The Oregon Ocean Acidification and Hypoxia Action Plan: Climate Monitoring Station

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Background:

The HMSC Dock represents a significant research reference site and a long-term ocean acidification and hypoxia (OAH) monitoring site would fill vital gaps in data collection. This would also provide access to previously unavailable data for partners and researchers. Due to aging equipment and incomplete historical collection efforts, data is not freely accessible to all interested parties, and HMSC has chosen to address this by leveraging OSU's investment in new pumphouse infrastructure into a designated equipment space for OAH monitoring.

Abstract:

HMSC plans to create a modular physical, chemical, and biological water sampling station with climate-grade instruments that collects and supplies data to researchers, resource managers, recreational and commercial users, and the general public.

OAH Instruments	Parameters
YSI EXO2 Sonde	Collects pH, dissolved oxygen, turbidity, temperature, conductivity, and total algae
SeapHOx V2 Ocean CT(D)	Collects depth, pH, and dissolved oxygen
Suna V2 Nitrate	Collects Nitrate and Nitrite concentration estimated from UV absorption spectra
ECO Triplet-w	Collects Chlorophyll A concentration estimated from fluorescence excited at 470 nm, colored dissolved organic matter concentration estimated from fluorescence and particulate backscattering

Materials:

- Fiberglass Reinforced Plastic
- Delrin Plastic
- ¼" x 2" Aluminum stock
- Assorted fasteners and hardware

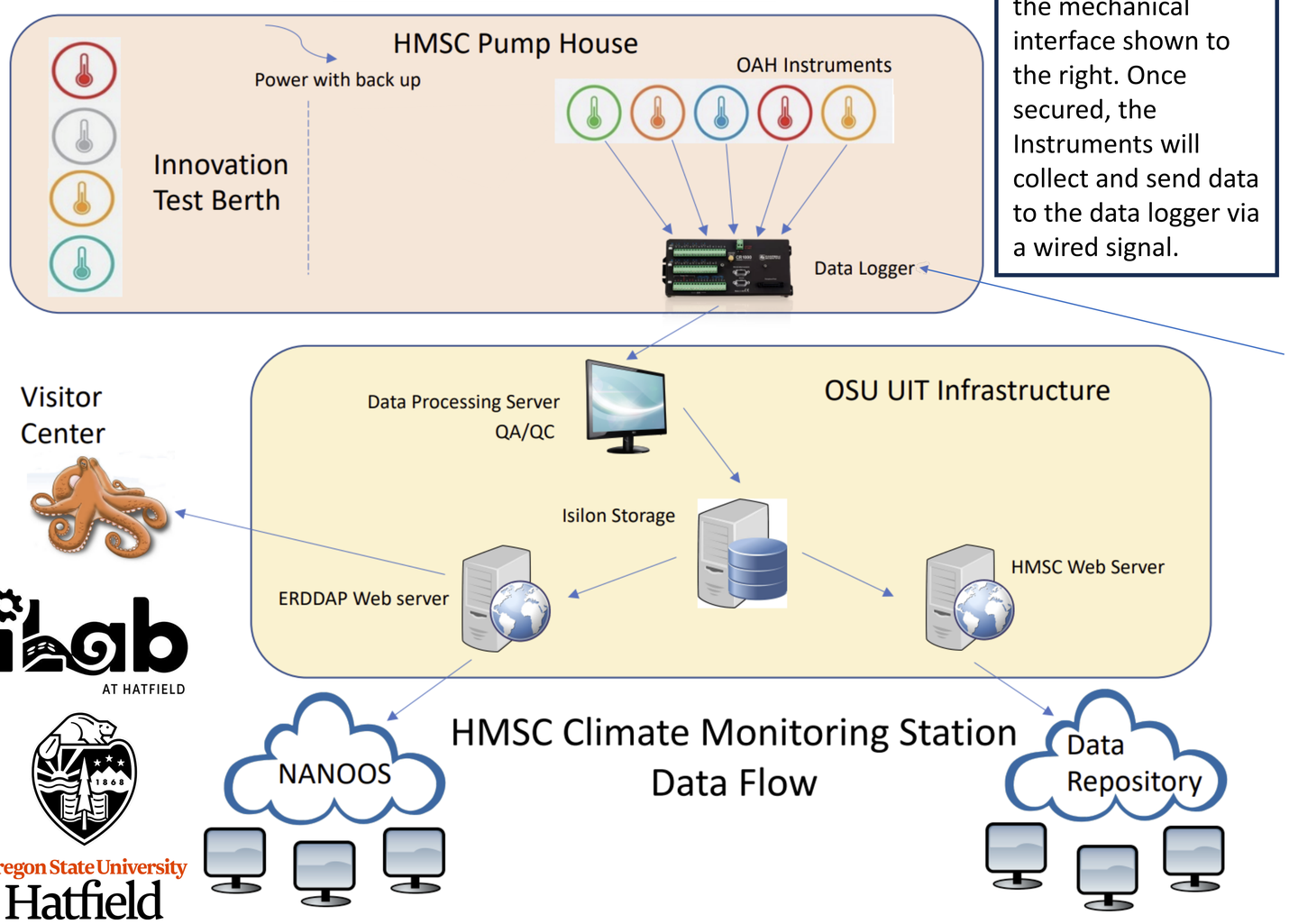
Noteworthy Equipment Used:

- CNC Plasma Cutter
- CNC Router
- CNC Mill
- TIG Welder
- Autodesk Inventor Pro

Future Work:

- Install pump house mechanical and IT infrastructure
- Build a second modular sampling station to test new instruments and data collection methods
- Add Air quality and meteorological packages to pump house
- Expand remote sampling sites around Yaquina Bay

Figure 2:
HMSC climate monitoring data flow



The OAH instruments will be protected by the mechanical interface shown to the right. Once secured, the Instruments will collect and send data to the data logger via a wired signal.

Figure 1:
3D model of echanical interface and OAH instruments

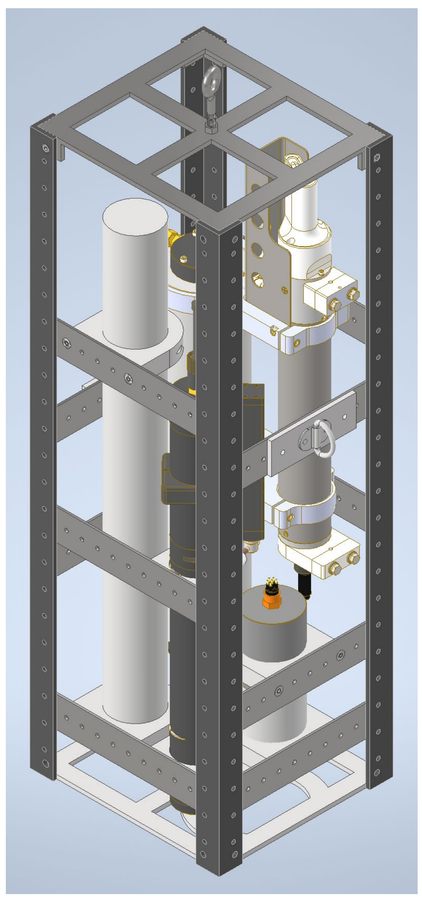
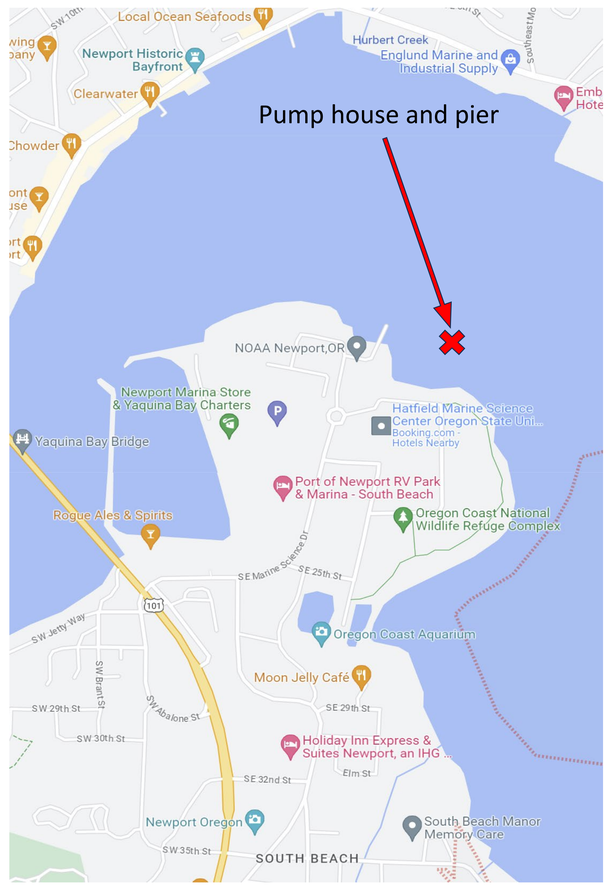


Figure 3:
Pump house and monitoring station location



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Sources: