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Endurance Array Status and Community Engagement

Ed Dever and OOI Endurance Array team
2024-11-14



Outline

- Staffing
- 2024-2025 Turn Cruises
- Platform status
- Community Engagement





The EA Team

- Stuart Pearce identified as EA cybersecurity contact.
- Currently recruiting a new mooring instrument lead and 1 platform technician
- Planning to recruit an associate project scientist (more about this later)

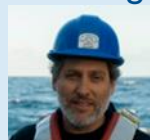
13 12 FTE

Principal Investigator/
Project Scientist



Ed Dever
0.6 FTE

Project Management



Jon Fram
0.9 FTE

Finance



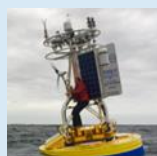
Pei Kupperman
0.45 FTE

Field Ops And
Mechanical Lead



Alex Wick
1 FTE

Electronics Lead



Steve Lambert
1 FTE

Data Lead



Chris Wingard
1 FTE

Moorings



TBD
1 FTE

Gliders



Stuart Pearce
1 FTE

Platform Leads

CSPPs



Mari Aguirre
1 FTE

WFP



Raelynn Heinitz
0.2 FTE

Undergraduate Student
Research Assistants
0.2 FTE

Surge
Technicians
1.65 FTE

Platform
Technicians
2 FTE



Endurance Array Turn Cruises

Endurance 21 Fall 2024

- R/V Sikuliaq
- 4 – 18 October 2024
- Newport – Newport, 2 legs
- Scheduled late in the season, weather was a minor challenge on leg 2
- 9/16” heavy lift winch line UNOLS App A exemption process

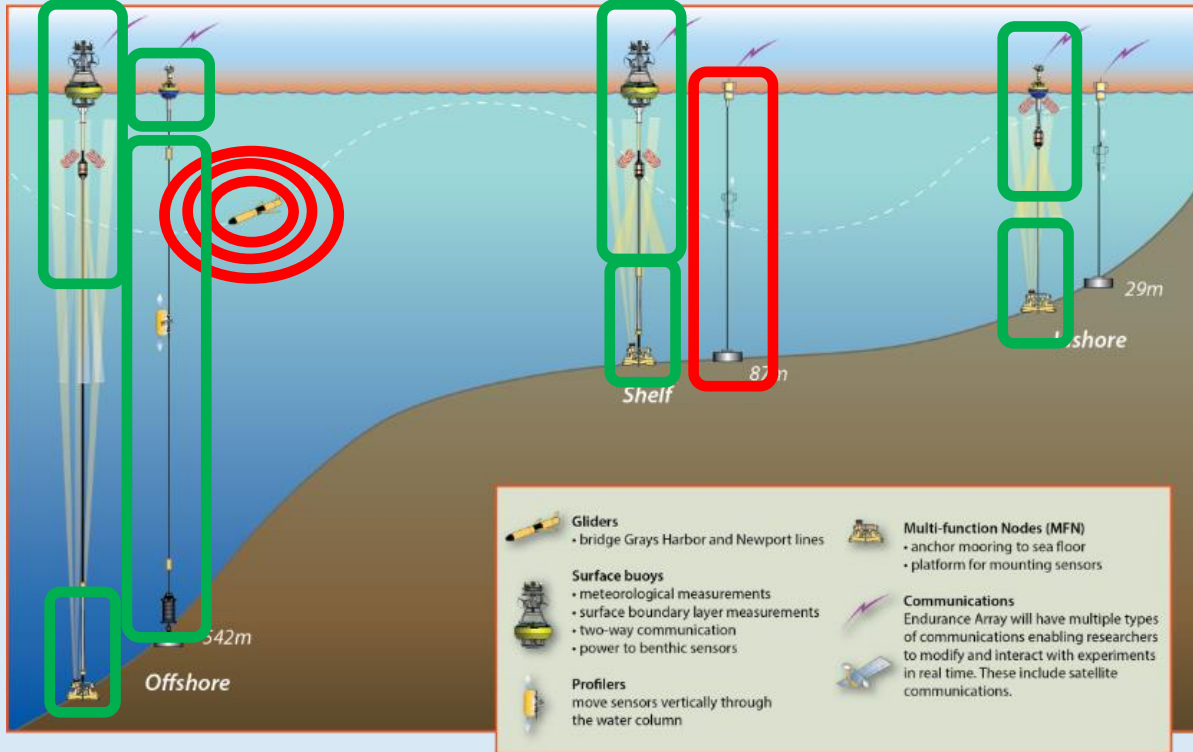
Endurance 22 Spring 2025

- R/V Sally Ride
- 17 May – 1 June 2025
- Newport – Newport, 3 legs
- 9/16” heavy lift winch line plus new sheave UNOLS App A exemption process

