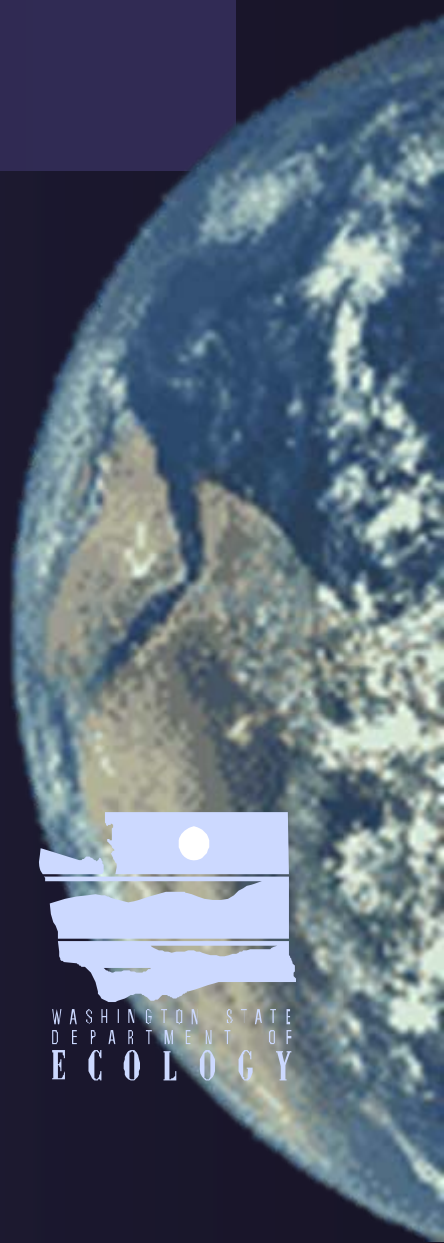
Washington Coastal Atlas and other information sources

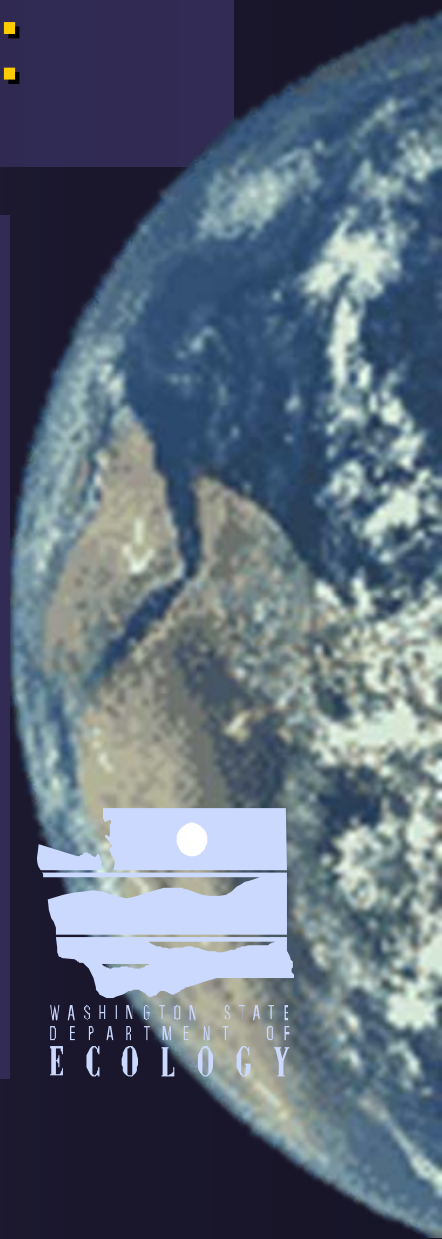
Kathy Taylor, Ph.D.
Coastal/Shorelands Section
Shorelands Program
Department of Ecology



WASHINGTON STATE DEPARTMENT OF ECOLOGY

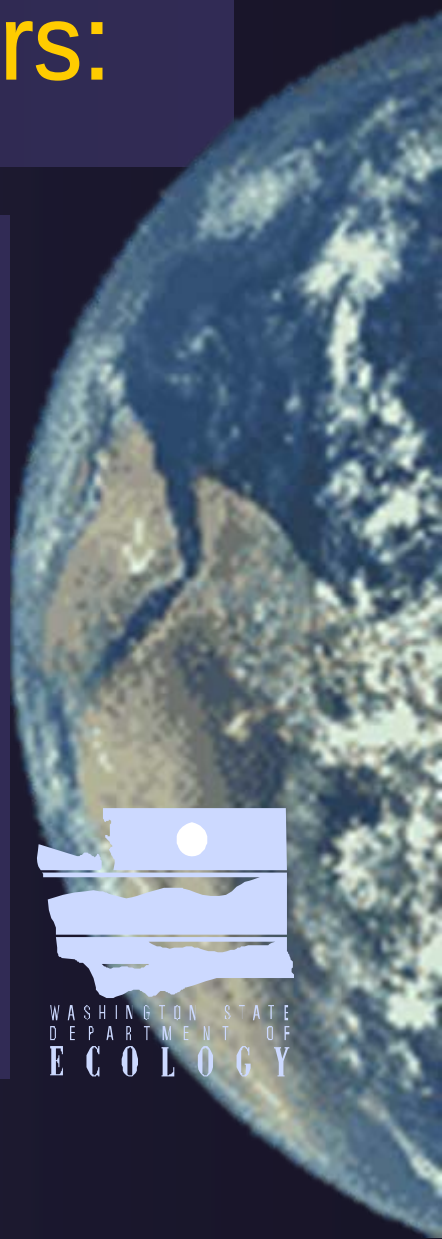
WA Coastal Atlas Contributors:

- Ecology
- DNR
- Puget Sound Action Team



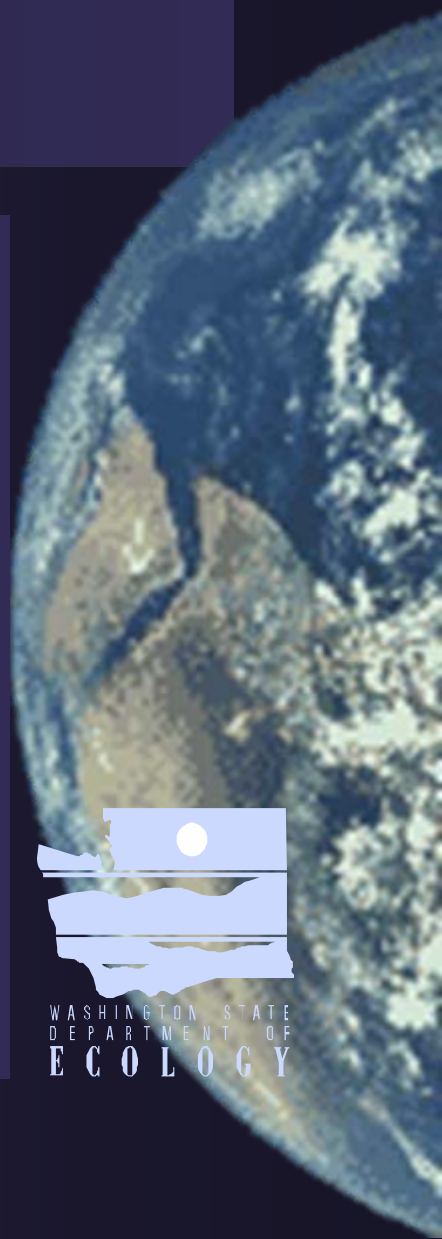
Potential Additional Cooperators:

- Puget Sound Partnership
- RCO
- DOH
- WDFW
- DOT
- CTED
- Parks
- NWIFC
- OFM



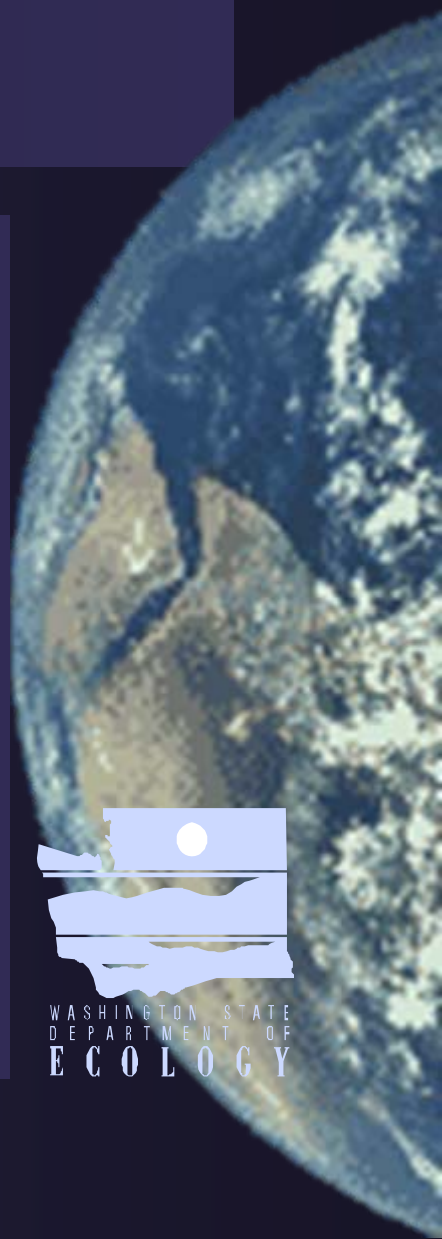
Purpose of WA Coastal Atlas

- To make relevant information easily available for use in coastal and shoreline resource planning and management.



Location

- Washington Department of Ecology Web Site
- http://www.ecy.wa.gov/programs/sea/sma/atlas_home.html



Shorelands and Environmental Assistance Program Home - WA Dept. of Ecology - Microsoft Internet Explorer

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Address http://www.ecy.wa.gov/programs/sea/shorelan.html

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Air Land Water Toxics Waste

BY PROGRAM

- Air Quality
- Environmental Assessment
- Hazardous Waste & Toxics Reduction
- Nuclear Waste
- **Shorelands**
  - Environmental Programs
  - Regulatory Assistance
  - Education & Training
  - Grants
  - Publications
- Solid Waste
- Spills
- Toxics Cleanup
- Water Quality
- Water Resources

FIND INFO ABOUT

- Core Services
- Laws & Rules
- Publications & Forms
- Public Records
- Searchable Databases
- Contract Opportunities

Shorelands & Environmental Assistance

Healthy shorelands and watersheds provide viable habitat for fish, plants and animals, and support economic growth in communities.

The Shorelands and Environmental Assistance Program helps communities manage shorelands and wetlands. Our primary focus is on state and local responsibilities for administering Washington state and federally-delegated laws.

ENVIRONMENTAL PROGRAMS

Coastal Zone Management | Floodplain Management | Wetlands | Ocean Resources | Padilla Bay Reserve | Shoreline Management (SMA) | SW Washington Coastal Erosion Study | Watershed Planning | Washington Conservation Corps (WCC) | More

REGULATORY ASSISTANCE

Environmental Permitting Services | Federal Permitting | Joint Aquatic Resource Permits Application (JARPA) | State Environmental Policy Act (SEPA) | Transportation Liaison Team | Wetlands

EDUCATION & TRAINING

Coastal Training Program | Property Owner Guides | Teacher Resources

GRANTS

Coastal Zone Management (CZM) | Watershed Planning | Flood Control Assistance Account (FCAAP) | Shoreline Master Program (SMP)

UPDATES

Shellfish Committee Information | Wetland Mitigation Stakeholder Forum Information | NW Pipeline Capacity Replacement Project | Wetland Mitigation Banking | Sea-Tac Third Runway | More

ENVIRONMENTAL PERMITTING SERVICES

Permitting assistance for citizens, businesses, and project applicants.

Washington Coastal Atlas

Updated Version! Interactive mapping for Washington's coast

Shoreline Aerial Photos

Images of Washington's marine shorelines

Washington Coastal Atlas Homepage - Microsoft Internet Explorer

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Ecology home > SEA Program home > Shoreline Aerial Photos > Washington Coastal Atlas

Washington Coastal Atlas

Use the Coastal Atlas to learn about Washington's marine shorelines and the land areas near Puget Sound, the outer coast, and the estuarine portion of the Columbia River. You can view aerial photographs of marine shorelines, locate different habitat types, physical features, see changes in land cover, and much more.

Click to Start Mapping!

Tips for using this site

Access Washington® Official State Government Web Site

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Information for Ecology staff

