

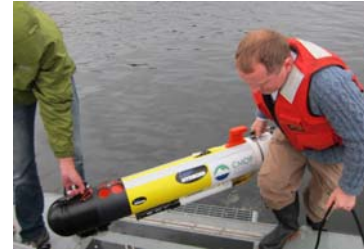
Seattle Public Schools

Jane-Adams Middle School

STEM class, Grade 6-8

01 June 2017

Dr. Craig McNeil
Applied Physics Laboratory
University of Washington



OVERVIEW of PRESENTATION

- I will show you various floating platforms used to study the ocean. You will learn that some platforms swim, fly, bob up and down, have people inside, use a long cable, 'talk' using underwater acoustics, and some can even lift rocks from the bottom of the ocean and bring them up to the surface.
- By learning about these platforms you will get ideas, tips, and tricks to help better design your own research platform!

Trina Litchendorf



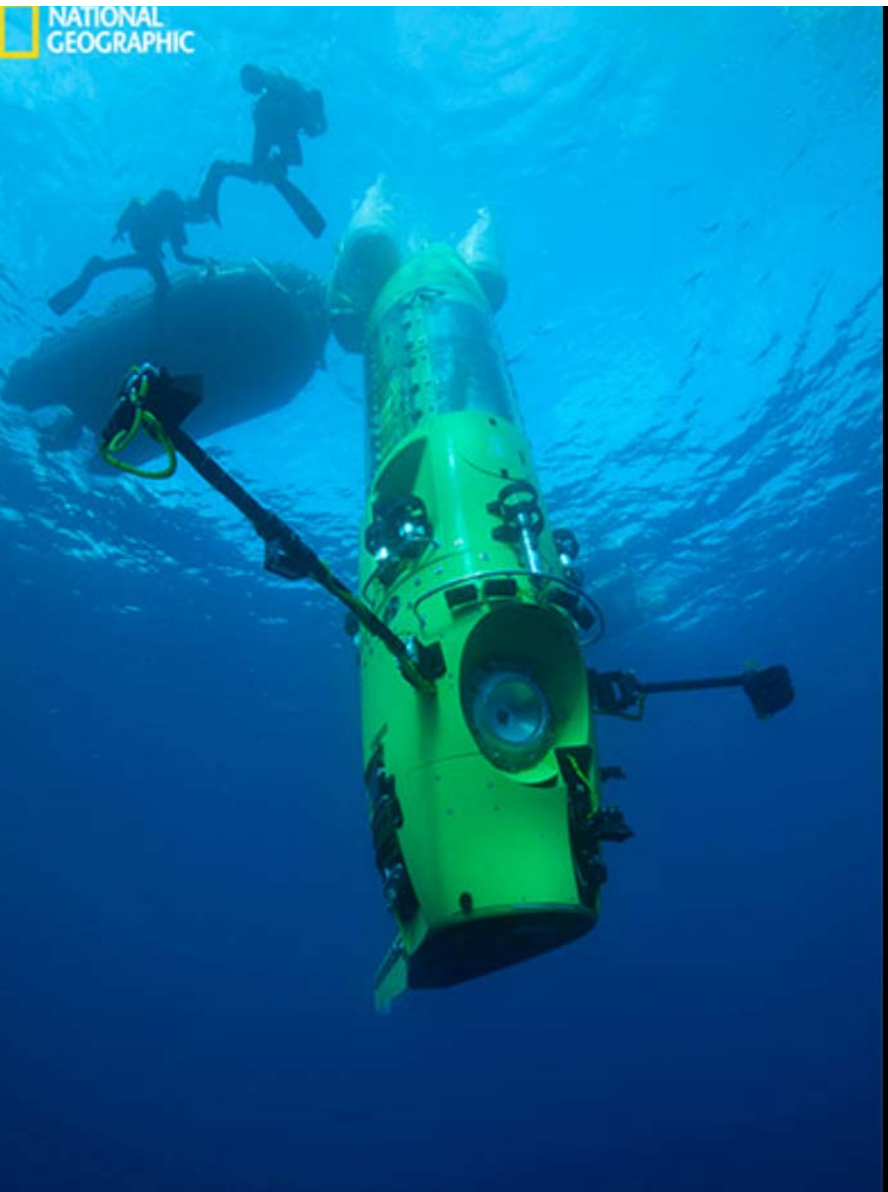
Towed Profiler behind Research Ship



R/V Neil Armstrong



Submarine

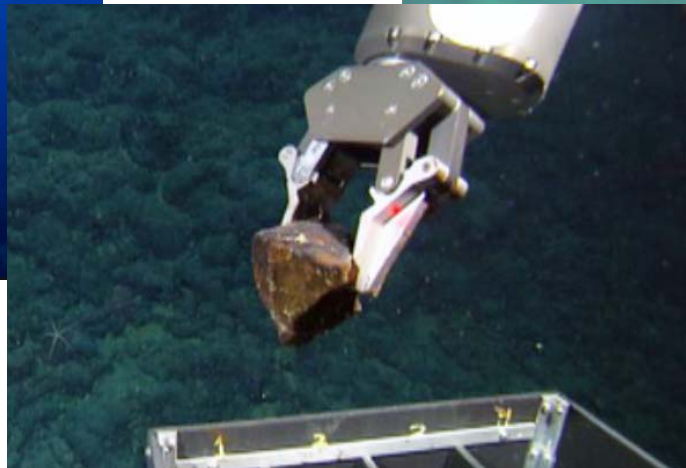
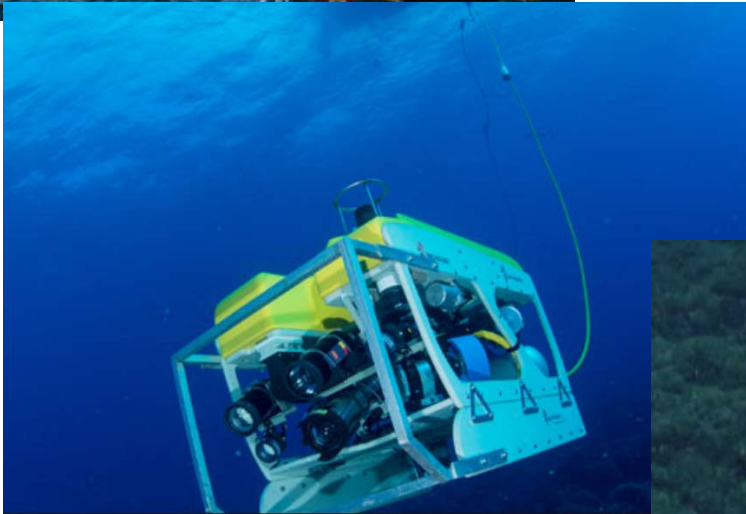


