salmon returning annually.
Klamath River Intertribal Fish and Water Commission	OR, Established in 1995 to manage the Klamath River salmon CA and monitor restoration work in the basin. The commission includes the Hoopa, Yurok, Karuk, and Klamath Tribes.

At present, the Coast Treaty Tribes in Washington are the only group with designated harvest rights off-shore under the Treaties of Neah Bay and Olympia. The Washington Department of Fish and Wildlife maintains a [Tribal Fishing](#) webpage which includes several educational resources.

[Co-management of Marine Mammals in Alaska: A Case Study-Based Review](#)

Marine Mammal Commission. 2019.

The federal government through the Marine Mammal Protection Act allows for separate agreements with Alaskan Native Organizations. This allows federal agencies to establish shared management goals that recognize cultural uses of marine mammals. Tribal members and organizations can establish agreements to actively monitor and set limits for the harvest of marine mammals for cultural and subsistence purposes. There are nine individual agreements that can be seen on the [NOAA website](#). The report defines co-management in this context:

“A partnership based on trust and respect, established between an Alaska Native Organization, as defined by the MMPA, and either NMFS or FWS, with shared responsibilities for the conservation of marine mammals and their sustainable subsistence use by Alaska Natives.”

– Malek et al., 2019

This process has been criticized by Native Alaskans despite several attempts to review and improve the process. This report was conducted in efforts to improve government-to-government coordination and produced the following recommendations and findings.

Co-management Recommendations



Figure 1.9: *Findings from Alaska Co-management Case Study (Malek et al., 2019).*

A key finding from this process was that subsistence activities are imperiled by climate change and Native Alaskans are a vital frontline information source on the health of different mammal populations.

2.2.3 Canada Cases

While the United States has taken a state-by-state approach, Canada has defined and integrated co-management responsibilities at the national level. The following presents a (very limited) selection of resources exploring co-management on the West Coast of Canada.

[**The Compendium of Indigenous Socio-economic Best Practises in Fisheries and Oceans Sectors**](#)

National Indigenous Fisheries Institute. 2022.

This resource library documents various co-management agreements and outlines the many partnerships between First Nations and the Canadian government with respect to fisheries and aquaculture. This includes an implementation plan for the [landmark agreement](#) to require aquaculture companies to obtain the consent of First Nations to operate in their waters. Concern for the transmission of diseases and parasites from farming operations to wild salmon populations has led to the decommissioning of a majority of the remaining open water salmon farms in British Columbia. The transitioning of this industry is grounded in consensus-based

negotiations and includes permit buybacks by the Canadian government. Indigenous leadership in monitoring and evaluating salmon farms to map and measure risks has also helped establish a relationship between First Nations and aquaculture companies. It has also increased coordination between different First Nations governments in British Columbia.

Conservation, Co-Management, and Power-Balancing in Haida Gwaii

Erin Shields. UCLA Law Review. 2020

This paper provides a review of the reconciliation process between the Canadian government and the Haida First Nation. The basis of reconciliation has centered around the upholding of Aboriginal title to lands and waters in Haida territory. The paper recognizes the need to rectify power imbalance between Indigenous governments and settler governments in order to facilitate meaningful co-management. In the case of Haida Gwaii, Indigenous activism and resistance to resource extraction by settler groups led to the establishment of the Gwaii Haanas Agreement in 1993. This agreement established government-to-government systems to facilitate co-management of resources in the islands, including an extensive protected area network. This agreement was extended to include marine areas in 2010. More recently, the 2018 [Gwaii Haanas Gina 'Waadluxan KilGuhGa Land-Sea-People Management Plan](#) is a first-of-its-kind integrated co-management plan spanning both terrestrial and marine ecosystems.

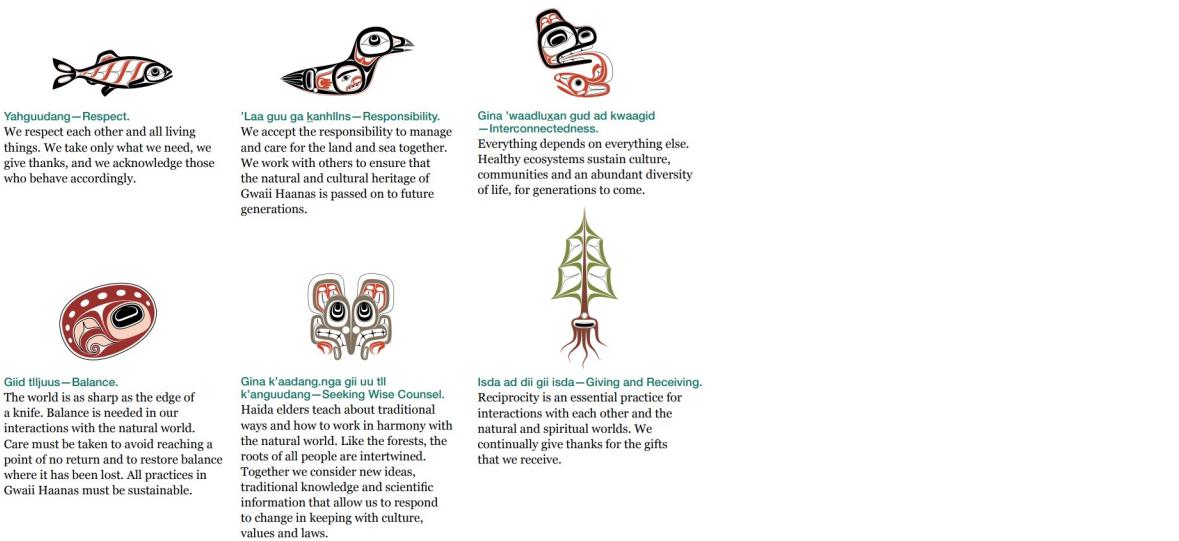


Figure 1.10: *Guiding principles from the Gwaii Haanas Gina 'Waadluxan KilGuhGa Land-Sea-People Management Plan (Archipelago Management Board, 2018).*

3 Food Sovereignty

“You cannot say you are sovereign if you cannot feed yourself.”