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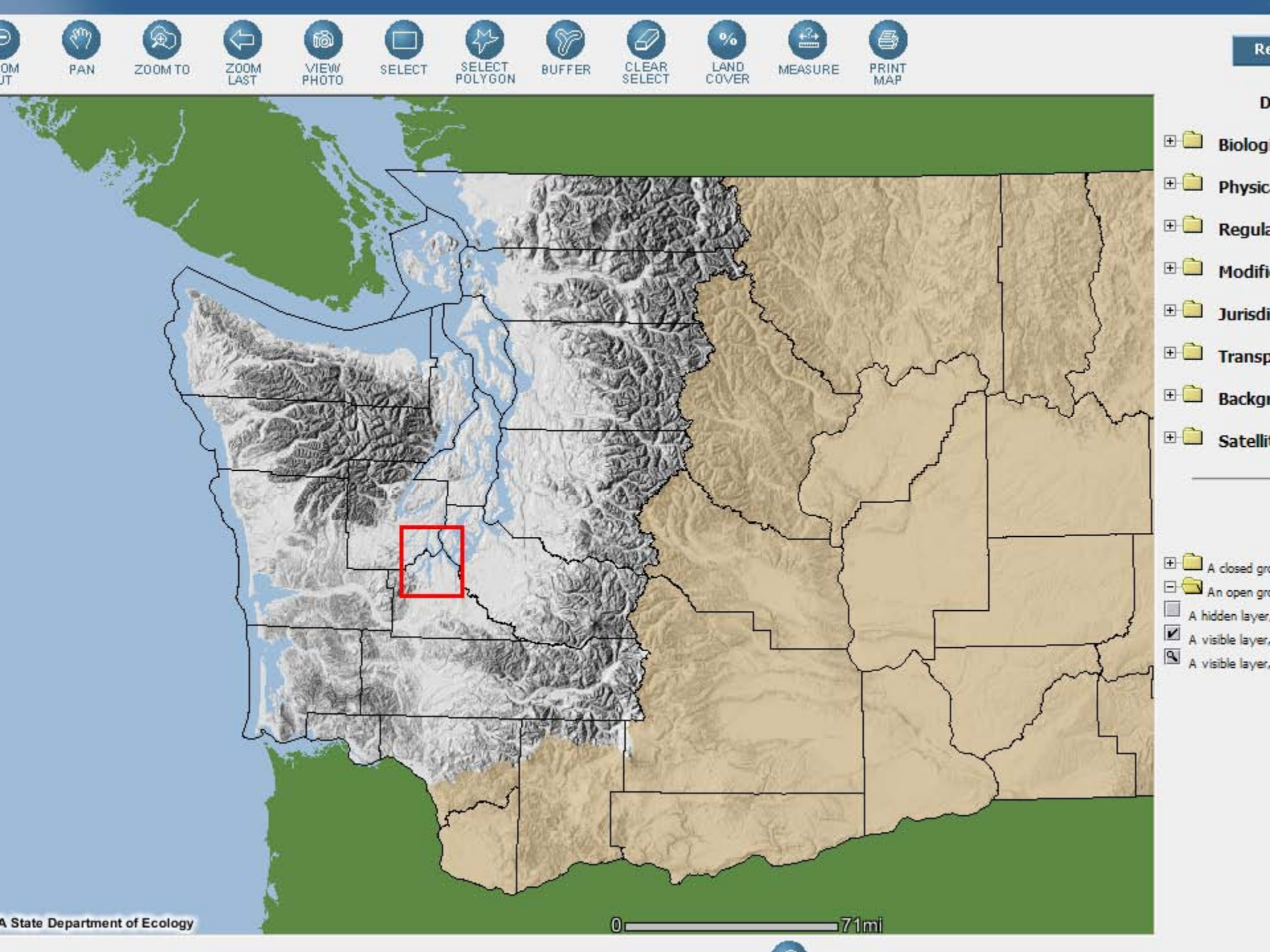
Start Inbox - Microsoft Outlook E:\ Coastal Atlas presentati... Washington Coastal A... 3:29 PM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ZOOM TO
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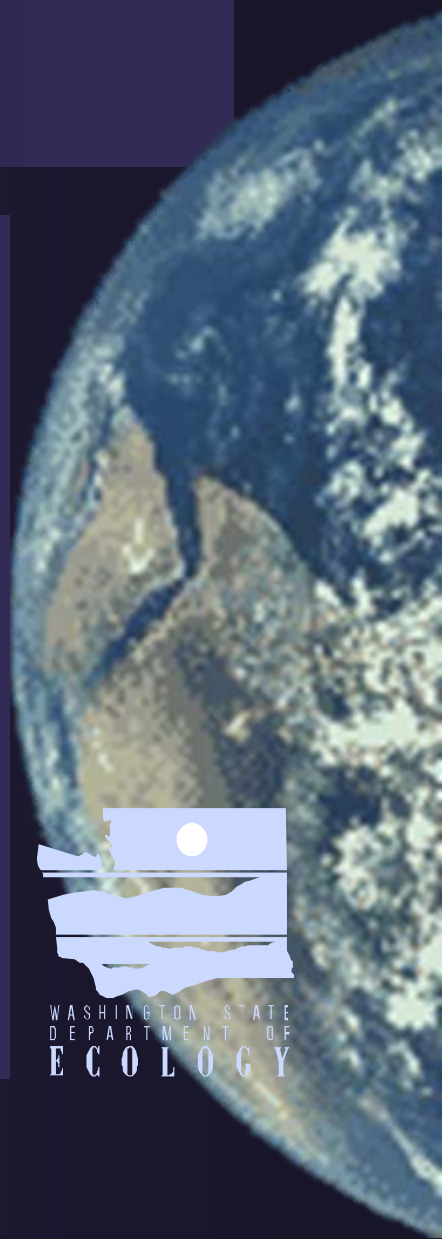
Background Layers

- Hillshade
- Aerial Imagery
- Nautical Chart
- USGS Topo Map



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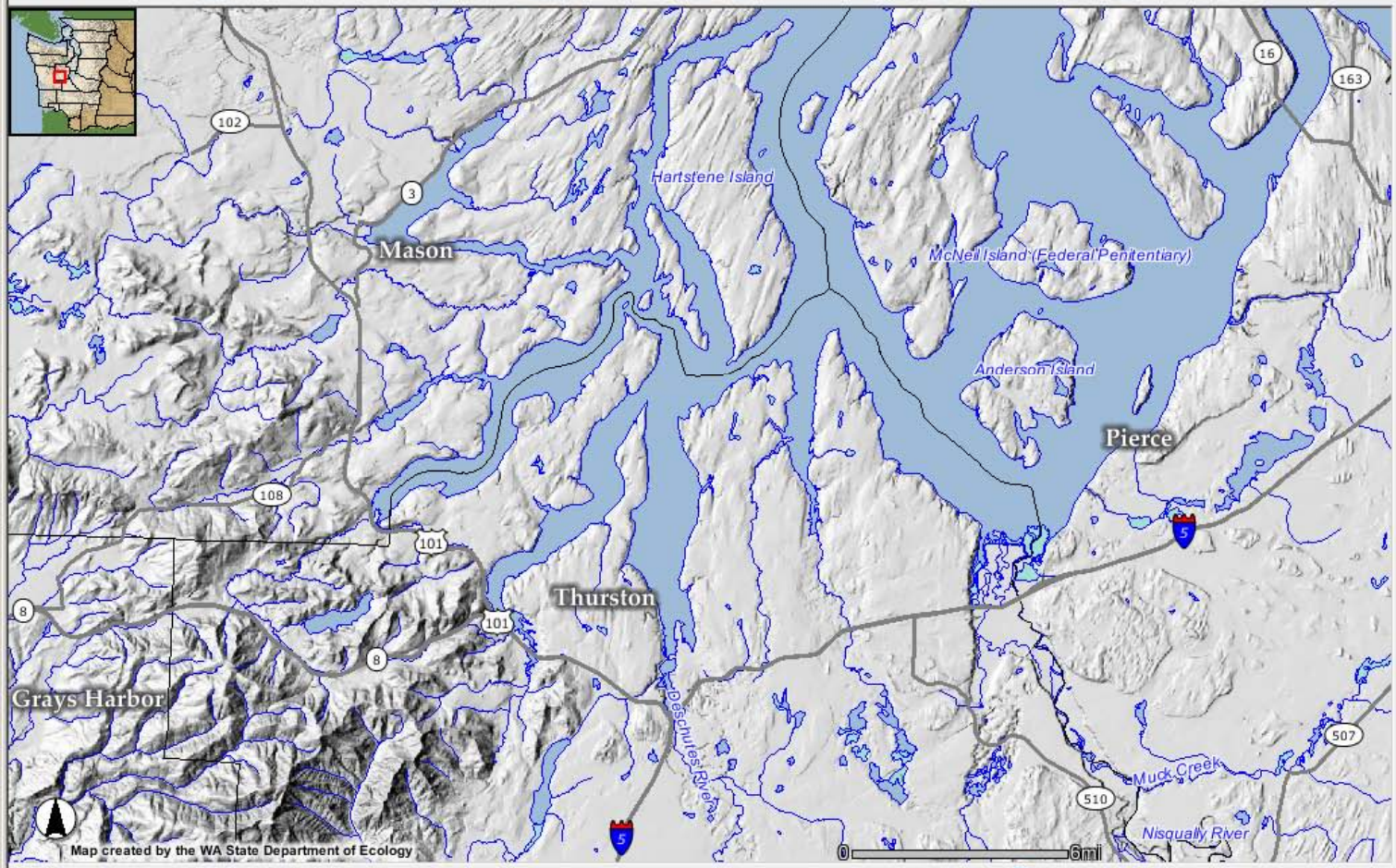
Coastal Atlas

FULL STATE | ZOOM IN | ZOOM OUT | PAN | ZOOM TO | ZOOM LAST | VIEW PHOTO | SELECT | SELECT POLYGON | BUFFER | CLEAR SELECT | LAND COVER | MEASURE | PRINT MAP



Refresh Map

Data Layers

- Biological/Habitat Features
- Physical Features
- Regulated Features
- Modifications
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
- Satellite Imagery

Help:

- A closed group, click to open.
- An open group, click to close.
- A hidden layer, click to make visible.
- A visible layer, click to hide.
- A visible layer, but not at this scale.

Introduction

1. Choose Data Layers to display from right hand menu and then click Refresh Map. If layer is not visible, ZOOM IN until features are displayed.

2. Click on tools such as SELECT, LAND COVER or VIEW PHOTO for further instructions and information in this window.

Cursor location is approximately Longitude: -122.49 N, Latitude: 47.09 W

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- Modifications
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Pan Tool

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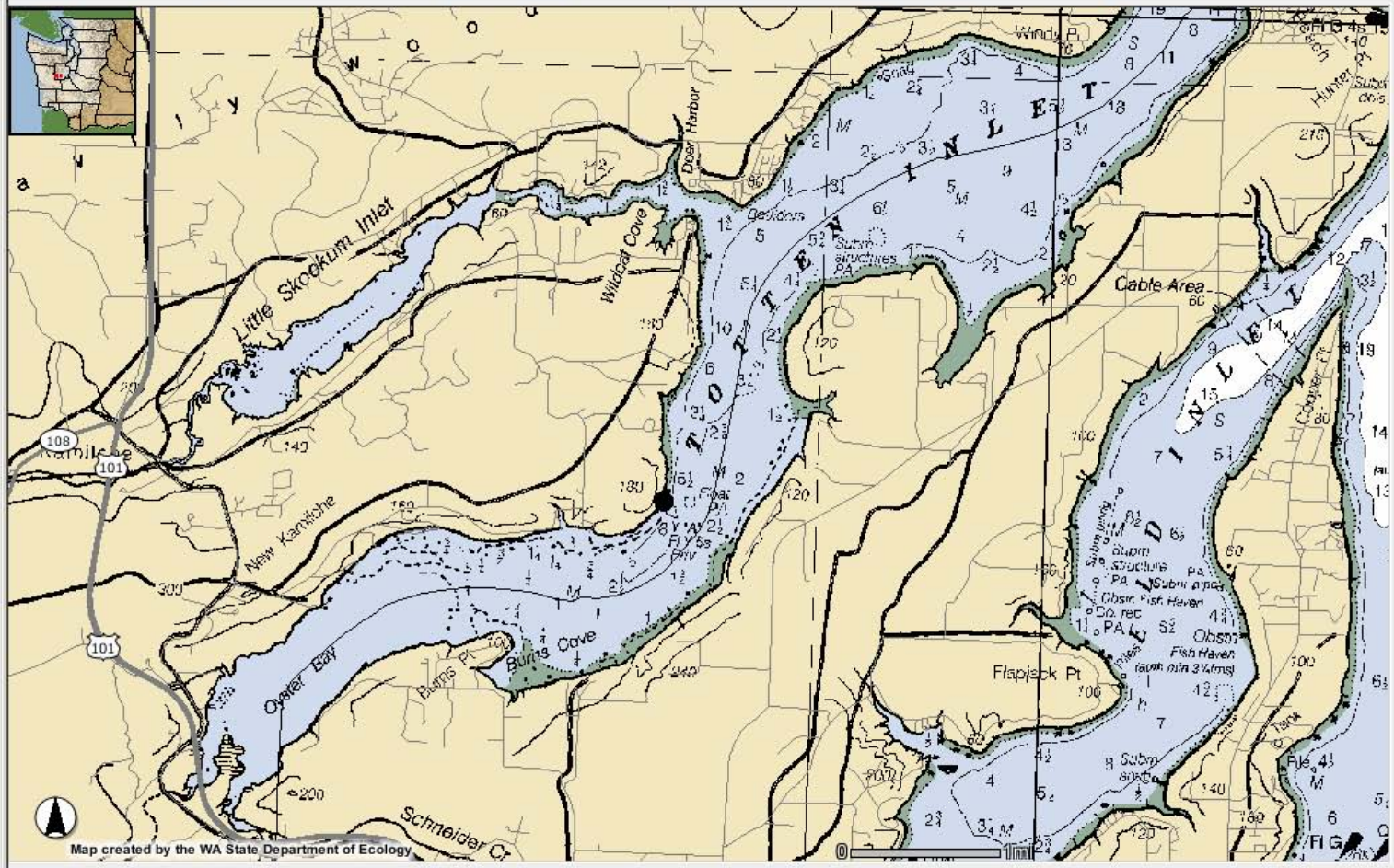

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FULL STATE | ZOOM IN | ZOOM OUT | PAN | ZOOM TO | ZOOM LAST | VIEW PHOTO | SELECT | SELECT POLYGON | BUFFER | CLEAR SELECT | LAND COVER | MEASURE | PRINT MAP

Refresh Map

Data Layers

- Biological/Habitat Feature
- Physical Features
- Regulated Features
- Modifications
- Jurisdictional Delineations
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- Background Imagery
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  - Hillshade
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Zoom In Tool

Allows the user to zoom in by either **1)** Clicking on a Single Point on the map or **2)** Drawing a Rectangle on the map.

When *clicking on a point* the map will be zoomed in to an extent determined by the current Zoom Factor: 200 percent.