Manned Underwater Vehicle

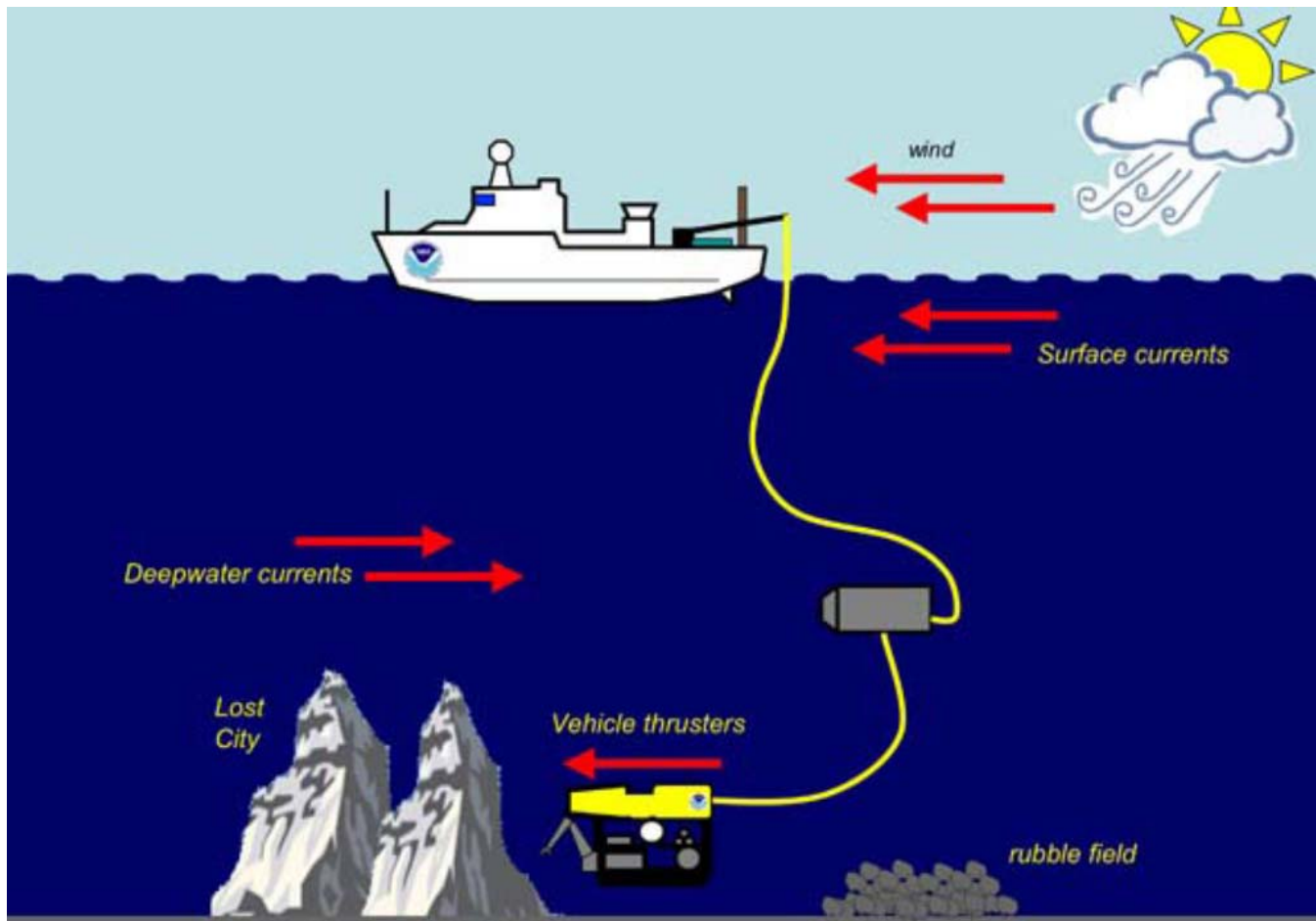


This went to deepest spot in ocean called Challenger Deep (11km)

