

# SEE-Spokane / SEE-Puget Sound Work Accomplishments

John L Marshall (September 22, 2014)

Per agreement with the Environmental Protection Agency (EPA) Region 10 Aquatic Resource Unit (ARU), I completed the following tasks in conformance with my assigned EPA established work plan and contract agreement between EPA and the National Asian Pacific Center on Aging (NAPCA) Senior Environmental Employment (SEE) Program:

Acquisition of Field Equipment (*I provided most of my own field gear including*):

1. Trimble GeoXH 2005 Series GPS Unit;
2. Garmin Etrex Vista GPS Unit (for quick waypoint collection and Trimble GPS back-up);
3. ArcPAD (loaded on GPS Unit and Home Personal Computer (PC) and ArcView software (loaded on PC) for collecting and downloading field data;
4. Personal Vehicle or Rental Cars;
5. Cannon Powershot A490 Camera;
6. Carpenters Tape Measurer;
7. Field Vest;
8. Field Clipboard;
9. Plant Field Guides;
10. Shovel; and
11. Rubber Hip-waders

EPA Equipment (*Some equipment items have been returned to EPA. This list includes only items still in my possession*):

1. Laptop Computer;
2. ArcInfo software for transferring and geoprocessing field and office collected GIS data;
3. Microsoft Access Database and other Microsoft Office software, including Powerpoint and Word;
4. Access to open source Google Earth software;
5. Access to open source Notepad ++ software;
6. Munsel Soils Color Charts;
7. 300-foot measuring tape;
8. Orange Field Vest;
9. EPA cell phone;
10. EPA Inspector's Credential; and
11. Field Data Sheets

## Twenty investigations and 9-inspections (SEE-Spokane)

Completed twenty investigations and nine field inspections for potential violations of Section 404 and 402 NPDES Stormwater authorities:

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Archived the resulting office and field data by creating and populating EPAFacilities\_Tribes file geodatabase and Access relational database with investigation and inspection data for archival, analyses, and reporting. Data were also archived in other file formats to extend accessibility (e.g., Excel, kmz, and shapefile):

G:\Baker\MarshallJ\_EPA\_SEEPosition\SEESpokane\Inspections\Database

SiteName	SiteCity	SiteCounty	SiteState	TribalLand	Tribe
Randal Pond	Hayden	Kootenai	ID	FALSE	
Brandt Violation	Orofino	Clearwater	ID	TRUE	Nez Perce
Moctileme Creek Tributary		Benewah	ID	TRUE	Coeur d'Alene
Wilkinson Dredging Project	Kooskia	Idaho	ID	TRUE	Nez Perce
Simmons Bark Mill	Kamiah	Lewis	ID	TRUE	Nez Perce
Colville Indian Precision Pine	Omak	Okanogon	WA	TRUE	Colville Confederated Tribes
Colville Indian Power - Veneer	Omak	Okanogon	WA	TRUE	Colville Confederated Tribes
Rabbit Creek	Clearwater	Idaho	ID	FALSE	
Burlington Northern	Moyie Springs	Boundary	ID	TRUE	Kootenai
CDATribal Casino	Worley	Kootenai	ID	TRUE	Coeur d'Alene
Lakeside Elementary School	Plummer	Benewah	ID	TRUE	Coeur d'Alene

Benewah Medical Center	Plummer	Benewah	ID	TRUE	Coeur d'Alene
Elder Road Site	Worley	Kootenai	ID	TRUE	Coeur d'Alene
Simson Lumber Company	Plummer	Benewah	ID	TRUE	Coeur d'Alene
Honeysuckle Subdivision	Usk	Pend Oreille	WA	TRUE	Kalispel Tribe of Indians
Kalispel Comencement Park	Cusick	Pend Oreille	WA	TRUE	Kalispel Tribe of Indians
Morton Slough	Sagle	Bonner	ID	TRUE	Kalispel Tribe of Indians
Rockford Bay Summer Home	Coeur d'Alene	Kootenai	ID	TRUE	Coeur d'Alene
Sportsman Park Boat Ramp	Hayden	Kootenai	ID	FALSE	
Waha Road	Lewiston	Nez Perce	ID	FALSE	Near Nez Perce

## Tribal Area Focused Cooperative Section 402 NPDES Stormwater and Section 404 Compliance Assistance (SEE-Spokane)

### I. Routine Travel Budget Submittals (SEE-Spokane)

See travel budget scenarios calculation both in Access database and Excel spreadsheets:

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### II. Public Outreach Workshops

Nez Perce Tribe – Took a lead role in arranging workshop meeting place, organizing agenda, public outreach, and creating key presentations; worked cooperatively with SEE-Spokane monitor to present workshop materials and answer questions from workshop attendees; and created an html page (e.g., wrote html, javascript, and css code) for posting all workshop presentation materials on an Environmental Protection Agency FTP site for easy access by workshop participants.

[ftp://ftp.epa.gov/reg10ftp/training/CWA\\_Tribal\\_Workshops/EPA\\_404-402\\_CWAWorkshops.html](ftp://ftp.epa.gov/reg10ftp/training/CWA_Tribal_Workshops/EPA_404-402_CWAWorkshops.html)

Shoshone-Bannock Tribe - Took a lead role in arranging workshop meeting place, organizing agenda, public outreach, and creating key presentations; presented workshop materials and answered questions from workshop attendees; and created an html page (e.g., wrote html, javascript, and css code) for posting all workshop presentation materials on an Environmental Protection Agency FTP site for easy access by workshop participants.

[ftp://ftp.epa.gov/reg10ftp/training/CWA\\_Tribal\\_Workshops/EPA\\_404-402\\_CWAWorkshops.html](ftp://ftp.epa.gov/reg10ftp/training/CWA_Tribal_Workshops/EPA_404-402_CWAWorkshops.html)

### III. Public Outreach Committee

Stormwater Erosion and Education Program (SEEP) - As an alternative volunteer advisory committee member, I helped provide outreach materials (e.g., html web page) for SEEP / EPA Construction Stormwater Workshop and general education materials (e.g. power point slides) for agency and construction employees involved in planning for (Stormwater Pollution Prevention Plans) as well as implementation and maintenance of stormwater controls. I completed the SEEP certified training and “workshop shadow” requirements to begin taking a lead responsibility in providing supervised SEEP courses. As an EPA employee and SEEP representative, I used SEEP generated educational materials in a stormwater education presentation targeting agencies and citizens involved in construction projects in tribal areas.

### IV. Regional Tribal Webinar (Adobe Connect)

Upper Columbia River United Tribes (UCUT) - Took a lead role in establishing and populating Adobe Connect workshop cyberspace meeting site, organizing agenda, public outreach, and creating key presentations; worked cooperatively with SEE-Spokane monitor to present workshop materials and answered questions from workshop attendees; and created an html page (e.g., wrote html, javascript, and css code) for posting all workshop presentation materials on an Environmental Protection Agency FTP site for easy access by workshop participants (emphasis on EPA Cleanwater Act Enforcement Presentation II).

