

# Developing *Karenia* Identification and Monitoring Capability through Science–Industry Collaborative Water Sampling

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## OFFICE FOR ALGAL BLOOM RESEARCH



Government of South Australia  
Department of Primary Industries  
and Regions

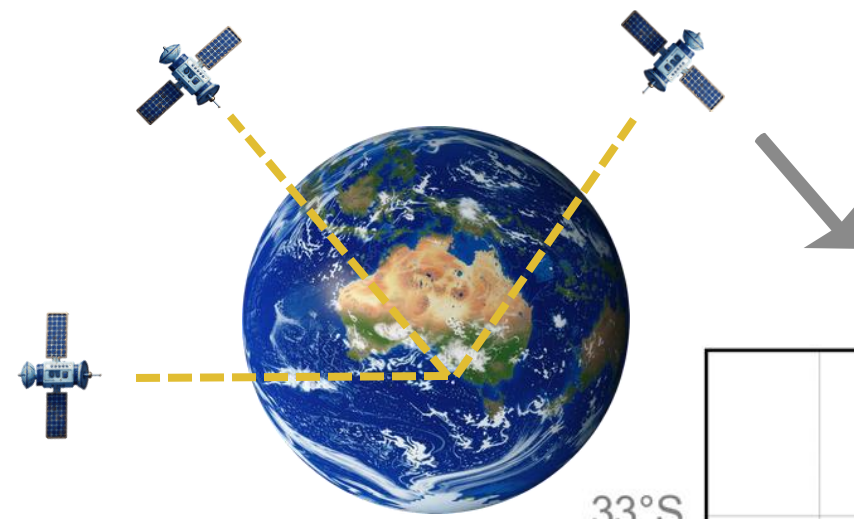


SARDI SOUTH AUSTRALIAN  
RESEARCH AND  
DEVELOPMENT  
INSTITUTE

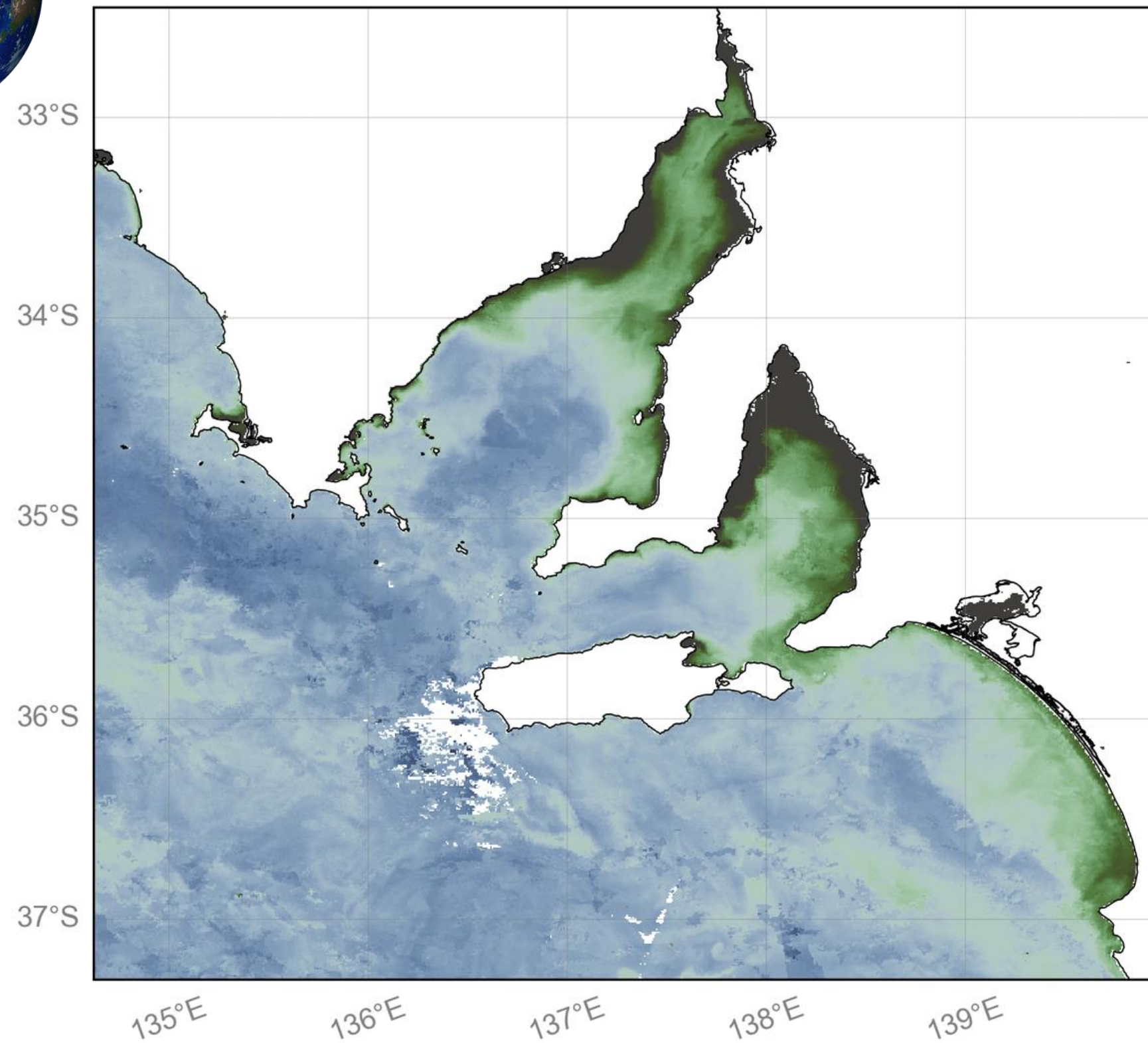


Australian Government

# HAB tracking



IMOS Chl-A [NOAA+SNPP VIIRS] | 📅 2025-10-12

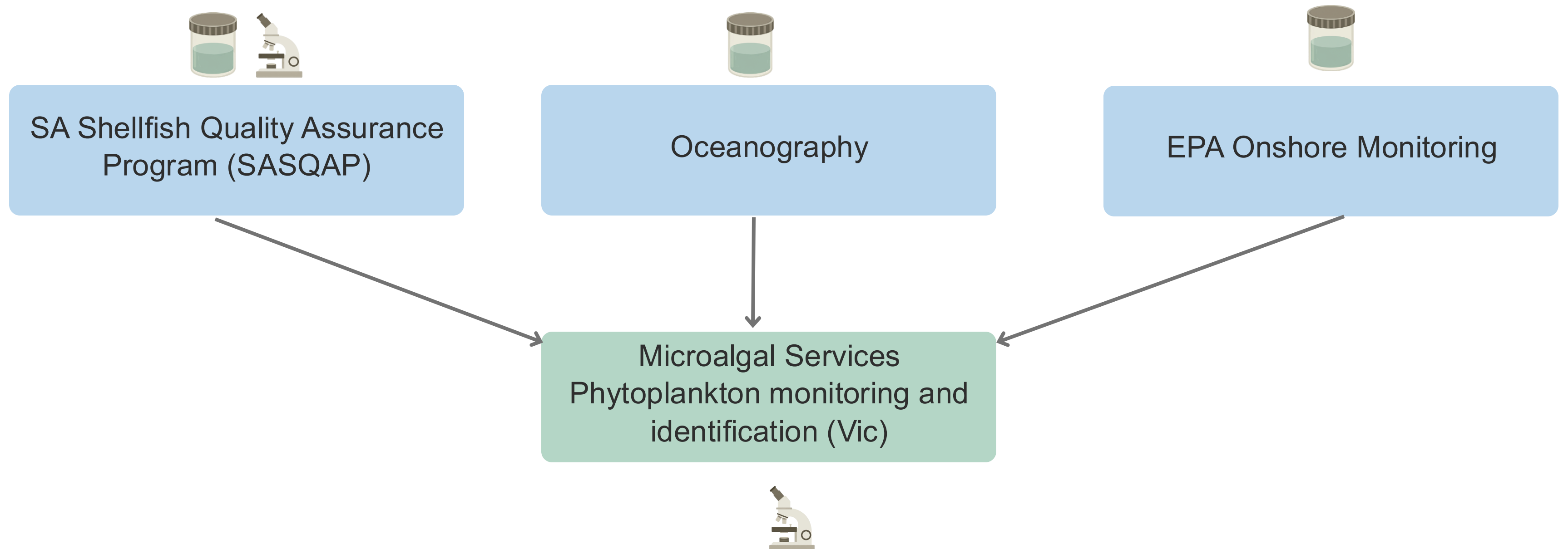


In-situ samples required for detailed information

Median Chlorophyll over 10 days  
OCI Algorithm [mg/m<sup>3</sup>]

Source: SARDI Oceanography/ IMOS Monitoring

# Water sample monitoring in South Australia - targeting HABs



# Expansion of offshore water sampling

01

Need to build and expand on the current routine water sampling programs such as SASQAP and EPA onshore monitoring to increase spatial coverage.

02

In September 2025, the rapid establishment of a program was required to frequently inform management, public and industry of offshore *Karenia* spp. distribution.

03

Requirement to find other vessels capable of covering the affected coastal waters due to SARDI vessel capability being limited due to ongoing operational requirements.

