

Leveraging partnerships to build knowledge in the marine and coastal realm



© Liz Rogers, Drowned Apostle

Daniel Ierodiasconou, Deakin University, Warrnambool Campus



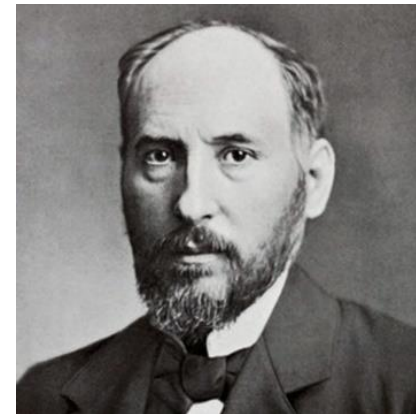
Deakin Marine Mapping Group

www.marinemapping.org

Leveraging partnerships to build knowledge in the marine and coastal realm

“Let us emphasize again this obvious conclusion: a scholar’s positive contribution is measured by the sum of the original data that he contributes. Hypotheses come and go but data remain. Theories desert us, while data defend us. They are our true resources, our real estate, and our best pedigree. In the eternal shifting of things, only they will save us from the ravages of time and from the forgetfulness or injustice of men.”

Santiago Ramón y Cajal
Advice for a young investigator (1898)
Nobel Prize 1906



Leveraging partnerships central to success

Building a long term relationship that brings multiple benefits to partners and to society, beyond which either party could achieve on their own






Partnerships







Integrated Marine Observing System

PRINCIPAL PARTICIPANTS




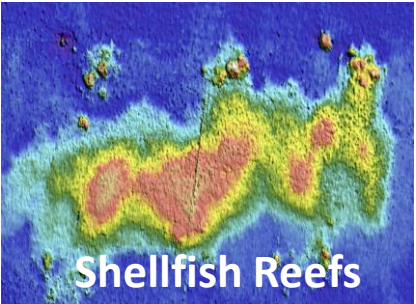
(Lead Agent)



SIMS is a partnership involving four Universities.

ASSOCIATE PARTICIPANTS





Integrated Marine Observing System

Establishing the Victorian IMOS Node



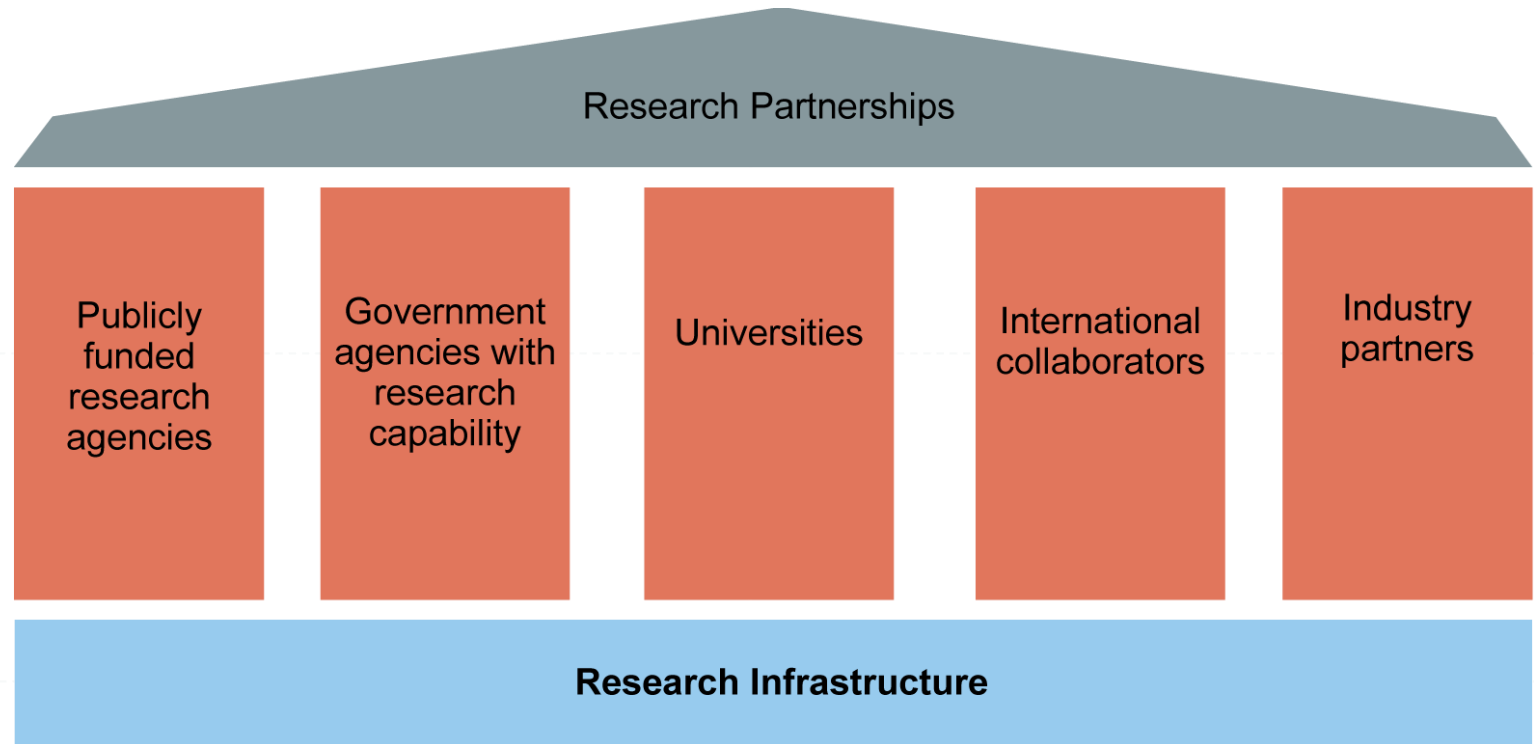
Australia's Integrated Marine Observing System

IMOS is a **national, collaborative, research infrastructure**, funded by the Australian Government.

