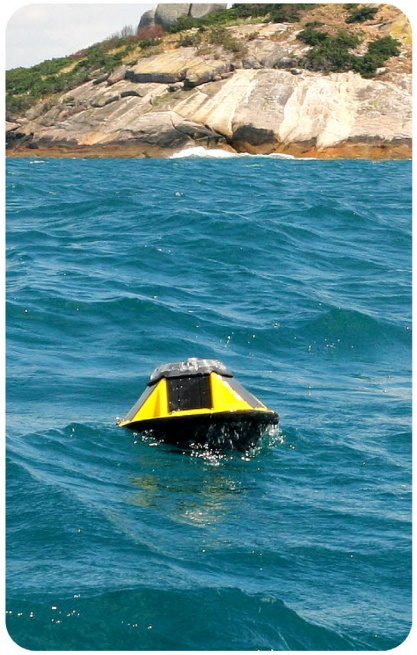
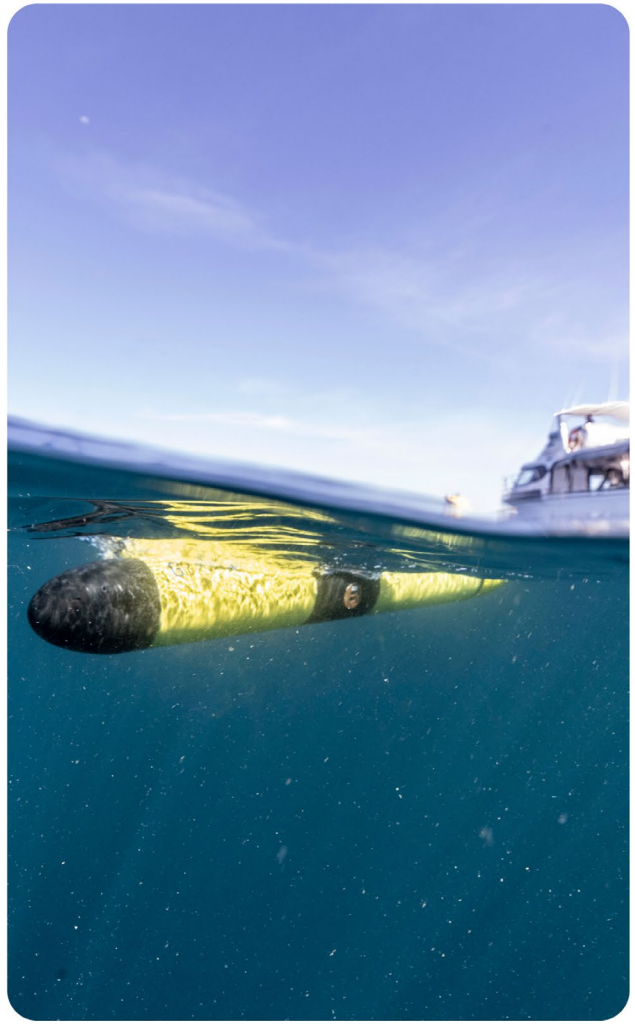
IMOS Integrated Marine Observing System

Program Update

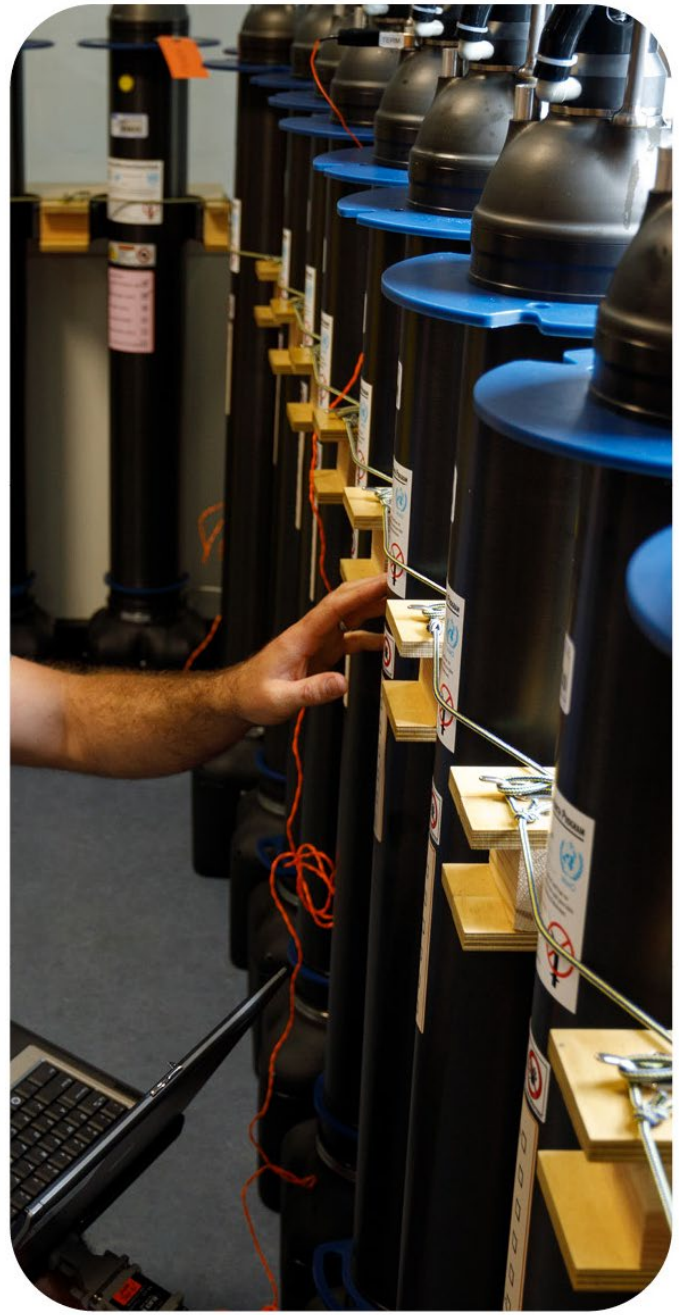
Michelle Heupel





What is happening and how is it going?

- IMOS is performing well and considered highly successful within NCRIS.
- Current NCRIS funding ceases in June 2028 and we will need to provide input and support as they work to secure future funding. Our impact and status will be important in this process.
- Elements funded in the 2023 step-change are being established and we are looking at the next funding rounds.



