SEE PUGET SOUND AOI CLEAN WATER ACT INSPECTION PRIORITY MODEL

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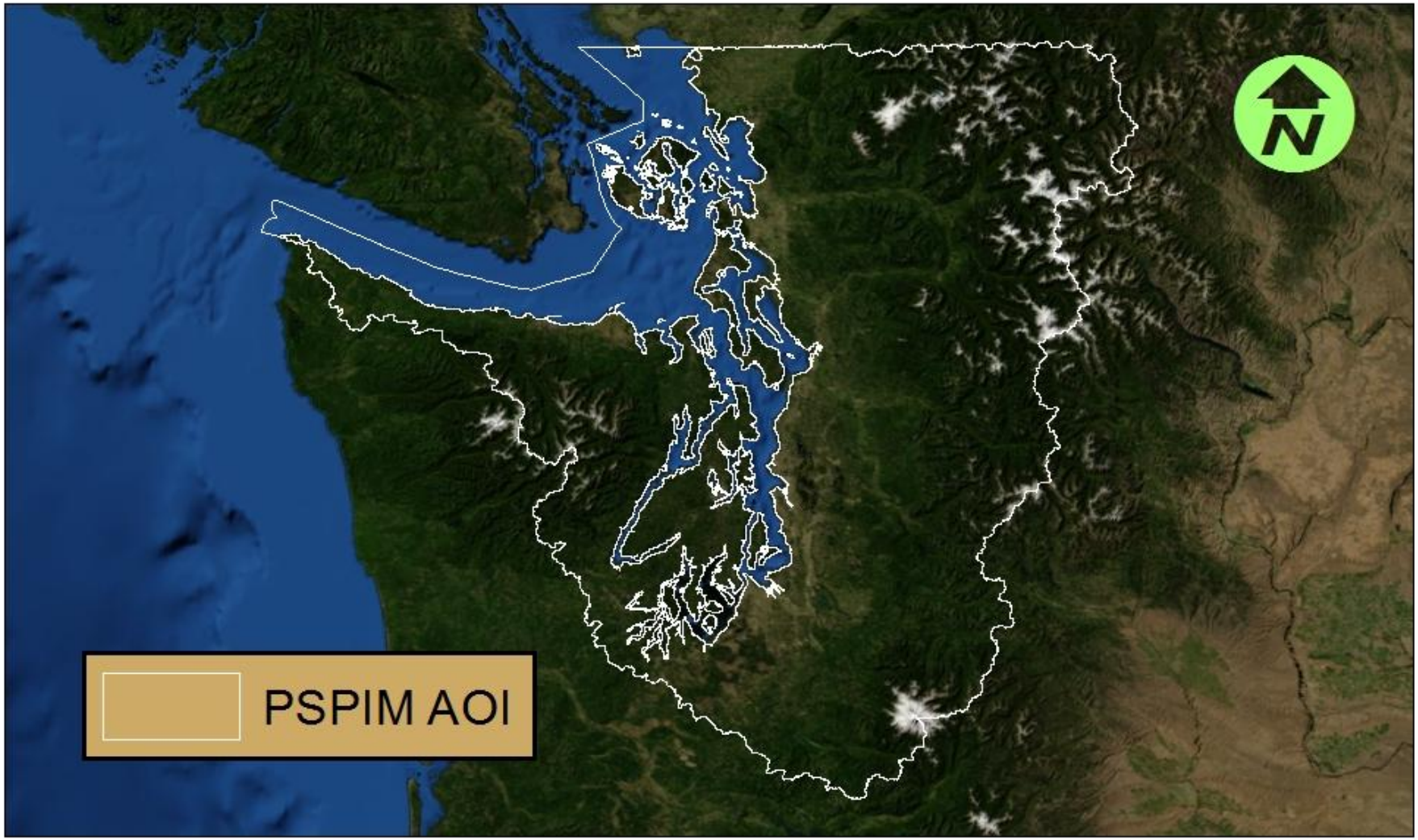
Project Goals

Develop relatively objective means of identifying key target Clean Water Act inspection areas in the Puget Sound Area of Interest;

Use spatially represented regulated natural resources as the basis for targeting inspection areas; and

A model that directs us to areas where our inspections are most likely to serve the highest number and most relevant (based on weighting) regulated resources at risk from violations.

SEE-Puget Sound Priority Inspection Model Area of Interest



Map and geoprocessed model compiled by John Marshall

April 29, 2013

Data Sources: See credits at end of power point presentation.

Imagery: Bing / ESRI Base Map

Buffers

Buffers were established for most of the regulated resource layers based on the following assumptions:

- Potential Clean Water Act violations can have indirect impacts on regulated resources where they are relatively proximately located;
- Mapped regulated resource boundaries are often imprecise due to the scale of mapping and relatively limited ground truthing; and
- In order to not under prioritize potential inspection target areas, regulated resource overlap opportunities should be biased towards inclusion.

Sensitive Resources of Interest

- Hydric soils;
- Federally listed species and their critical habitat;
- Non-federally listed fish in the salmonidae family;
- Wetlands;
- Rare plants;
- Oak/grassland;
- 303d streams;
- TMDL streams;
- Rivers;
- Eelgrass;
- Shellfish;
- Kelp; and
- Indian land

Hydric Soils Layer Workflow

- Download spatial and tabular data;
- Import tabular data into NRCS Access template database;
- Create personal geodabase in ArcCatalog and import spatial data and component table;
- Add spatial data and component table into ArcMap project;
- Use the MUKEY field to relate the spatial attribute table to the component table;
- Go to related component table and conduct SQL select by attributes query on 'Y' for "majcompflag" and "hydricrating;"
- Select spatial data attribute table and then export the selected 'hydric' soils to a geodatabase feature class.

Download Data

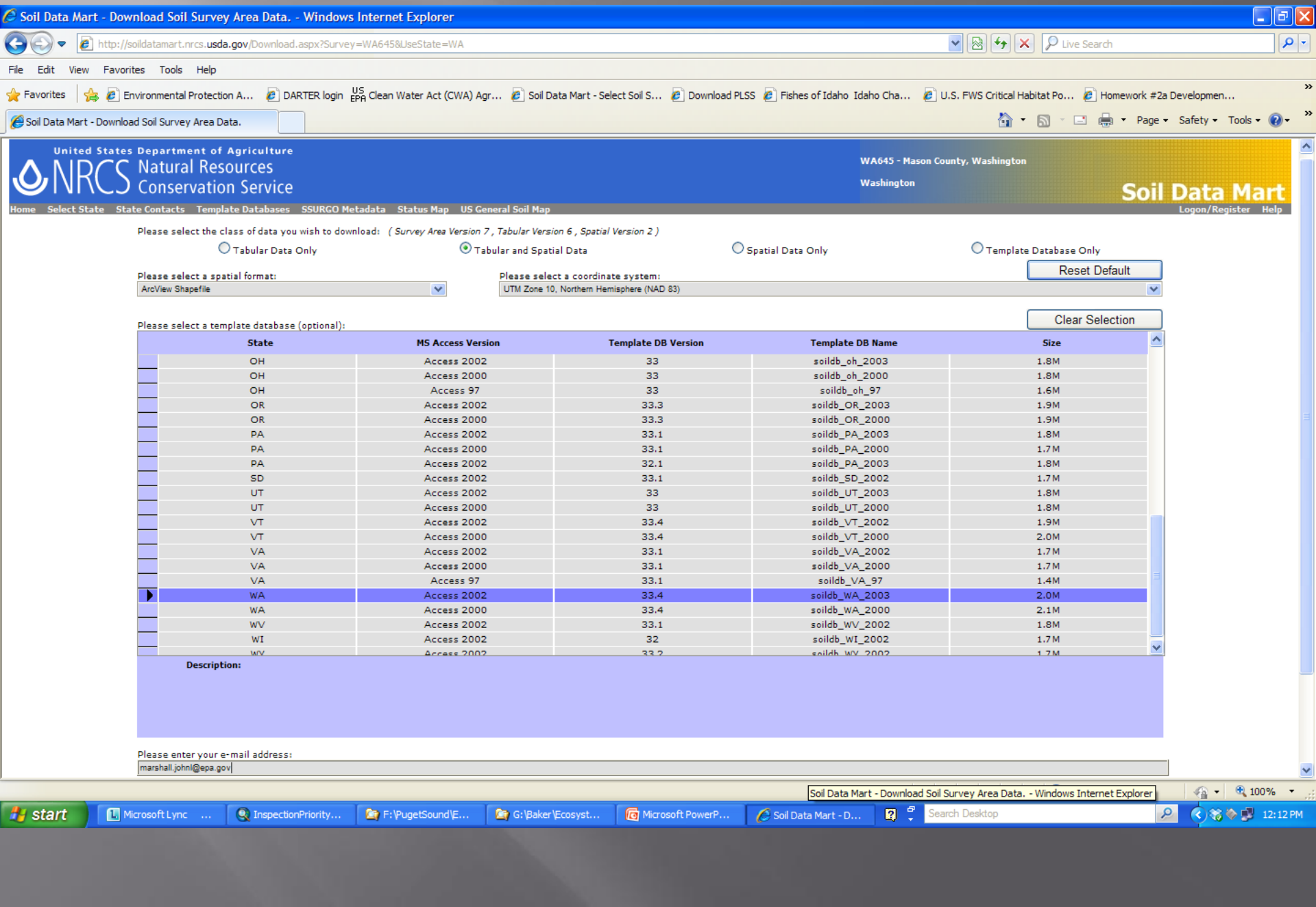
In NRCS Soil Data Mart, select State and county you want soils data for;

Select both spatial and tabular data for download;

Select datum and projected coordinate systems appropriate for your Area of Interest (AOI);

Provide e-mail address and submit data request; and

Go to e-mail and select FTP site url from which to find and download the data requested.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United States Department of Agriculture
NRCS Natural Resources Conservation Service
WA645 - Mason County, Washington
Washington
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Logon/Register Help
Please select the class of data you wish to download: (Survey Area Version 7 , Tabular Version 6 , Spatial Version 2)
Tabular Data Only
Tabular and Spatial Data
Spatial Data Only
Template Database Only
Reset Default
Please select a spatial format:
ArcView Shapefile
Please select a coordinate system:
UTM Zone 10, Northern Hemisphere (NAD 83)
Clear Selection
Please select a template database (optional):
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OH | Access 2000 | 33 | soildb_oh_2000 | 1.8M
OH | Access 97 | 33 | soildb_oh_97 | 1.6M
OR | Access 2002 | 33.3 | soildb_OR_2003 | 1.9M
OR | Access 2000 | 33.3 | soildb_OR_2000 | 1.9M
PA | Access 2002 | 33.1 | soildb_PA_2003 | 1.8M
PA | Access 2000 | 33.1 | soildb_PA_2000 | 1.7M
PA | Access 2002 | 32.1 | soildb_PA_2003 | 1.8M
SD | Access 2002 | 33.1 | soildb_SD_2002 | 1.7M
UT | Access 2002 | 33 | soildb_UT_2003 | 1.8M
UT | Access 2000 | 33 | soildb_UT_2000 | 1.8M
VT | Access 2002 | 33.4 | soildb_VT_2002 | 1.9M
VT | Access 2000 | 33.4 | soildb_VT_2000 | 2.0M
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WV | Access 2002 | 33.1 | soildb_WV_2002 | 1.8M
WI | Access 2002 | 32 | soildb_WI_2002 | 1.7M
Description:
Please enter your e-mail address:
marshall.johnl@epa.gov
Soil Data Mart - Download Soil Survey Area Data. - Windows Internet Explorer
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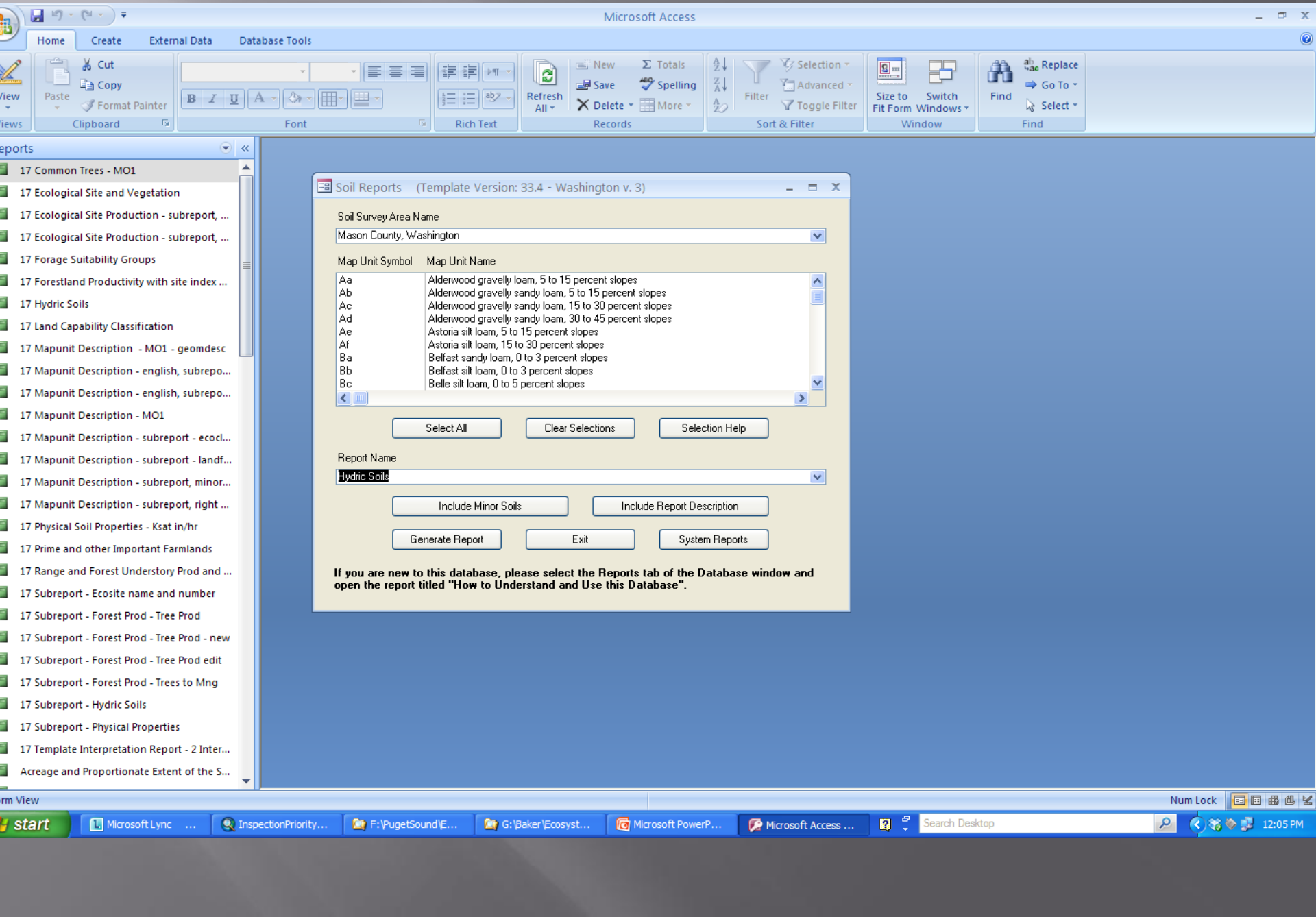
Import tabular data to NRCS template Microsoft Access database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17 Subreport - Hydric Soils
17 Subreport - Physical Properties
17 Template Interpretation Report - 2 Inter...
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Soil Survey Area Name
Mason County, Washington
Map Unit Symbol
Map Unit Name
Aa Alderwood gravelly loam, 5 to 15 percent slopes
Ab Alderwood gravelly sandy loam, 5 to 15 percent slopes
Ac Alderwood gravelly sandy loam, 15 to 30 percent slopes
Ad Alderwood gravelly sandy loam, 30 to 45 percent slopes
Ae Astoria silt loam, 5 to 15 percent slopes
Af Astoria silt loam, 15 to 30 percent slopes
Ba Belfast sandy loam, 0 to 3 percent slopes
Bb Belfast silt loam, 0 to 3 percent slopes
Bc Belle silt loam, 0 to 5 percent slopes
Select All
Clear Selections
Selection Help
Report Name
Hydric Soils
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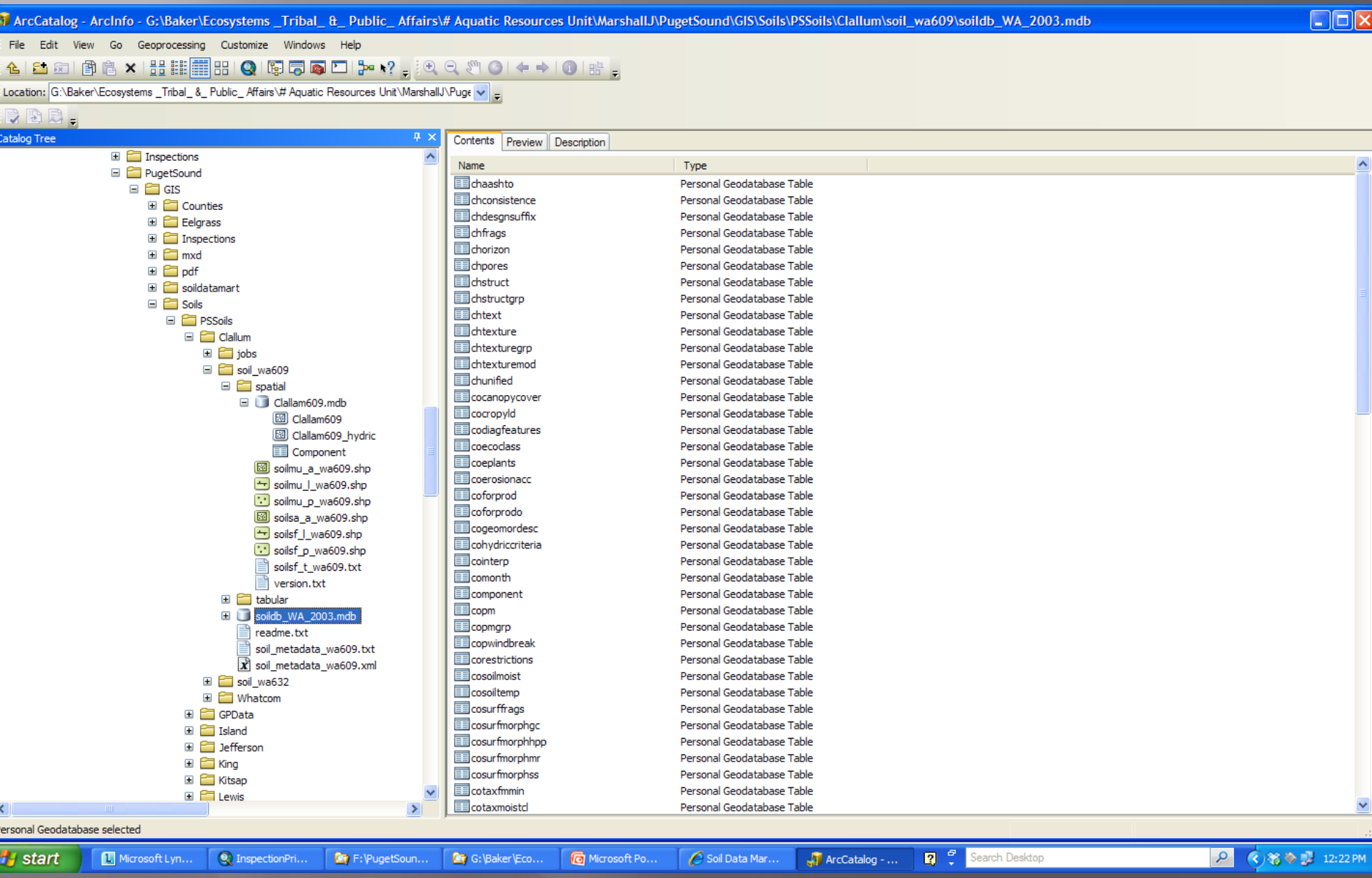
Go to ArcCatalog and create a personal geodatabase and import the downloaded soils spatial shapefile and its associated component table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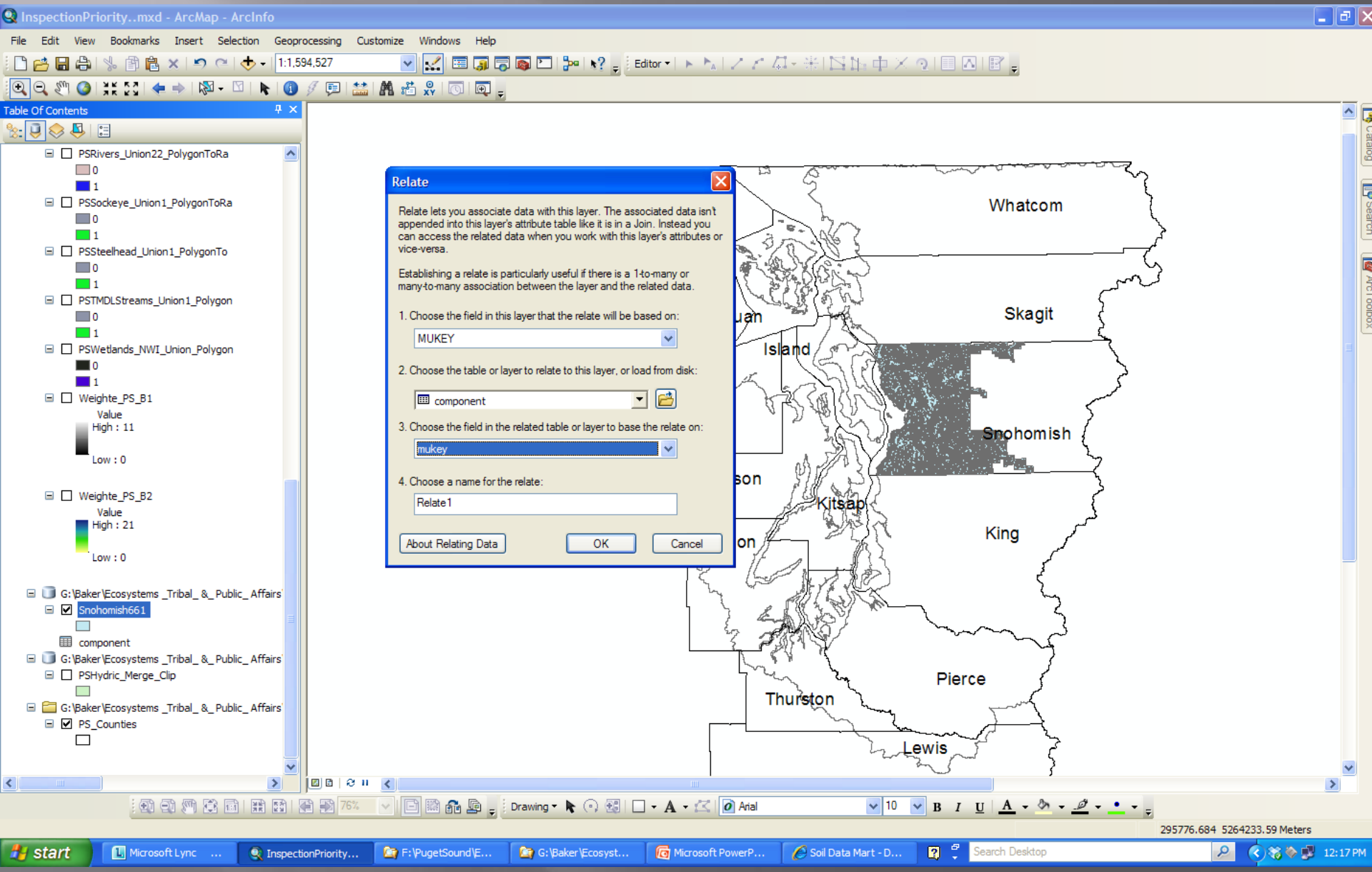
Add the soils spatial data and compent table to an ArcMap project and then establish a relate based on the MUKEY field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PSSteelhead_Union1_PolygonTo
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PSTMDLStreams_Union1_Polygon
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PSWetlands_NWI_Union_Polygon
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High : 21
Low : 0
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PS_Counties
Relate
Relate lets you associate data with this layer. The associated data isn't appended into this layer's attribute table like it is in a Join. Instead you can access the related data when you work with this layer's attributes or vice-versa.
Establishing a relate is particularly useful if there is a 1-to-many or many-to-many association between the layer and the related data.
1. Choose the field in this layer that the relate will be based on:
MUKEY
2. Choose the table or layer to relate to this layer, or load from disk:
component
3. Choose the field in the related table or layer to base the relate on:
mukey
4. Choose a name for the relate:
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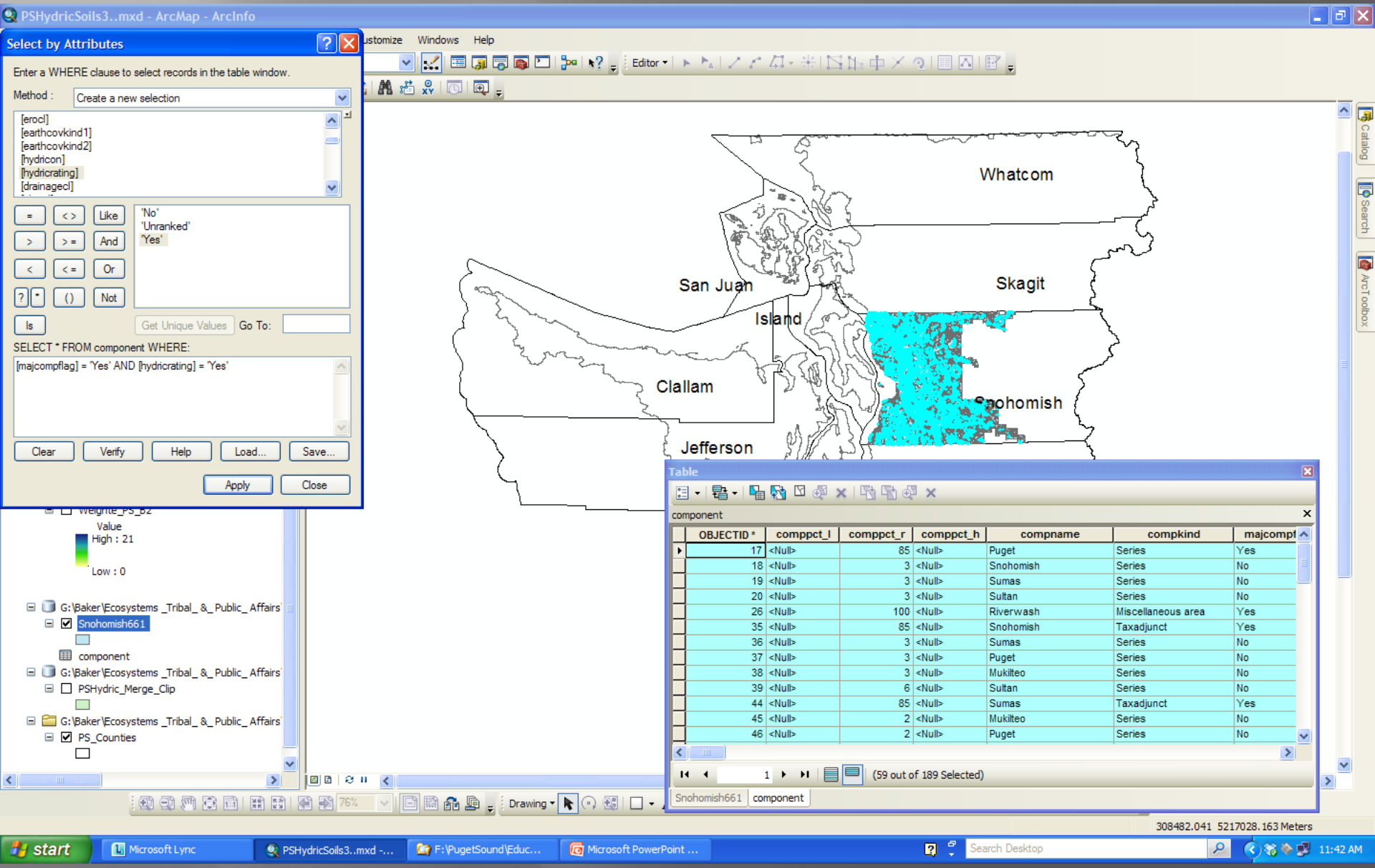
In the relate table, apply SQL select by attributes query to acquire the hydric soils records for exporting to a separate hydric soils layer