“

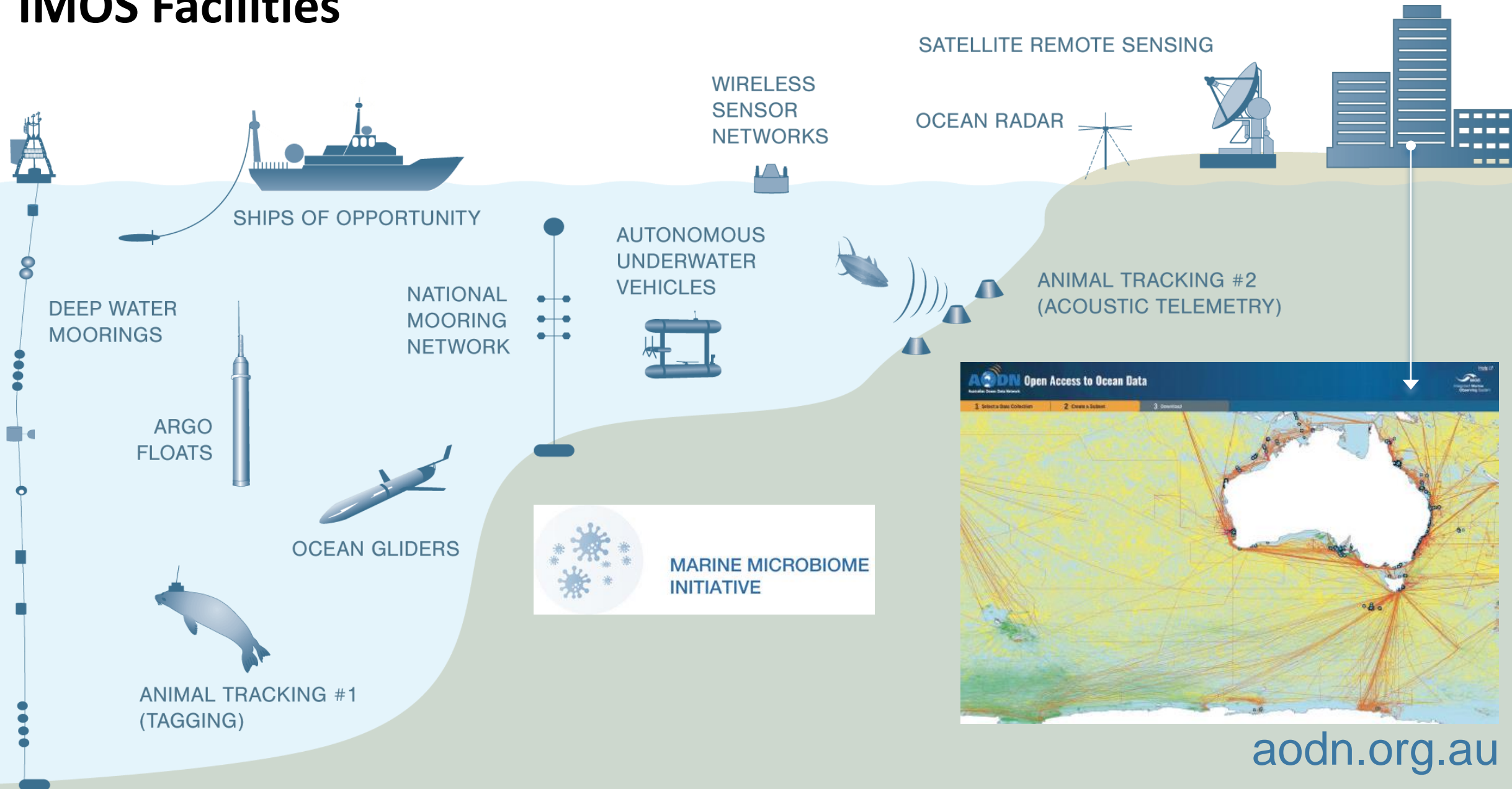
.... designed to provide Australia's research sector with on-going access to **high-quality, operational research infrastructure facilities** and supports **collaboration between the research sector, industry and government** in Australia to conduct **world-class research**.

”



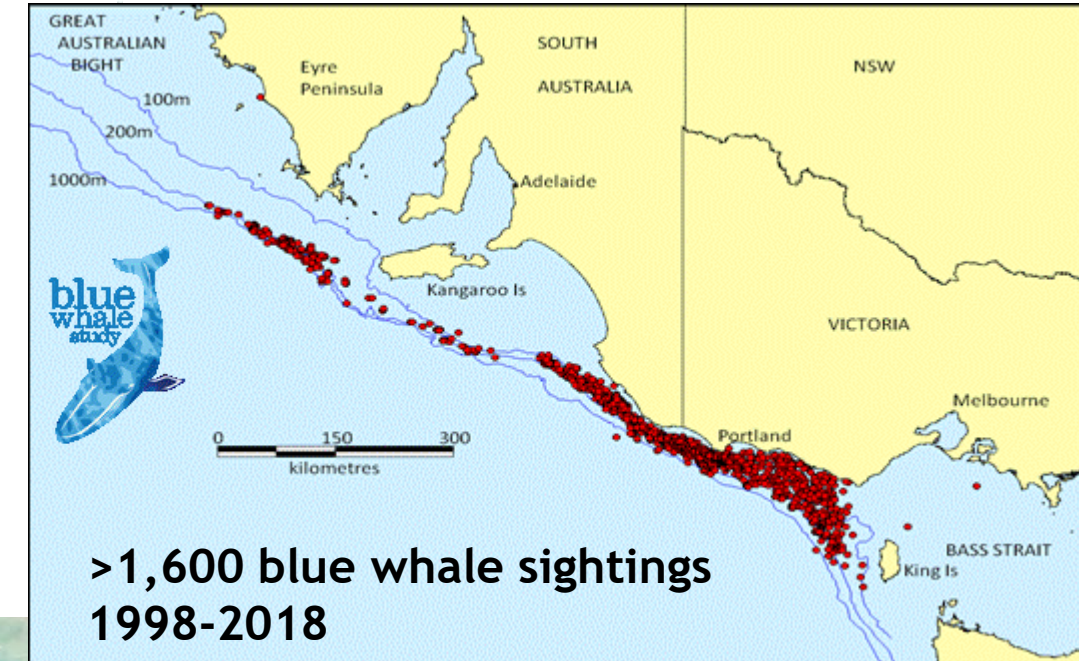
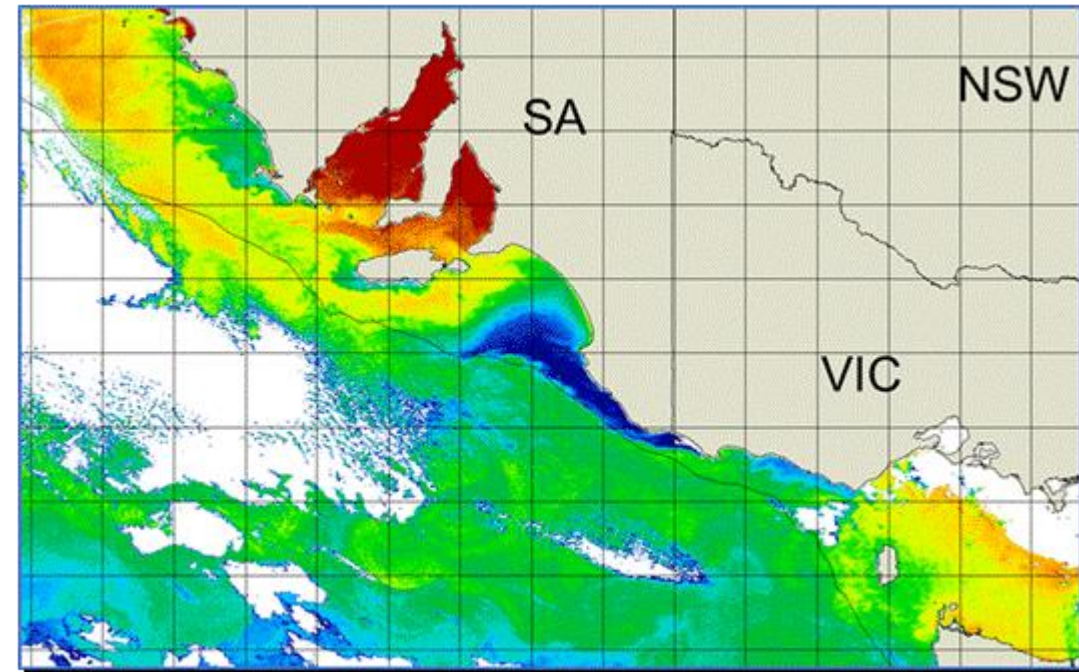
IMOS Facilities

AUSTRALIAN OCEAN DATA NETWORK



Bonney Coast mooring

- Moorings are deployed in a range of configurations designed to characterise and monitor regional processes on the continental shelf