Cursor location is approximately Longitude: -122.97 N, Latitude: 47.12 W

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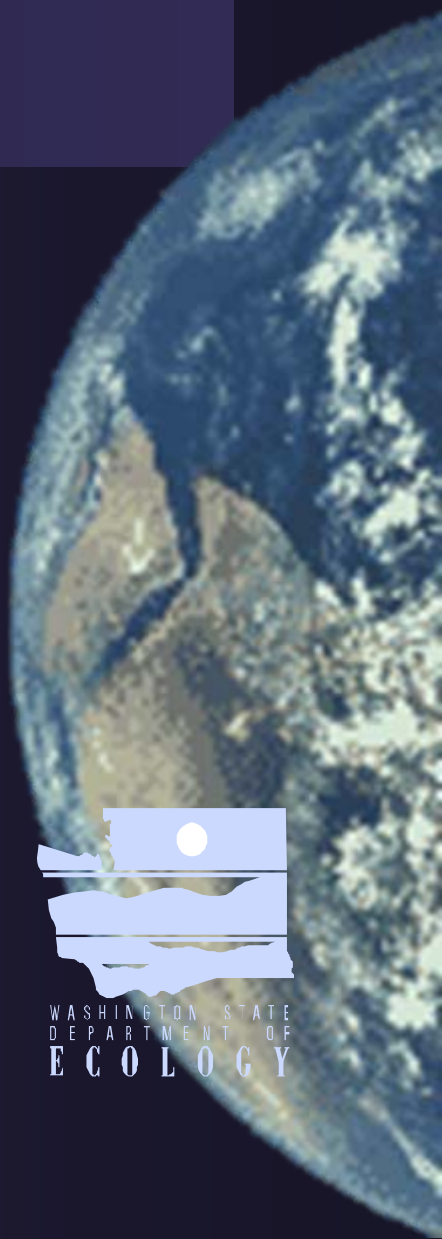
Example Data Layers

- Biological Features
- Physical Features
- Modifications to the Environment



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Refresh Map

Data Layers

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Refresh Map

Data Layers

- Biological/Habitat Features
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Refresh Map

Data Layers

- Biological/Habitat Features
- Physical Features
- Regulated Features
- Modifications
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
  - Nautical Chart
  - USGS Topo Maps
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  - Hillshade
- Satellite Imagery

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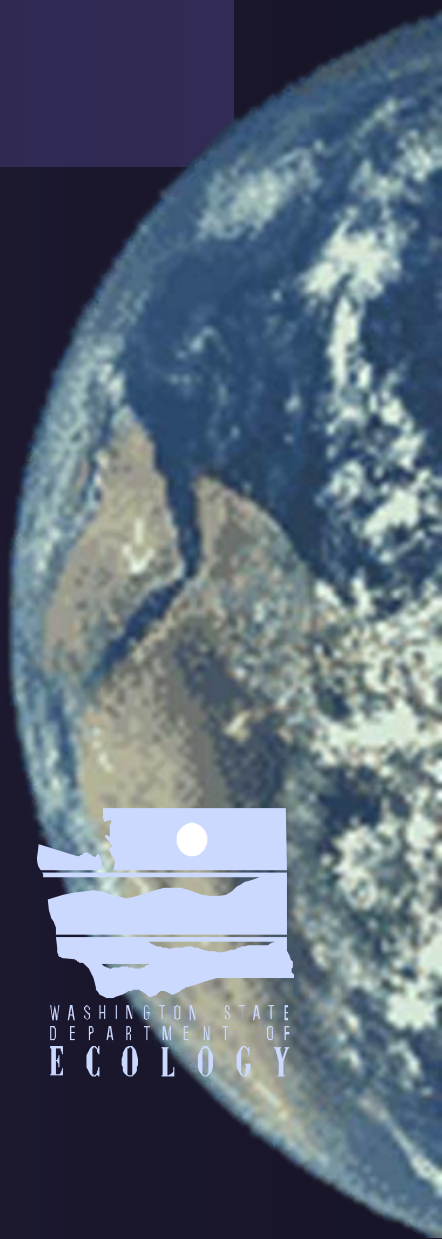
Internet

Example Data Layers

- **Biological Features**
- Physical Features
- Modifications to the Environment



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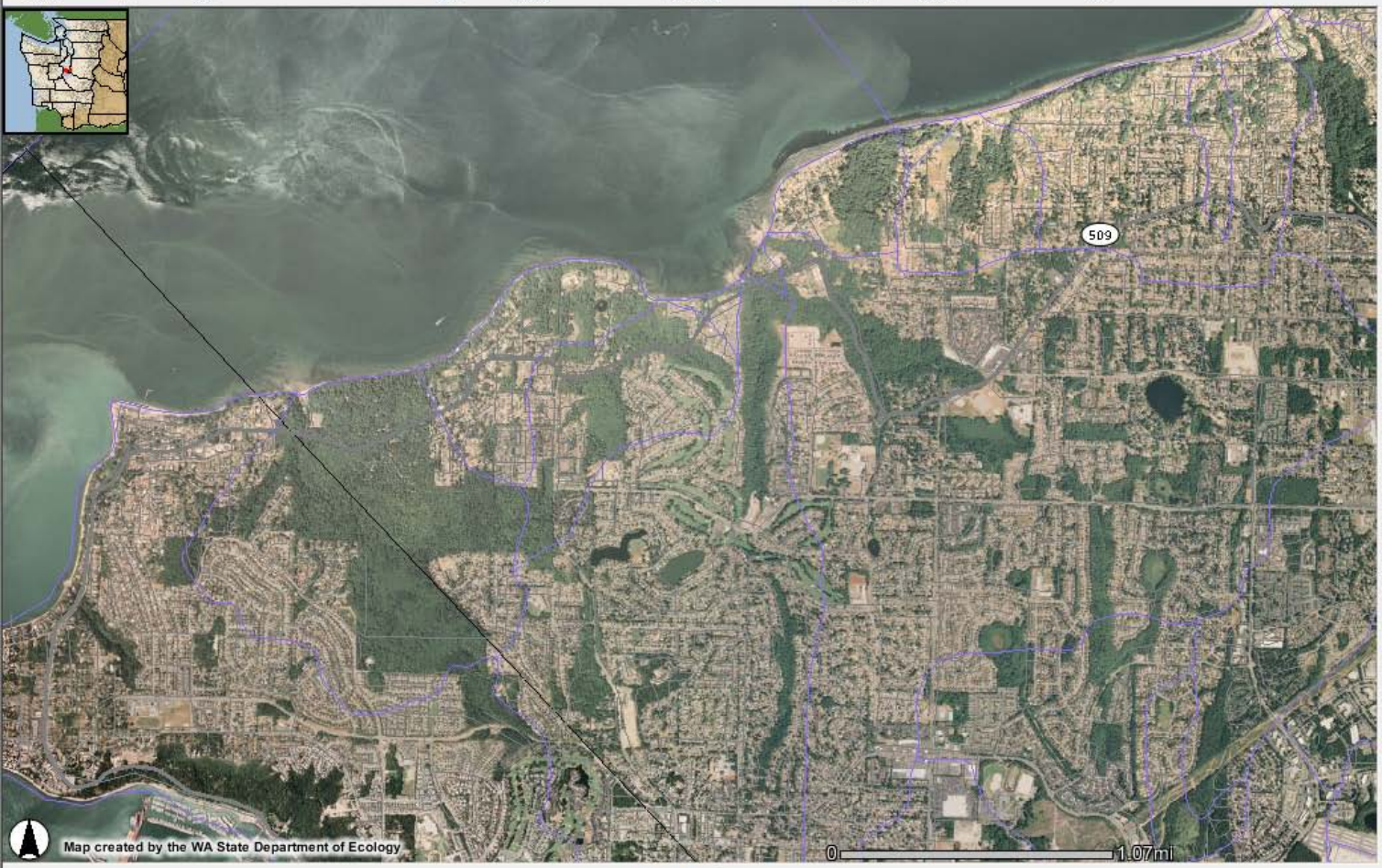

Refresh Map

Data Layers

- Biological/Habitat Features
  - Wetlands
    - Aquatic Bed
    - Emergent
    - Forested
    - Shrub/Scrub
    - Tidal Aquatic Bed
    - Tidal Emergent
    - Tidal Forested
    - Tidal Shrub/Scrub
  - Historic Estuary Maps
  - Pocket Estuaries
  - Dunegrass
    - Continuous
    - Patchy
  - Surfgrass
    - Continuous
    - Patchy
  - Kelp
    - Continuous
    - Patchy
  - Eelgrass Fringe
    - Continuous
    - Patchy
  - Eelgrass Beds
  - Salt Marsh Fringe
    - Continuous
    - Patchy
  - Salt Marsh
    - Continuous
    - Patchy
  - Low Marsh Fringe
    - Continuous
    - Patchy
  - Low Marsh
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    - Patchy
- Physical Features
- Regulated Features

Pan Tool

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Refresh Map

Data Layers

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    - Shrub/Scrub
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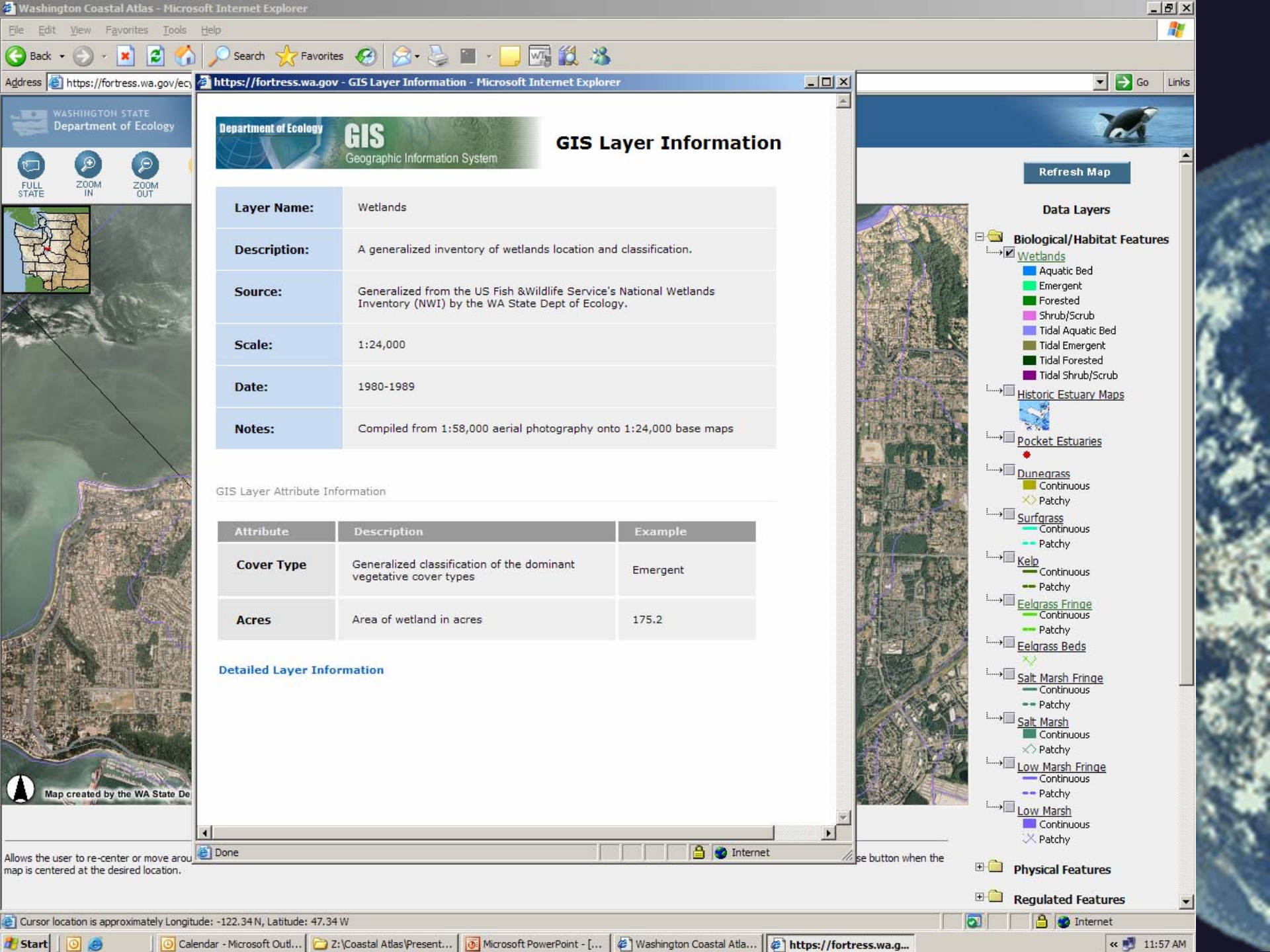
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https://fortress.wa.gov - GIS Layer Information - Microsoft Internet Explorer
Department of Ecology
GIS
Geographic Information System
GIS Layer Information
Layer Name: Wetlands
Description: A generalized inventory of wetlands location and classification.
Source: Generalized from the US Fish &Wildlife Service's National Wetlands Inventory (NWI) by the WA State Dept of Ecology.
Scale: 1:24,000
Date: 1980-1989
Notes: Compiled from 1:58,000 aerial photography onto 1:24,000 base maps
GIS Layer Attribute Information
Attribute
Description
Example
Cover Type
Generalized classification of the dominant vegetative cover types
Emergent
Acres
Area of wetland in acres
175.2
Detailed Layer Information
Refresh Map
Data Layers
Biological/Habitat Features
Wetlands
Aquatic Bed
Emergent
Forested
Shrub/Scrub
Tidal Aquatic Bed
Tidal Emergent
Tidal Forested
Tidal Shrub/Scrub
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Salt Marsh Fringe
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Low Marsh Fringe
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Low Marsh
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Patchy
Physical Features
Regulated Features
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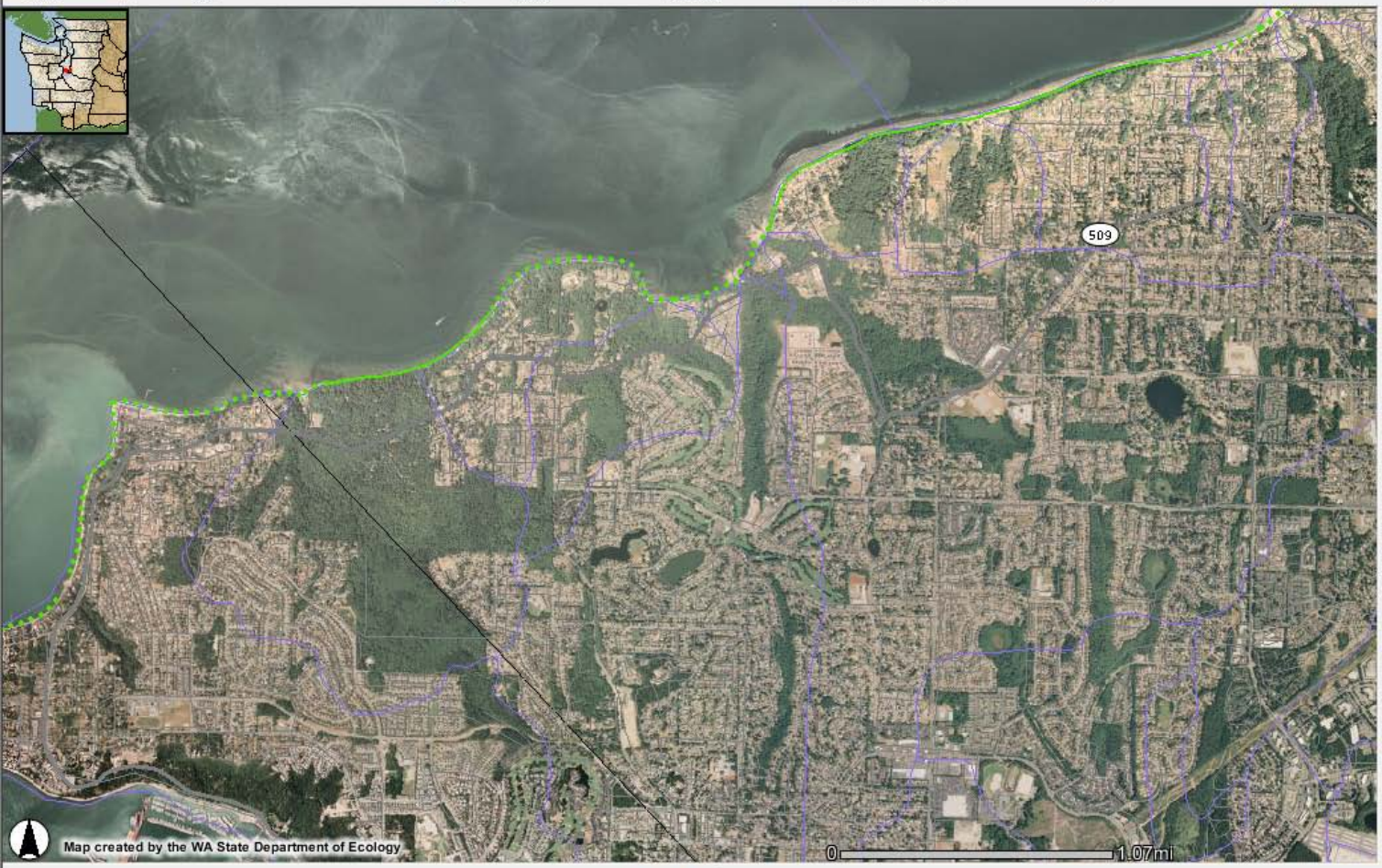