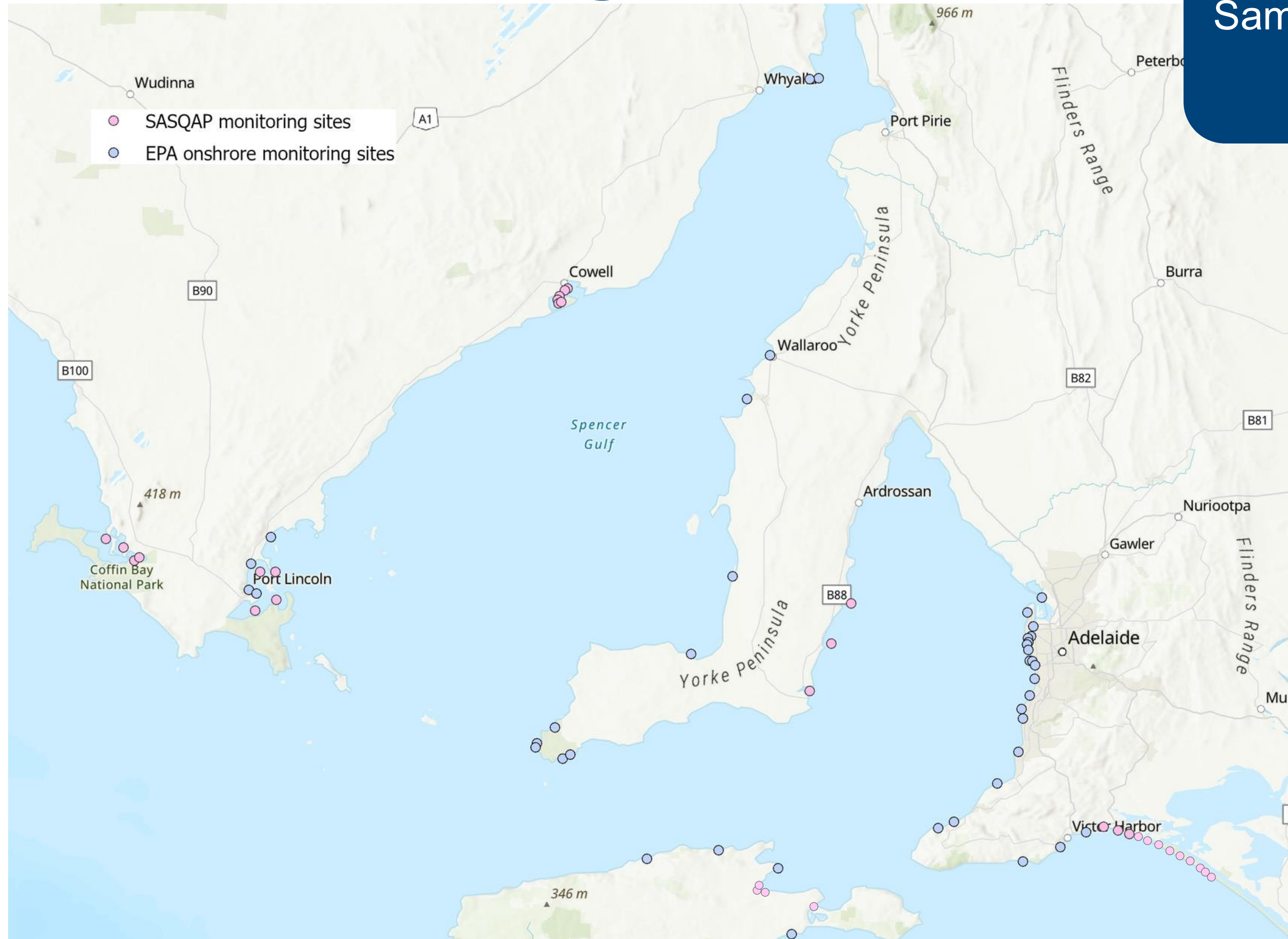
04

Build capability to process the water samples without overloading specialised providers.

