

Endurance Array OOIFB Update

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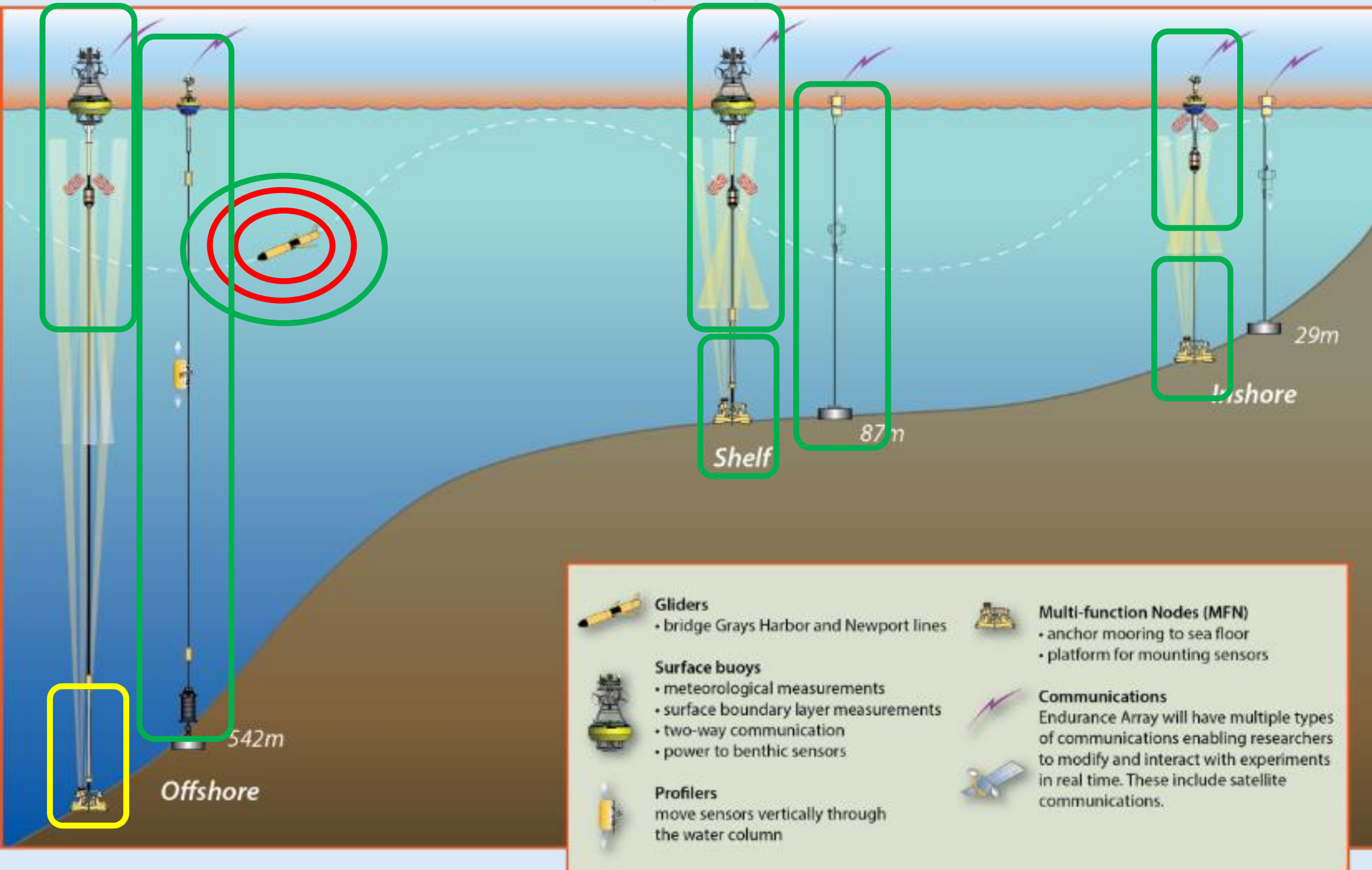
Endurance Array Turn Cruises