Animal Tracking

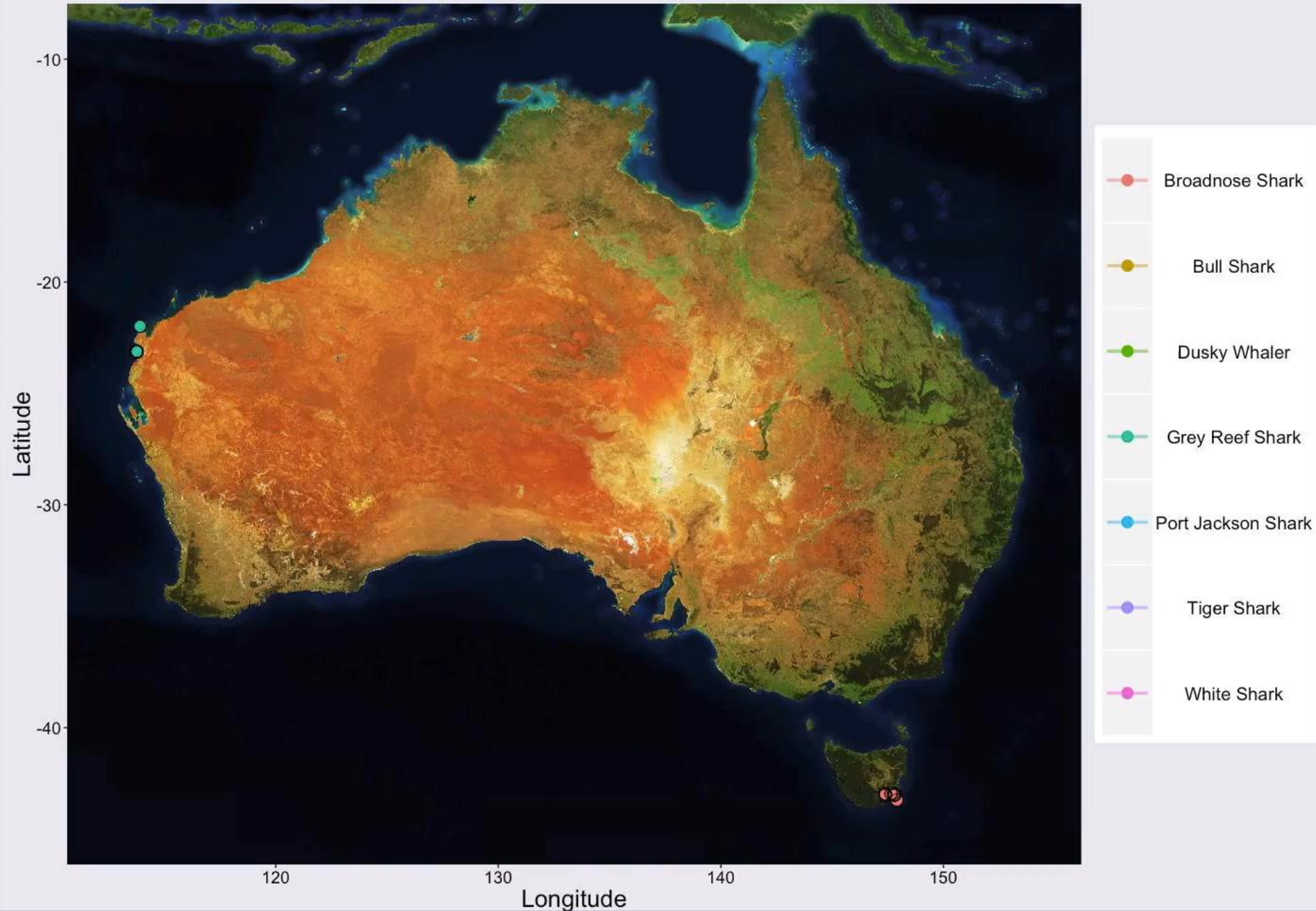
89 Million detections
8,000 animals tagged
135 species

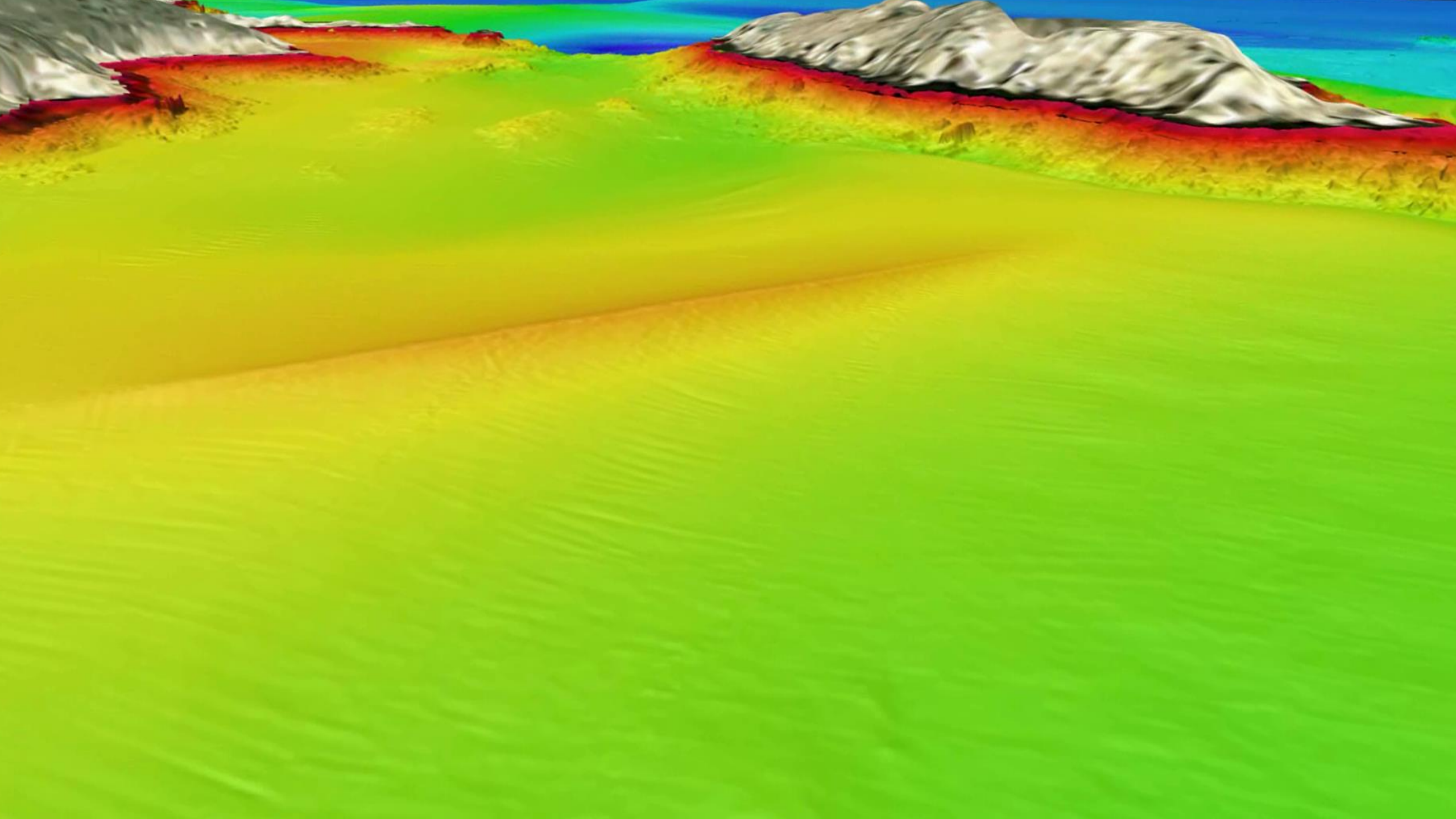
Portland Gate (FRDC) -
Closing gaps on
movement of key
species of fisheries
interest.