IMOS Cumulative Impact

IMOS Integrated Marine Observing System

Uptake and Use

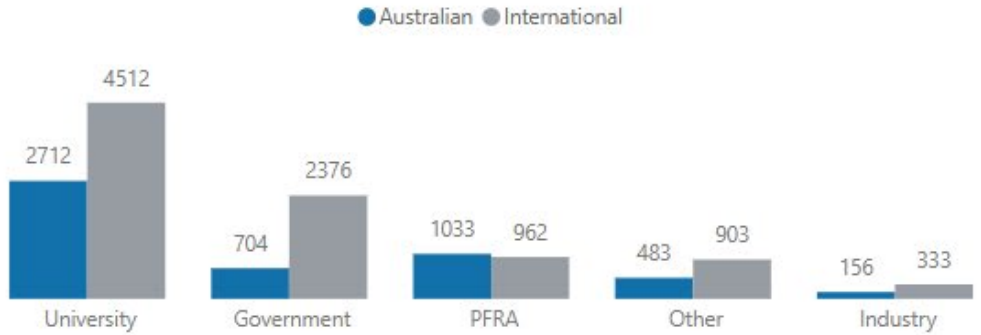
Publications & Policy | Higher Education | Societal Benefit

4,221	499	497	229	737	3,258
Publications	Policy and Policy-related Documents	Postgraduate Projects	Products	Projects	Presentations

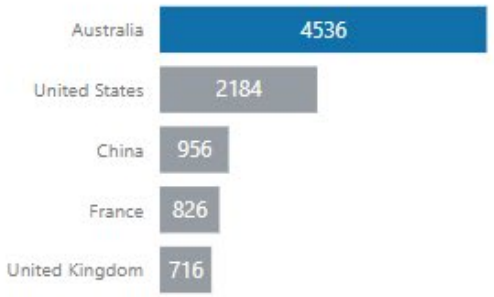
12,767 People across **2,389 Institutions**
in **100 Countries** have used IMOS data

Use of IMOS data across the globe

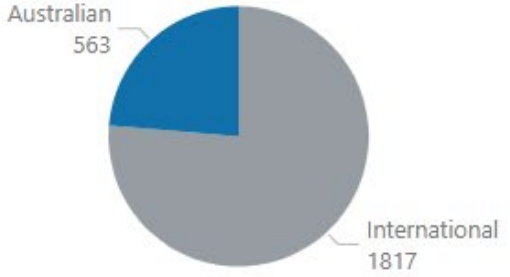
Users by Type and Region



Top 5 Countries by Number of Users



Institutions by Region



IMOS Societal Impact

IMOS Integrated Marine Observing System

Societal Benefit

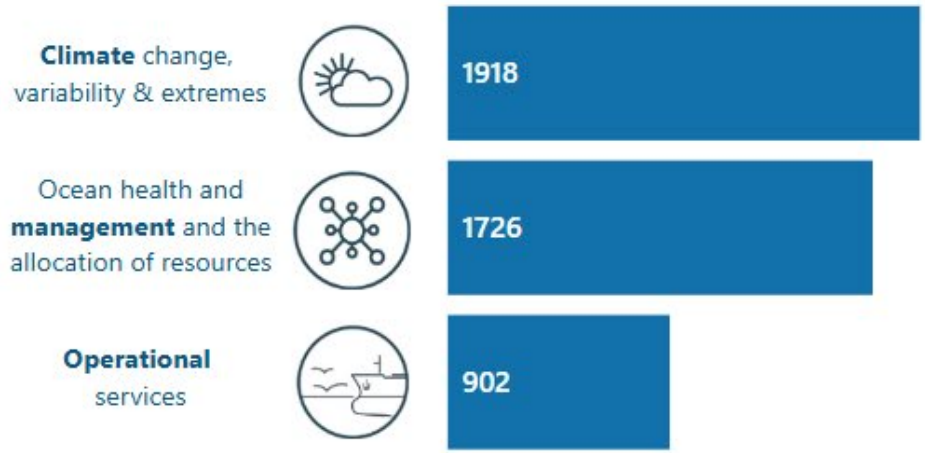
Uptake and Use | Publications & Policy | Higher Education

Publications supporting the advancement of SUSTAINABLE DEVELOPMENT GOALS

16	1	2	86	5	744	1212	111
3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	11 SUSTAINABLE CITIES AND COMMUNITIES	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND

IMOS Data Streams

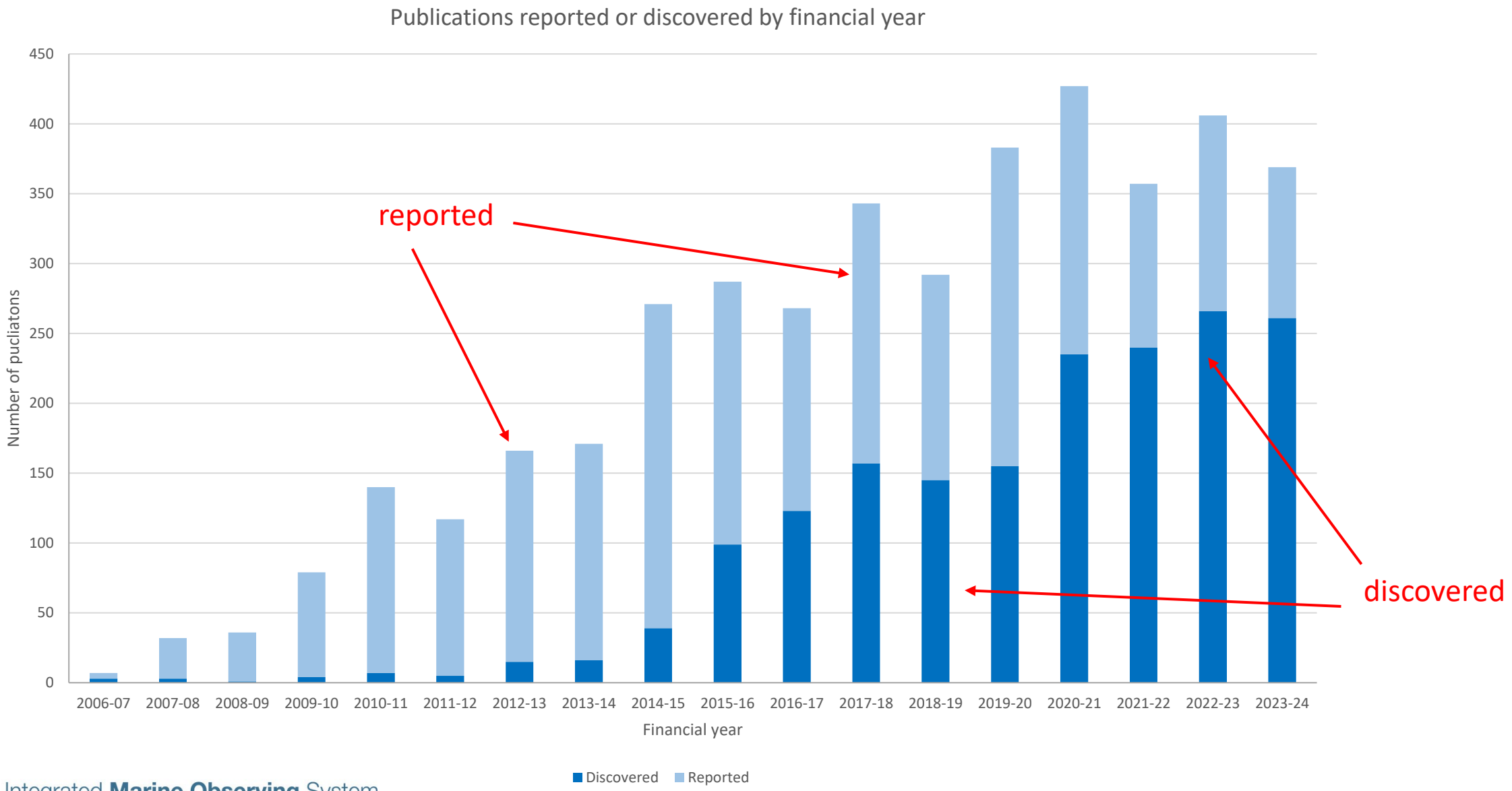
Publications with linkages to **Research Areas**



Publications contributing to **Societal Benefit Areas**

Biodiversity conservation & management	1,453
Coastal Populations	664
Energy Security	136
Food Security	708
Marine sovereignty, security & safety	396

Trends over time



IMOS Integrated Marine Observing System

Looking forward

The NCRIS landscape

NCRIS will run funding rounds for four step-change areas:

- National Digital Research Infrastructure
- Translation
- Environment and Climate
- Collections (in 2026)

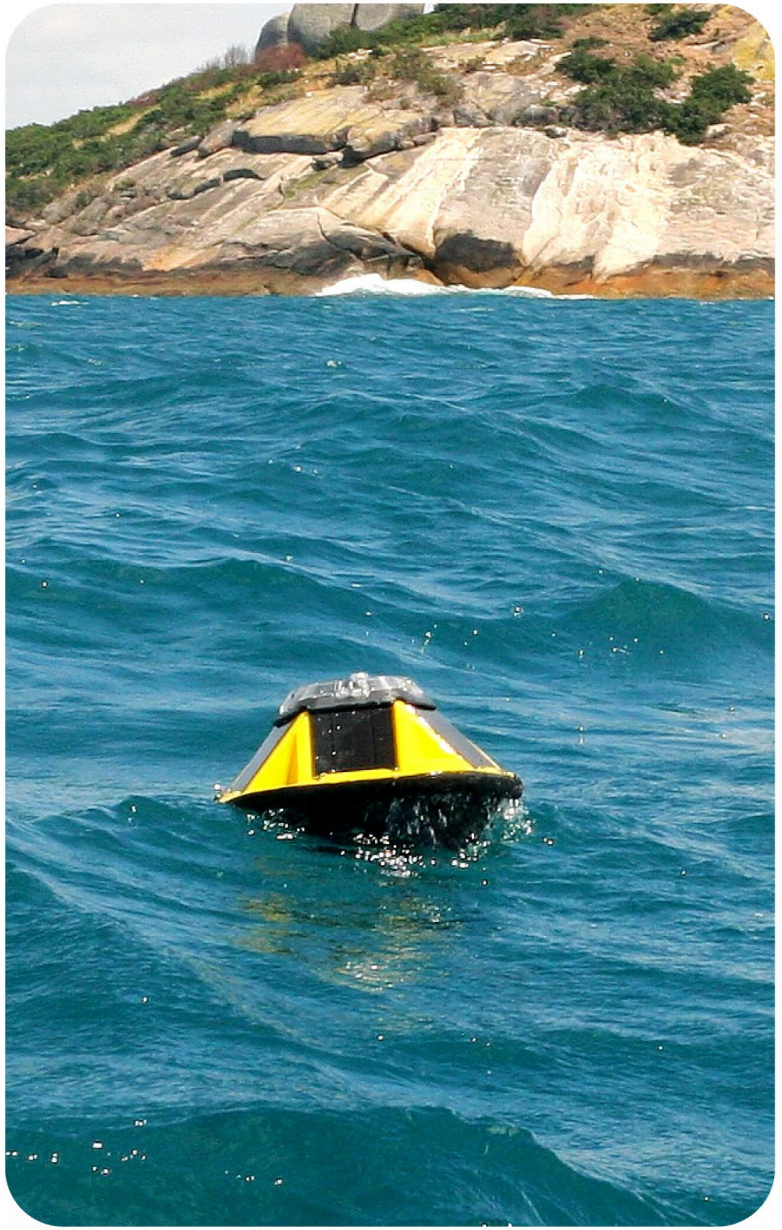
A contingency round is also planned to support costs in 2027/28.

An additional Environment and Climate round in 2026.