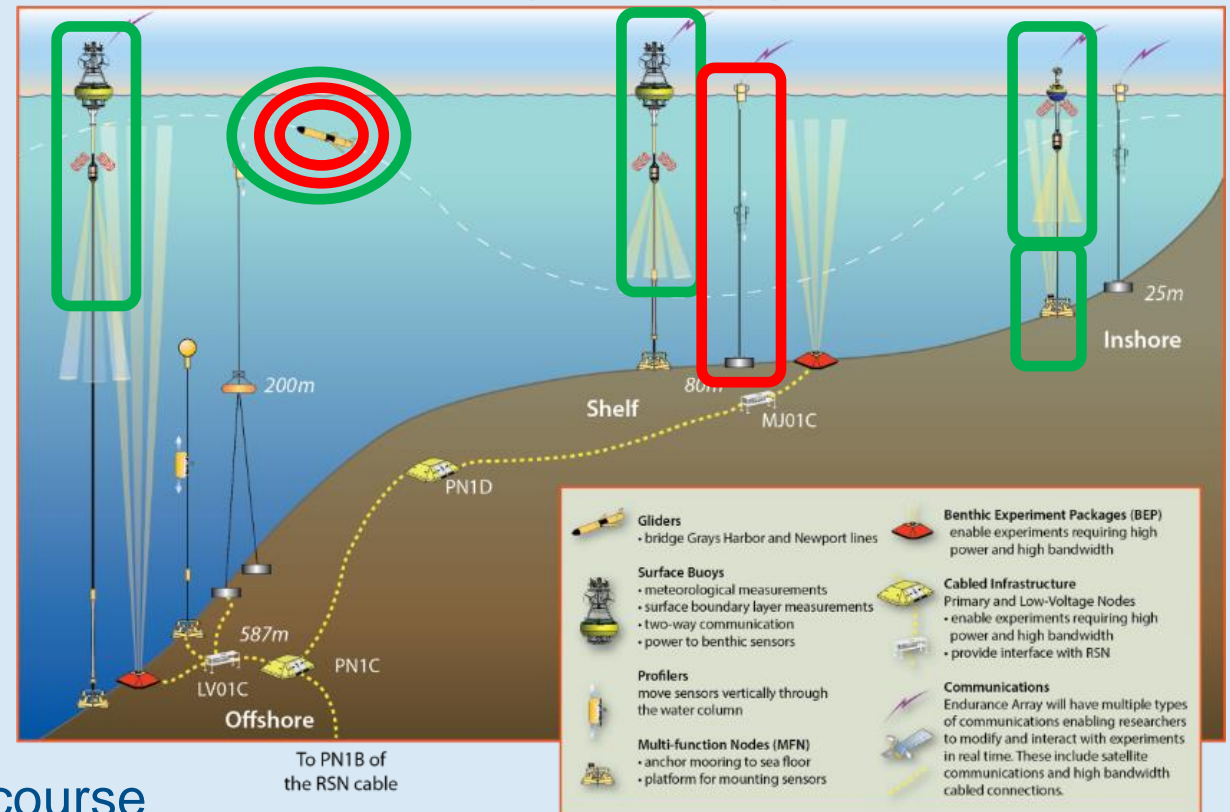


Endurance Array platform status

Endurance Array – Grays Harbor Line



Endurance Array - Newport Hydrographic Line



Array status updates are posted weekly to OOI Discourse

Oregon Shelf CSPP deployment scheduled for week of 2024-11-18.