These words were spoken to Winona LaDuke by Sugar Bear Smith as they are recorded in the foreword of *Indigenous Food Sovereignty in the United States*. Devon Mihesuah, the lead editor of this book, outlines this as a movement away from the more limited framework of “food security”:

“The food sovereignty movement, in contrast, seeks to address intersecting issues of hunger, environmentally unsustainable production, economic inequality, and social justice on a political level. The goal is to democratize food production, distribution, and consumption, shifting ‘the focus from the right to access food to the right to procure it’ ”

– Mihensua, 2019

Through an Indigenous lens, “the concept of Indigenous food sovereignty is not focused only on rights to land, food, and the ability to control a production system, but also responsibilities to and culturally, ecologically, and spiritually appropriate relationships with elements of those systems.” In this way, it is impossible to understand the movement towards co-management without a discussion of Indigenous Food Sovereignty (IFS).

This is summarized by the [Working Group on Indigenous Food Sovereignty](#):

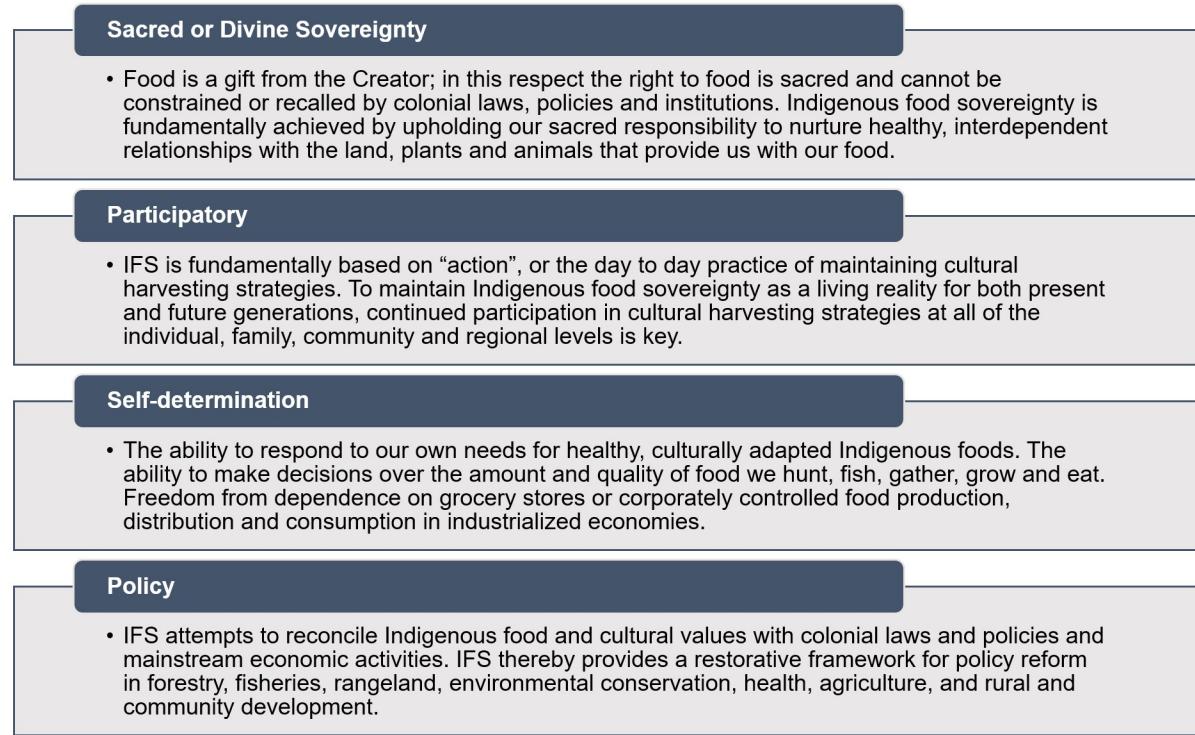


Figure 2.1: *Definition of Indigenous Food Sovereignty (Working Group on indigenous Food Sovereignty, 2023).*

This chapter explores a collection of studies, practices, and stories highlighting Indigenous coastal food sovereignty in the Pacific Coast.

Indigenous Climate Justice and Food Sovereignty

Kyle Powys Whyte. *Indigenous Food Sovereignty in the United States.* Chapter 14. 2019.

In his chapter in Indigenous Food Sovereignty in the United States, Kyle Powys Whyte provides a short and powerful connection between food, climate, and (cultural) continuance. He makes the link between **food systems as collective capacities** which, when **rooted in relationships of trust**, facilitate three key types of capacities:

