

Review of Tasmania's Living Marine Resource Management Act 1995

Submission

Tasmania's coastal waters are globally significant, but depleted fish stocks, ignored flow-on effects, threatened species and paltry habitat protection show that the state's Living Marine Resource Management Act is failing to achieve its objectives. This, alongside pollution, climate change and no State of the Environment Report since 2009 call for fundamental improvement to our ocean management framework. This Review provides the best opportunity in 26 years to achieve a sustainable ocean economy with effective protection, sustainable production and equitable prosperity.

**Eloise Carr
March 2022**

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Acknowledgement of Country

The Australia Institute Tasmania acknowledges that lutruwita/Tasmania was taken forcibly and unethically and that palawa and pakana people continue to suffer the consequences of this today. The Institute offers respect to palawa and pakana Elders past and present and stands for a future that respects and acknowledges Aboriginal perspectives, culture, language, and history and a continued effort to fight for Aboriginal justice and rights.

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Summary

The Australia Institute Tasmania welcomes the opportunity to make a submission to the Living Marine Resource Management Act 1995 (the Act) Review (the Review). This submission builds on previous research on marine resource management and governance in providing the Institute's response to the Review.

Tasmania hosts some of the highest marine diversity and endemism on Earth, world's best practice expertise in marine science and governance, and punches above its weight in economic contributions, thanks to our ocean.

The Act has not achieved its objectives by any measure. Depleted fish stocks, ignored ecosystem flow-on effects, threatened species, paltry habitat protection, poor community returns, and a lack of community input into planning and management decisions, all demonstrate that the Act is not achieving its goals. This, alongside increasing pressure from climate change, aquaculture operations, agricultural run-off, urban development, and population growth, all call for a fundamentally improved management framework.

The Act does not address climate change. Nor does it articulate a precautionary approach.

It has been 12 years since the last integrated assessment of ecosystem health by resource managers. This is despite a statutory requirement to produce State of the Environment Report every 5 years.

Australia Institute research shows a vast majority of Tasmanians are concerned that the health of Tasmania's coastal waters is declining. More than one in two agree the Tasmanian Government is not doing enough to protect the health of our ocean. Tasmanians want action in this space.

The UN Decade of Ocean Science for Sustainable Development and Australia's commitment to transformation through the High Level Panel for a Sustainable Ocean Economy, is building momentum for a more sustainable ocean economy. Sustainable production, and protection of habitats and biodiversity are core elements of a sustainable ocean economy.

To thrive, Tasmania must now turn its attention to implementing research and developments in best practice contemporary resource management locally. Integrated ecosystem based management is widely recognised as the best practice management framework for oceans.

The Tasmanian Government's commitment to improving the state's primary marine law and strengthening its administration of the use, development, and protection of living marine

resources in Tasmania's state waters is to be commended. In particular, the Government's thorough planned consultation program and discussion paper.

While the project objectives are welcome, including consideration of whether the Act is meeting its objectives, canvassing stakeholders and the proposal to modernise the marine resource management framework, more is needed. The limited scope of the Terms of Reference for the Review must not prevent full consideration of the extent to which all the objectives of the Act are being achieved and full consideration of the best management framework for the future.

The Australia Institute Tasmania recommends:

1. Government commitment to establish an overarching legal and policy framework for integrated ecosystem based management, which identifies current and future uses of Tasmania's coastal waters for all uses, users and values. A legal framework such as Victoria's Marine and Coastal Act 2018 could be implemented to achieve this.
2. Objectives of the Act must be clear with a focus on what is required to achieve Ecologically Sustainable Development (ESD) and Integrated Ecosystem Based Management (IEBM) outcomes, with particular regard to environmental sustainability, for without the resource there is no industry or other sectors. There is a need to ensure an economic focus also to encourage profitability and minimise the incentives for illegal activity due to poor returns. Objectives should bind the Minister and Department such that they have to meet them, not just pay lip service to them.
3. A statutory requirement to review the Act every 5 years should be included.
4. Appropriate recognition of the Traditional Owners of lutruwita/Tasmania and co-management of resources with First Nations Tasmanians, in collaboration with scientists and the community, should be articulated in the Act.
5. All sectors should pay for the cost of management. Cost recovery from both recreational and commercial sectors ensures appropriate economic signals are being provided and funding is available for necessary scientific assessments and management arrangements. This should be augmented with funding from consolidated revenue.
6. An economic return should be paid to the community for the private use of public resources and should be negotiated in advance of any new quota policy settings. This could be achieved through royalty payments, auctions of permits or a range of other mechanisms.
7. Resource sharing arrangements need to be clearly spelt out and where one sector is favoured at the expense of another, compensation should be payable to the sector which loses resource access.

8. Management of key species and fisheries should be by legislated management plans.
9. Develop harvest strategies for all nine of Tasmania's key fisheries, based on best available science.
10. Set precautionary stock biomass targets at 48% of original/unfished biomass for Tasmanian fisheries.
11. Undertake Ecological Risk Assessments for the Effects of Fishing for Tasmanian fisheries.
12. Amend the legislation to include guiding principles for action on climate change and protect nature-based solutions to climate change, including blue carbon sinks.
13. The Act should adopt a precautionary approach to marine management.
14. Comprehensive, adequate and representative habitat protection be embedded in an integrated ecosystem based management framework. Without such reference areas, there is no way to accurately measure impacts or success.
15. The Act must require best available scientific evidence as the basis for decision-making. Planning and management should be informed by fishery independent data on species and ecosystem condition, as well as social and economic factors. This should be established through a science based and consultative, multi-sector marine spatial planning regulatory process to implement integrated ecosystem based management.
16. A review of statutory consultation processes should be undertaken to provide transparency on input into, and the results of, statutory consultation processes.
17. Community and First Nations involvement in consultation processes should be required and resourced appropriately.
18. The Minister should be decoupled from day-to-day decision making as far as possible.
19. The Act should ensure robust and transparent reporting for all users of a public resources.
20. State of the Environment Reporting should recommence to provide multi-disciplinary ecosystem condition data and assessments.

Introduction

Tasmania is an island state; the ocean and coasts are embedded in our psyche. This connection to the sea is ancient – First Nations Tasmanians have cared for sea country for over 40,000 years. Tasmania has some of the highest levels of marine diversity and endemism in the world.¹ This is globally significant. Habitats supporting the rich variety of marine life include kelp forests, rocky reefs, seagrass beds, sponge gardens and open water, each with their own communities of fish, seabirds, marine mammals and invertebrates.

The multiple uses of Tasmania’s marine environment vary from commercial uses such as fishing, aquaculture, ports and shipping, and emerging offshore industries, to a diverse range of cultural, tourism and recreational activities.