# Fieldwork design



Sample collection –  
field work

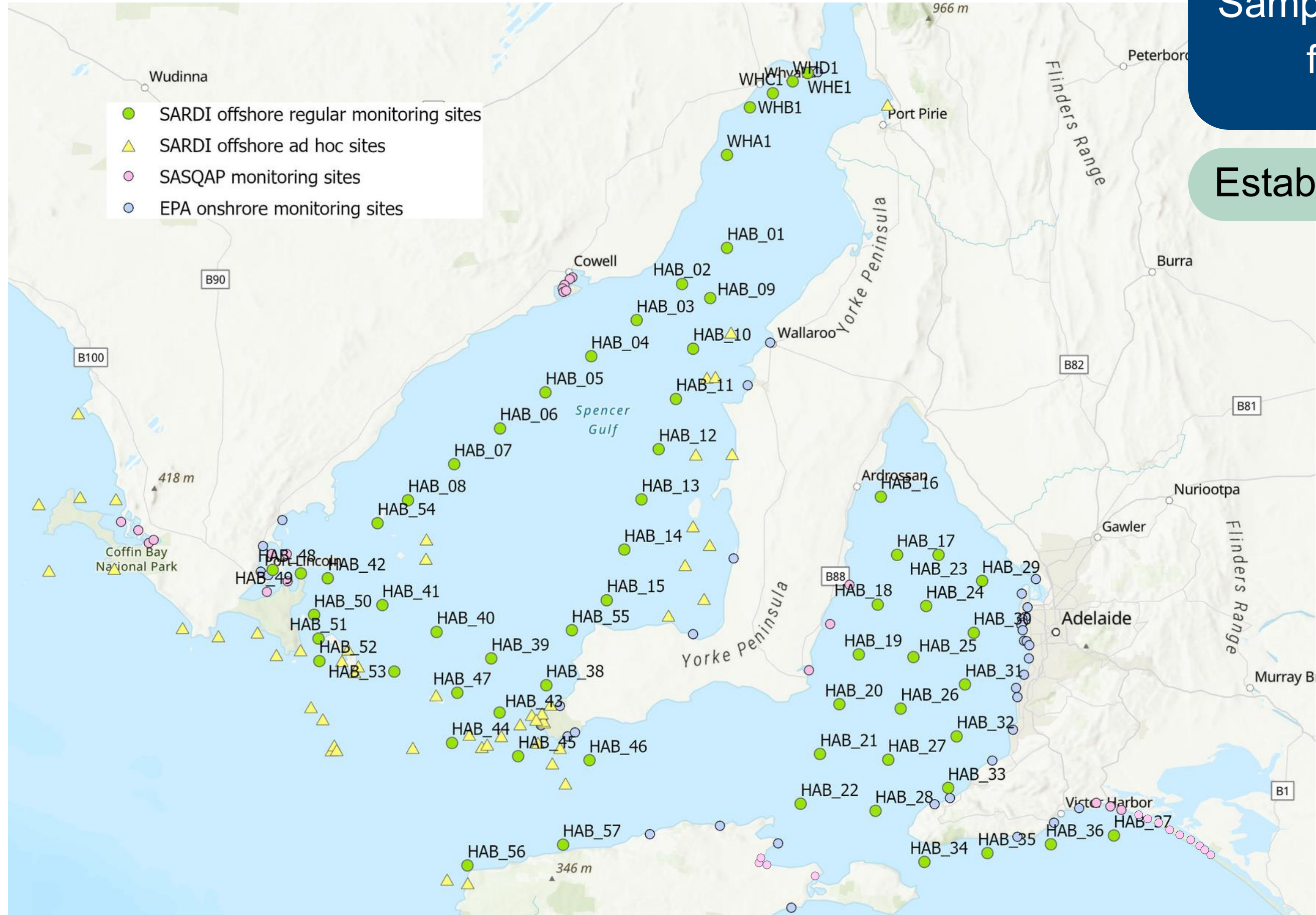


# Fieldwork design



Sample collection –  
field work

Establish base sites



# Fieldwork design

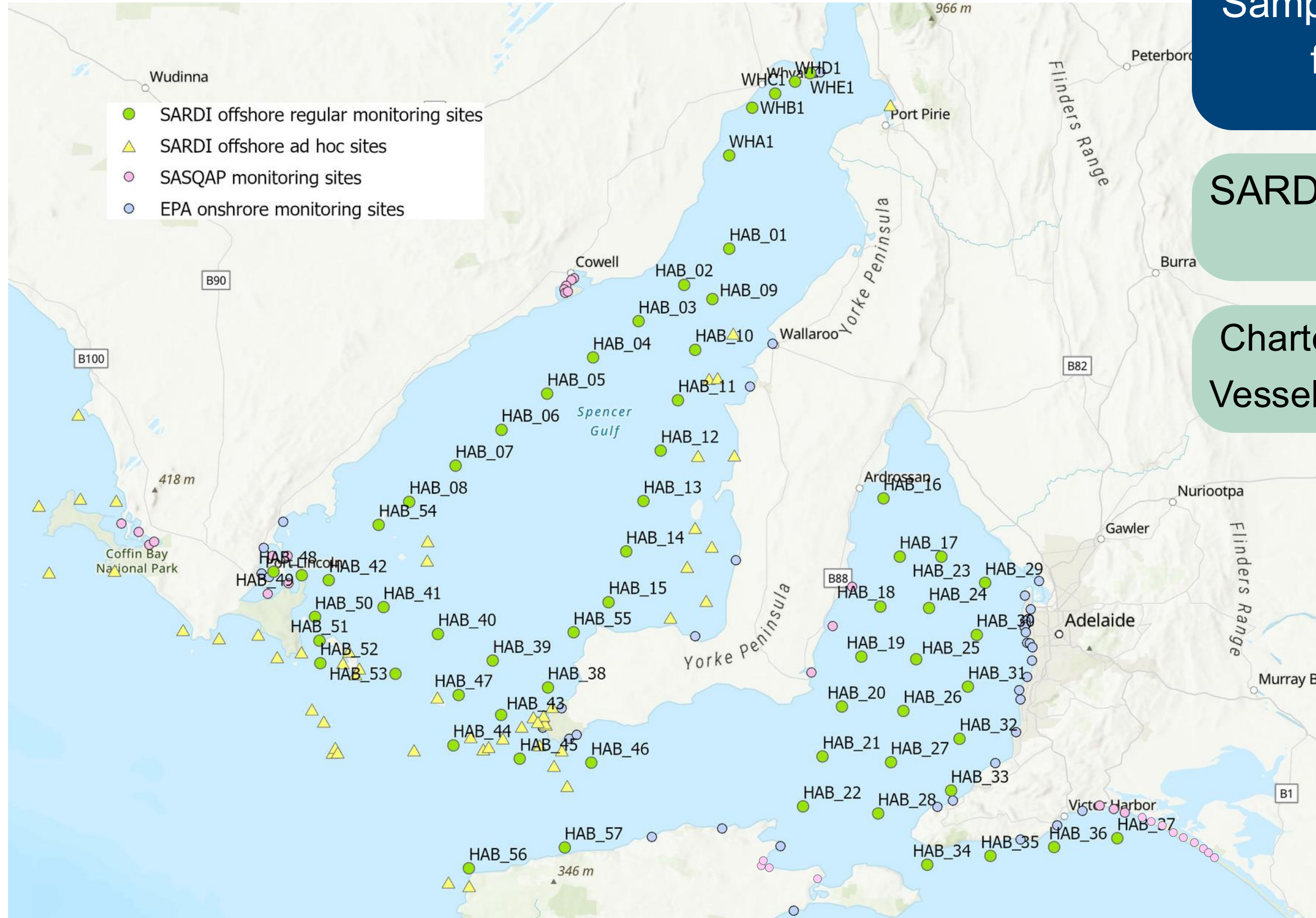


Sample collection –  
field work

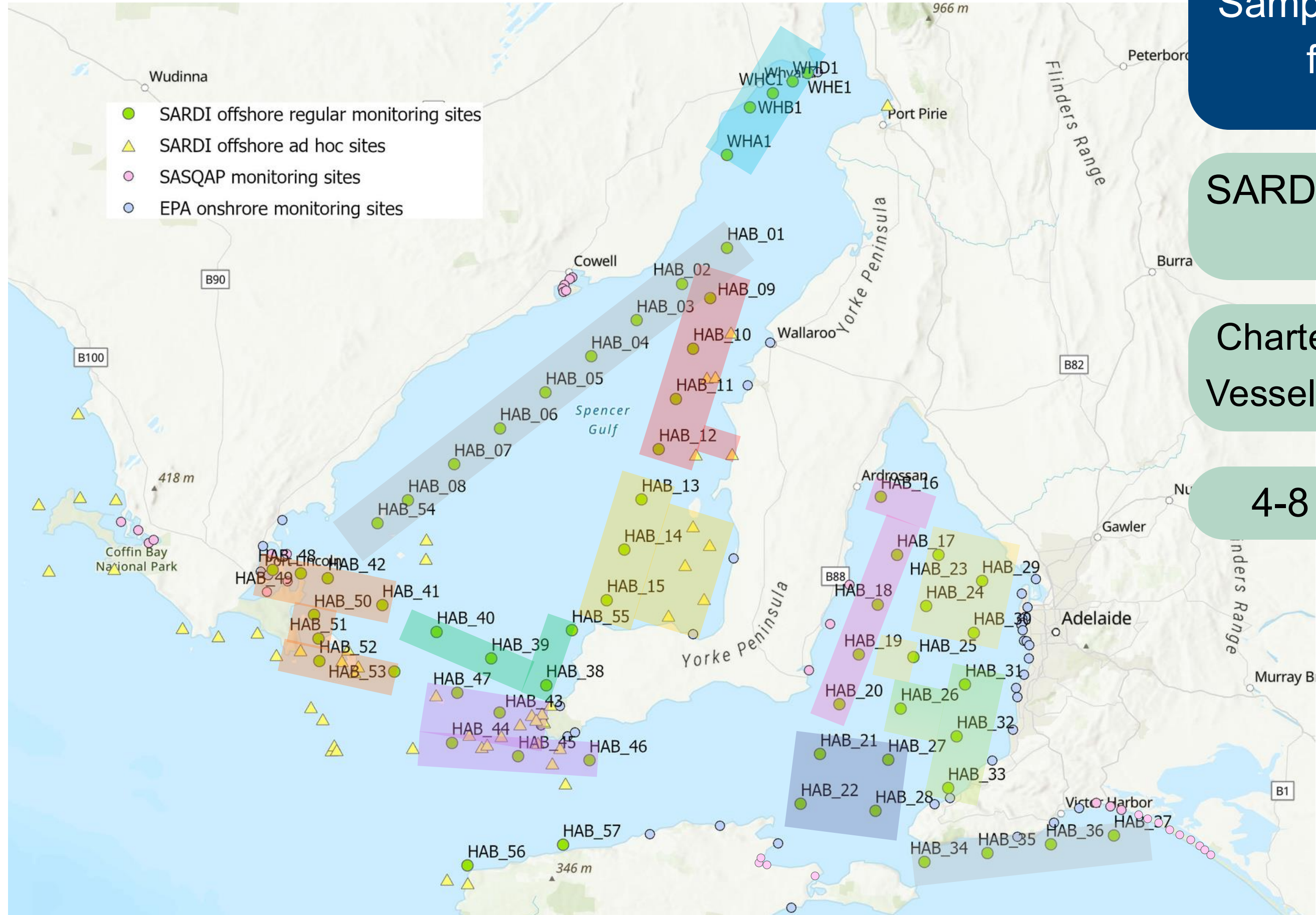