PSHydricSoils3..mxd - ArcMap - ArcInfo
Select by Attributes
Enter a WHERE clause to select records in the table window.
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[hydricon]
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? * ( ) Not
'No'
'Unranked'
'Yes'
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SELECT * FROM component WHERE:
[majcompflag] = 'Yes' AND [hydricrating] = 'Yes'
Clear
Verify
Help
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Close
Whatcom
San Juan
Island
Skagit
Clallam
Jefferson
Snohomish
Table
component
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18 | <Null> | 3 | <Null> | Snohomish | Series | No
19 | <Null> | 3 | <Null> | Sumas | Series | No
20 | <Null> | 3 | <Null> | Sultan | Series | No
26 | <Null> | 100 | <Null> | Riverwash | Miscellaneous area | Yes
35 | <Null> | 85 | <Null> | Snohomish | Taxadjunct | Yes
36 | <Null> | 3 | <Null> | Sumas | Series | No
37 | <Null> | 3 | <Null> | Puget | Series | No
38 | <Null> | 3 | <Null> | Mukilteo | Series | No
39 | <Null> | 6 | <Null> | Sultan | Series | No
44 | <Null> | 85 | <Null> | Sumas | Taxadjunct | Yes
45 | <Null> | 2 | <Null> | Mukilteo | Series | No
46 | <Null> | 2 | <Null> | Puget | Series | No
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11:42 AM

Export selected hydric soils to feature class and merge with all other selected hydric soils layers in AOI;

Clip merged hydric soils layer to AOI boundary;

Add integer field called ImpScore to merged and clipped hydric soils layer; and

Use field calculator to add ‘1’ to the ImpScore field for each hydric soils record.

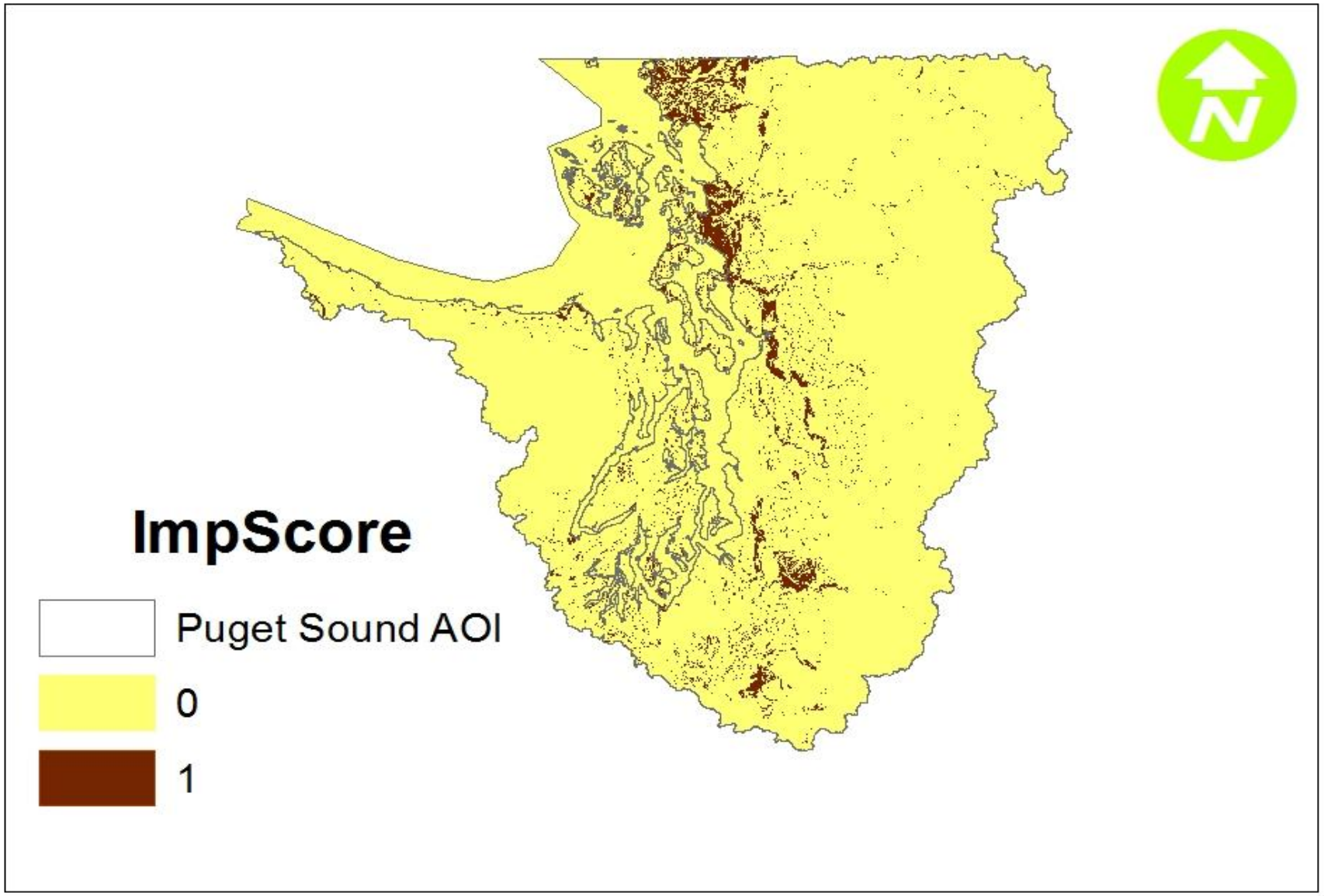
Conduct a union operation between the merged hydric soils layer and the Area of Interest layer. Make sure the Area of Interest layer is represented by a ‘0’ in the output polygon’s ImpScore field.

Convert polygon to raster targeting ImpScore field to inform output raster pixel values;

Select 10-meter resolution for pixels; and

Select same extent as Area of Interest.

SEE - Puget Sound Priority Inspection Model Hydric Soils

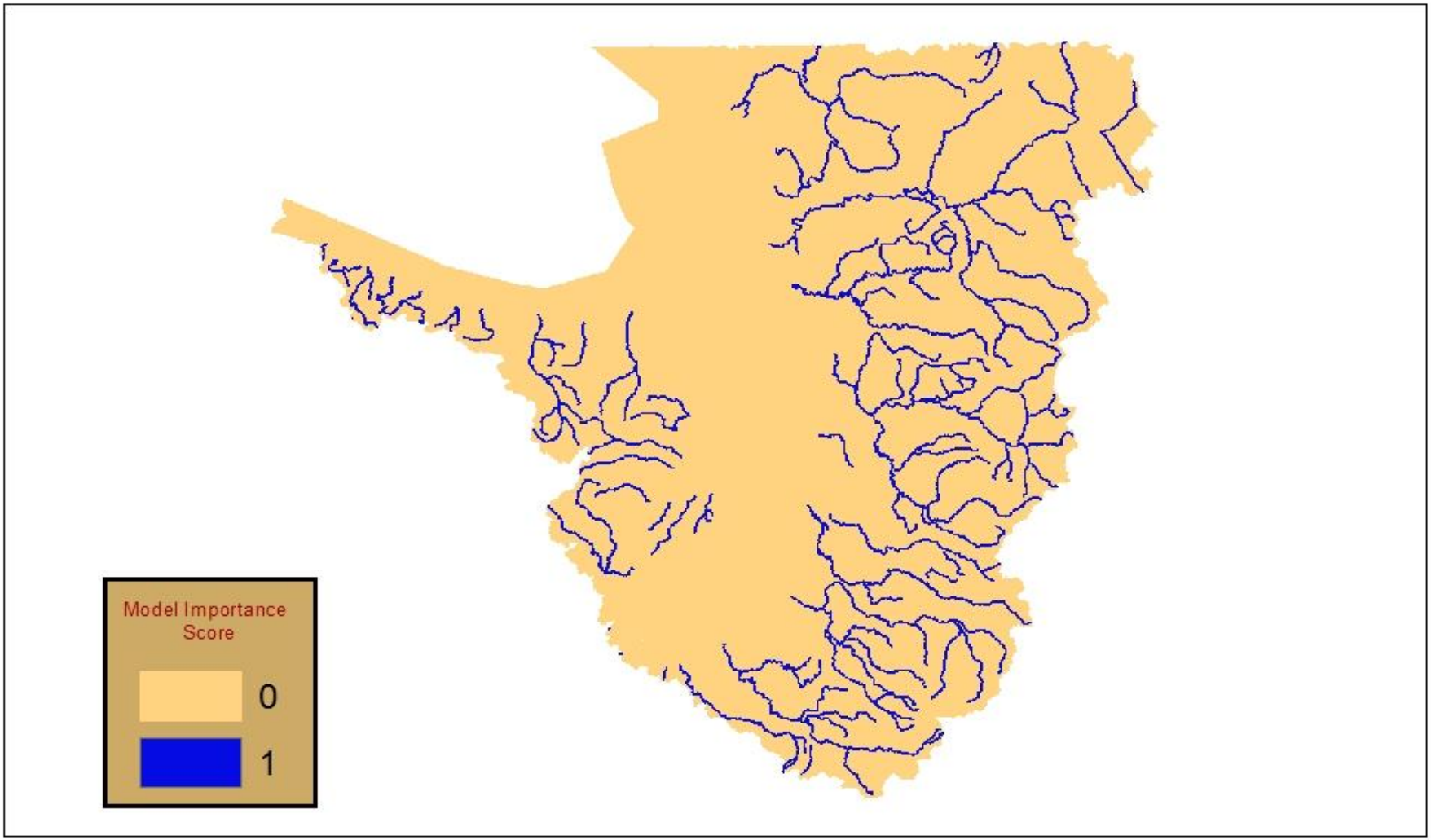


Map and geoprocessing by John Marshall February 24, 2014

Data Sources: NRCS SSURGO Data Query

Repeat previous ‘relevant steps’ for each of the layers intended for use in the model (some layers will have other unique steps germane to the data layer)

Rivers in SEE - Puget Sound Inspection Area of Interest

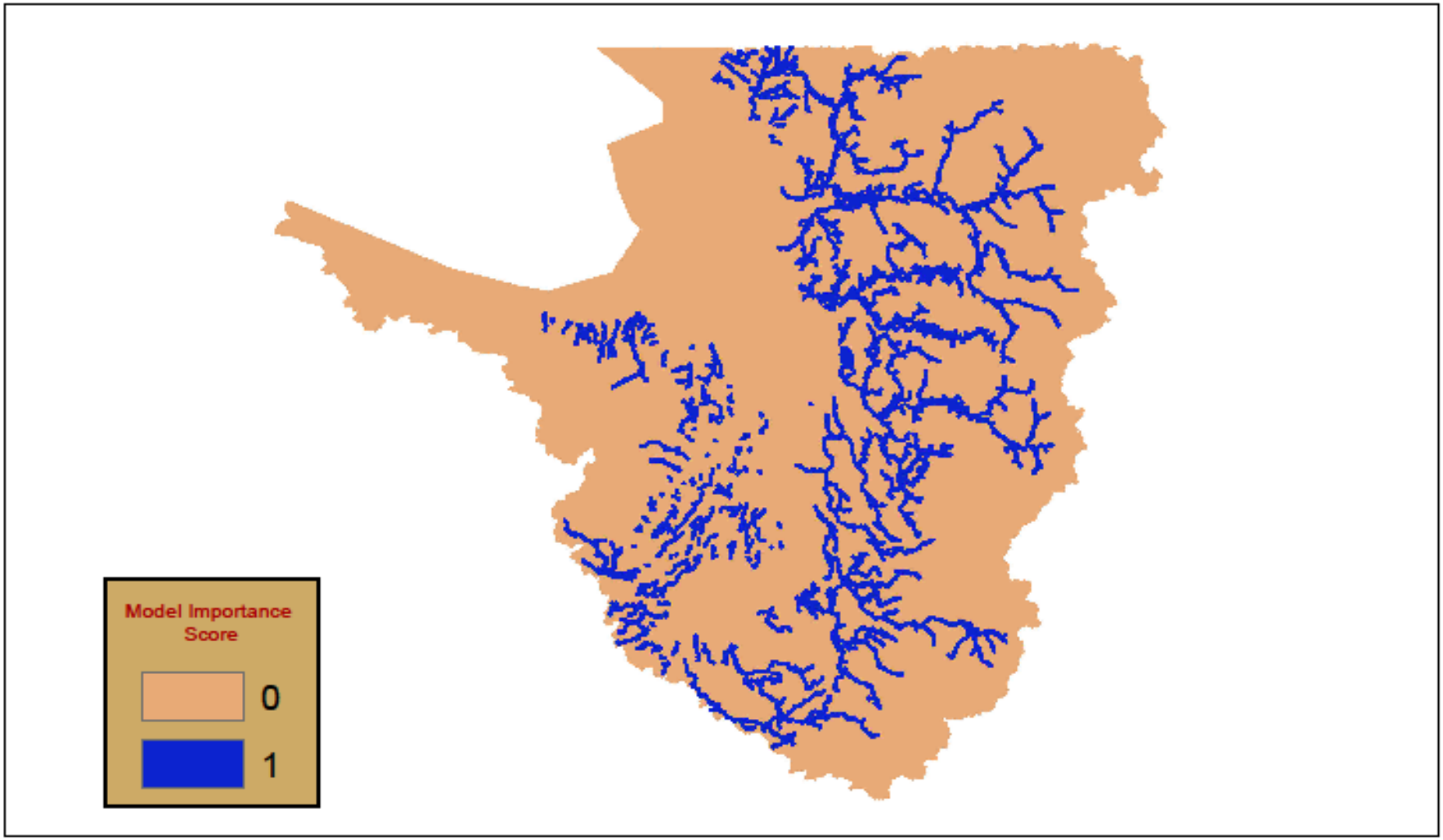


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: 1999. National Hydrography Dataset, High Resolution; Reston, Virginia, U.S. Geological Survey

Federally Listed Steelhead Salmon in SEE - Puget Sound Inspection Area of Interest

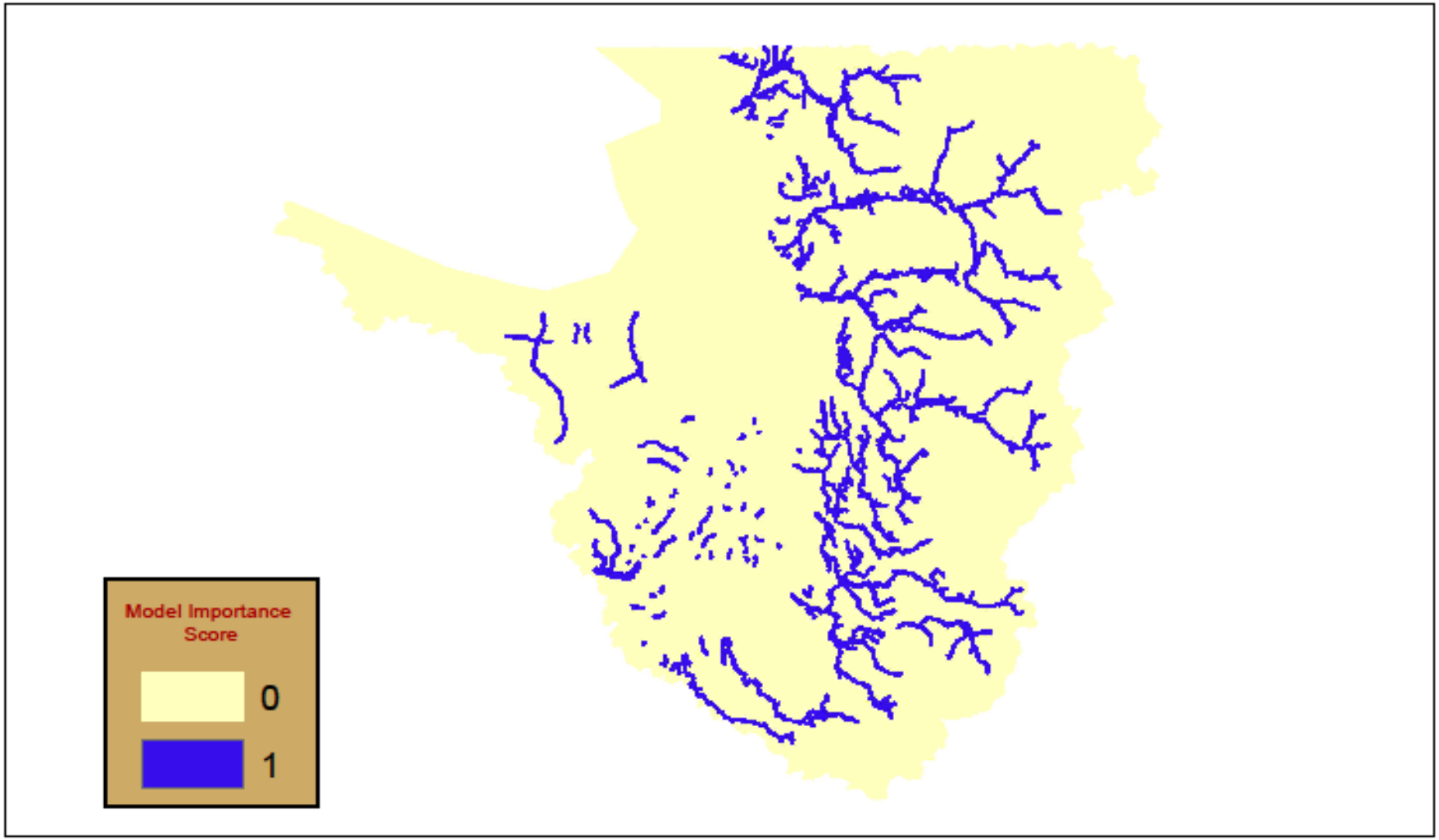


Map and geoprocessed data compiled by John Marshall

October 29, 2013

Data Sources: Pacific States Marine Fisheries Commission and National Marine Fisheries Service, NOAA

Federally Listed Chinook Salmon in SEE - Puget Sound Inspection Area of Interest

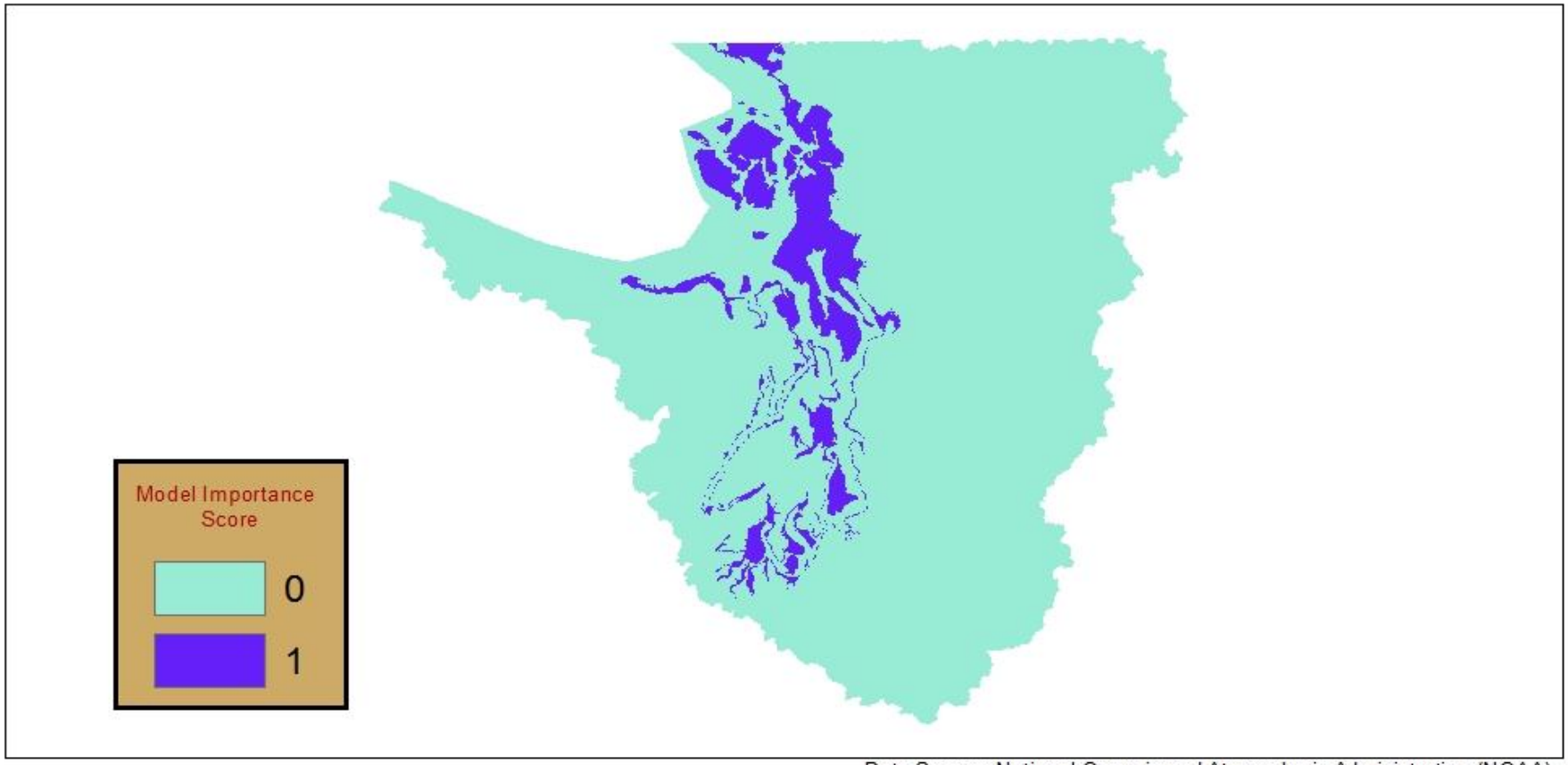


Map and geoprocessed data compiled by John Marshall

October 29, 2013

Data Sources: Pacific States Marine Fisheries Commission and National Marine Fisheries Service, NOAA