- Endurance 14 cruise 24 Mar - 9 Apr on *R/V Sikuliaq*. All cruise objectives accomplished including ROV-aided recovery of Oregon shelf CSPP and anchor.
- Endurance 15 Cruise on *R/V Thompson* 8 – 22 Sep. All cruise objectives accomplished.
- Endurance 16 cruise scheduled 21 Mar -5 Apr 2022 on *R/V Sikuliaq*. Planned addition of one external PI day (Fehrenbacher (OSU) *et al.*) will have ship and science party costs accounted for.
- Endurance 17 cruise scheduled 30 Sep – 15 Oct 2022 on *R/V Thompson*

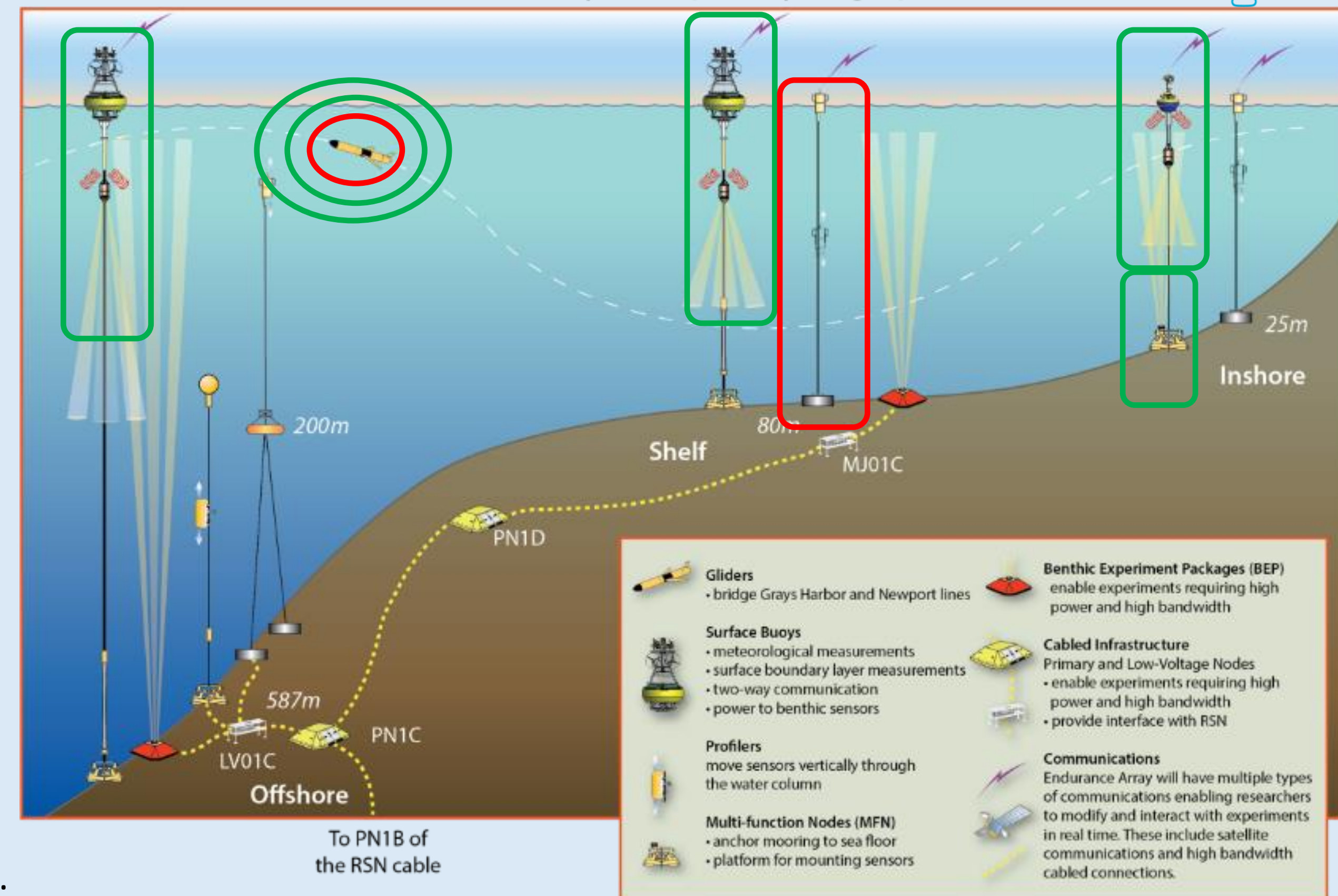