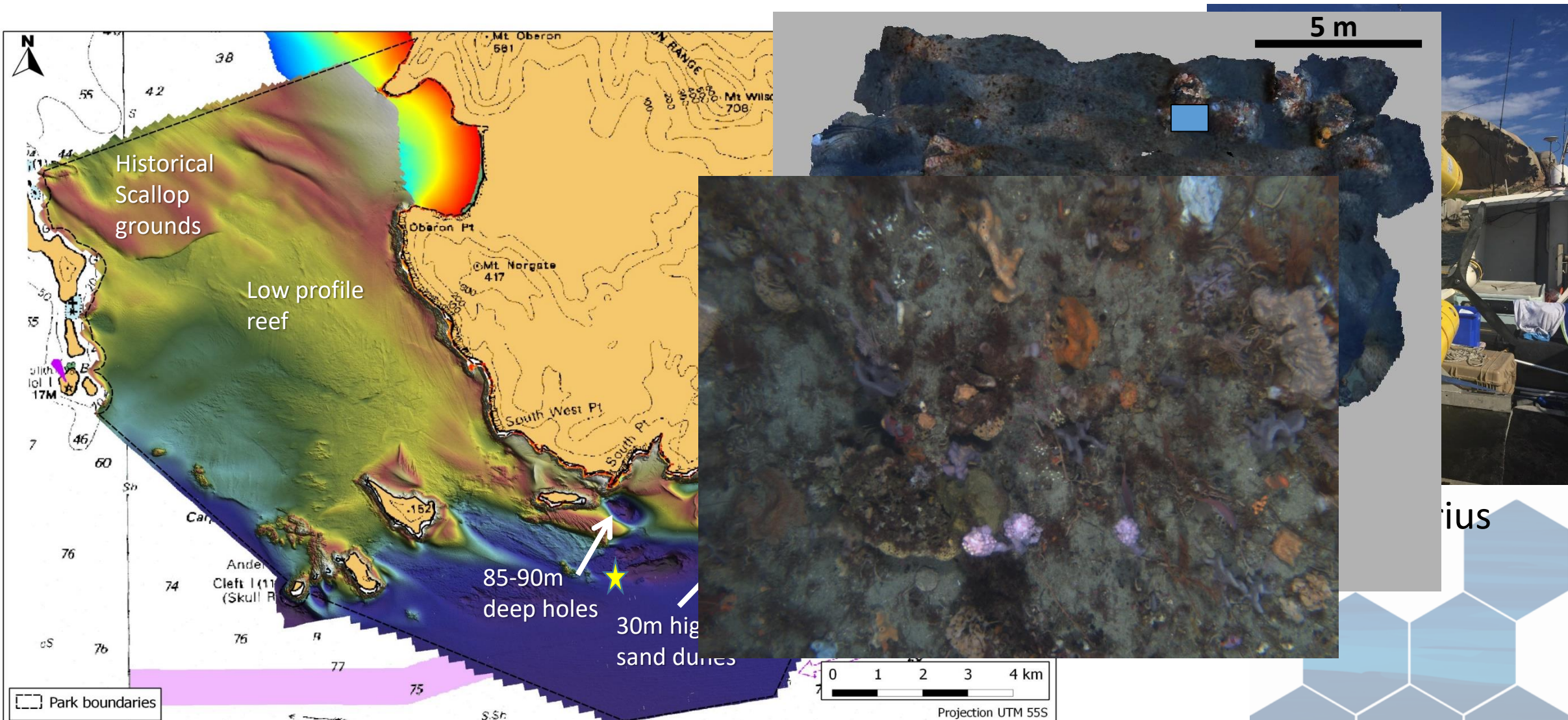
Portland array

01 January 2009

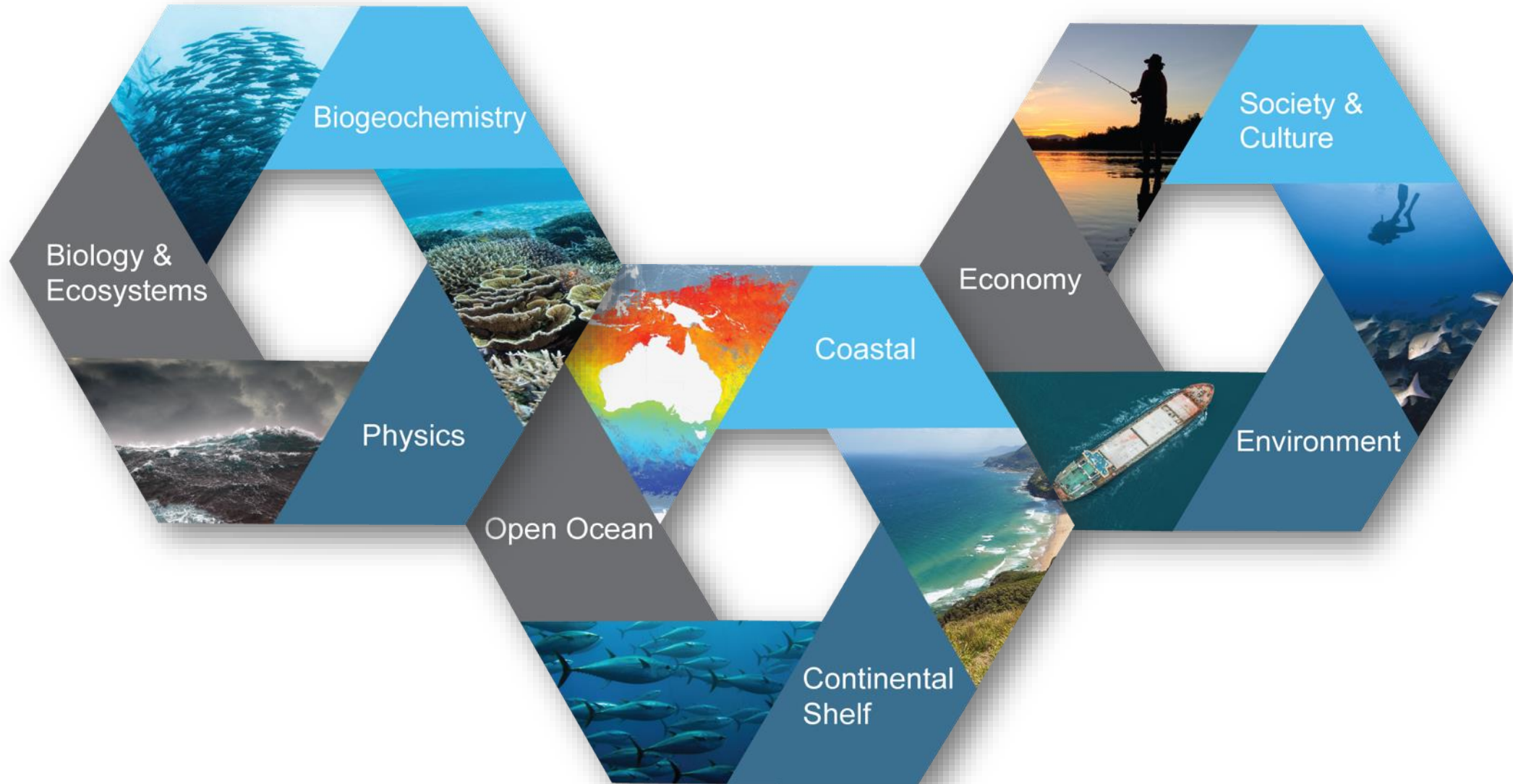




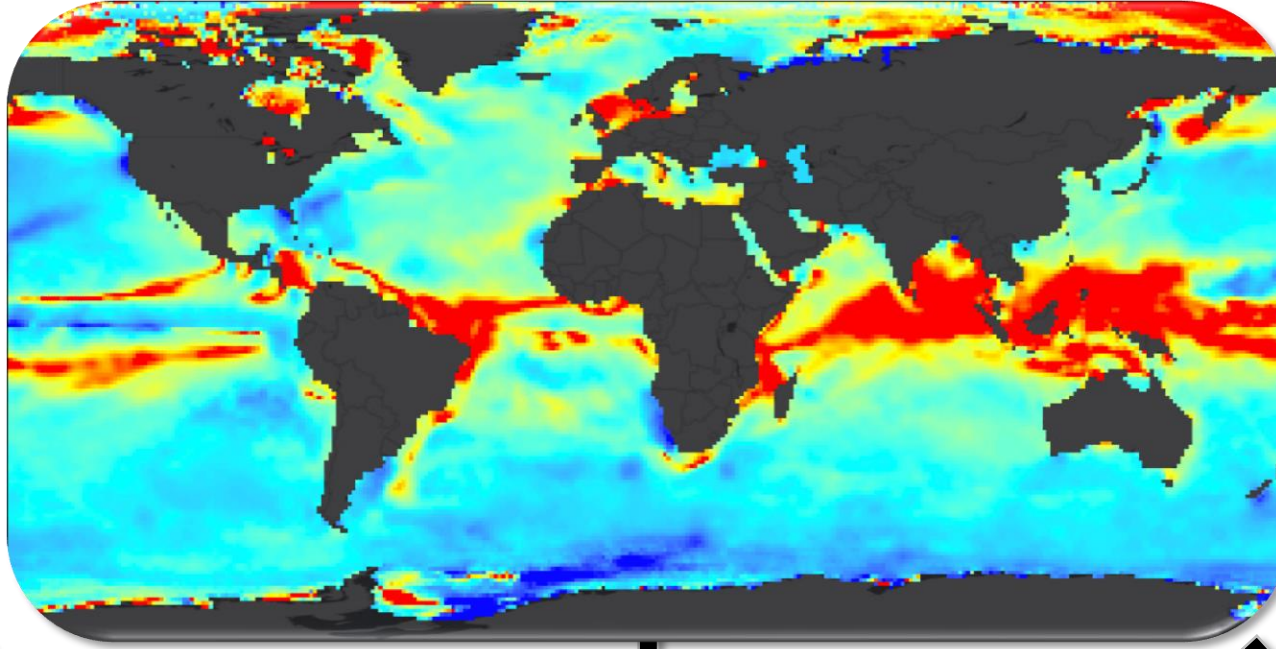
AUV long-term benthic monitoring sites



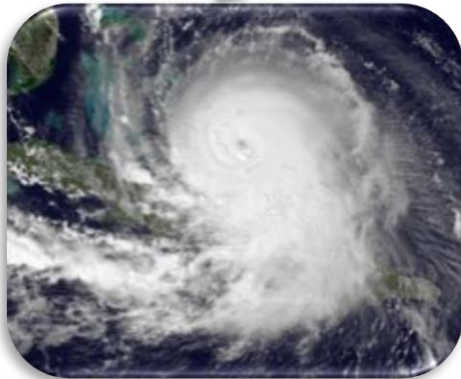
Partnerships across disciplines, scales... and society



More Than Just Rising Temperatures



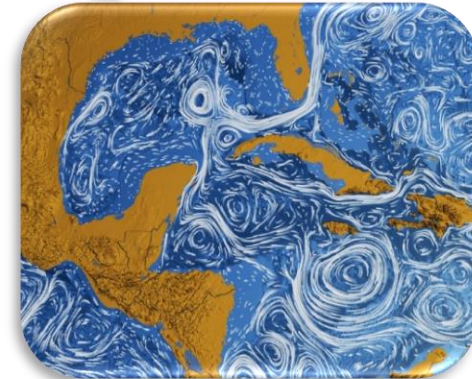
**Increasing Ocean
Temperatures
(Velocity of Climate
Change: 1971-2010)**



Increased Storm Frequency and Intensity



Increased Storm Surge



Changes in Current Patterns

The reality of climate change

EXCLUSIVE NATIONAL VICTORIA VANISHING COAST

Great Ocean Road at risk from surging sea

