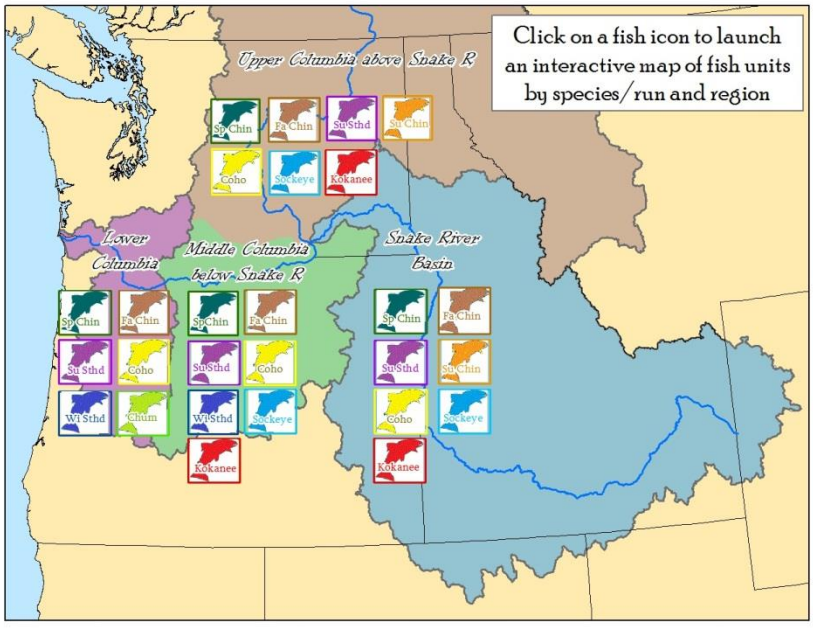
User Guide

Interactive Mappers and Population Query Tool

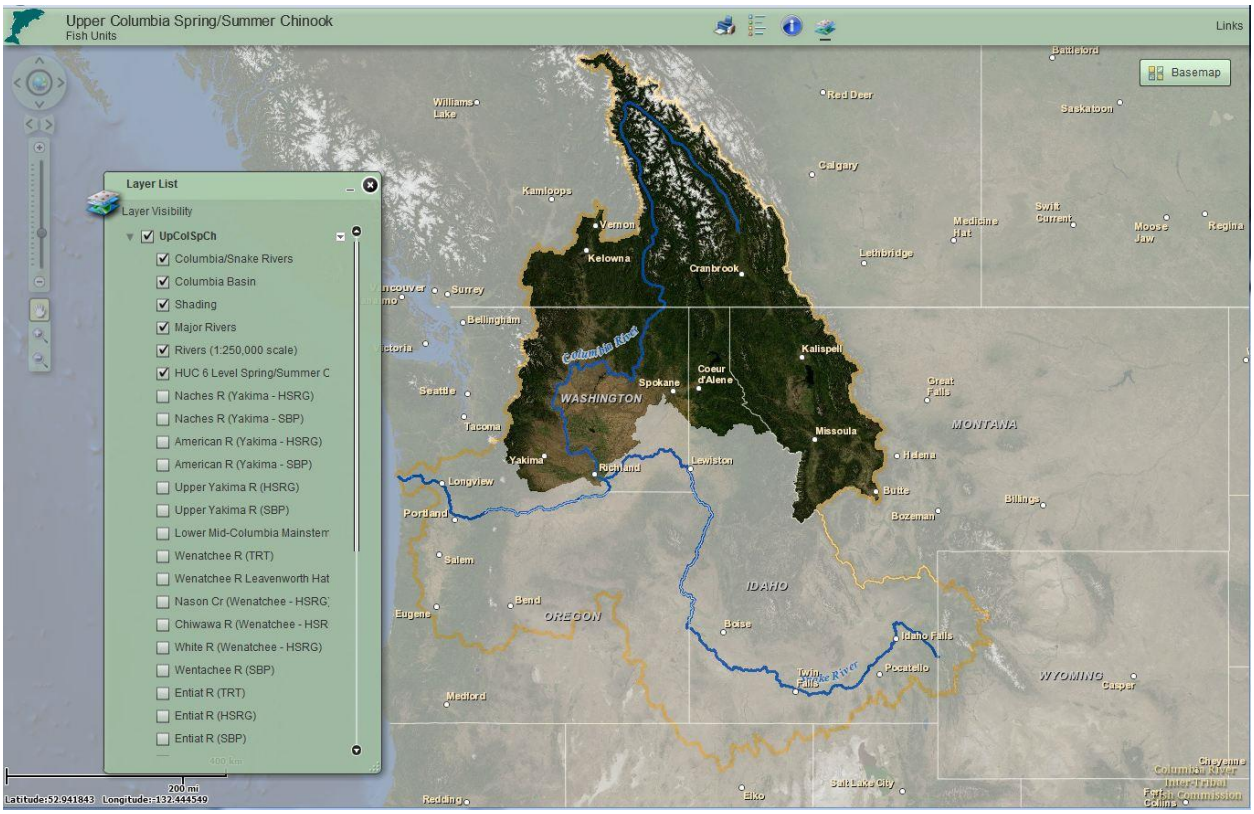
This project offers two interactive mappers; both have a similar look and the same navigation and reporting tools, but each maps salmon and steelhead population/unit data in a different way. It also includes a way to query the database for names, reports, and location, without using a map (population query).

