Forum For Operational Oceanography

New in Data Collection

Wednesday, 19 November 2025

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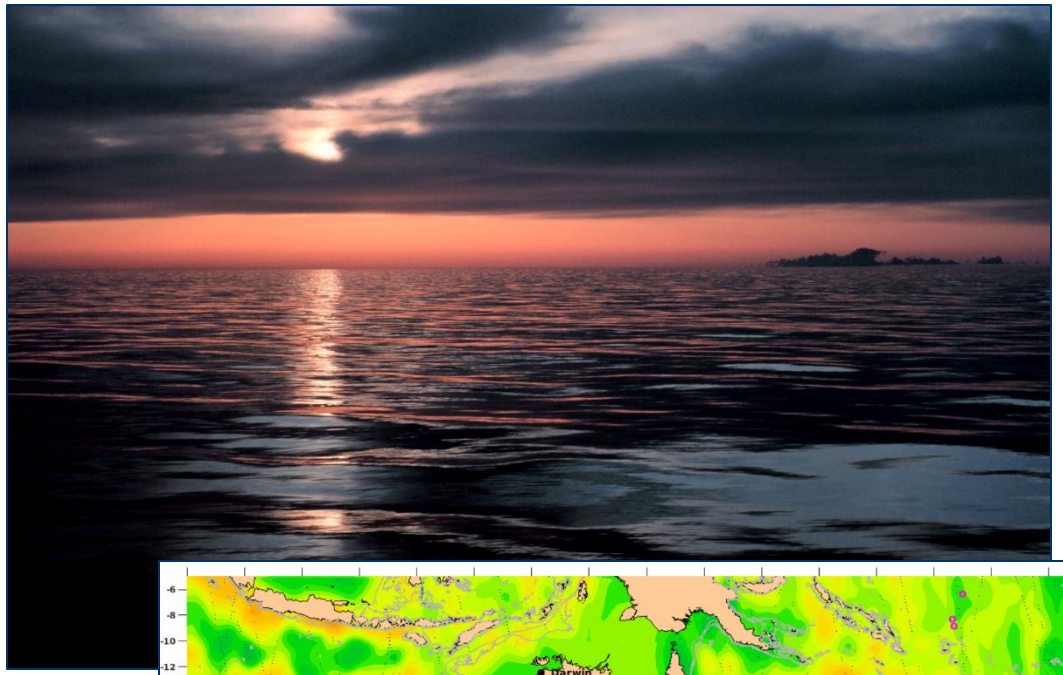
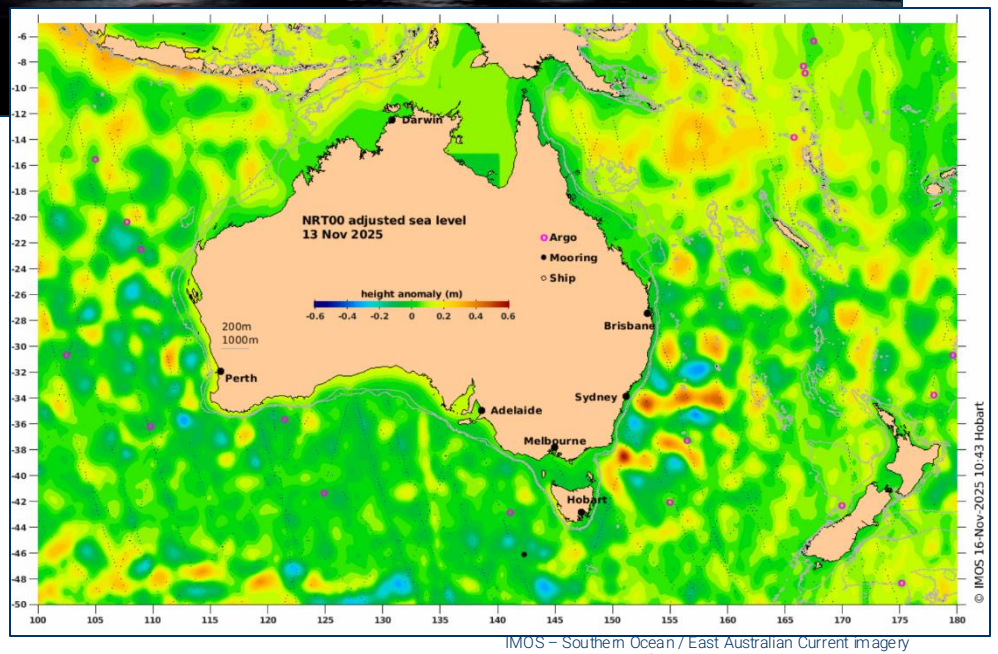
Outcomes

