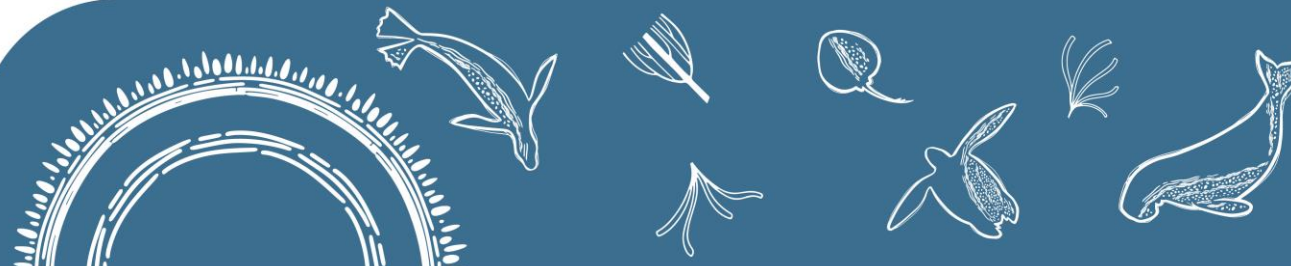
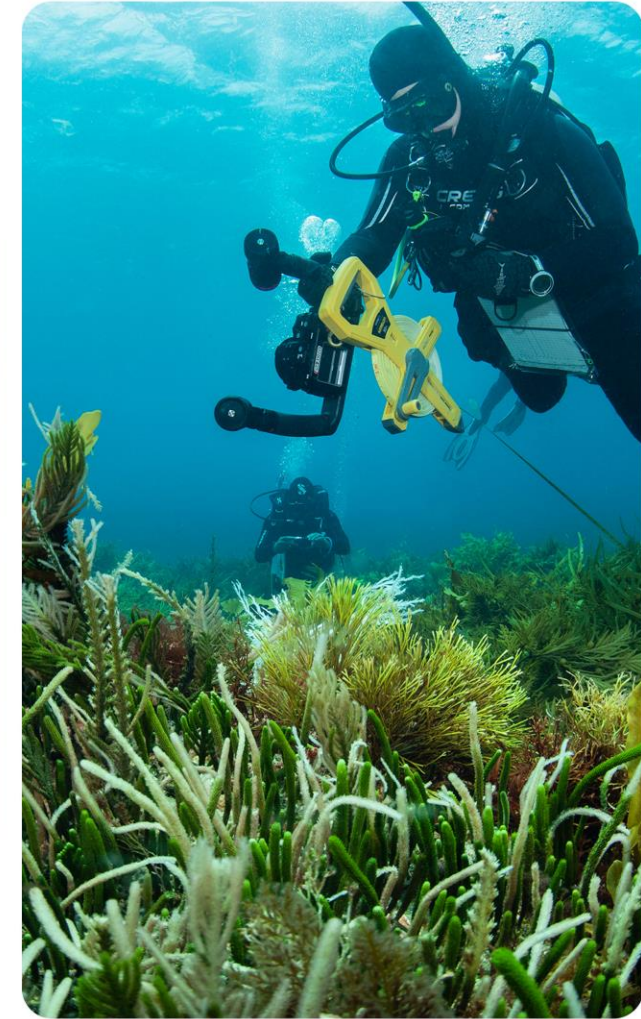


Australia's Integrated Marine Observing System – national overview

Michelle Heupel
Executive Director



IMOS acknowledge the Traditional Custodians and Elders of the land and sea on which we work and observe as Australia's first marine scientists and carers of Sea Country. We pay our respects to Aboriginal and Torres Strait Islander peoples past and present.

Introducing IMOS

- A capability in the National Collaborative Research Infrastructure Strategy (NCRIS)
- A collaboration of 7 main partners and 4 associate participants. UTAS as a lead agent, headquartered in Tasmania
- Research infrastructure with a singular goal to *deliver benefits to Australia by undertaking systematic, sustained and scientifically-robust observations of our vast and valuable marine estate*



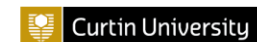
Australia's Integrated Marine Observing System (IMOS) is enabled by the National Collaborative Research Infrastructure Strategy (NCRIS). It is operated by a consortium of institutions as an unincorporated joint venture, with the University of Tasmania as Lead Agent. www.imos.org.au

PRINCIPAL PARTICIPANTS



SIMS is a partnership involving four universities.