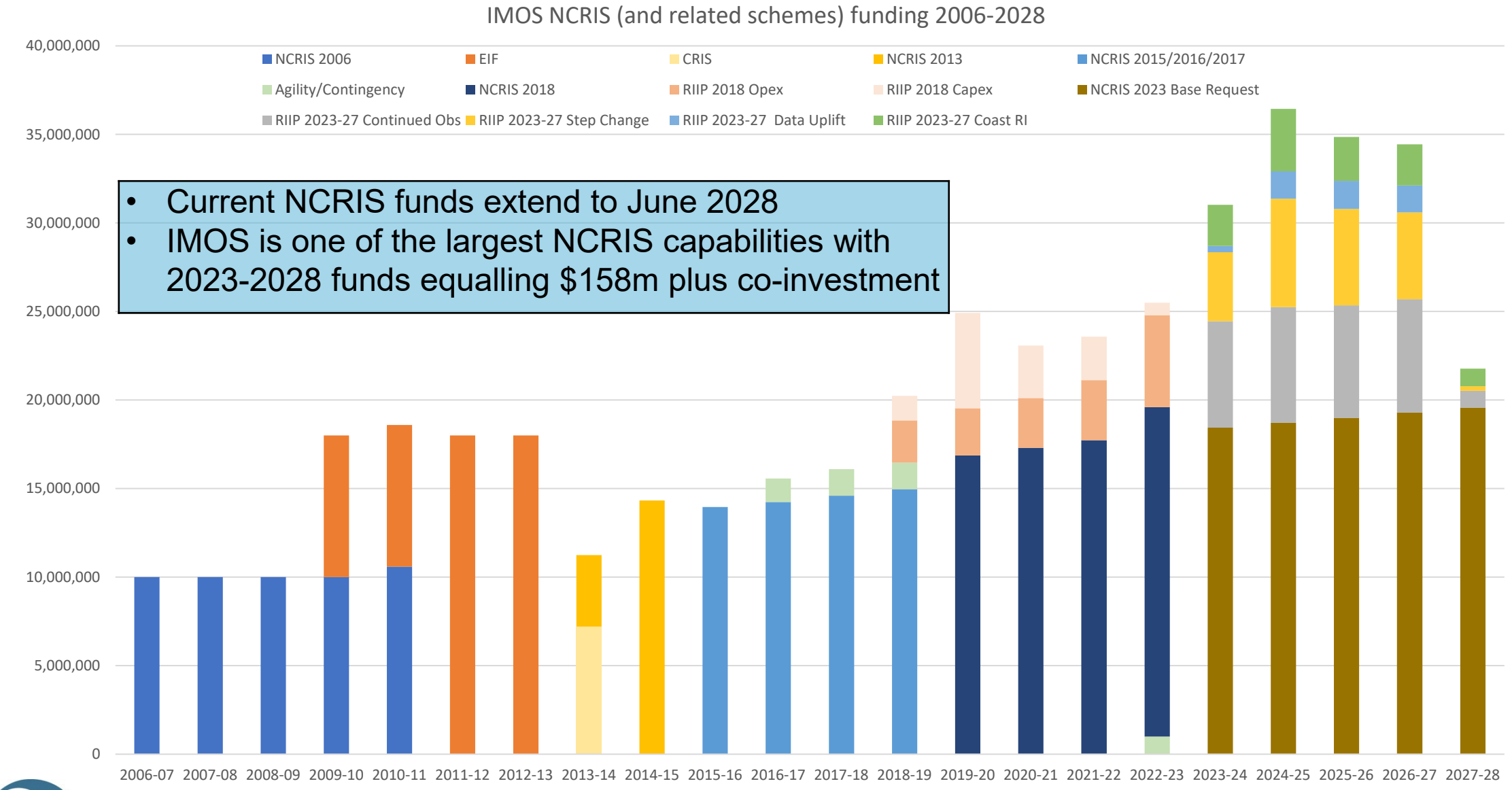
Additional funding

IMOS step-change funding request will include the full CoastRI program. If funded a series of workshops will be held to prioritise activities and partners.

Additional requests for the 2026 Environment and Climate step-change have been canvassed from the IMOS Nodes and will focus on aspects outside CoastRI.



Current IMOS funds



- Current NCRIS funds extend to June 2028
- IMOS is one of the largest NCRIS capabilities with 2023-2028 funds equalling $158m plus co-investment