Federally Listed Chinook Critical Habitat (marine) in SEE - Puget Sound Inspection Area of Interest



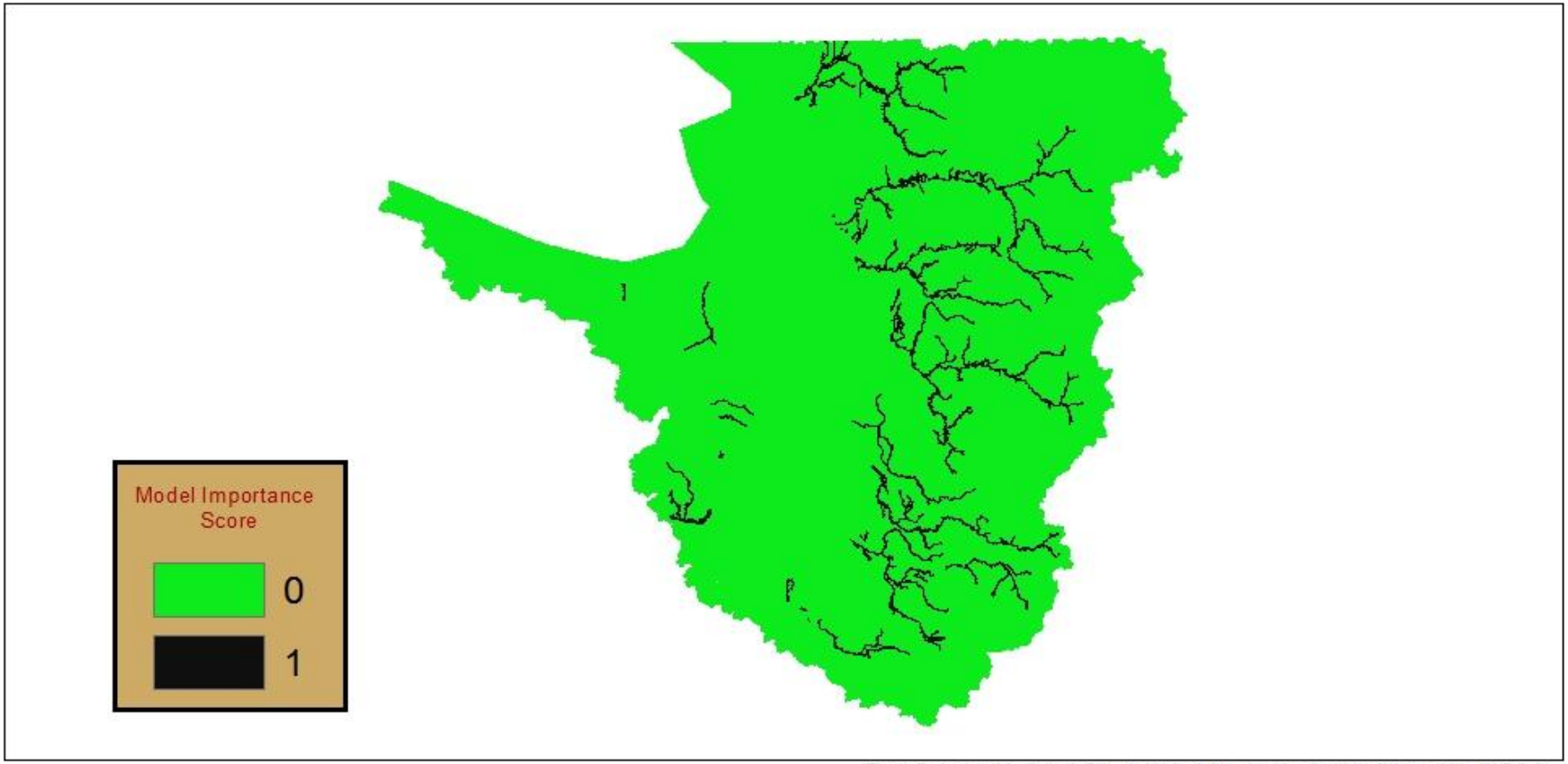
Data Source: National Oceanic and Atmospheric Administration (NOAA) Northwest Regional Office, Attention Steve Stone: 1201 NE Lloyd Blvd., Suite 1100, Portland, Oregon, 97232.

Map and geoprocessed data compiled by John Marshall

May 3, 2013

Caveat: This layer does not demarcate all of the areas excluded from designation as Critical Habitat. Final Critical Habitat boundaries are available for review in Federal Register notices for each species with designated ESA Critical Habitat.

Federally Listed Chinook Critical Habitat (river) in SEE - Puget Sound Inspection Area of Interest



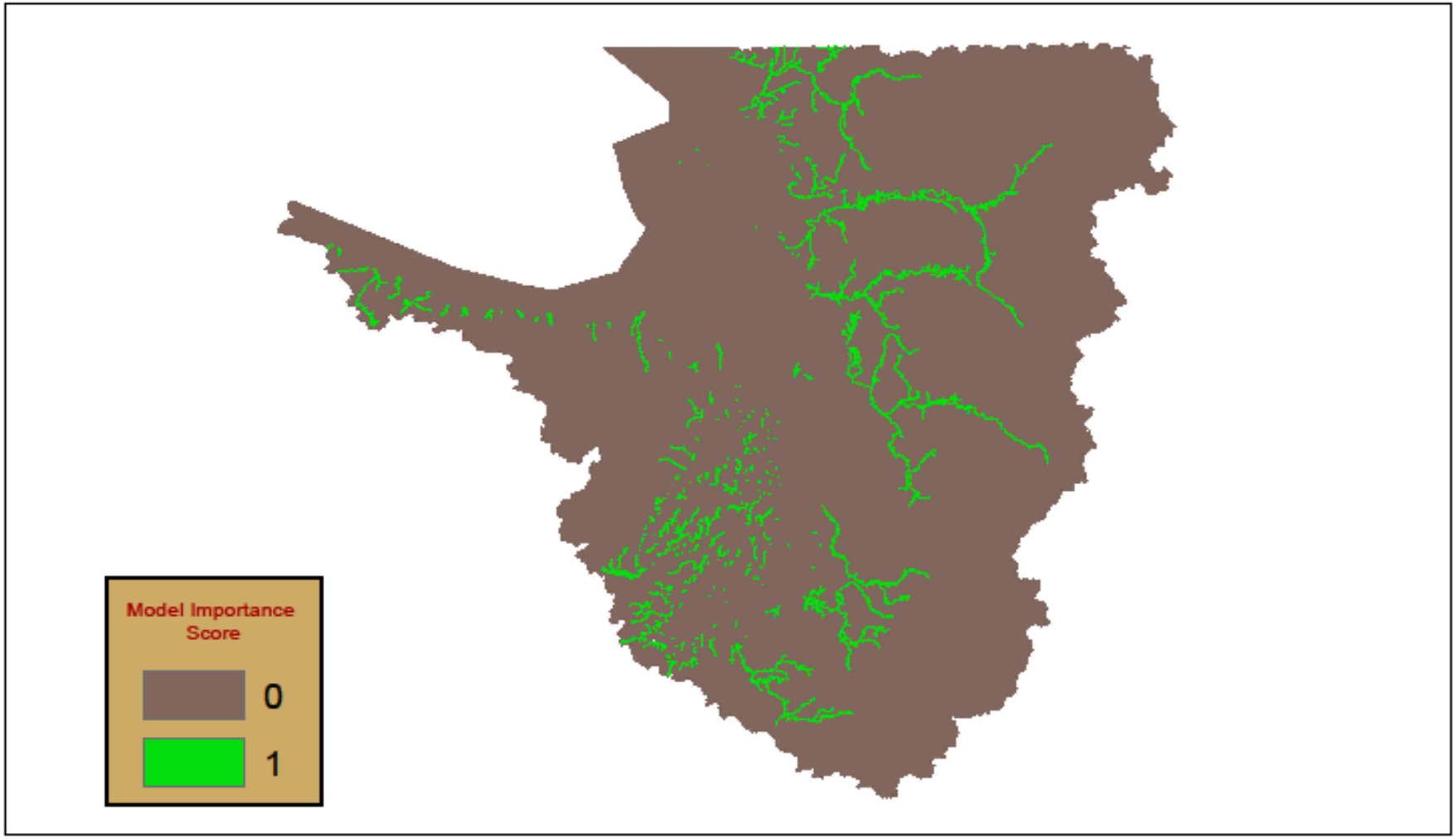
Data Source: National Oceanic and Atmospheric Administration (NOAA) Northwest Regional Office, Attention Steve Stone: 1201 NE Lloyd Blvd., Suite 1100, Portland, Oregon, 97232.

Map and geoprocessed data compiled by John Marshall

May 3, 2013

Caveat: This layer does not demarcate all of the areas excluded from designation as Critical Habitat. Final Critical Habitat boundaries are available for review in Federal Register notices for each species with designated ESA Critical Habitat.

Chum Salmon in SEE - Puget Sound Inspection Area of Interest

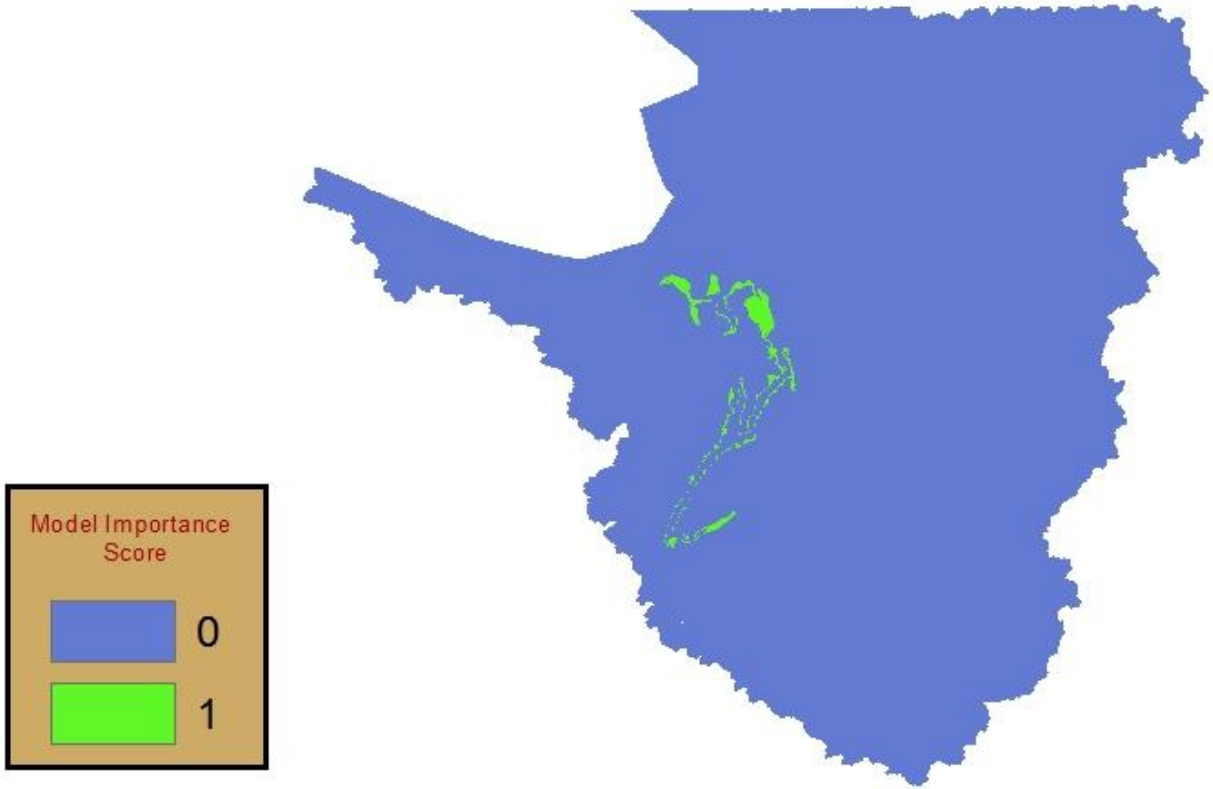


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Pacific States Marine Fisheries Commission and National Marine Fisheries Service, NOAA

Federally Listed Chum Critical Habitat (marine) in SEE - Puget Sound Inspection Area of Interest



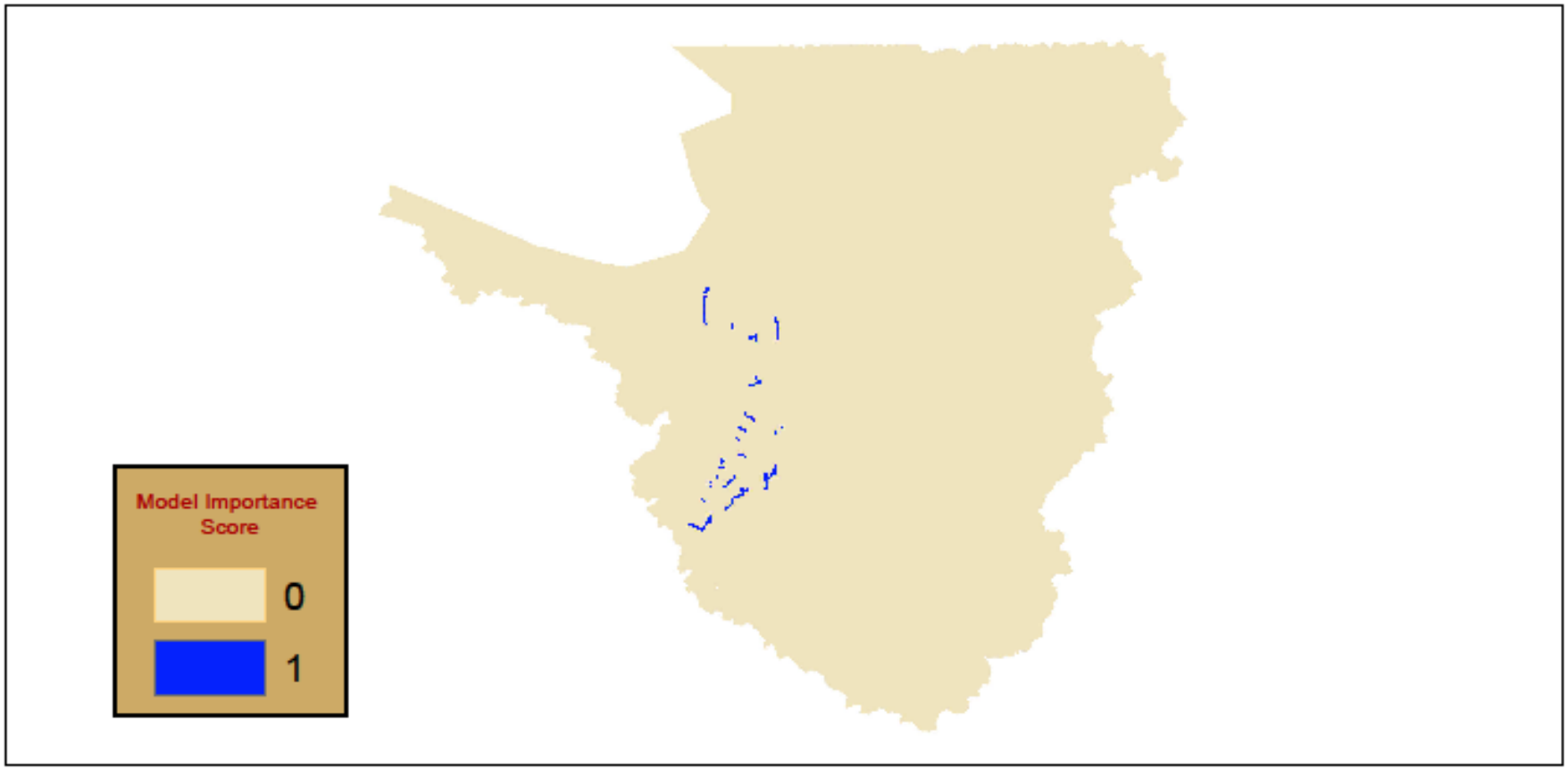
Data Source: National Oceanic and Atmospheric Administration (NOAA) Northwest Regional Office, Attention Steve Stone: 1201 NE Lloyd Blvd., Suite 1100, Portland, Oregon, 97232.

Map and geoprocessed data compiled by John Marshall

April 29, 2013

Caveat: This layer does not demarcate all of the areas excluded from designation as Critical Habitat. Final Critical Habitat boundaries are available for review in Federal Register notices for each species with designated ESA Critical Habitat.

Federally Listed Chum Distribution and Critical Habitat (river) in SEE Puget Sound Inspection Area of Interest



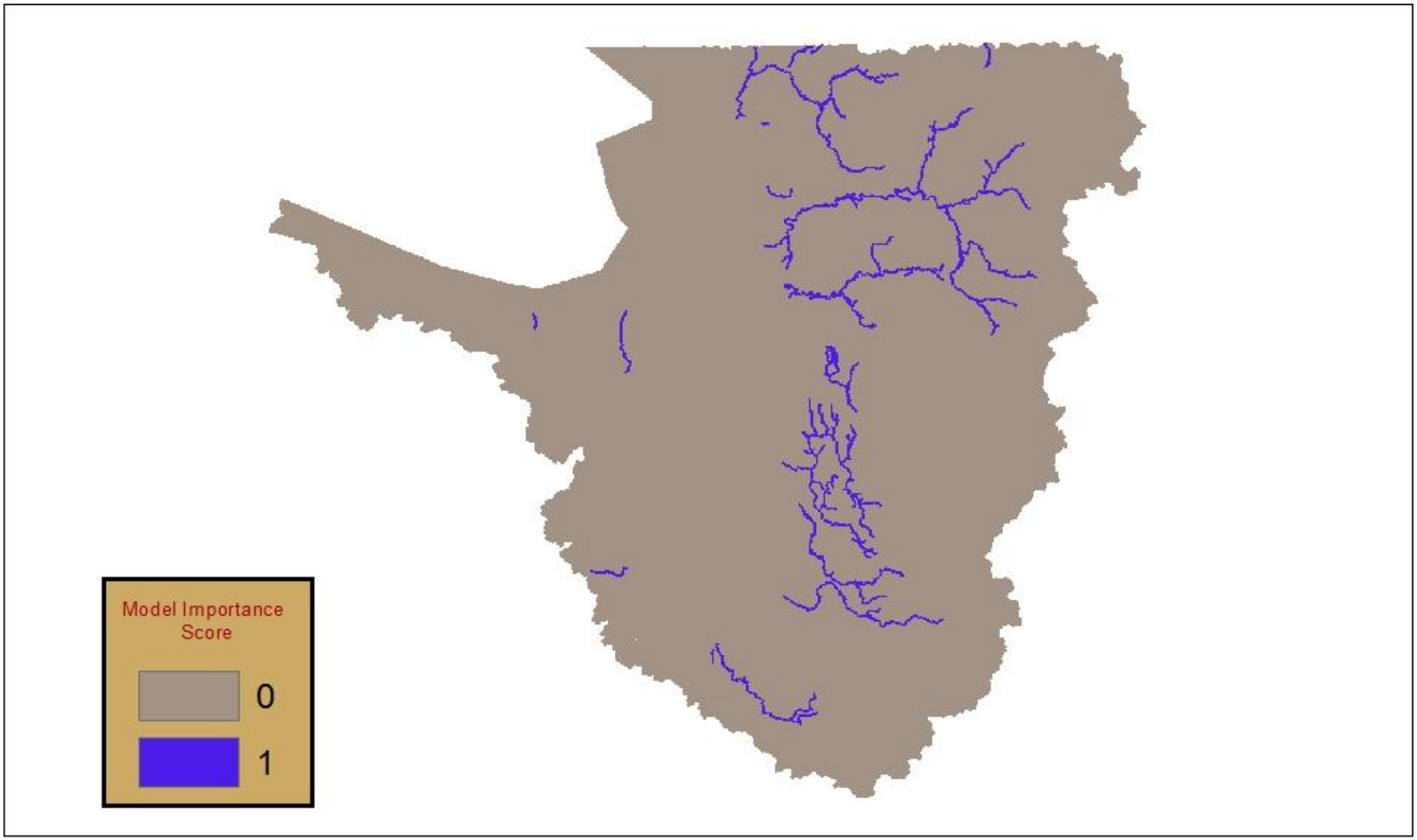
Data Source: National Oceanic and Atmospheric Administration (NOAA) Northwest Regional Office, Attention Steve Stone: 1201 NE Lloyd Blvd., Suite 1100, Portland, Oregon, 97232.

Map and geoprocessed data compiled by John Marshall

May 3, 2013

Caveat: This layer does not demarcate all of the areas excluded from designation as Critical Habitat. Final Critical Habitat boundaries are available for review in Federal Register notices for each species with designated ESA Critical Habitat.