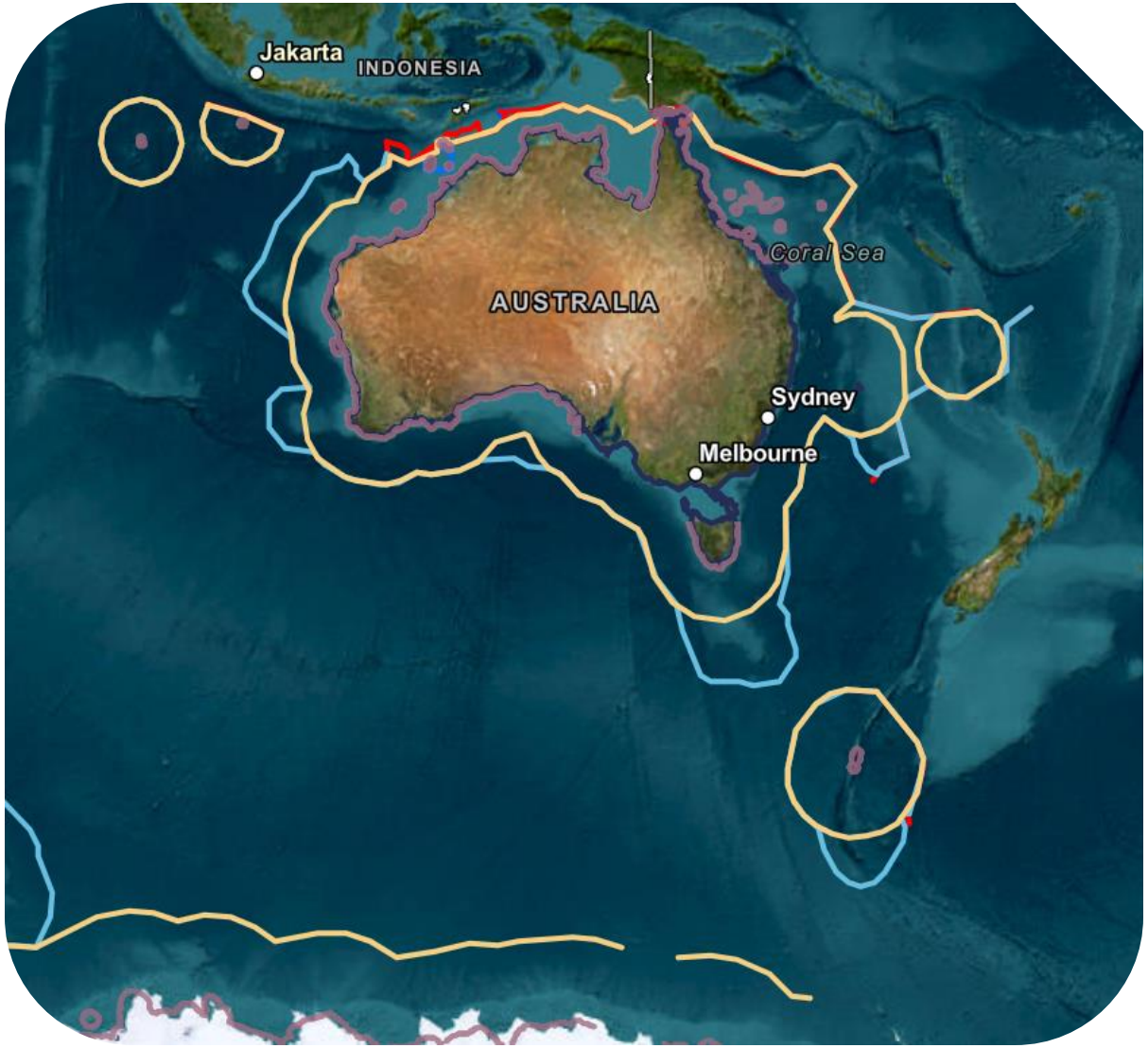
- A shared understanding that Australia lacks data coordination and submission, not capability
- Recognition that environmental data can be safely shared across sectors
- Agreement that persistent, multi-use platforms (incl. ASVs) are now viable at scale
- A baseline dataset we can all stand behind
- Momentum toward a single national coordination point
- A cultural shift: every vessel a sensor, every sector a contributor