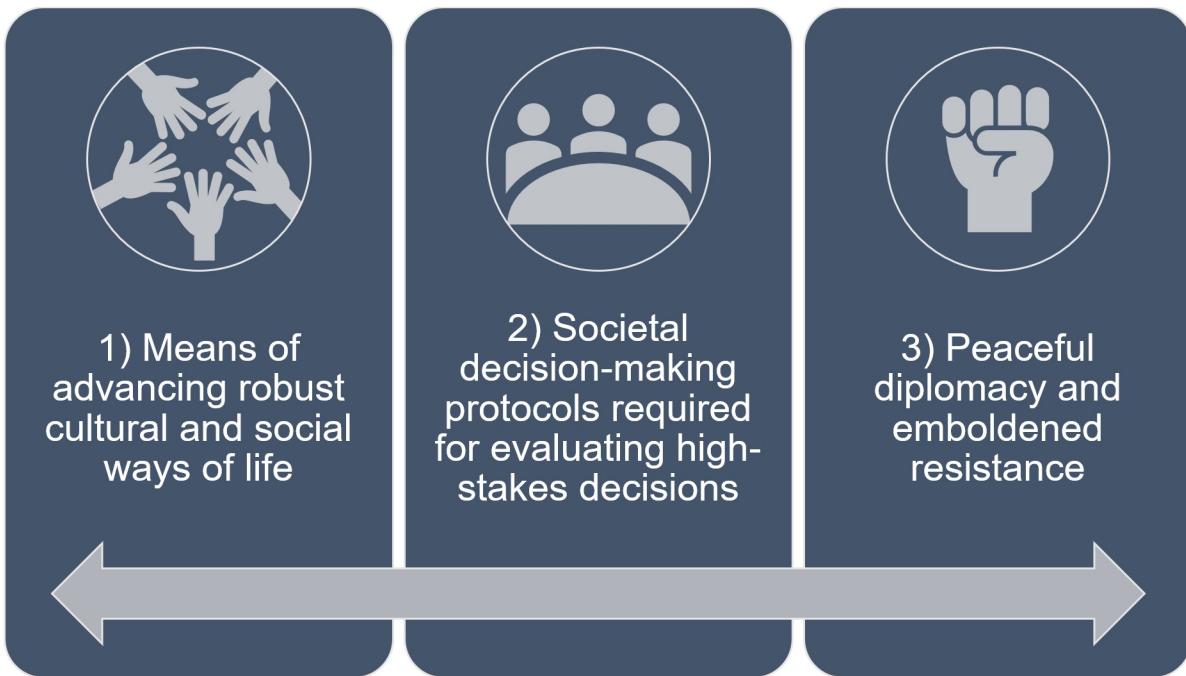


Figure 2.2: *Core capacities enhanced by attaining food sovereignty (Whyte, 2019).*

Whyte and his colleagues referenced in the chapter understand these capacities as essential to Native resilience in the face of climate change. He highlights commentary from Inuit communities which are facing an accelerated rate of climate change and profound loss of culture associated with the loss of ice and their traditional food ways.

Whyte calls particular attention to [Treaty Rights At Risk](#), an initiative led by the Northwest Treaty Tribes in Washington. Launched in 2011, the initiative calls attention to the way the U.S. government continues to violate treaties by permitting activities like dam construction that threaten Native food ways. Issues specific to fisheries are coordinated under the [Northwest Indian Fisheries Commission](#) which represents the interests of these 20 Treaty Tribes in Washington. This organization was established following the landmark Boldt Decision in 1974 that legally established the tribes as co-managers of the salmon fishery with the state of Washington.

Whyte also emphasizes the [Karuk Climate Adaptation Plan](#) in this context, which works to “restore trust in their own knowledge systems, experts, and educational processes” in a way that is focused on “opening people up to developing more reciprocal relationships with nonhumans.” A similar version of this article is available online [at this link](#).

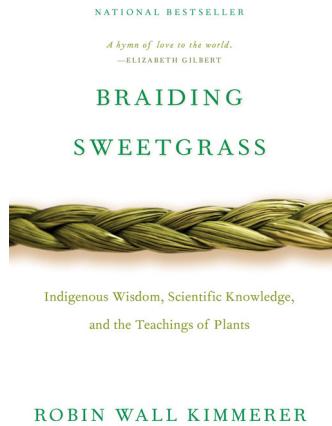
[“Indigenizing” Food Sovereignty. Revitalizing Indigenous Food Practices and Ecological Knowledges in Canada and the United States](#)

Charlotte Coté. *Humanities* 5.3. 2016.

Coté's article opens with a quote from Robin Wall Kimmerer's seminal work, Braiding Sweetgrass.

"In the indigenous worldview, a healthy landscape is understood to be whole and generous enough to be able to sustain its partners. It engages land not as a machine but as a community of respected non-human persons to whom we humans have a responsibility...reconnecting people and the landscape is as essential as reestablishing proper hydrology or cleaning up contaminants. It is medicine for the earth."

– Kimmerer, 2013



This is a good place to start the discussion around food sovereignty and explains how Indigenous people have a different relationship to their food systems wrought by their worldviews and experience of colonization. Coté summarizes this:

"Indigenizing the food sovereignty movement means moving it beyond the rights based discourse to emphasize cultural responsibilities and relationships that Indigenous peoples have with their environment. It also requires examining the efforts being made by Indigenous communities to restore these relationships through the revitalization of their Indigenous foods and ecological knowledge systems as they assert control over their own wellbeing."

– Coté, 2016

3.1 Wild Harvest

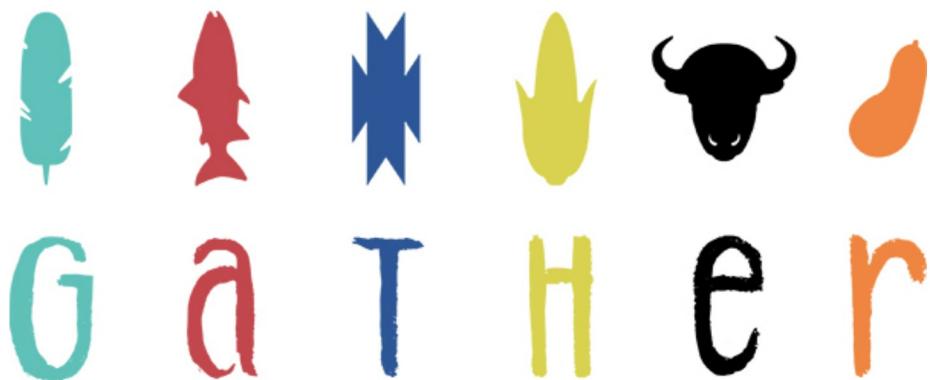
Protecting the Coast with the Tolowa Dee-Ni'

PBS. *Tending Nature*. 2018.

This episode of Tending Nature takes the viewer on a journey to the majestic North Coast of California at the mouth of the Smith River, one of the last remaining undammed rivers in the state. It explores how leaders and members of the Tolowa Dee-Ni' are revitalizing traditional harvesting of shellfish and interacting with the state-managed marine protected area network. The Tolowa Dee-Ni' are one of four founding member tribes of the Tribal Marine Stewards Network cited in the co-management chapter.

Gather Film

Sanjay Rawal (Director), 2020.



This film, created in partnership with the [First Nations Development Institute](#), features stories of five Native people fighting to advance food sovereignty in their communities. The portion of the story focused on coastal foods highlights the [Native youth engagement work](#) led by Samuel Gensaw (Yurok) in his homelands on the Klamath River. The sections of the film led by Samuel highlight the impacts of the loss of salmon for Native communities in the region and the importance of fishing as a vehicle for cultural reconnection. The Klamath, a verdant land where the redwoods meet the sea and freshwater flows year round, is considered a food desert with the nearest supermarket dozens of miles away. This paradox was highlighted by both Frankie Myers, the Yurok Vice Chairman, and Brook Thompson, a Yurok academic and restoration engineer, in the VOA special, [The Inside Story - Undamming the Klamath](#).