[ftp://ftp.epa.gov/reg10ftp/training/CWA\\_Enforcement\\_Workshop/404UCUT.html](ftp://ftp.epa.gov/reg10ftp/training/CWA_Enforcement_Workshop/404UCUT.html)

## Forty investigations and 26-inspections (SEE-Puget Sound);

Completed forty investigations and twenty-six field inspections for potential violations of Section 404 authorities:

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Archived the resulting office and field data by creating and populating inspection cases geodatabase and Access relational database with investigation and inspection data. Data were also archived in other file formats to extend accessibility (e.g., Excel, kmz, and shapefile):

G:\Baker\MarshallJ\_EPA\_SEEPosition\SEE\_PugetSound\Inspection\Databases\PSSEInspDB

SiteName	SiteCity	SiteCounty	SiteState	TribalLand	Tribe
Wilbur	Anacortes	Skagit	WA	TRUE	Swinomish
CMS Interests	Bellingham	Whatcom	WA	TRUE	
Price	Stanwood	Island	WA	FALSE	
Bradley	Poulsbo	Kitsap	WA	TRUE	Suquamish
Tahuya River	Belfair	Mason	WA	FALSE	
Blakey Flying T Ranch	Arlington	Snohomish	WA	FALSE	
Becker	Monroe	Snohomish	WA	FALSE	
Snohomish Citizen	Snohomish	Snohomish	WA	FALSE	
Klock	Unincorporated	Snohomish	WA	FALSE	
Hannegan Road	Lynden	Whatcom	WA	FALSE	

SiteName	SiteCity	SiteCounty	SiteState	TribalLand	Tribe
Ota	Sumner	Pierce	WA	FALSE	
Mullen	Redmond	King	WA	FALSE	
Alderwood Mall	Lynnwood	Snohomish	WA	FALSE	
Jones	Gig Harbor	Pierce	WA	FALSE	
Red Wing	Puyallup	Pierce	WA	FALSE	
Gold Bar I	Gold Bar	Snohomish	WA	FALSE	
Gold Bar II	Gold Bar	Snohomish	WA	FALSE	
Edmonds Pond	Edmonds	Snohomish	WA	FALSE	
Meadowbrook Creek	Sequim	Clallam	WA	FALSE	
Curly Creek	Port Orchard	Kitsap	WA	FALSE	
Meadowdale Vista	Edmonds	Snohomish	WA	FALSE	
Bond	Sumner	Pierce	WA	FALSE	
Sebranke	Bothell	Snohomish	WA	FALSE	
Saga Broadcasting Corps	Bellingham	Whatcom	WA	FALSE	
Muck Creek	Graham	Pierce	WA	FALSE	
BipPig	Arlington	Snohomish	WA	FALSE	

SiteName	SiteCity	SiteCounty	SiteState	TribalLand	Tribe
Talbot Real Estate	Bellingham	Whatcom	WA	FALSE	
Savchak	Bellingham	Whatcom	WA	FALSE	
Callister	McCall	Valley	ID	FALSE	
Litvochenko	Lynden	Whatcom	WA	FALSE	
Beacon Coal Mine Road	Tukwilla	King	WA	FALSE	
HRCD_0609_ChA1_dev146 1	Olympia	Thurston	WA	FALSE	
HRCD_0609_ChA1_dev_89 6	Olympia	Thurston	WA	FALSE	
HRCD_0609_ChA1_dev_10 76	Olympia	Thurston	WA	FALSE	
HRCD_0609_ChA1_dev_25 2	Olympia	Thurston	WA	FALSE	
Palmblad	Ferndale	Whatcom	WA	FALSE	
Slater Road	Ferndale	Whatcom	WA	FALSE	
Bartelheimer	Snohomish	Snohomish	WA	FALSE	
Gunshy Manor	Redmond	King	WA	FALSE	
Cougar Ranch	Lynden	Whatcom	WA	FALSE	

## I. Puget Sound Priority Inspection Model

I created a GIS model for geographically prioritizing Clean Water Act inspections in the Puget Sound Area of Interest based on the likelihood of addressing violations that affect the largest number and the most sensitive (based on model weighting) regulated resources of interest by EPA inspectors.

### Puget Sound SEE Weighted Sum Priority Inspection Model

<i>Model</i>	<i>Habitat Element</i>	<i>Model Buffer</i>	<i>Importance Value</i>	<i>Model Weight</i>
1.	303d Streams	N	0/1	2
2.	TMDL Streams	N	0/1	2
3.	Major Rivers / Streams	Y – ¼ mile	0/1	1
4.	Hydric Soils	N	0/1	1
5.	Bull trout Critical Habitat (river & marine)	Y – ¼ mile	0/1	1
6.	Bull trout presence	Y – ¼ mile	0/1	1
7.	Chinook presence	Y – ¼ mile	0/1	1
8.	Chum presence	Y – ¼ mile	0/1	1
9.	Coho presence	Y – ¼ mile	0/1	1
10.	Sockeye presence	Y – ¼ mile	0/1	1
11.	Pink presence	Y – ¼ mile	0/1	1
12.	Steelhead presence	Y – ½ mile	0/1	1
13.	Rare Plants	Y – ¼ mile	0/1	2
14.	Indian Land	N	1	2
15.	Oak / grassland	Y – ¼ mile	0/1	2
16.	Wetlands Estuarine	N	0/1	3
17.	Wetlands Freshwater	N	0/1, 2, 3, 4*	1
18.	Eelgrass	N	0/1	3
19.	Shellfish	N	0/1	3
20.	Kelp	N	0/1	3
21.	Killer Whale Critical Habitat	N	0/1	3
22.	Green Sturgeon Critical Habitat	N	0/1	3
23.	Chum Critical Habitat (river)	Y – ¼ mile	0/1	1
24.	Chum Critical Habitat (marine)	N	0/1	3
25.	Chinook Critical Habitat (river)	Y – ¼ mile	0/1	1
26.	Chinook Critical Habitat (marine)	N	0/1	3
27.	Steelhead Federally Listed	Y – ½ mile	0/1	1

I organize and led three technical advisory committee meetings with ARU staff for guidance on specific model decisions (e.g., resource model weight). I also co-led a technical briefing with James Baird-Lopez (EPA Region 10 GIS Team) for Michael Szerlog (Program Manager EPA Aquatic Resources Unit) and Linda Anderson-Carnahan (EPA Region 10 Associate Director of the Office of Ecosystems and Tribal Public Affairs). I provided model outputs and a detailed power point presentation explaining the model's structure and application for posting on an EPA intranet web page. Once the outputs were created, James Baird-Lopez published each layer as a representational state transfer (REST) web service which allows content to be consumable via the web. After publishing each model output, he



set out to create a flex application. This web application helps users interact with the data and dig deeper into the ecological problems of a given area through turning layers of interest on/off.

<http://t1010pseth805.aa.ad.epa.gov/pugetsoundinspectionmodel/>.

