Introducing IMS

- Open your web browser and navigate to http://128.208.23.127/Website/lab1. (This link can be found on the "Links" page of the course home page.) Refer to the accompanying "Introduction to the Internet Map Server" manual as you conduct this exercise.
 - a) The right-most panel lists the data layers that you may select for viewing.
 - i) Check the box to make "Major U.S. Cities" visible and click "Refresh Map."
 - ii) Make "Major Canada Cities" the active layer by clicking on the small circle beside this layer. Note that the frame below the map now states that "Major Canada Cities is now the Active Layer."
 - iii) Check the box to make "Major Canada Cities" visible and click "Refresh Map."
 - b) The left-most panel contains the available IMS tools.
 - i) Click on the **Toggle Legend** tool. Note that the right-most panel is now in standard legend format, and shows the layer name and the symbol(s) used to draw each layer. The legends for Major U.S. and Canada Cities are now displayed. Click on this button again to return to the data layer list.
 - ii) Click on the **Overview Map** button to make the overview map in the center panel disappear. Click once again to make the overview map reappear.
 - iii) Select the **Zoom In** tool with your cursor. Put your cursor over Seattle and click once. This tool always zooms to the area centered around your cursor. Now use your cursor to draw a box around the area you want to zoom in on.
 - iv) Select the **Zoom Out** tool with your cursor. Try using your cursor to draw boxes of various sizes to see the degree of zooming out using different size boxes.
 - v) Select the **Zoom to Full Extent** tool. Did you return to the original view?
 - vi) How could you return to the original view?
 - c) The left-most panel contains the available IMS tools (continued).
 - i) Select the **Solution to Last View** tool. What happened?
 - ii) Press it again. What happened?
 - iii) Select the **Pan** tool. Use this tool to drag the map around. What does the bottom left hand corner of your screen say?

- iv) Use the zoom and pan tools to make the Puget Sound region fill the center panel of the viewer.
 - (1) Make "WA Major Water Bodies" both visible and active. Don't forget to click "Refresh Map."
 - (2) Select the **U**Identify tool.
 - (3) Click on one of the features (i.e., one of the water bodies) on the map.
 - (4) Note that the attribute information is displayed below the map. What attribute information is available for water bodies?
- v) Now make both the "US Major Rivers, Streams" and "WA Major Rivers, Streams" layers visible.
 - (1) How can you tell the difference between these 2 layers in the map?
 - (2) What attribute information is available for US Major Rivers, Streams?
 - (3) Is the same attribute information available for WA Major Rivers, Streams?
 - (4) What are the 2 ways that you can get information about features in a data layer?

Introducing the Puget Sound Watershed

Return to the PRISM web page or use the "history" menu of the browser to return to the starting page for this lab.

- 2) **Puget Sound Basins** Select "Puget sound DEM with bathymetry" as the only visible layer. Zoom in so that this layer fills the center panel.
 - a) What does the DEM layer represent?
 - b) Why do you think this layer does not cover the entire state of Washington?

c) Make the "WA Major Water Bodies" layer visible and active. The following questions ask you to compare the view in IMS to the map of Puget Sound salt-water sub-basins below. This map considers "greater" Puget Sound to include all of the inland salt water of Washington State. Using the "Identify" tool, determine the extent of Puget Sound.



- d) What part of greater Puget Sound does the IMS identify as "Puget Sound?"
- e) List the names of 5 major water bodies in the IMS that are part of the Southern Sound.

- f) List the names of the three largest major water bodies in the IMS that are part of the Whidbey Basin.
- g) What does IMS call the waters immediately north of the San Juan Islands? Immediately south of the San Juan Islands?
- h) What is the name of the large bay that connects to Hood Canal?
- 3) **<u>Puget Sound Rivers</u>** Make the "US Major Rivers, Streams" layer visible and active.
 - a) Identify 8 major US rivers that feed the <u>eastern shore</u> of greater Puget Sound north of Tacoma, and give the IMS name of the major water body into which each flows.

Major US River	Major Water Body

- b) Identify 3 major rivers flowing into the Southern Sound.
- c) Identify 4 major rivers feeding into Hood Canal.

- d) Identify 2 major rivers feeding into the Strait of Juan de Fuca.
- 4) **<u>Puget Sound WRIAs</u>** Make the "Washington WRIAs" layer active and visible.
 - a) What does WRIA stand for?
 - b) What hydrologic features do the colored areas on the IMS represent?
 - c) Zoom in on WRIA 7. What is the name of the hydrologic feature that this WRIA represents?
 - d) What are the names of the WRIA's immediately to the north and south of WRIA 7?
 - e) WRIA 7 contains 3 major sub-units. Use the layers available to you to figure out their names.
- 5) **Puget Sound Land Cover / Land Use** Zoom and make layers active, visible and invisible as appropriate so that you can study the "WA Land Use / Land Cover 2002" layer in the vicinity of WRIA 7. Note that this layer cannot be active. How else can you learn about this layer?
 - a) What type of Land use / Land cover appears to cover the largest amount of area?
 - b) What dominant type(s) of Land use / Land cover occur(s) at the highest elevations?
 - c) What dominant type(s) of Land use / Land cover follow(s) major US rivers?
 - d) Where do most urban Land use / Land cover areas occur?

- 6) **<u>Puget Sound Political Boundaries</u>** Use the IMS tools as appropriate so that you can answer the following questions.
 - a) What do you observe about the correspondence between WRIA boundaries and the eastern boundaries of counties along the east shore of Puget Sound?
 - b) How would you explain your observation?
 - c) What do you observe about the correspondence between WRIA boundaries and the northern & southern boundaries of counties along the east shore of Puget Sound?
 - d) What kinds of difficulties might this cause for land-use managers?
 - e) In what counties does WRIA 7 reside?
 - f) What WRIAS (name & number) lie all or partly within King County?
- 7) **<u>Puget Sound Population</u>** Use the IMS tools as appropriate so that you can answer the following questions.
 - a) Where are the most densely populated areas?
 - b) Do these densely populated areas coincide with political or natural boundaries?
 - c) In general, what is the spatial relationship between population density and water bodies (salt water, lakes, rivers) in WRIA 7?
 - d) What might account for this population density distribution?

- e) How might this population density distribution impact salmon?
- 8) **Find yourself** on the UW campus! There is a layer that contains several aerial photos. The title heading above these photos must be checked before individual photos become visible.
 - a) Locate the Ocean Sciences Building where the classroom is located. According to the IMS, along what waterway does the UW campus reside?
 - b) What major freshwater body and saltwater body of water does this waterway connect?
 - c) What do you observe about the correspondence between the aerial photos and the layer showing this waterway?
 - d) What do you think would account for this observation?
 - e) On the computer desktop you will find an icon entitled Google Earth. Google Earth is a mapping and satellite imaging program for complex or pinpointed regional searches. Locate the UW campus and the Ocean Sciences Building using this program.
 - i) You will see an input bar at the top left of the window. Enter your desired location here. Once you have found the campus, familiarize yourself with the toolbar at the bottom of the screen. Play around with the zooming options, especially the pan and tilt functions. It is very cool!! Enter other locations of interest.