Refresh Map

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- Biological/Habitat Features
  - Wetlands
    - Aquatic Bed
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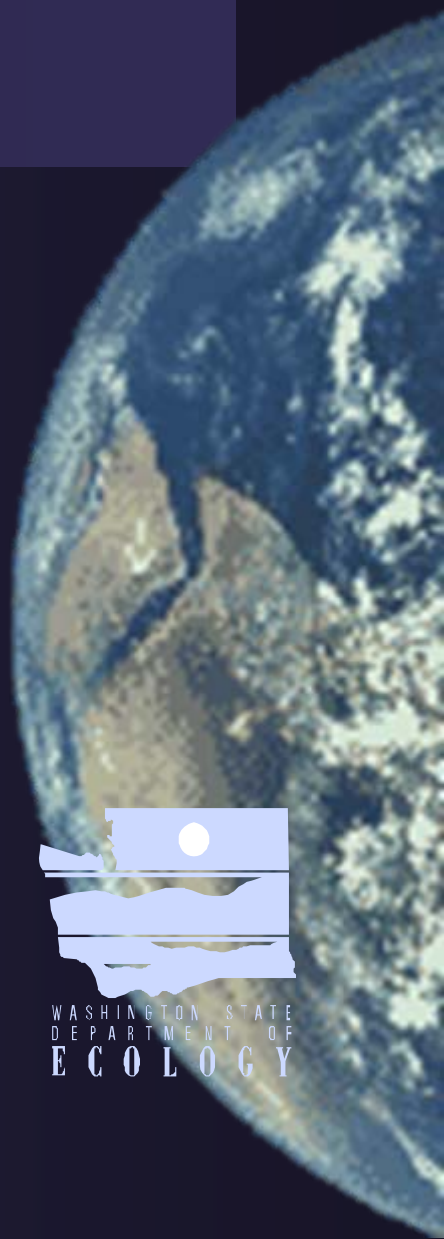
Internet

Example Data Layers

- Biological Features
- **Physical Features**
- Modifications to the Environment



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Refresh Map

Data Layers

- Biological/Habitat Features
- Physical Features
  - Drift Cells
    - Left to Right
    - Right to Left
    - Divergence Zone
    - NAD
    - Undefined
  - Slope Stability
    - Stable
    - Intermediate
    - Unstable
    - Unstable Recent Landslide
    - Unstable Old Landslide
    - Modified
  - Water Bodies (100K)
    - Reservoir
    - Glacier
    - Marsh
    - Water
  - Water Courses (100K)
- Regulated Features
- Modifications
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
- Satellite Imagery

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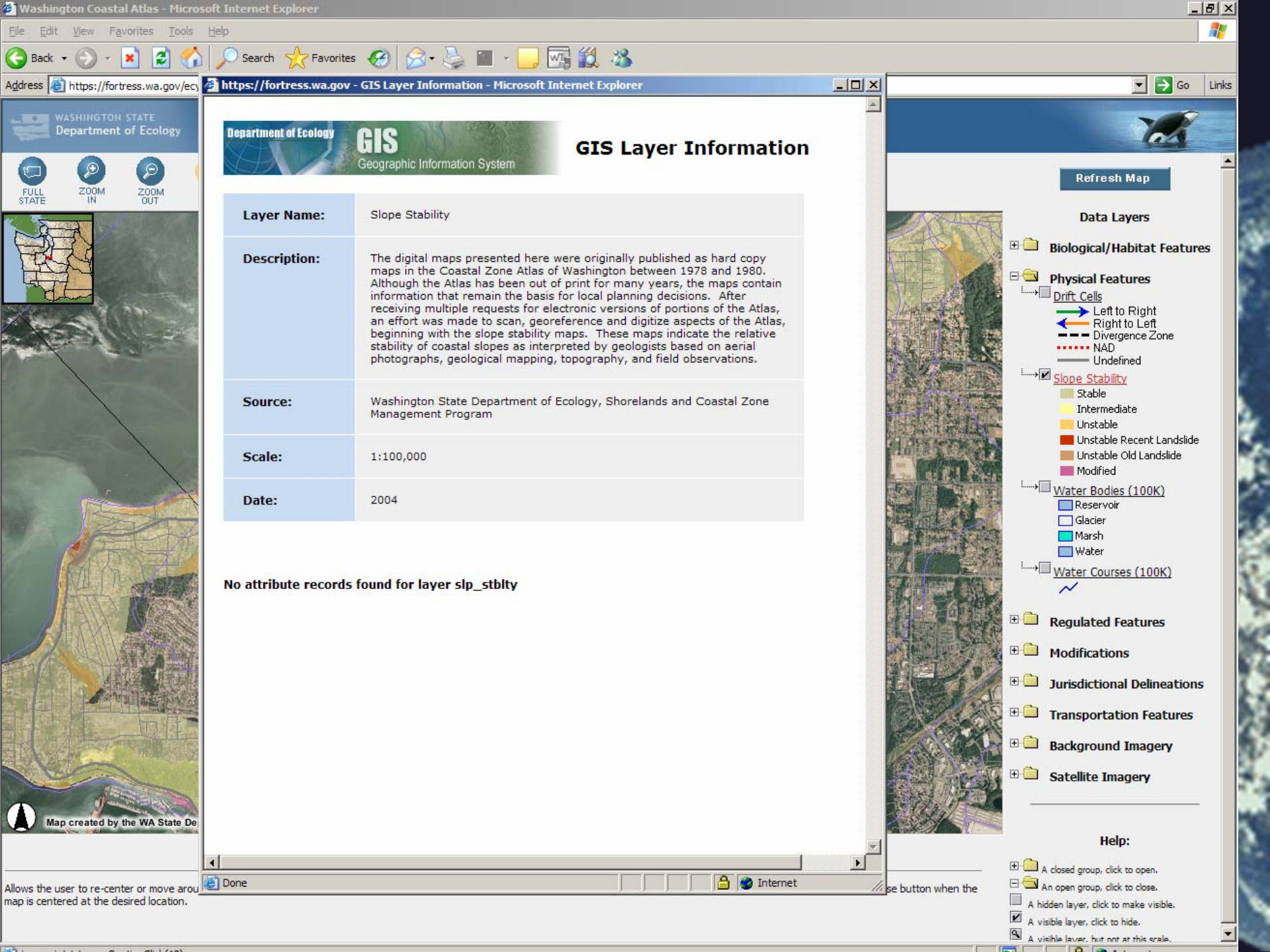
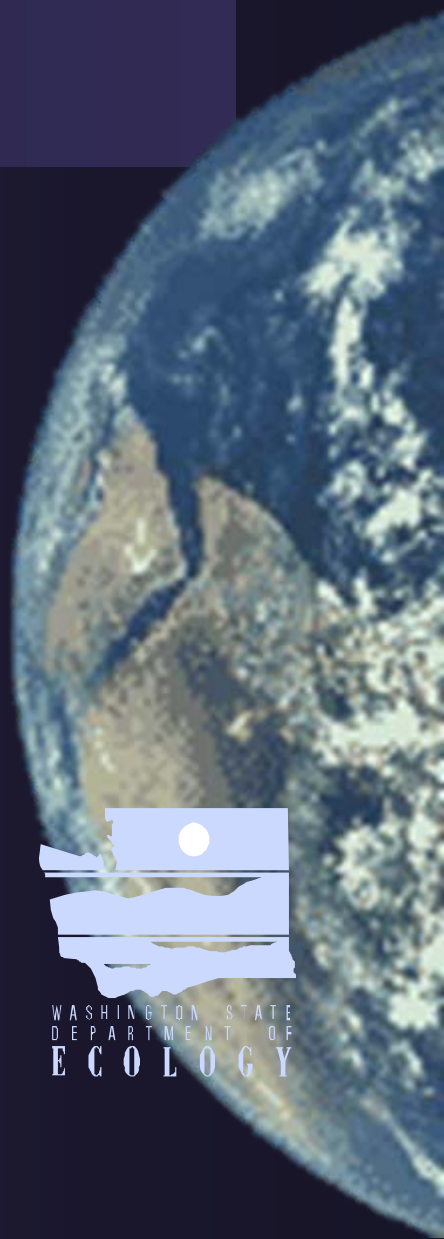
Cursor location is approximately Longitude: -122.33 N, Latitude: 47.34 W

Internet


Washington Coastal Atlas - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address https://fortress.wa.gov/ecy
https://fortress.wa.gov - GIS Layer Information - Microsoft Internet Explorer
Go Links
WASHINGTON STATE Department of Ecology
FULL STATE
ZOOM IN
ZOOM OUT
Department of Ecology GIS Geographic Information System
GIS Layer Information
Layer Name: Slope Stability
Description: The digital maps presented here were originally published as hard copy maps in the Coastal Zone Atlas of Washington between 1978 and 1980. Although the Atlas has been out of print for many years, the maps contain information that remain the basis for local planning decisions. After receiving multiple requests for electronic versions of portions of the Atlas, an effort was made to scan, georeference and digitize aspects of the Atlas, beginning with the slope stability maps. These maps indicate the relative stability of coastal slopes as interpreted by geologists based on aerial photographs, geological mapping, topography, and field observations.
Source: Washington State Department of Ecology, Shorelands and Coastal Zone Management Program
Scale: 1:100,000
Date: 2004
No attribute records found for layer slp_stblty
Refresh Map
Data Layers
Biological/Habitat Features
Physical Features
Drift Cells
Left to Right
Right to Left
Divergence Zone
NAD
Undefined
Slope Stability
Stable
Intermediate
Unstable
Unstable Recent Landslide
Unstable Old Landslide
Modified
Water Bodies (100K)
Reservoir
Glacier
Marsh
Water
Water Courses (100K)
Regulated Features
Modifications
Jurisdictional Delineations
Transportation Features
Background Imagery
Satellite Imagery
Help:
A closed group, click to open.
An open group, click to close.
A hidden layer, click to make visible.
A visible layer, click to hide.
Map created by the WA State De
Done
Internet
Allows the user to re-center or move arou
map is centered at the desired location.
se button when the

Information Available

- Biological Features
- Physical Features
- **Modifications to the Environment**



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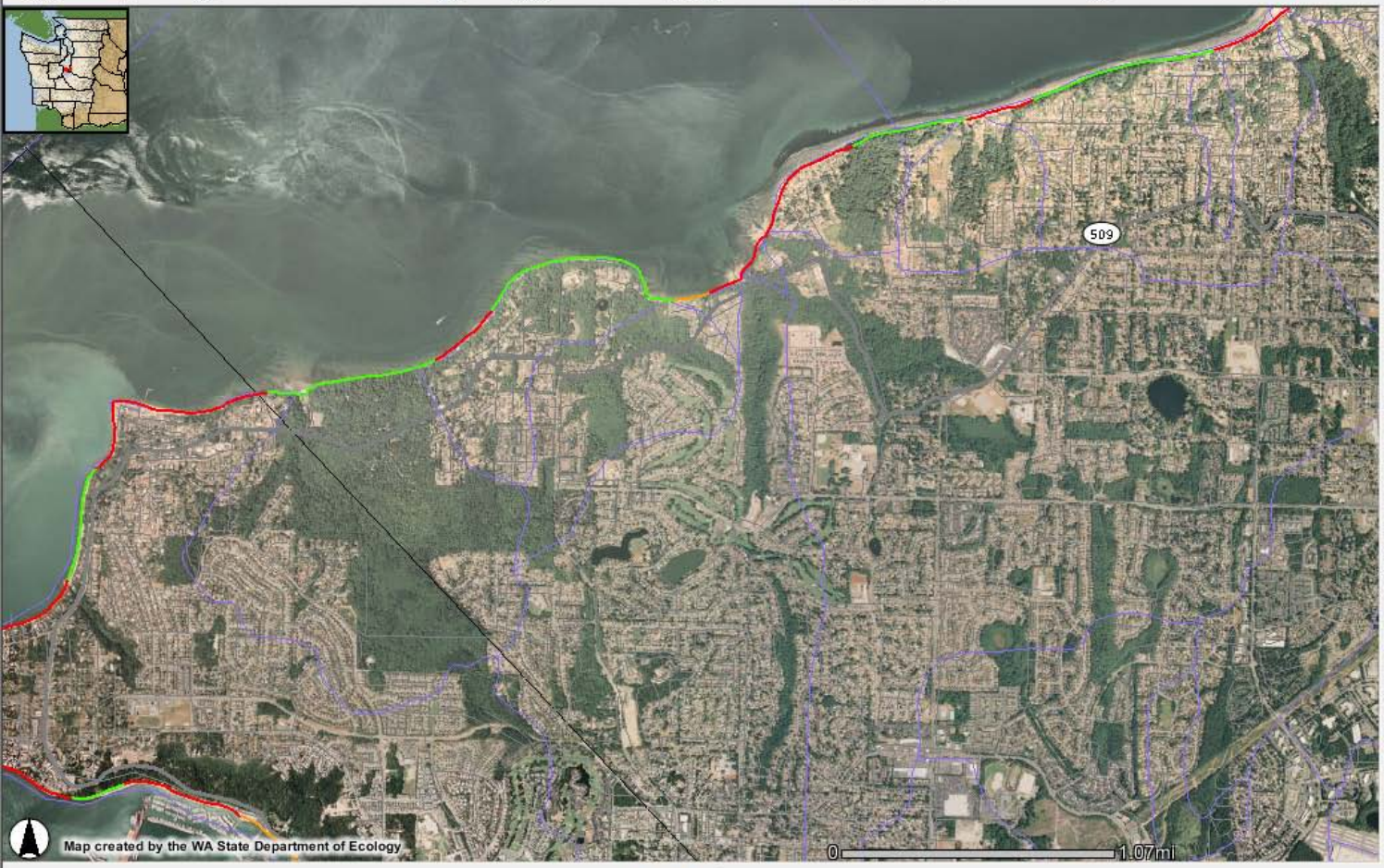
WASHINGTON STATE Department of Ecology

Coastal Atlas

FULL STATE | ZOOM IN | ZOOM OUT | PAN | ZOOM TO | ZOOM LAST | VIEW PHOTO | SELECT | SELECT POLYGON | BUFFER | CLEAR SELECT | LAND COVER | MEASURE | PRINT MAP



Refresh Map

Data Layers

- Biological/Habitat Features
- Physical Features
- Regulated Features
- Modifications
  - Piers and Docks (#)
    - 0 - 6
    - 5 - 35
    - 34 - 122
  - Shore Modification (%)
    - 0 - 21
    - 20 - 71
    - 70 - 100
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
- Satellite Imagery

Help:

- A closed group, click to open.
- An open group, click to close.
- A hidden layer, click to make visible.
- A visible layer, click to hide.
- A visible layer, but not at this scale.