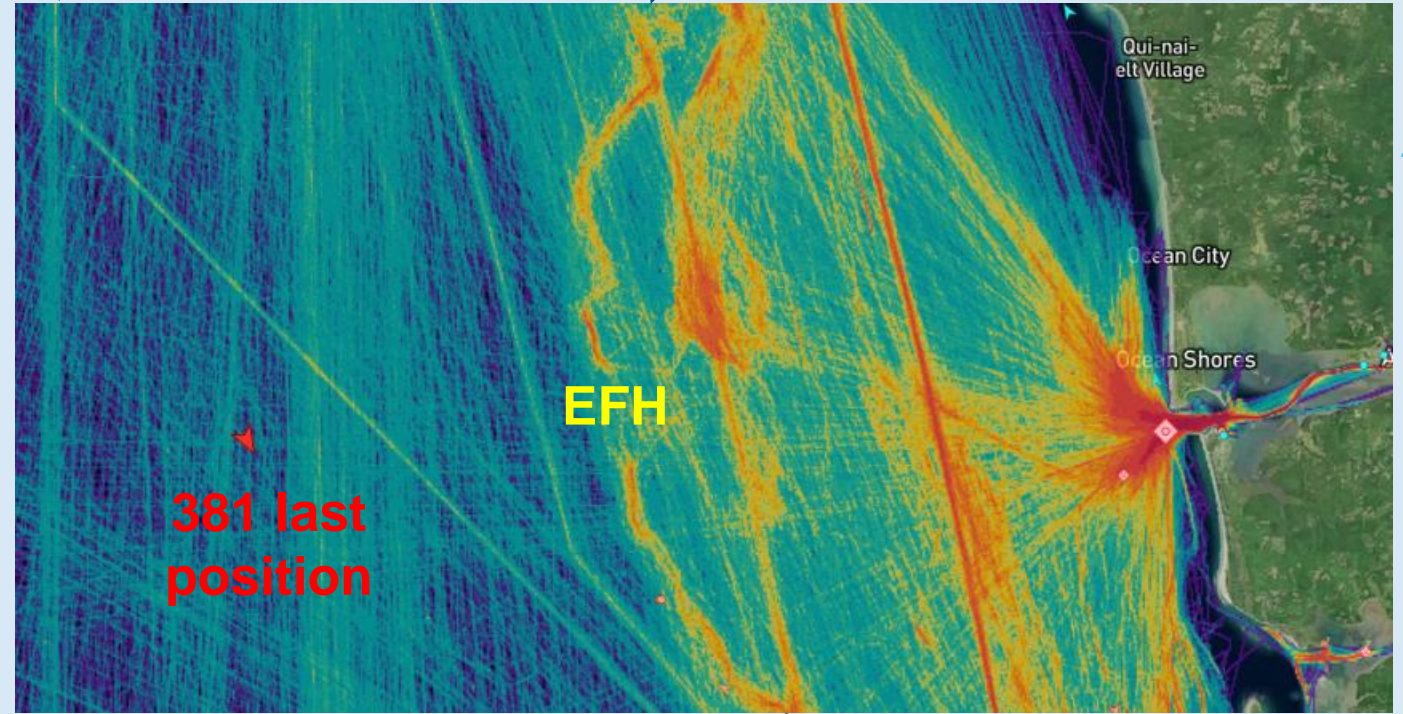
Two glider deployments scheduled for week of 2024-11-18.



Recent glider losses

- 1012-D00005 – lost 2024-10-06 shortly after deployment
 - G3
 - Near WA Offshore site
 - Reviewed ship tracks, no evidence of glider being run over
 - Recovery strobe not functioning (known before deployment)
- 381-D00014 – lost 2024-10-26 1 week before planned recovery
 - G2
 - Near 126 W
 - Deployed 2024-08-06, operational for 81 days
 - Reviewed ship tracks, potential ship strike, reviewing options for vessel AIS information purchase

Bulk carrier route Fishing along slope Tow barge lane



Bulk carrier route Fishing along slope
(potential ship strike) AIS vessel traffic density