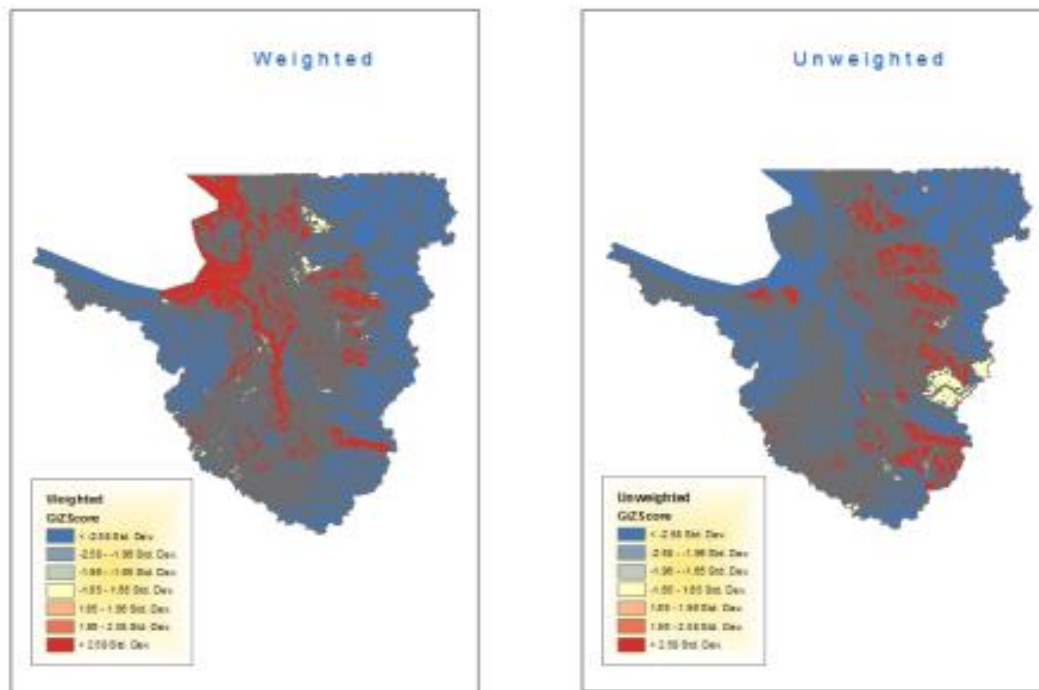
The model input and output data and explanatory power points are located at:

- a. G:\Baker\MarshallJ\_EPA\_SEEPosition\SEE\_PugetSound\Research\PSPIMStage4\PSPIM2\PSPIM2\PSPIM.gdb
- b. G:\Baker\MarshallJ\_EPA\_SEEPosition\SEE\_PugetSound\Research\PSPIMStage4\PSPIM2\PSPIM2\Education

### Weighted and Unweighted Raster Outputs Using Stretched Classification

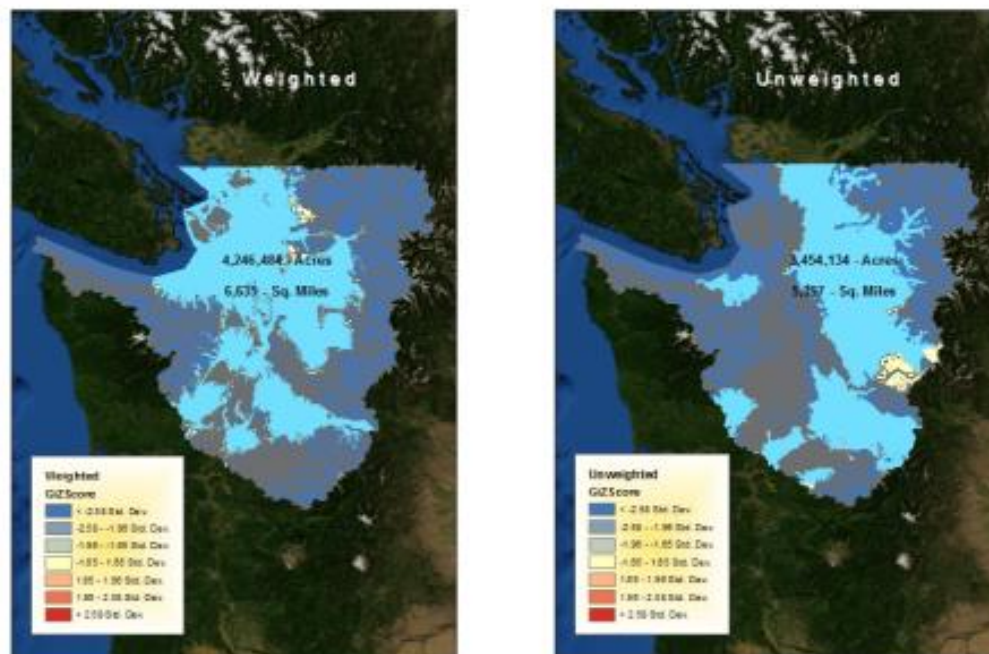


## Getis-Ord G\* Hot Spot Analysis in Puget Sound Area of Interest



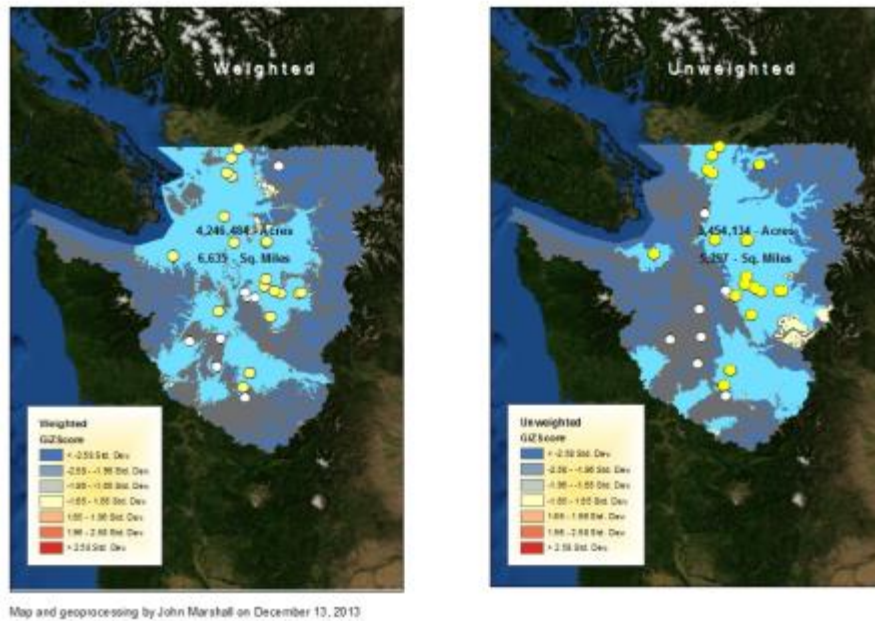
Map and geoprocessing by John Marshall on December 13, 2013