Sockeye Salmon in SEE - Puget Sound Inspection Area of Interest

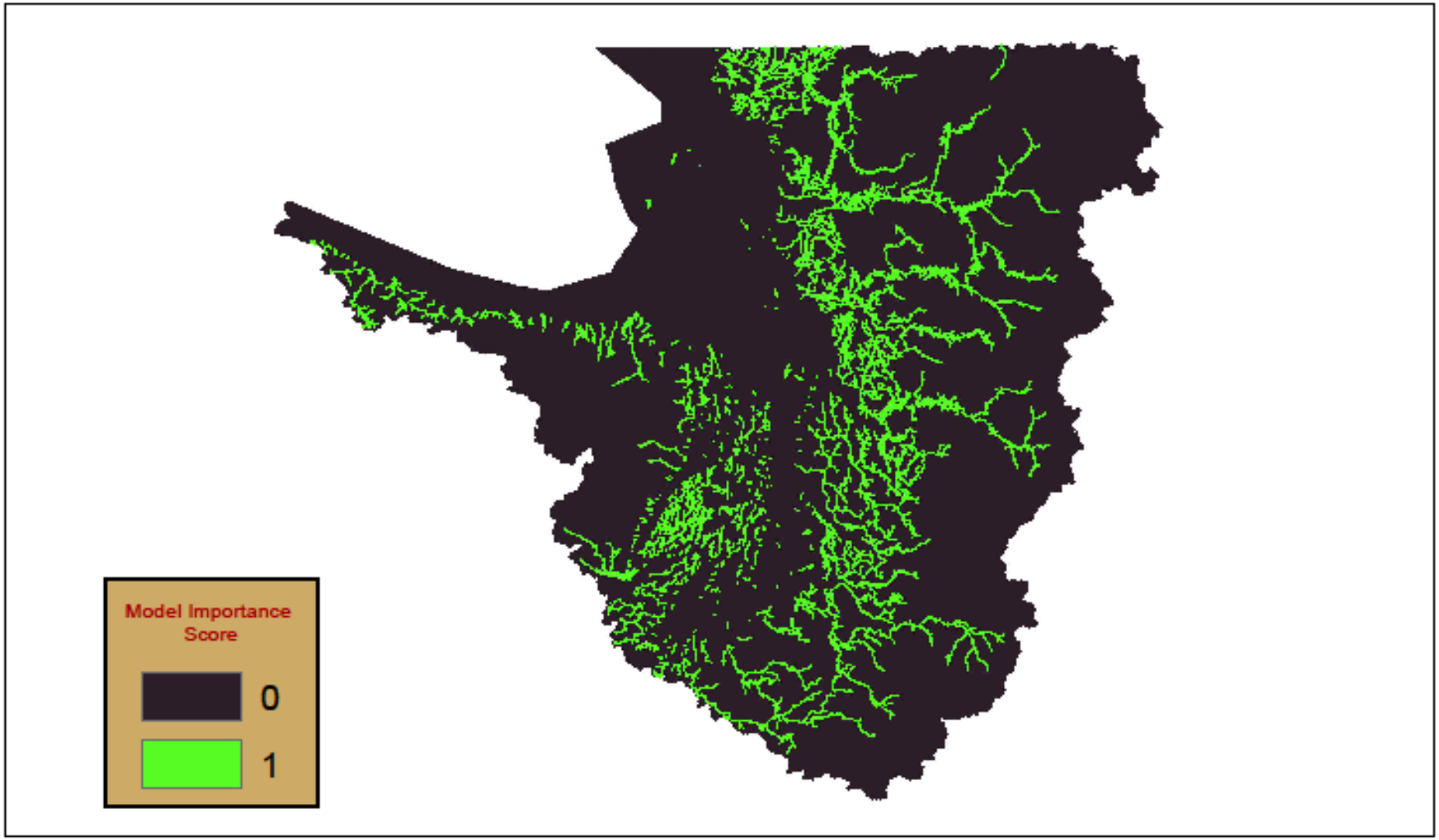


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Pacific States Marine Fisheries Commission and National Marine Fisheries Service, NOAA

Coho Salmon in SEE - Puget Sound Inspection Area of Interest

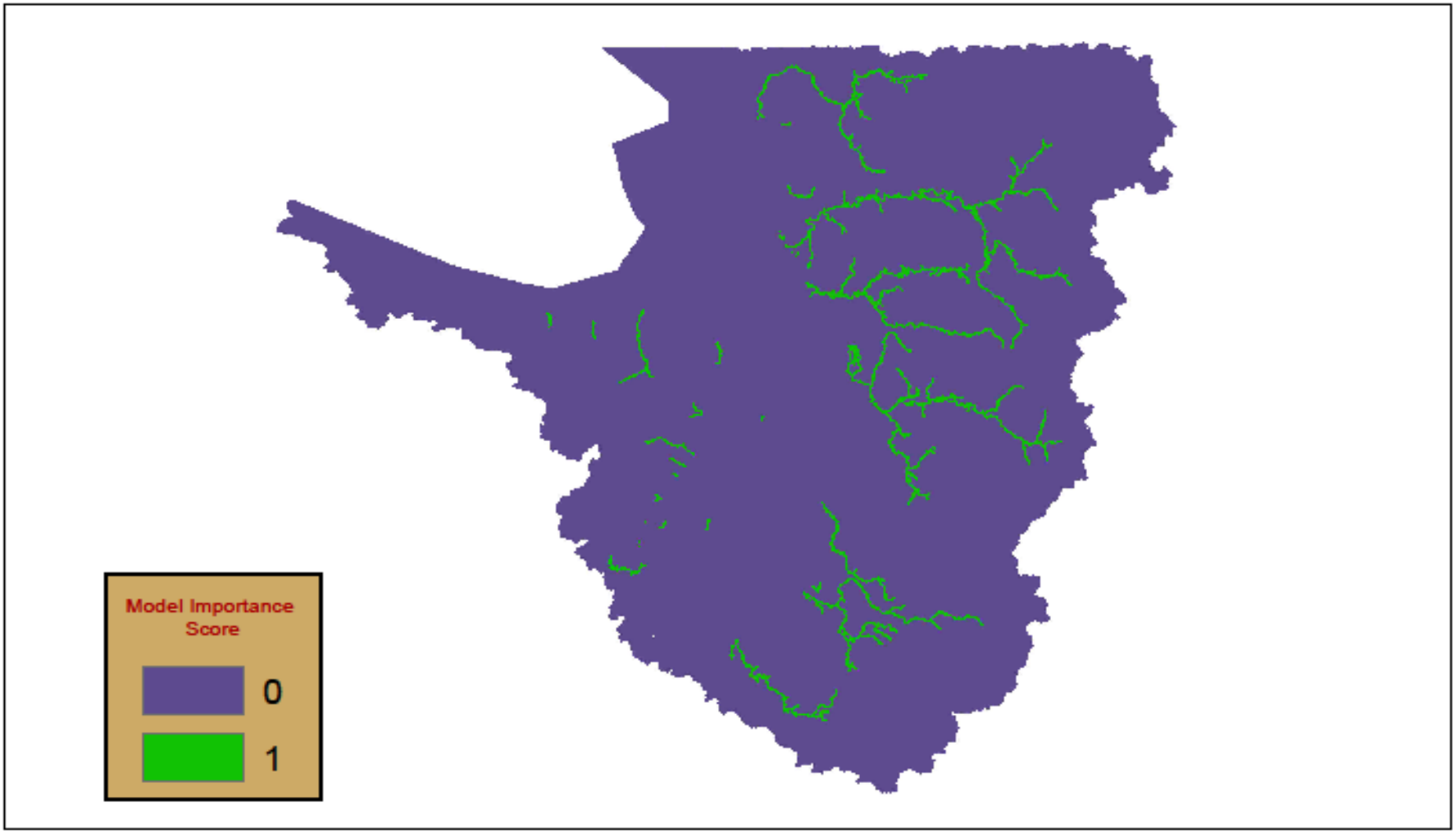


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Pacific States Marine Fisheries Commission and National Marine Fisheries Service, NOAA

Pink Salmon in SEE - Puget Sound Inspection Area of Interest

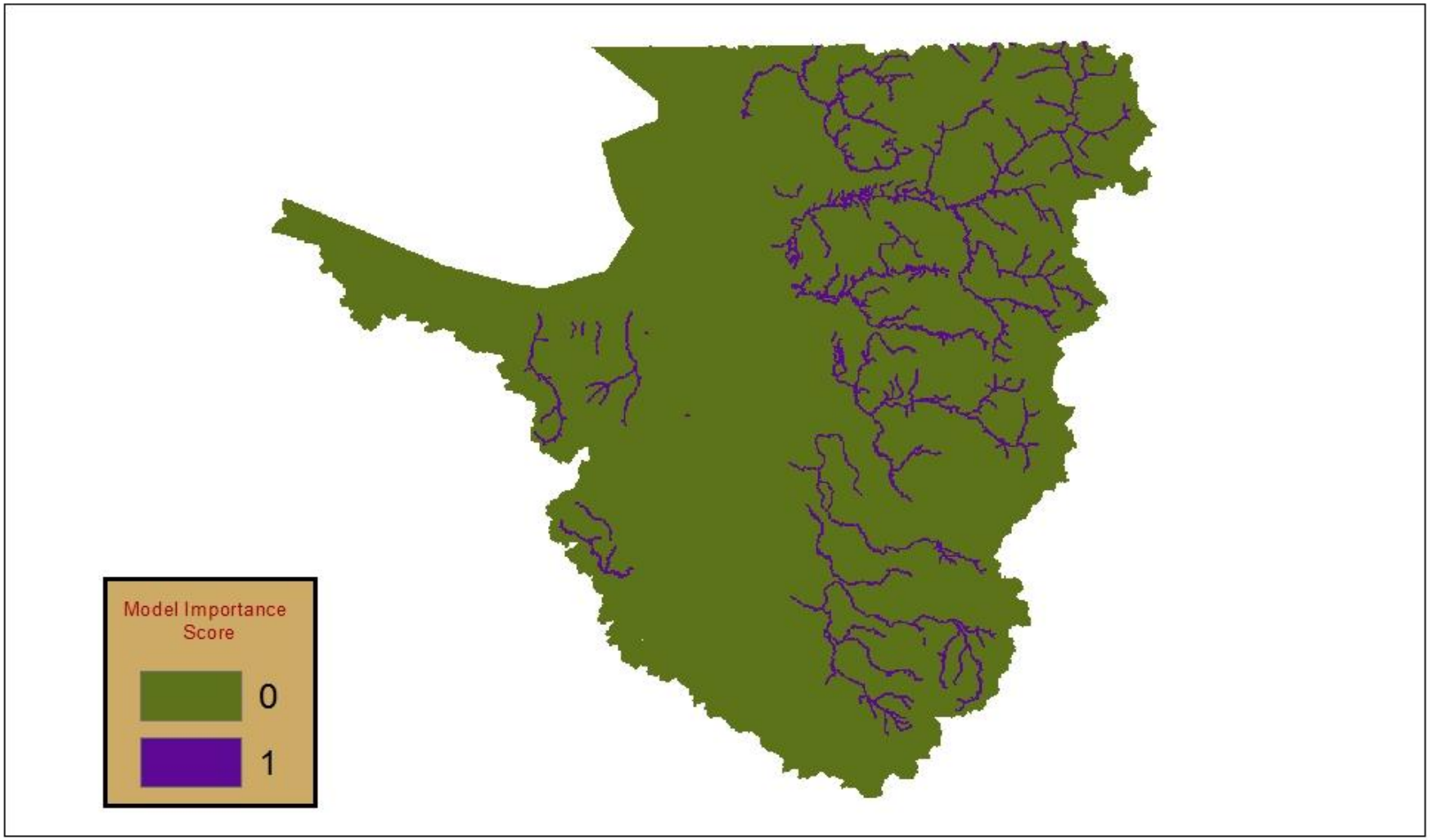


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Pacific States Marine Fisheries Commission and National Marine Fisheries Service, NOAA

Federally Listed Bull Trout in SEE - Puget Sound Inspection Area of Interest

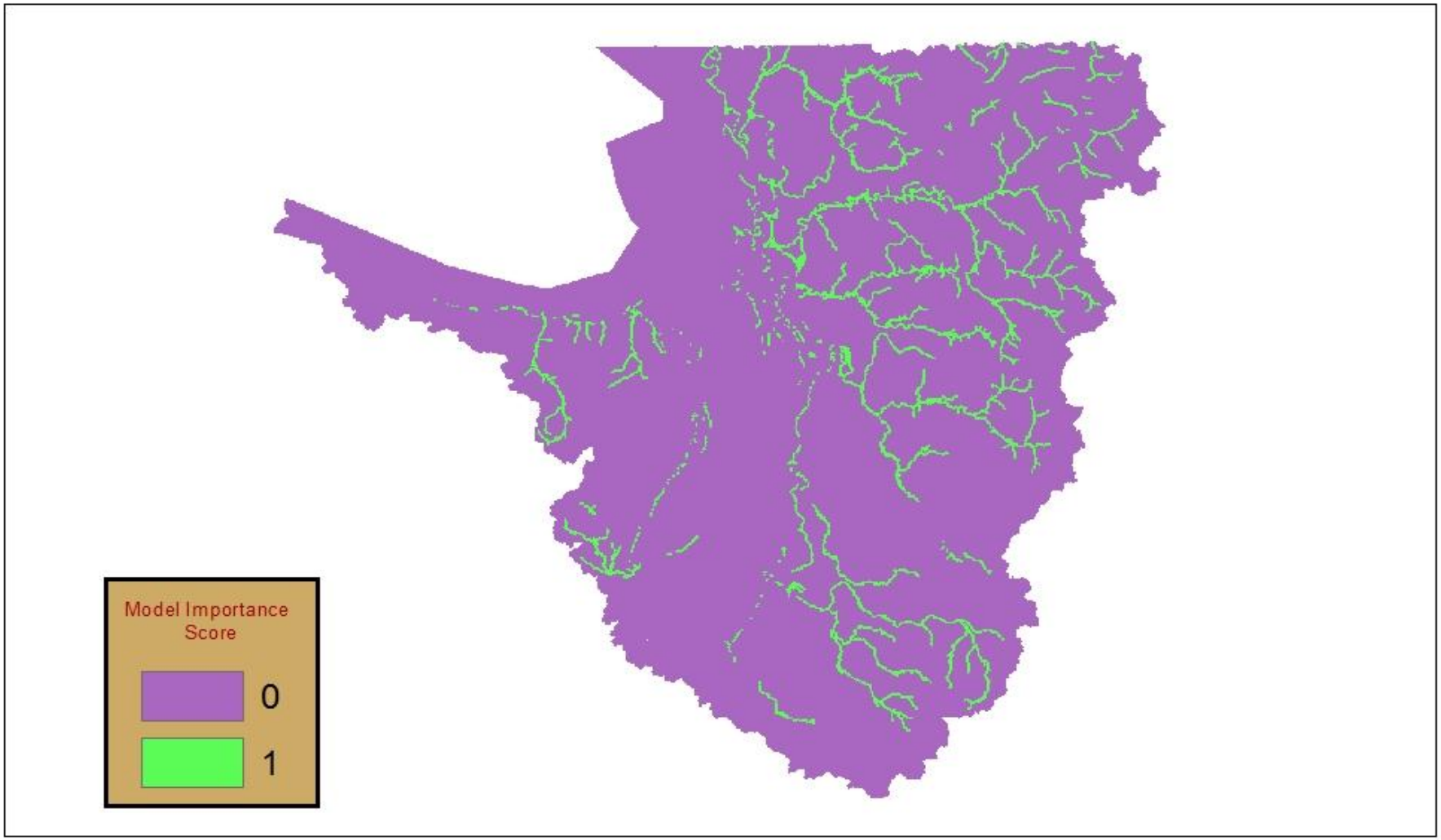


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: US Fish and Wildlife Service, Vancouver, WA

Federally Listed Bull Trout Critical Habitat in SEE - Puget Sound Inspection Area of Interest

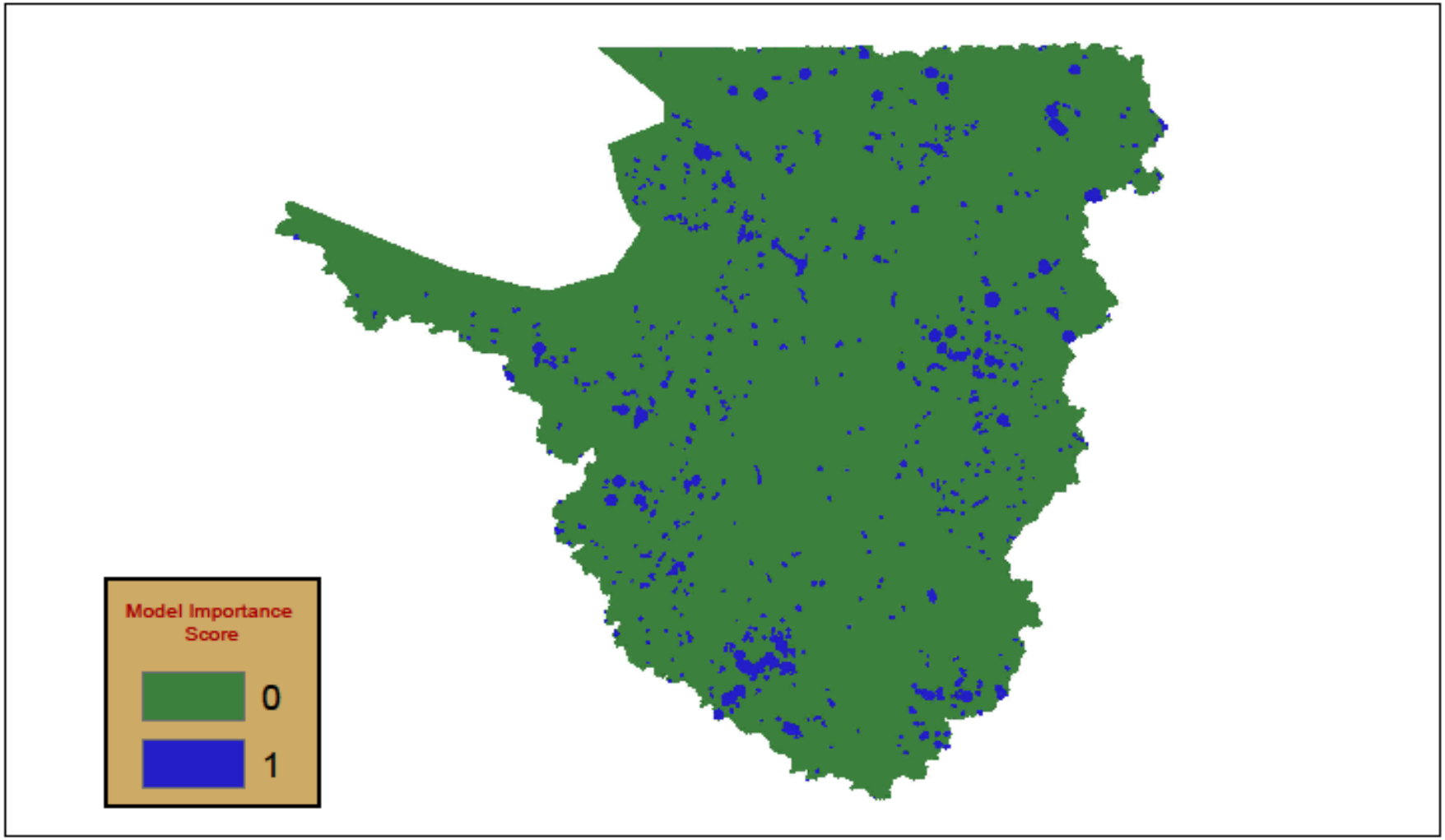


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: US Fish and Wildlife Service, Vancouver, WA

Rare Plant Associations in SEE - Puget Sound Inspection Area of Interest

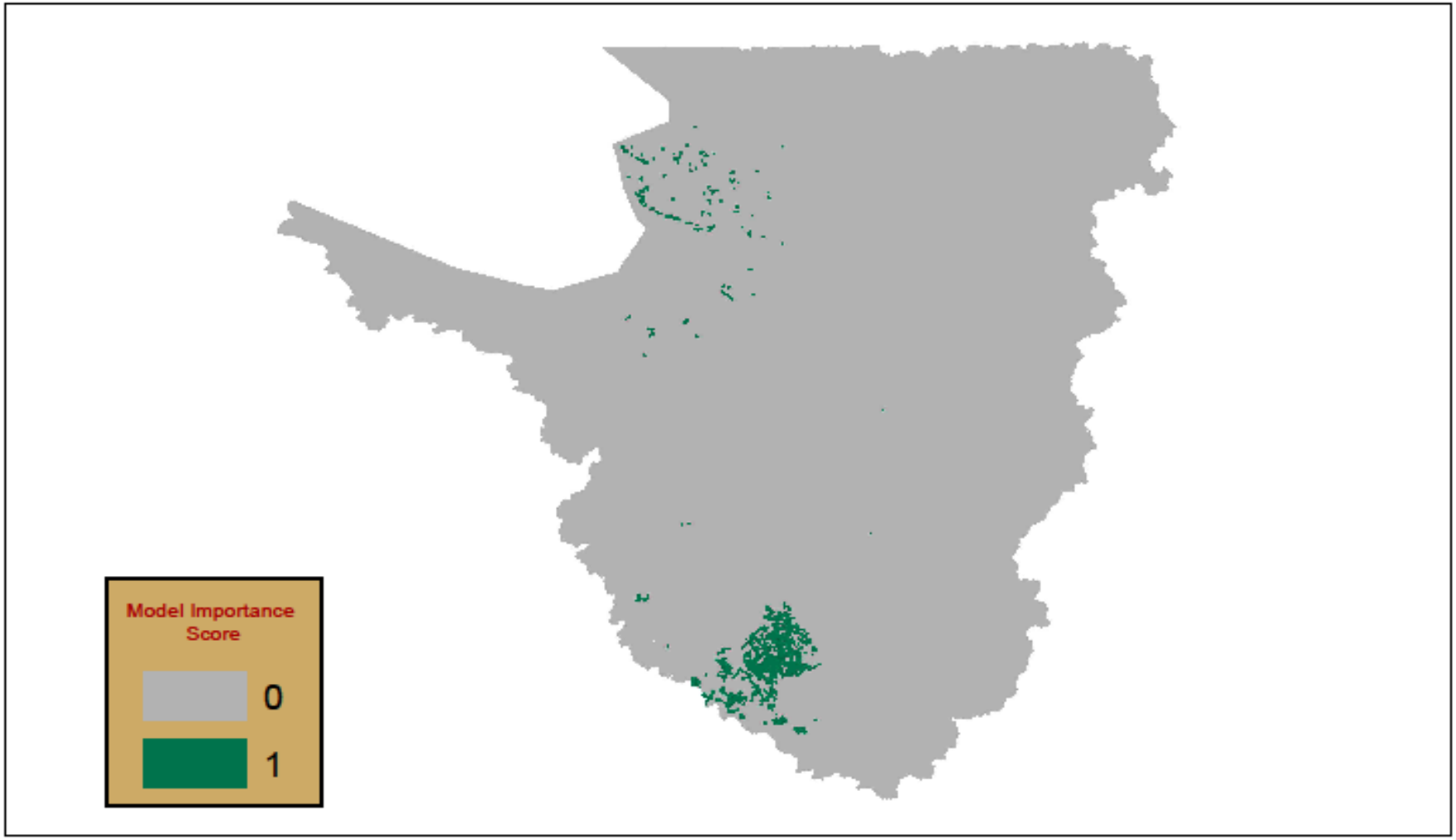


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Washington Natural Heritage Program Element Occurrence GIS Data Set: Washington Department of Natural Resources, Natural Heritage Program, Olympia, WA.

Oak / Grasslands in SEE - Puget Sound Inspection Area of Interest

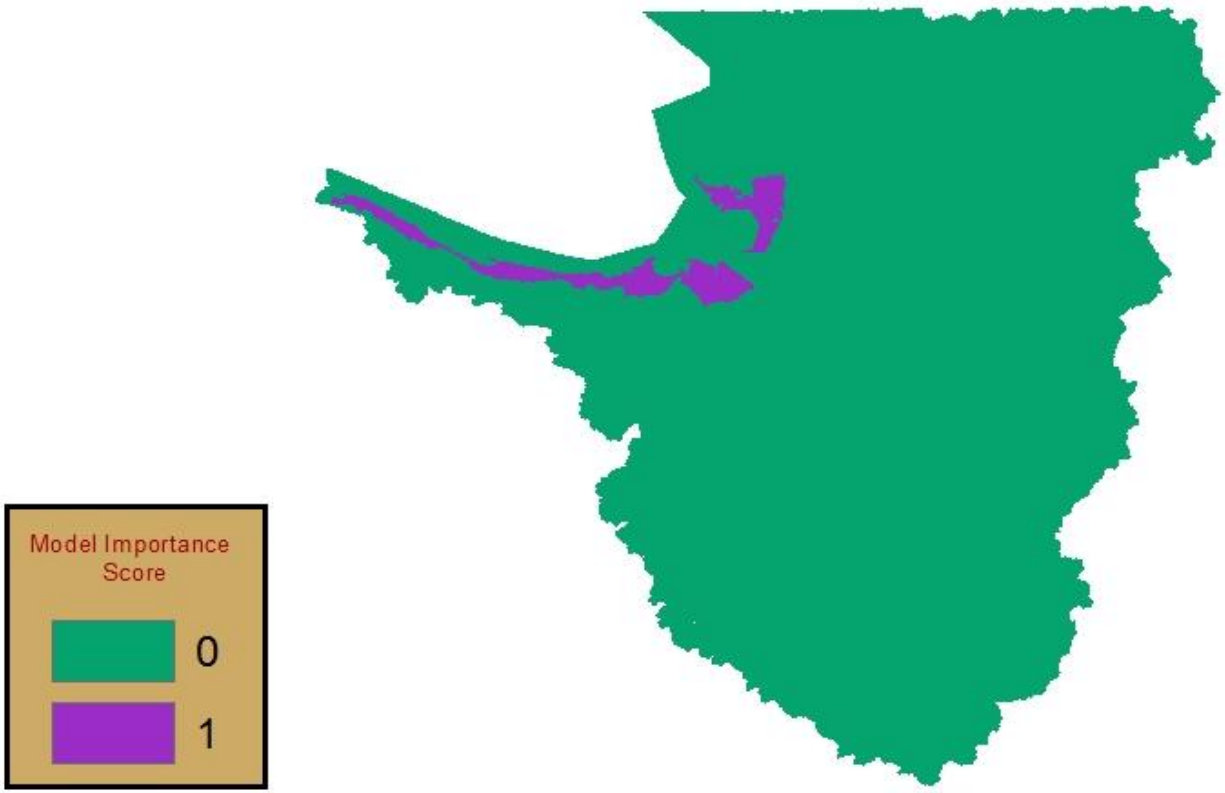


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Oaks and Grasslands of the Puget Trough Ecoregion :GIS Data Set. Washington Department of Natural Resources, Natural Heritage Program, Olympia, WA.