Enabling coexistence: Navigating predator-induced regime shifts in human-ocean systems

Jenn Burt et al. *People and Nature* 2. 2020.

Research across several indigenous communities in British Columbia and Alaska revealed a diversity of opinions and attitudes towards predator reintroduction that were significantly influenced by policy allowing or prohibiting traditional hunting and fishing rights. Alaskan Native communities that are allowed to hunt sea otters in accordance with provisions in the Marine Mammal Protection Act had a generally more positive attitude towards coexistence with otters that compete for subsistence seafood like shellfish. First Nations people in Canada

displayed more negative attitudes and were not allowed to hunt sea otters or participate in meaningful management decisions. This study makes the connection between culturally informed management and food sovereignty, which have implications for the success of broader ecological restoration work.

The authors specifically highlight the following components as key aspects of increasing coexistence:

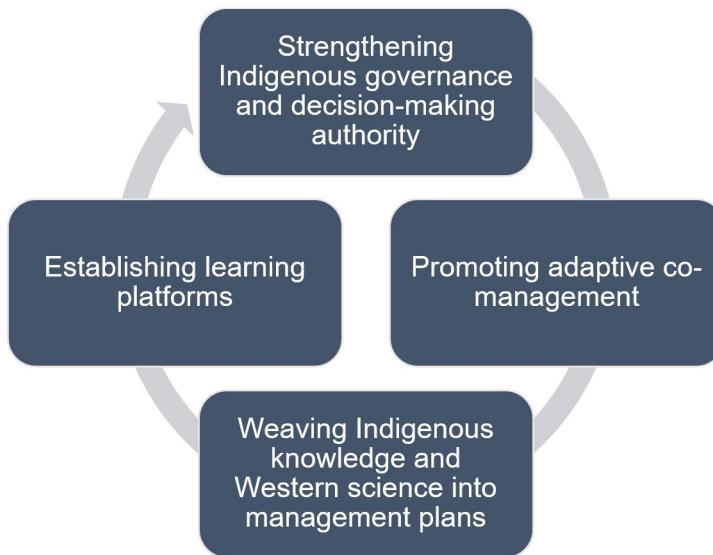


Figure 2.3: Recommendations to enhance coexistence between marine predators and humans (Burt et al., 2020).

Our Hands at Work: Indigenous Food Sovereignty in Western Canada

Tabitha Robin. *Journal of Agriculture, Food Systems, and Community Development* 9.2. 2019.

This paper presents an overview of community-based food sovereignty initiatives in Western Canada. The author notes that food insecurity rates are higher in First Nations communities compared to other groups and stresses a need to move away from “damage centered research” that reinforces the notion that Indigenous communities “exist in a state of defeat.” There is a related need to reposition understanding “sovereignty” outside of Western legal frameworks. In this sense, Indigenous Food sovereignty is a “movement and a way of life to address the broken connections between people, land, water, food, and culture.”

The paper highlights 24 examples of food sovereignty practices in Canada, one of which is the [Coastal Stewardship Network](#) led by the Coast First Nations. The network exists to support

coastal guardians and Indigenous-led governance and monitoring of coastal areas in British Columbia.



Kua'aina Ulu 'Auamo: Grassroots Growing through Shared Responsibility

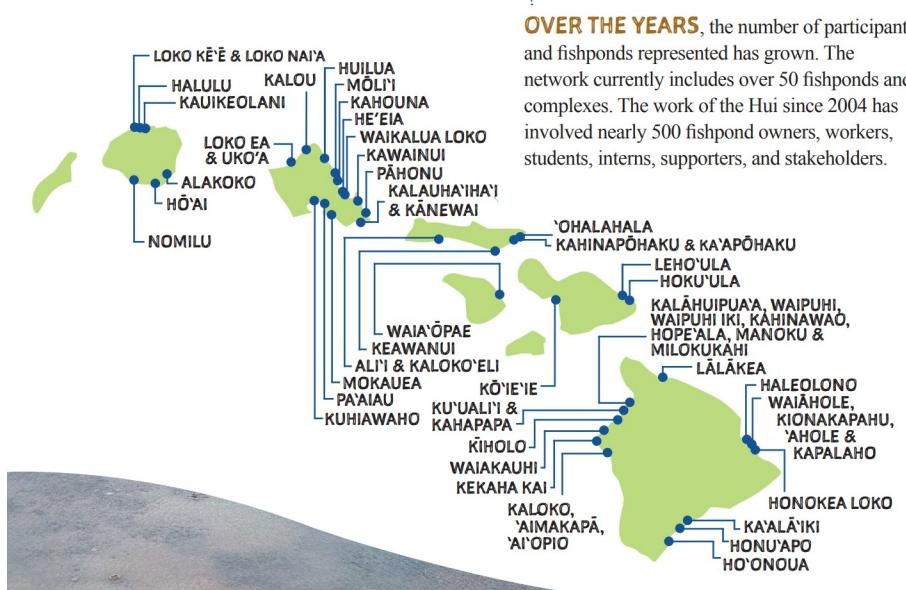
Kevin Chang et. al. *Indigenous Food Sovereignty in the United States*, Chapter 4. 2019.

This chapter of Indigenous Food Sovereignty in the United States focuses on Native Hawaiian food systems which [integrate land-sea and wild-cultivated elements](#). It draws on the ongoing efforts of organizations like [Kua'aina Ulu 'Auamo \(KUA\)](#) seeking to strengthen food sovereignty by revitalizing traditional practices like fish pond (loko i a) aquaculture and seaweed (limu) harvesting. Food sovereignty is a focus of these groups in an era where upwards of 90 percent of food consumed on the Hawaiian islands is imported. The authors note that island-based food systems once supported a population similar in size to the present day before colonization. In the case of seaweed, the suppression of traditional harvesting and diversion of freshwater to support colonial fruit plantations led to a decline in both the abundance and diversity of seaweed in the islands. This conversation has arisen in the modern day where [water diversions for urban and tourism centers](#) have often come before the needs of ecosystems and Indigenous communities.

The authors advocate for the revitalization of konohiki, a “biocultural” management approach that centers community relationships. This is visualized in the coordinated movements of schools of surgeonfish (pualu), a collective effort aimed to achieve a state of abundance ('aina momona). Traditional Ecological Knowledge is the foundation of this state, something the authors stress can be “retained, rediscovered, or redeveloped” like the mending of a “tattered net.” These systems are often not afforded protection under state management regimes. The authors cite “burdensome permitting processes” as a key barrier to loko i a restoration efforts. This led to the creation of legislation supporting Community-Based Subsistence Fishing Areas (CBSFAs) to protect the “traditional and customary” gathering rights.

“CBSFAs and supporting programs allow for forms of co-governance and co-management more akin to the konohiki approach, a departure from the current top-down, one-size-fits-all approach to resource management in Hawai‘i.”

– Chang et al., 2019.



OVER THE YEARS, the number of participants and fishponds represented has grown. The network currently includes over 50 fishponds and complexes. The work of the Hui since 2004 has involved nearly 500 fishpond owners, workers, students, interns, supporters, and stakeholders.

Figure 2.4: *Loko i'a network managed by KUA* (KUA, 2014).

Here, the connection between co-management and food sovereignty – the two primary chapters of this document – is made especially clear. It also makes an essential point; **co-management is an ethos or approach that can serve as a guide for actual agreements more tailored to the specific needs of people and place.**

Alaska Native Perceptions of Food, Health, and Community Well-Being: Challenging Nutritional Colonialism

Melanie Lindholm, *Indigenous Food Sovereignty in the United States*, Chapter 5. 2019.

Similar to the experience of Native Hawaiians, Native Alaskan communities face a form of “nutritional colonialism” where Native people are separated from their food systems and forced into a dependence on expensive imported foods of lesser cultural and nutritional value. This is visualized in the following graphic.