ROV – Remotely Operated Vehicle

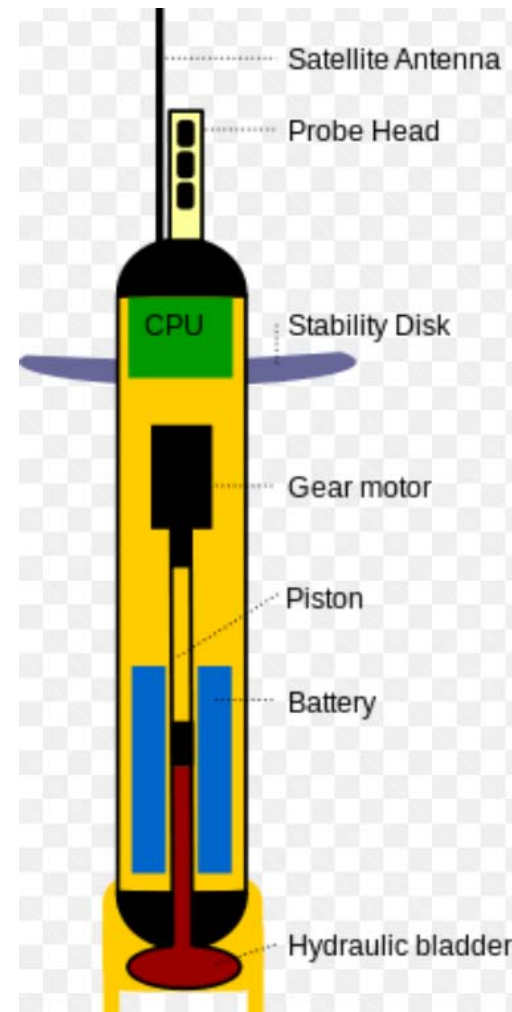
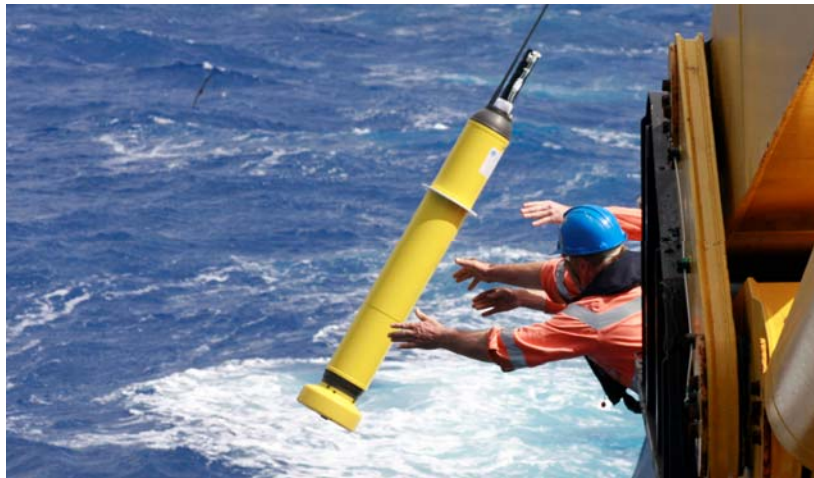


Consider some of the complications of tethered vehicle.....