SARDI and Fisheries  
vessels



Charter Boat Fishery  
Vessels + SARDI staff



# Fieldwork design



Sample collection –  
field work

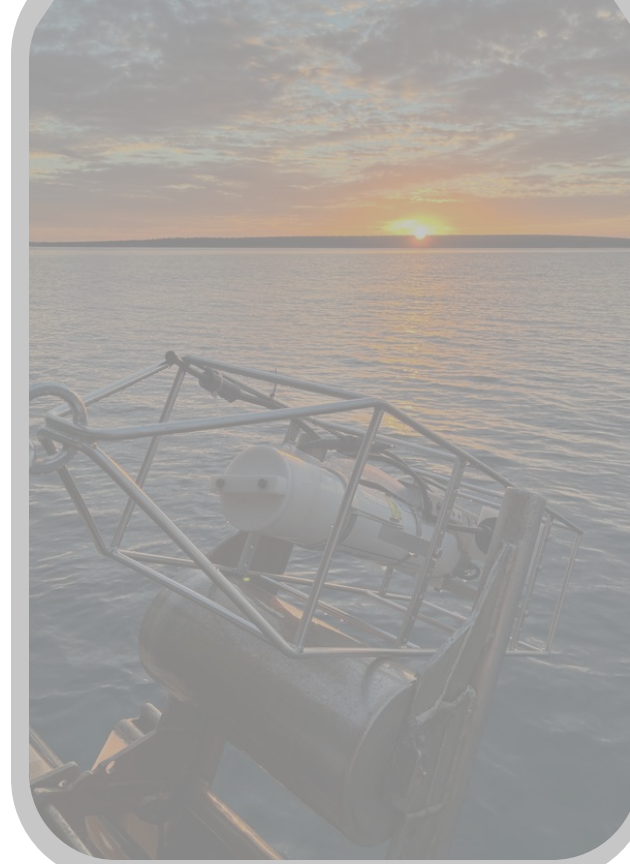
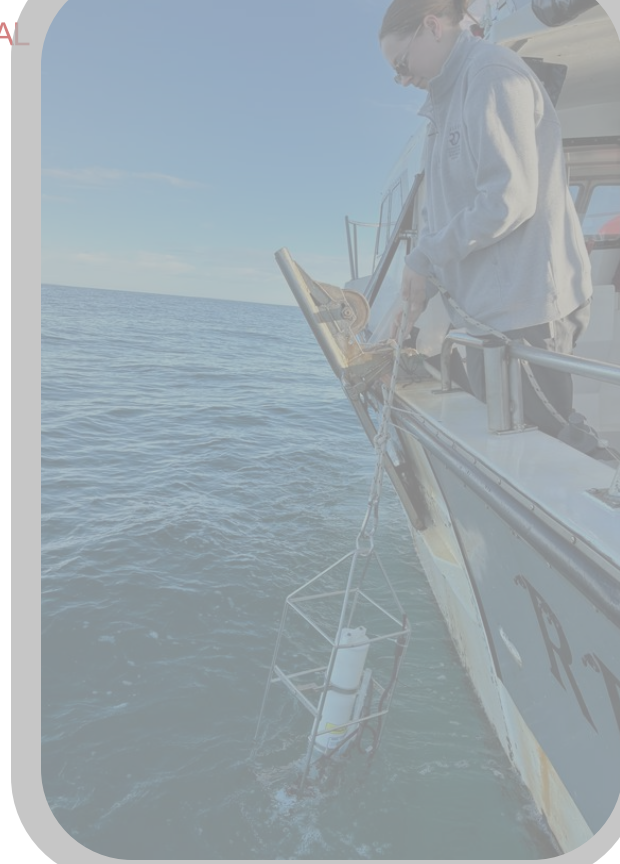
SARDI and Fisheries  
vessels



Charter Boat Fishery  
Vessels + SARDI staff



4-8 trips weekly



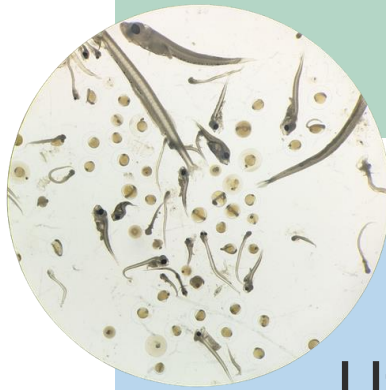
# Build lab capability



Karenia quantification –  
lab work

*Karenia* spp. identification training with  
SASQAP.

Staff also participated in workshops held in  
Sydney and Port Lincoln.



Utilised and upskilled staff with  
transferrable skills from other programs.



