

Lab 4. Collecting Data in the Ocean

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Name: _____

Learning Outcomes:

- Be able to explain where our closest underwater ocean observatory is located and what its function is.
- Be able to name pieces of equipment used in the underwater ocean observatory.
- Know what kind of data are collected from underwater ocean observatories, gliders, and satellites.
- Learn to read graphs using data as it relates to changing salinity and depth.

PART I: What is an underwater ocean observatory?

- Go to <https://www.youtube.com/watch?v=vLWoDVfzNSY> to learn about the installation of Newport's endurance array

1. What type of research can be conducted using an underwater ocean observatory system?

Let's look at the ocean observatory system off of the coast of Oregon.

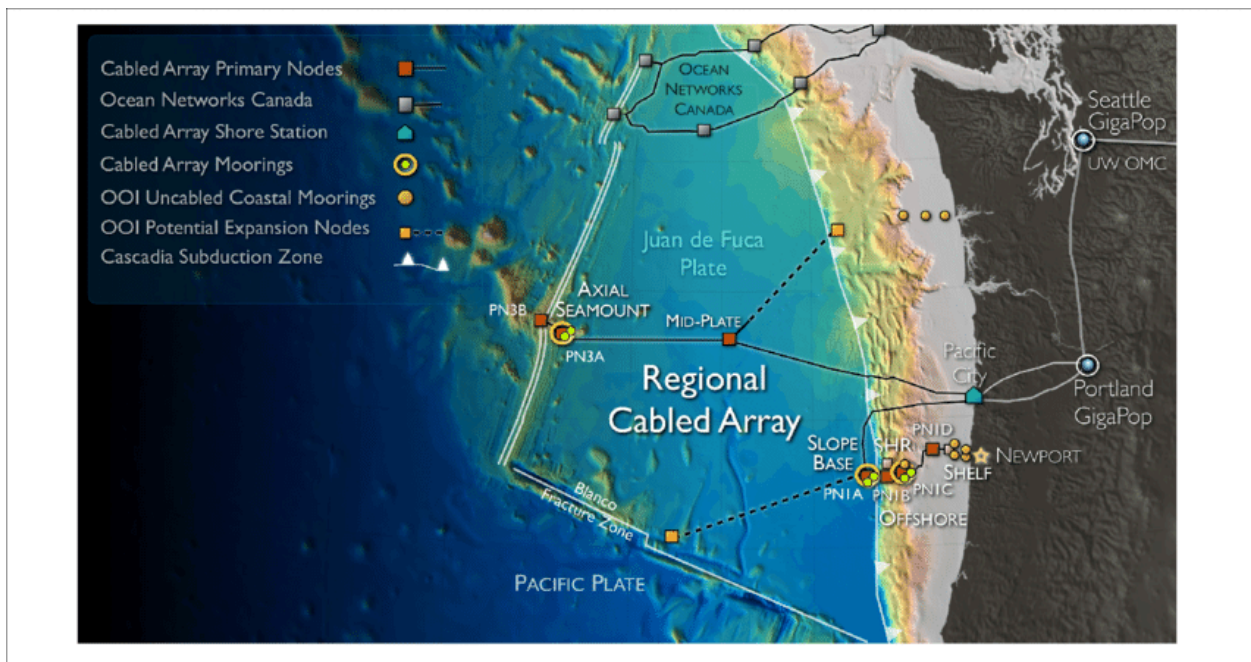
- Go to the "[More information](#)" section to learn about the Coastal Endurance system.
- Next go to the "[Overview](#)" section, and answer the following questions:

2. How many platforms (profilers) are part of the system?

3. The system is found off the coasts of 2 states. Name those states.

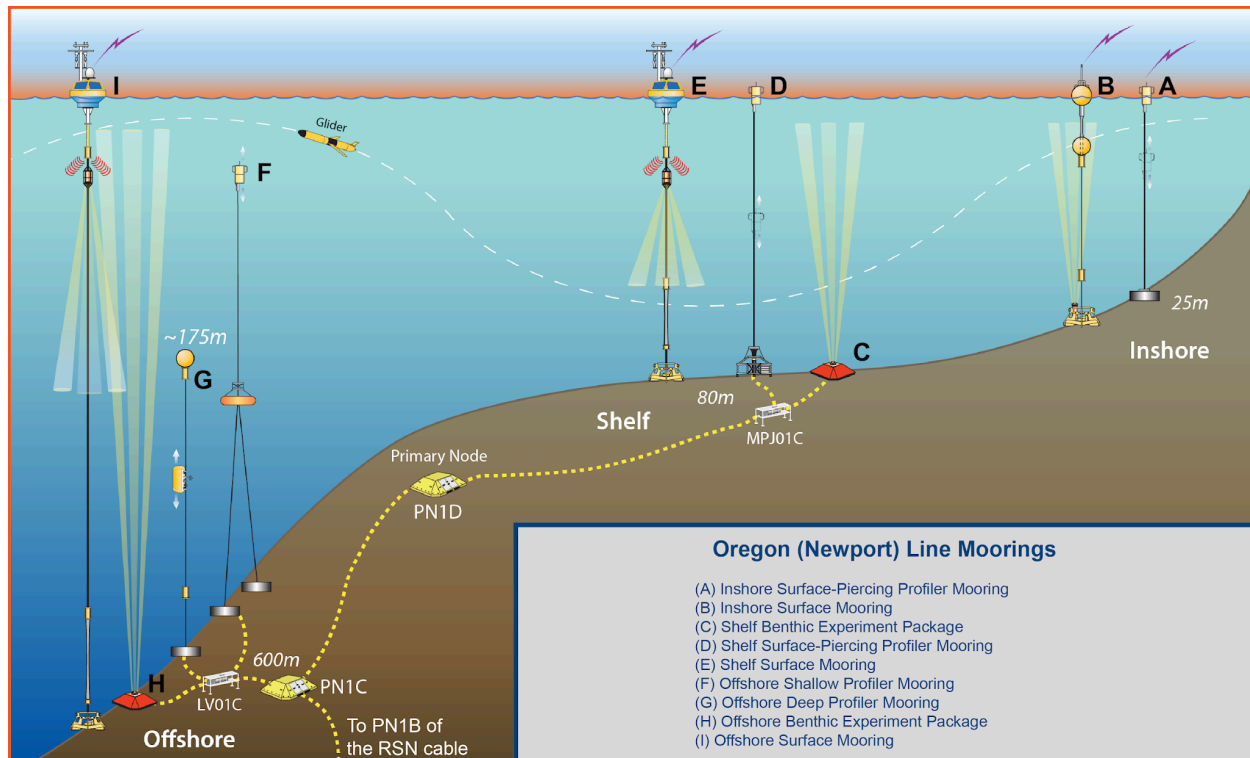
- Use either the figure below or go to https://www.researchgate.net/figure/Location-of-the-Regional-Cabled-Array-spanning-the-Cascadia-Margin-and-Juan-de-Fuca_fig2_331499341 to answer the following questions.