By Royce Millar

January 10, 2019 – 7:30pm

Key sections of the Great Ocean Road are at risk of being washed away, raising safety fears and calls for the Andrews government to reroute parts of the world-recognised tourist road.



- Wave climate is changing with 30cm increase in wave height since 1985 in Southern Ocean
Young (2019) *Science*
- Oceanic winds are stronger and waves are taller, storms could be far more damaging.

Citizen Science Drones you say.....

Victorian Coastal Monitoring Program



Environment
Land, Water
and Planning



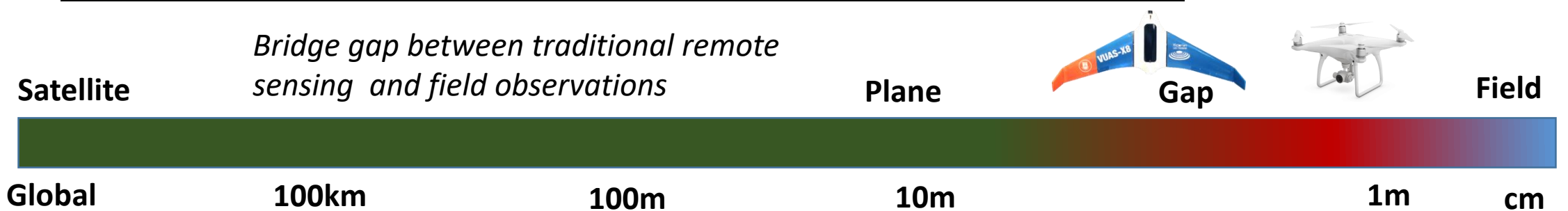
Portland Beach Safety
& Restoration Alliance