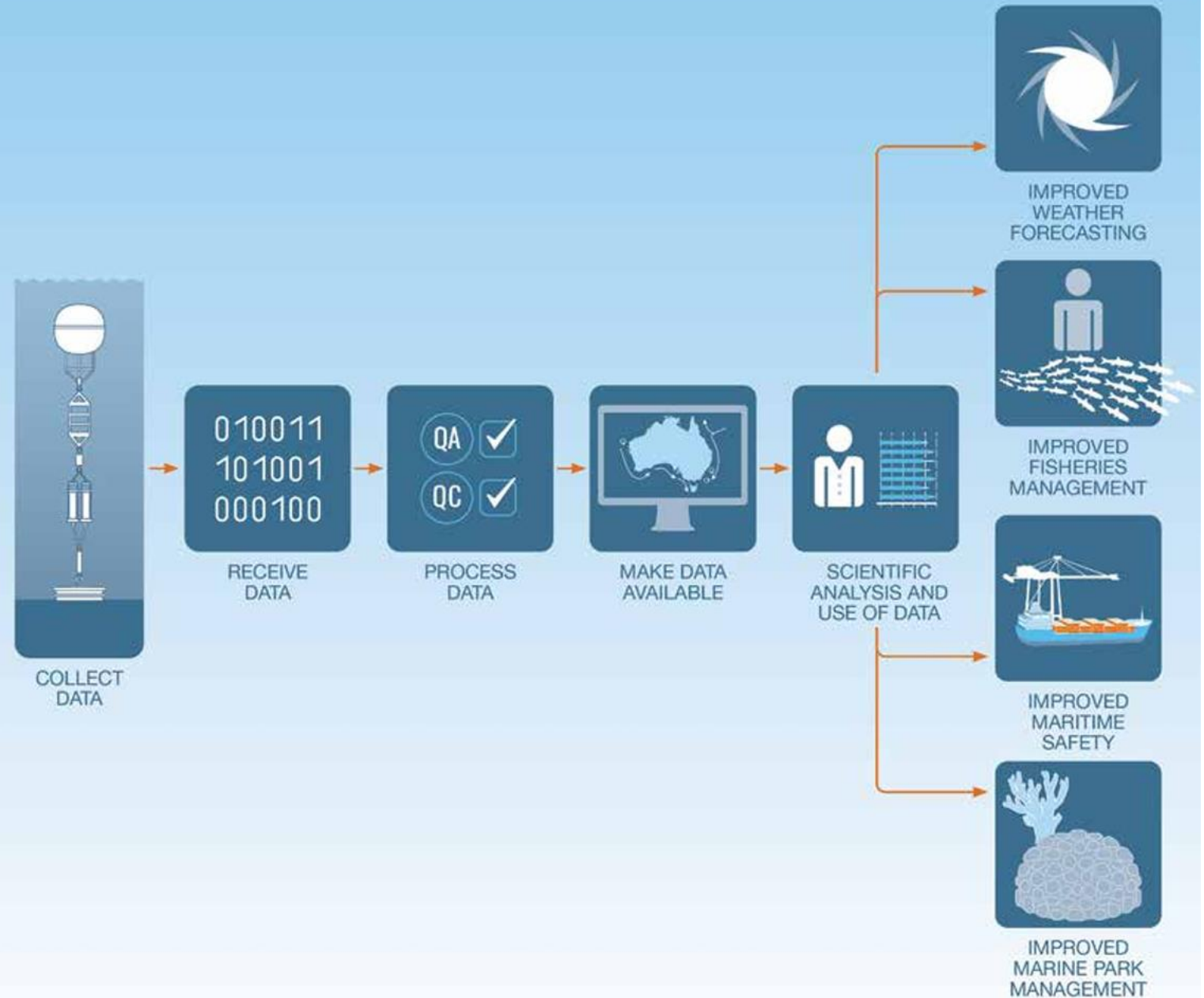
ASSOCIATE PARTICIPANTS



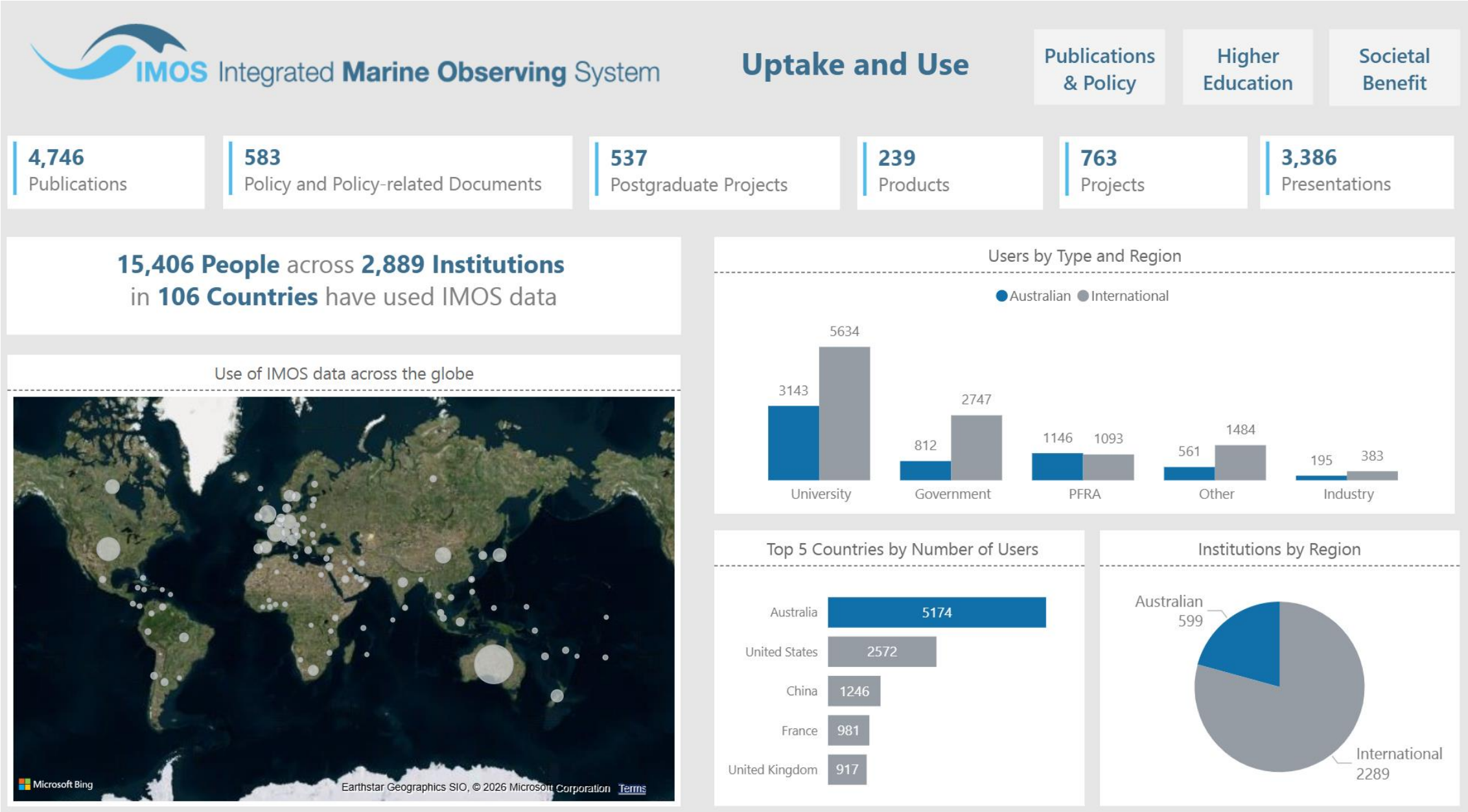
What do we do?