IMOS – Southern Ocean / East Australian Current imagery
https://imos.org.au/focus-areas

Why we are here



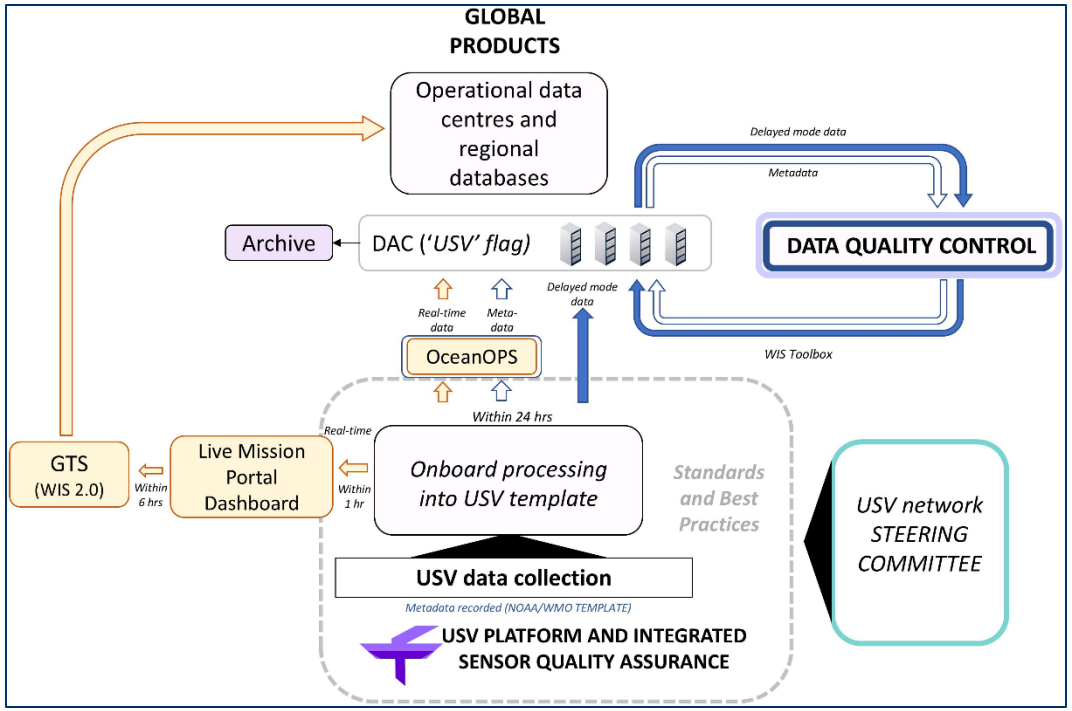
AMSIS Map Viewer

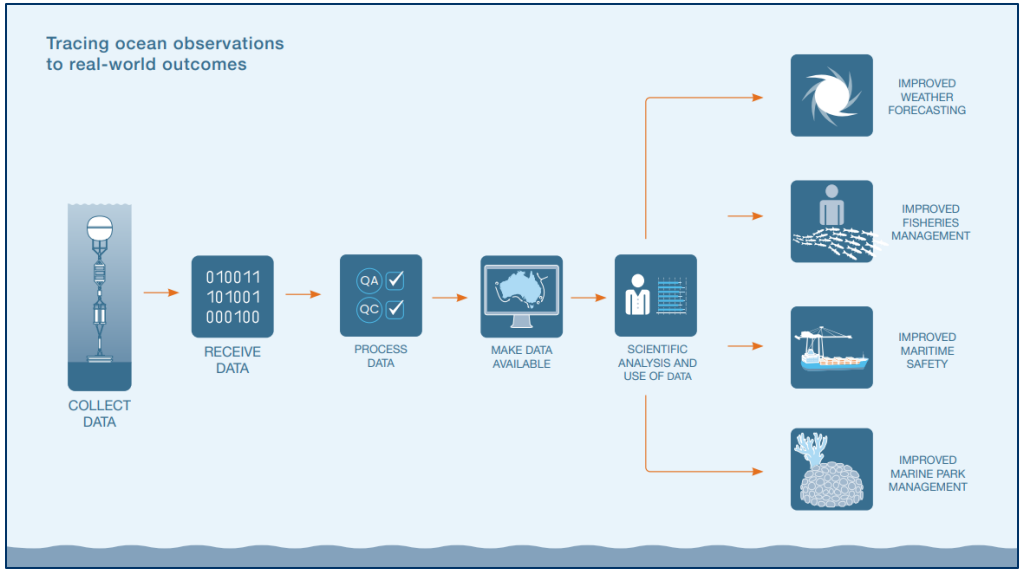
Australia's maritime, economic and security future depends on trusted ocean data.