Tasmania’s fishing and aquaculture industries make important contributions to state and national economies and employment in Tasmania. In 2017/18, Tasmania’s fishing, aquaculture and associated processing industries contributed \$1.15 billion (directly and indirectly) to the Tasmanian economy. Combined, these sectors are estimated to employ 3,410 people on a full-time equivalent basis.²

The UN Decade of Ocean Science for Sustainable Development and Australia’s commitment to transformation through the High Level Panel for a Sustainable Ocean Economy, is building momentum for a more sustainable ocean economy. As the Blue Economy CRC points out, sustainable production and protection of habitats and biodiversity are core elements of a sustainable ocean economy.³

The Australia Institute Tasmania’s submission addresses the Review’s objectives to consider how effective the Act and associated instruments are at achieving protection, development and management of marine resources. It also addresses how ‘future proof’ the framework is, and what could be done to support a robust legislative regime in the future.

The Institute’s response has focused on the objectives and scope of the Act and key settings in the overall fisheries management framework. It does not provide commentary on detailed regulatory settings. The Discussion Paper provides an excellent overview of the issues in relation to reviewing the Act. The discussion questions helped guide this submission and the full list of questions is compiled in Appendix A. Key topics were found

¹ Edyvane, K. S. (2000) *Tasmanian Marine Protected Areas Strategy Background Report* Department of Primary Industries, Water and Environment.

² Tasmanian Fisheries and Aquaculture Industry (2019) *2017/18: Economic Contributions Summary* FRDC project 2017-210.

³ Blue Economy CRC (2022) *Tasmanian Salmon Symposium*, <https://blueeconomycrc.com.au/event/2022-tasmanian-salmon-symposium/>

across several of the discussion questions. To avoid repetition, this submission groups and responds to those topics under the following headings:

1. Effectiveness of the legislative regime
2. Objectives, scope and legislative design
3. First Nations rights
4. Marine resources and Tasmania's economy
 - Resource sharing and allocation
5. Management framework: effectiveness and improvements
 - Managing for climate resilience
 - A Precautionary approach
 - Habitat protection
 - Integrating science in decision-making
 - Consultation and decision-making: existing bodies and mechanisms
 - Reporting

Tasmanians support action for healthy oceans

Australia Institute research in 2021 found widespread community concern about the decline in health of Tasmania's coastal waters as well as a strong appetite for more Government action on the health of our oceans:⁴

- A strong majority of Tasmanians (64%) are concerned that the health of Tasmania's coastal waters is declining.
- More than one in two (56%) agreed the Tasmanian Government is not doing enough to protect the health of our ocean.
- More than six in ten (63%) Tasmanians agreed that the expansion of salmon farms in Tasmania should be paused until industry standards are developed and current government inquiries and reviews into the industry have been completed.

⁴ The Australia Institute (2021) *Polling: Majority of Tasmanians Want Pause of Tasmanian Salmon Farm Expansion* <https://australiainstitute.org.au/post/polling-majority-of-tasmanians-want-pause-of-tasmanian-salmon-farm-expansion/>

Effectiveness of the legislative regime

The Living Marine Resources Management Act 1995 (the Act) is the primary legislation for administering the protection, development and management of living marine resources in State waters. This includes fisheries management, as well as protection of marine fish, including habitats and Aboriginal cultural fishing.⁵

As the Discussion Paper states, sustainable development is the cornerstone of the Act. Schedule 1 defines 'sustainable development' to mean managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being, and for their health and safety while:⁶

- Sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; and
- Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

The Act has not achieved its objectives by any measure. Depleted fish stocks, ignored ecosystem flow-on effects, threatened species, paltry habitat protection, poor community returns, and a lack of community involvement in planning and management decisions, all demonstrate this Act is not achieving its goals. This, alongside increasing pressure from climate change, aquaculture operations, agricultural run-off, urban development, and population growth call for a fundamentally improved management framework.

Depleted fish stocks

Four out of nine (44%) of Tasmania's assessed commercially harvested scale-fish are either depleted or depleting, meaning that either they were historically overfished, or have current overfishing occurring. This is according to national assessments and highlighted by the Review.⁷ A further three species are also depleted or depleting: abalone (in two out of five zones), scallops and giant crab, while shellfish are recovering from depletion. The status of

⁵ Department of Natural Resources and Environment Tasmania (2022) *A Review of the Living Marine Resources Management Act 1995 Discussion Paper*, p8.

⁶ Ibid, p12

⁷ FRDC *Status of Australian Fish Stocks Reports 2020 SAFS Report* (5th Edition)

two species of mackerel, non-native long-spined sea urchins, two periwinkle species, and rock lobster are classified as sustainable.

Recreational and commercial fishing of rock lobsters reduced their populations to historical lows of less than 10% of natural levels in 2011-12.⁸ A harvest strategy has since been implemented with a goal to rebuild east coast stocks to greater than 20% of unfished levels by 2023. Biomass and catch rates in most areas are increasing, however, scientists remain concerned about some aspects of the stock and urge precautionary and conservative management action to rebuild stocks.⁹

Of the assessed species overall, eight out of 19 (42%) are classified as having depleted or depleting stocks. These assessments bring together biological, catch and effort information to determine their status, however, they are not ecosystem based assessments as they refer to individual species and do not account for flow-on effect to other dependent species.

Information on recreational fisheries in Tasmania is relatively sparse in comparison to commercial data. Detailed analyses of the Tasmanian recreational fisheries are available from the national surveys and state-wide surveys, the most recent of which was conducted in 2017-18. Additional data are provided by targeted surveys of the offshore recreational fishery and other research, along with recreational net licence numbers.¹⁰

Ecosystem health

It is difficult to have a thorough understanding of the health of Tasmania's living marine resources, beyond individual stock assessments for a few commercial species, and because environmental data is limited outside site-specific areas assessed for regulated activities.¹¹

The Tasmanian Government has not conducted a state-wide assessment of the condition of Tasmania's marine environment for more than 12 years. This is despite a statutory requirement to produce State of the Environment Report (SOE) every 5 years.¹² The last Tasmanian SOE Report was produced in 2009 by the independent Tasmanian Planning Commission to assess the sustainable use of ecosystems, including their condition, pressures and trends. SOE Reports are important for their data on ecosystem health, advice

⁸ Institute for Marine and Antarctic Studies University of Tasmania. Long-spined sea urchin (*Centrostephanus Rodgersii*). [https://www.imas.utas.edu.au/research/fisheries-and-aquaculture/fisheries/Long-spined-sea-urchin-Centrostephanus-Rodgersii#Reduce the Risk](https://www.imas.utas.edu.au/research/fisheries-and-aquaculture/fisheries/Long-spined-sea-urchin-Centrostephanus-Rodgersii#Reduce%20the%20Risk).