Tracing ocean observations to real-world outcomes



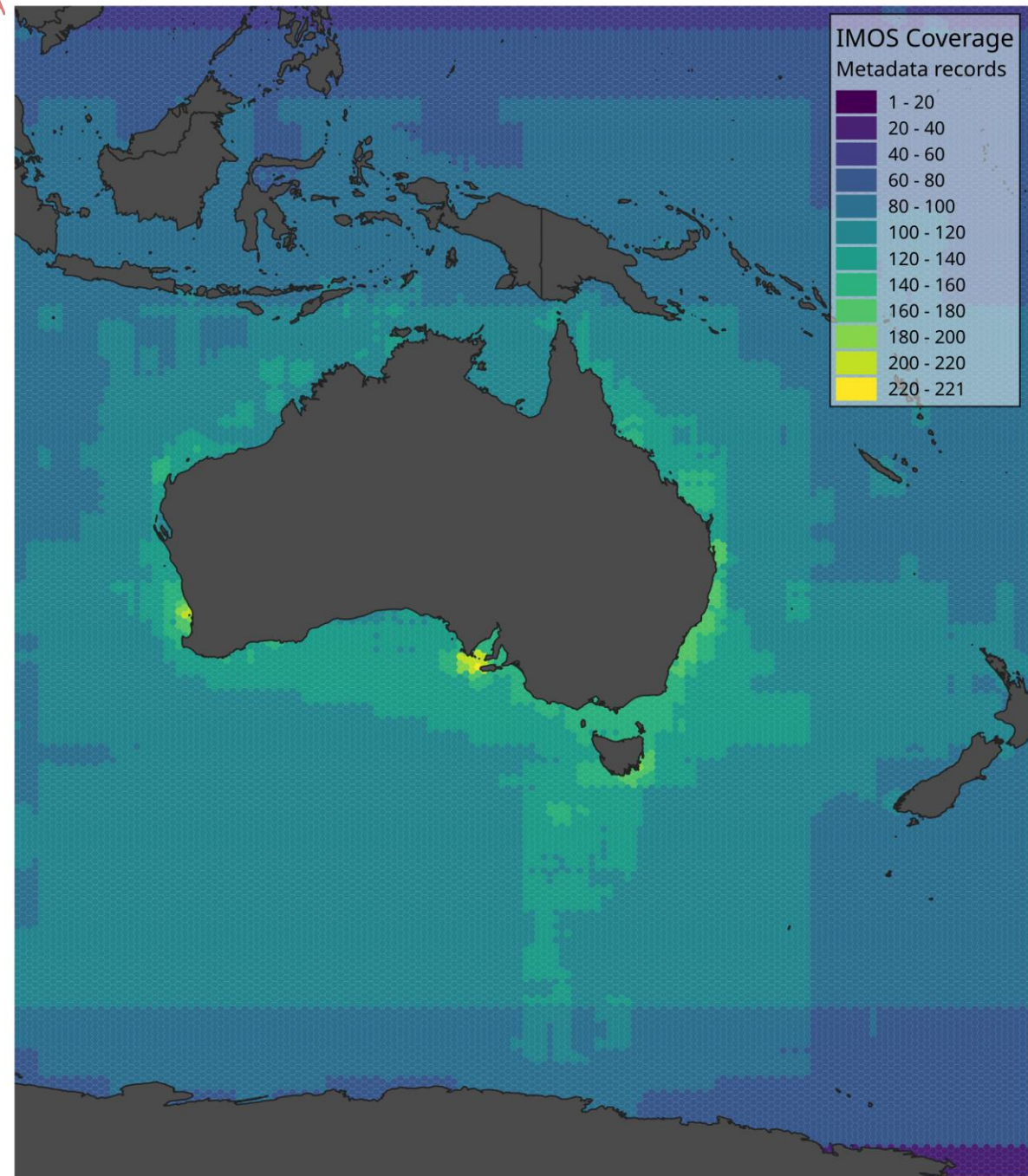
IMOS use



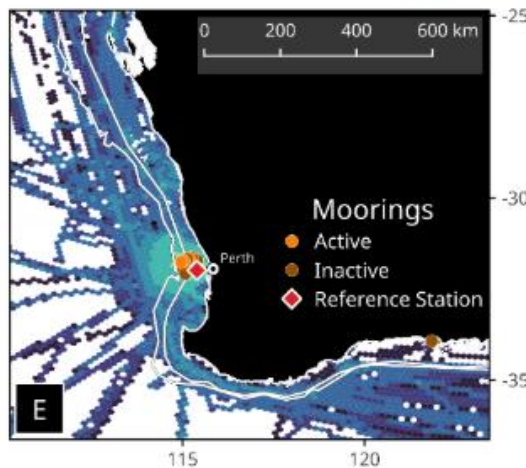
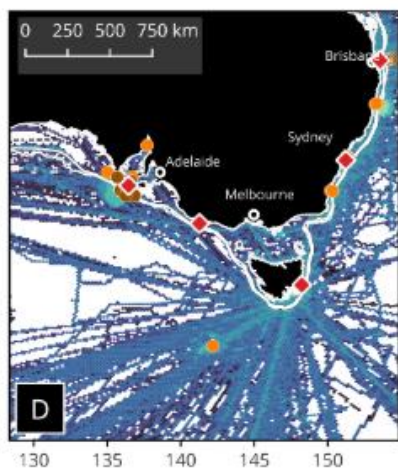
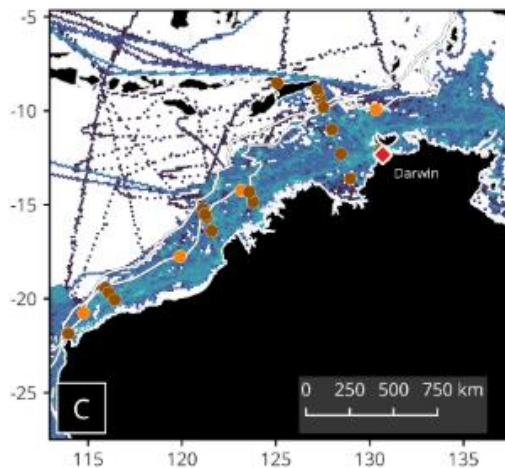
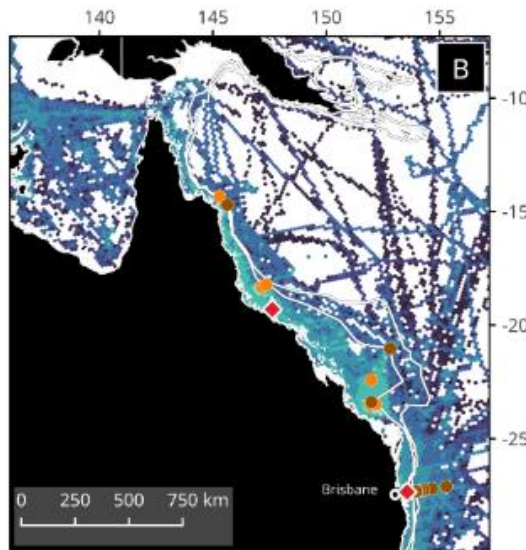
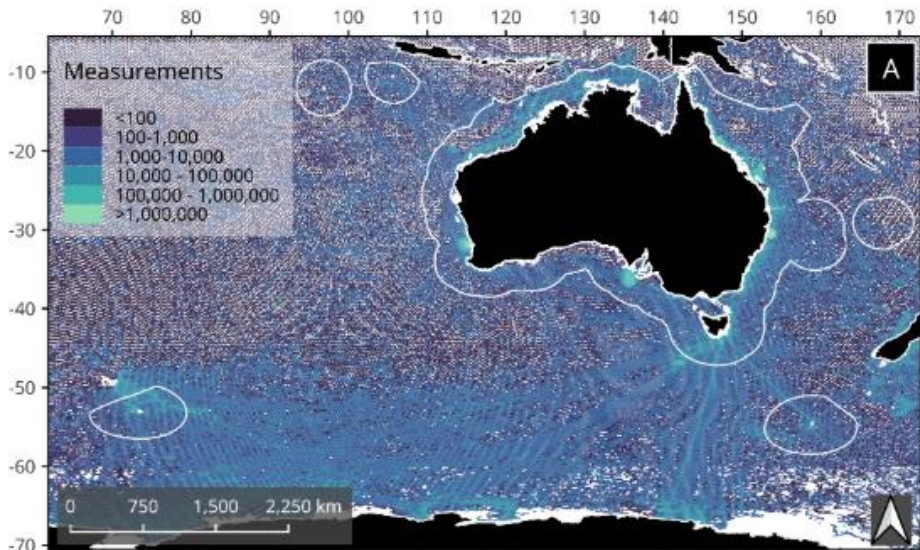
IMOS data

- Measure 27 of 34 Essential Ocean Variables and 21 of 55 Essential Climate Variables
- Some collections accessible in Cloud-Optimised formats
- Some Near real-time collections
- Expanding network --> new data streams coming in
- Data products are available