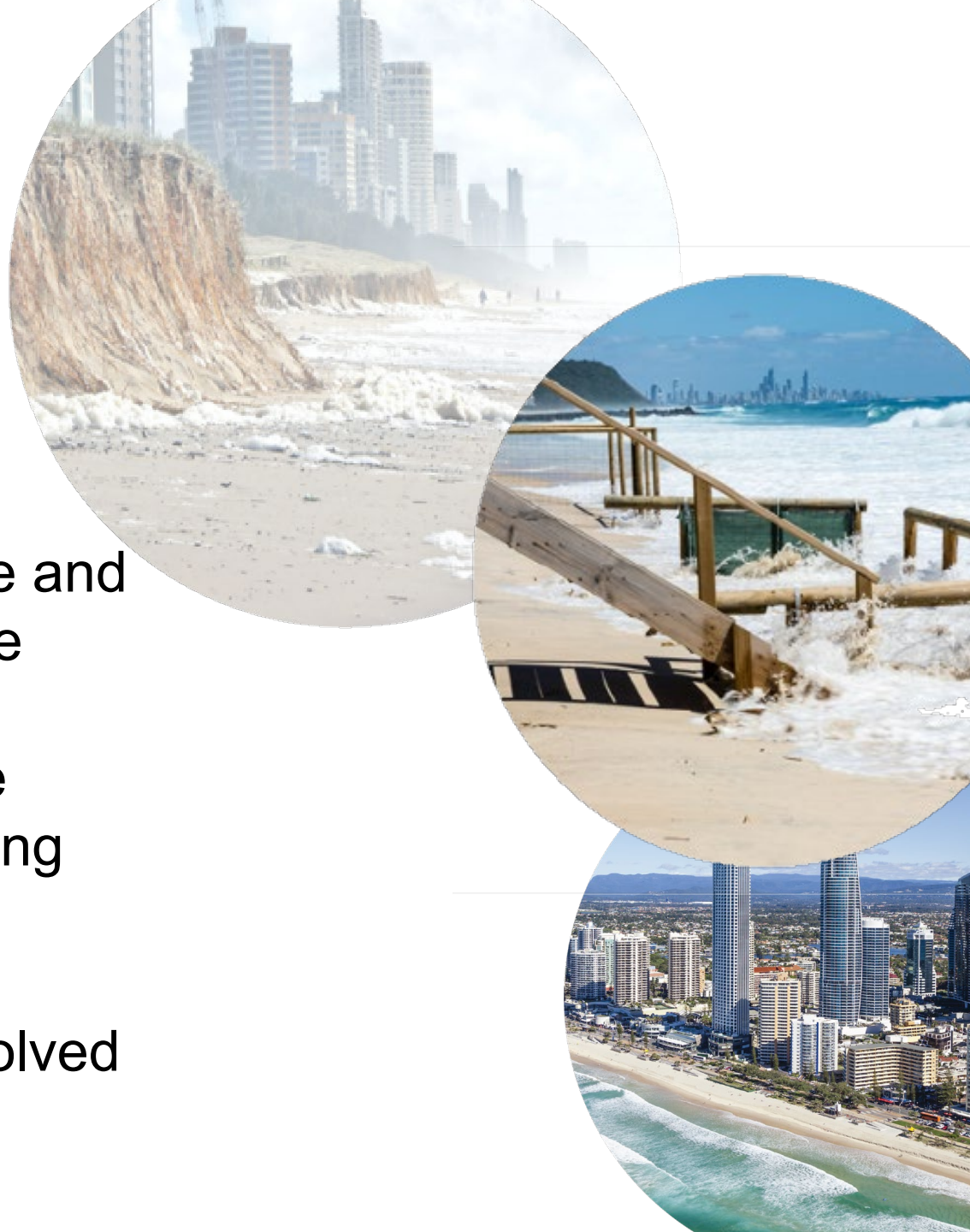
IMOS Integrated Marine Observing System

Collaborating to establish 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.

*13 of 26 NCRIS capabilities are involved

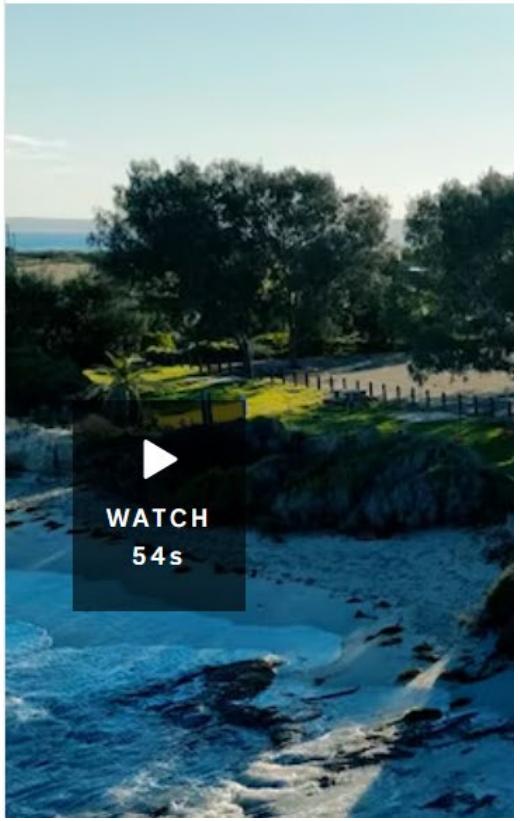


CoastRI - Why now?

Extreme coas demolition of

ABC Midwest & Wheatbelt / By Piper

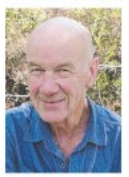
Posted Thu 13 Jun 2024 at 4:16pm



This vanishing beach should be a worry to us all

Roches Beach is a tranquil coastal spot, but studies show a troubling global phenomenon at play, writes **Peter Boyer**

Peter Boyer



Chris Sharples

Safe and sheltered, pleasant natural qualities including bird life, east-facing with good morning sun, the perfect suburban beach for the whole family ... that's how residents described Roches Beach, east of Hobart on Frederick Henry Bay, in a Clarence City Council resident survey last year.

The survey was instigated by the fact that the beach has been getting smaller. One respondent pointed to private homes whose backyards "go straight into the beach" – so that a visitor "feels like an intruder walking on private land". Another was fearful that a child playing on an eroded dune might be buried by a sand fall.

Another expressed annoyance at "property owners showing complete disregard and treating the dunes as if they own them". For their part, property owners expressed fear at losing their homes to coastal erosion, one of them lamenting council money spent on a Bellerive boardwalk and New Year fireworks instead of protecting the coast. Criticisms included bad modelling, self-interested consultants, "sub-par" scientists and "incorrect measurements".

One survey respondent commented that both council and community face "huge challenges in our lifetime and beyond", lamenting that governments were failing to address those challenges. Another begged to differ: "The last community meeting that I attended in the Lauderdale Hall was more of a climate change scare campaign rather than the sharing of genuine ... knowledge of the Lauderdale coastal erosion situation."

There's an underlying message here about the response of communities, governments and the world at large to the growing impact of climate change. When concentrated personal wealth is at stake, like a home, people will take in only what they want to and discard the rest.

Here's what science says about the kind of climate change Roches Beach residents should be most concerned about. Hotter oceans and melting ice are accelerating sea level rise, from a 20th century average rate of 1.4mm a year to about 4.7mm a year in the decade to 2023.

At current warming rates the seas lapping Tasmania will be at least 20cm higher by 2050 and a metre higher by 2100, but projections so far out are inevitably imprecise. A projection by a Singapore-based team published last week put the latter figure, globally averaged, at a "very likely" 1.9m.

Chris Sharples has spent many decades studying the interplay between land and ocean, a study whose focus has been sharpened by our changing climate and the rising global sea level. Last year he turned that lifetime of study into a hard-earned PhD based on a protracted study of the behaviour of the Roches Beach shoreline.

> **Certain coastal management measures may hold the seas at bay for a while, but in the long term, the only way to stop the beach from receding is to lower the amount of carbon that we ... are putting up there**

Dr Sharples picked Roches Beach for his thesis topic because annual aerial photos from 1946 enabled a study of changing behaviour over many decades. What he discovered is that after being stable for at least four decades, in 1986 a major section of Roches Beach shoreline began to recede in a trend that only slowed from 2011, when Clarence City Council began replenishing sand at the dune front.