Federally Listed Green Sturgeon Critical Habitat in SEE - Puget Sound Inspection Area of Interest



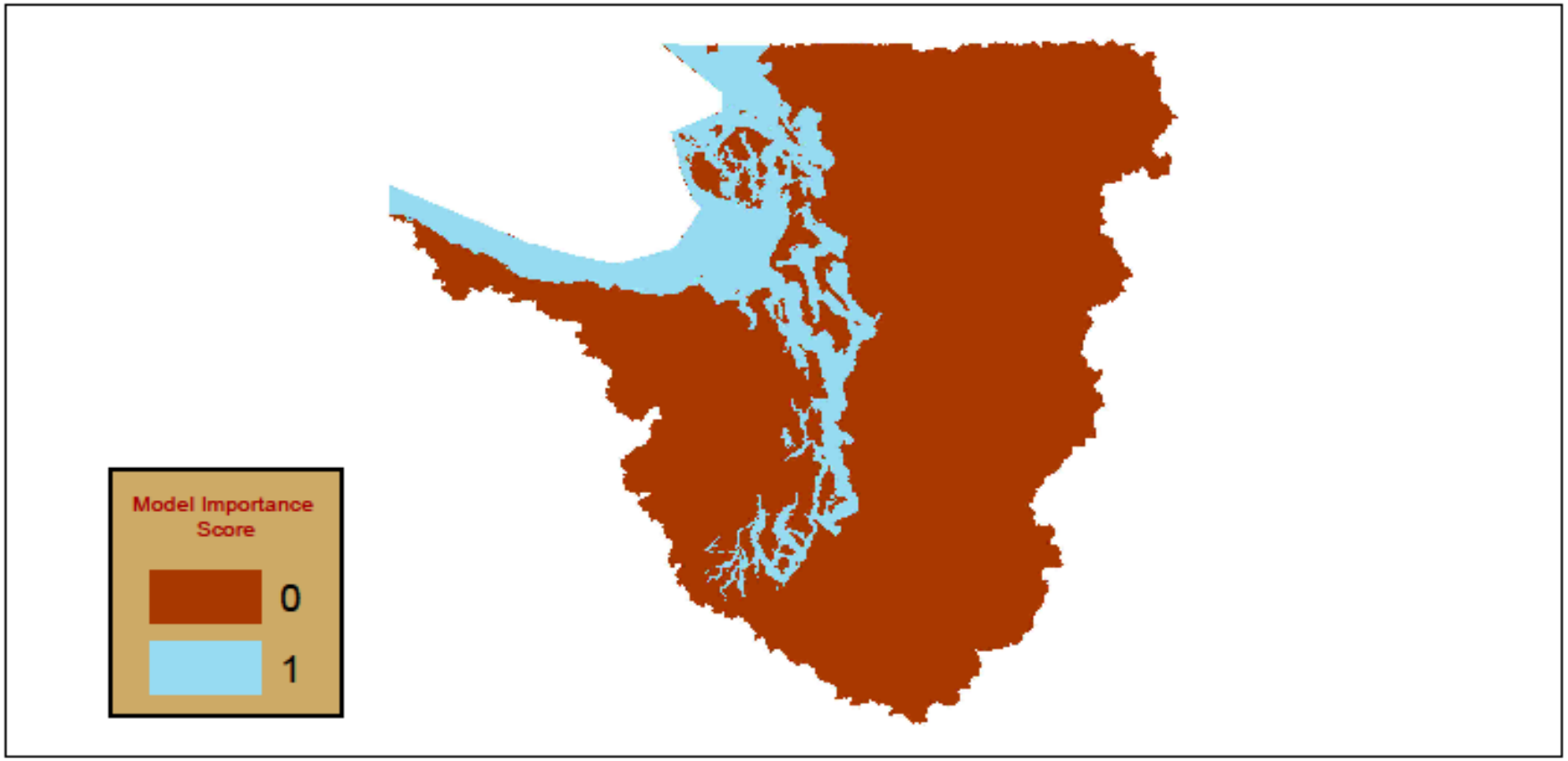
Data Source: National Oceanic and Atmospheric Administration (NOAA) Northwest Regional Office, Attention Steve Stone: 1201 NE Lloyd Blvd., Suite 1100, Portland, Oregon, 97232.

Caveat: This layer does not demarcate all of the areas excluded from designation as Critical Habitat. Final Critical Habitat boundaries are available for review in Federal Register notices for each species with designated ESA Critical Habitat.

Map and geoprocessed data compiled by John Marshall

May 1, 2013

Federally Listed Killer Whale Critical Habitat in SEE - Puget Sound Inspection Area of Interest



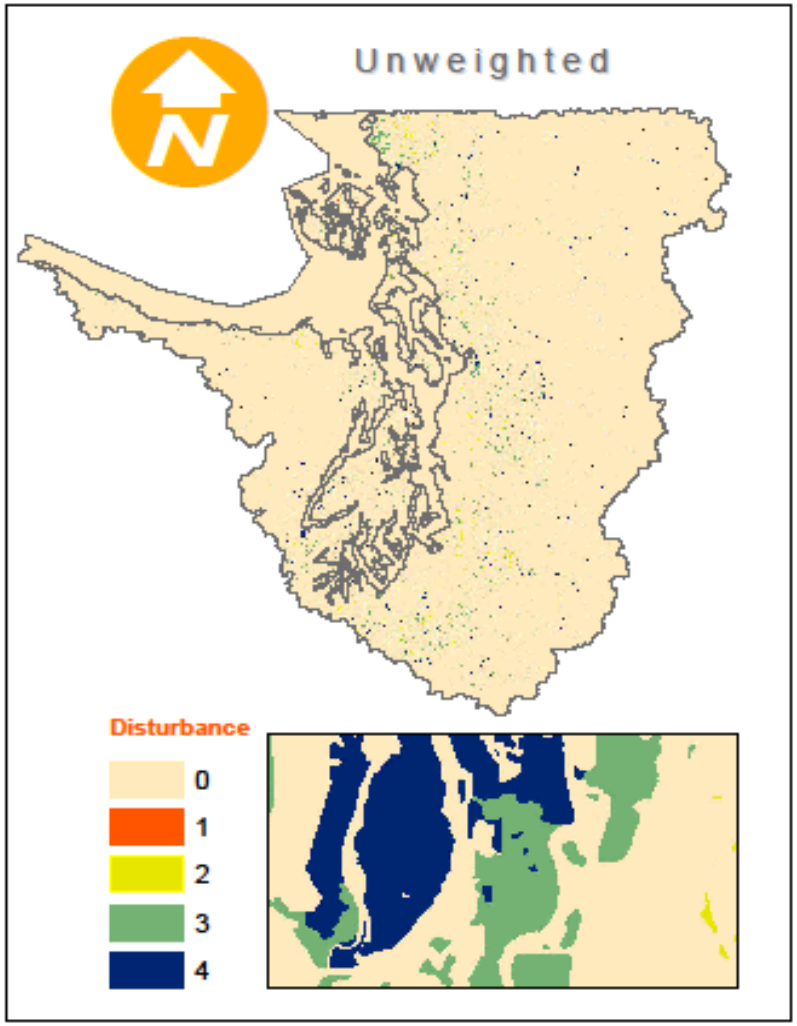
Data Source: National Oceanic and Atmospheric Administration (NOAA) Northwest Regional Office, Attention Steve Stone: 1201 NE Lloyd Blvd., Suite 1100, Portland, Oregon, 97232.

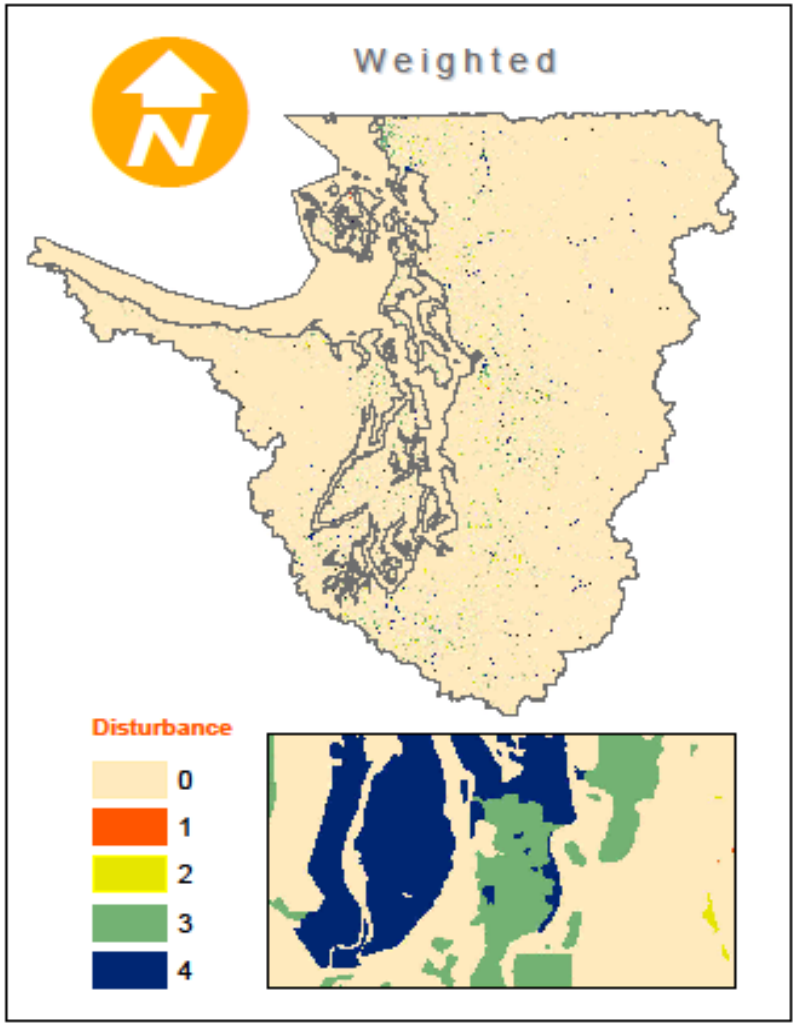
Map and geoprocessed data compiled by John Marshall

October 29, 2013

Caveat: This layer does not demarcate all of the areas excluded from designation as Critical Habitat. Final Critical Habitat boundaries are available for review in Federal Register notices for each species with designated ESA Critical Habitat.

Puget Sound Wetlands Based on Predicted Ecological Integrity as Influenced by Anthropogenic Disturbance Regime
(0 - No Data and 1 - Most Disturbed to 4 - Least Disturbed)





Map, Model Layer, and Reclassification Geoprocessing by John Marshall on October 30, 2013

Data Sources: U.S. Fish and Wildlife Service National Wetland Inventory (NWI) and Level 1 Ecological Integrity Assessment Analysis for Western Washington NWI Polygons: Rocchio, F.J., R.C.Crawford, and R. Niggemann. 2013. Freshwater Wetland Conservation Priorities for Western Washington, Phase 1. Prepared for U.S. Environmental Protection Agency, Region 10. Seattle, WA. Washington Department of Natural Resources, Natural Heritage Program. Olympia, WA.

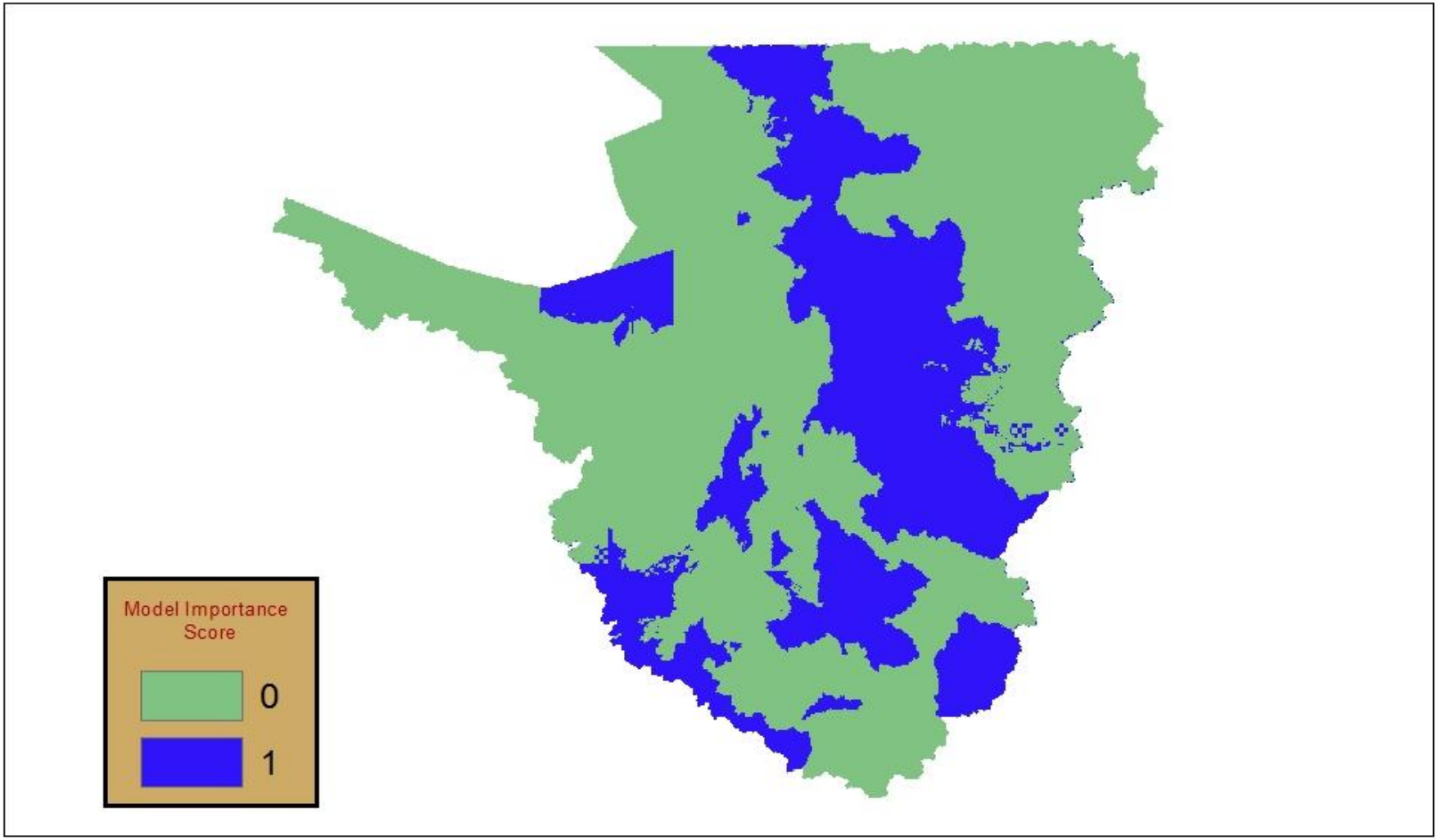
303d Designations in SEE - Puget Sound Inspection Area of Interest

Map and geoprocessed data compiled by John Marshall

May 10, 2013

Data Sources: Washington Department of Ecology

TMDL Drainages in SEE - Puget Sound Inspection Area of Interest

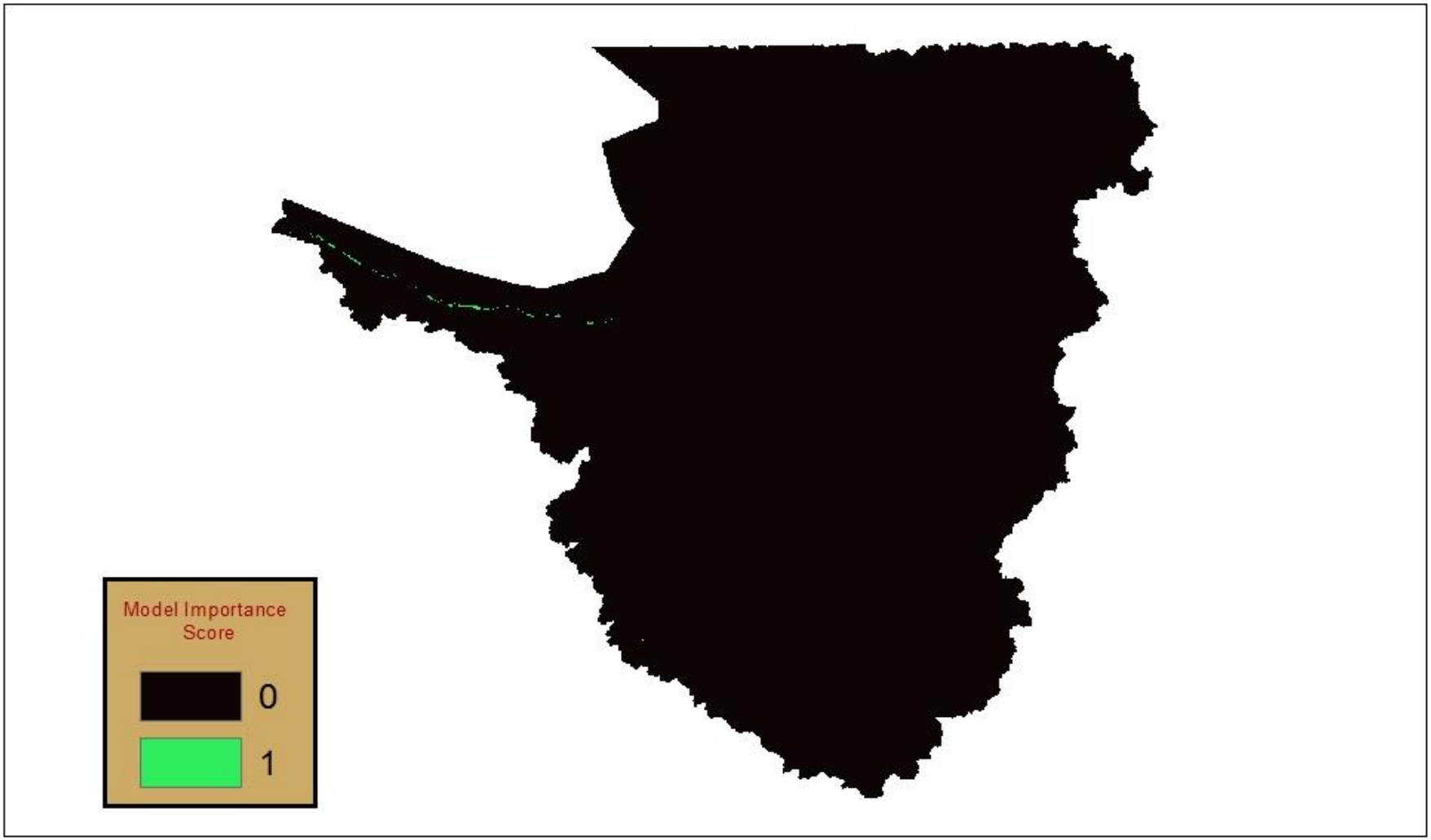


Map and geoprocessed data compiled by John Marshall

May 10, 2013

Data Sources: Washington Department of Ecology

Kelp in SEE - Puget Sound
Inspection Area of Interest

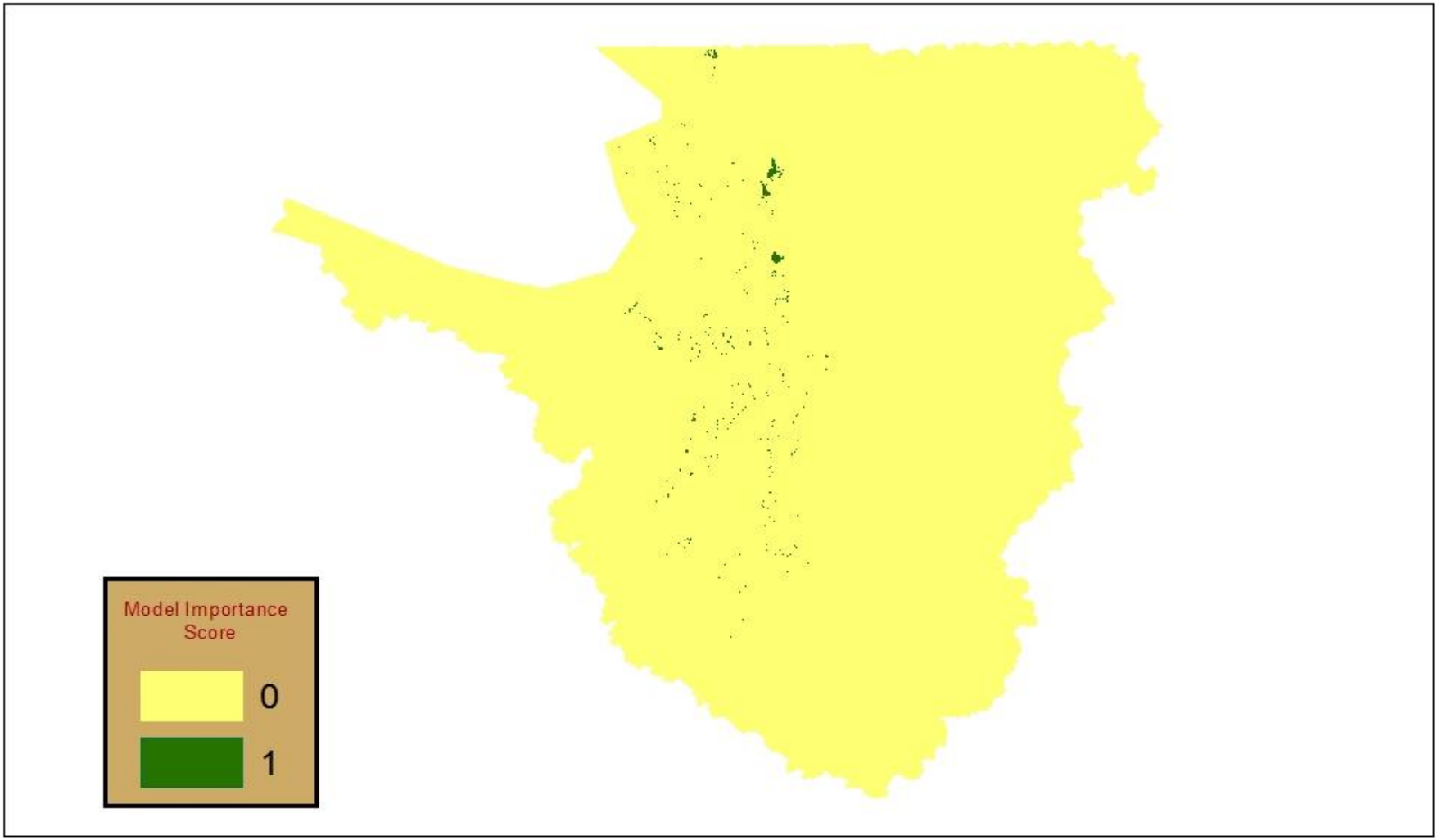


Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Washington Department of Natural Resources

Eelgrass in SEE - Puget Sound Inspection Area of Interest



Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Pacific State Marine Fisheries Commission

Shellfish in SEE - Puget Sound Inspection Area of Interest

Map and geoprocessed data compiled by John Marshall

April 29, 2013

Data Sources: Washington Department of Natural Resources

Aggregate Tribal Land of Interest in SEE - Puget Sound Inspection Area of Interest

Map and geoprocessed data compiled by John Marshall

September 4, 2013

Data Sources: Environmental Protection Agency Region 10
GIS Team - Tribal Areas of Interest

Puget Sound SEE Weighted Sum Inspection Priority Model

Unweighted 12-13-2013 Raster Output

	Model Habitat Element	*Model Buffer*	*Importance Value*	*Model Weight*
1.	303d Streams	N	0/1	1
2.	TMDL Streams	N	0/1	1
3.	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	1
14.	Indian Land	N	1	1
15.	Oak / grassland	Y – ¼ mile	0/1	1
16.	Wetlands_Estuarine	N	0/1	1
17.	Wetlands_Freshwater	N	0/1,2,3,4*	1
18.	Eelgrass	N	0/1	1
19.	Shellfish	N	0/1	1
20.	Kelp	N	0/1	1
21.	Killer Whale Critical Habitat	N	0/1	1
22.	Green Sturgeon Critical Habitat	N	0/1	1
23.	Chum Critical Habitat (river)	Y – ¼ mile	0/1	1
24.	Chum Critical Habitat (marine)	N	0/1	1
25.	Chinook Critical Habitat (river)	Y – ¼ mile	0/1	1
26.	Chinook Critical Habitat (marine)	N	0/1	1
27.	Steelhead Federally Listed	Y – ½ mile	0/1	1

- Unweighted Classification (A,B,C,D) Assignments by Washington DNR Natural Heritage Software Modified to Integers for Use in Model