Publications supporting the advancement of



Some fun facts



1.5 Billion
measurements

20+ Years
timeseries

100 Million
data files

88 TB
data volume

15,000
metadata

150 + 150
dataset collections

1,440
voyages

325
industry vessels

840 K
profiles

3,600
mooring
deployments

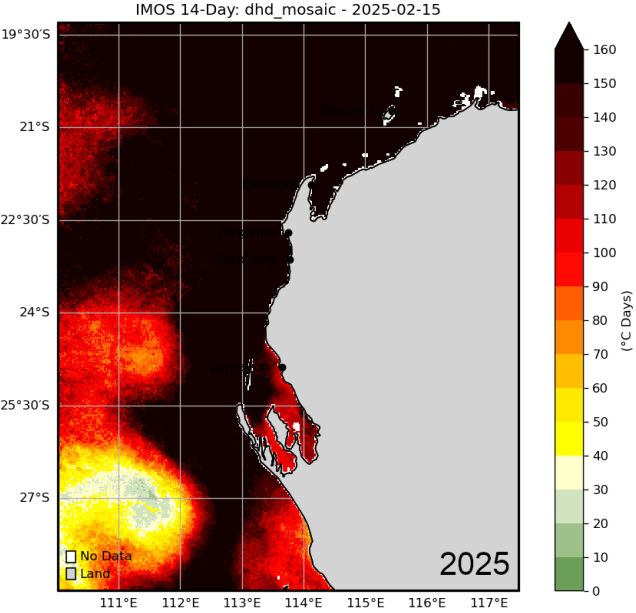
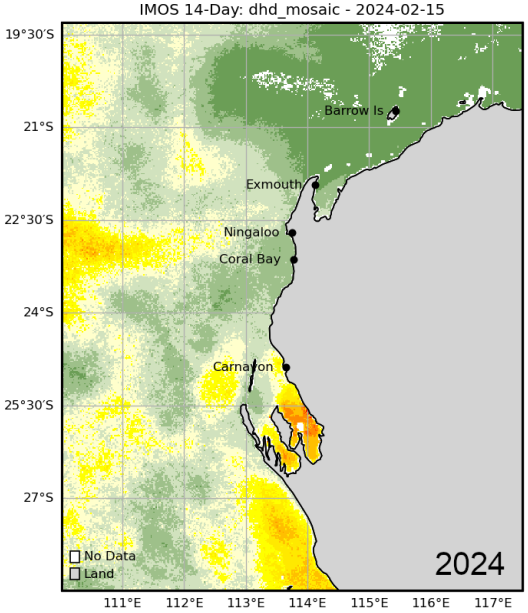
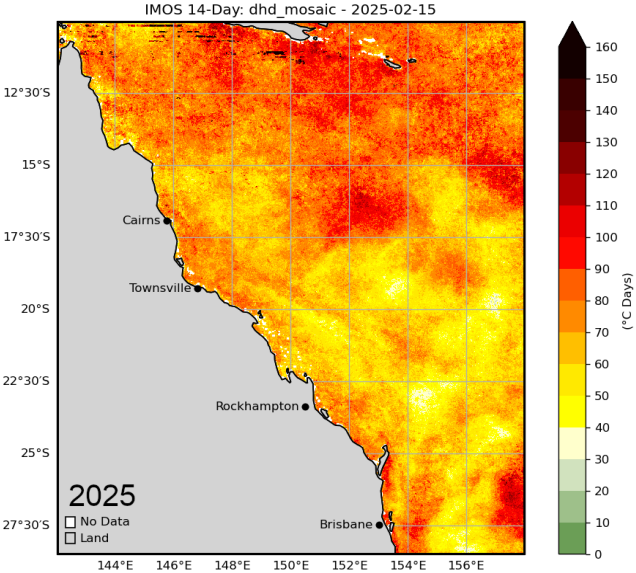
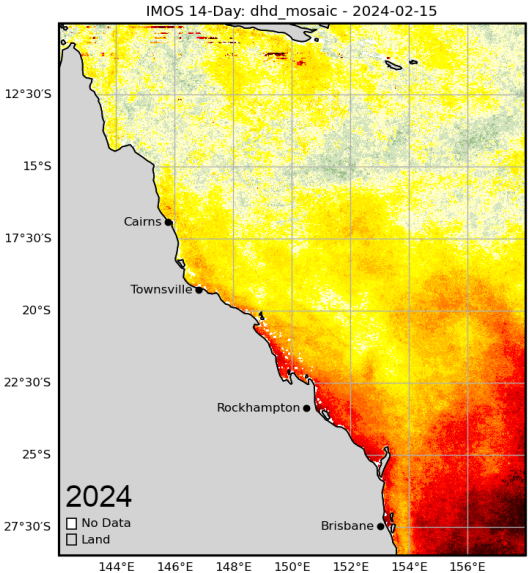
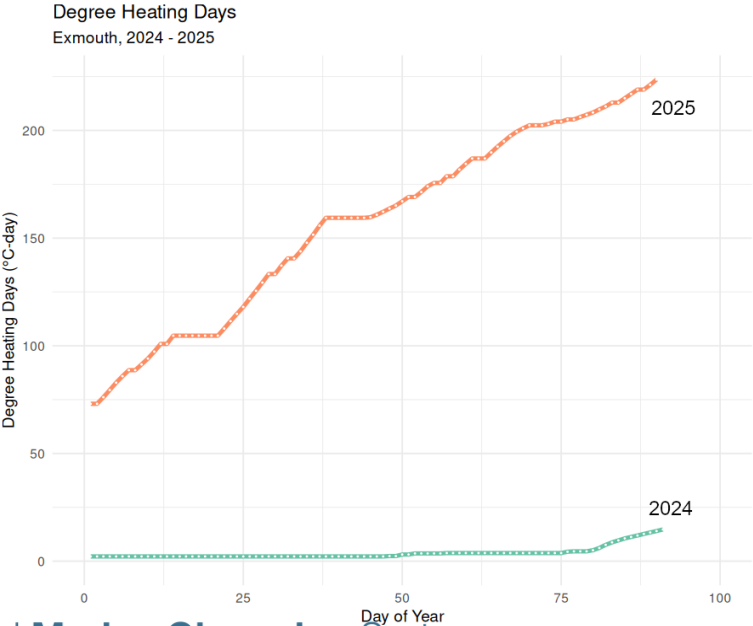
820
wave buoy
deployments

15,000
benthic images
69 AUV campaigns

3 Million
satellite images

Heat stress products

- Degree Heating-Day, SST anomaly, heatwave indicators
 - New heatwave product based on SSTAARS climatology
 - Daily Update frequency, all year, all Australia region
 - Accessible in Portal, IMOS Live, cloud optimised, NetCDF