# Build lab capability



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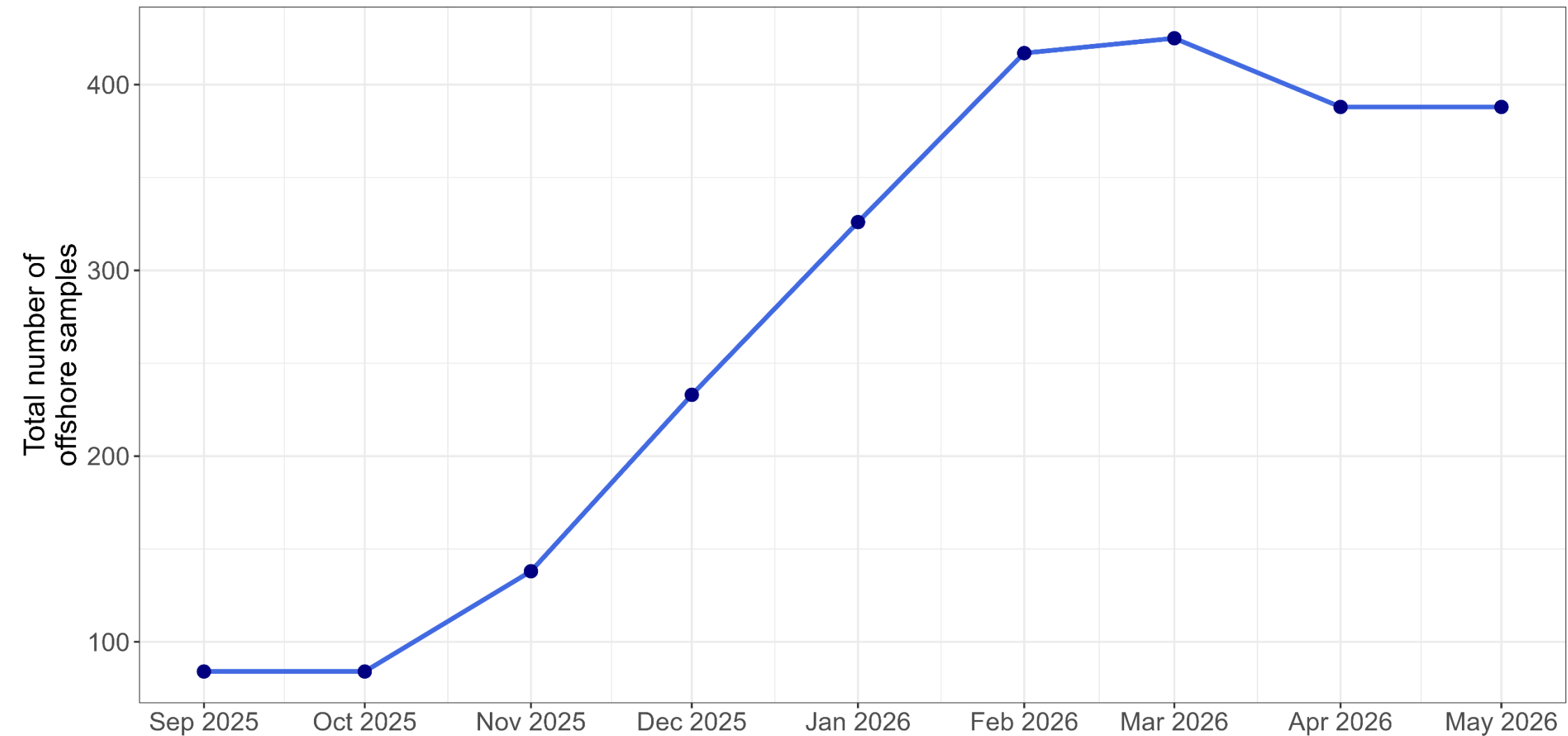
Utilised and upskilled staff with  
transferrable skills from other programs.

*Karenia* cell counts provided for:

1. SARDI offshore program
2. EPA onshore program
3. Ad hoc sites

80-120  
samples  
weekly

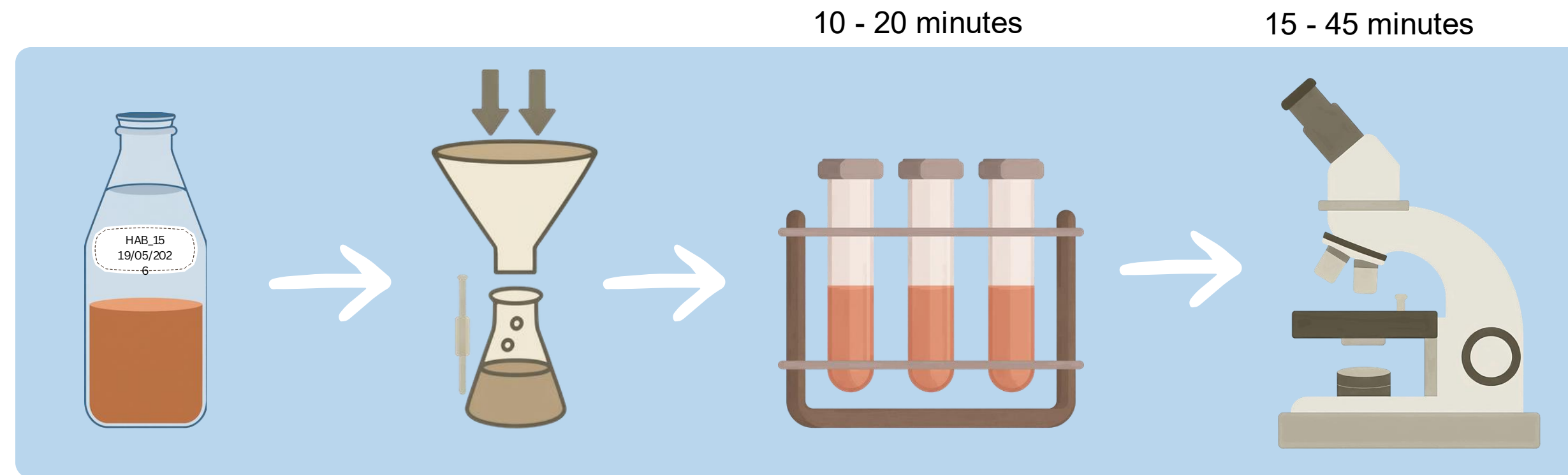
>2700  
(May)