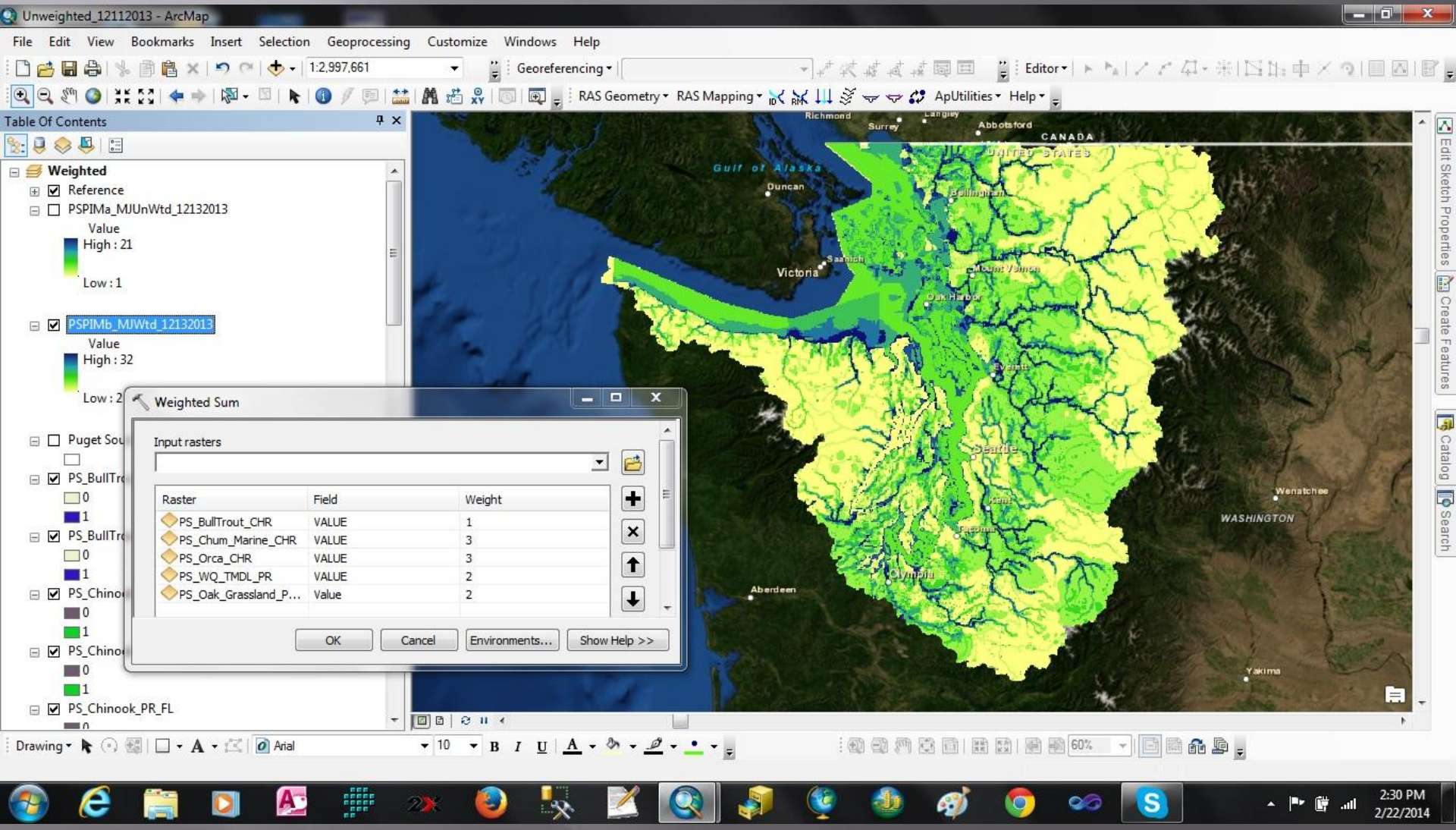
Puget Sound SEE Weighted Sum Inspection Priority Model

Weighted 12-13-2013 Raster Output

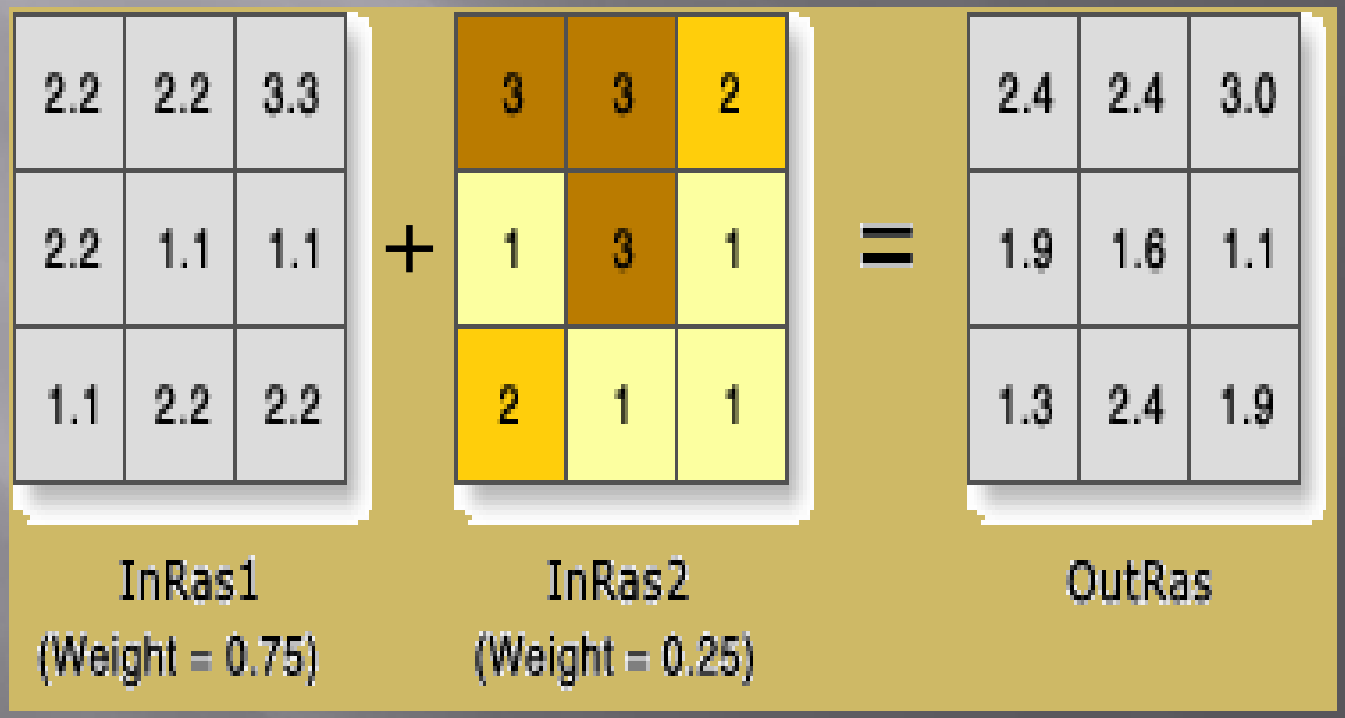
	Model Habitat Element	*Model Buffer*	*Importance Value*	*Model Weight*
1.	303d Streams	N	0/1	2
2.	TMDL Streams	N	0/1	2
3.	Rivers / Streams	Y – ¼ mile	0/1	1
4.	Hydric Soils	N	0/1	1
5.	Bull trout Critical Habitat (river & marine)	Y – ¼ mile	0/1	1
6.	Bull trout presence	Y – ¼ mile	0/1	1
7.	Chinook presence	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

- Weighted Classification (A,B,C,D) Assignments by Washington DNR Natural Heritage Software Modified to Integers for Use in Model

Applying Weighted Sum Operation Using Spatial Analyst Overlay Tools From ArcToolbox



Weighted Sum (Spatial Analyst) ArcGIS 10

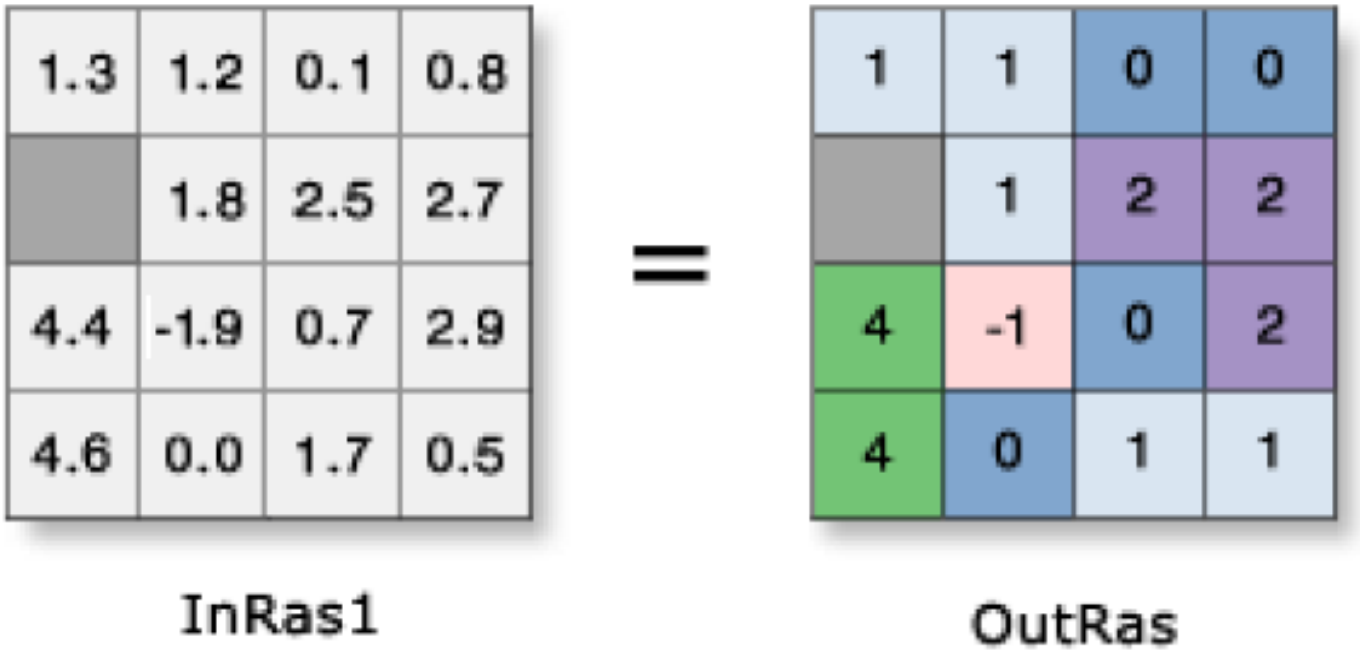


Int (Spatial Analyst)

Summary

Converts each cell value of a raster to an integer by truncation.

Illustration



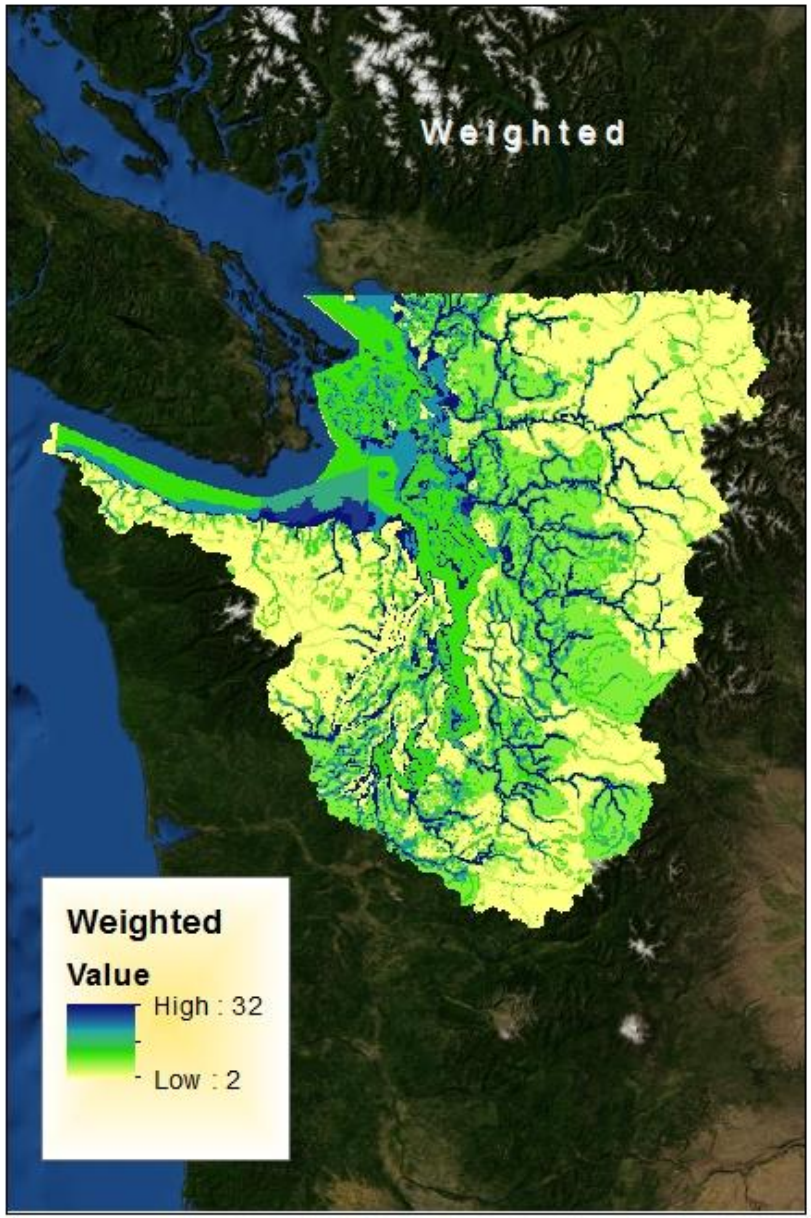
OutRas = Int (InRas1)

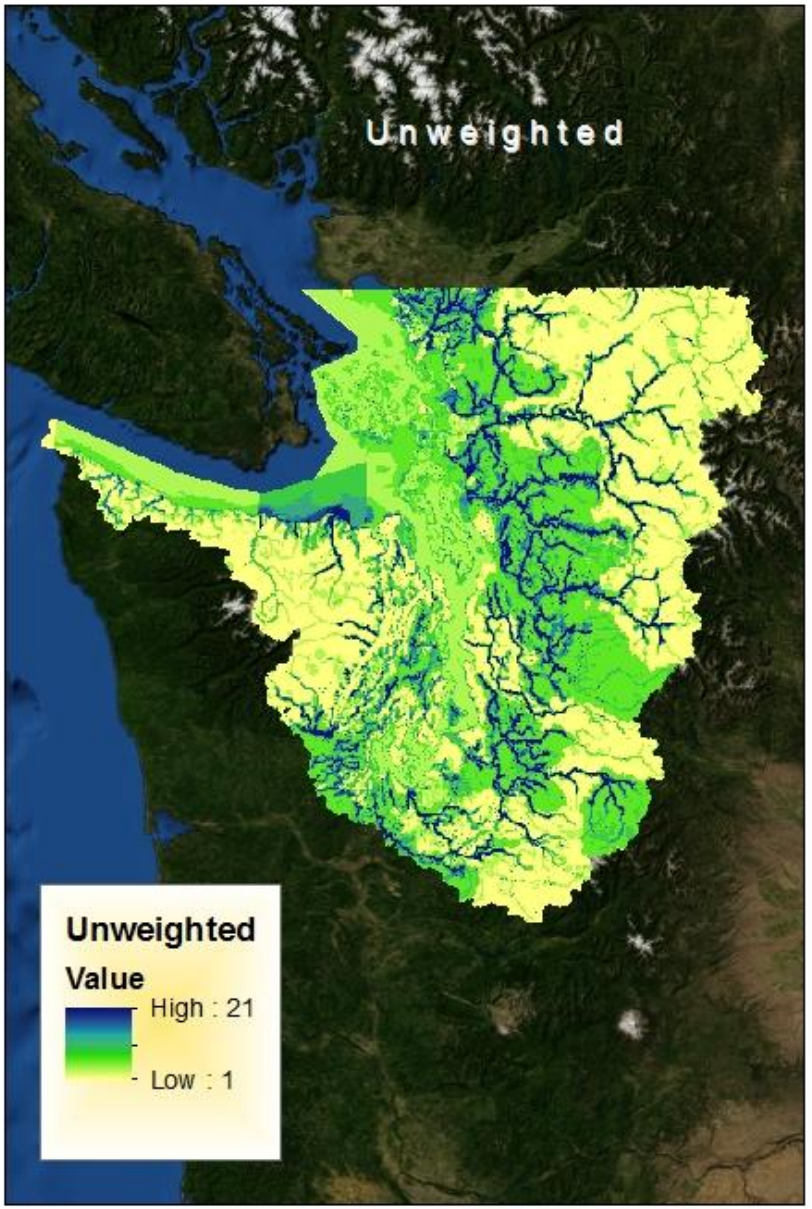
Use spatial analyst overlay weighted sum tool to run output raster

Classify and display output raster in ArcMap layout

Export ArcMap project(s) to pdf or other file formats for map display and distribution

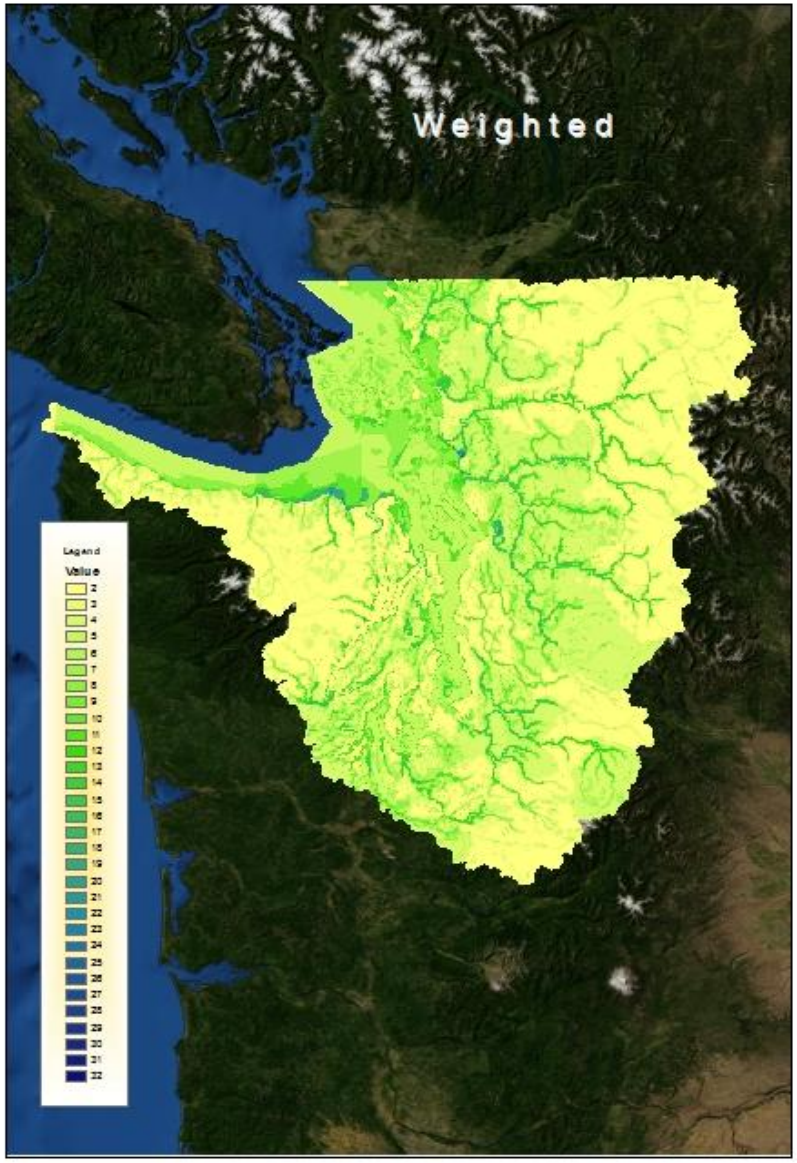
Weighted and Unweighted Raster Outputs Using Stretched Classification

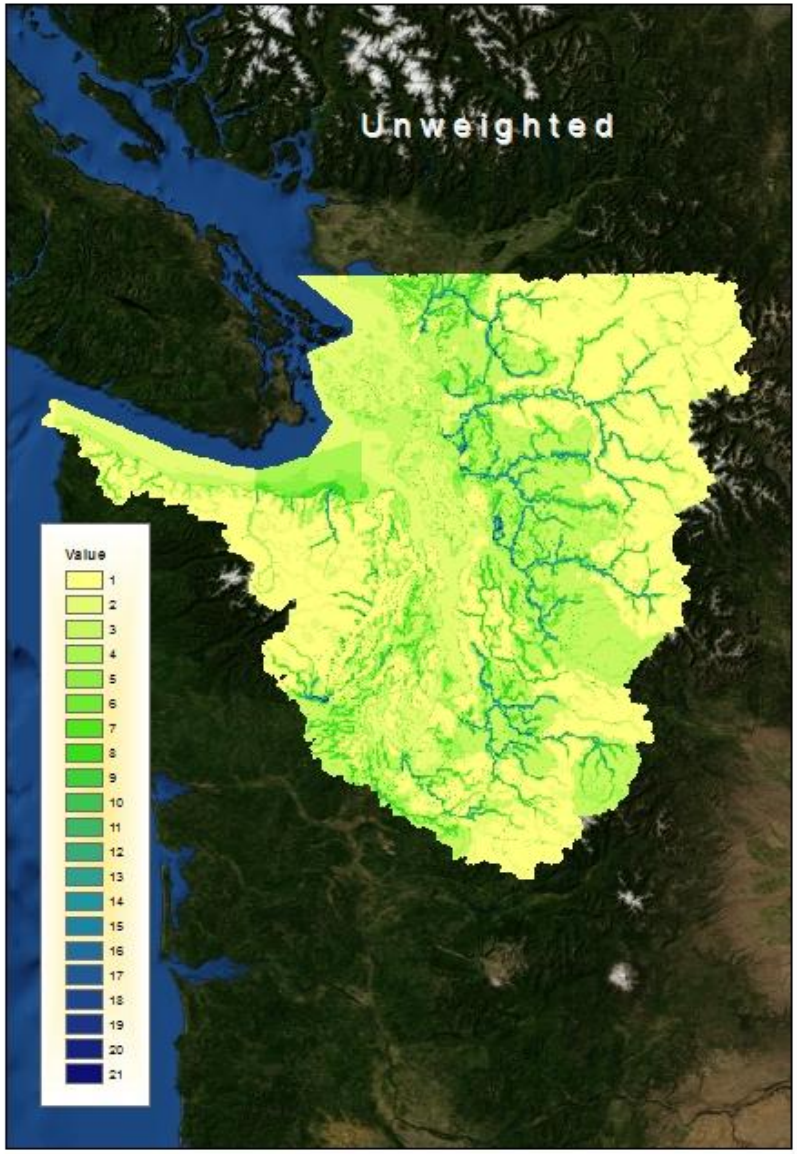




Map and geoprocessing by John Marshall on December 13, 2013

Weighted and Unweighted Raster Outputs Using Unique Value Classification





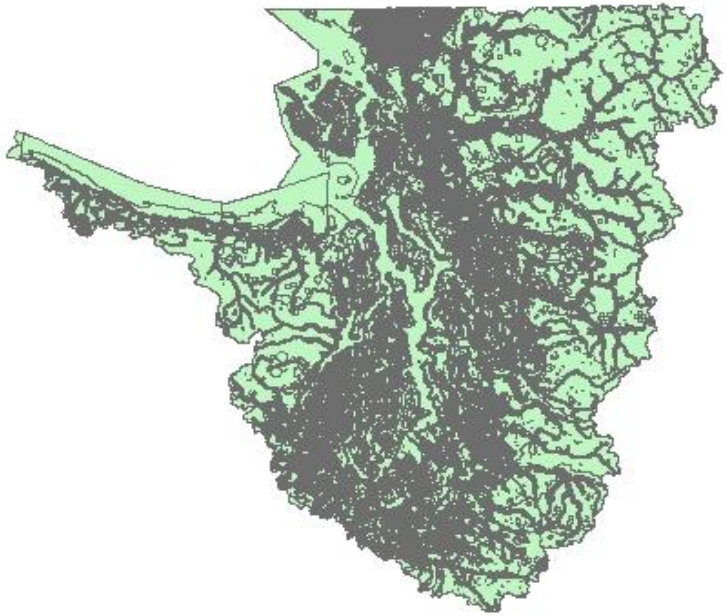
Map and geoprocessing by John Marshall on December 13, 2013

Converts a Raster Dataset to Polygon Features

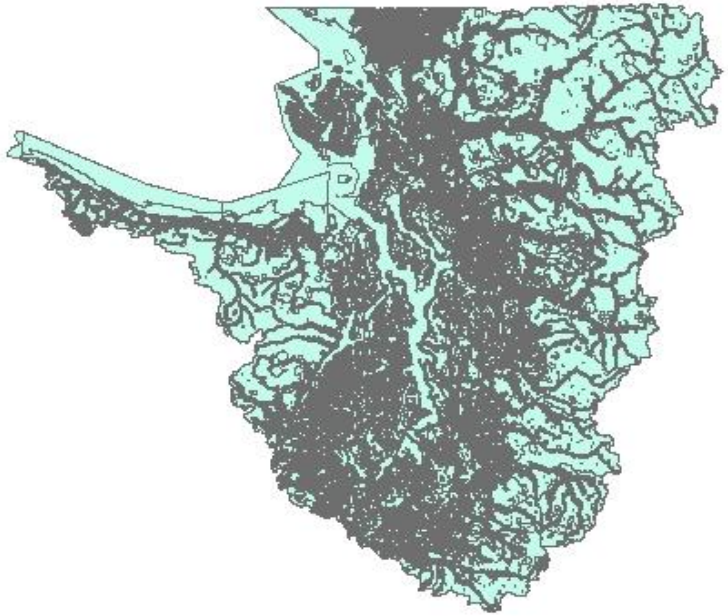
The input raster can have any cell size and must be a valid integer raster dataset.