How IMOS builds success



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PRINCIPAL PARTICIPANTS



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ASSOCIATE PARTICIPANTS



STATE GOVERNMENT SUPPORTERS

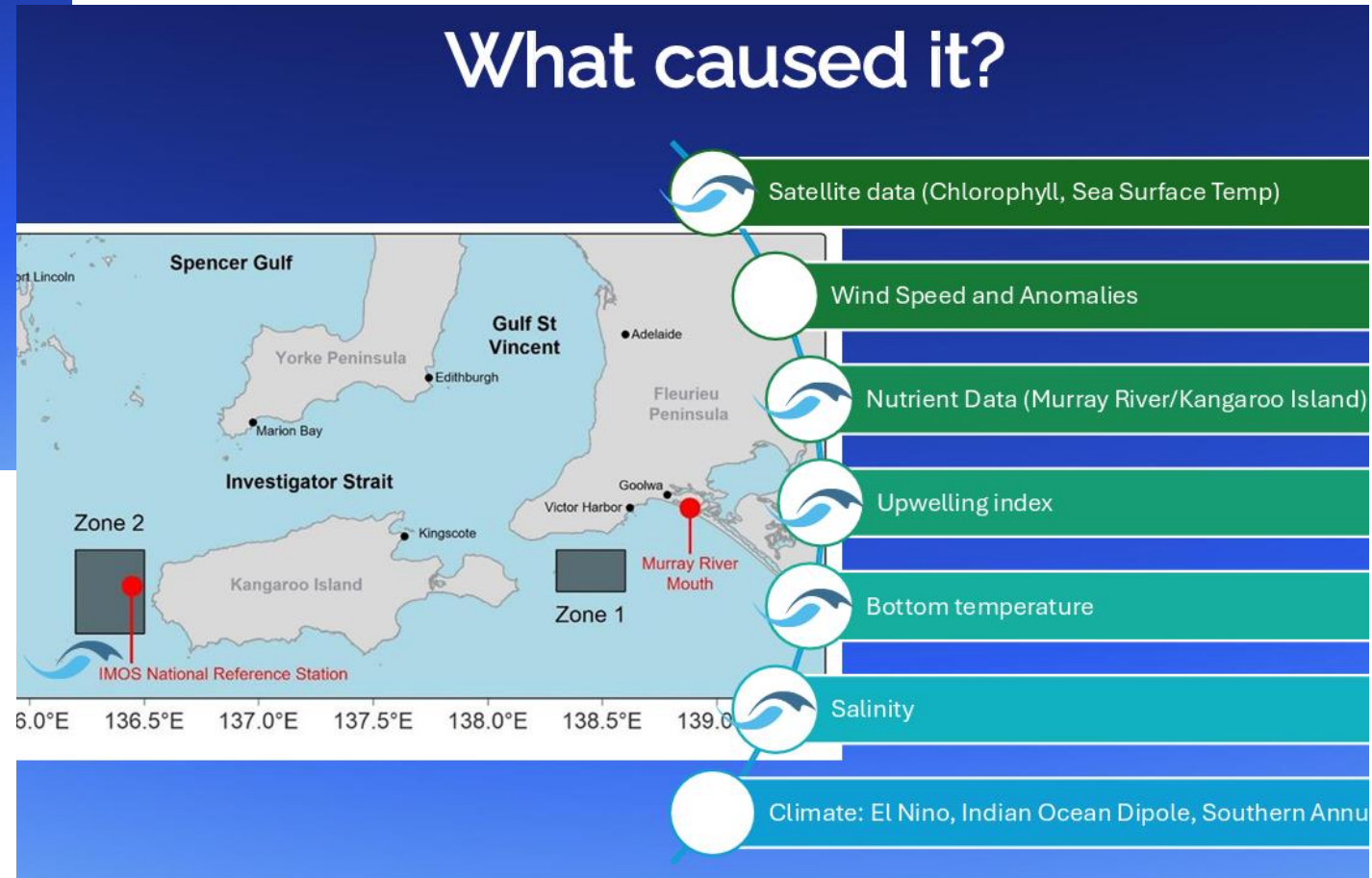
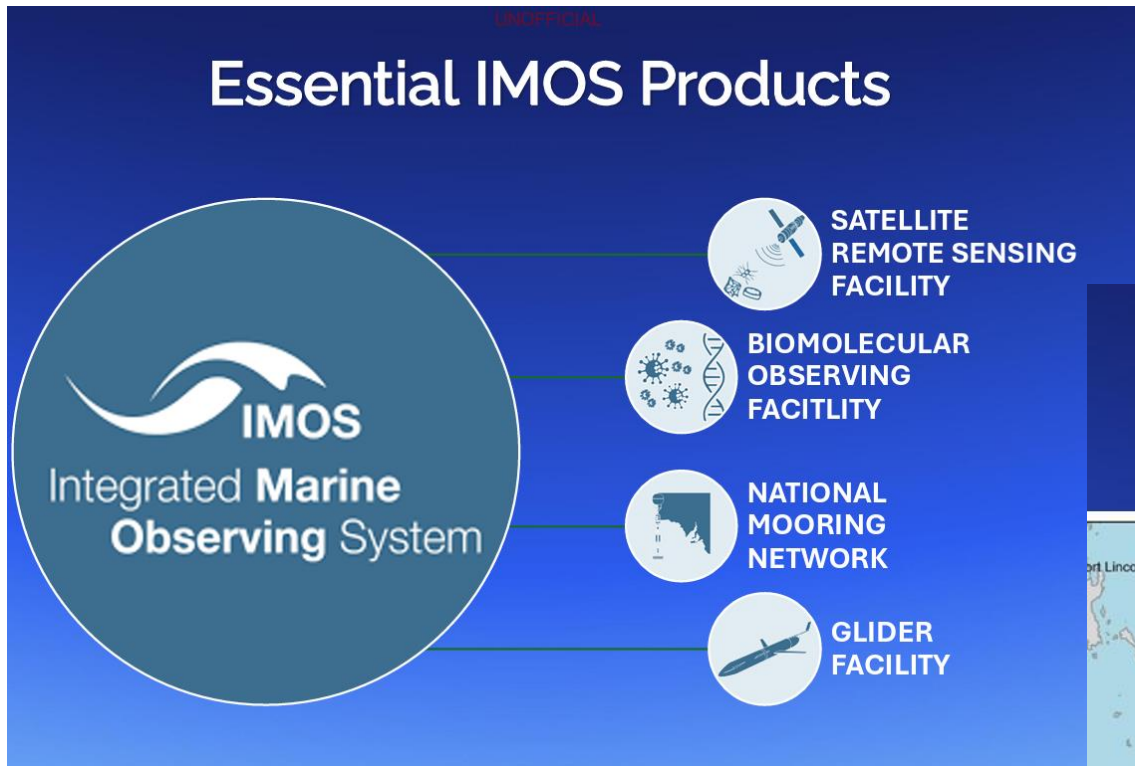


Operational and industry partners include:



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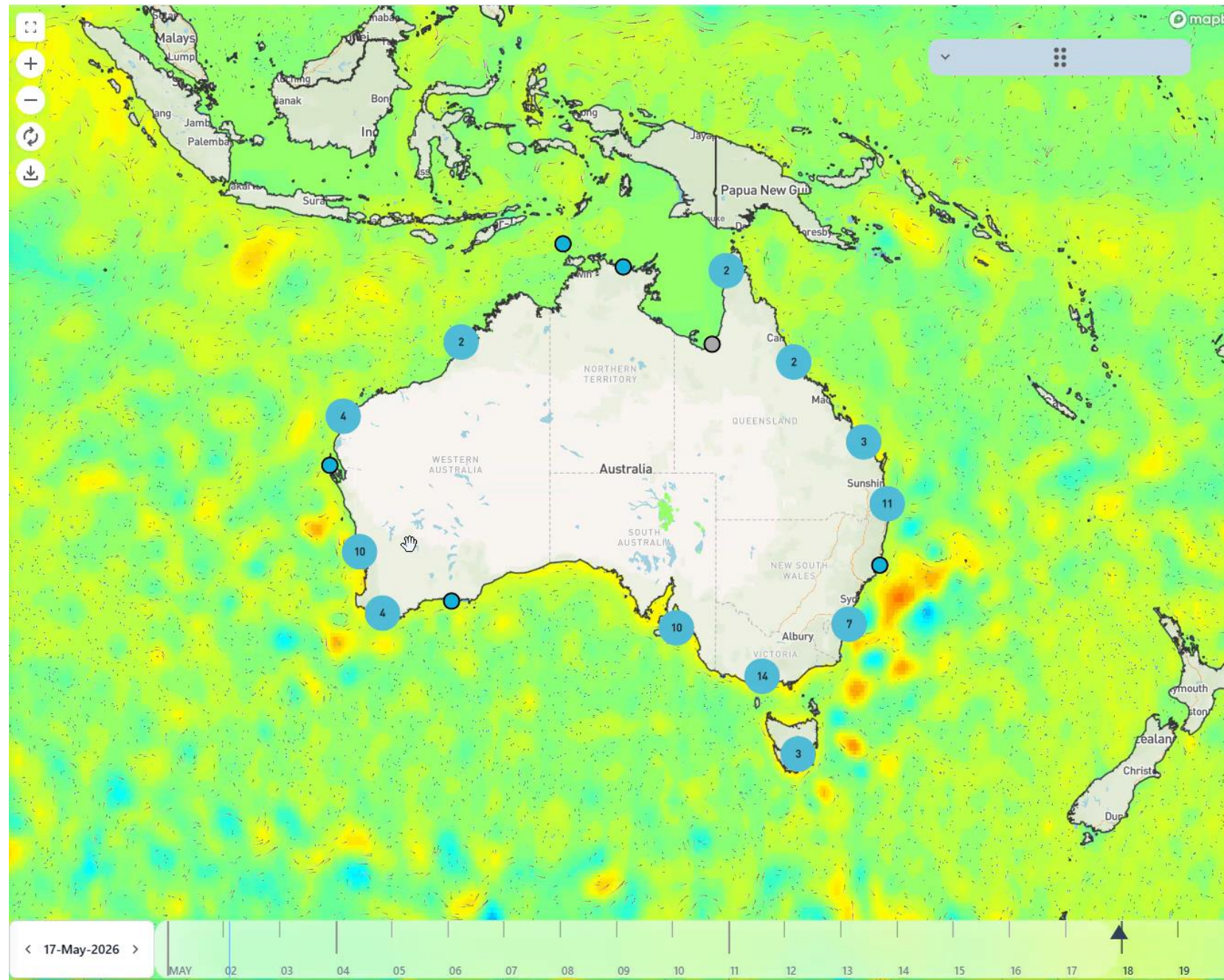
Benefits of partnership



Looking forward

IMOS Live

- Interactive near real-time data
- Mobile and desktop browser friendly
- Zoom and pan interactive map
- Step through previous 30 days
- Dynamic chart for timeseries data
- Ocean currents, wave buoys time series, heat stress indicators
- More data streams to be added in future: marine heatwaves, chlorophyll, moorings



