

# Achievements 2022-2023

## Marine Ecosystems Research



### Fieldwork and data collection

171 hours underwater (156 hours SCUBA, 15 hours snorkel)  
Over 425 hours of baited remote underwater video collected from 848 locations  
45 acoustic receiver deployments and >100,000 fish detections  
6400 images from towed system collected along 128 transects at 20 sites  
248 km<sup>2</sup> of imagery processed to map 1,945 ha of seagrasses, mangroves and saltmarshes



### Publications and data

56 publications in scientific journals  
2619 citations in 2022 of publications by ME staff  
7 technical reports  
Habitat maps from 17 estuaries released or updated



*The marine ecosystems research team provides critical knowledge that sets the foundation for policy and management decisions. The collaboration between research and management is the keystone that supports healthy fish habitats and the sustainable use of NSW's diverse marine estate."*

– Marcus Riches, Program Leader Coastal Systems



### Presentations and outreach

18 scientific presentations at 12 conferences  
More than 20 public presentations  
5 media interviews  
50 social media posts



### Awards and grants

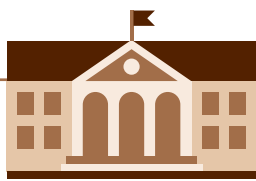
\$2 million external funding awarded



## Collaborations and mentorship

Collaborated with 31 institutions on research (14 local/state, 12 national, 6 international)

Supervised 31 university students (9 Honours, 22 PhD)



## Plans and policies

Contributed to:

- Marine Vegetation offsets policy
- Blue Carbon Strategy
- NSW climate adaptation strategy
- EPA Climate change policy
- Marine Parks Management Plan
- Kelp restoration guidebook (2022)  
Product of UN decade
- Key Fish Habitat Offsets: An Ecosystem Services Approach
- Aquatic Reserves Program Plan
- Oyster reef \*EPBC listing of Threatened Ecological Communities
- Guidelines for Installing Multi-Use and Eco-Features During Breakwater Upgrades



## Advice

12 research permits assessed

Over 650 hours of consultation with managers to provide advice on biosecurity, threatened species, restoration and rehabilitation, environmental impacts, and technical needs.



## Impact to DPI Strategic Priorities

### Sustainable Resources and Productive Landscapes

- NSW Ports Authority used research findings to designate anchor zones to protect seabed habitat.
- Mooring maintenance and movement in marine parks were informed by seagrass mapping and environmental impact research.
- Research on eco-friendly coastal infrastructure upgrades were turned into guidelines and applied to a state rollout.

### Carbon Neutrality and Climate Resilience

- Climate change vulnerability assessments for five key coastal-pelagic fish species in NSW waters informed fisheries management.
- Climate change research on corals, kelp and seafood is being applied to various management activities.
- Research on urchin density and climate change informed a federal Senate Enquiry on climate-related invasive species.

### Economic Growth

- Environmental impact research informed a review of leases for Priority Oyster Aquaculture Areas.

### Biosecure Industries and Environment

- Suspected marine pests were surveyed and collected in Port Hacking, Botany Bay, Port Stephens.
- Researchers provided advice on a marine pest incursion in naval water in Port Jackson.