Species Maps — This interactive mapping tool http://fishery.critfc.org/FiSci/FishUnitsIntroMap.htm (main page is http://www.critfc.org/crosswalk/) displays the whole boundary for each pop/unit defined by agency or regional process. The pop/units are grouped by species within four regions in the Columbia Basin (Lower Columbia— below Bonneville Dam, Middle Columbia—between Bonneville Dam and the Snake River, Upper Columbia—above the Snake River, and the Snake River). When this mapper is launched you will be presented with an intro map of the Species/Regions of the Columbia Basin.



Region, species, and run selection map.

Click on the species icon in the region you wish to view, and the interactive map will launch.



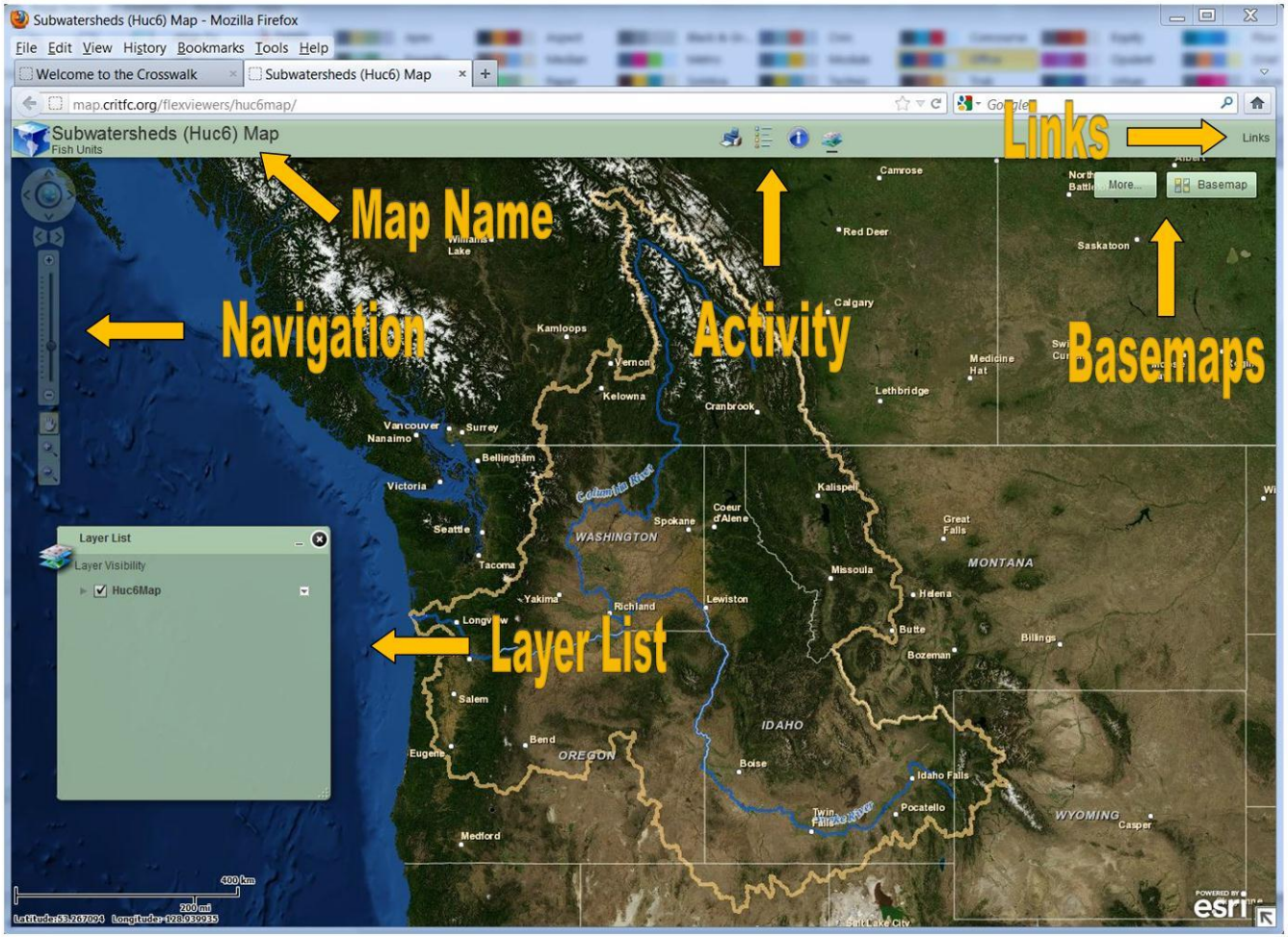
This map will display the spring/summer Chinook salmon in the Upper Columbia and was chosen from the Species/Region Introduction map.

HUC6 Map — This interactive mapping tool http://map.critfc.org/flexviewers/huc6map/ displays the boundaries of 6th level Hydrologic Unit Code (12 digit Subwatersheds) within the Columbia Basin that are associated with any pop/unit of salmon or steelhead. The selection of any one of the HUC 6s will return a report of all species and pop/units names and tabular data that are linked to the subwatershed. This map looks similar upon launching to the species maps.

__NOTE__ – different web browsing applications and versions, Firefox, IE, Google Chrome, etc., may display the mapping application and the reports differently; hopefully functionality is the same. If you are having issues with performance, try another browser.

The map design is very similar to many other interactive maps on the web today. Many of the navigation tools should look very similar.

Overall Layout:



Map Name: Display of map name. Subwatersheds (HUC6) Map is the application that displays all HUC 6 boundaries with all species and populations. Other maps are by species and region – i.e. Lower Columbia Chum.