In a major research paper published last week in the prestigious international journal Marine Geology, Dr Sharples and co-author Christopher Watson, also of the University of Tasmania, reported their finding that "the rising sea level has increased the frequency and scale of upper beach erosion events, causing increasing net losses of eroded sand from the [Roches Beach] embayment".

In career terms this is a significant moment for Dr Sharples and Dr Watson, his PhD supervisor. And though perhaps none of them know it yet, it's more momentous still for Tasmania and the Clarence municipality – and especially for coastal residents of the Roches Beach-Lauderdale area struggling to get their heads around what's happening to their beloved beach.

Many of these residents have for

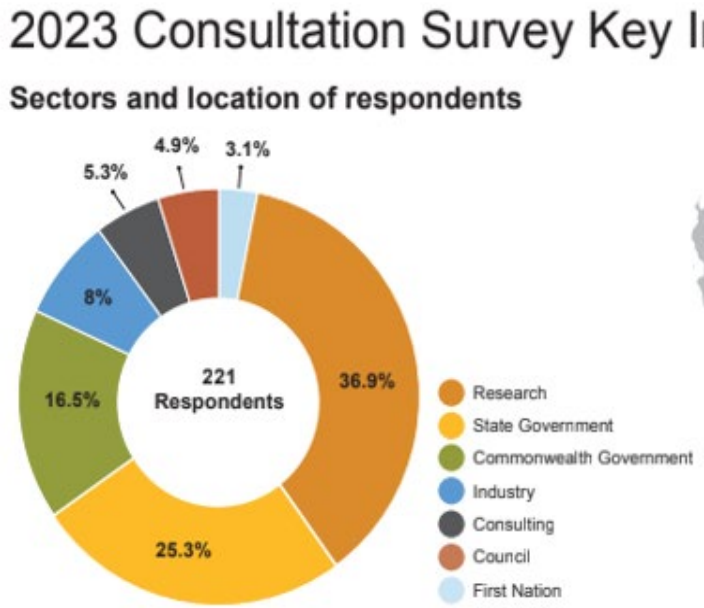
Scientists Nick Bowden from the Antarctic Climate and Ecosystems (ACE) CRC and Hobart geomorphologist Chris Sharples from the University of Tasmania (UTAS) School of Geography and Environmental Studies, measuring a profile across the beach and dune for changes in erosion at Roches Beach. Picture: Raoul Kochanowski

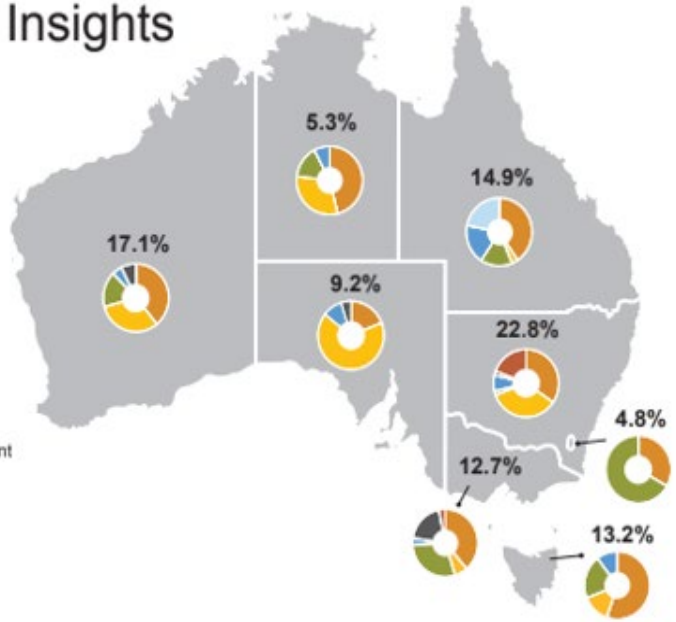
Mercury 4 Feb 2025

Consultation

National-scale consultation informed program elements.

Federal or other national end users	State Stakeholders/end-users
Bureau of Meteorology (BOM)	**Victoria (VIC)**
Geosciences Australia (GA)	Department of Energy, Environment and Climate Action (DEECA)
CSIRO	**Western Australia (WA)**
Natural Hazards Research Australia	WA Department of Planning, Land and Heritage
Australian Maritime Safety Authority (AMSA)	WA Department of Primary Industries and Regional Development (DPIRD)
Minderoo	City of Wanneroo
	WA Marine Science Institution (WAMSI)
	WA Department of Jobs, Tourism, Science, and Innovation (JTSI)
	WA Department of Transport (DoT)
	Southern Councils Alliance
	Infrastructure Western Australia
	Queensland (QLD)
	QLD Department of Environment and Science (DES)
	QLD Fire and Emergency Services
	Maritime Safety Queensland
	QLD Reconstruction Authority
	Tasmania (TAS)
	TAS Department of Primary Industries (DPI)
	TAS Department of State Growth
	Business Tasmania science and tech development
	New South Wales (NSW)
	NSW Marine Estate Management (MEMA)
	NSW Department of Primary Industries (DPI)
	NSW Department of planning and Environment (DPE)
	South Australia (SA)
	SA Water
	Australian Southern Bluefin Tuna Industry Association (ASBTIA)
	Department of Primary Industries and Regions (PIRSA)
	SA Research and Development Institute (SARDI)
	SA Environmental Protection Authority (EPA)
	SA Department for Environment and Water (DEW)
	SA Climate Coast
	Local governments areas (LGAs)