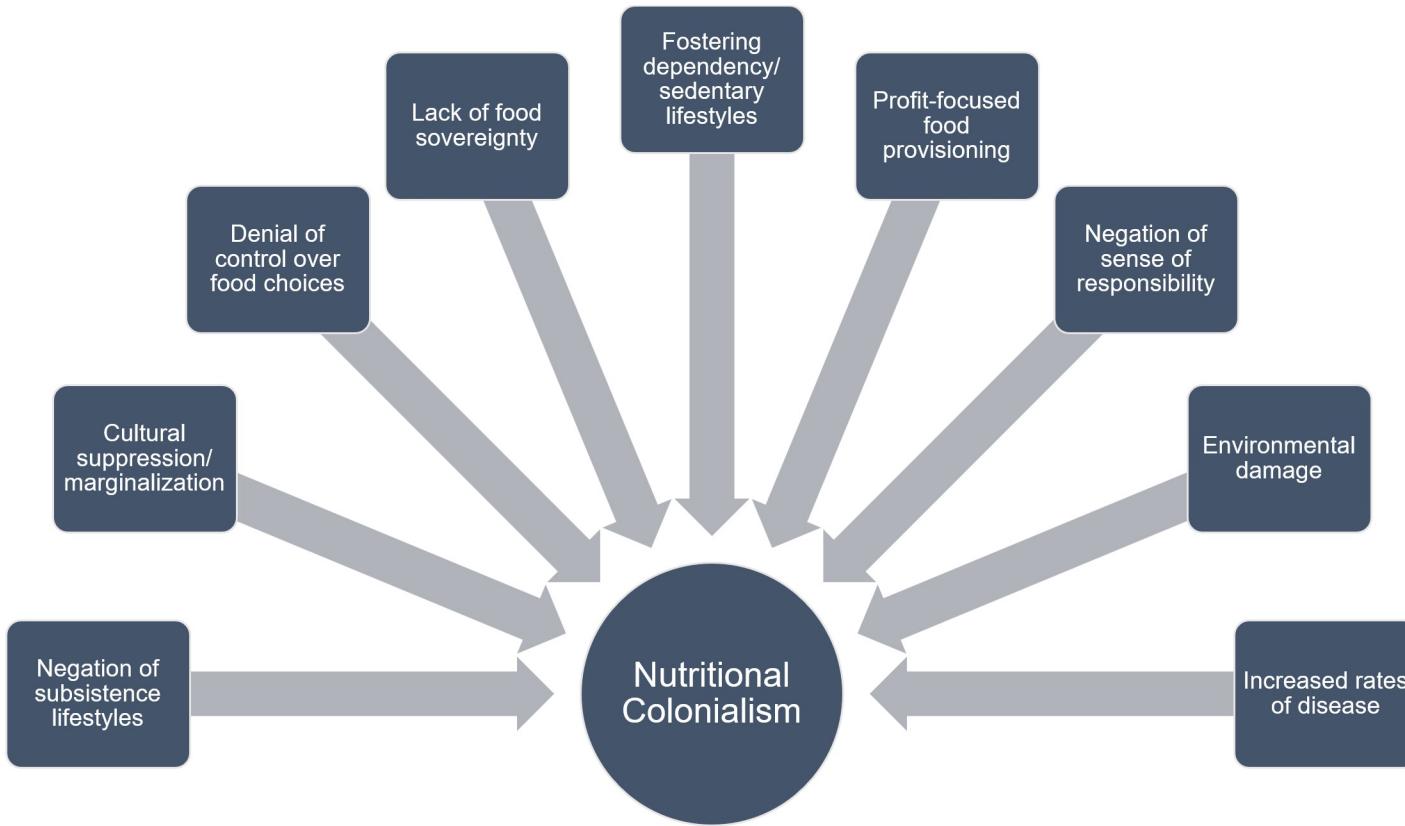


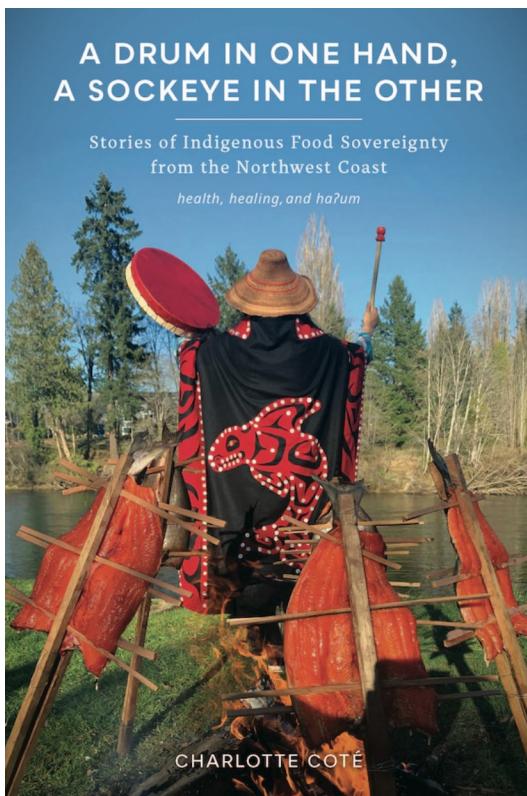
Figure 2.5: Components of “Nutritional Colonialism” (Lindholm, 2019).

In the Alaskan context, there is “state and federal conservation legislation that restricts Natives’ access to their subsistence lands. Hunting seasons and restrictions on the number, species, and place of game hunted have significantly disrupted the Native subsistence economy.” The author goes on to note that in the particularly climate change-sensitive Arctic, “policies and management cannot respond to environmental change as quickly as the hunter or fisher needs. This means that subsistence-dependent members must often break the law in order to survive.”

This is further complicated when extractive industries stake claims to resources in sensitive hunting and fishing grounds. The [Gwich'in](#) continue to advocate for their subsistence-based lifestyle amid ongoing turmoil around oil drilling in the [Arctic National Wildlife Refuge \(ANWR\)](#). Perspectives of Tribal leaders and community members were presented in the Patagonia documentary [“Public Trust.”](#)

[Food Sovereignty, Food Hegemony, and the Revitalization of Indigenous Whaling Practices](#)

Charlotte Coté. *The World of Indigenous North America*, Chapter 12. 2014.



This chapter focuses on the fight of the Makah and Nuu-chah-nulth to reclaim ancestral whaling practices off the Washington and British Columbia coasts. This reclamation was actively resisted by non-Native (mamalhn'i) conservation organizations like Sea Shepherd, despite the fact that these rights are protected by treaty and integral to their identity as a people. Whales accounted for up to 75 percent of all meat and oil consumed by the Makah in eras before whaling was prohibited. When the Makah moved to restore whaling traditions following the removal of the gray whale from the endangered species list in 1994, an anti-whaling coalition formed up against them. This occurred despite the fact that the tribe secured a quota from the International Whaling Commission in 1997. The first gray whale (sih-xwah-wihx) in over 70 years was killed in 1999. This set off a barrage of lawsuits that has prevented further hunts for the next two decades. The Makah are currently awaiting the final decision, scheduled to happen in 2023, [on a waiver request submitted to NOAA fisheries](#) made in 2005 that would allow them to continue their ancestral and treaty-protected subsistence whaling tradition.

The author highlights a trend where “non-Native society attempts to lock Indigenous peoples and cultures at the time when Native and non-Native people first came into contact.” This is the ethos that led the anti-whaling coalition to question the “cultural authenticity” of the restored whaling practice. The anti-whaling constituency leveraged federal law under the Marine Mammal Protection Act (MMPA) to win their case in the court, halt the practice, and set off the lengthy waiver process that currently awaits final approval.

Coté speaks at length on a wider range of food sovereignty initiatives in their recently published book, *A Drum in One Hand, a Sockeye in the Other: Stories of Indigenous Food Sovereignty from the Northwest Coast*

Conservation for the Anthropocene Ocean: Interdisciplinary Science in Support of Nature and People

Phillip Levin and Melissa Poe. *Academic Press.* 2017.

This book considers a range of threats to ocean-based food systems with an emphasis on risks from climate change. Its chapters present a view that “conceptualizes nature and people as part of shared ecosystems,” making room for Indigenous perspectives.

Chapter 9 - Ocean Cultures: Northwest Coast Ecosystems and Indigenous Management Systems focuses on the Pacific Northwest and a push to view Native people as stewards and not only harvesters. The key systems that the chapter highlights are “clam gardens, salmon production, and estuarine root gardens.”

Chapter 19 - Implications of a Changing Climate for Food Sovereignty in Coastal British Columbia explores this in the context of the 'Namgis First Nation on Vancouver Island. The authors claim that most, but not all, of the foods deemed key to a traditional diet are compromised by climate effects.

“Fish as food”: Exploring a Food Sovereignty Approach to Small-scale Fisheries

Charles Levkoe et al. *Marine Policy* 85. 2017.

This article, written by non-Native authors, poses a shift in the narrative around fisheries. Specifically, they advocate for a research and management ethos that considers “fish as food” instead of viewing fish as a commodity or resource. This view creates more space in the management discourse for food sovereignty. It also provides a helpful section reviewing the evolution of fisheries management approaches Internationally and the connection to food sovereignty themes. The authors highlight the “seven pillars” of food sovereignty developed across several multilateral meetings:

Pillar	Description
Focuses on food for people	Puts people at the center of food systems policies and understands food as more than just a commodity
Builds knowledge and skills	Recognizes the value of traditional knowledge and research as a way to share experiences
Works with nature	Takes an ecosystems approach recognizing the interrelationships of humans with the natural systems to improve resilience and cohabitation

Pillar	Description
Values food providers	Values and supports sustainable livelihoods
Localizes food systems	Closer connections between food providers and eaters in practice and policy and rejects dependencies on unaccountable corporations and inappropriate food aid
Puts control locally	Places control directly in the hands of local food providers, recognizes the need to inhabit and to share territories and rejects the privatization of natural resources
Food is sacred	Recognizes that food is a gift of life and part of people's identities

3.2 Aquaculture

Sea Gardens Across the Pacific: Reawakening Ancestral Mariculture Innovations

Pacific Sea Garden Collective. 2023.