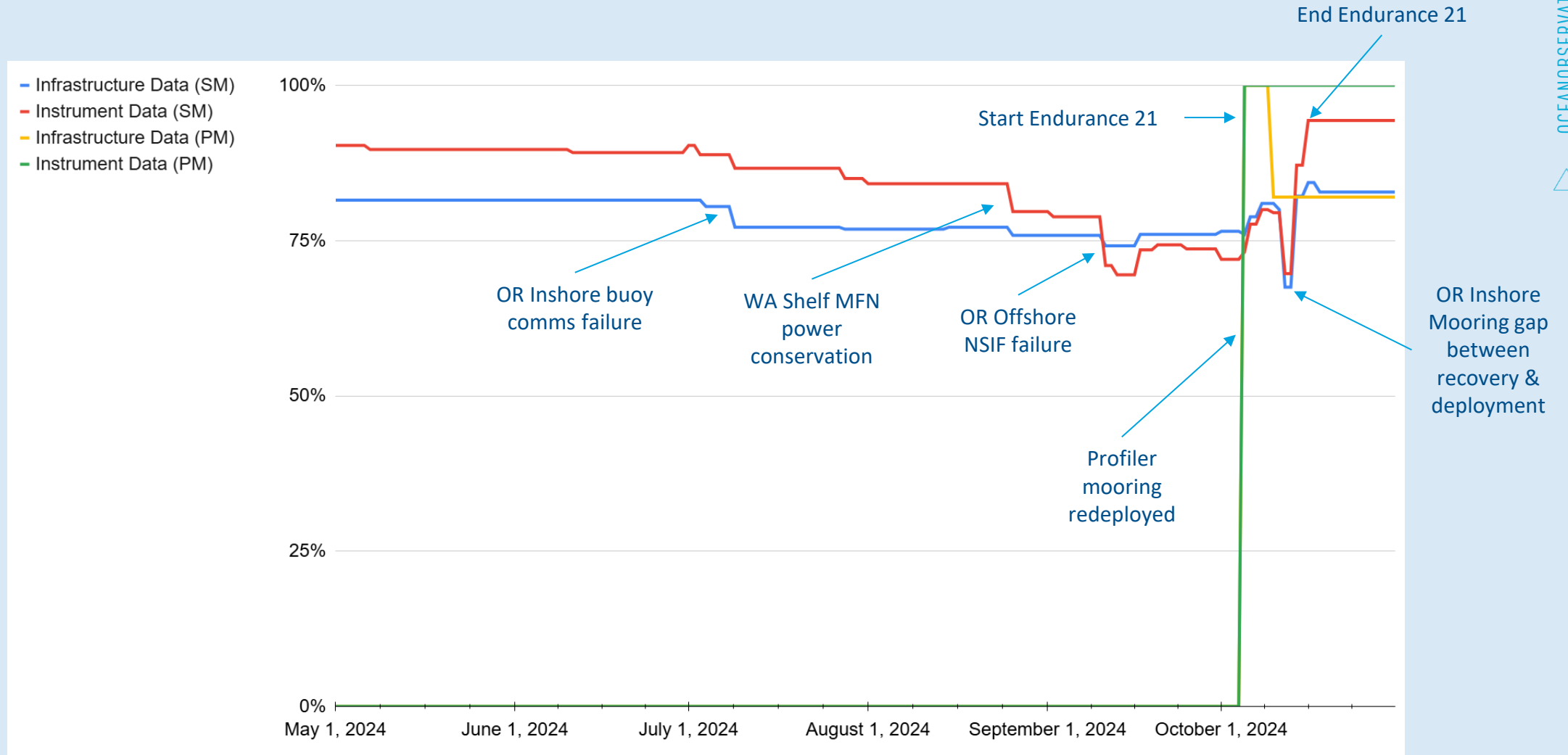
Endurance 21 Mooring Status

Platform	Infrastructure %	Instruments Deployed %	Near Real Time Delivered %	Data Collected %
Oregon inshore	88%	100%	90%	95%
Oregon shelf	82%	100%	100%	100%
Oregon offshore	77%	100%	100%	100%
Washington inshore	88%	91%	95%	100%
Washington shelf	84%	100%	90%	97%
Washington offshore	85%	100%	90%	100%
Washington offshore profiler	82%	100%	100%	100%

% takes into account electronics intentionally turned off (e.g., acoustic modems, FreeWave etc.)