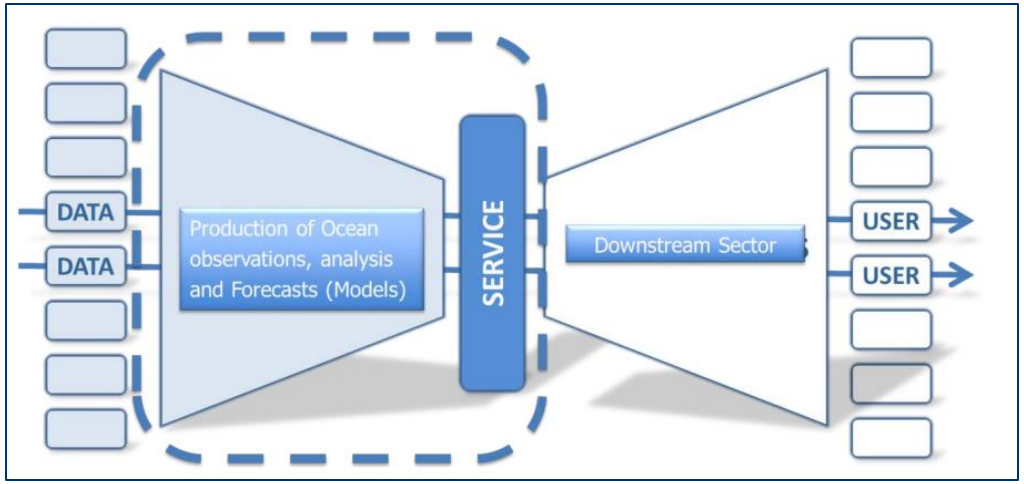
The need is global — every region faces similar gaps and pressures.

The Real Issue

- We don't have a data generation problem.
- We don't have a system process problem.
- We have a data access and release problem



