• What makes an ESTUARY?
• Write down 3 things that these places have in common

Willapa Bay →

←Chesapeake Bay

←Long Island Sound

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What is an “estuary”? 
Estuaries are critical for certain species.

- River brings nutrients into the estuary
- It is a diverse habitat
Planktons in an estuary
Crab life cycle

- Dungeness crab
- Meroplankton

Pauley et al., 1986
Estuarine circulation

Adapted from Pethick (1984)

Diagram showing estuarine circulation with small tidal input, very little mixing of fresh and salt water, slight upstream residual flow in salt water wedge, dominant downstream fresh water flow, and large river input.
Estuarine circulation

• Daily changes

• Make a sketch on the water depth and salinity that you will expect to observe in East Sound during these 2 days
Estuarine circulation

- Changes in longer time scales
  - Rainfall
  - Drought
  - Snow melt

Fig. 1 Temperature (panel A), salinity (B) and fluorescence (C) in the fjord in July 2007.

Dekshenieks et al. 2001
How will physics and biology interact?

When is a good time and where is a good place to spawn?
Let’s use a computer model to answer these questions.