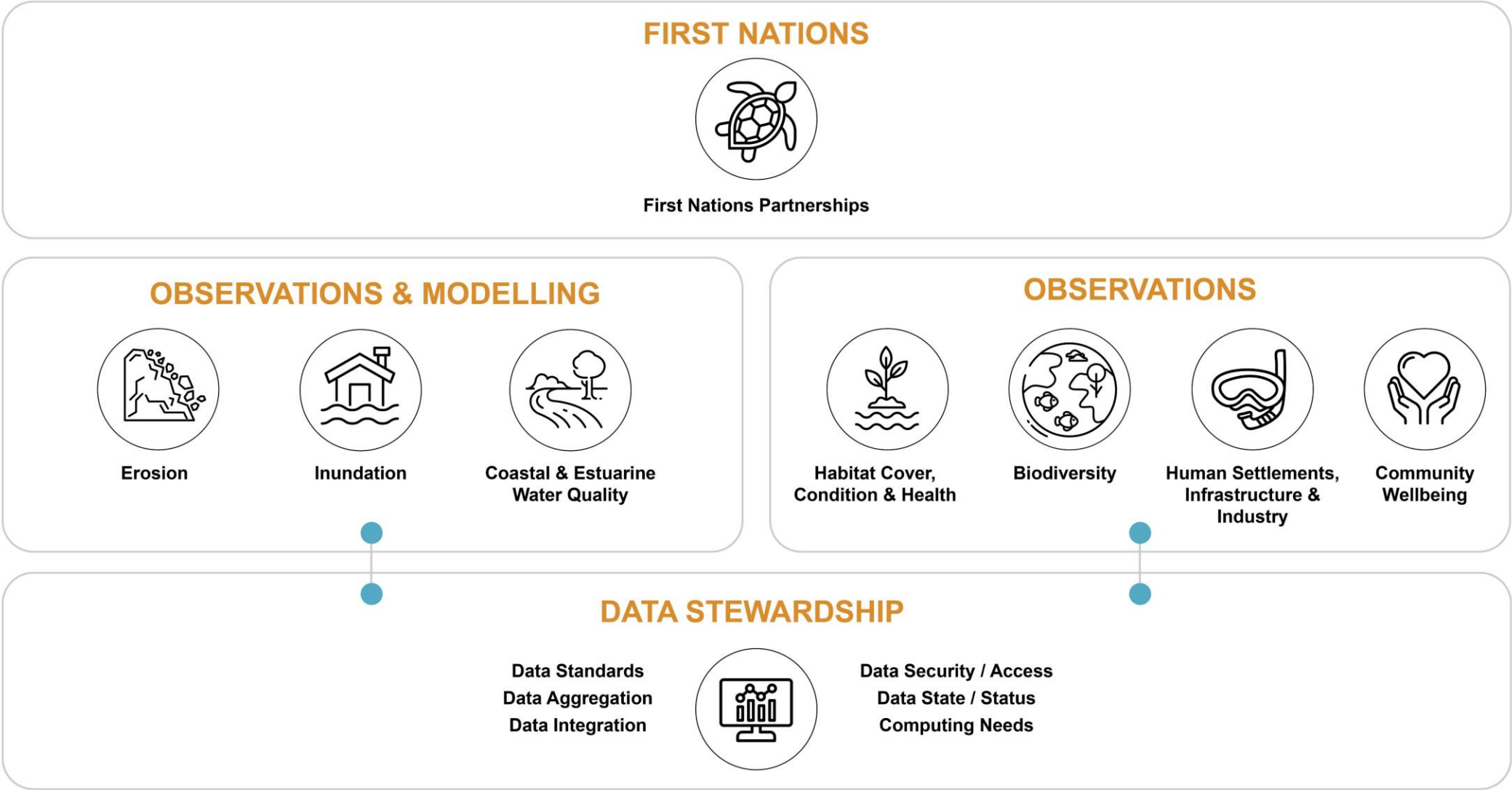
Establishing CoastRI

Vision: Research infrastructure connecting land and sea

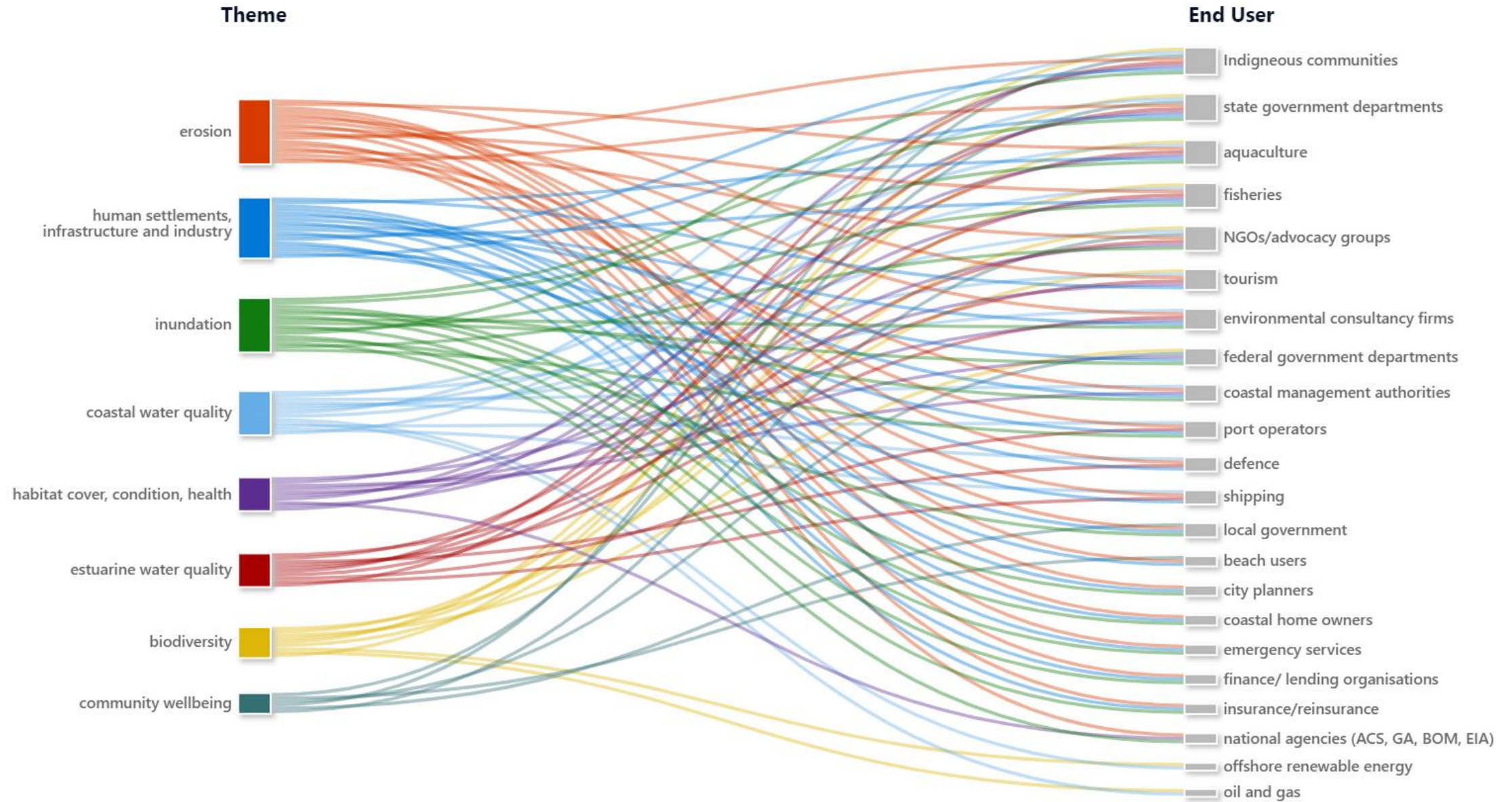
Objective: To gather comprehensive and integrated scientific data from diverse sources, enabling us to better understand, predict, and address the opportunities and imminent risks facing Australia's coast for all peoples.



Priority CoastRI themes



Who needs CoastRI?



Some highlights after 20 years

Impressive statistics!

15 Nature publications

15 Science publications

1590 Publications with international authors

8 Average publication authors

485 Maximum publication authors

20 All top 20 Australian universities have published using IMOS data

37 Australian universities have published using IMOS data

90% Of the top 20 World universities have published using IMOS data

160 Australian government agencies have used IMOS data

376 International government agencies have used IMOS data



Benefits of IMOS ocean observations



Weather forecasting

More accurate weather forecasting via use of IMOS data by the Bureau of Meteorology.



Improved policy response

Improved policy responses to environmental challenges, including to climate change, are derived from more accurate data and information from the ocean.



Natural disaster and extreme weather preparedness

Detailed ocean temperature data can contribute to more accurate forecasts of the trajectories of cyclones, including the locations where they cross the coast.



Management of commercial fisheries

Better environmental knowledge to manage commercial fisheries to prevent overfishing and avoid damage to aquaculture from ocean acidification and harmful algal blooms.



Oil and gas industry operations and maritime transport

More accurate forecasting of ocean currents aids in navigation and helps industries improve the safety and efficiency of ocean navigation.



Australian defence capability

IMOS delivers potential benefits to the Royal Australian Navy through a better understanding of how ocean conditions affect sonar soundings and contribute to regional environmental intelligence.

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IMOS thanks the many other organisations who partner with IMOS, providing co-investment, funding and operational support, including investment from the Tasmanian and Western Australian Governments.