Operational Statistics: Last 6 Months



Mooring Updates

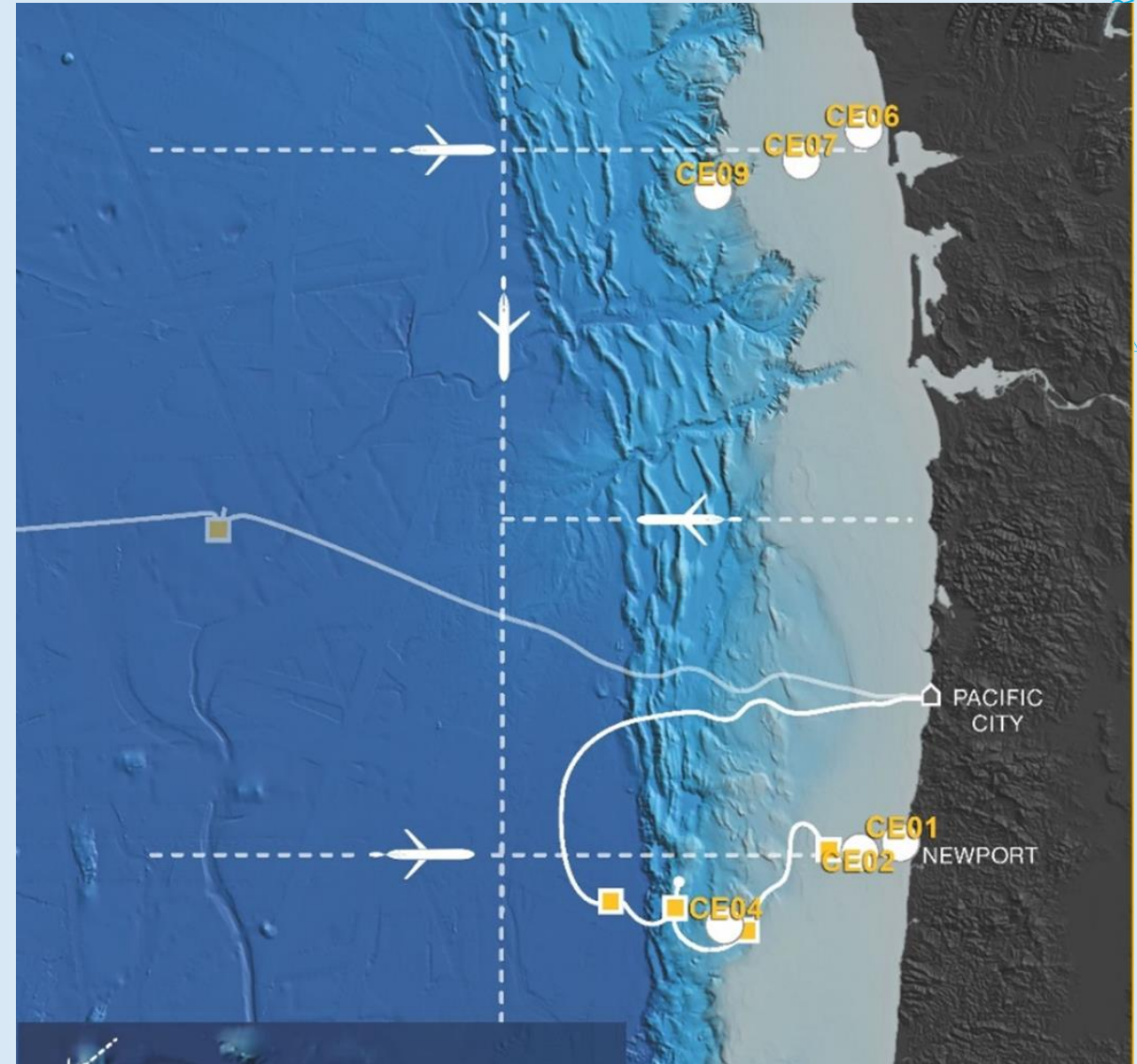
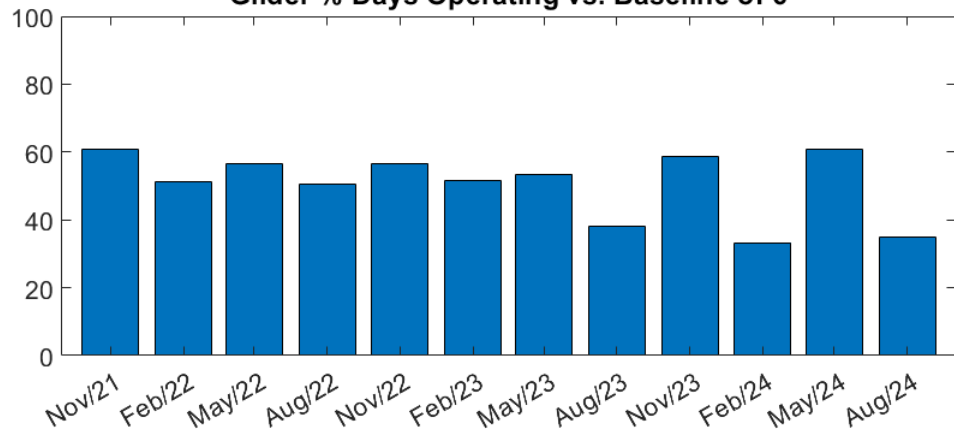
- The McLane profiler deployed in spring 2024 survived the loss of the surface buoy and continued profiling throughout the deployment. Data from the recovered profiler have been downloaded.
- The recovered profiler has been returned to McLane for refurbishment with newly calibrated instruments.
- Power Board and Firmware Upgrade Testing
 - Testing new dual-power boards (improved efficiency) on CE01ISSM. Initial results indicate a reduction in power consumption. More data and analysis required to determine magnitude, but early analysis suggests >20%.
 - Testing new firmware on the CE06ISSM mooring to allow for separate sleep cycles for CPMs (used for communications) and DCLs (used for instrument control and data logging). Hope is to reduce power consumption by allow DCLs to operate separately from the CPMs. Too early to draw any conclusions.