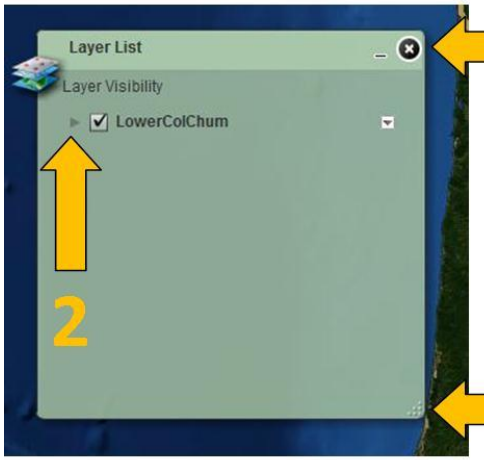
Navigation Tools: This tool set includes several types of zooming and panning tools. These tools should look very similar to other web interactive mapping applications.

- Panning Tools - move the map automatically in increments when tool is clicked. Includes Full Extent, Pan in several directions, and Next and Previous Extent.
- Slider Bar for Zooming Tool - moves at predetermined scales of zoom.
- Pan Hand - manual panning after the tool is clicked and hand/mouse is used to move the map.
- Zoom Tools - manual zooming after the tool is clicked, draw a box with tool/mouse to zoom in or out in a selected area.

Panning Tools	Panning Tools	Panning Tools	Slider Bar Zoom	Pan Hand	Zoom Tools

NOTE: If your mouse has a roller it can be used for zooming in and out of the map.

Layer List: This window shows the different layers of spatial data on the map. The complete layer list is not visible when this window opens. To expand the layer list, click arrow button # 2. The window can be placed any way on the map by dragging it with the mouse.



The window launches in this form. The window can be placed anyway on the map by dragging it with the mouse, by the light green header bar .

1 — Just these two buttons to Minimize or Close the window.

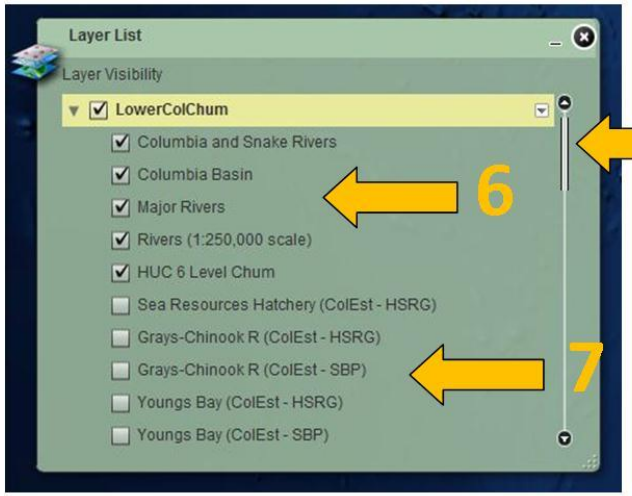
2 — Click the ▷ to display the different layers of the map.

3 — Grab this corner with the mouse to resize the window.

The window in Minimize form.

4 — Click the icon to Maximize the window again.

If the window has been closed the same icon at the top of the map will reopen it.



The window with all layers visible. Remember the window can be adjusted to any size.

5 — Scoll bar appears when window is too small for all the layers to be displayed.

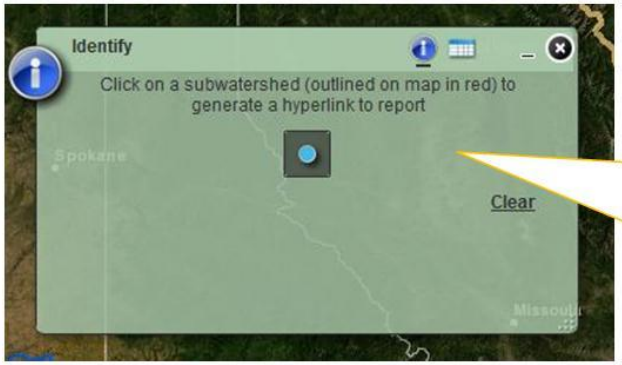
6 — A set of layers already available when the map is launched. All of these layers turn on and off at predetermined scales. But they can be turned off and back on by clicking the check-box.

7 — Population layers, will not be visible until the check-box is on.

Activity Tools: These tools are found on the top of the map in the center and include: Print, Legend, Identity Tool, and Layer List.

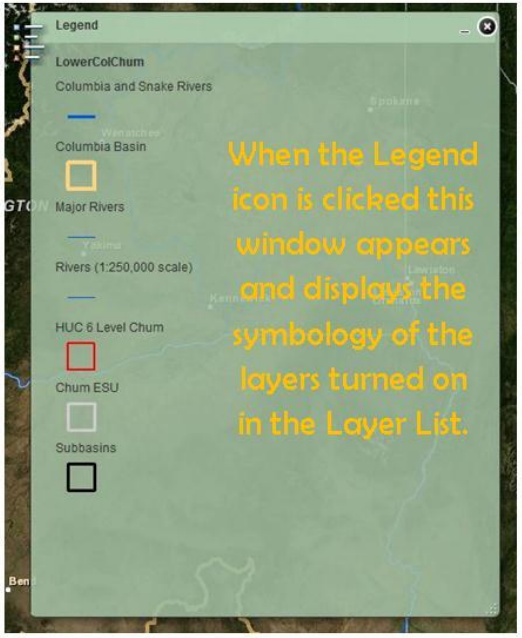
When the Layer List icon is clicked it will open the Layer List Window if the Layer List has been closed.