⁹ FRDC Status of Australian Fish Stocks Reports 2020 SAFS Report (5th Edition) <https://www.fish.gov.au/report/294-Southern-Rock-Lobster-2020>

¹⁰ Krueck, N., Hartmann, K. & Lyle, J. (2020) *Tasmanian Scalefish Fishery Assessment 2018/19*.

¹¹ Evans, K., Bax, N. & Smith, D. C. (2017) *Australia state of the environment 2016: marine environment, independent report to the Australian Government Minister for Environment and Energy*.

¹² State Policies and Projects Act 1993, s.29

on whether management objectives are being achieved and recommendations for responsive actions.

According to the 2009 report, it was not possible then to describe the status or trends in the conditions of estuarine, coastal and marine ecosystems due to insufficient information being available.¹³ Similarly, the distribution and impacts of introduced marine species went unreported in any detail other than that they were increasing. The report identified issues associated with a lack of whole of government direction in environmental policies and recommended improved alignment across government. The development of a comprehensive environmental policy framework was recommended, including a risk assessment based approach and a long-term strategic environmental management plan.

Sustainability reporting has evolved since 2009 and modern assessments are multidisciplinary, including human aspects and the linkages between marine ecosystems, economies and institutional systems.¹⁴

There is a lot we do know about the health of Tasmania's marine life. The Australian State of the Environment Report (2016) classifies most of Tasmania's marine bioregions' ecological conditions as slightly to moderately disturbed, including areas identified as having high ecological value. A few isolated areas that have been affected by significant land-based activities are classified as highly disturbed.¹⁵ The next Australian SOE Report is due out in 2022.

Introduced species are preying on native invertebrates, including commercial species (e.g. the Northern Pacific starfish, *Asterias amurensis*, preys on shellfish), and altering seabed habitats and communities (e.g. the New Zealand screw shell, *Maoricolpus roseus*).¹⁶ Other marine pests include Wakame—Japanese Kelp (*Undaria pinnatifida*) and the European Green Crab (*Carcinus maenas*).

Species at risk

Australia Institute research in late 2020 found at least 40 marine species occurring in Tasmania are considered to be threatened under state or national legislation, with more listed as protected migratory and marine species. Threatened species listed under the *Threatened Species Protection Act 1995* included 22 sea and shorebirds, three fish, one shark, one skate, five whales, four turtles, three seals, and one seaweed/alga. An additional

¹³ Tasmanian Planning Commission (2009) *State of the Environment Report: Tasmania 2009*.

¹⁴ Alexander, K. A. *et al.* (2019) Progress in integrating natural and social science in marine ecosystem-based management research. *Marine and Freshwater Research* **70**, 71–83

¹⁵ Evans, K., Bax, N. & Smith, D. C. (2017) *Australia state of the environment 2016: marine environment, independent report to the Australian Government Minister for Environment and Energy*.

¹⁶ *Ibid.*

range of species found here are listed as globally Threatened, including fish, seabird and shorebird species, while some areas occupied by threatened species are also listed as Critical Habitat at a national level.

Tasmania has the unfortunate dual distinction of recording Australia's first documented marine animal extinction, the Derwent River Seastar (*Marginaster littoralis*),¹⁷ and the first ever marine bony fish to be listed as extinct (Smooth Handfish, *Sympterichthys unipennis*).¹⁸

Loss of kelp forests

Over 95% of Tasmania's giant kelp forests have been lost over recent decades, to be replaced by forests of the smaller *Ecklonia radiata*, or by vast expanses of moonscape-like habitat thanks to hungry invasive sea urchins, called 'urchin barrens'.¹⁹ Despite it being listed since 2012, there is still no Recovery or Threat Abatement Plan prepared for this community.²⁰

In 2012, Giant Kelp Marine Forests of South-east Australia became the first marine community to be listed as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Overgrazing by urchins has exacerbated the impacts of the changes in the East Australian Current.²¹

While climate change has enabled the southward migration of the *Centrostephanus* urchins, their local proliferation is also linked to overfishing of large southern rock lobster, their primary predator in Tasmania.²²

¹⁷ Eulogy for a seastar, Australia's first recorded marine extinction. <https://theconversation.com/eulogy-for-a-seastar-australias-first-recorded-marine-extinction-103225>.

¹⁸ IUCN (2020) *Sympterichthys unipennis* (Smooth Handfish), <https://www.iucnredlist.org/species/123423283/123424374>.

¹⁹ Ling, S. & Keane, J. *Resurvey of the longspined sea urchin (Centrostephanus rodgersii) and associated barren reef in Tasmania*. https://www.researchgate.net/publication/331008132_Resurvey_of_the_Longspined_Sea_Urchin_Centrostephanus_rodgersii_and_associated_barren_reef_in_Tasmania (2018).

²⁰ Department of the Environment. Threatened Ecological Community Profile — Giant Kelp Marine Forests of South East Australia. <http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=107>

²¹ Ling, S. D., Johnson, C. R., Frusher, S. D. & Ridgway, K. R. (2009) Overfishing reduces resilience of kelp beds to climate-driven catastrophic phase shift. *Proceedings of the National Academy of Sciences of the United States of America* **106**, 22341–22345

²² Ling, S. D., Johnson, C. R., Frusher, S. D. & Ridgway, K. R. (2009). Overfishing reduces resilience of kelp beds to climate-driven catastrophic phase shift. *Proceedings of the National Academy of Sciences of the United States of America* **106**, 22341–22345

As noted above, recreational and commercial fishing of rock lobsters reduced their populations to historical lows of less than 10% of natural levels in 2011-12.²³

Giant kelp forests form surface canopies and support some of the most productive and diverse ecosystems on Earth. It is difficult to quantify the full value of Tasmania's kelp forests. They are highly valuable for fisheries, particularly rock lobster and abalone fisheries. Beyond this, their effect on coastal food-webs is positive for recreational fishing, ecotourism and recreation (e.g. scuba-diving), especially for coastal communities.²⁴ Kelp forests also take up carbon dioxide (CO₂) through photosynthesis, acting as carbon sinks to reduce local seawater acidity and increase dissolved oxygen. Kelp is also important to First Nations Tasmanians for a range of purposes including ceremonial, medicinal, clothing, food, shelter, and as domestic devices.

In 2018, urchin barrens covered approximately 15% of reefs on Tasmania's east coast.²⁵ This has had a devastating effect on native lobster populations, and therefore on Tasmania's valuable lobster fishery.