# Build lab capability



## Karenia quantification – lab work



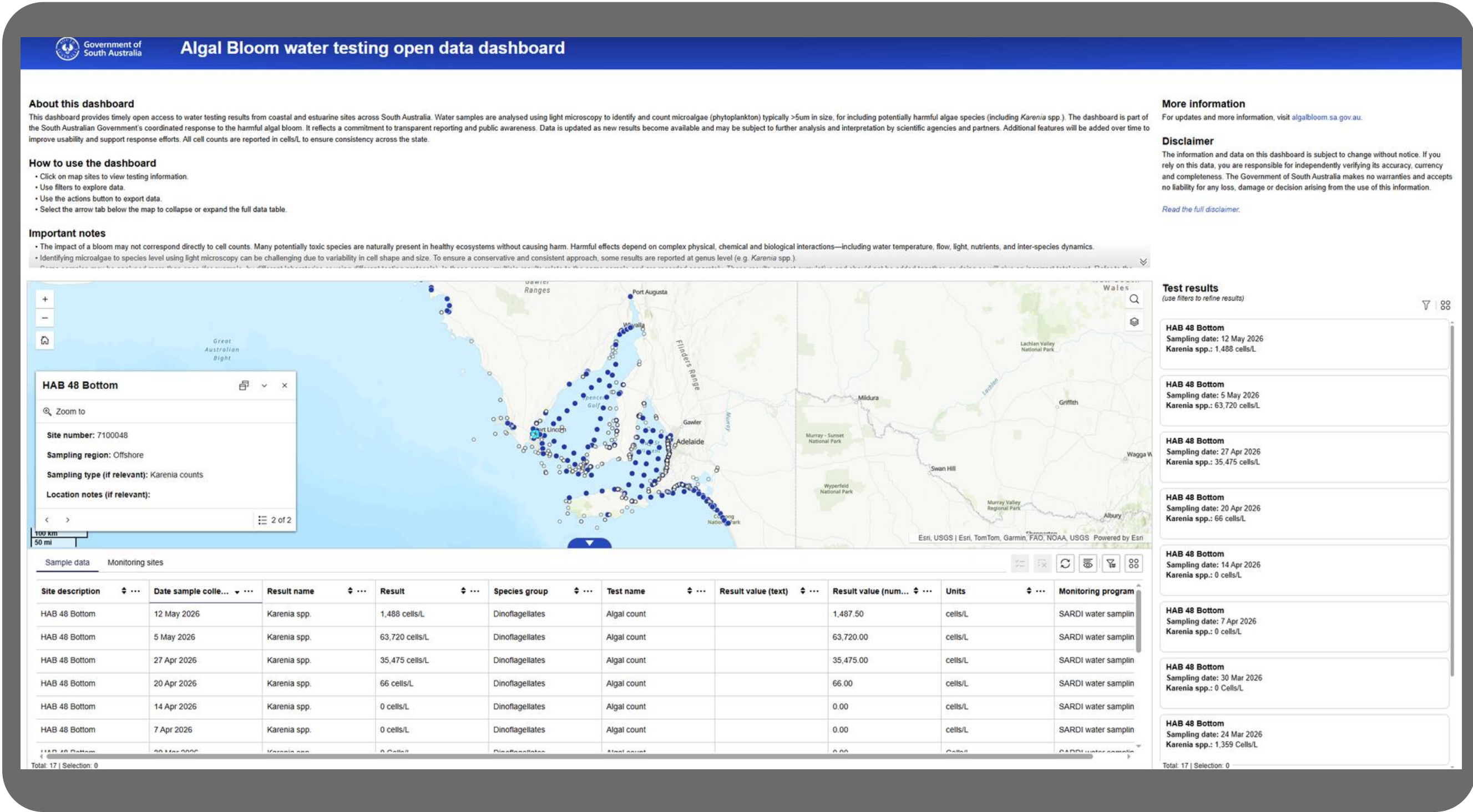
- 30-60 minutes per sample.
- Peak periods – approx. 6 full-time staff in the lab.
- The same team undertook the fieldwork, lab work and data management.



# Results accessibility

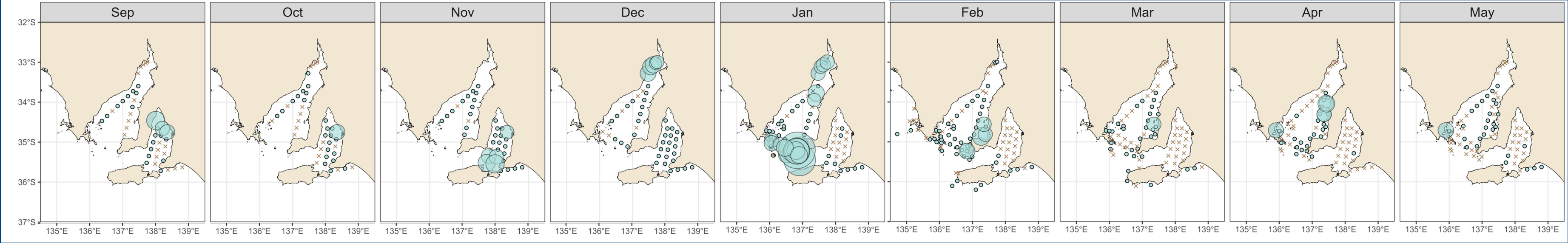


## Reporting results

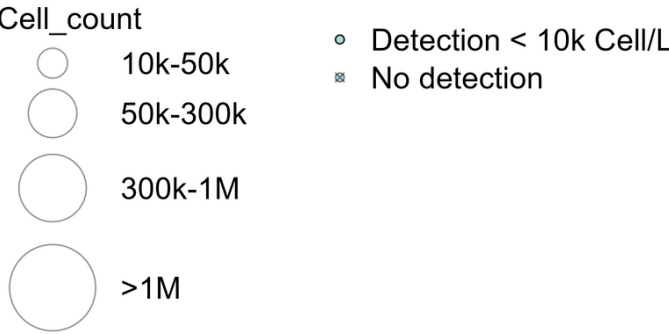
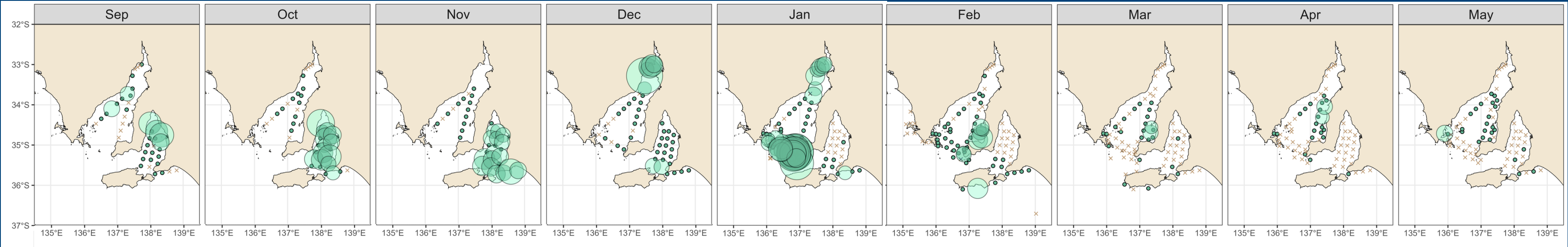