When the Print icon is clicked this print window appears.



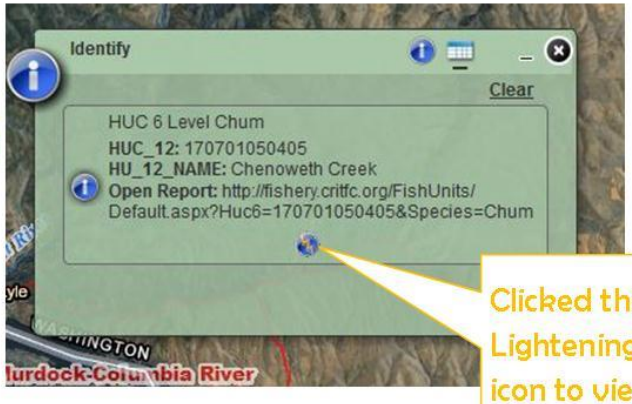
When the ID Tool icon is clicked this window appears.

Use the ID Tool (Arrow Curser) to click the HUC6 of interest.



When the Legend icon is clicked this window appears and displays the symbology of the layers turned on in the Layer List.

Once the ID Tool is used on a HUC6 the Identify window appears with information about the HUC and a link to a report that will identify populations and/or species depending on the mapping application.



Clicked this Lightening Bolt icon to view the reports.

Reports generated by clicking the link in the Identify Window with HUC6 Information.

Depending on which application is in use, the first report generated will list the population/units that occupy the HUC for the species/run mapping applications, or it will display a list of all species/populations occupying a HUC for the HUC mapping application. Below are some examples of reports generated.

Fish Units Subwatershed Report

Huc6: 170701050703

Subwatershed Name	Fish Unit	Source	Attribute Report Link	Comment
Indian Creek-Hood River	Columbia Gorge_Tributaries Chum (Lower Gorge)	HSRG	Click For Report	
Indian Creek-Hood River	Hood Coho	HSRG	Click For Report	
Indian Creek-Hood River	Hood Fall Chinook	HSRG	Click For Report	
Indian Creek-Hood River	Hood Summer Steelhead (Santiam-Hatchery)	HSRG	Click For Report	
Indian Creek-Hood River	Hood Winter Steelhead	HSRG	Click For Report	
Indian Creek-Hood River	Hood River Fall Chinook (TRT)	NOAATRT	Click For Report	Accessible
Indian Creek-Hood River	Hood River Spring Chinook (TRT)	NOAATRT	Click For Report	Accessible
Indian Creek-Hood River	Hood River Summer Steelhead (TRT)	NOAATRT	Click For Report	Accessible
Indian Creek-Hood River	Hood River Winter Steelhead (TRT)	NOAATRT	Click For Report	Accessible

View of a Fish Units Subwatershed report generated from the HUC 6 mapping application for a Hood River HUC6 after the ID Tool was used on a HUC6. Note the Attribute Report Link - each of the population/units of fish per agency or regional process associated with a HUC 6 has a set of attributes about the population/unit. Click this link to get a report on the attributes from the source agency or regional group/process.

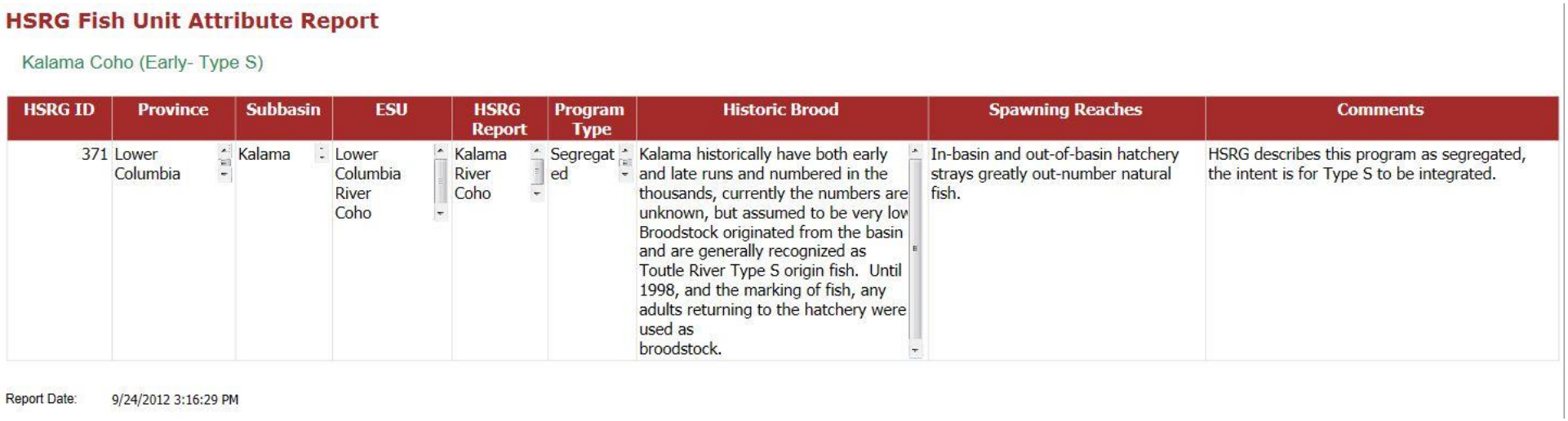
SubWatershed Name – the name of the 12 level (HUC6) watershed associated with the listed populations.