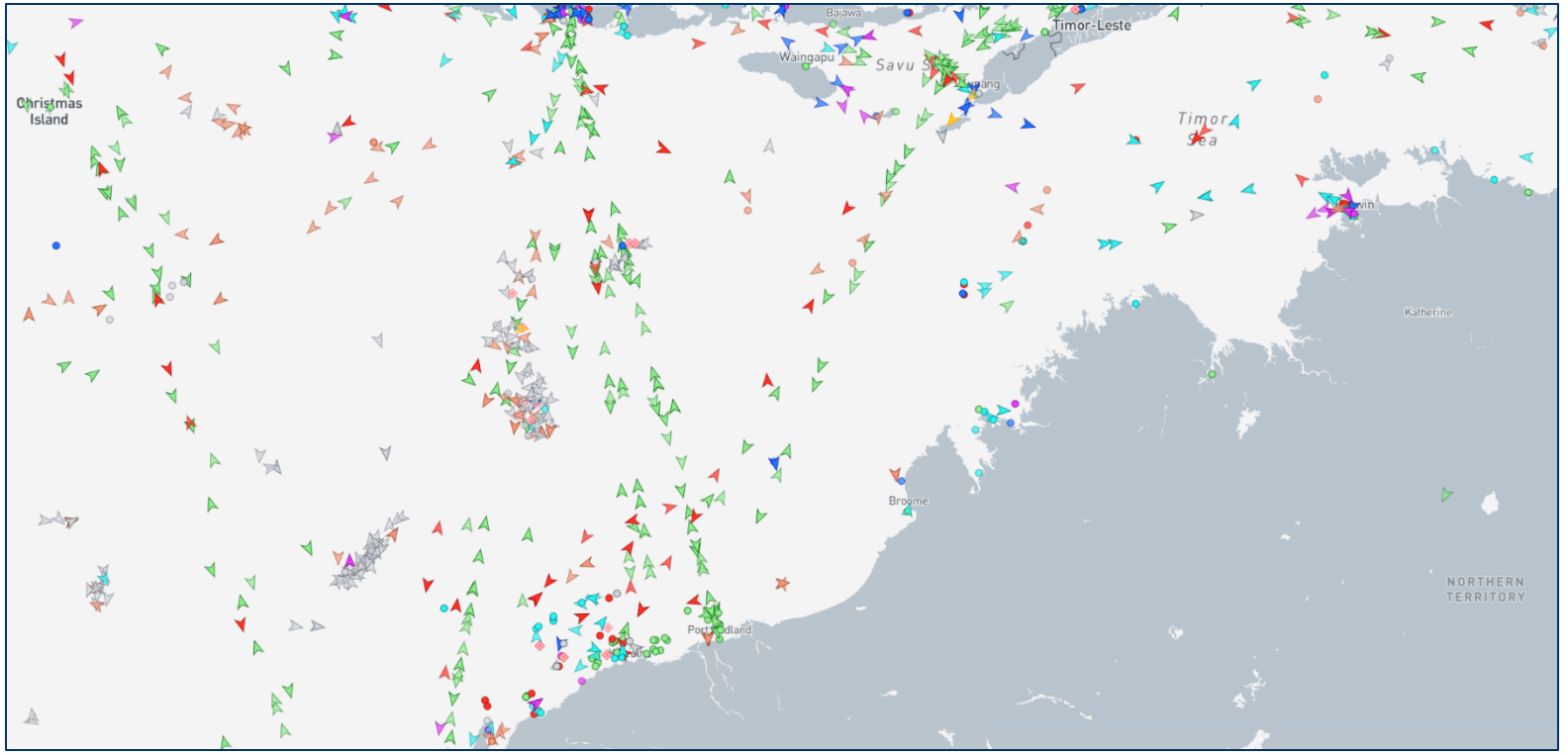




IMOS – https://imos.org.au/wp-content/uploads/2025/09/Infographs-A4.pdf
Copernicus Marine Service - CMEMS Production Process https://marine.copernicus.eu/sites/default/files/CMEMS-High-Level-Service-Evolution-Strategy-EV-September-20-2016.pdf
Patterson et al. (2025), Frontiers in Marine Science. "Uncrewed surface vehicles in the Global Ocean Observing System."

Fragmentation Across Sectors

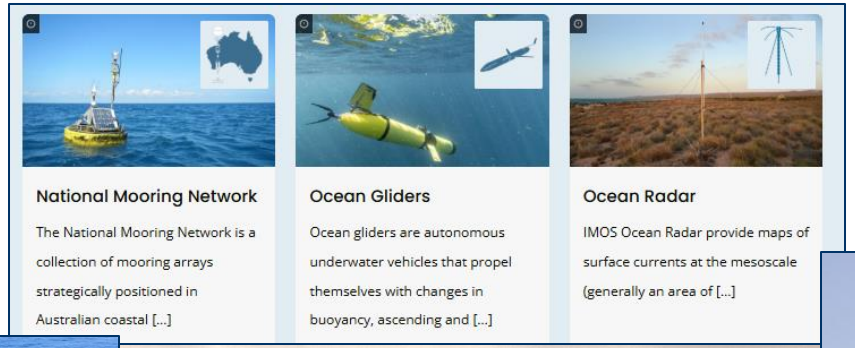
- Different sectors collect environmental data for different purposes.
- The ocean doesn't recognise those boundaries.