Endurance Array Platform Status

Endurance Array – Grays Harbor Line



Endurance Array - Newport Hydrographic Line



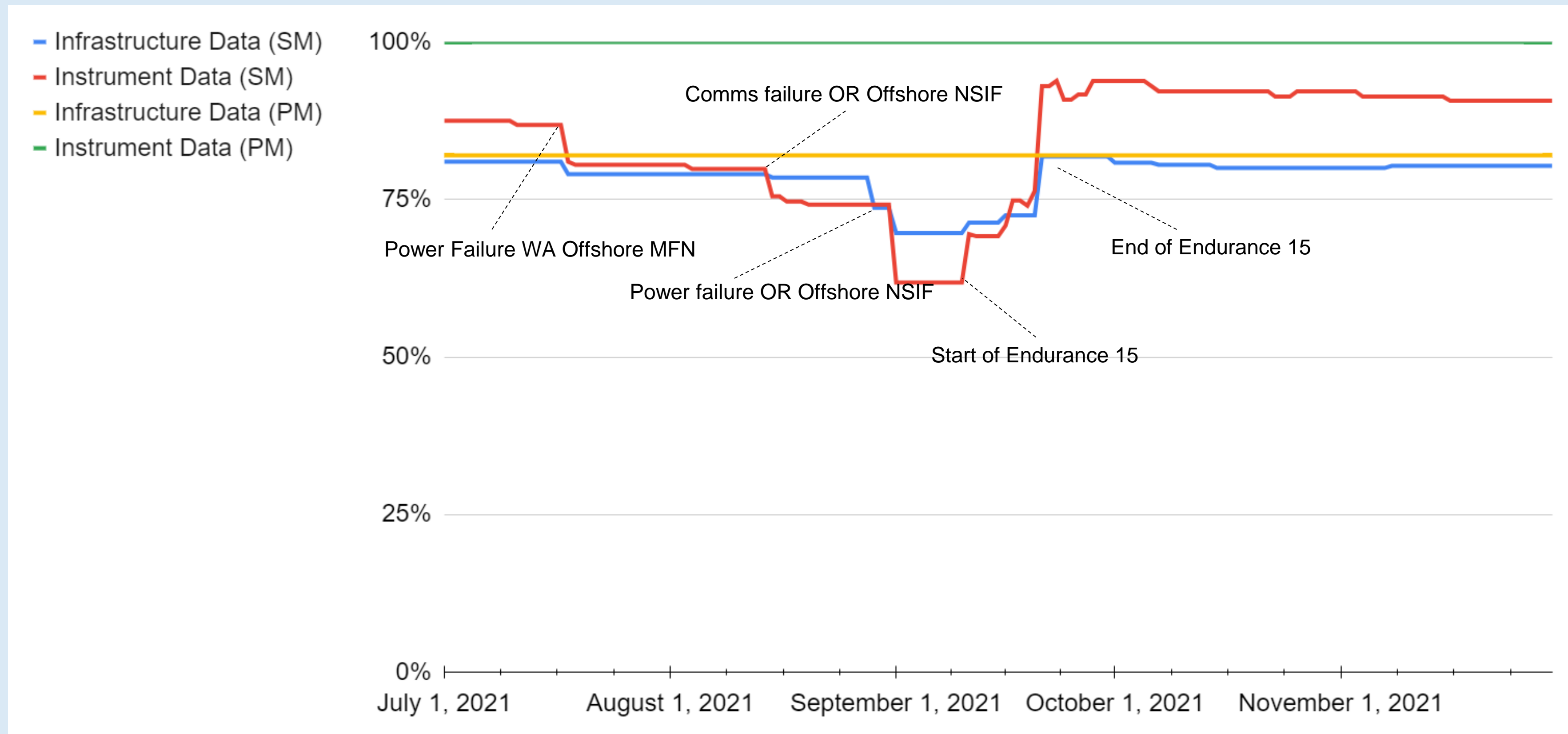
Inshore Oregon and Washington CSPP's not currently deployed as per winter plan.
 Oregon shelf CSPP deployment pending weather. Washington shelf CSPP recovery pending weather.
 Washington Offshore MFN stopped transmitting data shortly after deployment. Internally recording instruments should continue recording. Additional glider (Grays Harbor Shallow) being prepped for deployment.