Habitat protection

Part 5, Division 2 and 3 of the Act have never been used. This section provides for the establishment of marine resources protected areas and for habitat protection plans. Appropriately-designed and managed protected areas offer an effective, efficient, and publicly acceptable tool to achieve scientific, fisheries and/or biodiversity conservation purposes.^{26, 27} Their design may differ according to the objectives they are trying to achieve.

Temporal and gear closures are implanted through other mechanisms in the Act and marine protected areas are currently declared under the Nature Conservation Act (NCA) 2002 (with fishing restrictions made in rules and regulations under the Act). These do not adequately address the objective of habitat protection in this Act. Protected areas declared under the

²³ Institute for Marine and Antarctic Studies University of Tasmania. Long-spined sea urchin (*Centrostephanus Rodgersii*). [https://www.imas.utas.edu.au/research/fisheries-and-aquaculture/fisheries/Long-spined-sea-urchin-Centrostephanus-Rodgersii#Reduce the Risk](https://www.imas.utas.edu.au/research/fisheries-and-aquaculture/fisheries/Long-spined-sea-urchin-Centrostephanus-Rodgersii#Reduce%20the%20Risk).

²⁴ Bennett, S. *et al.* (2016) The "Great Southern Reef": Social, ecological and economic value of Australia's neglected kelp forests. *Marine and Freshwater Research* **67**, 47–56

²⁵ Ling, S.D. and Keane, J.P. (2018) *Resurvey of the longspined sea urchin (Centrostephanusrodgersii) and associated barren reef in Tasmania*. Institute for Marine and Antarctic Studies Report. University of Tasmania, Hobart. 52 p

²⁶ Edgar GJ, Ward TJ, Stuart-Smith RD. *Weaknesses in stock assessment modelling and management practices affect the sustainability of fisheries*. *Aquatic Conserv: Mar Freshw Ecosyst*. 2019;1–7. <https://doi.org/10.1002/aqc.3161>

²⁷ Edgar GJ, Ward TJ, Stuart-Smith RD. *Rapid declines across Australian fishery stocks indicate global sustainability targets will not be achieved without an expanded network of 'no-fishing' reserves*. *Aquatic Conserv: Mar Freshw Ecosyst*. 2018;1–14.

NCA comprise approximately 1.1% of state waters with high levels of protection and 2.7% with partial protection.²⁸

Aquaculture impacts

National and state inquiries into aquaculture have seen the environmental impacts of salmon farming raised as key concerns. These include: a 2015 Senate Inquiry into the Fin-fish Aquaculture Industry in Tasmania, a 2021 House of Representatives Australian Aquaculture Sector Inquiry, and the 2019 Tasmanian Legislative Council inquiry into Fin Fish Farming, which is still yet to report.

The Legislative Council Inquiry received 224 written submissions.²⁹ Many submissions highlighted a wide range of concerns regarding ecosystem impacts associated with the scale and pace of development. These included higher nutrient loads affecting macroalgal assemblages on reefs some distances from farms, impacts arising from jellyfish and algal blooms, seal relocations, biosecurity risks, impacts on rare, threatened, and endangered species, and marine debris.

Jellyfish blooms are an emerging phenomenon in Tasmania and elsewhere. They arise from a feedback mechanism resulting from warmer waters and increased nutrient loads arising from rapid expansion of fish farms in Tasmania. They affect everything in the ecosystem as well as aquaculture species by directly feeding on fish well as on eggs and larvae of all marine species.³⁰

The environmental disaster in Macquarie Harbour in 2017-18 saw significantly reduced dissolved oxygen levels, an abundance of Dorvilleid worms (reliable indicators of anoxia in the benthos), outbreaks of fish diseases, and mass mortality events.³¹ This was driven by overstocking and a reverse precautionary approach in the management of salmon farms. It not only affected salmon farms (in May 2015 Petuna lost 85,000 fish because of low levels of dissolved oxygen) and the immediate marine environment but also a section of the Tasmanian Wilderness World Heritage Area. The health of the harbour, and its threatened and endangered species, were also severely impacted.³²

²⁸ Wescott, G. & Fitzsimons, J. (2016) *Big, Bold and Blue: Lessons from Australia's Marine Protected Areas*. CSIRO Publishing.

²⁹ Legislative Council Sessional Committee Government Administration A Sub-Committee Fin Fish Farming in Tasmania Inquiry https://www.parliament.tas.gov.au/ctee/Council/GovAdminA_Fin.html

³⁰ Gershwin, L. (2019) Submission GAA/FIN 40 to the Legislative Council Sessional Committee Government Administration A Sub-Committee Fin Fish Farming in Tasmania Inquiry.

³¹ Kirkpatrick et al, 'The reverse precautionary principle: science, the environment and the salmon aquaculture industry in Macquarie Harbour, Tasmania, Australia', *Pacific Conservation Biology* 25(1).

³² Ibid.

Marine spatial planning as used by this industry is sector specific, which is not actually marine spatial planning by its usual definition. Marine spatial planning should include all sectors and values and when used correctly is an excellent way to plan for the various uses of Tasmania's ocean resources as they continue to expand and compete with one another in the future. It is a key tool in implementing integrated ecosystem based management.

Pollution

Land-based activities including the expansion and intensification of agriculture, pollution from runoff from industry, along with changes to freshwater and sediment flows, are also impacting the health of our marine environment.³³

Plastic pollution poses another threat to marine life and further challenges for managers. It transcends jurisdictional borders and all sectors of society. Scientists continue to describe the magnitude of the problem – from killing seabirds and turtles, to polluting beaches and waterways.

Climate change impacts

The various uses of Tasmania's ocean will continue to expand and compete with one another. Climate change is adding to, and in some cases exacerbating, previously existing stressors. Commercial and recreational fishing pressures will continue, as will the impacts of aquaculture. Land-based activities including the expansion and intensification of agriculture, pollution from runoff from industry, along with changes to freshwater and sediment flows, will continue impacting the health of our marine environment in the future.

The task of this review is to identify the best legislative and management framework to keep marine ecosystems healthy under these future challenges, for without the resource there is no industry or other sectors.

The Australian Academy of Science estimates that over the past decade, more than 40% of Australia's marine habitats have been severely impacted by extreme climate events.³⁴ This has impacted coastal protections and is reshaping local ecosystems.