Raster to Polygon Conversion for Statistical Applications

Weighted



Unweighted



Map and geoprocessing by John Marshall on December 13, 2013

Conduct quality control procedures using statistical analyses, aerial imagery recognaisence, peer review, and to the degree practicable, ground truth surveys

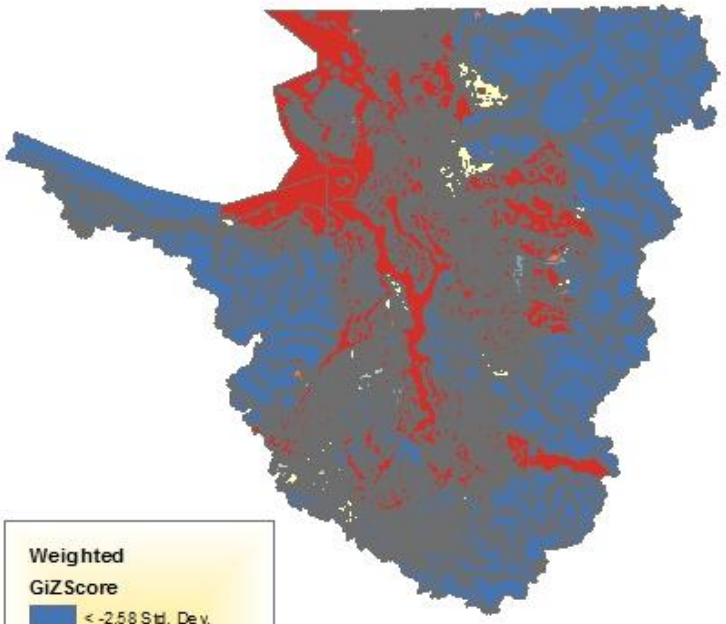
Hot Spot Analysis (Getis-Ord Gi*) (Spatial Statistics)

- Given a set of weighted features, identifies statistically significant hot spots and cold spots using the Getis-Ord Gi* statistic.

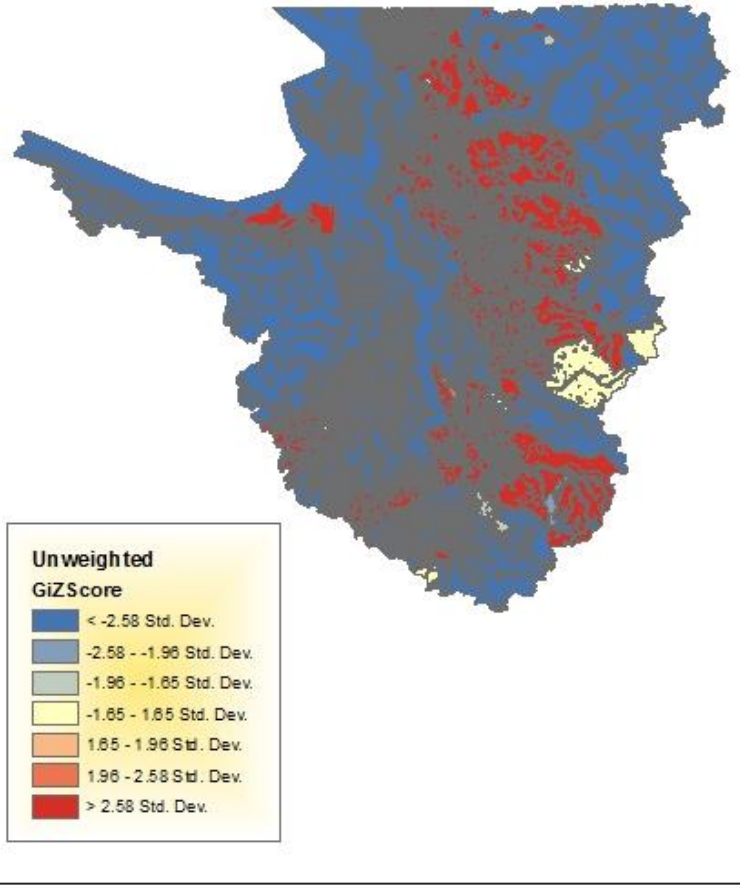
- This tool identifies statistically significant spatial clusters of high values (hot spots) and low values (cold spots). It creates a new Output Feature Class with a z-score and p-value for each feature in the Input Feature Class.

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

Weighted

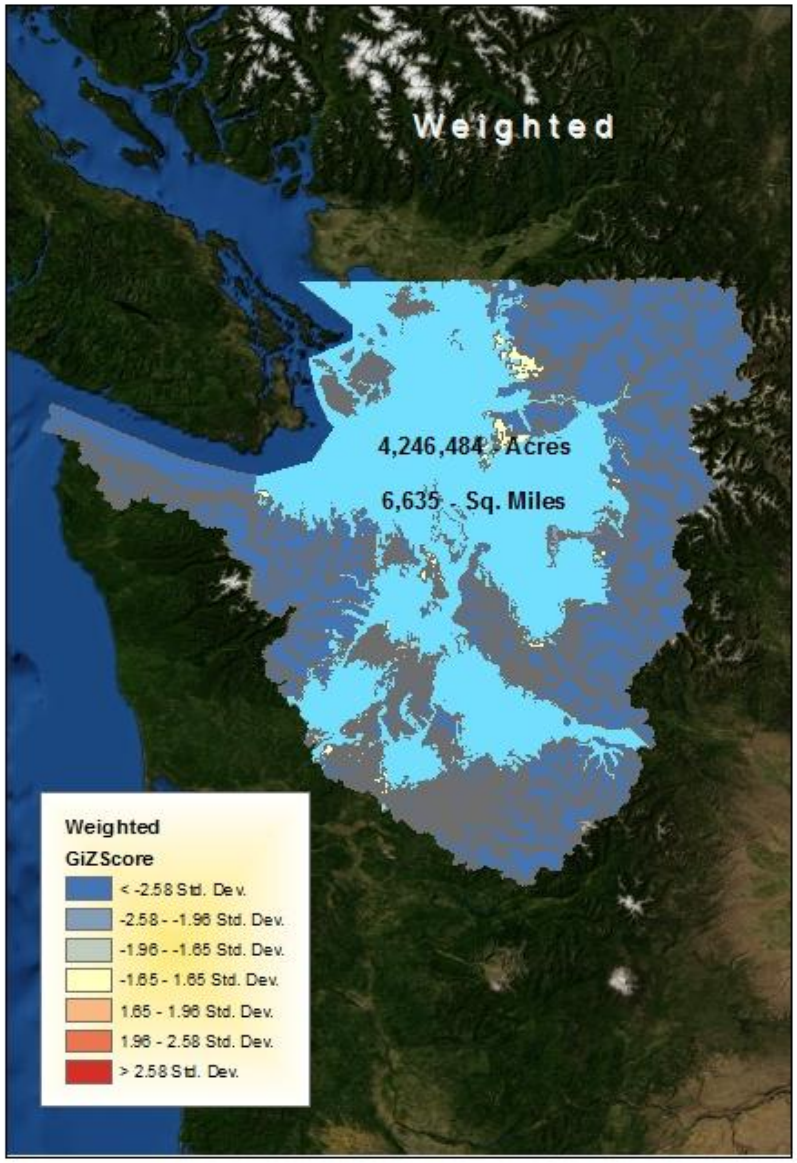


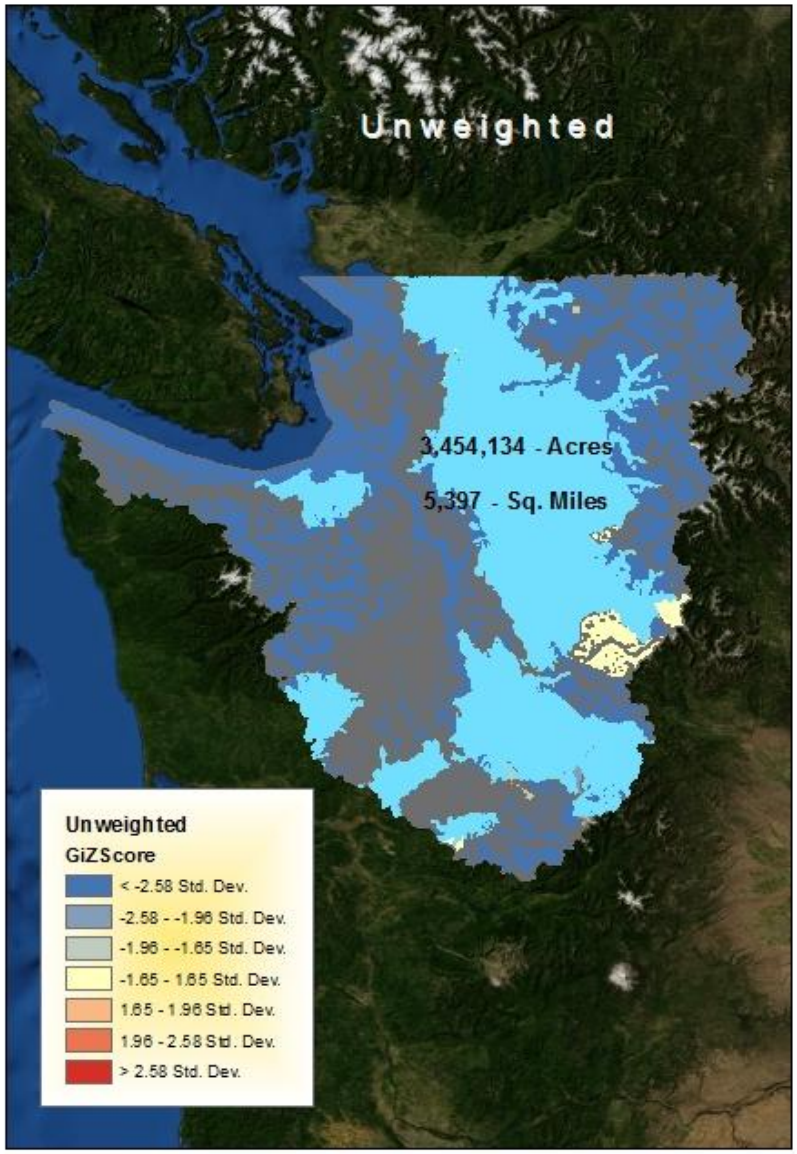
Unweighted



Map and geoprocessing by John Marshall on December 13, 2013

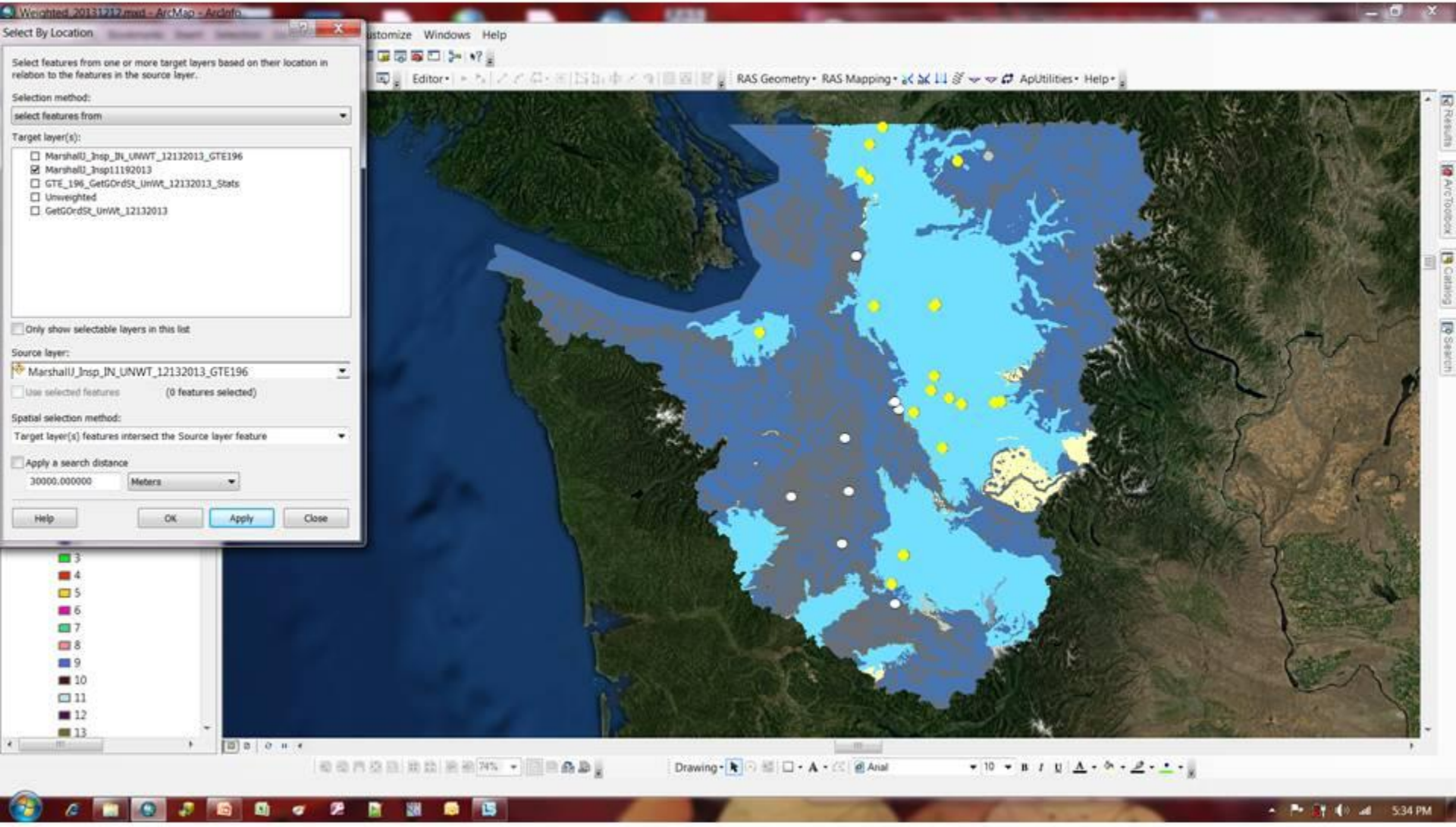
Getis-Ord G* Hot Spot Clusters >/=1.96 SD in Puget Sound Area of Interest



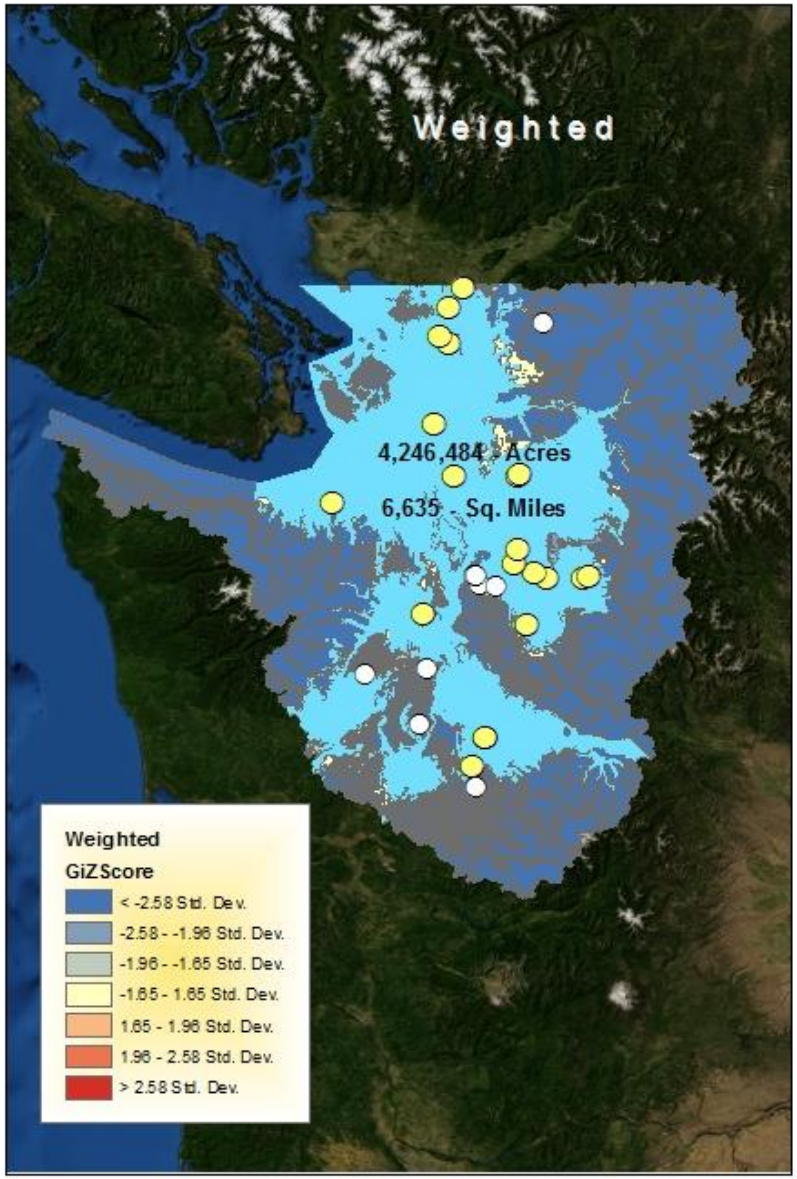


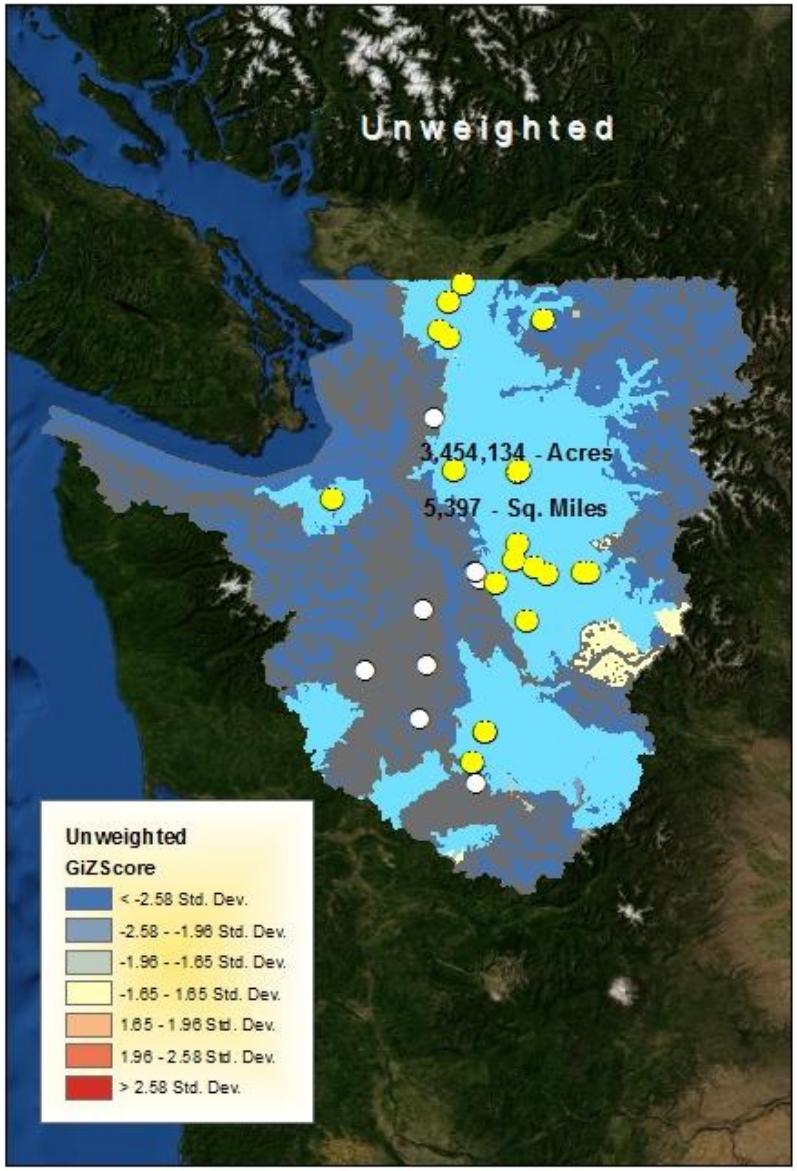
Map and geoprocessing by John Marshall on December 13, 2013

Screening Puget Sound SEE Inspections and Investigations Using Select by Location Query 2012 - 2013



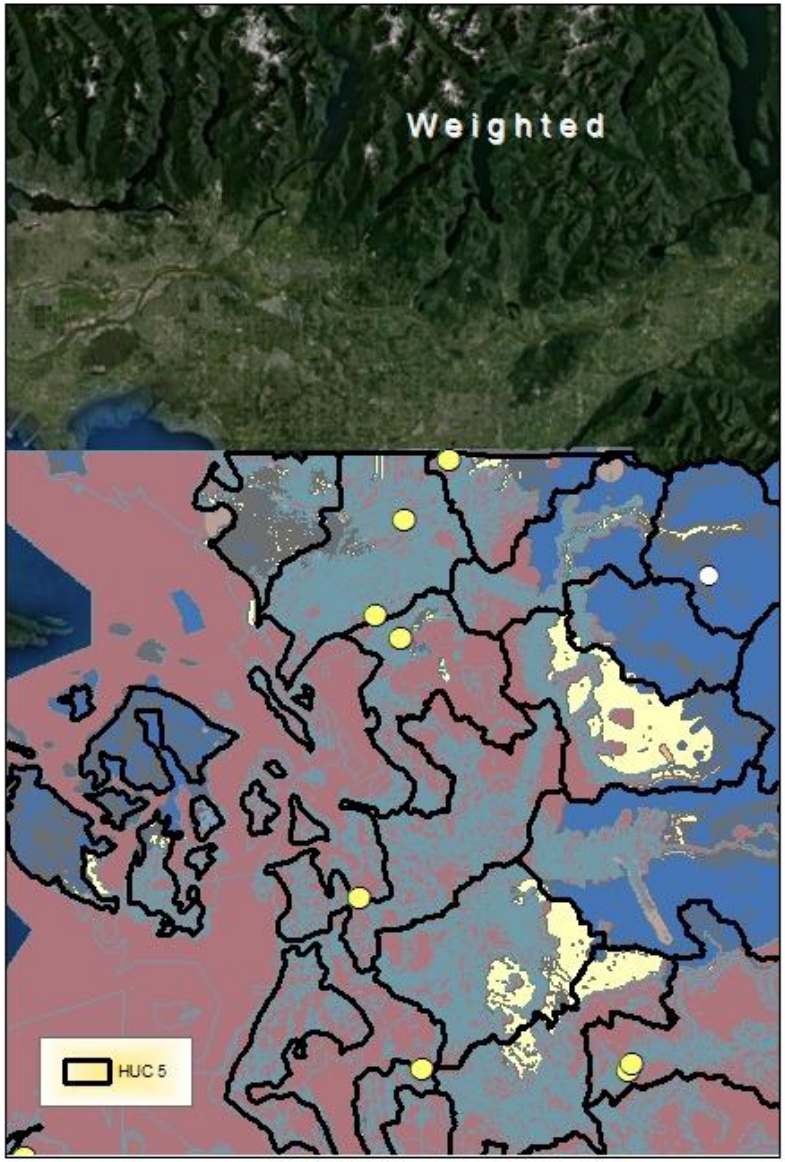
Selected Puget Sound SEE Investigations and Inspections Using Weighted and Unweighted Statistical Screens