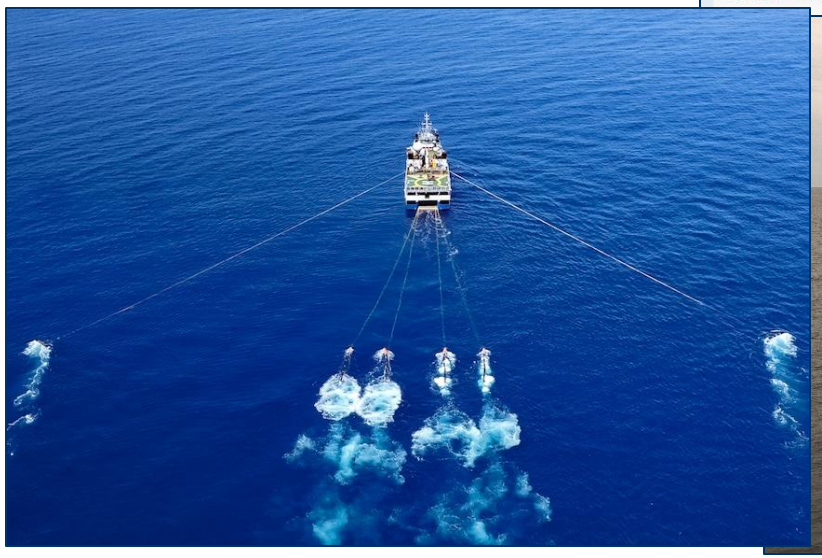


Marine Traffic Screen Capture
https://marinetraffic.com

Multi-Use, Multi-Client Missions

- All sectors make repeated passages through the same waters.
- All sectors collect environmental bycatch.
- ASVs add persistence that crewed systems cannot match.