Endurance 15 Mooring Status

Platform	Infrastructure %	Instruments Deployed %	Near Real Time Delivered %	Data Collected %
Oregon inshore	88%	100%	96%	96%
Oregon shelf	74%	100%	91%	91%
Oregon offshore	74%	100%	98%	98%
Washington inshore	88%	95%	100%	100%
Washington shelf	82%	97%	99%	99%
Washington offshore	76%	97%	68%	93%
Washington offshore profiler	82%	100%	100%	100%

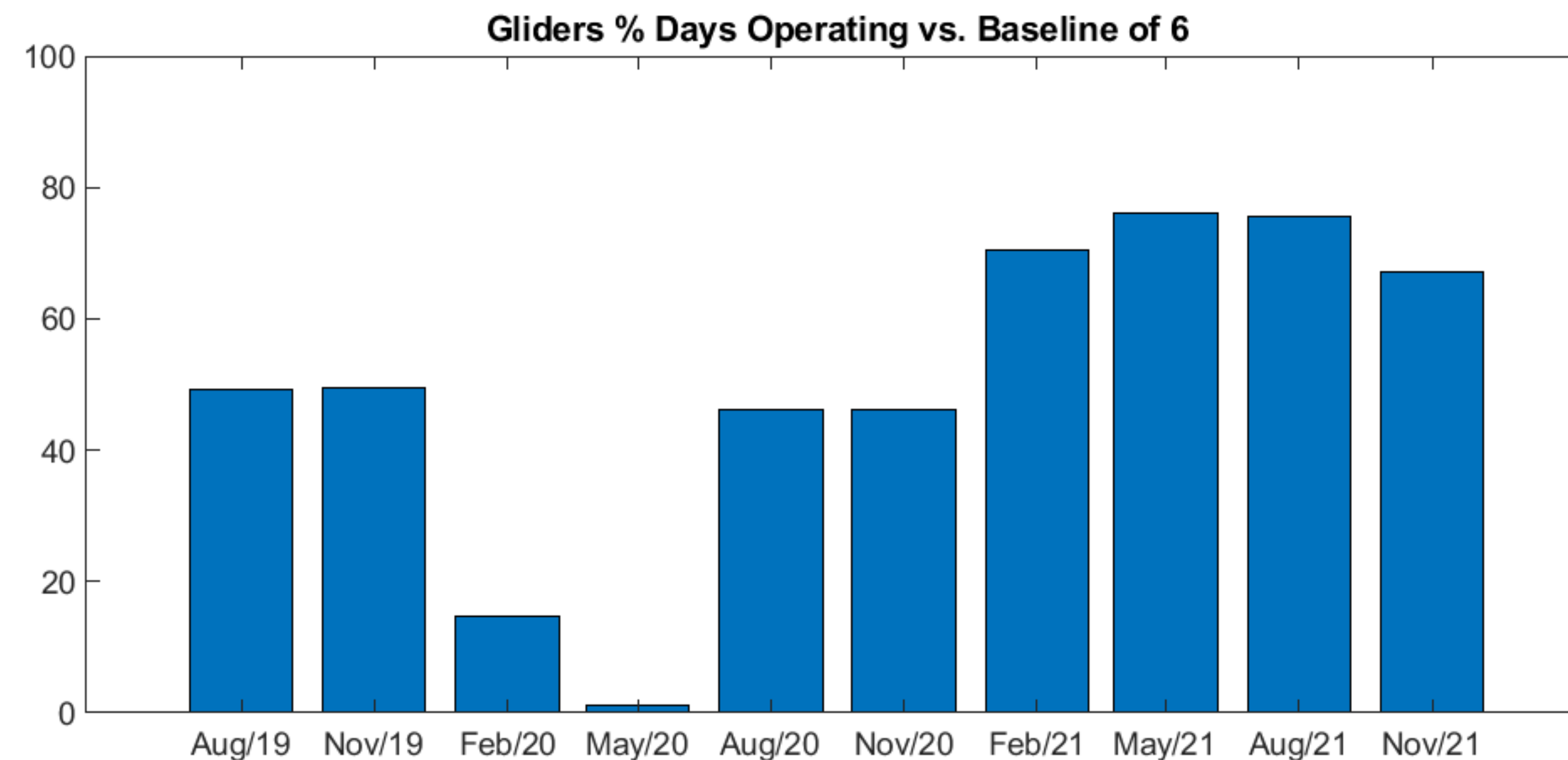
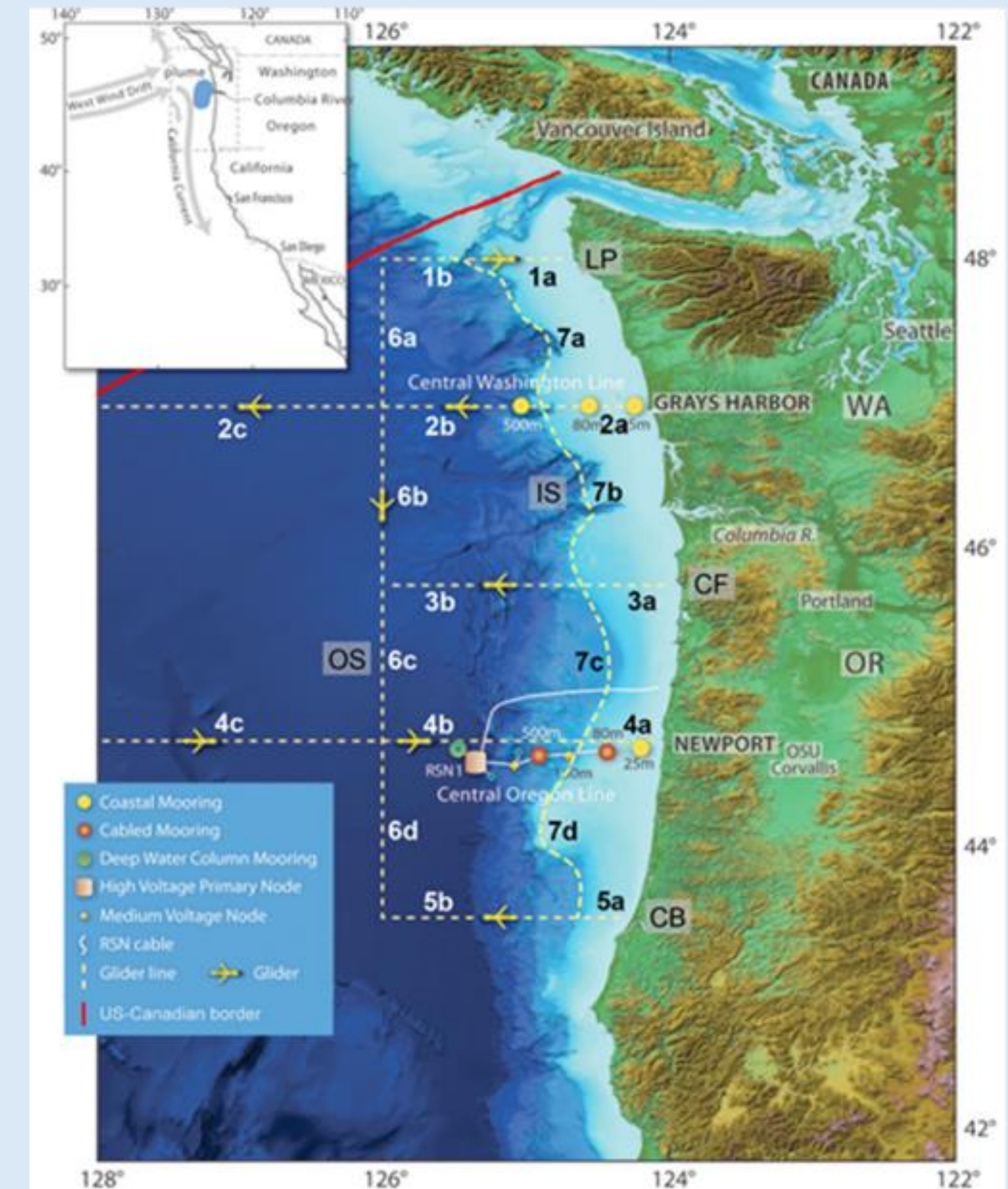
% takes into account electronics intentionally turned off (e.g., acoustic modems, FreeWave etc.)