The east coast of Tasmania is a recognised hotspot for changes occurring as a result of climate change. Scientists estimate these waters are warming almost four times faster than

³³ Ogier, E. & Macleod, C. K. (2013). *Your Marine Values: Public Report. IMAS Technical Report*

³⁴ Future Earth Australia (2021). *Sustainable oceans and coasts national strategy 2021-2030*. Australian Academy of Science, Canberra, Australia <https://www.futureearth.org.au/publications/sustainable-oceans-and-coasts-strategy>

the global average and this is projected to continue.³⁵ The warmer, nutrient poor waters of the East Australian Current are flowing farther south and staying longer.³⁶ There are substantial changes in species distributions and some species ranges are shrinking, posing serious risk of extinction.³⁷ Professor Gretta Pecl of IMAS/UTAS has conducted extensive research on the magnitude changes to the marine environment from Tasmania's warming waters, including:³⁸

1. 50% of intertidal species have extended their ranges south over the last 50 years.
2. Dozens of fish species have major distributional changes.
3. 85% of seaweeds are found further poleward on the east coast compared to 1940.
4. The so-called Gloomy Octopus expanding its range from the mainland, and is now found in high enough numbers in Tasmania to be commercially fished.
5. The poleward expansion of *Centrostephanus* sea urchins leading to the decimation of kelp forests.

³⁵ Bennett, S. *et al.* (2016) The "Great Southern Reef": Social, ecological and economic value of Australia's neglected kelp forests. *Marine and Freshwater Research* **67**, 47–56

³⁶ Johnson, C. R. *et al.* (2011) Climate change cascades: Shifts in oceanography, species' ranges and subtidal marine community dynamics in eastern Tasmania. *Journal of Experimental Marine Biology and Ecology* **400**, 17–32

³⁷ Pecl, G. T. *et al.* (2017) Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being. *Science* 355

³⁸ Pecl, G. (2019) Climate-driven species redistribution in marine coastal systems, ICES annual meeting, 9-12th September, Gothenburg, Sweden.

Objectives, scope and legislative design

The Living Marine Resources Management Act 1995 (the Act) is the primary legislation for administering the use, development, and protection of living marine resources in Tasmania's State waters. This includes fisheries management, as well as protection of marine fish, including habitats and Aboriginal cultural fishing.³⁹

The objectives of the Act and Tasmania's Resources Management and Planning System and the intent of ecologically sustainable development remain relevant, however, its articulation should be improved, mandates strengthened and key additional objectives included.

The Act facilitates a sector-based approach to governance of the marine environment. Sector-based management has four important limitations: it fails to address compounding pressures, resolve trade-offs among objectives, coordinate management across agencies or combine ecological, social, cultural, and economic considerations simultaneously.⁴⁰ Modern resource management establishes integrated ecosystem based frameworks which address these limitations.^{41,42}

Integrated ecosystem based management encompasses the interconnectedness of natural systems. They provide a holistic approach that recognises all the interactions within an ecosystem rather than considering a single species or issue in isolation.⁴³ At their core, they recognise that:

“Management is essentially the management of human behaviour associated with extraction of human benefits, and that in using the resources of the ocean there will always be conflicting interests that need to be resolved.”⁴⁴

³⁹ Department of Natural Resources and Environment Tasmania (2022) *A Review of the Living Marine Resources Management Act 1995 Discussion Paper*, p8.

⁴⁰ Stephenson, R. L. *et al.* (2019) A practical framework for implementing and evaluating integrated management of marine activities. *Ocean and Coastal Management* 177, 127–138

⁴¹ Smith, D. C. *et al.* (2017) Implementing marine ecosystem-based management: Lessons from Australia. *ICES Journal of Marine Science* 74, 1990–2003

⁴² Vince, J. (2014) Oceans governance and marine spatial planning in Australia. *Australian Journal of Maritime & Ocean Affairs* 6, 5–17

⁴³ National Oceanic and Atmospheric Administration (2022) *Understanding Ecosystem-Based Fisheries Management* <https://www.fisheries.noaa.gov/insight/understanding-ecosystem-based-fisheries-management>

⁴⁴ Bernal, P.A., 2015. State ocean strategies and policies for the open ocean. In: Stephenson, R. L. *et al.* (2019) A practical framework for implementing and evaluating integrated management of marine activities. *Ocean and Coastal Management* 177, 127–138

Leading Tasmanian researchers from across IMAS, CMS, CSIRO and UTAS, and their international colleagues, have developed a framework to help guide the practical implementation of integrated management which they define as:

‘An approach that links (integrates) planning, decision making and management arrangements across sectors in a unified framework, to enable a more comprehensive view of sustainability and the consideration of cumulative effects and trade-offs.’⁴⁵

The Australian Academy of Science has convened leaders across expertise, sectors, and the nation and prepared the *National Sustainable Oceans and Coasts Strategy 2021-2030*. The Strategy presents a cross-sectoral plan for achieving sustainable oceans and coasts across Australia by 2030. It provides a thoughtful and innovative way forward for governments and a roadmap for healthy oceans and coasts, integrating across catchments, coast and into the ocean.⁴⁶ At the 2021 National Coast to Coast Conference, the Australia Institute Tasmania played a key role bringing over 300 natural resource managers and practitioners together to endorse the Strategy.⁴⁷

Two states, NSW and Victoria, and the cross-jurisdictional Federal-Queensland management of the Great Barrier Reef, are leading the way in Australia in implementing integrated ecosystem based management. NSW and Victoria have repealed past legislation, replacing it with legislation that includes integration in their objects, guidelines and associated policies and strategies.⁴⁸

The Victorian *Marine and Coastal Act 2018* provides a simple, more integrated and coordinated approach to planning and managing the marine and coastal environment. It establishes a whole-of-government approach to protect and manage Victoria's marine and coastal environment; and provides for integrated and co-ordinated policy, planning, management, decision making and reporting across catchment, coastal and marine areas. It requires the establishment of objectives and guiding principles for ecologically sustainable planning, management and decision-making under the Act; a Marine and Coastal Council; the preparation of a Marine and Coastal Policy, a Marine and Coastal Strategy, and a State of the Marine and Coastal Environment Report; and provides for regional partnerships, management plans, effective community engagement and education in planning and

⁴⁵ Stephenson, R. L. *et al.* (2019). A practical framework for implementing and evaluating integrated management of marine activities. *Ocean and Coastal Management* **177**, 127–138

⁴⁶ Future Earth Australia (2021). *Sustainable oceans and coasts national strategy 2021-2030*. Australian Academy of Science, Canberra, Australia <https://www.futureearth.org.au/publications/sustainable-oceans-and-coasts-strategy>

⁴⁷ Australia Institute Tasmania (2021) *Marine and coastal leaders call for national strategy to protect oceans* <https://australiainstitute.org.au/post/marine-and-coastal-leaders-call-for-national-strategy-to-protect-oceans/>

⁴⁸ *Ibid*, p 31.

management; and amending other Acts to provide for integrated and co-ordinated management of the marine and coastal environment.⁴⁹

The accompanying Victorian Marine and Coastal Policy (2020) includes a marine spatial planning framework to guide integrated and coordinated long term planning and management of the marine environment. A wealth of resources have been produced by the Victorian Government to facilitate implementation of the Act.⁵⁰

There is also a pressing need to review and update Tasmania's Coastal Policy (1996), which has been largely ignored for the past two decades. This should be brought into an overarching framework for integrated management.