Fish Unit – the population/unit name provided by each agency or tribe for their fish data.

Source – the agency, tribe or group/process that provided the data on the fish population.

Attribute Report Link – a link to another page that provides a report on the attributes for the fish populations. See next page of this user guide for an example.

Comments – Any information about the individual HUC6 as pertaining to mapping of the fish population/unit boundaries from that source.



HSRG Fish Unit Attribute Report

Kalama Coho (Early- Type S)

HSRG ID	Province	Subbasin	ESU	HSRG Report	Program Type	Historic Brood	Spawning Reaches	Comments
371	Lower Columbia	Kalama	Lower Columbia River Coho	Kalama River Coho	Segregated	Kalama historically have both early and late runs and numbered in the thousands, currently the numbers are unknown, but assumed to be very low Broodstock originated from the basin and are generally recognized as Toutle River Type S origin fish. Until 1998, and the marking of fish, any adults returning to the hatchery were used as broodstock.	In-basin and out-of-basin hatchery strays greatly out-number natural fish.	HSRG describes this program as segregated, the intent is for Type S to be integrated.

Report Date: 9/24/2012 3:16:29 PM

View of a Fish Unit Attribute report generated from the Attribute Report Link on the Fish Units Subwatershed report. This information is provided from the source agency and displays what they want to share about their fish units. The metadata for the fields can be found as a link on the introduction web page under the description for each source of fish data.

Fish Units Subwatershed Report

Huc6: 170800010703

Subwatershed Name	Fish Unit	Source	Attribute Report Link
Beaver Creek-Sandy River	Columbia Estuary_Youngs Bay Coho (Bonneville-Sandy-Hatchery)	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Columbia Estuary_Youngs Bay Coho (Bonneville-Sandy-Hatchery)
Beaver Creek-Sandy River	Sandy Chum	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Sandy Chum
Beaver Creek-Sandy River	Sandy Coho	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Sandy Coho
Beaver Creek-Sandy River	Sandy Coho (Hatchery)	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Sandy Coho (Hatchery)
Beaver Creek-Sandy River	Sandy Fall Chinook (Early)	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Sandy Fall Chinook (Early)
Beaver Creek-Sandy River	Sandy Fall Chinook (Late)	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Sandy Fall Chinook (Late)
Beaver Creek-Sandy River	Sandy Spring Chinook	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Sandy Spring Chinook
Beaver Creek-Sandy River	Sandy Summer Steelhead (South Santiam-Hatchery)	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Sandy Summer Steelhead (South Santiam-Hatchery)
Beaver Creek-Sandy River	Sandy Winter Steelhead (Late)	HSRG	http://fishery.critfc.org/FishUnits/Default3.aspx?HSRGNAME=Sandy Winter Steelhead (Late)
Beaver Creek-Sandy River	Lower Gorge Tribs Fall Chinook (TRT)	NOAATRT	http://fishery.critfc.org/FishUnits/Default5.aspx?POPNAME=Lower Gorge Tribs Fall Chinook (TRT)
Beaver Creek-Sandy River	Lower Gorge Tributaries Fall Chum (TRT)	NOAATRT	http://fishery.critfc.org/FishUnits/Default5.aspx?POPNAME=Lower Gorge Tributaries Fall Chum (TRT)
Beaver Creek-Sandy River	Lower Gorge Tributaries Winter Steelhead (TRT)	NOAATRT	http://fishery.critfc.org/FishUnits/Default5.aspx?POPNAME=Lower Gorge Tributaries Winter Steelhead (TRT)
Beaver Creek-Sandy River	Sandy River Chum	SBPwithCBFWA	http://fishery.critfc.org/FishUnits/Default4.aspx?POPNAME=Sandy River Chum
Beaver Creek-Sandy River	Sandy River Coho	SBPwithCBFWA	http://fishery.critfc.org/FishUnits/Default4.aspx?POPNAME=Sandy River Coho
Beaver Creek-Sandy River	Sandy River Early Fall Chinook	SBPwithCBFWA	http://fishery.critfc.org/FishUnits/Default4.aspx?POPNAME=Sandy River Early Fall Chinook
Beaver Creek-Sandy River	Sandy River Spring Chinook	SBPwithCBFWA	http://fishery.critfc.org/FishUnits/Default4.aspx?POPNAME=Sandy River Spring Chinook
Beaver Creek-Sandy River	Sandy River Winter Steelhead	SBPwithCBFWA	http://fishery.critfc.org/FishUnits/Default4.aspx?POPNAME=Sandy River Winter Steelhead