Operational Statistics: Last 6 Months



Endurance Array Glider Coverage

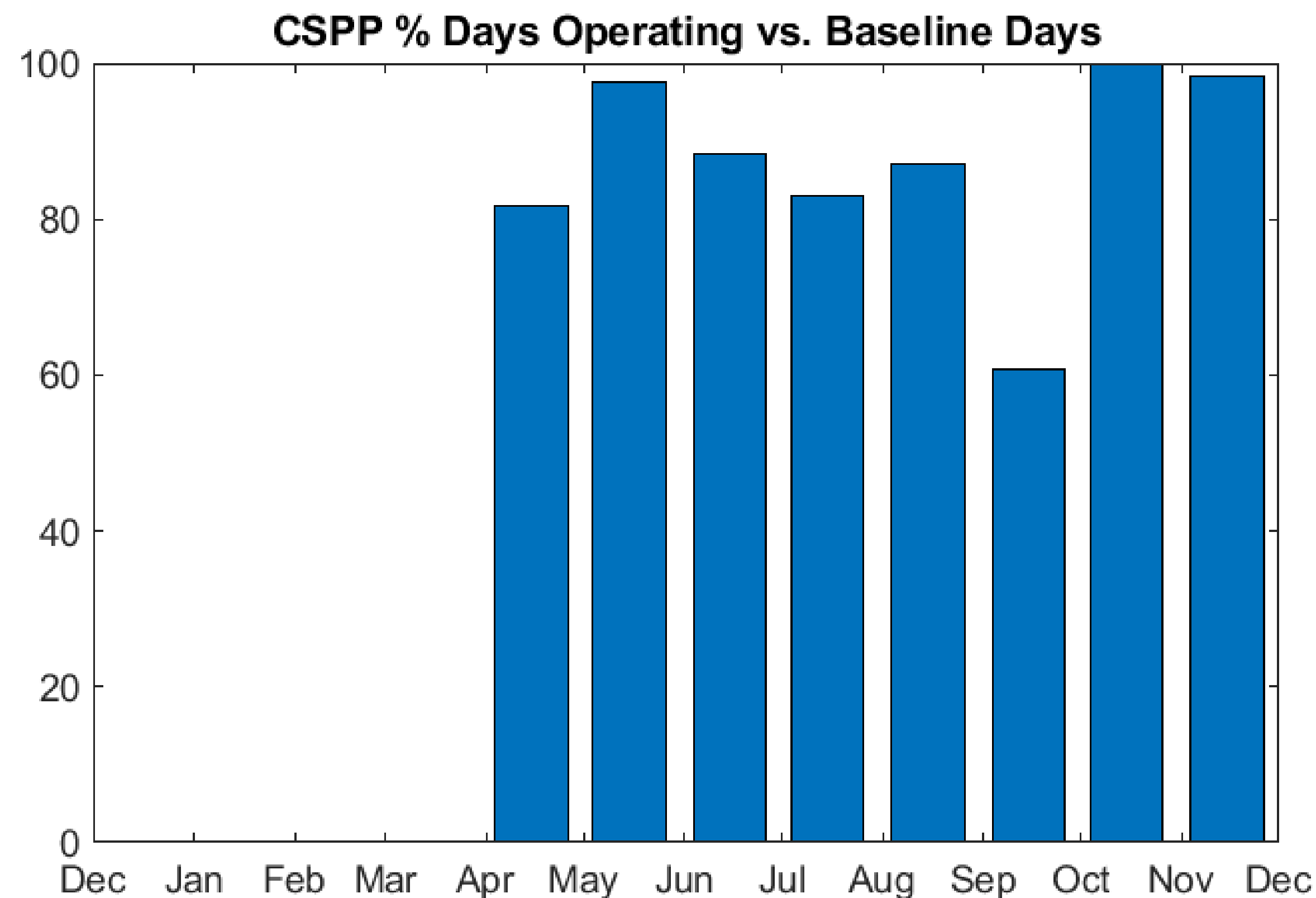
- In the last year: ~4 gliders at sea
- Previously (excluding 1st five pandemic months): ~3 gliders at sea
- New G3 gliders 871 and 917 deployed operationally in both primary and rechargeable Li battery configurations