Pan Tool

Allows the user to re-center or move around the map by **1)** Clicking on the Map and, while holding down the left mouse button, **2)** Dragging the Map View across the screen. Release the mouse button when the map is centered at the desired location.

Cursor location is approximately Longitude: -122.34 N, Latitude: 47.34 W

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https://fortress.wa.gov - GIS Layer Information - Microsoft Internet Explorer

Go Links

WASHINGTON STATE Department of Ecology

FULL STATE ZOOM IN ZOOM OUT

Department of Ecology GIS Geographic Information System

GIS Layer Information

Layer Name:	Shore Modification
Description:	An inventory of Washington State's saltwater shorelines using the ShoreZone Mapping System. Physical and biological resources are described, along with information on the inventory data collection. The majority of the spatial data is line data, with some polygons and points. The inventory divides the shoreline into homogenous physical segments, the average linear segment length is 0.5 miles. Each spatial unit record has many corresponding tabular across-shore component records that describe the unit in more detail.
Source:	Washington State Department Natural Resources, Business Systems Support Division
Scale:	1:24,000
Date:	1994-2000

No attribute records found for layer shore_mod

Detailed Layer Information

Refresh Map

Data Layers

- Biological/Habitat Features
- Physical Features
- Regulated Features
- Modifications
  - Piers and Docks (#)
    - 0 - 6
    - 5 - 35
    - 34 - 122
  - Shore Modification (%)
    - 0 - 21
    - 20 - 71
    - 70 - 100
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
- Satellite Imagery

Help:

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- An open group, click to close.
- A hidden layer, click to make visible.
- A visible layer, click to hide.
- A visible layer, but not at this scale.

Allows the user to re-center or move arou map is centered at the desired location.

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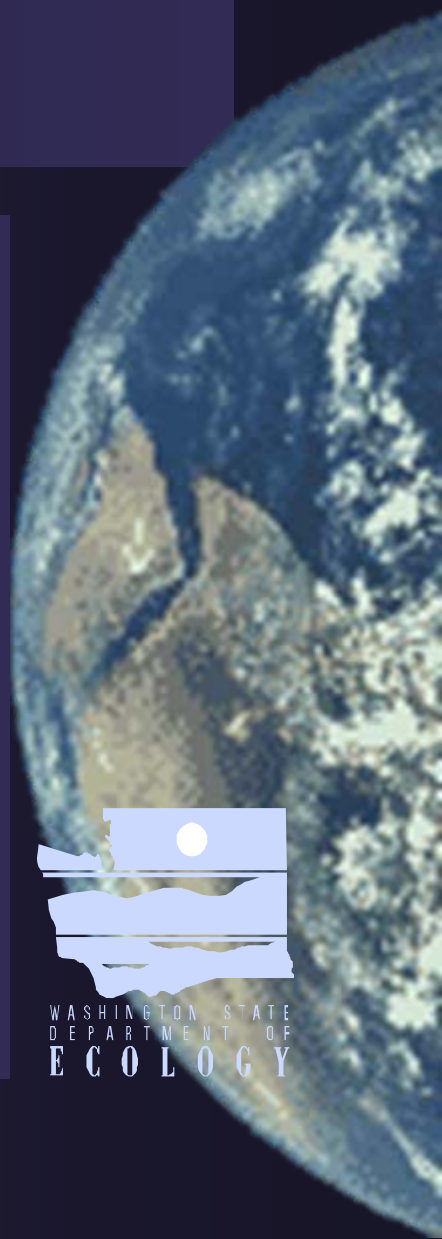
Done Internet

Cursor location is approximately Longitude: -122.33 N, Latitude: 47.34 W

Internet

Land Cover Information

- NOAA Coastal Change Analysis Program Data
- Change in Forest Cover
- Change in Impervious Surface Cover



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Coastal Atlas

FULL STATE | ZOOM IN | ZOOM OUT | PAN | ZOOM TO | ZOOM LAST | VIEW PHOTO | SELECT | SELECT POLYGON | BUFFER | CLEAR SELECT | LAND COVER | MEASUR

Refresh Map

Data Layers

- Biological/Habitat Featur
- Physical Features
- Regulated Features
- Modifications
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
- Satellite Imagery

Help:

- A closed group, click to open.
- An open group, click to close.
- A hidden layer, click to make visible.
- A visible layer, click to hide.
- A visible layer, but not at this scale.

Land Use Statistics Tool

1. Choose a layer to select from: County

If the layer is not visible at the current scale, zoom in until the features are displayed.

2. With the left mouse button, click er an area to select desired features.
3. Once feature(s) are selected, a eport of two land use metrics.

County
Sub Basins
Watersheds (WRIA's)

Cursor location is approxim N, Latitude: 45.33 W

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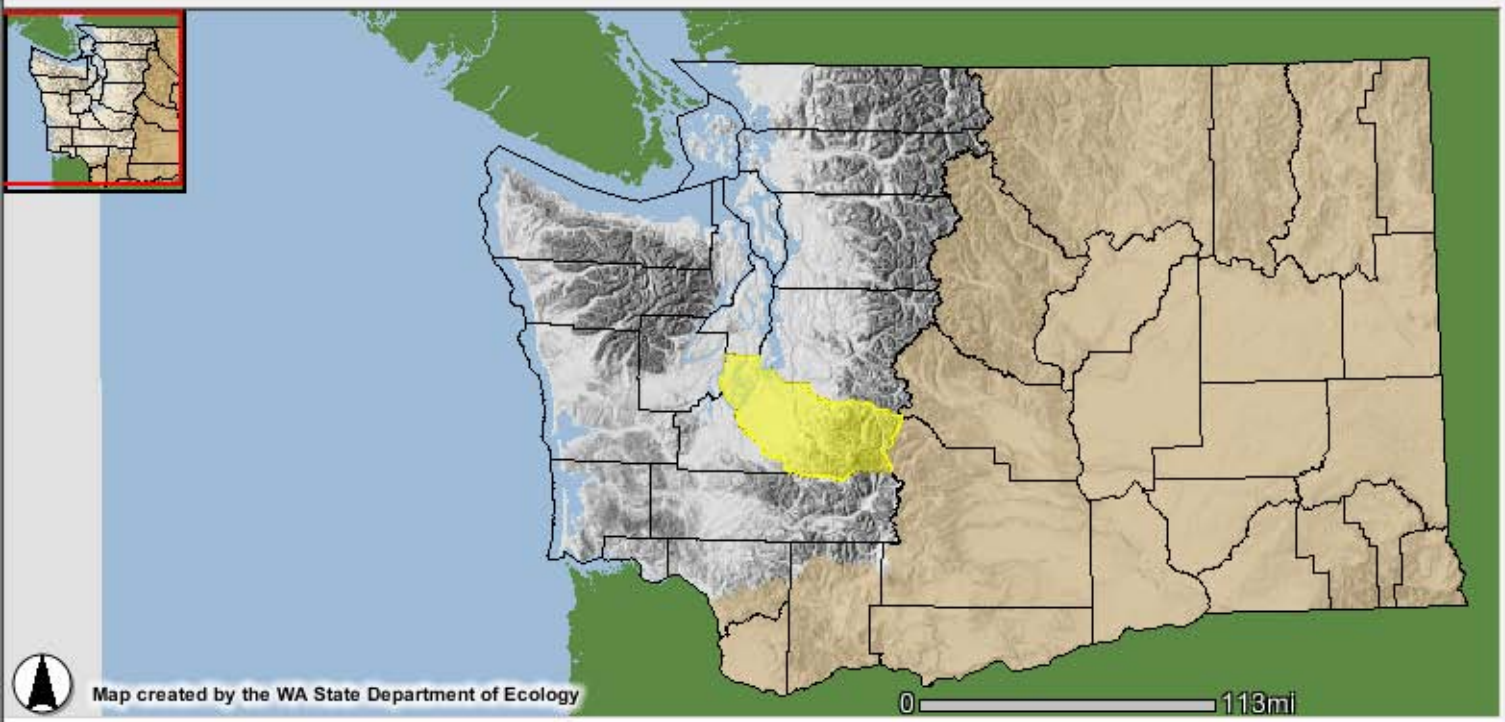

Data Layers

- Biological/Habitat Features
- Physical Features
- Regulated Features
- Modifications
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
- Satellite Imagery

Help:

- A closed group, click to open.
- An open group, click to close.
- A hidden layer, click to make visible.
- A visible layer, click to hide.
- A visible layer, but not at this scale.

County Return to Select Options

Rec	County Name	County Code
1	Pierce	27

Cursor location is approximately Longitude: -117.27 N, Latitude: 47.8 W

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Report on Percent Cover of Forest Canopy

Impervious Surface Report

The percentage of forest canopy is a measure of the amount of area covered by woody vegetation greater than 6 meters (20 ft) in height. This includes:

- evergreen forest (e.g. Douglas fir, western red-cedar, western hemlock),
- deciduous forest (e.g. red alder, oak, big-leaf maple),
- mixed forest (e.g. evergreens and deciduous), and
- forested wetlands (e.g. sitka spruce).

The values reported reflect an average forest canopy across the area of land selected (sub-basin, county, or watershed (WRIA), because the amount of forest canopy cover is reported as a percentage of the total area.

The change in the percentage of forest canopy cover over time indicates how much forest was converted into other land cover types (reductions in percent forest cover) or the amount of reforestation of previously non-forested area (increases in forest percent forest cover).

The data used in this analysis have an overall accuracy of 85 percent. While this information is useful in identifying regional landscape patterns, it is not intended to be used to make specific land use decisions at a fine scale of individual parcels.

County Name	% Forest Canopy Cover 1991	% Forest Canopy Cover Canopy 1996	% Forest Canopy Cover 2001	% Change in Forest Canopy 1991-1996	% Change in Forest Canopy 1996-2001	% Change in Forest Canopy 1991-2001
Pierce	56.0	55.0	53.0	-2.0	-4.0	-5.0

Technical Information:

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ZOOM IN
Map created by the W
Cursor location is appr

Report on Percent Impervious Surface

Forest Canopy Report

The percentage of impervious surface is a measure of the amount land covered by constructed materials. This includes roofing, metal, concrete, and asphalt. Areas covered by vegetation (either natural or cultivated) or other cover such water, bare land, or snow, were not counted as impervious surface.

Areas with greater percentages of impervious surface may include heavily built-up urban centers as well as large constructed surfaces in suburban and rural areas. Some of the structures contributing to high impervious surface values include high density residential dwellings, shopping centers, factories, industrial complexes, highways, and airport runways.

Areas with lower percentages may have fewer urban centers and large buildings and more area covered by vegetation or other cover types.

The values reported reflect an average amount of impervious surface across the area of land selected (sub basin, county or watershed (WRIA). The amount of impervious surface is reported as a percentage of the total area.

The change in the percentage of impervious surface over time indicates how much of the other land cover types were converted into impervious surface.

While this information is useful in identifying regional landscape patterns, it is not intended to be used to make specific land use decisions at a fine scale of individual parcels.