## Getis-Ord G\* Hot Spot Clusters $\geq 1.96$ SD in Puget Sound Area of Interest



Map and geoprocessing by John Marshall on December 13, 2013

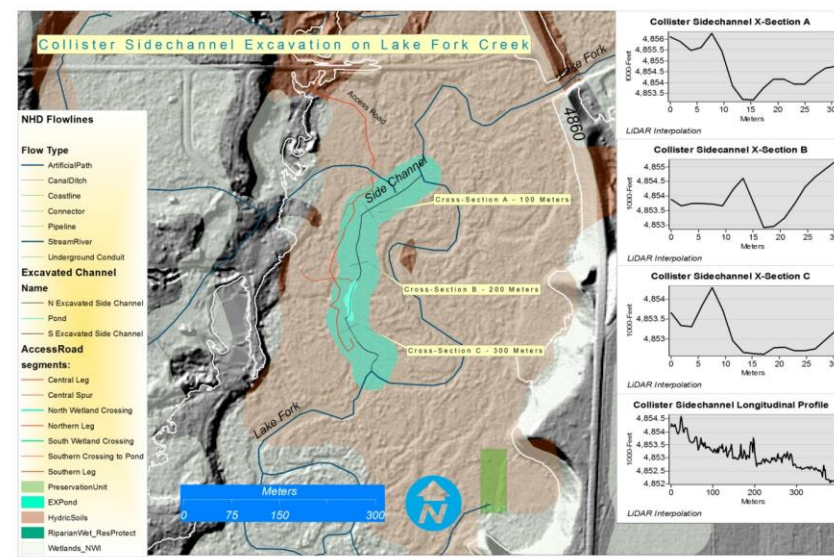
## Selected Puget Sound SEE Investigations and Inspections Using Weighted and Unweighted Statistical Screens



## II. Puget Sound SEE GIS and Other Technical Support for EPA Region 10 Aquatic Resource Unit and Seattle District Corps Regulatory Staff:

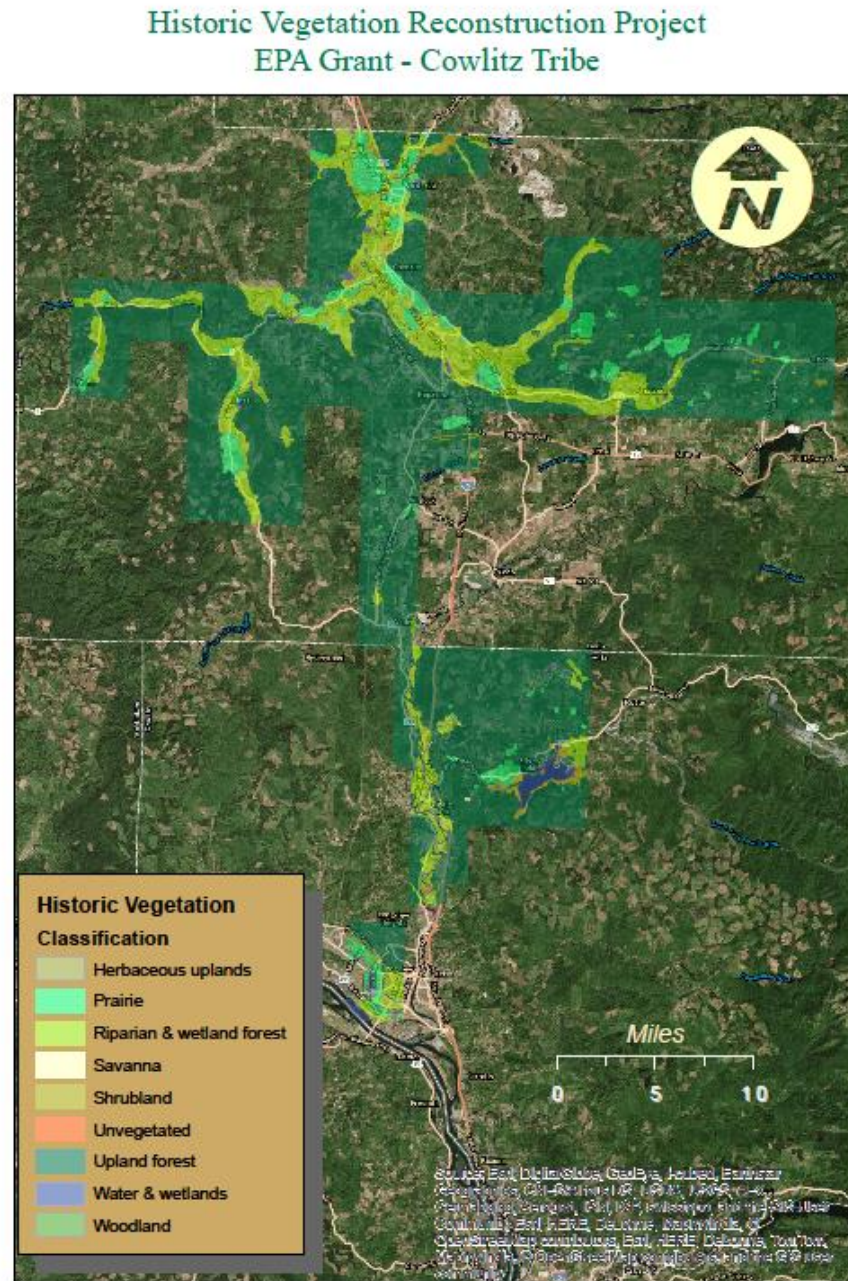
1. Help for Carla Fromm (EPA Boise Operations Office) – Geoprocessing and mapping to help inform Callister (landowner) remedial plan for Clean Water Act violation on side channel of Lake Fork Creek near McCall, Idaho:

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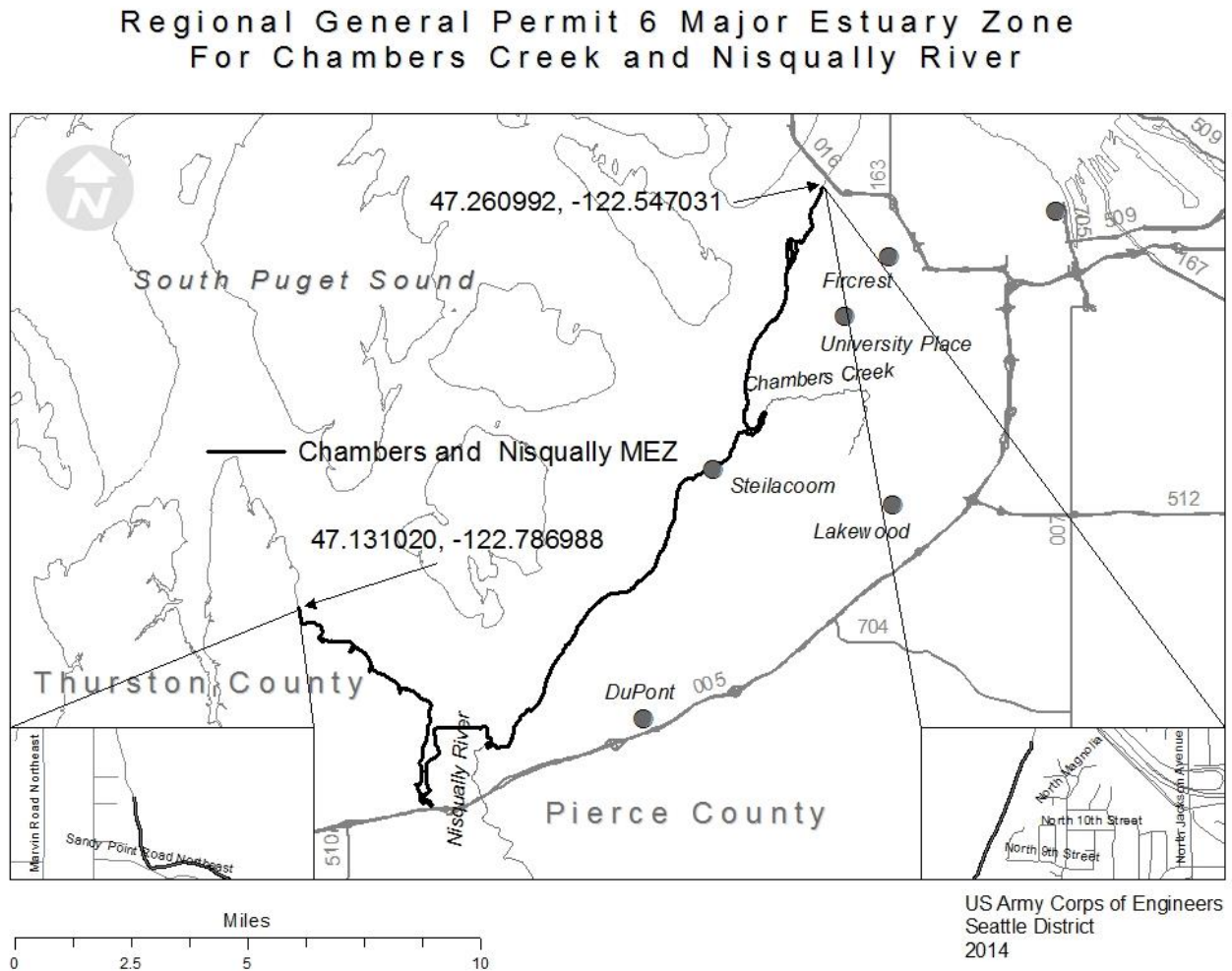
2. Help for Carla Fromm (EPA Boise Operations Office) – Reviewing and mapping a historical vegetation data reconstruction provided through an EPA pass-through Grant between the Cowlitz Tribe and the Oregon Biodiversity Information Center:



Data Source: OBIC / Cowlitz Tribe

3. Help for Kristina Tong (Corps Seattle District Regulatory Branch) - Geoprocessing and mapping Major Estuary Zones for use in implementing Regional General Permit 6 in the Puget Sound and Hood Canal:

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Michael and Krista,

*I wanted to let you know that John finished up the maps last week. He has done a spectacular job! His efforts will definitely make the Corps project manager's job easier and will provide the public an easier way to understand RGP-6. I really appreciate all his efforts and wanted to thank you for allowing him to work on this project. I hope in the future we can continue to collaborate on projects similar to this.*

Thanks, Tina  
Kristina Tong, Senior Scientist  
U.S. Army Corps of Engineers  
Seattle District, Regulatory Branch  
206-764-6913



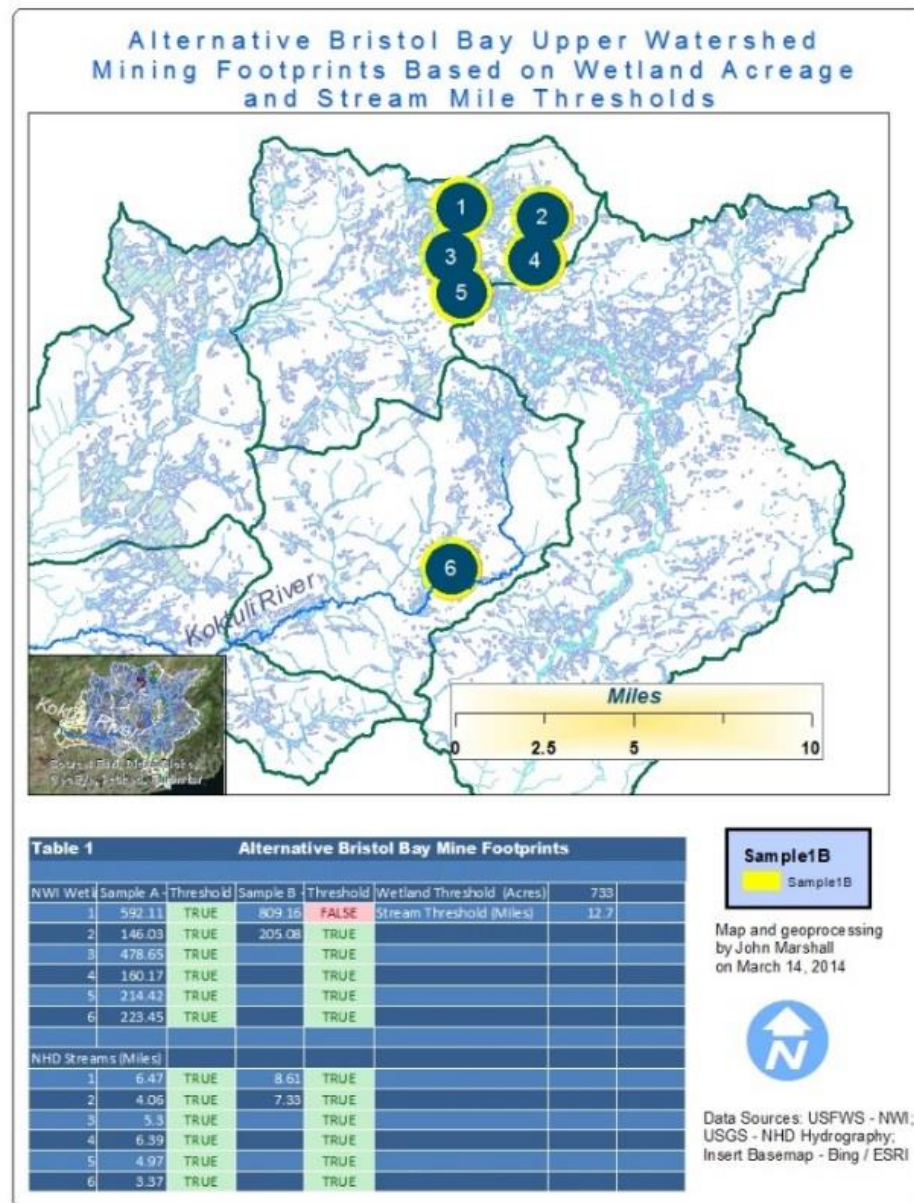
4. Help for Linda Storm and Heather Dean (EPA Region 10 Seattle Office) – Geo-processing and mapping to help inform Clean Water Act (CWA) jurisdictional determination for potential enforcement cases at All About Auto Wrecking facility in Snohomish, Washington:

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5. Help for Heather Dean (EPA Region 10 Seattle Office) – Geoprocessing and mapping alternative mining footprints potentially affecting wetlands, streams, and floodplains in Bristol Bay, Alaska and providing spatial coordinates and bearings for potential “area of interest” boundary in the focal region:

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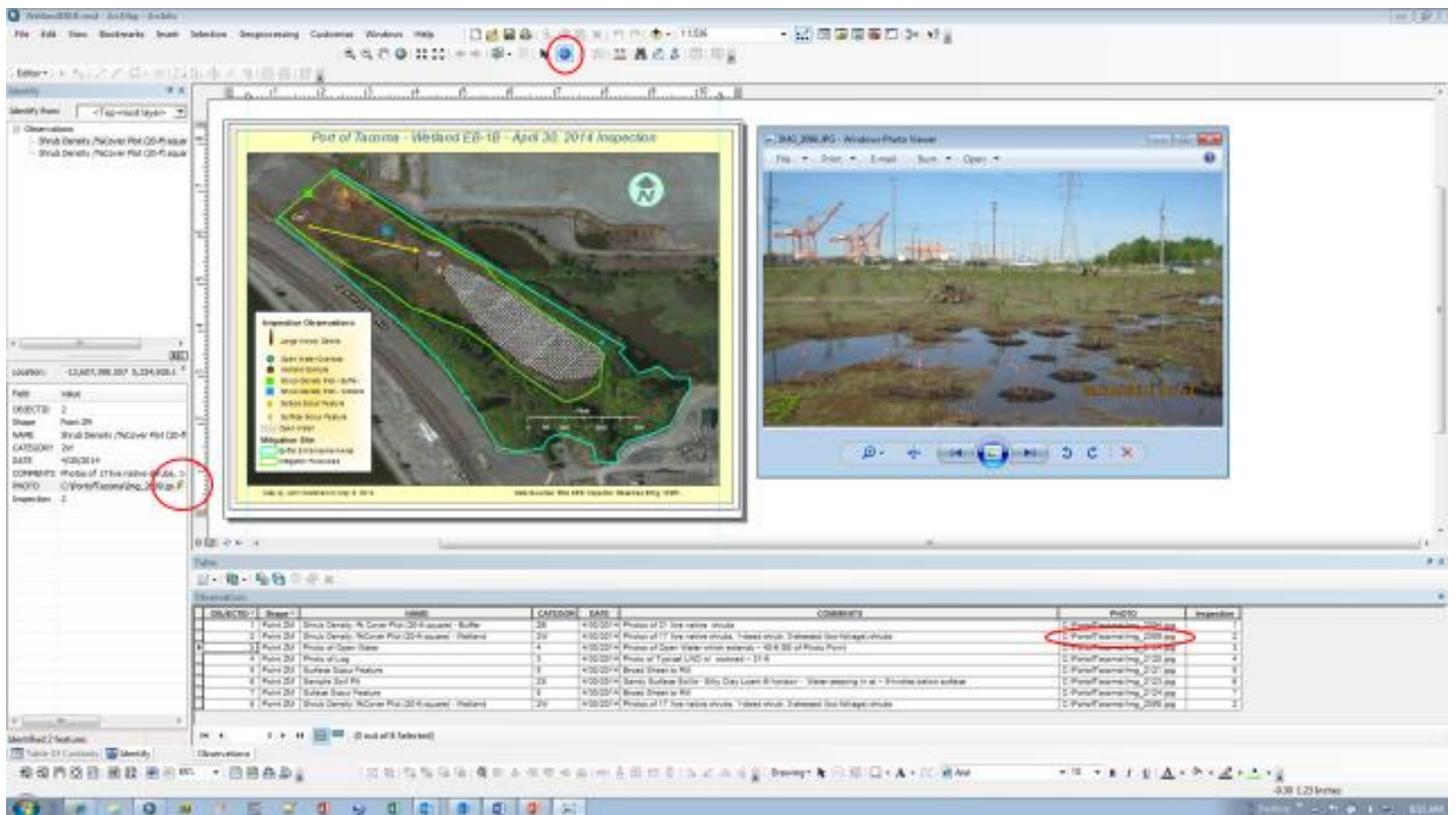
Thanks, John, & welcome back. Good news (I assume): what you did was sufficient to accomplish our goal of expanding the geographic scope of the proposed 404(c) prohibition on fill. Thanks!

Heather Dean (unsigned)



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Hi John,

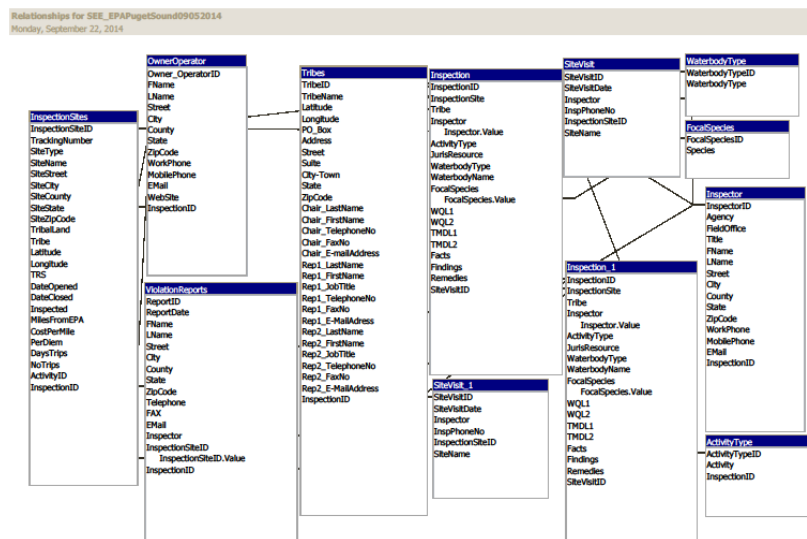
Thank you very much for providing a thorough training to members of our CWA 404 Enforcement Team on basic spatial data management techniques in ArcGIS ArcMap. You also continued to provide additional follow-up materials on the subject. Those follow-up materials were: 1) information about geographic and projected coordinate systems; 2) hyperlinking photos in ArcMap, and much more. I truly appreciate your work on this as these lessons will be useful to our case developers for investigations and case development analysis. Great work!

Gratitude,

Chan Pongkhamsing  
CWA 404 Enforcement Coordinator  
Aquatic Resources Unit  
Ecosystems, Tribal, and Public Affairs Office  
U.S. Environmental Protection Agency, Region 10  
1200 Sixth Avenue, Suite 900, ETPA-083  
Seattle, Washington 98101  
(206) 553-1806

8. Aquatic Resource Unit – Template Microsoft Access Relational Database and html page hyperlinked to GIS workflows for Clean Water Act Inspectors. I created a template of the Microsoft Office Access Relational Database I created for my inspections (without my data in it) in case other inspectors want to use it as is or to make their own customized version(s) of it for their specific data archiving and reporting needs. In addition I created an html page that can be used as an access page to four GIS workflows I created for potential use by Clean Water Act Inspectors. To find and access the database go to:

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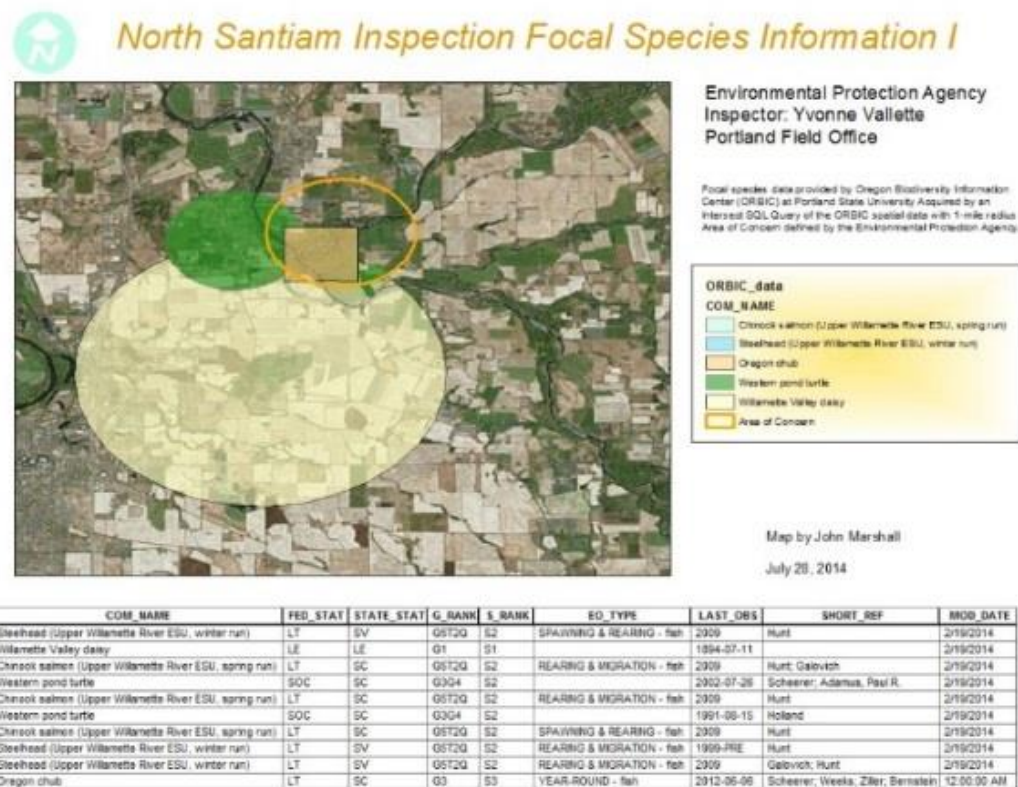


To find and access the html page go to:

G:\Baker\MarshallJ\_EPA\_SEEPosition\SEE\_PugetSound\ARU\_StaffAssist\EnfTeam\PSInspectGIS

If the html version of this page were placed on the EPA FTP site, the hyperlinked documents would be available on the internet. As it is, they are only accessible locally through the html page as long as they are co-located in the same folder. They are of course also individually accessible directly outside of the html page.

9. Yvonne Vallette – North Santiam River and Kentuck Slough, Oregon (two potential Section 404 violation cases). I used Oregon Biodiversity Information Center GIS data to help populate a file geodatabase I created to inform ArcMap projects for Ms Vallette's data review and archival (and kmz file data types for use in Google Earth). The primary purpose being the documentation of sensitive resources potentially affected by unauthorized work on the North Santiam River. I also acquired LiDAR from Oregon Department of Geology and Mineral Industries (DOGAMI) and used Spatial Analyst Tools in separate ArcMap projects to build hillshade raster outputs and interpolate contour vectors (2-foot interval at NAVD

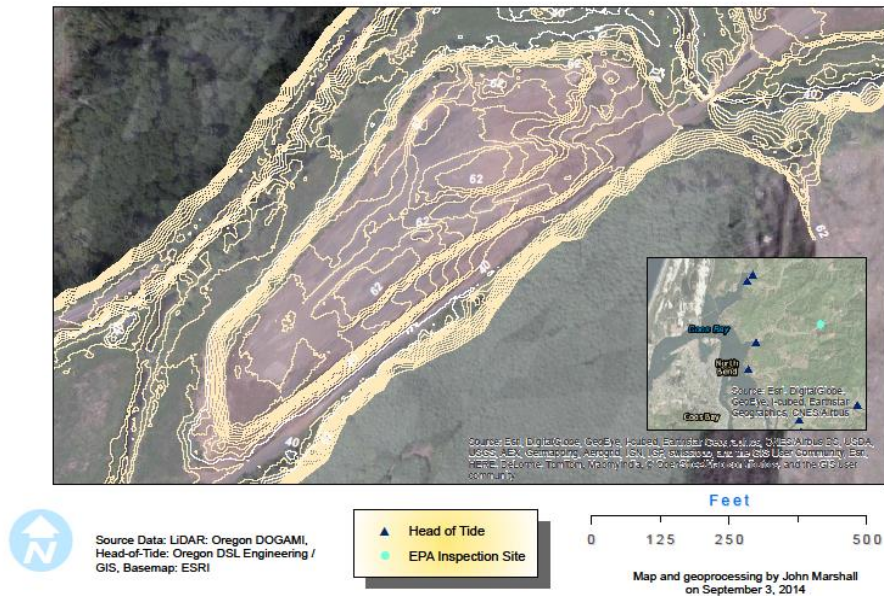


1988). I did this for both North Santiam and Kentuck Slough violation AOIs. I converted the contour vectors and hillshade rasters to kmz files for fast render and 360 degree viewing in Google Earth with present and recent historic aerial photo images. I clipped and converted a

Kentuck Slough LiDAR raster to a TIN vector file and used the TIN to calculate the unauthorized fill volume in the Kentuck Slough AOI.

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North Bend Kentuck Slough EPA Inspection Site (West Fill) Elevation Map - Feet  
(2-foot contours) - NAVD 1988





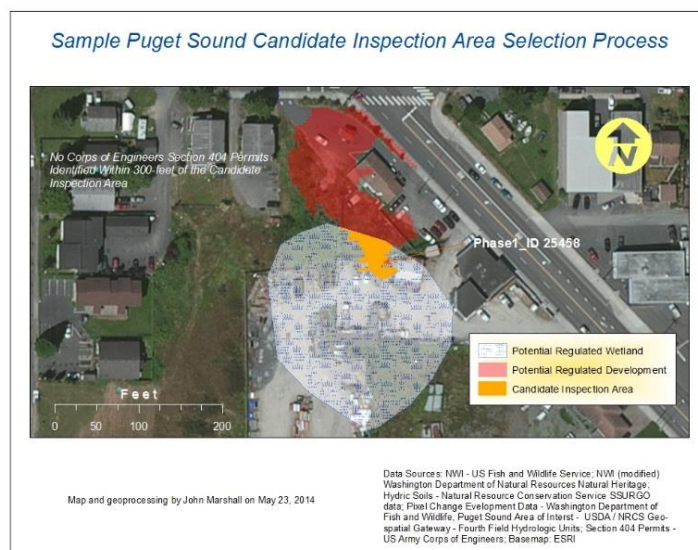
Yvonne Vallette, PWS  
Aquatic Ecologist  
U.S. Environmental Protection Agency  
Region 10, Oregon Ops Office  
805 SW Broadway, Ste. 500  
Portland, OR 97205  
email: [vallette.yvonne@epa.gov](mailto:vallette.yvonne@epa.gov)

10. Michael Szerlog – I ran a number of “pixel change detection match” operations cross referencing (search by location SQL query) Washington Department of Fish and Wildlife “development pixel change polygons,” potential regulated resources, and georeferenced Corps of Engineers permit data. These trial runs were used in assisting the development of a GIS workflow for targeting potential future Section 404 Clean Water Act violations in the Puget Sound Area of Interest. I also cross reference parcel tax lot ownership data with selected target candidate inspections. I archived the results in ArcMap mxd files and Microsoft Access databases:



Candidate17Owners						
zoning	HC					
tax_payer1	CHRISA REAL ESTATE LLC					
tax_paye_1	tax_paye_4	tax_paye_5	property_1	GIS_Acres		
	2295 LOOMIS TRAIL RD	CUSTER	WA	BUSINESS SER	0.446941	
tax_payer1	DOWD W & LOUISE B CONNELLY					
tax_paye_1	tax_paye_4	tax_paye_5	property_1	GIS_Acres		
	8194 COMOX RD	BLADE	WA	RES 4 BDEM	4.05173	
tax_payer1	DWS PORTAL WAY LLC					
tax_paye_1	tax_paye_4	tax_paye_5	property_1	GIS_Acres		
	PO BOX 2965	FERNDALE	WA	COMMERCIAL	0.256799	
	PO BOX 2965	FERNDALE	WA	HLDO CONST	0.428016	
tax_payer1	LOUIS A HEATON					
tax_paye_1	tax_paye_4	tax_paye_5	property_1	GIS_Acres		
	6290 PORTAL WAY	FERNDALE	WA	RES 4 BDEM	0.945802	
tax_payer1	MICHAEL E & DEBRA J WISONEE					
tax_paye_1	tax_paye_4	tax_paye_5	property_1	GIS_Acres		
	6148 PORTAL WAY	FERNDALE	WA	RES NO CODE	0.857028	
tax_payer1	MICHAEL MARTI					
tax_paye_1	tax_paye_4	tax_paye_5	property_1	GIS_Acres		
	6190 PORTAL WAY	FERNDALE	WA	RES 4 BDEM	0.995107	

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[illegible]

11. Jared Lobbestael - Converted Jared's GPX waypoint files he collected (near Fairbanks Alaska) on a Garmin GPS device to kmz files using Google Earth Software and then converted the kmz files to ESRI shapefiles for use in an ArcMap project. I then imported the shapefiles into a file geodatabase feature data set with a NAD 1983 UTM 6N projected coordinate system and provided instructions to Jared on how to use the point feature class to inform stream segment digitizing and editing operations in ArcMap:

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### III. Three Compliance Monitoring Inspections:

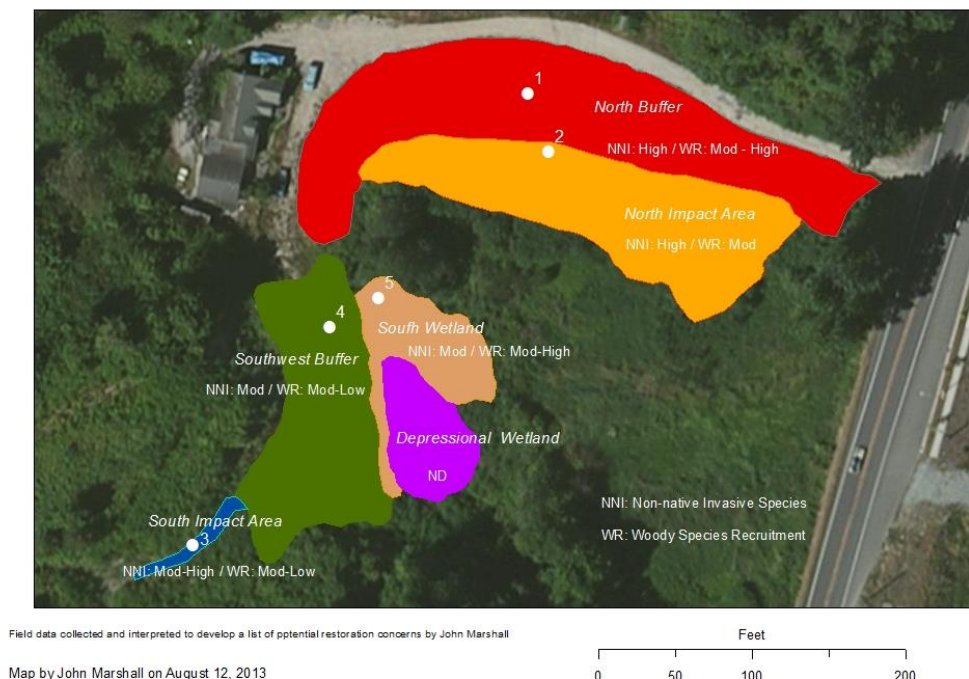
Each of these inspections included field data collections and assessment of the data against the performance standards established for the respective remedial actions.

G:\Baker\MarshallJ\_EPA\_SEEPosition\SEE\_PugetSound\Inspection\PierceCounty\ PortofTacoma

G:\Baker\MarshallJ\_EPA\_SEEPosition\SEE\_PugetSound\Inspection\PierceCounty\Ota

G:\Baker\MarshallJ\_EPA\_SEEPosition\SEE\_PugetSound\Inspection\PierceCounty\Bond

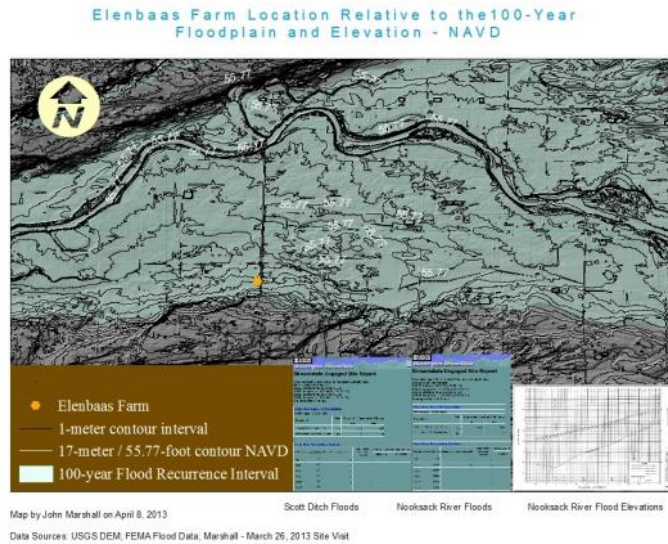
Bond August 7, 2013 Field Inspection  
Summary of the Level of Concern Based  
On the Inspector's Interpretation of the Data Collected in the Inspection





#### IV. Extra Projects:

1. Hannegan Road Inspection Hydrology Investigation – I worked with HecRas and HecGeoRas software to try and model frequent (e.g., 3-year recurrence interval) flood events in the vicinity of a potential Clean Water Act violation on a farm near the Nooksack River in Whatcom County. I acquired flood discharge data from USGS for the Nooksack River and Scott Ditch near Lynden, WA.



2. Sumas River Point Discharge Documentation – At the request of Washington Department of Ecology, I documented what appeared to be a possible 402 NPDES violation on the Sumas River near the Canadian border and then forwarded my observations to EPA.



3. Puget Sound-SEE Travel Budget – At the request of the EPA ARU Leader, I put together a draft travel budget for inspections and compliance assistance trips in the Puget Sound Area of Interest. I modified an older version of a Microsoft Access database I created to generate the travel budget reports:

G:\Baker\MarshallJ\_EPA\_SEEPosition\SEE\_PugetSound\Inspection\Databases\PSSEInspDB\SEE\_EPAPugetSound09052014

Go to: SEE-Puget Sound Travel Budget Button on the Dashboard (make sure dashboard is fully expanded)