CoastRI Elements

FIRST NATIONS

First Nations Partnerships

OBSERVATIONS & MODELLING

Erosion

Inundation

Coastal & Estuarine Water Quality

OBSERVATIONS

Habitat Cover, Condition & Health

Biodiversity

Human Settlements, Infrastructure & Industry

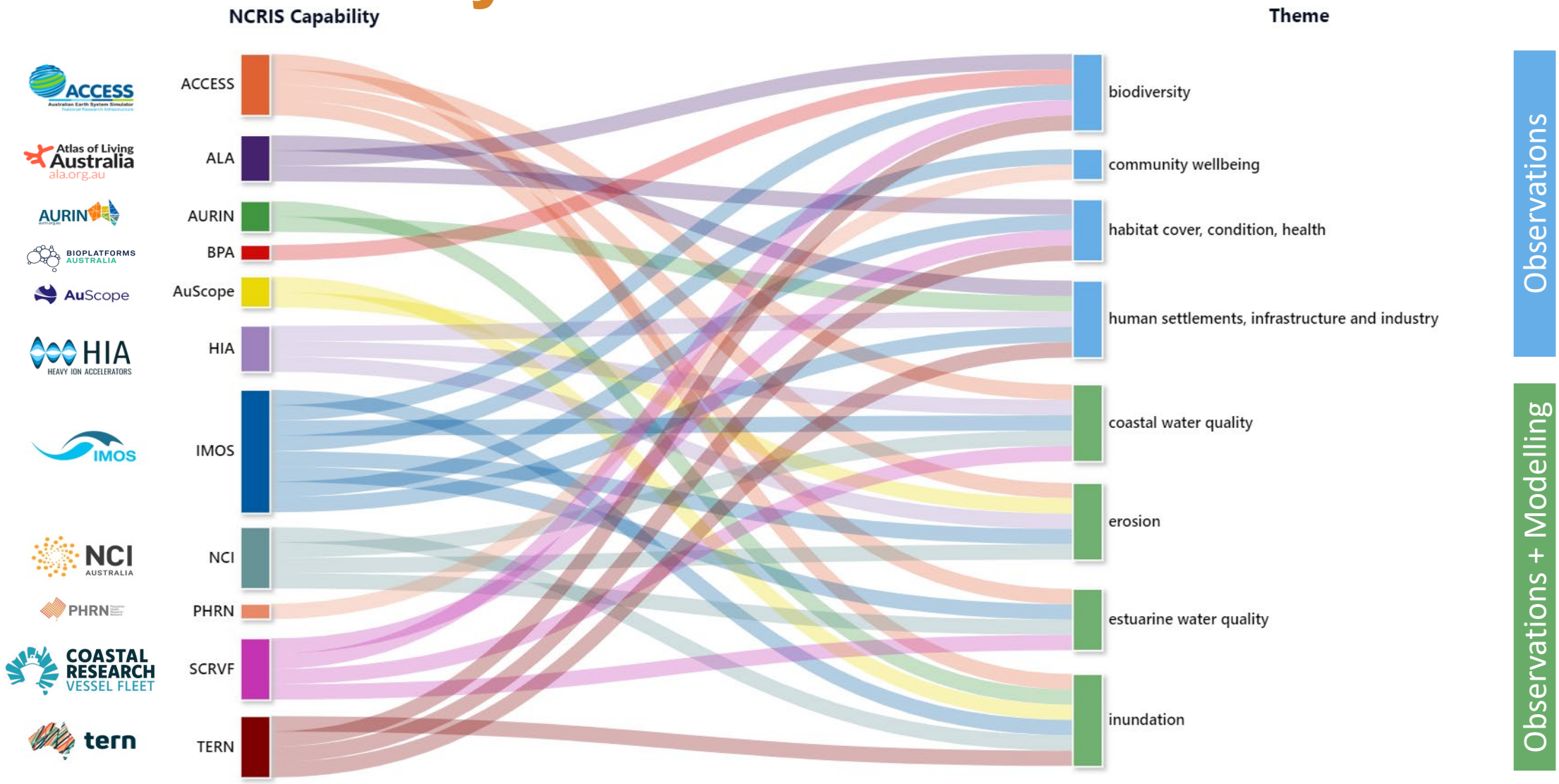
Community Wellbeing

DATA STEWARDSHIP

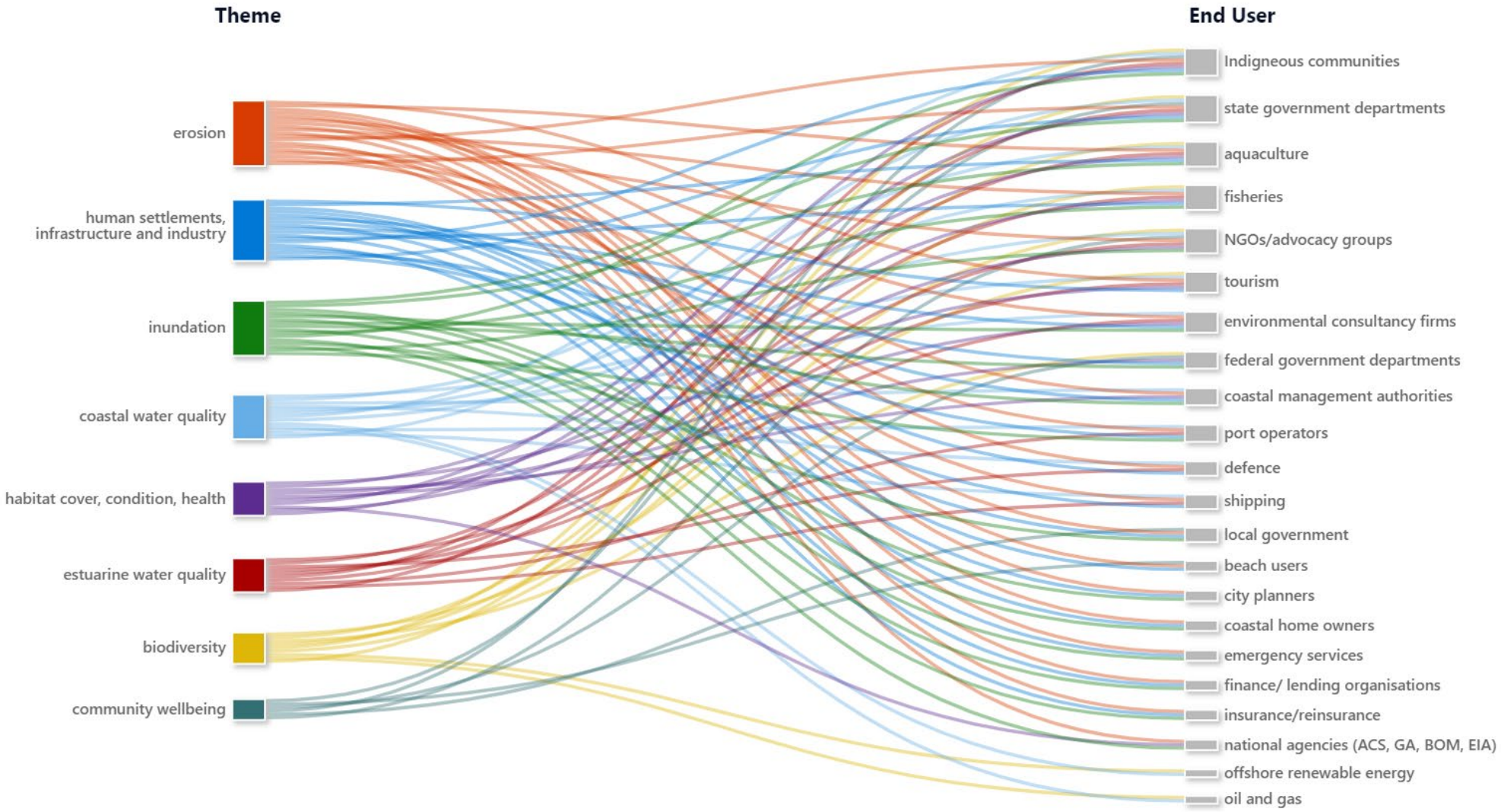
Data Standards
Data Aggregation
Data Integration