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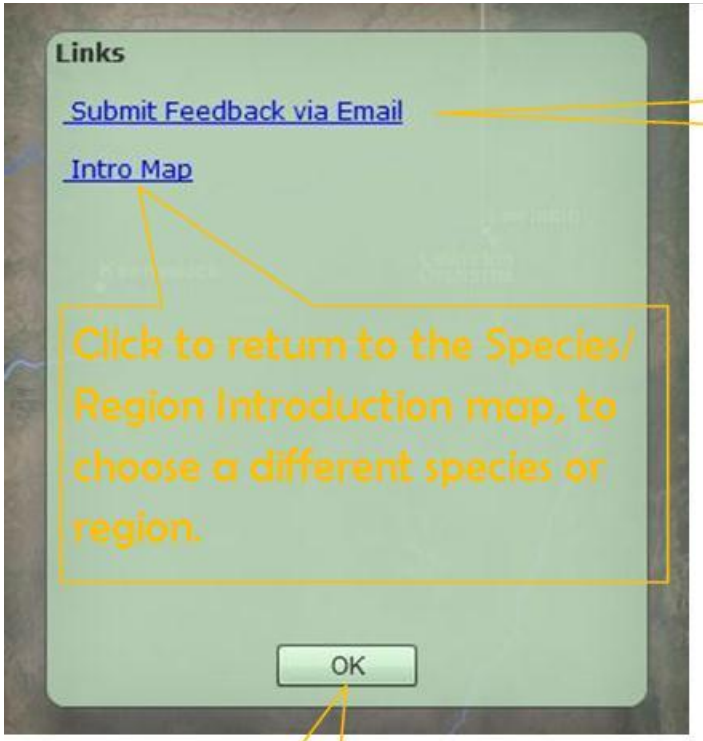
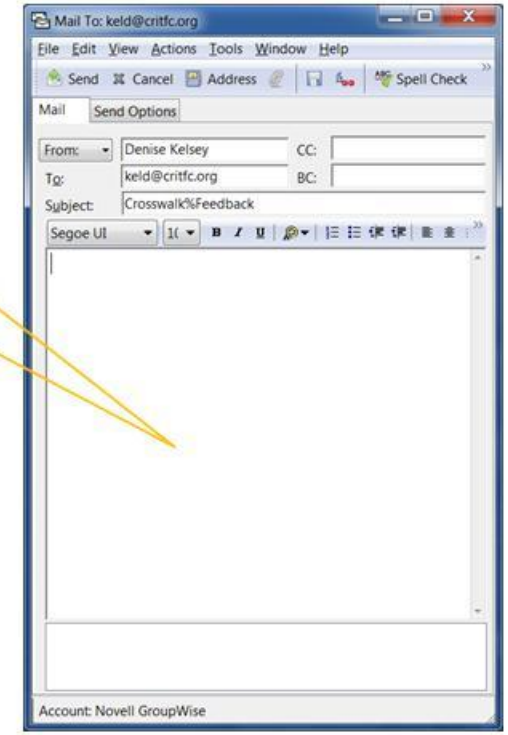
View of a Fish Units Subwatershed report generated from the HUC6 mapping application. Again the attributes per fish unit are provided through a link.

Links: The word "Link" can be clicked for a list of links that are useful for interacting with the Crosswalk mapping application. Current list includes two items but is expected to grow.



Click to open an email.

Send a message with feed-back on population infor-mation or suggestions for change.

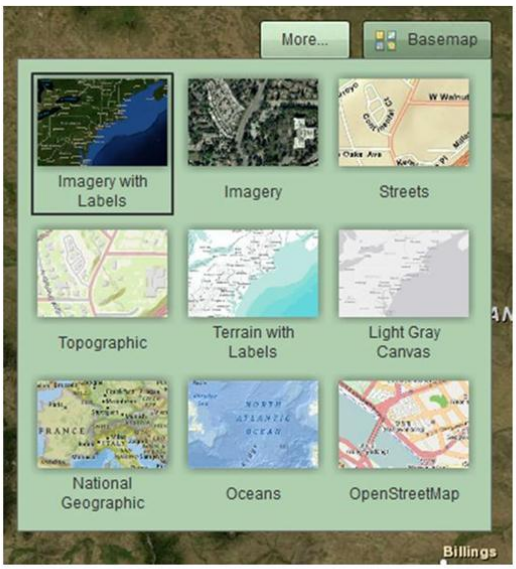


Click to return to the Species/ Region Introduction map, to choose a different species or region.

Click to close window.

Basemaps: A set of basemaps that can be accessed to change the background reference map layer.

The "Basemap" dropdown window has several basemaps to choose from and each of these can be used instead of the basemap that appears when the application is started.



Placing the curser on the "Basemap" button will produce a dropdown of nine basemaps to choose from for the map. The first basemap in this list is enclosed in a black box, this means that it is the map that is open in the application.

Imagery with Labels — Satellite and high-resolution aerial imagery for the world with political boundaries and place names.

Imagery — Satellite and high-resolution aerial imagery for the world.

Streets — Presents highway-level data for the world and street-level data for North America, Europe and more.

Topographic — This topographic map includes boundaries, cities, water features, physiographic features, parks, landmarks, transportation, and buildings.

Terrain with Labels — Features shaded relief, bathymetry and coastal water features that provide neutral background with political boundaries and placenames.

Light Gray Canvas — This map service draws attention to your thematic content by providing a neutral background with minimal colors, labels, and features.