4. Name the seamount/volcano where data will be collected.
5. Which tectonic plate will house most of the underwater observatory, the Juan de Fuca or Pacific plate?
6. What is the name of the subduction zone being studied using the underwater observatory equipment?
7. What other country has an array off of its coastline?



(Image Source: Center for Environmental Visualization, UW School of Oceanography)

PART II: What equipment can be found at an underwater ocean observatory?



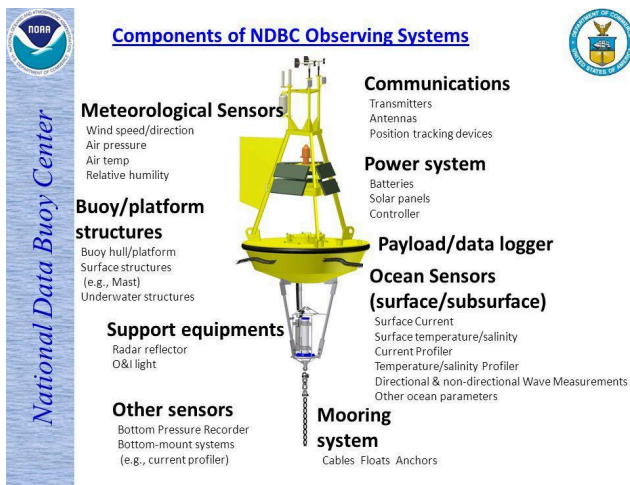
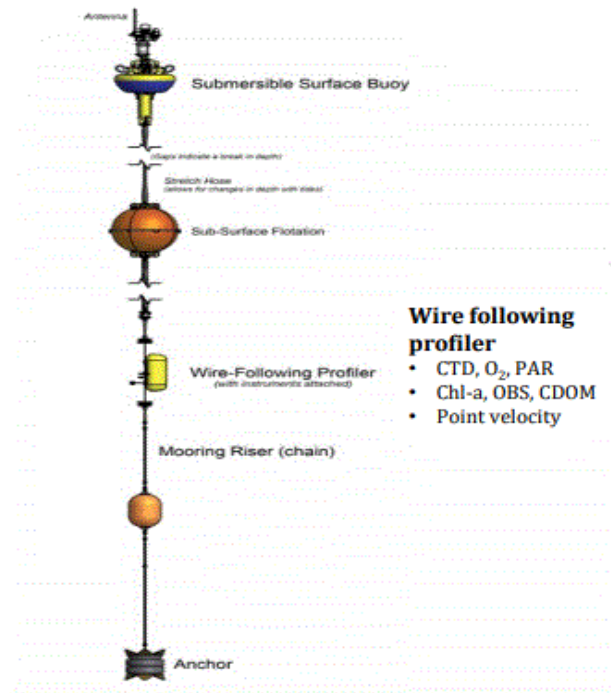
(Image Source: Ocean Observatories Initiative)

9. Why are the pieces of equipment at different depths?

10. Using only the photo above, locate the moorings and explain what you think a mooring is.

11. Using the internet, find a definition of moorings that describes its use above.

Mooring:



(Image Source: Ocean Observatories Initiative)

(Image Source: National Data Buoy Center)

12. List 3 things that can be measured using a surface buoy.

13. Using the image on the previous pages, which of the 3 locations (inshore, shelf, or offshore) use surface buoys?

14. Speculate why those locations have surface buoys and not the other location.

Glider:

- Go to <https://oceanservice.noaa.gov/facts/ocean-gliders.html> and watch the animation.
- Read the information below the video to answer the questions.

15. List 3 things that can be measured using a glider.

16. Compare and contrast what a glider can do versus a surface buoy.

Benthic Experiment Package:



(Image Source: Melissa Kilgore)

(Image Source: Ocean Observatories Initiative)

17. Using the image on the previous page, which of the 3 locations (inshore, shelf, or offshore) use the benthic experiment package?