Endurance Array Glider Coverage

- Several G3 glider issues continue to be worked through (build quality and firmware)
- Drops in deployments due to G3 glider issues being addressed under warranty
- Have stopped cycling G2 gliders through trade in to G3 gliders
- Recent glider losses will reduce glider days operating relative to baseline.

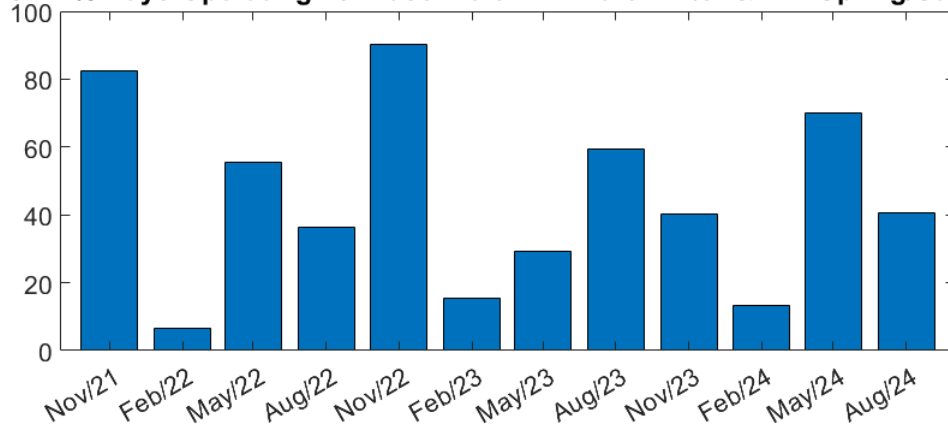
Glider % Days Operating vs. Baseline of 6



Endurance Array CSPP Deployment Summary

- No Grays Harbor deployment over winter 2024-2025 due to weather.
- Some summer profiler deployments ended early due to profilers stuck at surface.
- An anchor issue that sometimes affected acoustic release operation has been addressed.