Marine spatial planning, by definition, includes all sectors and values. This tool, used correctly, is an excellent way to plan for the various uses of Tasmania's ocean resources as they continue to expand and compete with one another in the future. It is a core element of integrated ecosystem based management.

Tasmanians have many objectives for the use and conservation of marine ecosystems and services, which often compete and can lead to conflict. Integrated management recognise this and provide opportunities for conflict resolution and resource sharing, allowing for biodiversity conservation and sustainable use of marine resources. Without them, unresolved conflict and sub-optimal outcomes are almost assured.

Recommendation 1:

Government commitment to establish an overarching legal and policy framework for integrated ecosystem based management, which identifies current and future uses of Tasmania's coastal waters for all uses, users and values. A legal framework such as Victoria's Marine and Coastal Act 2018 could be implemented to achieve this.

Recommendation 2:

Objectives of the Act must be clear with a focus on what is required to achieve Ecologically Sustainable Development (ESD) and Integrated Ecosystem Based Management (IEBM) outcomes, and particular regard to environmental sustainability, for without the resource there is no industry or other sectors. There is a need to ensure an economic focus also to encourage profitability and minimise the incentives for illegal activity due to poor

⁴⁹ Victorian Government (2021) *Marine and Coastal Act 2018*,
<https://content.legislation.vic.gov.au/sites/default/files/2021-06/18-26aa005%20authorised.pdf>

⁵⁰ Victorian Government (2021) *Marine and Coastal Act 2018*,
<https://www.marineandcoasts.vic.gov.au/marine-and-coastal-act>

returns. Objectives should bind the Minister and Department such that they have to meet them, not just pay lip service to them.

Recommendation 3:

A statutory requirement to review the Act every 5 years should be included.

First Nations rights

The Act defines Aboriginal activities as non-commercial and for cultural purposes. Its language and intent are not appropriate in the 21st Century. First Nations Tasmanians value healthy marine ecosystems as part of a range of associated values, including integrated land and sea country access rights, spiritual and cultural practices and economic values.⁵¹

First Nations Tasmanians have successfully established their right to fish but expect to also gain an economic benefit from the exploitation of their traditional resources. A comprehensive and modern approach to marine resource management should acknowledge and provide for this. Further, the practices of First Nations Tasmanians provide relevant management strategies which have not been adequately considered or incorporated.⁵² Recent developments in returning abalone quota are a step in the right direction.⁵³

There are no legislative provisions for Indigenous co-management, but Tasmania's 2001 Marine Protected Area Strategy provides for partnerships in managing marine areas and species and aims to incorporate First Nations Tasmanians in decision-making.

Tasmanian Aboriginal communities are best placed to respond to improvements to the Act to strengthen recognition of their rights. The Institute strongly encourages meaningful engagement with First Nations representatives and commends the recent appointment of an Aboriginal Fisheries Officer to the Department and to the Steering Committee for the Review.

Recommendation 4:

Appropriate recognition of the Traditional Owners of lutruwita/Tasmania and co-management of resources with First Nations Tasmanians, in collaboration with scientists and the community, should be articulated in the Act.

⁵¹ Ogier, E. & Macleod, C. K. (2013) *Your Marine Values: Public Report. IMAS Technical Report*

⁵² Ogier, E. & Macleod, C. K. (2013) *Your Marine Values: Public Report. IMAS Technical Report*

⁵³ *Indigenous Tasmanians sign deal to run commercial abalone fishery* <https://www.abc.net.au/news/2022-03-18/indigenous-tasmanians-commerical-abalone-fisheries-deal/100916392>

Marine resources and Tasmania's economy

Tasmania's fishing and aquaculture industries make important contributions to state and national economies and employment in Tasmania. In 2017/18 fisheries, aquaculture and associated processing generated \$1.15 billion and created an estimated 3,410 FTE jobs.⁵⁴

Tasmania's 106,000 recreational fishers spend about \$161 million per year on bait, gear, fuel, accommodation and the other goods and services (employing 837–1,674 people, at a rough estimate), and catch about 1,039,800 fish.⁵⁵

Australia Institute research has previously explained some of the pitfalls of simplistic employment figure statistics,^{56, 57} however, these figures recognise the importance of these industries to the state's economy.

A major shortcoming of current policy is that the Tasmanian community does not receive an economic return from the commercial use of its marine resources, with the sole exception of abalone royalties. Private sales or export revenue does not accrue to the public, despite public resources being exploited. Fees and licencing are important parts of regulating Tasmanian fisheries, but this revenue is aimed simply at recovering management costs, not providing a return to the community.

This is poor policy from an economic and equity perspective and questions have long been asked as to whether Australia's policy settings are providing appropriate community returns.⁵⁸

Previous Australia Institute research has highlighted potential mechanisms for improving community returns demonstrated by Norwegian aquaculture policy.⁵⁹ The public benefit to Norwegians from the salmon industry includes auctioning biomass licenses, as well as other taxes and fees. This research also noted the potential case for royalties on aquaculture

⁵⁴ Tasmanian Fisheries and Aquaculture Industry (2019) *2017/18: Economic Contributions Summary* FRDC project 2017-210

⁵⁵ Lyle, J. M., Stark, K. E., Ewing, G. P. & Tracey, S. R. (2019) *2017-18 Survey of Recreational Fishing in Tasmania*.

⁵⁶ Minshull, L. and Browne, B. (2019) *Making mountains out of minnows: Salmon in the Tasmanian economy*. The Australia Institute

⁵⁷ Browne, B. (2018) *Fishing for compliments: Fishing in the Tasmanian economy*. The Australia Institute

⁵⁸ Rodgers, T. and Webster, S. (2007) *Resource rent mechanisms in Australian primary industries: some observations and issues*. Paper presented at the 51st Annual Conference of the Australian Agricultural and Resource Economics Society Conference

⁵⁹ Minshull, L. and Browne, B. (2019) *Making mountains out of minnows: Salmon in the Tasmanian economy*. The Australia Institute

operations, if the public resource was conceived of as a community's waterways, rather than fish.

Iceland could provide other lessons in how to (and not to) ensure that the wealth generated by marine resources is fairly distributed.⁶⁰ Iceland introduced Individual Tradable Quotas in the 1980s to improve sustainability. However, the initial free allocations of quotas led to windfall gains and an uneasy social situation, with 'undesirable distributional effects for a sector with strong regional and traditional roots.' The OECD report on Iceland's situation makes recommendations to avoid this, including negotiating resource rent in advance of new quota policy settings.

Recommendation 5:

All sectors should pay for the cost of management. Cost recovery from both recreational and commercial sectors ensures appropriate economic signals are being provided and funding is available for necessary scientific assessments and management arrangements. This should be augmented with funding from consolidated revenue.

Recommendation 6:

An economic return should be paid to the community for the private use of public resources, and should be negotiated in advance of any new quota policy settings. This could be achieved through royalty payments, auctions of permits or a range of other mechanisms.

Resource sharing and allocation

The Act does not provide a framework for resource sharing, being the allocation between sectors. There are multiple sector groups in the Tasmanian community: non-extractive users (including divers, tourism operators and environmental NGOs), First Nations Tasmanian communities, recreational fishers, commercial fishers, and marine farming operators.

The Act could provide for resource sharing and allocation among sectors. Marine spatial planning it is an effective tool to incorporate ecological, social, cultural and economic information and could be used to implement resource sharing and allocation.

Recommendation 7:

Resource sharing arrangements need to be clearly spelt out and where one sector is favoured at the expense of another, compensation should be payable to the sector which loses resource access.

⁶⁰ OECD (2015) *Iceland Policy Brief: Fisheries - Ensuring a fairer distribution of wealth generated by fisheries*, <https://www.oecd.org/iceland/iceland-ensuring-fairer-distribution-of-wealth-generated-by-fisheries.pdf>

Management framework: effectiveness and improvements

Shortcomings of the management framework have been described above in the section on the effectiveness of the Act. Effective fisheries management is no longer measured by single species objectives but rather by recognising interactions across ecosystems. Depleted fish stocks, ignored flow-on effects, threatened species, lack of habitat protection, poor economic returns to the community, and a lack of community involvement in planning and management decisions, all reflect poorly on the current management framework.

With some notable exceptions, most Tasmanian-managed fisheries are relatively low value and have not received the same investment in management as more valuable fisheries. For example, only two Tasmanian-managed fisheries have harvest strategies, the high-value abalone and rock lobster fisheries.

Most states and the Commonwealth have management plans and include harvest strategies for their fisheries. The Act does not currently require the development or implementation of harvest strategies or management planning documents. The current Fisheries Rules (which are the rules for the management plans) do not clearly refer back to the objectives of the Act.

Formal harvest strategies comprise three important components - monitoring, assessment, and decision rules. Beyond this, the process of developing harvest strategies requires that management objectives be made explicit and quantifiable, and that explicit standards for risk be adopted.⁶¹

A 5-year review of harvest strategies in Australia found since their introduction, the proportion of stocks subject to overfishing reduced, the proportion of stocks of uncertain status declined, and the economic status of most fisheries improved. The Australian Commonwealth Harvest Strategy Policy (HSP) set three major initiatives:⁶²

1. recover overfished stocks and prevent future overfishing;
2. reduce excess effort through a government buy-out; and
3. implement a network of marine protected areas in south-eastern Australia.

⁶¹ Anthony D. M. Smith, David C. Smith, Malcolm Haddon, Ian A. Knuckey, Keith J. Sainsbury, Sean R. Sloan, (2014), Implementing harvest strategies in Australia: 5 years on, *ICES Journal of Marine Science*, Volume 71, Issue 2, January/February, Pages 195–203, <https://doi.org/10.1093/icesjms/fst158>

⁶² Ibid.

The HSP provides an improved approach because it sets a target to be achieved, as well as a limit to be avoided. The target is to achieve a stock biomass of 48% of the unfished biomass. The limit is to remain above 20% of unfished biomass at least 90% of the time.

CSIRO research found a stock biomass target set at 48% of original/unfished biomass is a precautionary target that is generally appropriate for fisheries.⁶³ Some Australian fisheries set more conservative reference points for species of ecological importance, such as low trophic level species. Responsible fisheries management uses multiple tools, including a precautionary approach, to avoid unrecoverable damage to stocks and related ecosystems.⁶⁴

In the Southern Ocean, the rule applied to Patagonian toothfish aims to achieve a target of 50% of spawning biomass rather than 48%. This is to allow for the needs of dependent species and is part of implementing an ecosystem based approach. The governing body, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) has ecosystem based management at the core of the international agreement it implements. CCAMLR's harvesting principles which can be summarised as:⁶⁵

1. Maintain productivity of stocks.
2. Maintain ecological relationships and restoring depleted populations.
3. Any effects should be reversible within 2-3 decades, taking account of direct and indirect impacts, alien species, associated activities, environmental changes and the aim of biodiversity conservation.

Ecosystem based management is being implemented across Australian Commonwealth fisheries through an Ecological Risk Management Framework.⁶⁶ Ecological Risk Assessment for the Effects of Fishing are a set of hierarchical tools that continue to develop in order to meet the ecosystem based management mandate. Semi-quantitative Level 2 species and habitat assessment tools have already been developed and could be applied to Tasmanian fisheries, at least at the qualitative level.

The Tasmanian Recreational Sea Fishing Strategy 2021-2030 promotes shared stewardship and ensuring the long-term sustainability of fish stocks and habitats. To achieve this, it commits to achieving improved data collection, working with scientist to improve

⁶³ Haddon, M., Klaer, N., Smith, D.C., Dichmont, C.D. and A.D.M. Smith (2012) *Technical reviews for the Commonwealth Harvest Strategy Policy*. FRDC 2012/225. CSIRO. Hobart. 69 p.

⁶⁴ Ibid.

⁶⁵ Andrew J. Constable (2006) *International implementation of the ecosystem approach to achieve the conservation of Antarctic marine living resources*, Presentation to UNICPOLOS 7

⁶⁶ Australian Fisheries Management Authority (2022) *Ecological risk management strategies for Commonwealth commercial fisheries* <https://www.afma.gov.au/ERM>

management practices, more sustainable fishing practices, and habitat restoration. It also supports the development of harvest strategies.⁶⁷

Recommendation 8:

Management of key species and fisheries should be by legislated management plans.

Recommendation 9:

Develop harvest strategies for all nine of Tasmania's key fisheries, based on best available science.

Recommendation 10:

Set precautionary stock biomass targets at 48% of original/unfished biomass for Tasmanian fisheries.