# Results – *Karenia* spp. cell counts

## Surface/ Shallow

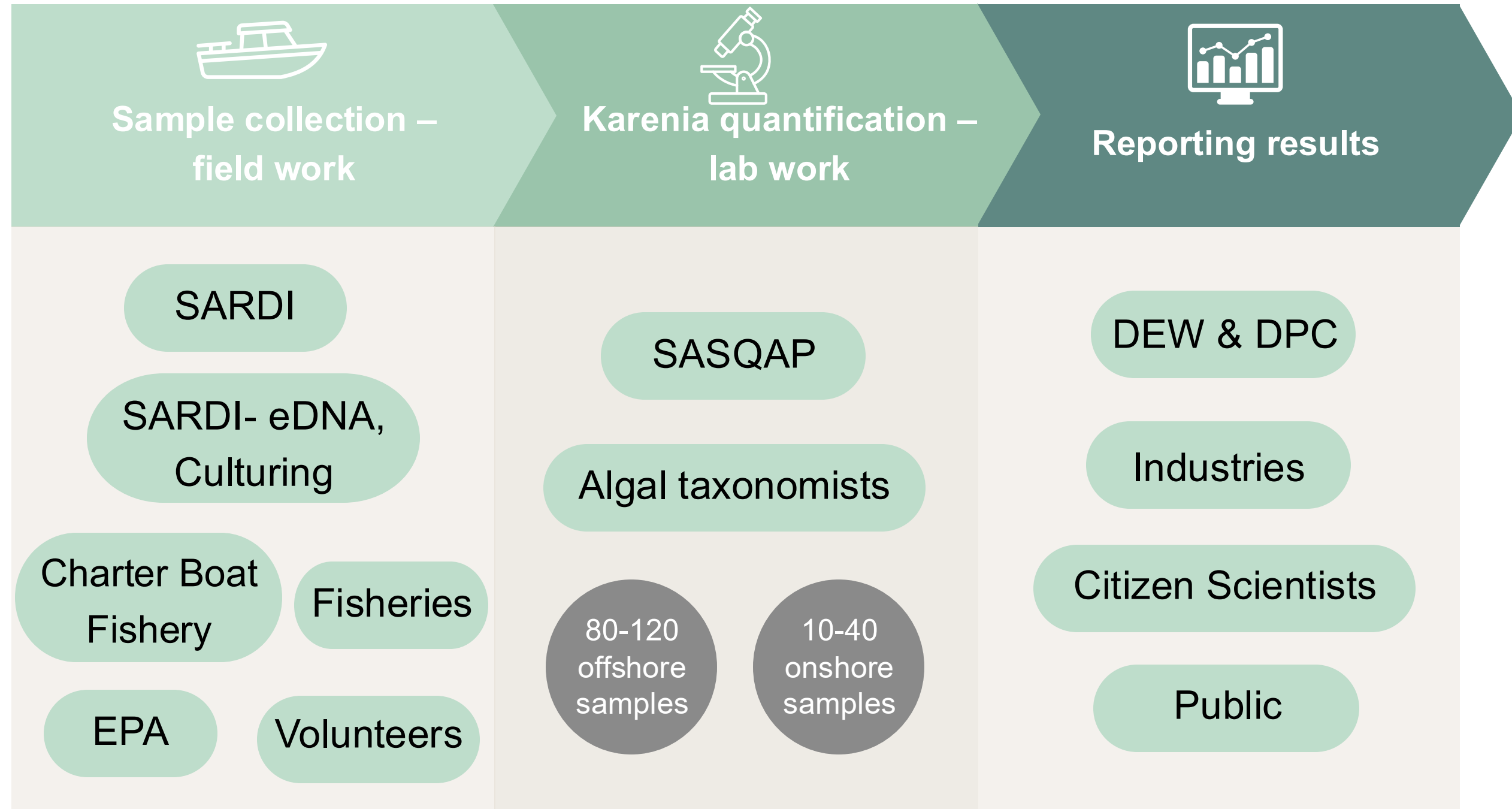


## Deep/ Bottom



Source: Fred Bailleul

# Weekly workflow collaborations



# Next steps and take aways...



Scoping of BAU  
monitoring



01

In the process of scoping a potential Business-as-usual (BAU) monitoring program.

Research support



02

Collectively informs Algal Bloom Research, while providing offshore surveillance.

In house capability



03

Development of a team capable of conducting field work and process samples to ID *Karenia* spp. under rapid turn around timeframes.

Collaboration is key



04

High scaled collaborative inter-government effort is required. This would not be possible if not for collaborations with other stakeholders as well.

# Thank you to everyone involved!



## Offshore sampling program:

Alex Ivey, Callum White, Jason Earl, Courtney Cheesman, Judy Tarus, Fernando Diaz, Dhafeena Ahmed, Laura Thomas, Lauren Preston, Oliver Petersen, Isaac Duke, Sophie Dolling, Sunira Reardon, Laura Holmes, Dan Jaensch, Ewan Burns, Fred Bailleul, Andreas Reuter, Angus Fotheringham, Jade Carmena-Wood, Dave Delaine, Gretchen Grammer

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SASQAP: Alessandra Palomino, Rayhan Mahbub, Michelle O'Connor, Sarah Spurling and team

EPA: Sam Gaylard, Mollie Owens and team

DEW: Blair Pellegrino, Paul Presbury, Murphy Homes, Daniel Kennewell, Lottie Ware, Brady Stead, Tess Appleby, Matt Royal, Bec Quin

Charters Boat Fishery: Kieth Rowling, Ryan Valente, Bradley Towler, Glenn Jones, Jarrad Glaister, Gavin Solly, Sam Pentalow, Ben Cooke and crew

Fisheries: Penny Heycock, Matt Read and team