Endurance Array CSPP Deployment Summary



- Neither fall 2020 shelf deployment was successful. Oregon Shelf CSPP not recovered because of turtled anchor. New anchor design implemented to prevent recovery failures.
- Early-April 2021: Four CSPPs deployed successfully on EA 14 (R/V Sikuliaq). Oregon Shelf CSPP recovered via ROV.
- Spring/Summer 2021: 1 or more CSPPs were turned on 4 small boat cruises in which gliders were also recovered or deployed
- Mid-September 2021 : Four CSPPs successfully recovered on EA 15 (R/V Thompson). Both shelf CSPPs successfully deployed. Inshore CSPPs aren't deployed in fall or winter due to rough seas. CSPPs operate by parking to avoid surfacing in seas above 10 feet and winds above 20 knots, which means they park a lot in fall and winter.
- 29-Nov 2021 : Oregon Shelf CSPP successfully recovered. A replacement CSPP is available and will be deployed when weather allows.



CSPP with redesigned anchor

Operational Highlights (see also CGSN highlights)



- **Mechanical:**

- New anchor designs for CSPP, low risk of turtling on deployment
- Improved lifting bale handles for inshore moorings

- **Instruments & Infrastructure:**

- New camera design deployed at Oregon inshore site. Will deploy additional cameras spring 2022.
- Improved cell phone modem at WA shelf site, still intermittent, but does allow some transfer of data

- **Mobile Assets:**

- Operational deployment of coastal G3 gliders, reviewing results with TWR

- **ROV Operations:**

- Used OOI ROV to recover CSPP and anchor on spring 2021 cruise.

Community Engagement (full list in quarterly reports)

- Fehrenbacher *et al.*, grant and spring 2022 cruise addition (sediment trap turn)
- Fewings (OSU) proposal to NOAA
- Julia Fouquet and Milan Minsky (3newable LLC) intend to deploy a wave energy collector on an EA coastal surface mooring in fall 2022. Matt Palanza (WHOI) is a co-PI on the project.
- IOOS Boundary Systems Task Team – moderated and provided input to California Current webinar (June) and satellite observations webinar (September)
- 2022 Ocean Sciences talks/posters
- 2022 NE Pacific Data Workshop planning
- Oregon State REU tours in summer 2021, (listed as potential advisor since 2020)
- Discussions and assistance to Wu-Jung Lee (UW) and Emilio Mayorga (UW APL) to use WA offshore profiler data to look at seasonal variability.
- Maria Kavanaugh (OSU) flow cytobot addition to Oregon shelf moorings in discussion for 2023
- Helping get data to operational agencies including NOAA (weather, WCOFS, J-Scope), Oregon Dept. Fish. and Wildlife and Oregon OAH council