CSPP % Days Operating vs. Baseline of 2 in Fall/Winter & 4 in Spring/Summer





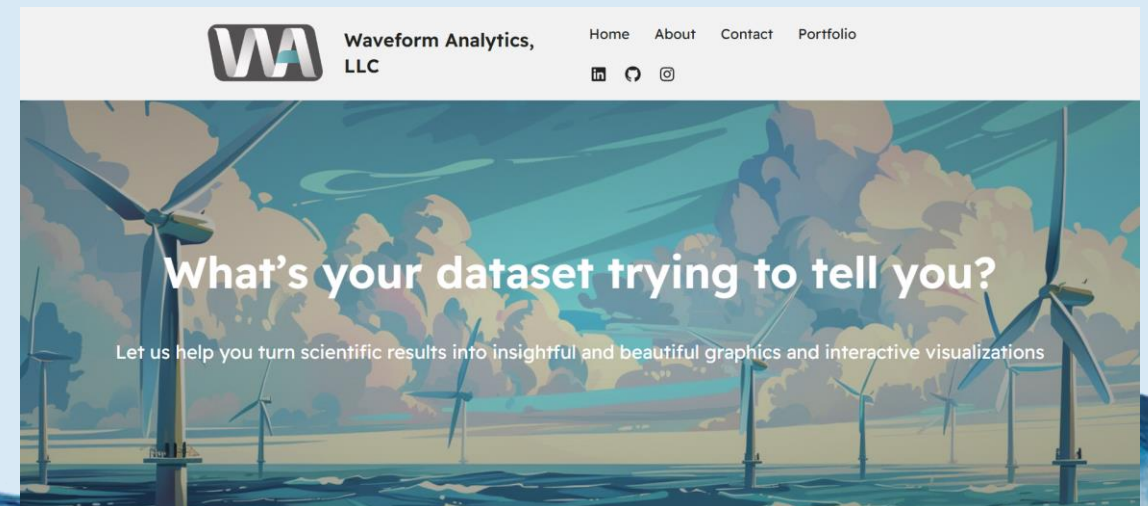
Community Engagement Highlights (see quarterly reports)

- Coordination with external PI (Prof. J. Fehrenbacher, CEOAS, OSU) on sediment trap recovery in fall 2024.
- Julie Fouquet (3newable LLC) wave energy conversion test and prototype UV antifouling device deployed fall 2023 and recovered spring 2024. Next test spring 2025.
- Added external PI (Prof. T. Chapple, AgSci, OSU) VEMCO fish tag receiver with telemetry to Washington Shelf mooring. Added 3 more in fall 2024.
- Added external PI (Asst. Prof Ashley Burkett, OK State Univ) SEA3 settling devices
- Four UNOLS cruise volunteers in fall 2024 (CA State Univ, Sacramento; SIO; Univ WA; Univ GA)
- Contributing talks to 2024 AGU Meeting and staffed OOI Booth.



Waveform-Analytcs Use of OOI Community Tools

- Dr. Michelle Weirathmueller, working at Waveform-Analytcs, a private company developing oceanographic visualization software, has built on OOI Python routines to download and plot OOI data using M2M.
- Full credit and acknowledgement to OOI was given. The Waveform-Analytcs routines are open source on github. She invites continued contributions from OOI to her software additions.





UG2 and CLIVAR workshop notes



- Dever, Pearce, and Whitefield participated in the September Underwater Glider User Group (UG2) meeting in Ann Arbor, MI
- Dever participated in the September CLIVAR meeting on detecting the coastal climate signal.
- There is interest in developing a glider-based state estimate of the California Current System including data from NANOOS, OOI, CENCOOS, and California Underwater Glider Network (CUGN) data.
- OOI is exploring what it would take to produce interpolated data sets using algorithms similar to those developed by Rudnick for the CUGN.



Planned Data Ambassador Activities

- Dever (in person) and Wingard (remotely) to participate in Advancing Ocean Carbon Science: OOI SUGR Meeting on Data Quality and Best Practices held in conjunction with the AGU meeting.
- Dever and Ruef (RCA) are interested in presenting a seminar on OOI carbonate system measurements at UW in winter 2025.



AWP VII Associate Project Scientist Recruitment

- Position Description in development
 - Looking to broaden OOI PS areas of expertise
 - Biological and chemical measurements
 - Data use including development of community data tools
 - Data Ambassador Activities
- Research Professor OSU (same track as Jon Fram, 10% college support)
 - Position OK'ed by and reports to dean on college level
 - Open recruitment with college input (seminars, faculty feedback)
 - Assistant or associate level
- Expect to circulate position and advertise at Fall AGU
- Planning for position to start in Q3 (Apr-Jun 2025)





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Questions?

