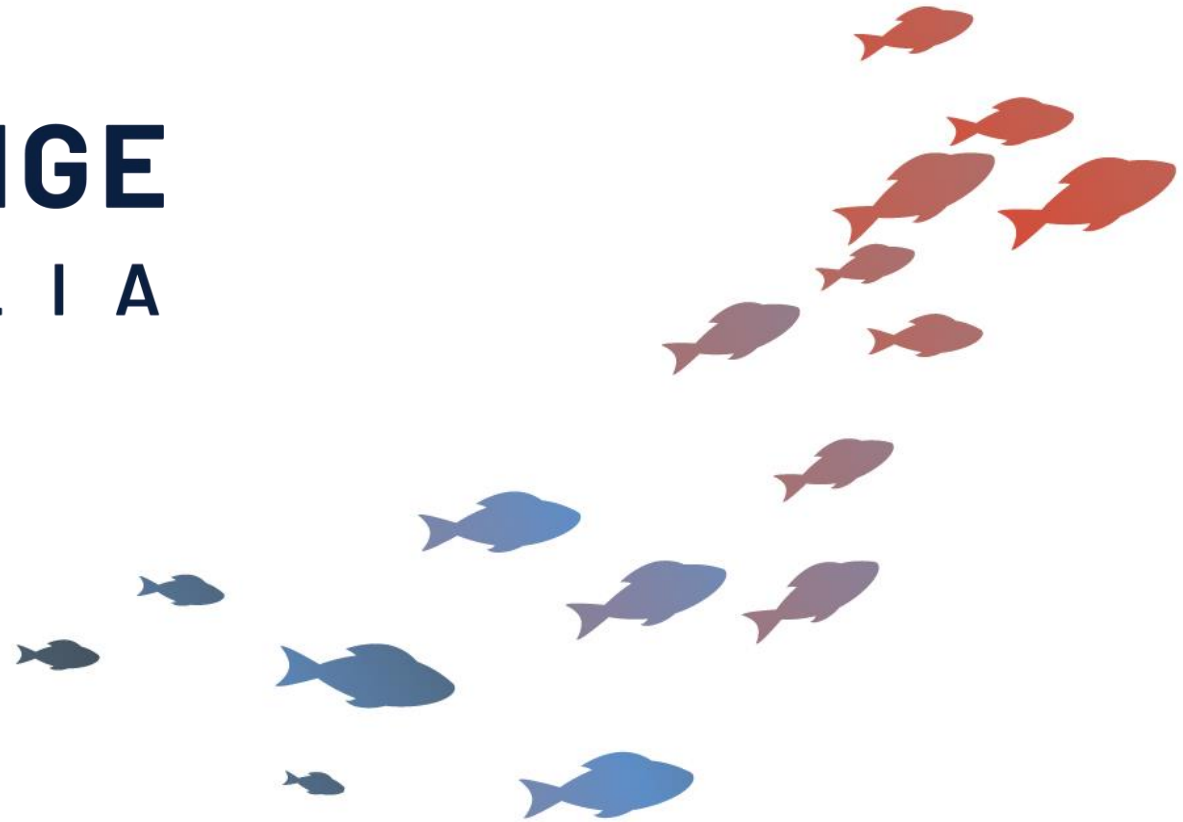
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Citation

Fleming, A., Fullbrook, L., Melbourne-Thomas, J., Brodie, S., Hartmann, K., Santana Garcon, J., Maynard, D., McGann, J., Hempel, S., Ogier, E., and Pecl, G. (2026) Infographics - Climate Risks, Opportunities and Adaptation Options for Tasmania's Rock Lobster Fishery. A Sea Change Australia Case Study Report. CSIRO, Australia. DOI: doi.org/10.25919/s31j-va45

Graphics prepared by Stacey McCormack at Visual Knowledge

UNIVERSITY of TASMANIA | IMAS | CSIRO

FRDC Fisheries Research and Development Corporation | Tasmanian Government

Tasmanian
Rock Lobster Fishery

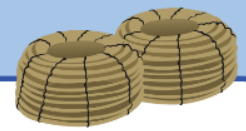
Fishery
Targets southern rock lobster (*Jasus edwardsii*), and small amounts of eastern rock lobster (*Jasus verreauxi*) (<1% of the fishery)

Southern rock lobster
An important commercial fishery and highly valued by recreational and Aboriginal fishers

Management
The fishery is managed under the Living Marine Resources Management Act 1995 and Fisheries (Rock Lobster) Rules 2022, through:

- Limited entry
- Restricted seasons
- Gear restrictions & requirements
- A total allowable catch
- Individual transferable quota units
- Minimum size limits
- Comprehensive monitoring





Value
Estimated landed value of the Tasmanian southern rock lobster commercial harvest is **~$90 million annually**

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Climate Change Drivers and Impacts on Tasmanian Rock Lobster

Climate drivers

Increasing variability
More variable environmental conditions; greater uncertainty and reduced predictability; more frequent ecological surprises

Changing ocean currents
Warm, nutrient-poor East Australian Current waters extending south

Rapid warming hotspots
More frequent and intense extreme warming events

Rock lobster responses

Benefits observed to date:
- Faster growth
- Earlier maturity
- Strong catches in some regions

Key risks
- Recruitment uncertainty
- Heat stress
- Reduced performance during extreme events
- Possible future distribution shifts



High connectivity across SE Australia through larval dispersal

Rock lobster fishery impacts

- Future recruitment may become harder to predict
- Changes in larval supply and settlement
- Strong catches today may not reflect future stock productivity
- Heat stress affects condition and quality
- Reduced quality can reduce market value (increased risk during marine heatwaves)
- Hotter conditions during capture, transport and holding
- Greater weather sensitivity; increased environmental monitoring requirements

Ecosystem impacts

Changing species interactions
Eastern rock lobster range expansion (possible competition, management challenges); increased octopus predation

Reduced habitat quality
Kelp forests decline and urchin barrens expand

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Climate Change Adaptation in the Tasmanian Rock Lobster Fishery and Supply Chain

Reducing heat stress during transit

Onboard

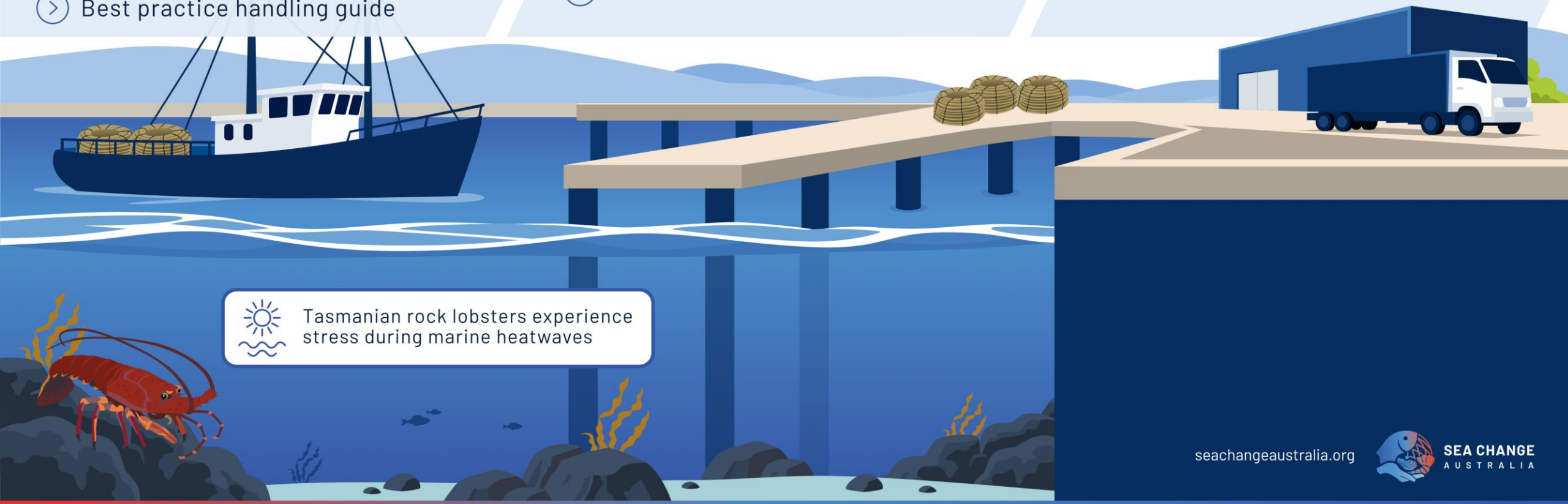
- Low density and flow rate
- Temperature and oxygen sensors
- Best practice handling guide

Unloading

- Unload during cooler hours of the day
- Unload where the water is cooler

Processing and supply chain

- Temperature control in factories



Tasmanian rock lobsters experience stress during marine heatwaves

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Tasmanian Rock Lobster Fishery
Potential Adaptation Pathways



What's working well

- Knowledge of how to reduce lobster stress
- Warmer temperatures speeds lobster growth
- Weather forecasting helps planning
- Opportunities for further innovation

Current challenges

- Raise awareness
- Potential emerging conflict across states
- Fisher safety at sea (wave heights, labour)
- Tensions around aquaculture and translocation

Opportunities and solutions

- Innovation in lobster storage and transport
- Real-time temperature monitoring
- Need to monitor recruitment and catch
- Appetite for collaboration
- Sharing knowledge and improving safety at sea
- Flexibility to shelter in non-fishing zones during storms
- High prices for high quality
- Industry involvement in science

Shared future vision

Sustainable, adaptive fisheries that support viable livelihoods for multi-generational commercial fishers and quality recreational fishing experiences for the community

Today → Future

Colour key — Collaborative pathways (fishery and management) — Fishery pathways

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Insights:
Tasmanian Rock Lobster Fishery

"As ocean currents warm we are seeing an increase in lobster growth"

Access to real time weather reporting makes so much difference. The last two months have been so windy, it's 5-7 meters off the west coast

"It's a big cost to invest in new tech"

"We see research get stuck on the desktop. It doesn't make it to industry, that's where we always seem to fail"

"We need a way to talk across states about an egg production and harvest strategy that aligns"

"It's a risk, if the channel gets over 20 degrees where are we going to go?"

"A lot of our fleet are downsizing. It's double the number of single handers"

We need more collaboration



"We gave the lobster more room, used oxygen alarms, had temperature gauges in the tank, used an oxygen pump"

"Some boats aren't fit for purpose to travel, to handle the weather"

Opportunities → Barriers

Tasmanian Rock Lobster Fishery

Vision: flexibility, adaptability, communication, security, collaboration, consultation, working towards the same goal.



Highlights / what is working well

- Innovation in live seafood supply chain
- Appetite for collaboration
- Science informing management
- Real-time temperature and weather data
- High price potential for high quality

Non-climate considerations

- Cost of labour and equipment
- Equitable resource sharing across sectors
- Cost and use of technology
- Increasing spatial squeeze

Needs for adaptation

- [ ] Sharing knowledge and adoption of best practice
- [ ] More industry-ready science
- [ ] More collaboration (across states, in research)
- [ ] Flexibility to improve safety at sea e.g. during storms
- [ ] Collecting and sharing data (temperature loggers, oxygen monitors)
- [ ] Innovation potential in aquaculture; artificial reefs; new markets for invasive species
- [ ] Stronger relationships between fishers and managers

Institutional Network Analysis:
Tasmanian Rock Lobster Fishery Governance

KEY
- Management tools
- Data information
- Direct regulatory authority
- Advocacy
- Compliance

Minister for Natural Resources and Environment

Advice and recommendations

Stakeholders and Advocacy
- Tasmanian Rock Lobster Council Ltd.
- Seafood Industry Tasmania (SIT)
- Tasmanian Association for Recreational Fishing (TARfish)
- Southern Australian Lobster Company (SALCO)

Department of Natural Resources and Environment (NRE) Tasmania
(Central Regulatory Authority)
- Fisheries Licensing and Compliance Branch
- Wild Fisheries Management Branch

Marine Compliance and Tasmanian Police

Tasmanian Rock Lobster Fishery

Independent Scientific Advice
- Institute for Marine and Antarctic Studies (IMAS)

Advisory Committees
- Crustacean Fisheries Consultative Group (CFCG)