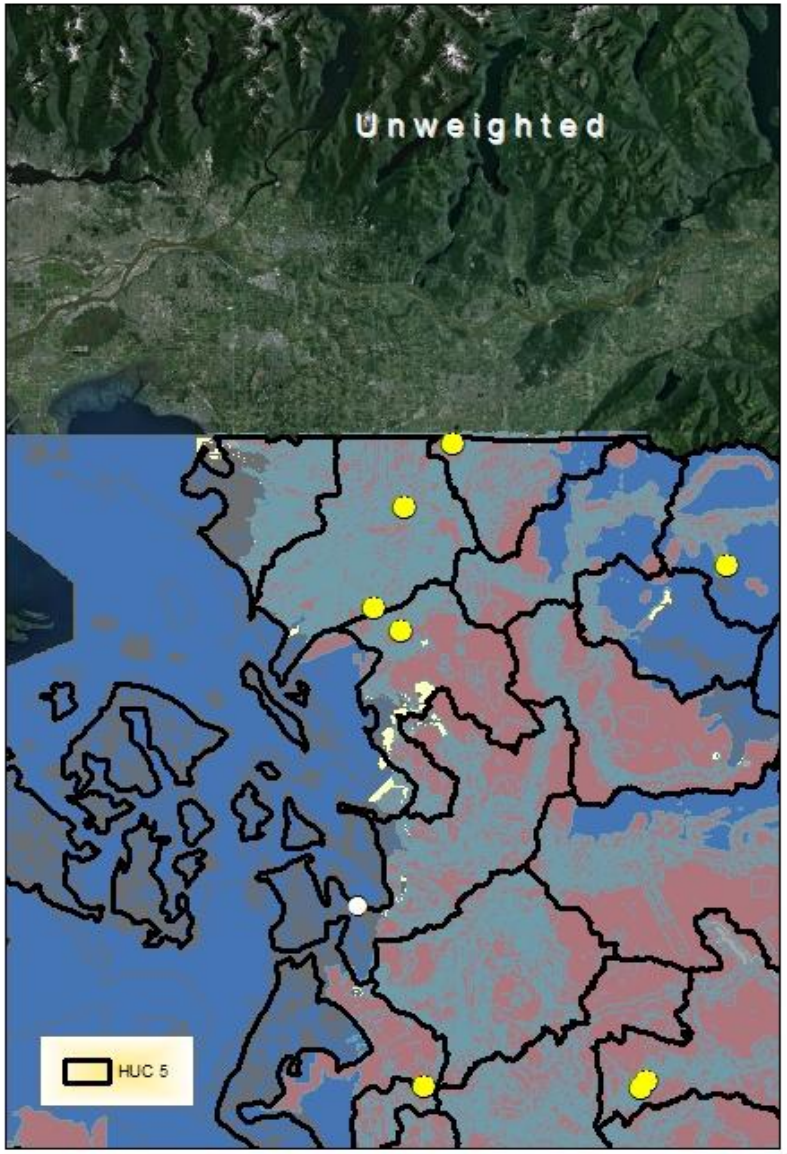




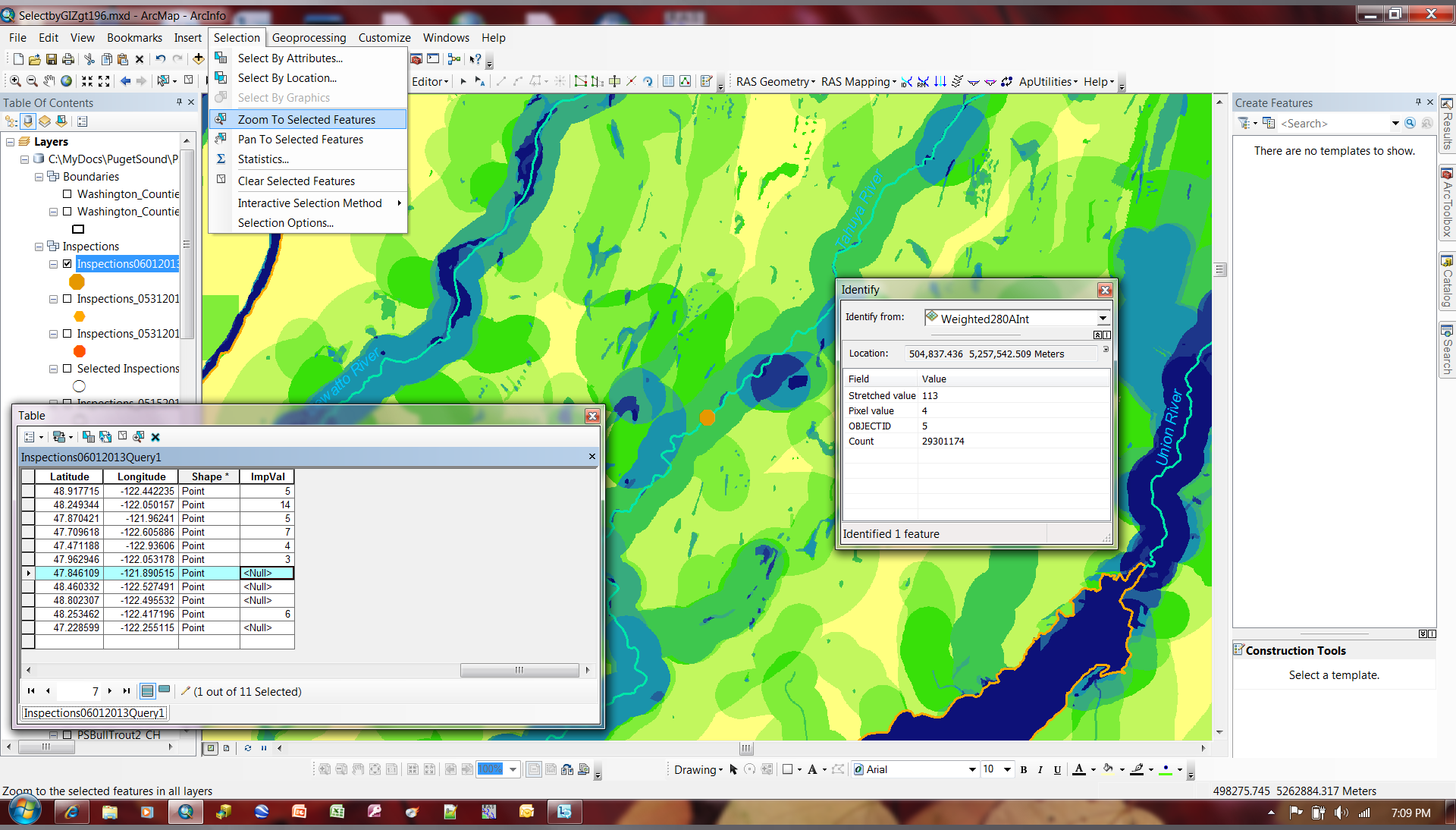
Map and geoprocessing by John Marshall on December 13, 2013

Using Watershed Boundaries to Augment Weighted and Unweighted Statistical Screens





Map and geoprocessing by John Marshall on December 13, 2013


SelectbyGISZgt196.mxd - ArcMap - ArcInfo
File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help
Select By Attributes...
Select By Location...
Select By Graphics
Zoom To Selected Features
Pan To Selected Features
Statistics...
Clear Selected Features
Interactive Selection Method
Selection Options...
Table Of Contents
Layers
Boundaries
Inspections
Selected Inspections
Create Features
There are no templates to show.
Construction Tools
Select a template.
Identify
Identify from: Weighted280AInt
Location: 504,837.436 5,257,542.509 Meters
Field Value
Stretched value 113
Pixel value 4
OBJECTID 5
Count 29301174
Identified 1 feature
Table
Inspections06012013Query1
Latitude Longitude Shape * ImpVal
48.917715 -122.442235 Point 5
48.249344 -122.050157 Point 14
47.870421 -121.96241 Point 5
47.709618 -122.605886 Point 7
47.471188 -122.93606 Point 4
47.962946 -122.053178 Point 3
47.846109 -121.890515 Point <Null>
48.460332 -122.527491 Point <Null>
48.802307 -122.495532 Point <Null>
48.253462 -122.417196 Point 6
47.228599 -122.255115 Point <Null>
(1 out of 11 Selected)
Tahuya River
Union River
Zoom to the selected features in all layers
498275.745 5262884.317 Meters
7:09 PM

SEE Puget Sound Investigations and Inspections – (FY 2012 – 2013)

SiteName	SiteCounty	Inspector	ActivityType	ImpVal	FocalSpecies	WQL2	TMDL2	Facts	Latitude	Longitude
Hannegan Road	Whatcom	1, 9, 10	404	5	1, 2, 3, 4, 5, 6, 7, 9		Low Ph , DO, Organic Enrichment	Washington Department of Ecology led the inspection. Two soil pits were dug to about 15-20 in on both sides of sidecast dredged material near ditch 1. Neither hole had any standing water in the bottom. Cover predominantly Lolium or disturbed bare ground	48.917715	-122.442235
Blakey Flying T Ranch	Snohomish	1, 8	404	14	1, 2, 3, 4, 5, 6, 7	Temperature, Turbidity; North Fork Stilaguamish - Amonia / Nitrogen, Temperature, Fecal Coliform (upstream) and pH, Fecal Coliform (downstream)	Temperature Completed, Turbidity Needed	WOUS wetland / stream, TNW, RPW, SN - Unknown at this time. Landowner refuses access without a warrant.	48.249344	-122.050157
Becker	Snohomish	1, 8	404	5	1, 3, 4, 5, 6, 7	Temperature; Wagner Lake - Total Phosphorous	Temperature TMDL needed; Snohomish River - Bacteria TMDL	WOUS wetland / stream, TNW, RPW, SN - Unknown at this time. Landowner deceased. Awaiting further instructions from management.	47.870421	-121.96241
Bradley	Kitsap	1	404	7	4, 5	Sam Snyder Creek - pH/Acidity/Caustic Conditions, TMDL needed; Liberty Bay - 1,2,4-Trichlorobenzene, Sediment; Liberty Bay - Temperature;	Snyder Creek - pH TMDL needed; Liberty Bay Bacteria TMDL (needed)		47.709618	-122.605886
Tahuya River	Mason	3	404	4	1, 4, 5, 8, 9, 10	Fecal Coliform	TMDL Needed for Fecal Coliform		47.471188	-122.93606

SEE Puget Sound Investigations and Inspections – (FY 2012 – 2013)

Snohomish Citizen	Snohomish	1, 8	404	3	1, 2, 3, 4, 5, 6, 7			On March 7, 2013 [redacted] Reports to Chan Ponghamsing that creek bed alteration (about 4ft wide x 3 ft. deep for 30-feet. Claims buried creek causing flooding on her property.	47.962946	-122.053178
Klock	Snohomish	1	404	8	13, 14		Approx 400-feet west of TMDL designation boundary - Temperature TMDL completed, Fecal Coliform TMDL needed.	Old Case - Status of enforcement action uncertain.	47.846109	-121.890515
Wilbur	Skagit	1	404	7	1, 2, 3, 4, 5, 6, 7, 17, 19, 20		Water-body Name: Snoqualmie River watershed - Parameters: Ammonia-nitrogen; Dissolved oxygen; Fecal coliform bacteria; pH; Temperature - # of TMDLs: Ammonia-N, BOD, Fecal Coliform -16; Temperature - 17	Ongoing enforcement case - status of enforcement compliance unknown.	48.460332	-122.527491
CMS Interests	Whatcom			2	8, 13, 14, 18, 20	PCB - Tissue			48.802307	-122.495532
Price	Snohomish	1	404	6	1, 4, 5, 13, 14, 20		Puyallup River Bacteria TML. WRIA: #10 (Puyallup-Whit - Parameter: Fecal Coliform - # of TMDLs: 12 - Status: Approved by EPA. Has an implementation plan	WOUS wetland, TNW, RPW, SN - Unknown at this time.	48.253462	-122.417196
Ota	Pierce	1	404	6	1, 2, 3, 4, 5, 6, 7, 8, 11, 13, 14, 17, 18, 19, 20	Fecal Coliform	Parameters: Dissolved oxygen, Fecal coliform bacteria, Mercury, pH, Temperature - # of TMDLs: DO, FC, Mercury, pH - 46 Temperature - 10 Status: DO, FC, Mercury, pH - approved Temperature - approved Has a multi-parameter implementation plan	Ongoing enforcement case - status of enforcement compliance unknown.	47.228599	-122.255115

SEE Puget Sound Investigations and Inspections – (FY 2012 – 2013)

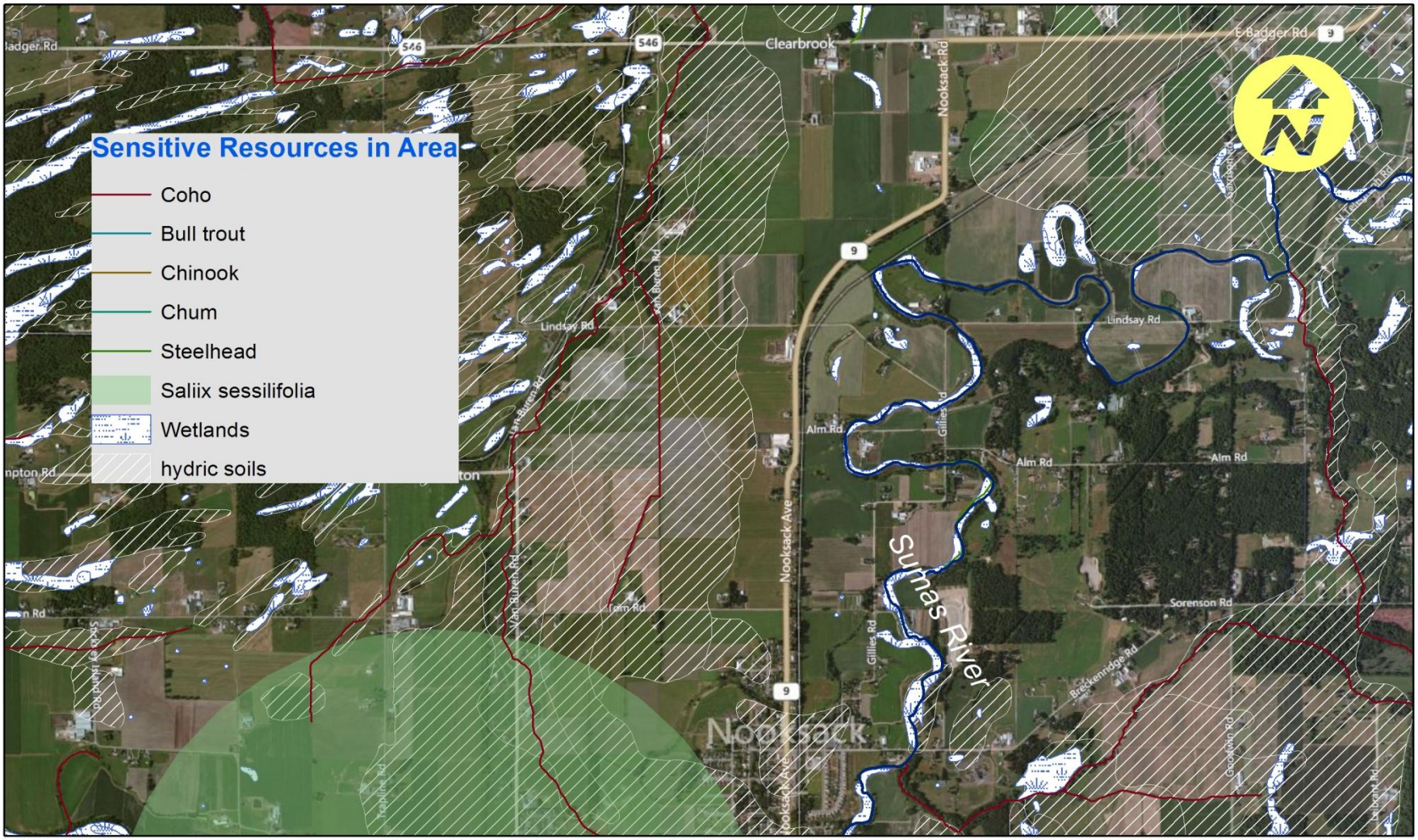
Inspectors

InspectorID	Agency	FieldOffice	FName	LName	WorkPhone	EMail
1	EPA	Seattle	John	Marshall	206-553-8633	Marshall.JojnL@epa.gov
2	EPA	Seattle	Krista	Rave-Perkins	206-553-6686	Rave-Perkins.Krista@epa.gov
3	EPA	Seattle	Linda	Storm	206-553-6384	Storm.Linda@epa.gov
4	EPA	Boise	Carla	Fromm	208-378-5755	Fromm.Carla@epa.gov
5	EPA	Portland	Yvonne	Vallette	503-326-2716	Vallette.Yvonne@epa.gov
6	EPA	Portland	Tracie	Nadeau	503-326-3685	Nadeau.Tracie@epa.gov
7	EPA	Boise	Tracy	DeGering	208-378-5756	DeGering.Tracy@epa.gov
8	WDOE	NW Regional	Paul	Anderson	425-649-7148	paan461@ecy.wa.gov
9	WDOE	NW Regional	Susan	Meyer	425-649-7168	susan.meyer@ecy.wa.gov
10	WDOE	Bellingham	Chris	Luerkens	360-715-5220	clue461@ecy.wa.gov

Focal Species And Habitats

FocalSpeciesID	Species
1	Steelhead
2	Sockeye Salmon
3	Pink Salmon
4	Coho Salmon
5	Chum Salmon
6	Chinook Salmon
7	Bull Trout
8	Eelgrass
9	Rare Plants
10	Oak Grasslands
11	Shellfish
12	Kelp
13	Orca Critical Habitat
14	Green Sturgeon Critical Habitat
15	Chum Critical Habitat (river)
16	Chum Critical Habitat (marine)
17	Chinook Critical Habitat (river)
18	Chinook Critical Habitat (marine)
19	Bull trout Critical Habitat
20	Wetlands

SEE - Puget Sound Possible Inspection Priority in Sumas River Area

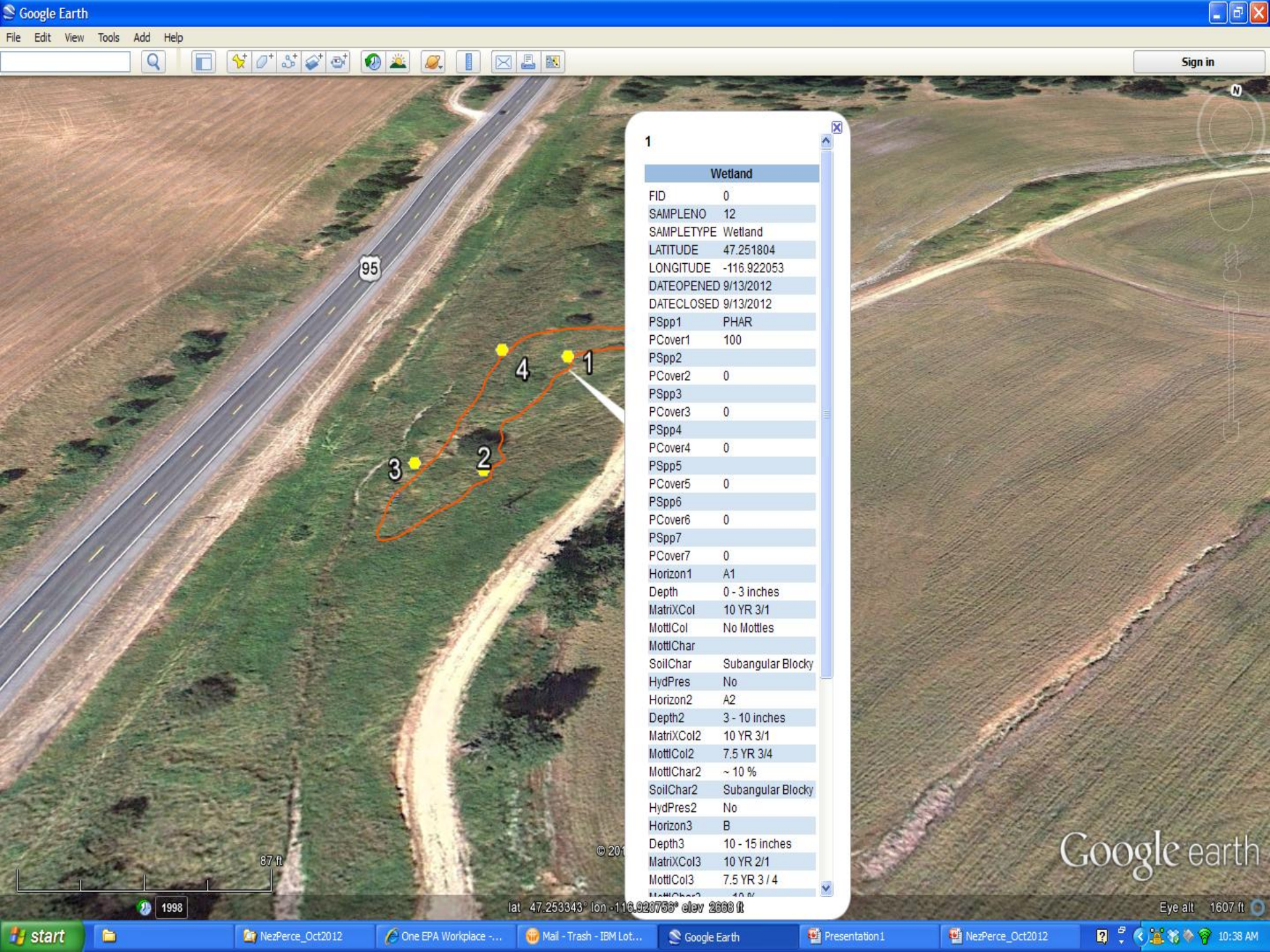


Map and geoprocessed model compiled by John Marshall

March 1, 2013

Data Sources: See Listed.

The priority classification used is preliminary and not peer reviewed at this time.


Google Earth
File Edit View Tools Add Help
Sign in
95
4
1
3
2
1
Wetland
FID 0
SAMPLENO 12
SAMPLETYPE Wetland
LATITUDE 47.251804
LONGITUDE -116.922053
DATEOPENED 9/13/2012
DATECLOSED 9/13/2012
PSpp1 PHAR
PCover1 100
PSpp2
PCover2 0
PSpp3
PCover3 0
PSpp4
PCover4 0
PSpp5
PCover5 0
PSpp6
PCover6 0
PSpp7
PCover7 0
Horizon1 A1
Depth 0 - 3 inches
MatriXCol 10 YR 3/1
MottlCol No Mottles
MottlChar
SoilChar Subangular Blocky
HydPres No
Horizon2 A2
Depth2 3 - 10 inches
MatriXCol2 10 YR 3/1
MottlCol2 7.5 YR 3/4
MottlChar2 ~ 10 %
SoilChar2 Subangular Blocky
HydPres2 No
Horizon3 B
Depth3 10 - 15 inches
MatriXCol3 10 YR 2/1
MottlCol3 7.5 YR 3 / 4
87 ft
1998
lat 47.253343° lon -116.920756° elev 2668 ft
Eye alt 1607 ft
Google earth
start
NezPerce_Oct2012
One EPA Workplace -...
Mail - Trash - IBM Lot...
Google Earth
Presentation1
NezPerce_Oct2012
10:38 AM

Wetland Vegetation
Hydric
Soil
09/13/2012 13:17

Summary

- The model is useful at identifying general areas of highly sensitive (mostly aquatic) resources at a small scale (e.g., about 1:500,000 or smaller) which translates to large areas.
- The statistical spatial autocorrelation screen indicates large regions where high value pixels (informed by the sensitive resource data layers used) are clustering in a pattern that has very little chance of being random. This does not mean in any absolute sense that a given spot inside the statistical screen is of high resource value or that a given spot outside the statistical screen is of low resource value.
- Therefore, the model should not be used to characterize the resource value of a specific site location. The data informing the model were mapped at too coarse a scale (large area) to be reliable indicators of resource presence or absence at the site level.
- The model can be used to help prioritize incoming violation complaints for inspections of suspected violations or to help prioritize "search areas" to look for possible new undetected violations.
- Statistical screens can be augmented (e.g., HUCs, county lines, etc.).

Data Sources

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Data Sources (cont.)

US Geological Survey 1999. Rivers, National Hydrography Dataset High Resolution: Reston, Virginia, U.S.

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