Challenges

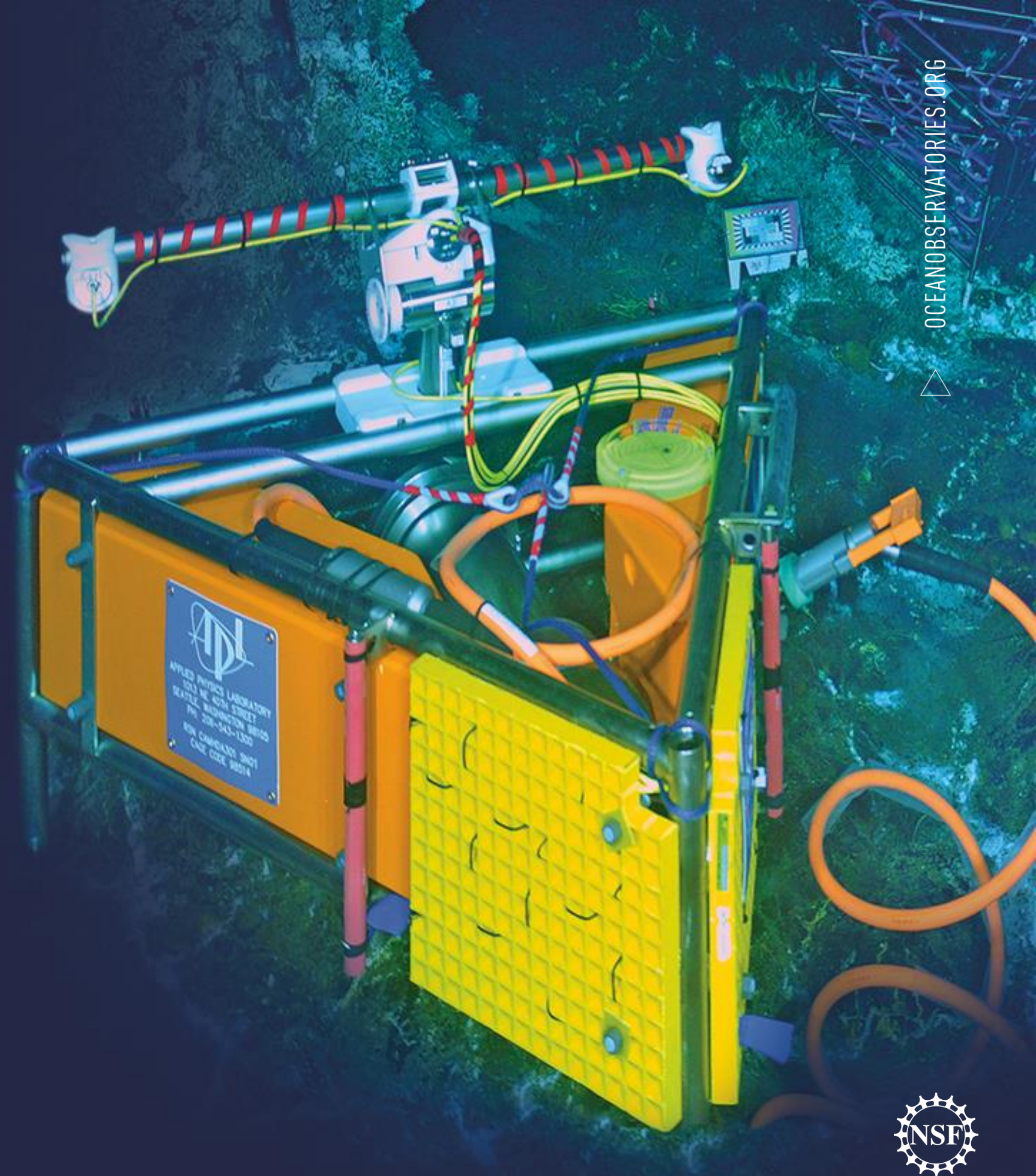
- Deploying full glider scope
 - Slow servicing (long lead times for some components)
 - End of life announcement regarding G2 gliders, upgrade to G3 gliders
- Ship costs and scheduling
 - higher 2022 day rates
- Cumulative inflation impacts





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Questions?



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