County Name	% Impervious Surface 1991	% Impervious Surface 1996	% Impervious Surface 2001	% Change in Impervious Surface 1991-1996	% Change in Impervious Surface 1996-2001	% Change in Impervious Surface 1991-2001
Pierce	4.8	5.1	5.4	6.2	5.8	12.5

Done
Internet

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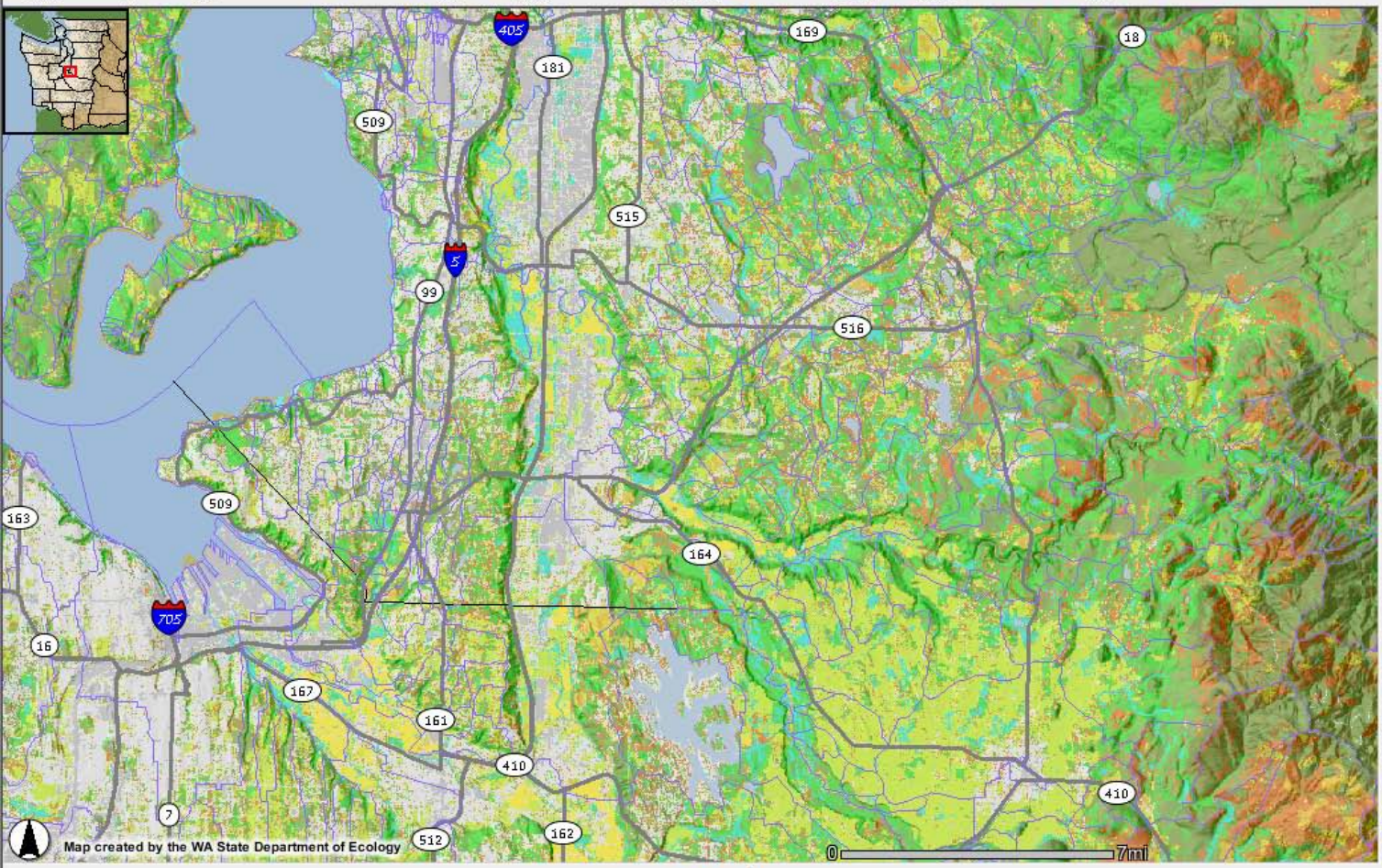
Coastal Atlas

FULL STATE | ZOOM IN | ZOOM OUT | PAN | ZOOM TO | ZOOM LAST | VIEW PHOTO | SELECT | SELECT POLYGON | BUFFER | CLEAR SELECT | LAND COVER | MEASURE | PRINT MAP



Refresh Map

Data Layers

- Biological/Habitat Features
- Physical Features
- Regulated Features
- Modifications
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
  - Nautical Chart
  - USGS Topo Maps
  - Aerial Imagery
  - Hillshade
- Satellite Imagery
  - Land Use/Land Cover 2001
  - Land Use/Land Cover 1996
  - Land Use/Land Cover 1991
    - Unclassified (Cloud, Shadow, et
    - High Intensity Developed
    - Low Intensity Developed
    - Cultivated Land
    - Grassland
    - Deciduous Forest
    - Evergreen Forest
    - Mixed Forest
    - Scrub/Shrub
    - Palustrine Wetland
    - Estuarine Wetland
    - Bare Land/Unconsolidated Shor
    - Water

Zoom In Tool

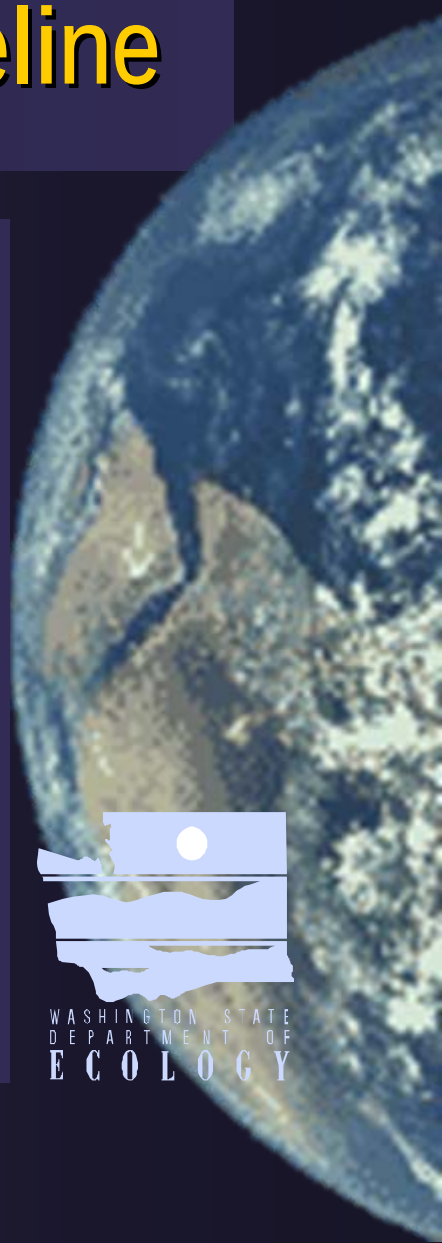
Allows the user to zoom in by either **1)** Clicking on a Single Point on the map or **2)** Drawing a Rectangle on the map.

When *clicking on a point* the map will be zoomed in to an extent determined by the current Zoom Factor: 125 percent.

Internet

Oblique Aerial Photos of Shoreline

- Downloadable
- High Resolution
- Available for Multiple Years
- Available for all WA Marine Shorelines And Some Freshwater Shorelines in Eastern And Western Washington



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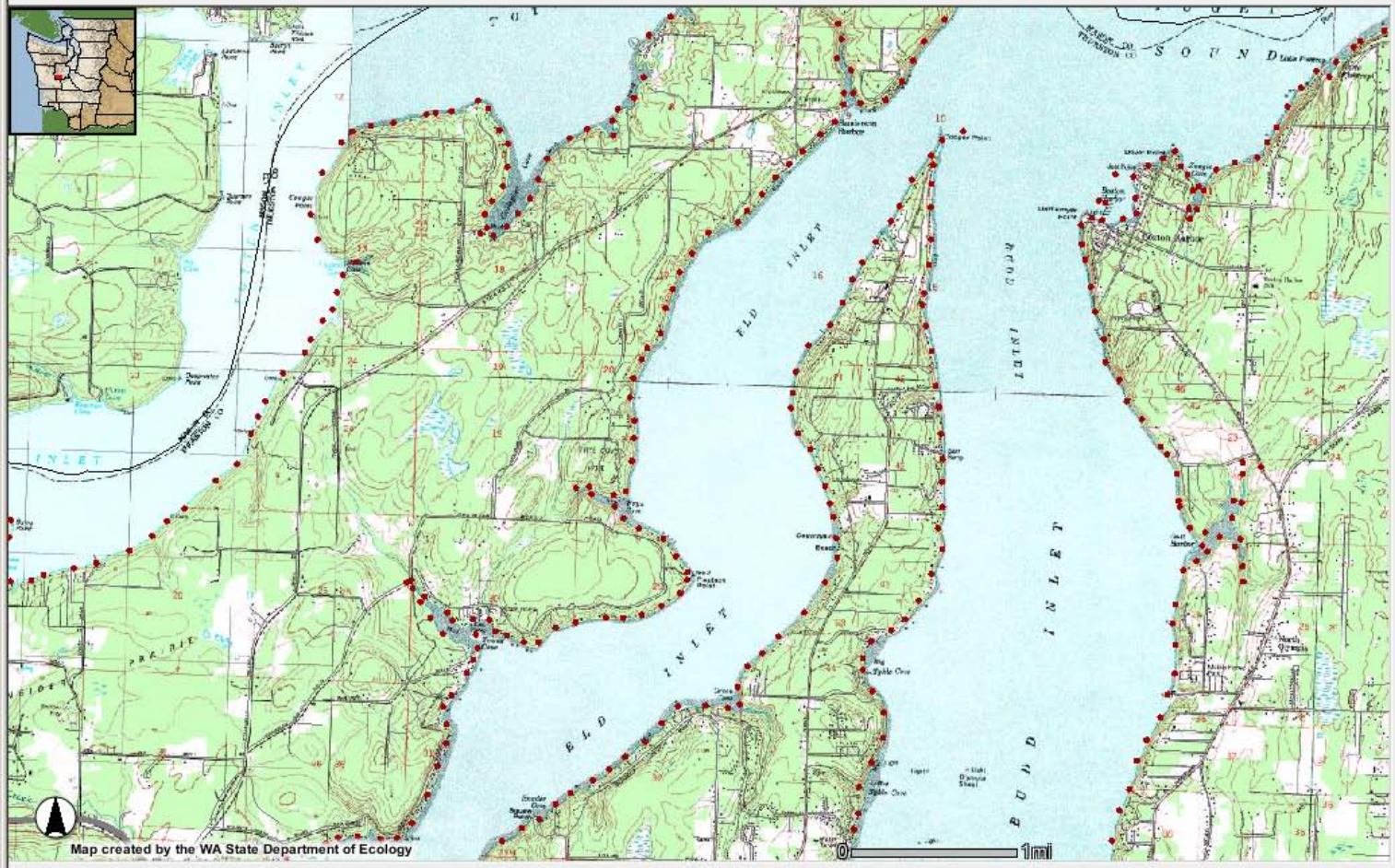
Coastal Atlas

FULL STATE | ZOOM IN | ZOOM OUT | PAN | ZOOM TO | ZOOM LAST | VIEW PHOTO | SELECT | SELECT POLYGON | BUFFER | CLEAR SELECT | LAND COVER | MEASURE | PRINT MAP

Refresh Map



Data Layers

- Biological/Habitat Features
- Physical Features
- Regulated Features
- Modifications
- Jurisdictional Delineations
- Transportation Features
- Background Imagery
  - Nautical Chart
  - USGS Topo Maps
  - Aerial Imagery
  - Hillshade
- Satellite Imagery

Help:

- A closed group, click to open.
- An open group, click to close.
- A hidden layer, click to make visible.
- A visible layer, click to hide.
- A visible layer, but not at this scale.

View Shoreline Photos

Choose a time period for which you would like to view photos below, then click on a point to view the oblique 1970's, 1990's or 2000's photos or within a grid cell for the vertical 1940's photos.

Vintage: Shoreline Photos 2006-07

Hide Photo Layer

Cursor location is approximately Longitude: -122.87 N, Latitude: 47.12 W

Internet

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Coastal Atlas

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Shoreline Photos (2006)

Rec	Photo Index	Ph
1	060711_07530	7/11/

https://test-fortress.wa.gov - Washington Coastal Atlas Photo Display - Microsoft Internet Explorer

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Next Image

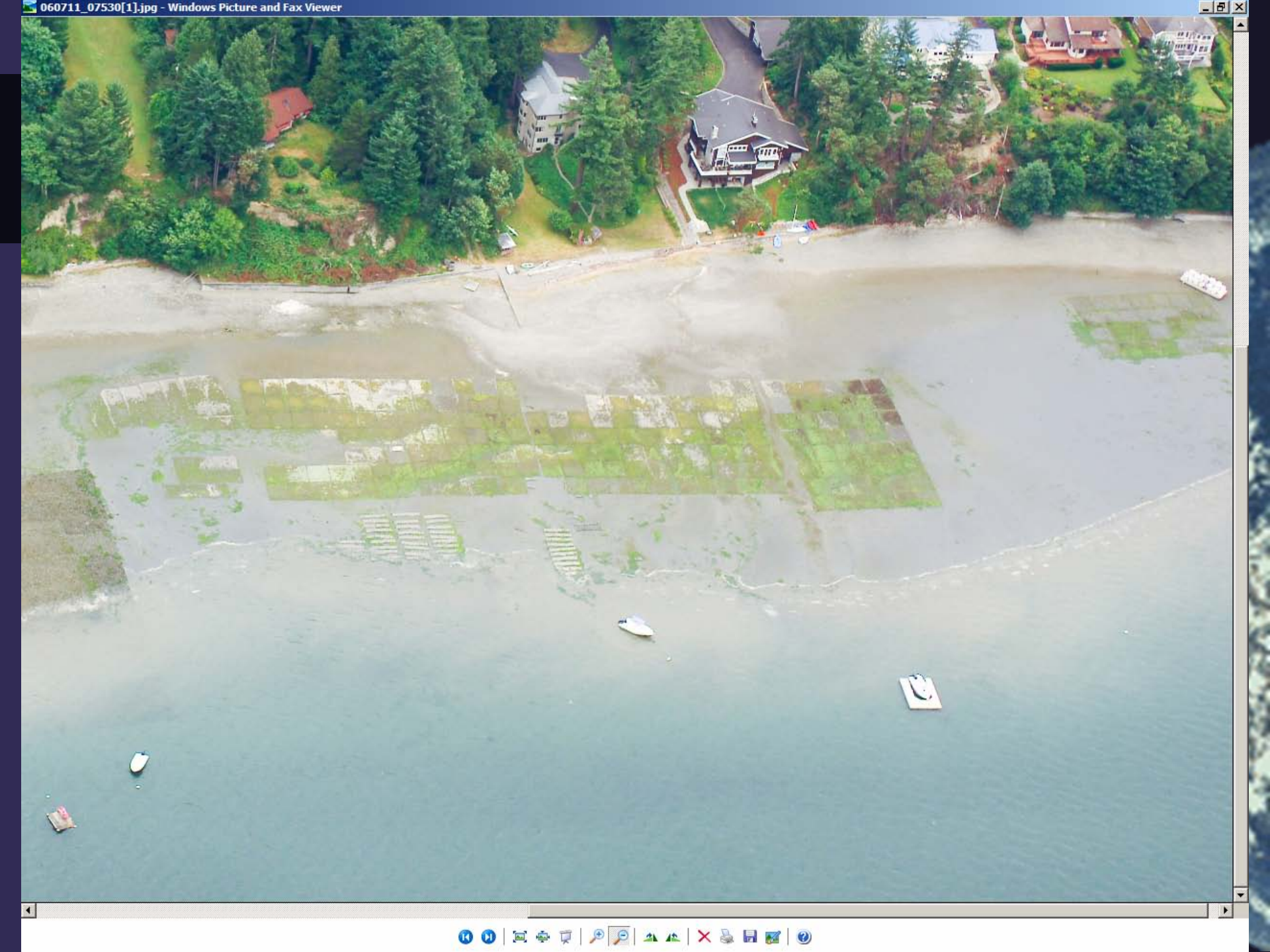
Photo Reference: 060711_07530 **Date:** 7/11/2006