Underwater Profiling Float

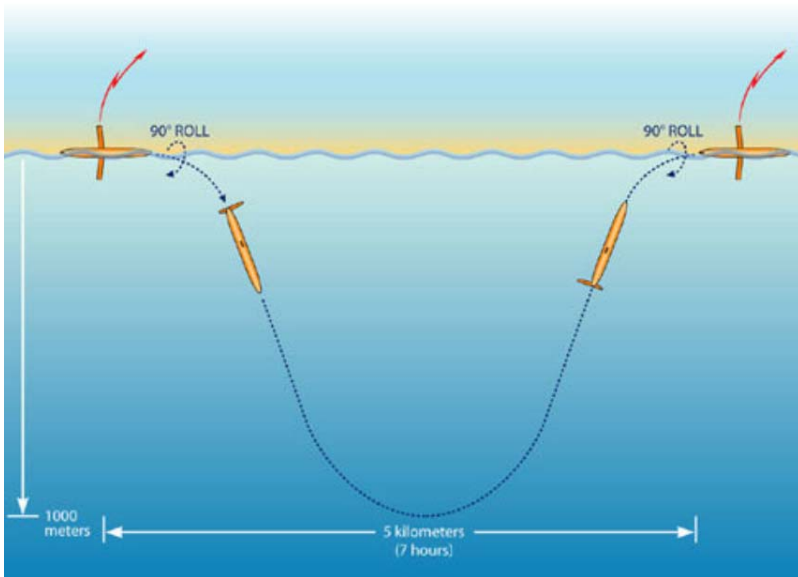
3000 ARGO floats





Underwater Glider

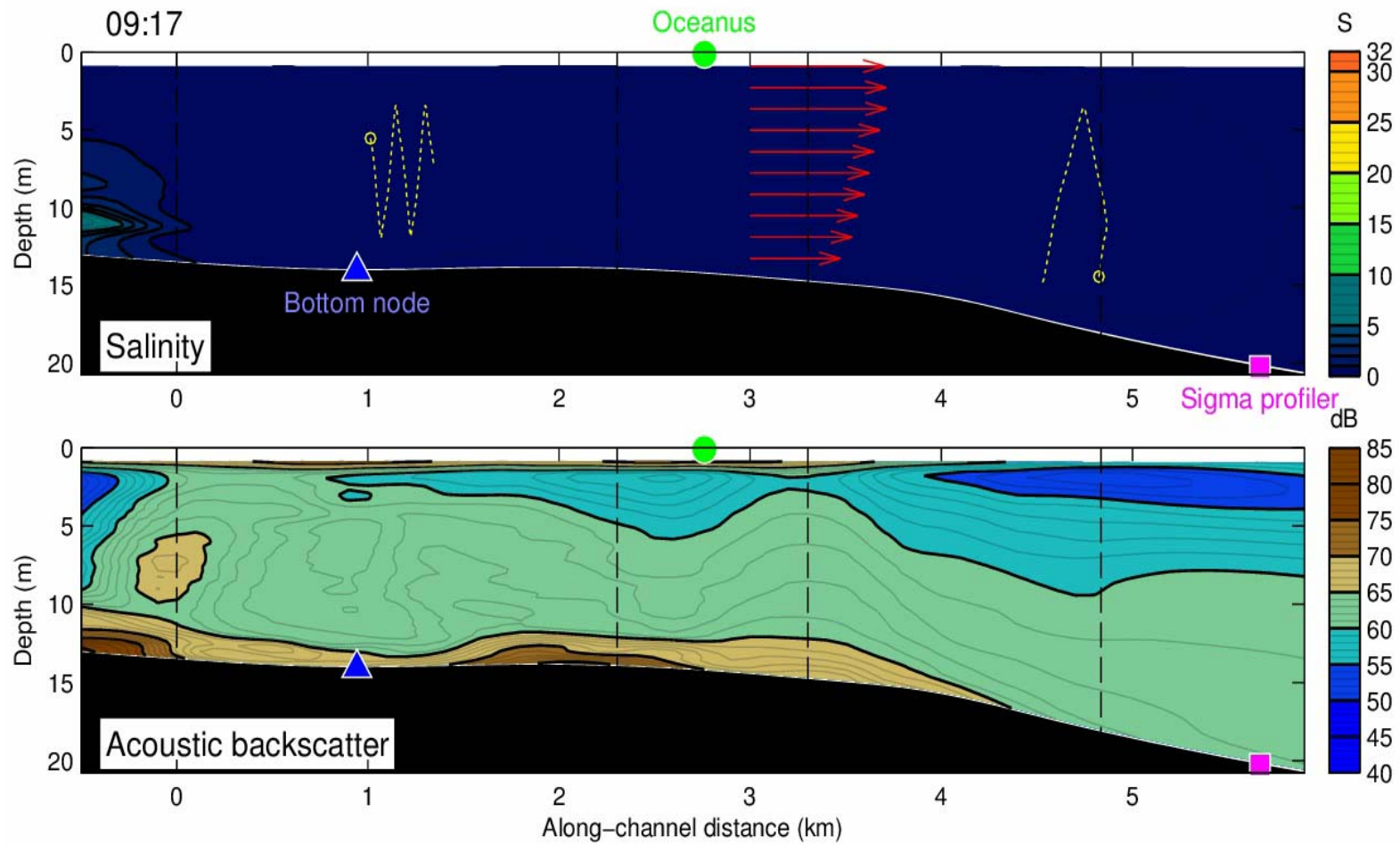
(think 'profiling float with wings')



AUV - Autonomous Underwater Vehicle



AUV Measurements from Columbia River



Some design considerations for your vehicle:

- Will it be use a cable? Fiber optic and power cables allow real-time cameras and no batteries inside the vehicle are required (lighter!).
- Will it go deep? If so, it needs to be very strong and this can make it very expensive and heavy!
- Will it travel far? If so, will it glide or have a propeller?
- Will it need a buoyancy engine (piston or inflatable bladder) to make it rise or sink?
- Will it need movable control surfaces (fins) to allow it to alter course?
- How will it navigate? (compass, acoustics, GPS)