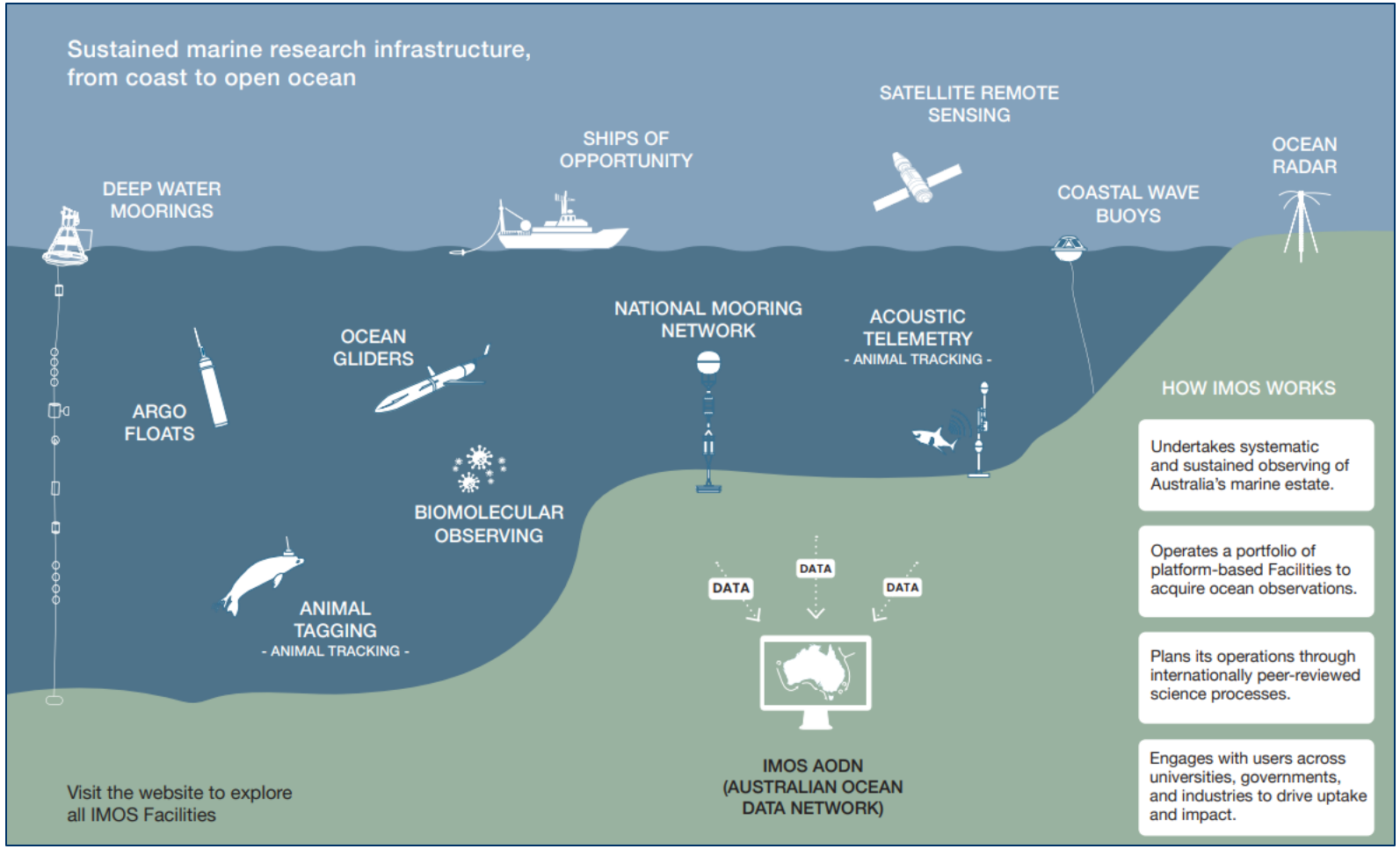




IMOS – Our Facilities - https://imos.org.au/facilities
CSIRO - https://research.csiro.au/educator-on-board/
Royal Australian Navy – http://naw.gov.au
ABC News - https://www.abc.net.au/news/2023-11-22/tasmanian-fishers-concerns-seismic-survey-oil-gas-exploration/103125012

What We Already Collect

- Tide gauges
- SVPs
- ADCPs
- Fisheries environmental data
- Port sensors
- Offshore monitoring
- ASVs, AUVs, research platforms