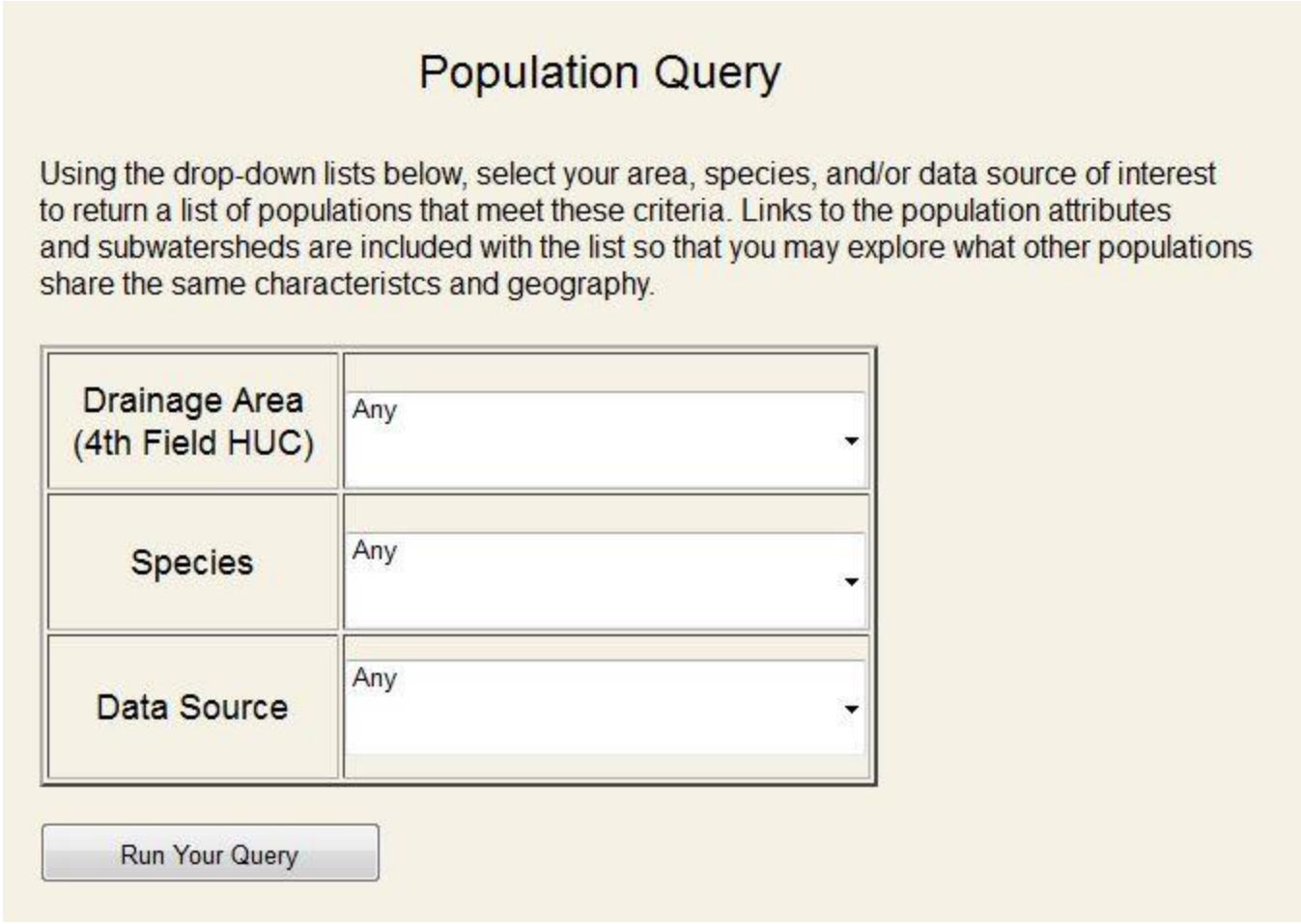
National Geographic — This map is designed to be used as a general reference map for informational and educational purposes.

Oceans — The Ocean basemap includes bathymetry, surface and subsurface feature names, and derived depths.

OpenStreetMap — Is an open collaborative project to create a free editable map of the world. Volunteers gather location data using GPS, local knowledge, and other free sources of information and upload it.

Population Query Tool

The Population Query Tool is accessed from the Crosswalk Introduction page at the end of the "Using the Tools" section. It allows a user to query the fish population database to return a list of populations that meet select criteria, without using the map interface. Use the drop-down lists on the query page to select any combination of Drainage Area (4th Field HUC), Species, and Data Source. Clicking the "Run Your Query" button returns a list of populations that match these criteria.



View of page that opens when this tool is selected from the Introduction Page.

For example, selecting the criteria of Drainage Area = "Middle Fork Willamette", Species = "Summer Steelhead", and Data Source = "Any" will return the list of summer steelhead populations that have spawning/rearing areas somewhere in the Middle Fork Willamette basin, from any data source. These results are provided in a summary report.

Populations that Meet Query Criteria:

Population	Species	Data Source	Link to Population Attributes	Link to Population Subwatersheds
Willamette_Mainstem Willamette Summer	Summer Steelhead	HSRG	Click For Report	Click For Report
Willamette_MF Willamette Summer Steelhead	Summer Steelhead	HSRG	Click For Report	Click For Report

View of first report that opens when query criteria are selected from the Population Query dropdown lists.

From this report, you can click the link to population attributes for any population to see information associated with this particular population. You may also click the link to population subwatersheds to see a list of all subwatersheds that the population uses,

according to the managing agency (data source). From this subwatersheds report, you can then click any subwatershed report link to see a list of other populations associated with this subwatershed, thus "crosswalking" between populations that share a given area without using the map interface.