Download links for this photo:

Low Resolution (800 x 531 pixels, 71Kb) — *Approx. 10 seconds for 56kbps modem; 1 seconds for Cable/DSL*

High Resolution (4288 x 2848 pixels, 2692Kb) — *Approx. 6.4 minutes for 56kbps modem; 57 seconds for Cable/DSL*

View photos of this area in other years: 1940s 1976-77 1992-97 2000-02


060711_07530[1].jpg - Windows Picture and Fax Viewer

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000803_124234.jpg

Previous Image

Next Image

Photo Reference: 000803_124234 **Date:** 8/3/2000

Download links for this photo:

Low Resolution (700 x 524 pixels, 126Kb)

Approx. 18 seconds for 56kbps modem; 3 seconds for Cable/DSL

High Resolution (2008 x 1504 pixels, 386Kb)

Approx. 55 seconds for 56kbps modem; 8 seconds for Cable/DSL

View photos of this area in other years: 1940s 1976-77 1992-97 2006-07

Done Internet

Next Image

ixels, 2692Kb)

57 seconds for Cable/DSL

View photos of this area in other years: 1940s 1976-77 1992-97 2000-02

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Next Image

Next Image

Photo Reference: THU0197 **Date:** 5/13/1992

Download links for this photo:

Low Resolution (768 x 512 pixels, 59Kb) *** High resolution image not available ***

Approx. 8 seconds for 56kbps modem; 1 seconds for Cable/DSL

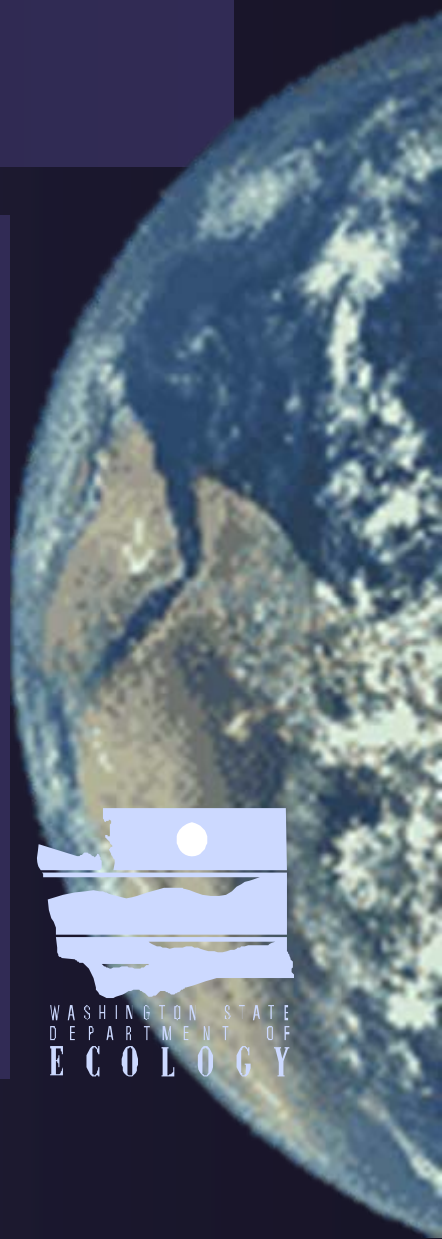
View photos of this area in other years: 1940s 1976-77 2000-02 2006-07

Next Image

ixels, 2692Kb)

Future Development

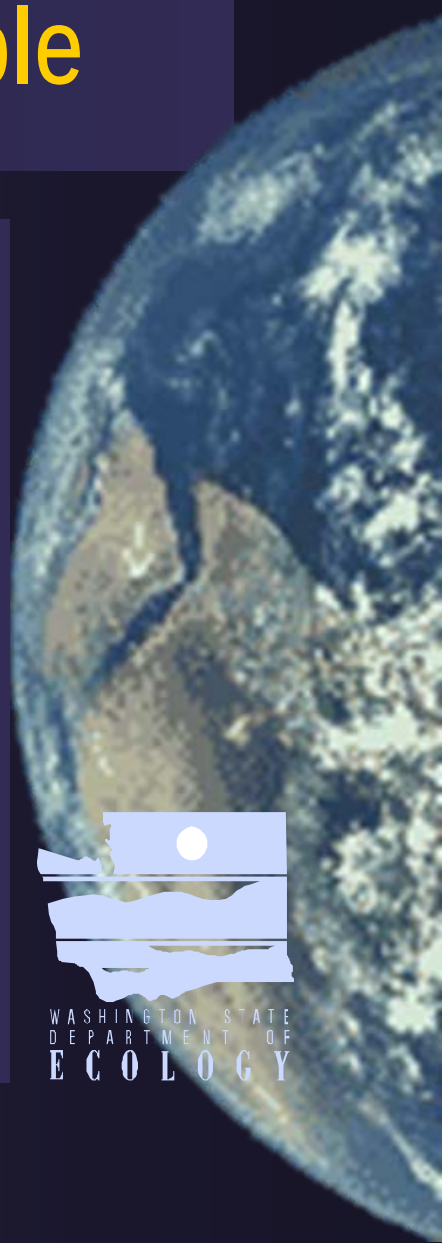
- Will Add Information on Public Access to Washington Marine Shorelines.
- Organizing Interagency Group to Advise Future Work on Washington Coastal Atlas.



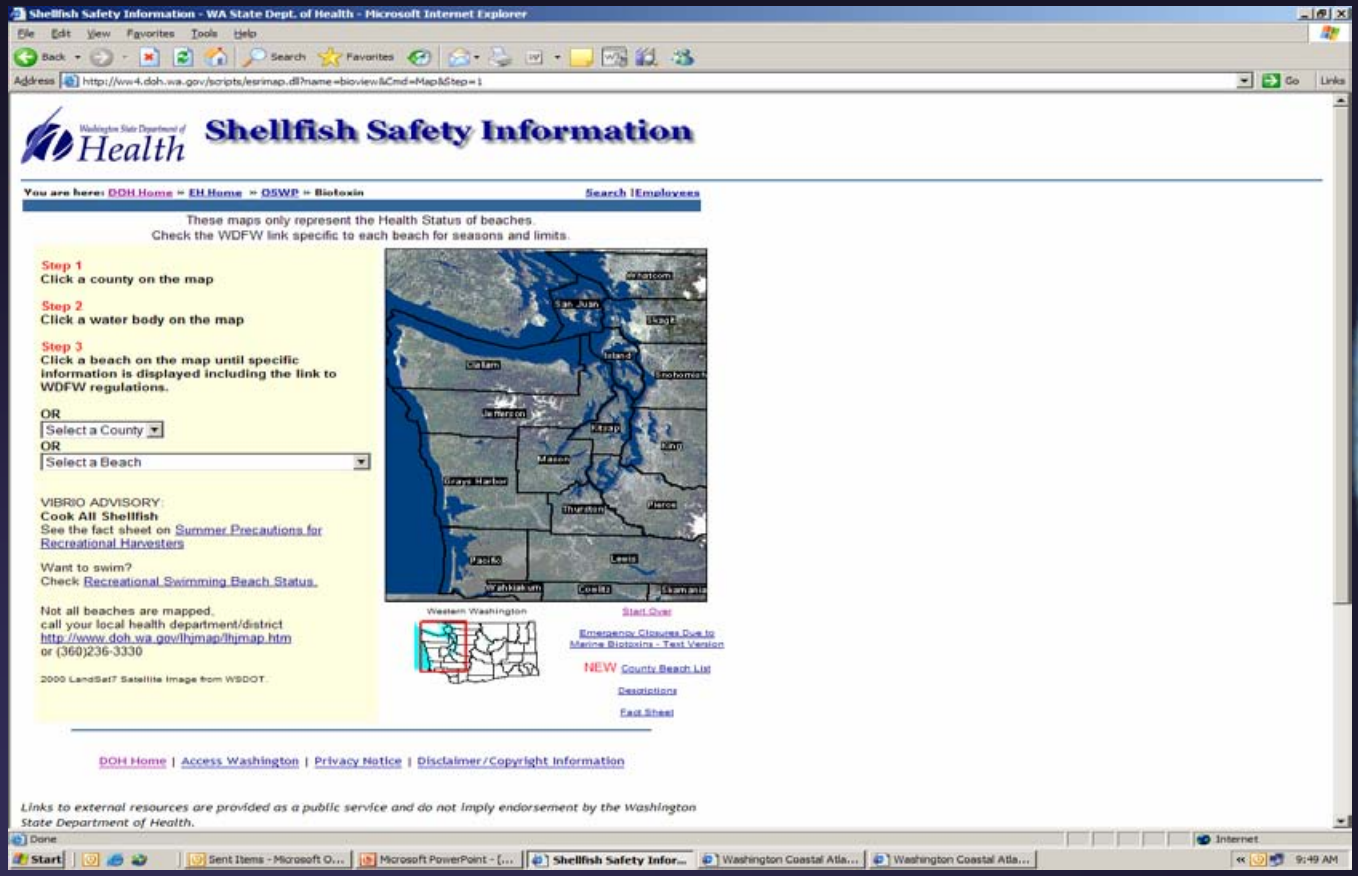
WASHINGTON STATE DEPARTMENT OF ECOLOGY

Other Geographic Data Available

- DOH Shellfish Safety Information
- WDFW SalmonScape, Marine Bird Density Atlas, GIS layers
- DNR GIS layers
- Ecology GIS layers



DOH Shellfish Safety Information



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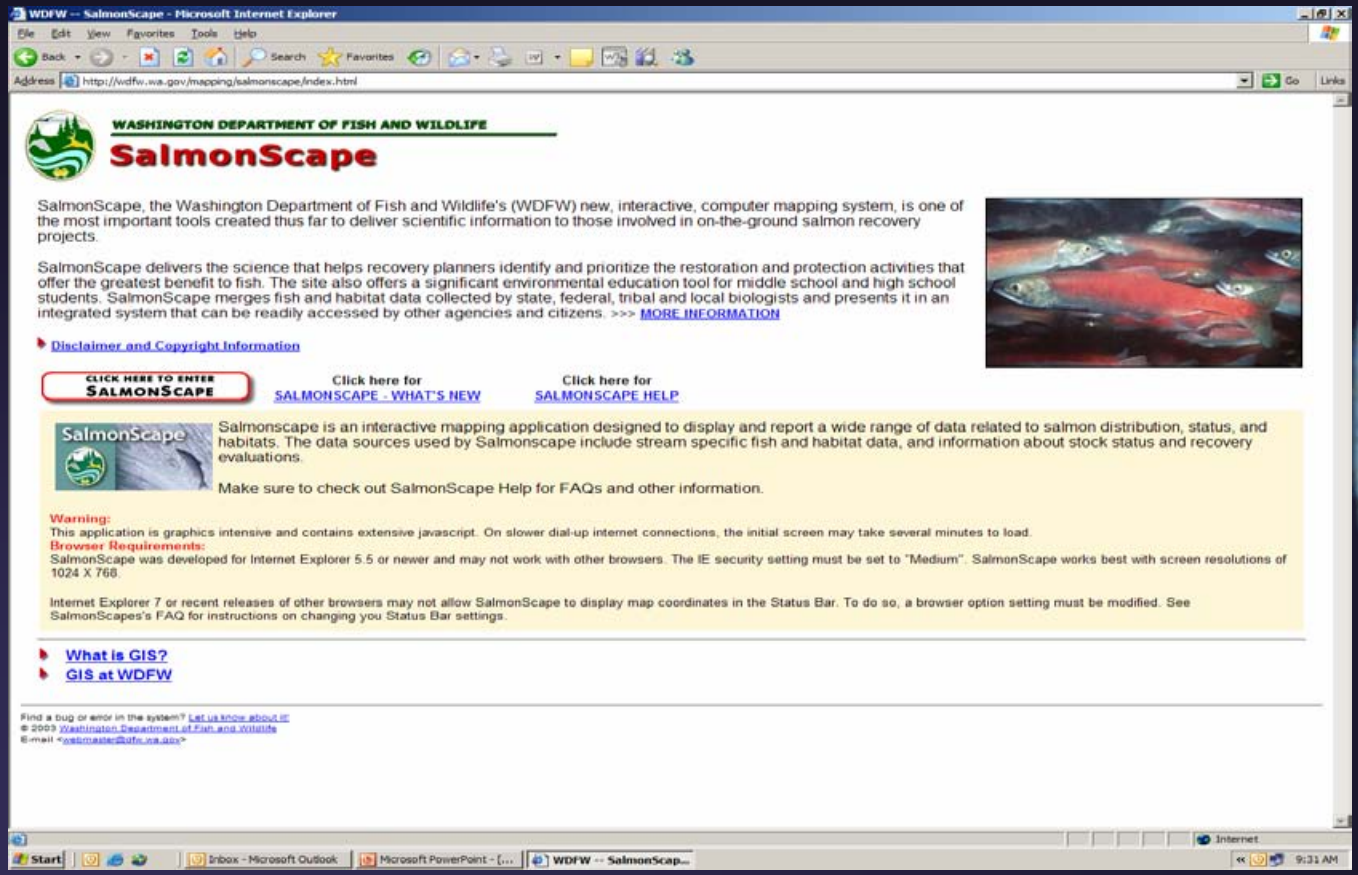
WDFW SalmonScape