This resource, produced by a collaboration of primarily non-Native researchers from various universities, visualizes and collects stories on traditional mariculture, aquaculture, and ocean farming practices throughout the Pacific Ocean. In their words:

"Indigenous People have been stewarding the ocean for thousands of years. This interactive and 'living' story map of sea gardens, begins to synthesize information about ancestral mariculture across the Pacific Ocean. Rooted in intergenerational knowledge, ecological ingenuity, sophisticated governance systems, spirituality, and cultural practices, the ancestral stewardship of sea gardens has strengthened connections between people and places for millennia."

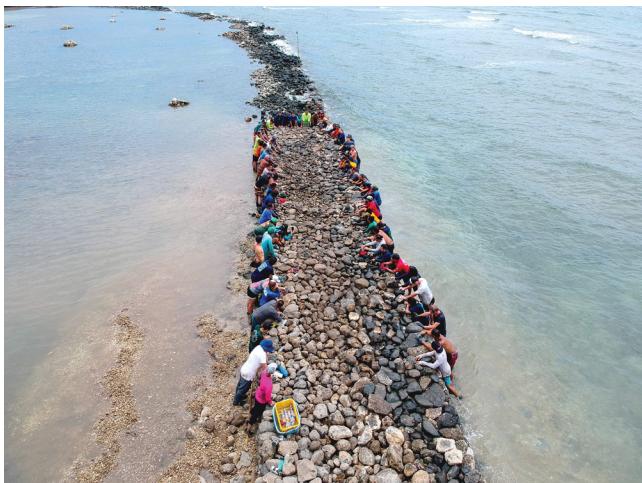
– Sea Garden Collective, 2023

From clam gardens in the pacific Northwest to loko i'a (fish ponds) in Hawai'i, the story map presents a dynamic picture of the various ways Indigenous communities traditionally

maintained relationships with coastal ecosystems. Many of these practices continue today or are being revitalized. One example of this is the [Clam Garden Network](#) which brings Native communities from Alaska, Canada, and Washington together to foster inter-generational knowledge sharing” for the restoration of ancestral food ways and self-determination.

Fisheries and Stewardship: Lessons from Native Hawaiian Aquaculture

Brenda Asuncion et al. First Nations Development Institute. 2020.



Ancient Hawaiian aquaculture practices that continue into modern times, including the use of traditional loko i'a (fish ponds), provide an example in dynamic food systems management. The loko i'a represent a legacy of deep knowledge and subsistence rooted in Indigenous Knowledge. After years of degradation and loss of food sovereignty as a result of colonization and the erosion of land tenure, community groups are working to bring back this ancestral practice. While some loko i'a are unrecoverable, others are at the forefront of community resource management in modern Hawai'i and a renaissance of Native Hawaiian (Kanaka Maoli) culture. This has been accompanied by an effort to disseminate knowledge and practices which led to the convening of a multi-day “Indigenous aquaculture summit and cultural exchange” on Oahu in 2020.

The authors highlight the special role that loko i'a play as physical sites, serving as “important kīpuka—which literally means oasis/oases, but figuratively means receptacle(s)—for the renewal of traditional practices and values in contemporary ways.”

A Native Perspective on Regenerative Ocean Farming

Dune Lankard. 2021.



NATIVE CONSERVANCY

The Native Conservancy, an organization founded and run by Native Alaskans, is working to merge modern aquaculture practices with traditional food ways in their region. This is largely in response to disaster-driven declines in wild fish populations, which has necessitated the creation of new relationships with the ocean for many isolated communities. Dune Lankard, the organization's founder, explains his vision:

"Our goal at Native Conservancy was to do more than just protect wild salmon habitat. We aimed to get involved in protecting our unique subsistence way of life. Even though we had led successful conservation campaigns over decades to permanently protect over 1 million acres of wild salmon forest habitat that was scheduled to be clear-cut in the parallel path of the Exxon Valdez oil spill, we knew that saving habitat just was not enough anymore. We had to honor our ancestors and apply the lessons of the past to the challenges we were facing. Growing restorative habitat and entering the kelp space was the answer ... This is also an opportunity to change our relationship with food. We need to respect traditional food sources, start growing and processing our own food, feed our communities, and market directly any excess."

– Dune Lankard, 2021

The organization is currently rolling out a Native-led kelp farming capacity building initiative across the Alaksan coast. This complements their [food sovereignty program](#) which stresses the “re-localization of economies” and provision of subsistence foods and storage equipment to support elders and remote communities.

[**Government of Canada and K'ómoks First Nation announce collaboration on Area-Based Aquaculture Management Pilot Program**](#)

Fisheries and Oceans Canada. 2022.

The Canadian government is partnering with First Nations to establish a shellfish aquaculture zone in British Columbia. The initiative has been coined as the Area-Based Aquaculture Management (ABAM). According to the agency, “the pilot will enhance opportunities for collaborative governance related to aquaculture, and is expected to result in improved outcomes that better respond to local environmental, social, and cultural realities.”

This is part of a wider process to build goodwill between coastal First Nations and the Canadian government. In 2020, Fisheries and Ocean Canada announced a [new collaboration](#) with First Nations to review the impacts of, and eventually shutter, several open ocean salmon farming facilities in the province. This action was taken out of concern for the protection of remaining wild salmon populations in and around Vancouver Island. The agreement

confirmed that the consent of First Nations was required to maintain operations.

4 Research Partnerships

Tribal Marine Collaborative – North Coast Native Protectors

TMC. 2023.



The collaborative and related North Coast Native Protectors (NCNP) have a mission to:

“Promote clean water, healthy oceans, and Tribal management. Our goal is for Indigenous communities to understand and participate in the community citizen science projects, University research, and marine management that may be happening within their ancestral lands.”

– TMC, 2023

Many of the members of the collaborative actively fish, gather, and steward coastal areas in their lands. The TMC and NCNP support Tribal science and efforts to establish baseline monitoring of under-studied geographies like the North Coast. They are also focused on expanding relationships with other entities in the broader [MPA Collaborative Network](#), which includes 14 MPA Collaboratives throughout California.

Tribal Marine Stewards Network

TMSN, 2023.



