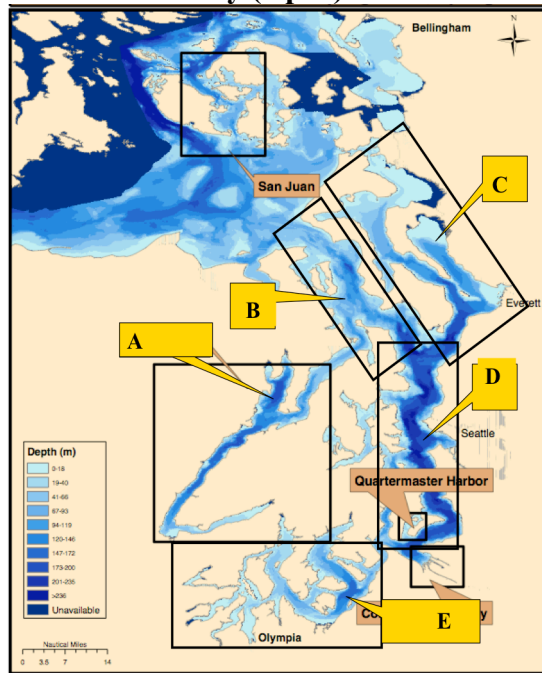


V. In-class activity (5 pts.)



1. [1 pt.] Using the map at left, select from the locations labeled A-E to identify the 4 major basins in Puget Sound using the map below.

Main Basin  D

Whidbey Basin  C

South Sound  E

Hood Canal  A

2. [4 pts.] For each of the 4 categories of estuary listed below, match the most suitable location on the map (A–E), and explain what about the basin shape and circulation at that location in Puget Sound make it fit into that category.

Type of estuary	Letter on map	Explanation
Salt wedge	C	(To be a salt wedge, a basin must have a high input of fresh water and weak tidal mixing.) 2/3 of the freshwater entering Puget Sound enters the Whidbey Basin. Tidal mixing is weakened because the incoming tide must turn 180° to enter the basin.
Fjord	A	(A fjord is essentially a salt wedge with a sill at its mouth that reduces tidal intrusion of deep water.) Hood Canal is long, narrow, and deep, with several rivers and a sill at its mouth. This results in strong vertical stratification, and very weak tidal exchange and low oxygen in deep water.
Partially mixed	D	(For a basin to be partially mixed, it must have roughly equal influences of fresh water input and tidal mixing.) The Main Basin is fed by several rivers and is open to tidal currents from Admiralty Inlet, so the two drivers have roughly equivalent influence.
Well mixed	B	(To be well mixed, a basin must have a low input of fresh water and strong tidal mixing.) Admiralty Inlet has no significant river input. It is narrow and directly exposed to incoming tides from the ocean and is underlain by a series of shallow sills. This combination of factors creates strong mixing.