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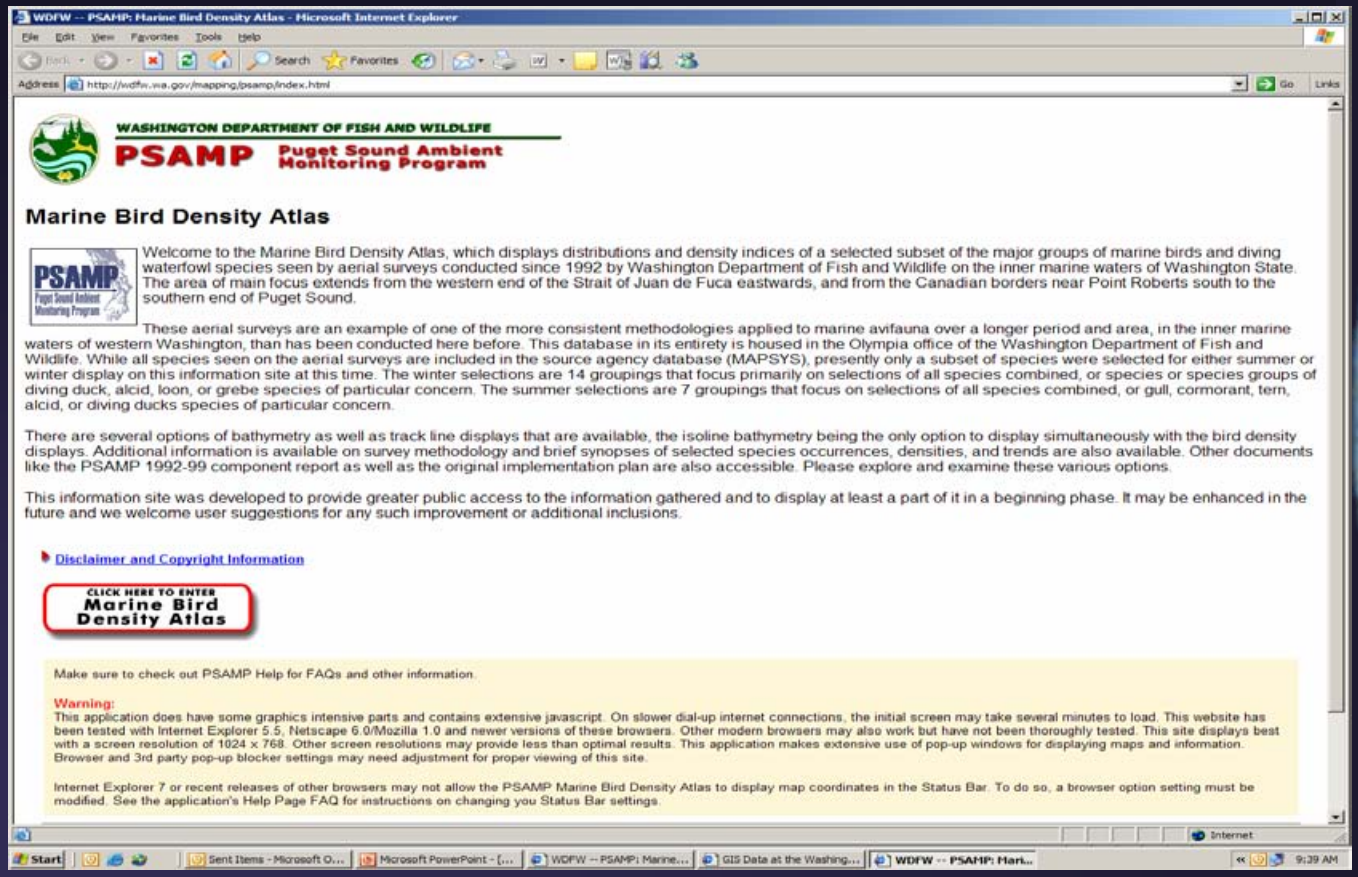
WDFW Marine Bird Density Atlas



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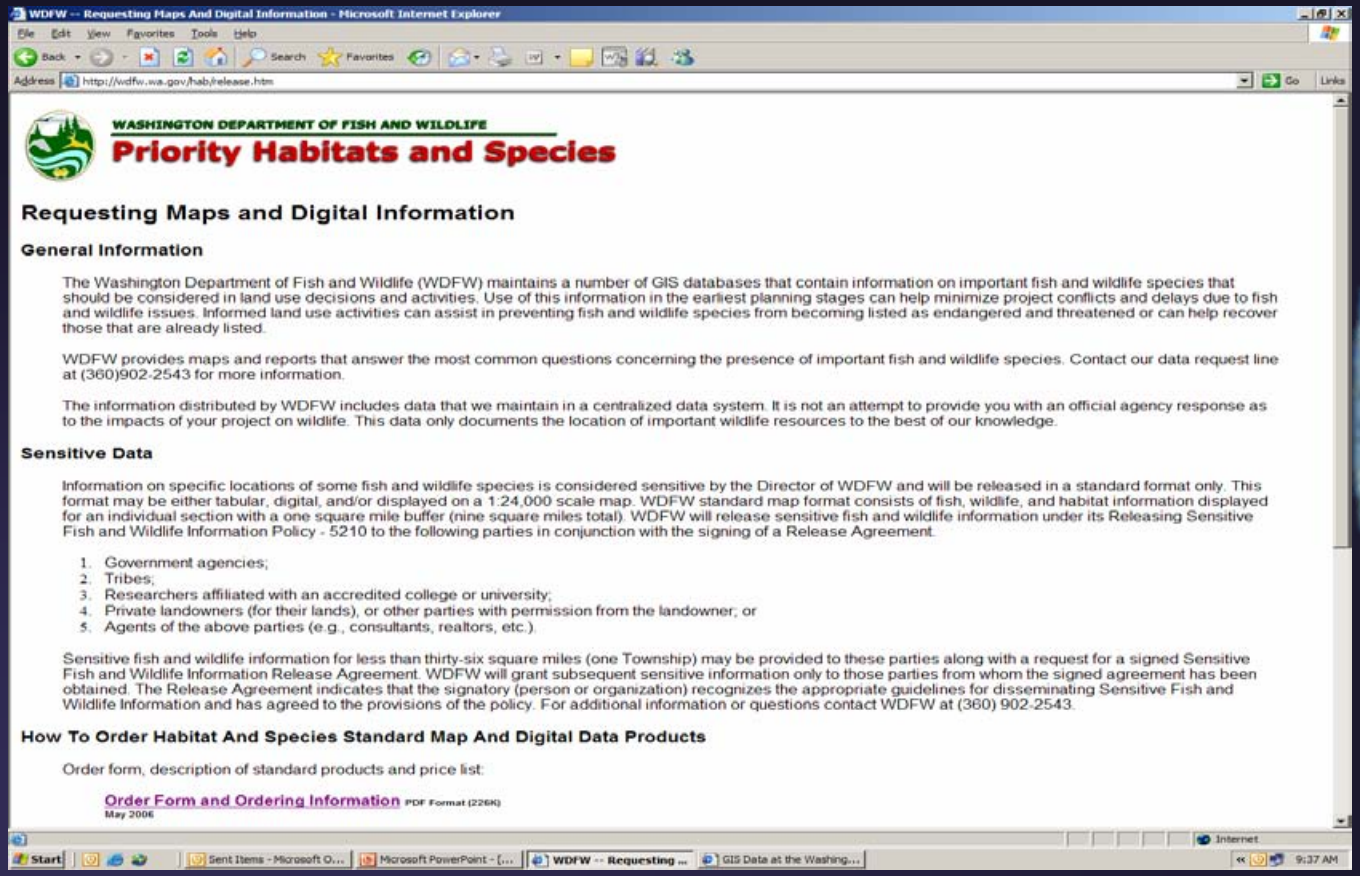
WDFW GIS Data



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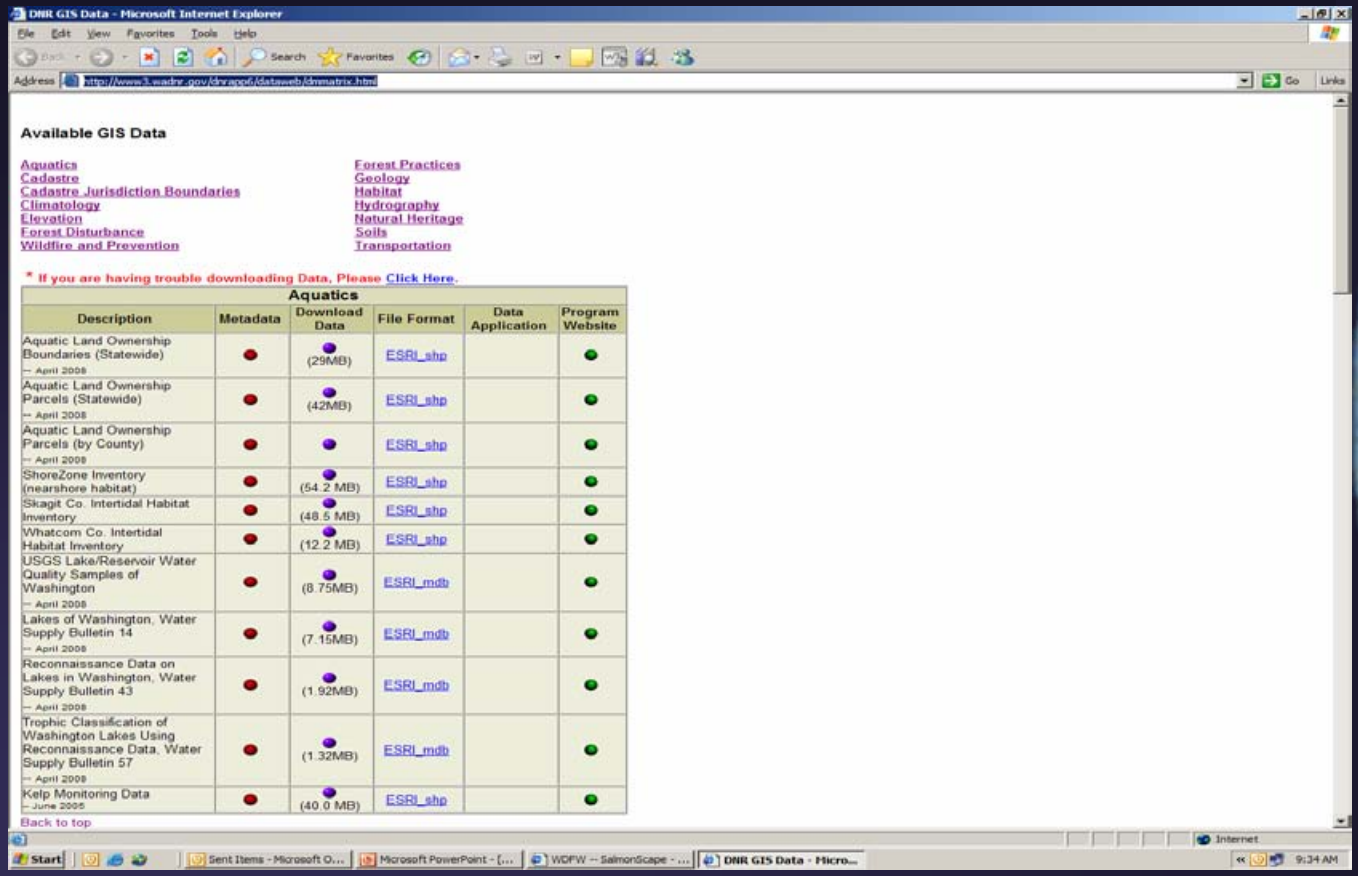
DNR GIS Data



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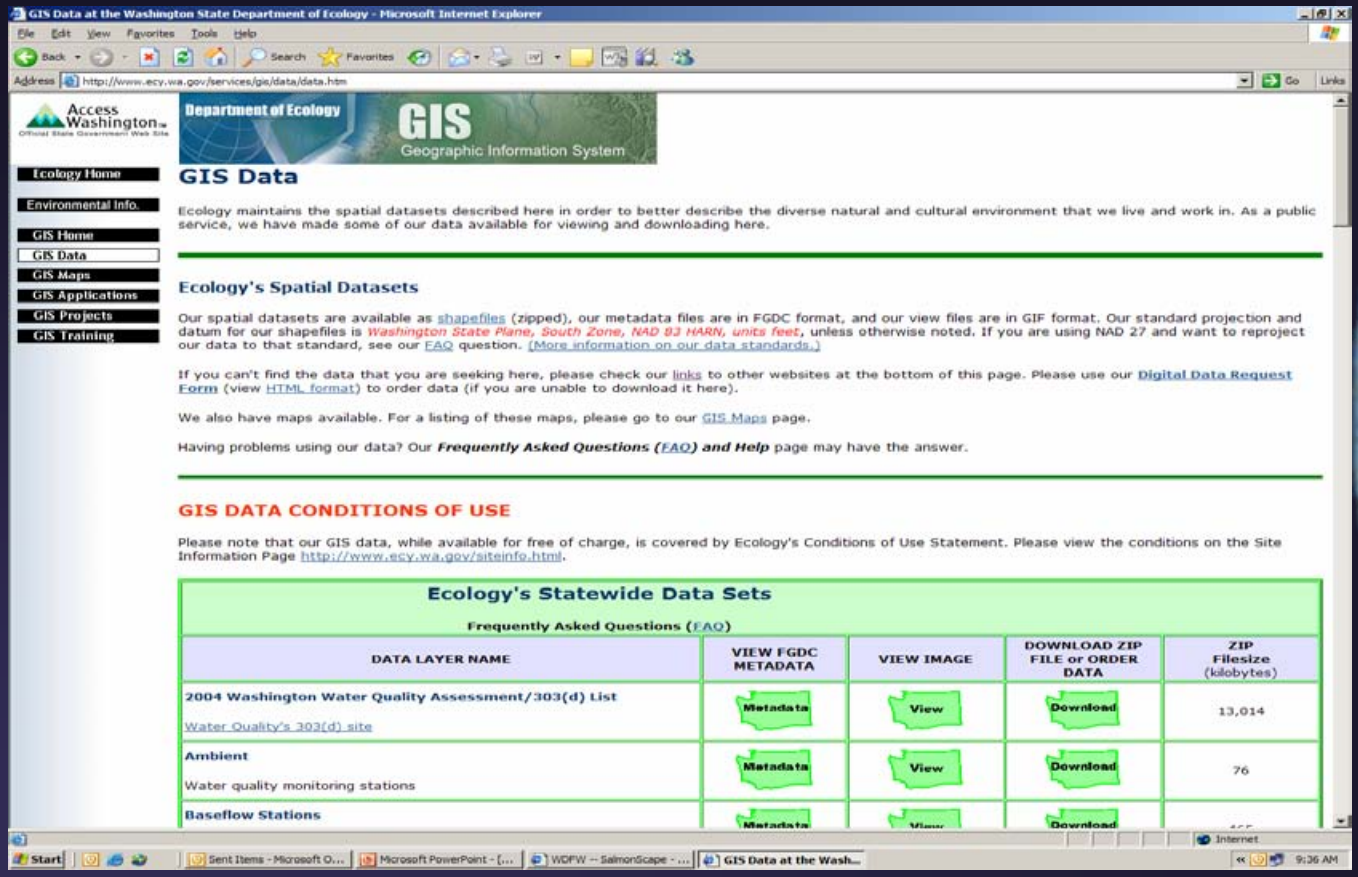
Ecology GIS Data



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Questions?

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