Data Security / Access
Data State / Status
Computing Needs

NRI Connectivity



Connecting Communities through Themes

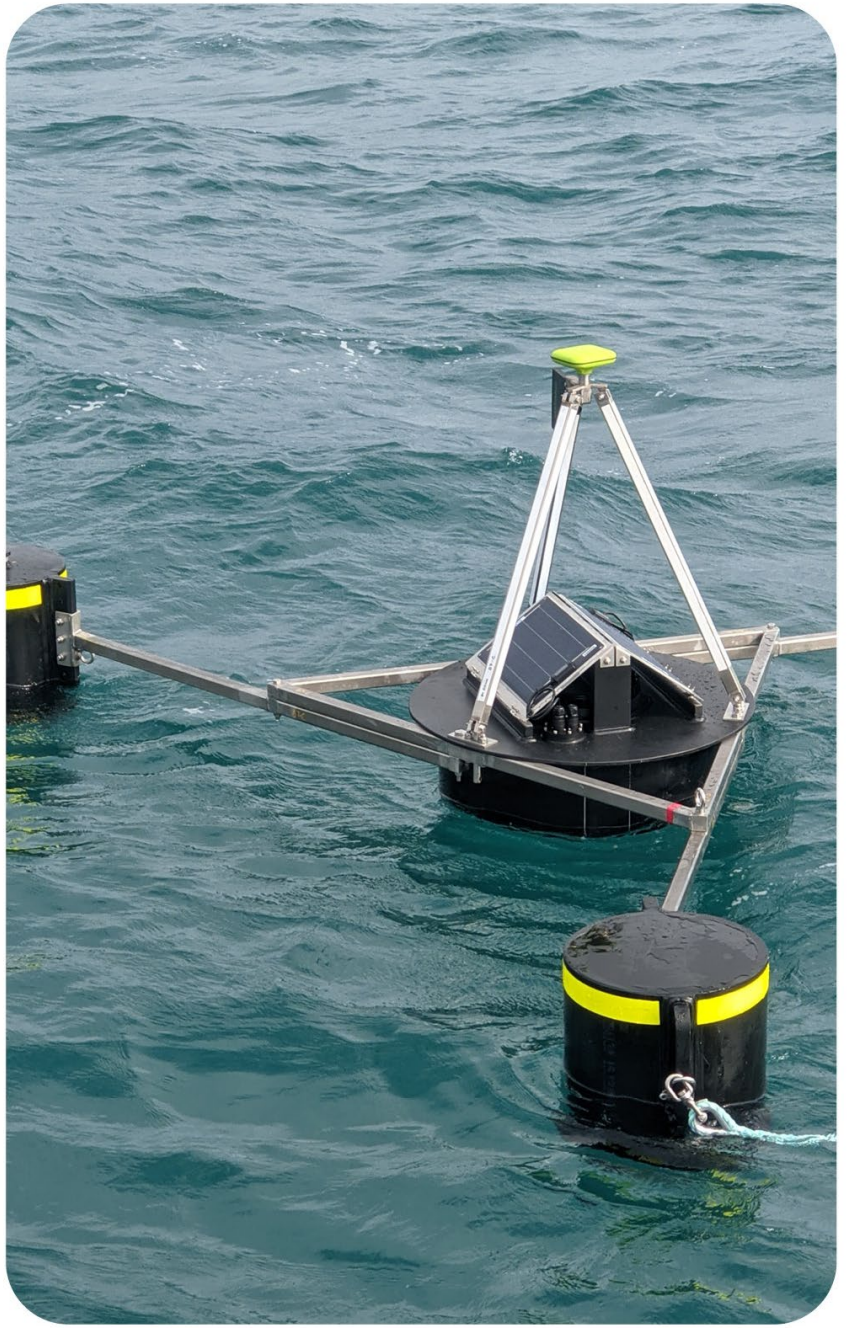


2025 will be a busy year for IMOS

- NCRIS funding submissions
- Establish the full CoastRI program🤞
- Strategy development (strategy presentation)

Ongoing priorities

- Continued expansion of efforts to translate data to information (Mark R presentation)
- Embed First Nations collaboration, partnership, priorities and observing in IMOS
- Increase industry partnerships and opportunities for data collection
- Enhance international linkages, especially in the Indo-Pacific region



IMOS Integrated Marine Observing System

NCRIS
National Research Infrastructure for Australia
An Australian Government Initiative

Australia's Integrated Marine Observing System 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.

PRINCIPAL PARTICIPANTS

University of Tasmania (Lead Agent)

Australian Government

Australian Institute of Marine Science

Australian Government Bureau of Meteorology

CSIRO

Government of South Australia

SARDI South Australian Research and Development Institute

The University of Western Australia

sims sydney institute of marine science

UTS

The University of Sydney

Macquarie University

UNSW Sydney

SIMS is a partnership invoving four universities

ASSOCIATE PARTICIPANTS

Curtin University

Australian Government
Department of Climate Change, Energy, the Environment and Water
Australian Antarctic Division

Australian Antarctic Program

Deakin University

The University of Melbourne

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.