The recently commissioned Tribal Marine Stewards Network (TMSN) is a coalition of coastal Tribes focused on “reclaiming our right to manage and steward our ocean and coastal territories, particularly those within and adjacent to Marine Protected Areas.” The four founding member tribes include the Amah Mutsun Tribal Band, Kashia Band of Pomo Indians, Resighini Rancheria, and Tolowa Dee-Ni’ Nation. This builds on the initial efforts specifically of the Kashia Band in calling attention to the way Native Californians were being sidelined in large scale marine planning. The Ocean Protection Council (OPC) granted TMSN funding in October 2022 to help the network launch initial efforts and expand Tribal capacity.

Indigenous Aquaculture Collaborative Network

IACN. 2023.



In their own words, IACN is “a collaborative network of Pacific-region Sea Grant offices; Northwest Tribes and First Nations, Native Hawaiian and Indigenous communities; and organizations and universities working as a community of practice to advance Indigenous Aquaculture.” Several of their focus projects include loko i'a and clam garden restoration. The collaborative is also focused on convening multi-cultural and cross-regional gatherings to promote knowledge exchange among their partners. Several thought leaders highlighted in this reading list are

members of the steering committee. Their “resources” page goes further into several of the initiatives highlighted here.

Center for Indigenous Fisheries

CIF. 2023.



The center, located at the University of British Columbia, aims to produce “science for fish, people, and place.” The vision is to foster research “with and for Indigenous Peoples,” recognizing the pattern of exclusion of Native voices from Western science and scholarship. Work on “two-eye seeing” by the Center’s principal investigator, Andrea Reid, is referenced in the opening section of the co-management chapter. The Center is guided by an Indigenous Advisory Council consisting of seven scholars from across Canada.

Enhancing food sovereignty: A five-year collaborative tribal-university research and extension project in California and Oregon

Jennifer Sowerwine et al. *Journal of Agriculture, Food Systems, and Community Development.* 2019.

This article summarizes a five-year partnership between researchers at UC Berkeley and three Tribes (Klamath, Karuk, and Yurok) in the Klamath River region. The partnership was rooted in community-based participatory research (CBPR), recognizing the history of “tribal disenfranchisement” that has led to an erosion of trust and a reluctance on the part of Tribes to participate in partnerships with non-Tribal organizations like universities. Participants were funded by a federal food security grant, treating “food security and food sovereignty as distinct but interrelated concepts.” Partners fostered a “shared vision to leverage the strengths of both Indigenous and Western science to conduct research, education, and extension to restore Native foodways in the Klamath Basin.” This recognizes current “food desert” conditions in a region once storied for its abundance. Researchers surveyed Native people in the region, discovering that “70% of all households never or rarely have access to all desired native foods throughout the year.” This centered around a new definition of **Native food security**: having physical, economic, social, and legal access to all desired native foods with the appropriate quality and quantity throughout the year, and continuity of the cultural institutions that sustain them, including traditional ecological knowledge, social support networks, and cultural resource stewardship.

The partnership required the “decolonization” of research relationships between UC Berkeley and Tribes in the Klamath Basin, including acknowledgment of the ongoing possession of unceded artifacts and remains.

The key tenet of this partnership is “**tribal oversight to protect tribal cultural, intellectual, and material property.**” This led to the development of a [guidance document](#) co-created by the Karuk Tribe and UC Berkeley. The guidance is rooted in several key principles:

Principle Description

Community	Research questions are generated by or in collaboration with the Tribe
Engaged	
Scholarship	
Free, Prior, and Informed	Project leads must disclose the full range of potential benefits and risks associated with the research, all relevant affiliations of the person(s) seeking to undertake research, and all sponsors and funding sources.
Consent	
Benefits to the Tribal Community	Projects should benefit the Tribal community, and associated risks should be minimal.
Mentorship/Training/Youth Development	drive to involve Tribal youth. This may include employment, internships, or volunteer work that supports the development of tribal youth learning opportunities.
Confidentiality	has the right to exclude information from publication and/or to require confidentiality agreements, particularly with respect to information concerning their culture, traditions, sacred sites and spiritual beliefs.
Mutual Respect, Inclusiveness, and Empowerment	Necessity for project leaders to respect the integrity, morality, traditions, tribal codes, and spirituality of the Karuk culture, and to avoid imposing external conceptions and standards on community members.
Equity/Reciprocity	can take many forms, which may include giving back through financial and/or non-financial means, such as sharing knowledge, networking, or conducting needs-based projects.

Principle Description

Self-Determination, Prior Rights, and Inalienability	Indigenous peoples also retain prior proprietary rights and interests over their traditional knowledge; resources, such as air, land, and waterways; as well as associated natural and cultural resources. Project leads must abide by all tribal ordinances, traditional codes and laws.
Respecting Indigenous Knowledge and Intellectual Property	While the Tribe shall be recognized and consulted as the primary legal and cultural custodians in any projects or activities that will produce any intellectual property (property) products, it is the researcher or project lead's responsibility to protect the information and other resources entrusted to them throughout all stages of research and publication processes. Prior to conducting study, collaborators should make themselves aware of any data that is of particular interest to the Tribe and to establish clear agreements over terms for data sharing.
Pikyav and Appropriate Conduct	All proposed collaborative projects must incorporate the Tribe's philosophy and practice of pikyav, including Karuk eco-cultural restoration and revitalization efforts that aim to "fix the world."

The Indigenous Food Knowledges Network: Building Indigenous Led Collaborations across Biomes

Mary Beth Jäger et al. *Journal of Agriculture, Food Systems, and Community Development* 9. 2019.

The purpose of the Indigenous Foods Knowledges Network (IFKN) is “to foster a network of Indigenous leaders, citizens, and scholars who are focused on research and community capacity related to food sovereignty and resilience.” The network is focused on connecting people in the Arctic and U.S. Southwest.

The network is positioned to foreground two key Indigenous research methodologies:

1. **Relational accountability:** honors the importance of relationships inherent in Indigenous Knowledge systems.
2. **Centering of story:** the key vessel for the transmittance of Indigenous Knowledge, supported through place-based gatherings that facilitate cross-cultural connection.



Figure 3.1: *IFK Network objectives (IFKN, 2019).*