Drones for monitoring coastal change

Warrnambool Harbour Before and After an Major Storm Event

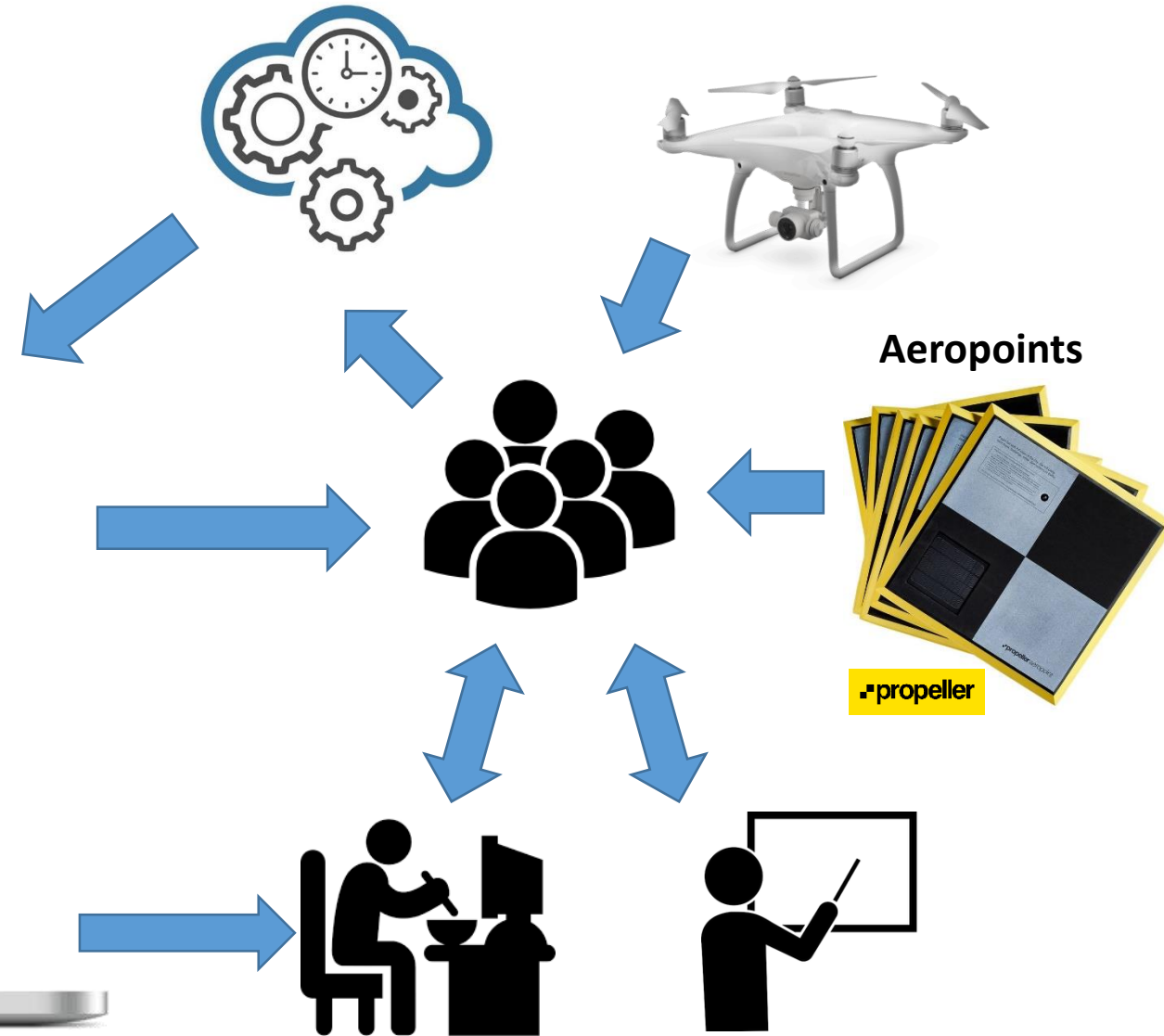
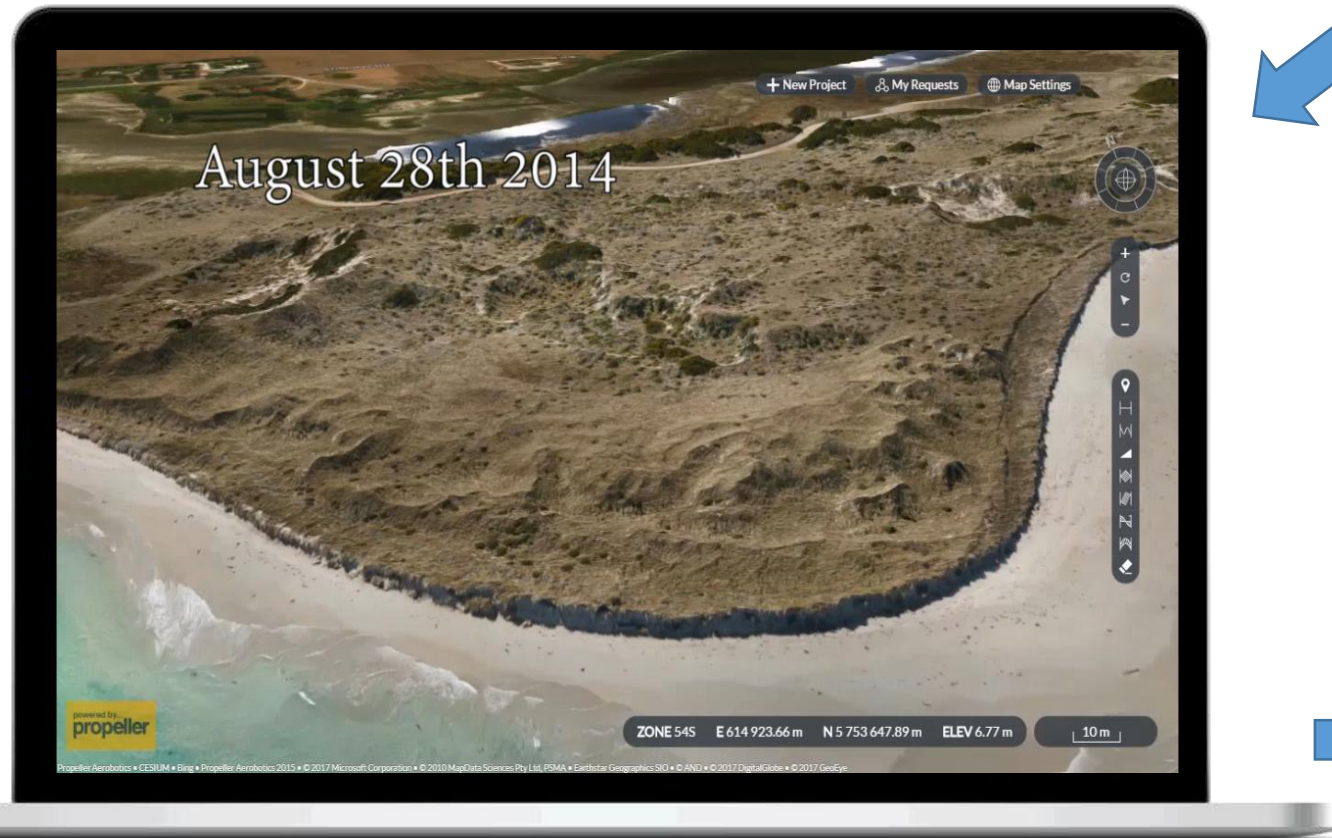


How can we improve information on coastal change moving forward?
Improved resolution, frequency, reduced uncertainty, volumetrics and increase number of sites for detailed assessment

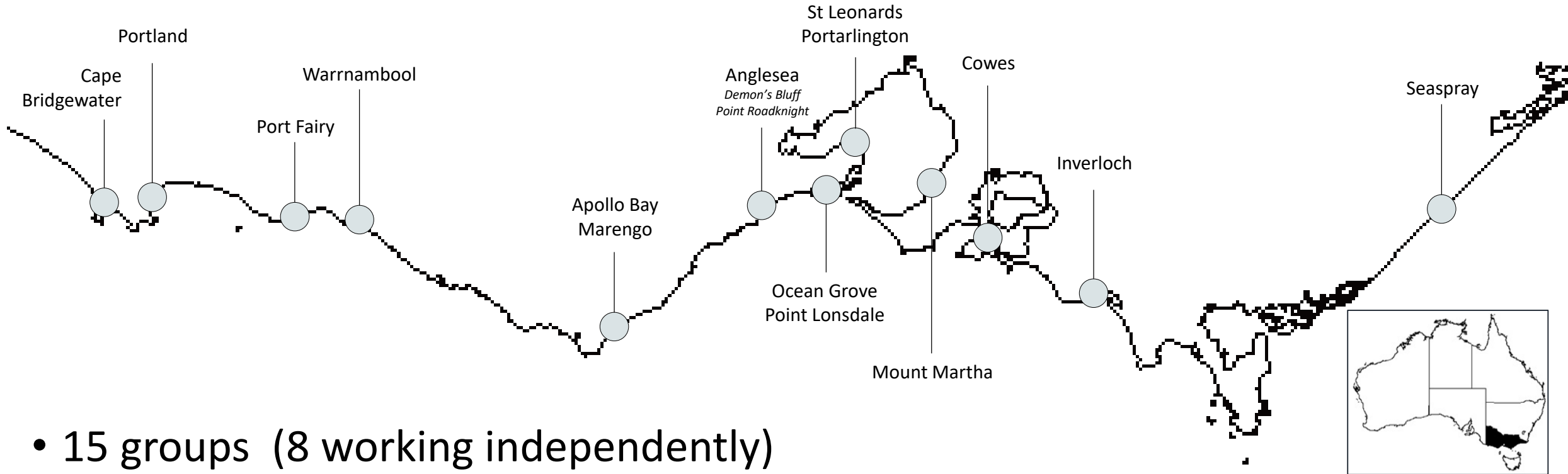


Citizen Science Drones

<https://www.marinemapping.org/vcmp-citizen-science>



Citizen Science Engagement



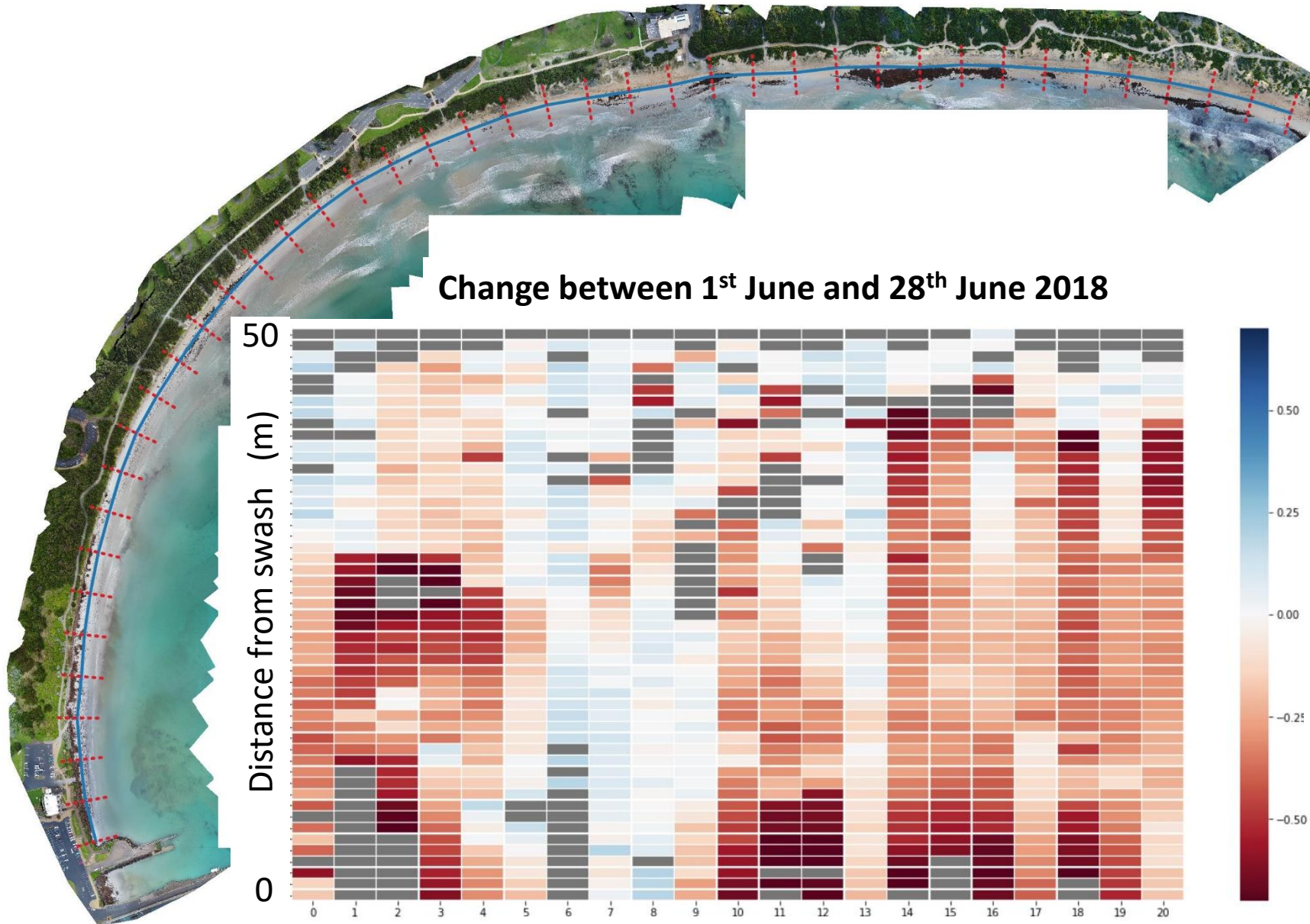
- 15 groups (8 working independently)
- 95 datasets collected to date
- Mapping 2000 to 3,500 m length of coast
- Every 6 to 8 weeks
- Complimented by science team UAV surveys



Anglesea

Demon's Bluff



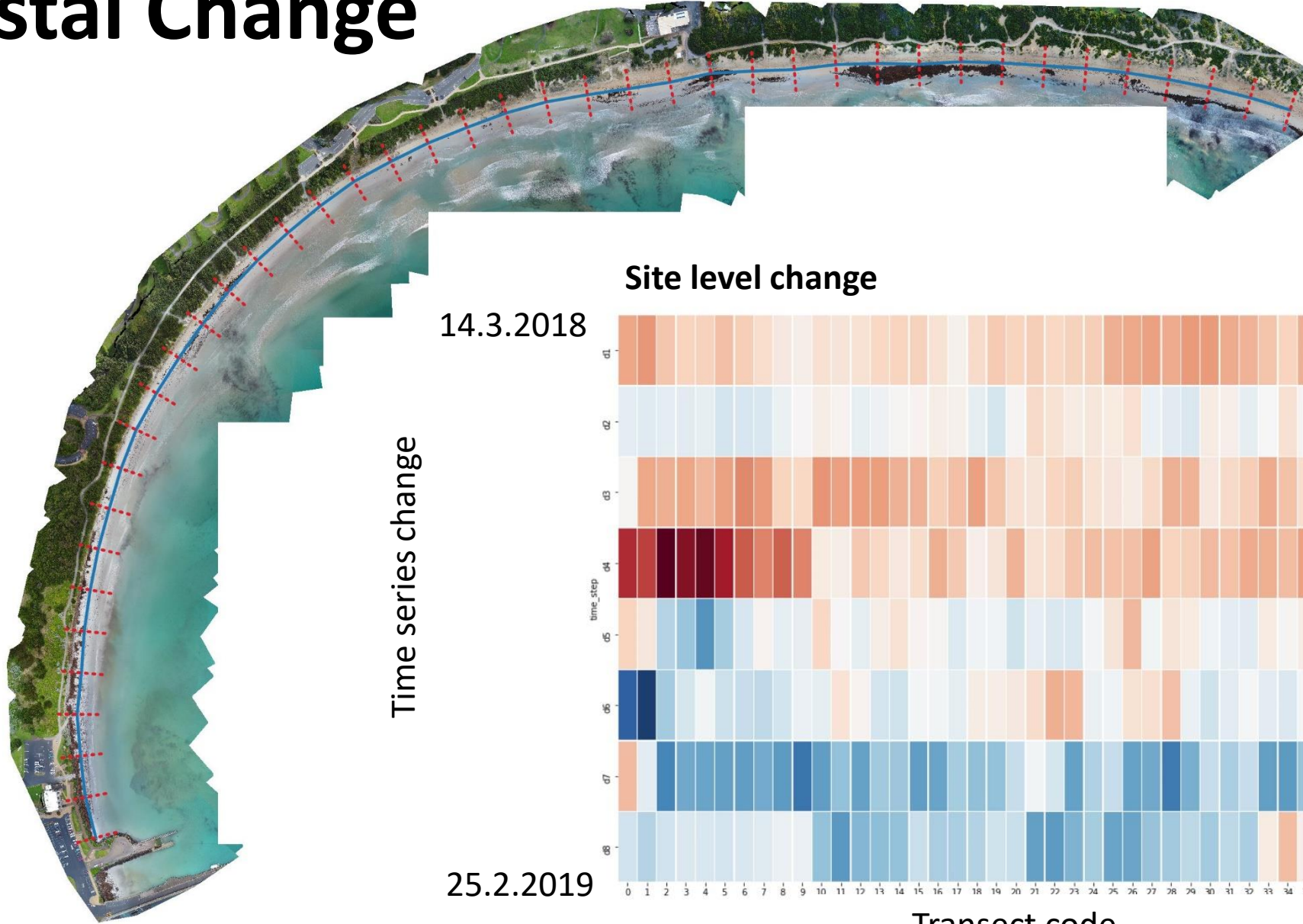


Change between 1st June and 28th June 2018

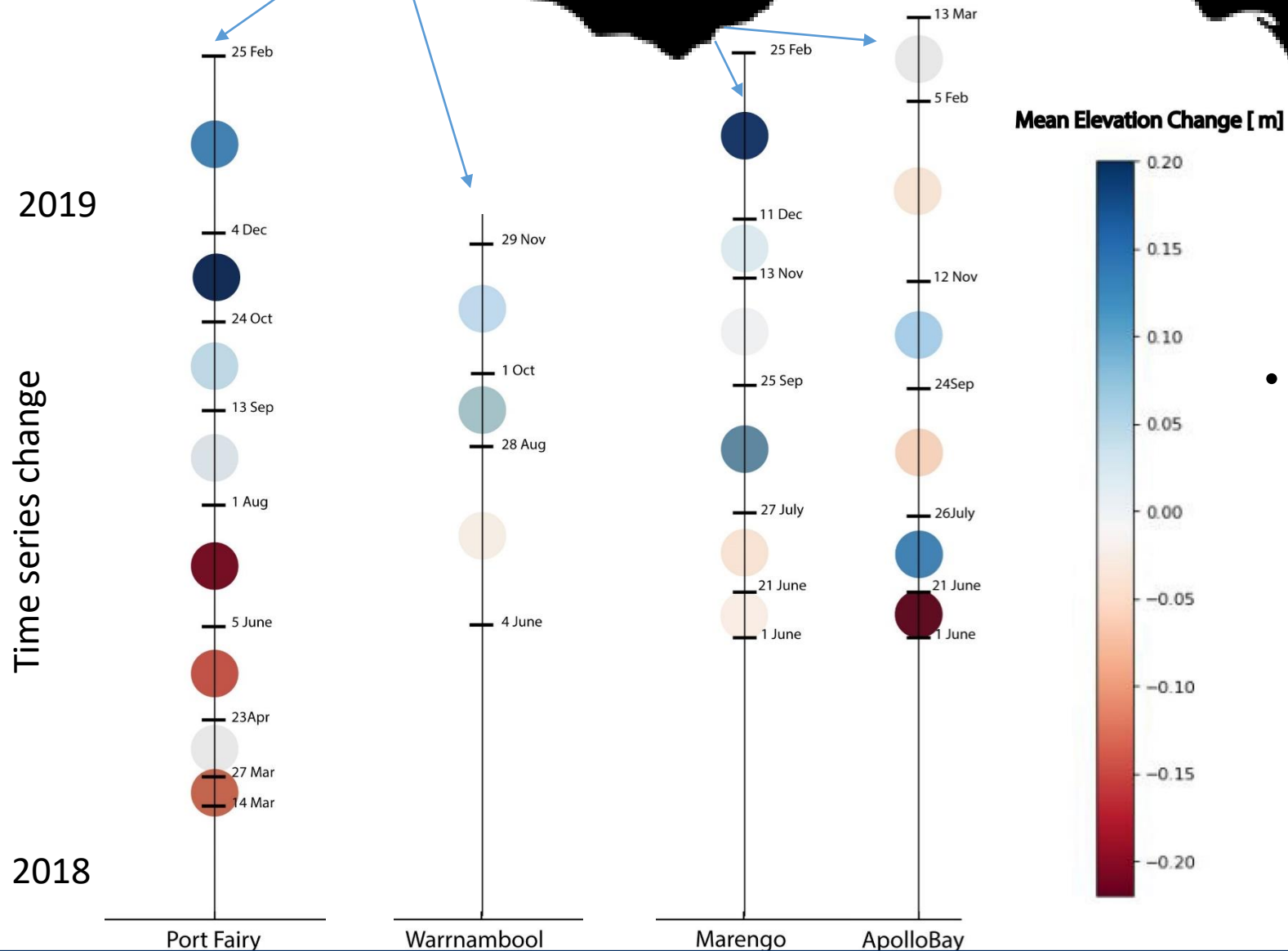
Virtual Network of Elevation Profiles

Several hundreds virtual profiles will be monitoring the UAV sites at unprecedented accuracy.

Coastal Change



State Assessment



- Combined with Shoreline Vulnerability data, wave monitoring, dune morphology, vegetation and broader climatology to identify drivers of change

Finding common ground- Southern Rock lobster in Victoria's MNPs

- Pilot a model for a rock lobster monitoring program in state marine parks
- Develop collaboration between fishers, fisheries and conservation agencies
 - **Not designed or intended to rehabilitate biodiversity or fish stocks.**

Fishers

Conservation

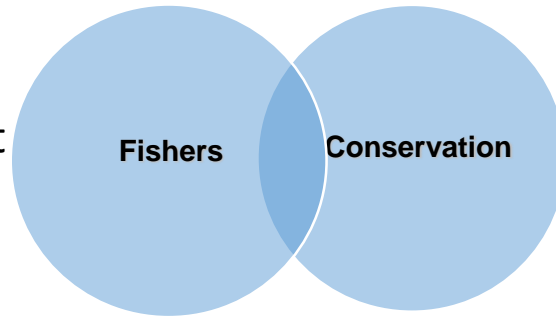


Finding common ground- Southern Rock lobster in Victoria's MNPs

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Potential Benefits

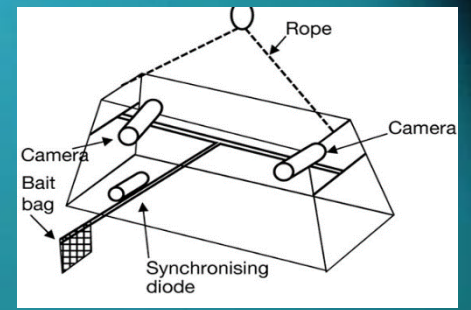
- Reference (like) condition to inform stock assessment
- Spillover



- Encourage ownership of MPA
- Comparative commercial fishing methods and data for assessment



Geoff Lafferty, SRL fisher.
PPB MNP, April 2019



Leveraging Partnerships 101

Benefits

- The whole can be greater than the sum of parts
- Problems we face require cross-disciplinary solutions
- Aligned goals, shared ownership
- Shares the risk
- Allows for leverage through a coordinated front
- Knowledge Sharing
- Catalyst for innovation



What is needed

- People – Invest in relationships, identify common goals
- Identify champions (sector based-industry) and sponsors (high level endorsement)
- Technology (communication, data capture and sharing)
- Measure Monitor and communicate success- not everything will go to plan
- It needs to be fun!
- \$\$ can help😊

Global Ocean Refuge Platinum Award

Thanks to Partnerships.....



PRINCIPAL PARTICIPANTS

UNIVERSITY of TASMANIA
(Lead Agent)

Australian Government

Australian Institute of Marine Science

Bureau of Meteorology

CSIRO

Government of South Australia

SARDI

THE UNIVERSITY of WESTERN AUSTRALIA

Sims
Sydney Institute of Marine Science

UTS

THE UNIVERSITY of SYDNEY

MACQUARIE University

UNSW

SIMS is a partnership involving four Universities.

ASSOCIATE PARTICIPANTS

Curtin University

Australian Government

Department of the Environment and Energy

Australian Antarctic Division

DEAKIN UNIVERSITY



Australian Government
Geoscience Australia

Australian Government
Australian Maritime Safety Authority

Australian Government
Department of the Environment and Energy
Australian Antarctic Division

Curtin University

ixblue

Australian Government
Office of Environment & Heritage

Geoscience Australia

FRONTIER

Marine National Facility

TUGRO

Australian Government
Great Barrier Reef Marine Park Authority

JAMES COOK UNIVERSITY AUSTRALIA

CSIRO

NORTHERN TERRITORY GOVERNMENT

SOOS

Land Information New Zealand
Taiti te Whenua

Department of Transport

DEAKIN UNIVERSITY

ECS

NIWA
New Zealand

PHS

VICTORIA
State Government

GUARDIAN GEOMATICS



DEAKIN UNIVERSITY AUSTRALIA

THE UNIVERSITY of MELBOURNE

BASS COAST

MOYNE SHIRE

BAYVIEW COAST

GLENELG SHIRE

Great Ocean Road Coast Committee Inc

VICTORIA State Government

Environment Land, Water and Planning

Port Phillip Coastal Grouping

Portland Beach Safety & Restoration Alliance

WARRNAMBOOL

South Gippsland Conservation Society Inc

Marine Catchment Partners

Otway Coast Committee



UTAS
Western Australian Divers Association

WADA
Western Australian Divers Association

LA TROBE UNIVERSITY

Victorian Fisheries Authority

THE UNIVERSITY of MELBOURNE

Parks VICTORIA

DEAKIN UNIVERSITY



The Nature Conservancy Australia

The Thomas Foundation

The Ian Potter Foundation

DEAKIN UNIVERSITY

Australian Government

Australian Research Council

NSW GOVERNMENT

Department of Primary Industries

HSBC

Parks VICTORIA

VICTORIA State Government

Department of Environment, Land, Water & Planning



Parks VICTORIA

DEAKIN UNIVERSITY

THE UNIVERSITY of MELBOURNE

REEF LIFE SURVEY

Australian Marine Ecology

FATHOM PACIFIC