IMOS – https://imos.org.au/wp-content/uploads/2025/09/Infographs-A4.pdf

Programs Already Working

IMOS & AODN

HydroScheme

FishSOOP

International: NOAA, CMEMS

International Supported Programs: SUNFLEET/ GOOS

What This Data Is For

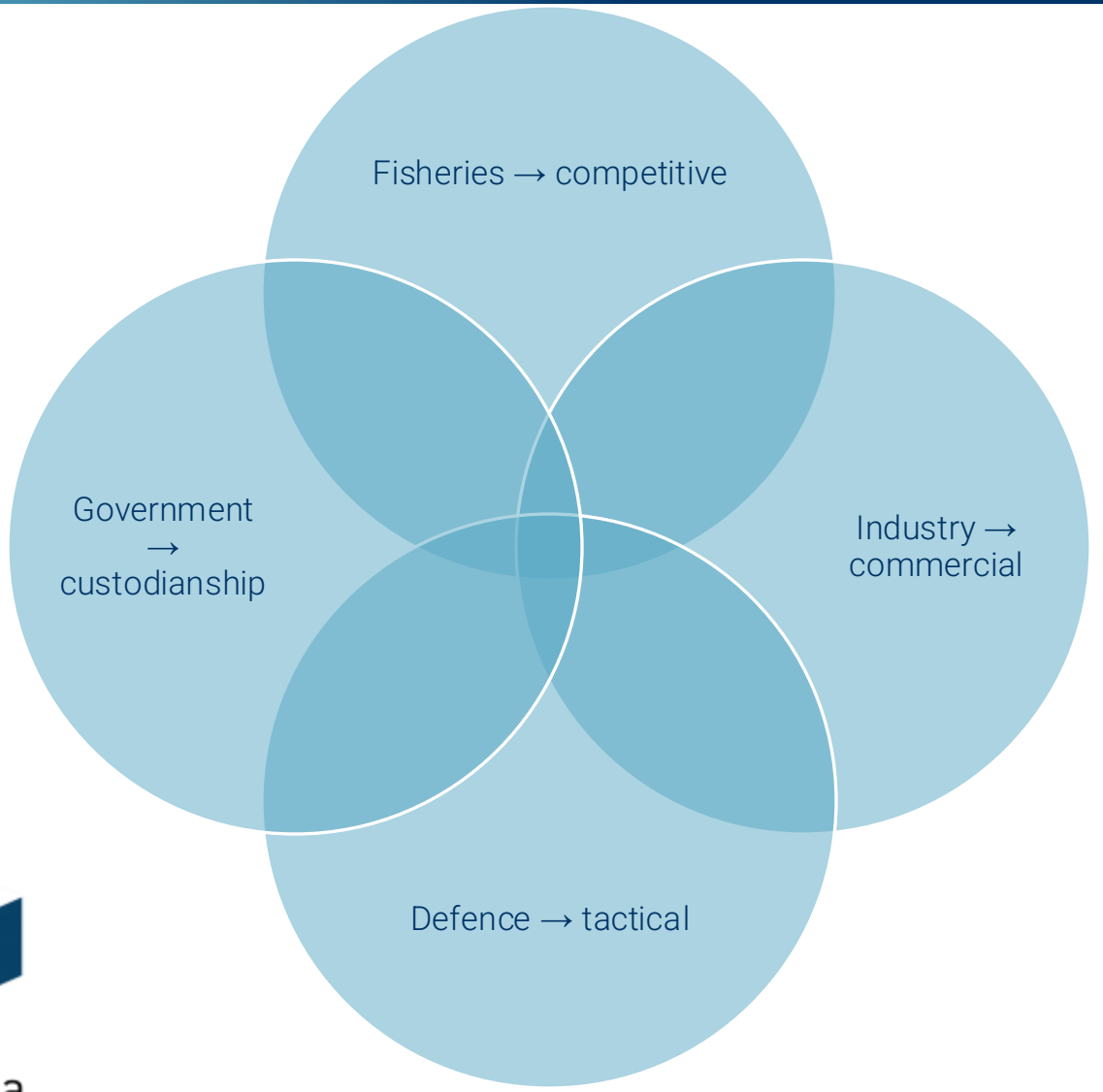
What It’s Not For

The Baseline Dataset

Data Set	Units	Accuracy	Timeliness
Temperature	°C	±0.01–0.05 °C	0–6 hrs (NRT) or daily
Salinity	PSU	±0.01–0.02 PSU	Daily to weekly
Waves	Height (m), Period (s), Direction	Height ±0.1 m; Period ±0.5 s	Hourly
Current	m/s, direction (°)	±0.02 m/s; ±5°	Hourly
Sea level	Metres	±1–2 mm (tide gauges)	Real-time to hourly
Wind	Speed (m/s), direction (°)	Speed ±0.5 m/s; direction ±5–10°	Real-time to hourly
Turbidity	NTU	±0.1 NTU	Daily to weekly
SVP's	m/s vs depth	±0.1–0.5 m/s (depth-dependent)	Time-delayed (days–weeks)

Nb. These are examples data sets, units, accuracy and timeliness periods

Legal & Ownership Challenges



NCRIS
National Research Infrastructure for Australia
An Australian Government Initiative

Pathway Forward

- Baseline dataset
- Shared standards
- National coordinator
- Integrated subsea/surface/airborne platforms
- ASVs providing persistence
- Autonomy cost falling

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Call to Action

We are already underway with this process

- Every vessel a sensor
- Every passage a measurement
- Every sector a contributor

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Final thought

If we align on what's shareable, what's sensitive, and what we all need as a baseline, we can build an observing system that matches the scale of our ocean - and the scale of our ambition.

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Thank you

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