Fish Unit Report - Subwatersheds

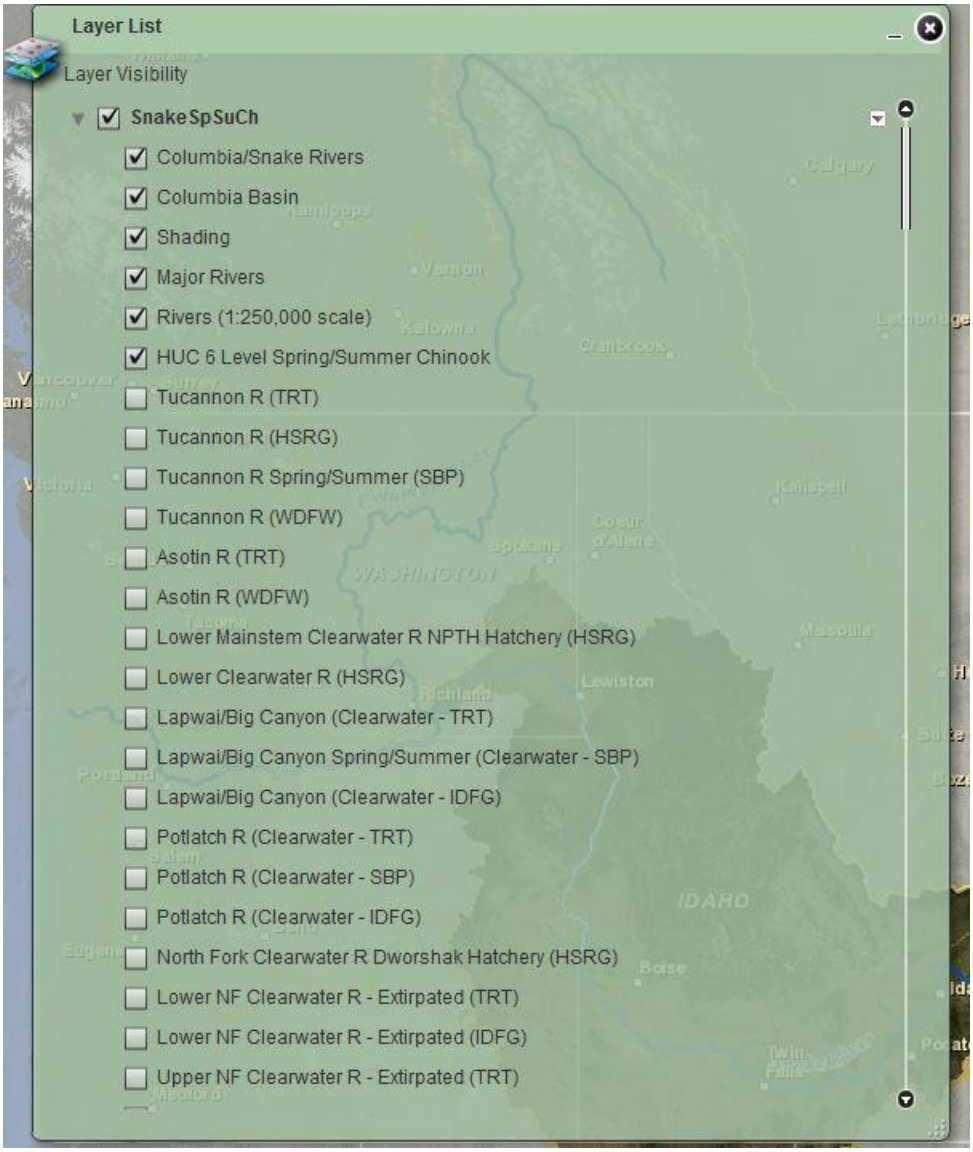
Willamette_Mainstem Willamette Summer Steelhead (S.Santiam-Hatchery)

Huc6 Code	Subwatershed Name	Subwatershed Report Link
170900010703	Dexter Reservoir-Middle Fork Willamette River	Click For Report
170900011002	Rattlesnake Creek-Middle Frok Willamette River	Click For Report
170900011003	Mill Race-Middle Fork Willamette River	Click For Report
170900030601	Sring Creek-Willamette River	Click For Report
170900040703	Leaburg Canal-McKenzie River	Click For Report
170900040704	Holden Creek-McKenzie River	Click For Report
170900040706	Walterville Canal-McKenzie River	Click For Report
170900050304	Kinney Creek-Detroit Reservoir	Click For Report

View of the report generated to display of all subwatersheds associated with a population.

River Systems, Species/Run, Hatchery as Populations Names in the Layer List

In the Layer List for Species/Run and regional maps, instead of using the exact names of populations (some are extremely long) the name listed in the Layer List indicates the river or creek of where the population is found. Also included is the source code of the populations in parentheses. If the river or creek name is not a major system in the Columbia Basin then the major system is indicated in the parentheses also. The list is also organized by location with the population at the lower end of regions at the top of the list and the other populations in order of moving through the system to the head waters. And within groups of identical river or creeks the sources are listed in the same order (see below).



An example of the ordering and labeling of populations in the layer list. Order is by source and by watersheds from lower to upper parts of the region. Run type is indicated if different than default. And hatchery names are indicated for most hatchery populations.

One of the ways in which fish managers have disagreed about salmon and steelhead populations is the run type. A good example is summer Chinook. Many managers have lumped together the Chinook returning in summer with either the spring or fall runs of Chinook and label them springs/summers or summer/falls; others have managed this summer returning fish as a true summer Chinook population. These tools have captured those differences. Within the Species/Run maps per region, the populations' labels in the Layer List will indicate which run type. In the spring Chinook maps the default is spring only and the population layer does not name the run. If the population is labeled a Spring/Summer the type appears in the label. For fall Chinook, the default is fall only, if it is a Summer/Fall type it is in the label. A separate map for summer Chinook is available for those fish managers that have run type of summer only.

In a similar way a hatchery population that has a specific name based on a hatchery on not

on the watershed/river system is also indicated within the naming convention of the Layer List.