Recommendation 11:

Undertake Ecological Risk Assessments for the Effects of Fishing for Tasmanian fisheries.

Managing for climate resilience

Climate models, ecosystem based management and stock assessments are well recognised tools for managing fisheries under climate change. However, most broad-scale or ecosystem models are too uncertain for tactical use, such as for setting Total Allowable Catches.⁶⁸ A 2017 review of integrated modelling to support decision-making for marine social–ecological systems in Australia identified important gaps in available capability.⁶⁹ Considerable uncertainty still exists especially where rapid change is underway and observational data to inform and test model representations, is among the recommended future consideration.

It is likely to be some time before these uncertainties are adequately resolved. A practical response to this is to take a precautionary approach, improve risk or vulnerability assessments (including with more regular updating of advice, for example on stock productivity), adopt marine protected areas and implement effective integrated ecosystem based management.

⁶⁷ *Tasmanian Recreational Sea Fishing Strategy 2021-2030*

https://nre.tas.gov.au/Documents/Tasmanian_Recreational_Sea_Fishing_Strategy%202021-30.pdf

⁶⁸ DAWR (2018) *Guidelines for the Implementation of the Commonwealth Fisheries Harvest Strategy Policy*, Australian Government.

⁶⁹ Melbourne-Thomas, e., al. (2017) *Integrated modelling to support decision-making for marine social–ecological systems in Australia*. – ICES Journal of Marine Science, doi:10.1093/icesjms/fsx078.

The Australian Marine Sciences Association recently published recommendations to this effect on ocean management under climate change:⁷⁰

*“The increasing threat posed by anthropogenic climate change reinforces the need and importance of effective and equitable management of marine systems and threatened species, including **improved vulnerability assessments, fisheries management, marine protected areas and integrated coastal zone planning**, all of which take cognisance of anticipated future climate change. Such management actions will not necessarily eliminate impacts of climate, but reduce pressure on marine species to maximise their potential for adaption to changing conditions.”*

A recent review of management responses to climate change in the Southern Ocean found the role of protected areas in increasing climate resilience has been widely discussed, and several international targets agreed for establishing protected areas for both climate resilience and biodiversity conservation purposes. The review also recognised that an integrated approach to addressing climate change and biodiversity is needed.⁷¹

Conservation of Tasmania’s marine carbon sinks has important potential to mitigate impacts and help meet climate change commitments. Blue carbon ecosystems can store up to four times as much carbon per area as land-based forests⁷² and, if undisturbed, can store carbon in sediments over hundreds or thousands of years. However, for their carbon sequestering values to be retained, we need to prevent disturbance from activities such as bottom trawling, dredging and coastal development (we now know that bottom trawling releases as much carbon as air travel⁷³).

An Australian assessment of coastal ecosystems as global hotspots for climate change mitigation provides the most comprehensive assessment for any nation to date and demonstrates the potential for conservation of these ecosystems to underpin policy development for reducing net greenhouse gas emissions. This research found that carbon stored within Australian blue carbon ecosystems constitutes around 11% of worldwide blue carbon stocks.⁷⁴

⁷⁰ AMSA (2022) *AMSA Position Statement: Climate Change*

⁷¹ Goldsworthy, L. and Brennan, E. (2021) *Climate change in the Southern Ocean: Is the Commission for the Convention for the Conservation of Antarctic Marine Living Resources doing enough?* Marine Policy, 130, <https://doi.org/10.1016/j.marpol.2021.104549>.

⁷² International Partnership for Blue Carbon, <https://bluecarbonpartnership.org/> viewed 11/11/2021

⁷³ Enric Sala, *et al.* (2021) Protecting the global ocean for biodiversity, food and climate. *Nature* **592**, 397 <https://www.nature.com/articles/s41586-021-03371>

⁷⁴ Serrano, O. *et al.* (2019) *Australian vegetated coastal ecosystems as global hotspots for climate change mitigation*, <https://doi.org/10.1038/s41467-019-12176-8>

The CSIRO is currently building on this, quantifying the emissions reduction potential of Australia's mangroves, seagrasses and tidal marshes as well as the value of other benefits these ecosystems provide for coastal protection, fisheries and biodiversity.⁷⁵

South Australia has already adopted an approach that integrates its Blue Carbon Strategy with coastal policy, planning and management at national, state, regional and local levels to help account for the myriad other uses and benefits of these natural assets in planning and management.⁷⁶

Recommendation 12:

Amend the legislation to include guiding principles for action on climate change and protect nature-based solutions to climate change, including blue carbon sinks.

A Precautionary approach

There is increasing movement towards evidence-based management for marine resources internationally. However, the requirement for evidence of impacts to enable decision making is at odds with a precautionary approach to management. The Precautionary Principle calls for preventive actions in the face of uncertain information about risks. The Hobart-based Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) is regularly cited as a governance model that has successfully applied a precautionary approach to achieve conservation and sustainable use of marine resources. CCAMLR's approach takes into account the needs of predators and scientific uncertainties when setting catch limits for harvested species and is not premised on there being threats of serious or irreversible damage. This international treaty, signed in 1980, is a pioneering example of precautionary ecosystem-based management.

Recommendation 13:

The Act should adopt a precautionary approach to marine management.

Habitat protection

In June 2021, Australia became part of an international coalition of countries committed to conserving 30% of the world's land and sea by 2030, in order to halt the loss of biodiversity.

⁷⁵ CSIRO (2021) *Estimating Australia's 'blue carbon' potential*, <https://www.csiro.au/en/news/news-releases/2021/estimating-australias-blue-carbon-potential>

⁷⁶ Government of South Australia (2019). *Blue Carbon Strategy for South Australia* <https://www.environment.sa.gov.au/topics/climate-change/climate-change-blue-carbon-strategy>

Prime Minister Morrison made the announcement.⁷⁷ Australian and IPCC scientist support this commitment:

“At least 30% of the ocean should be protected (30 by 30) (IPCC 2022), and Indigenous Peoples and local communities must be engaged as partners in the design and management of protected areas.”⁷⁸

The Australian Marine Sciences Association (AMSA), Australia’s largest professional association of marine scientists, identified habitat loss as the second highest threat to marine biodiversity, based on historical impacts. Habitat loss is caused by coastal development, such as dredging and harmful fishing gear. Damage includes the destruction or modification of vulnerable seafloor ecosystems, seagrass, coastal wetlands and estuaries. They consider protected areas to be an integral part of ecosystem-based fisheries management.

According to AMSA, protected areas assist in maintaining healthy ecosystems:⁷⁹

“Important values and services provided by these ecosystems include the supply of seafood, passive and active recreational opportunities, culture, education, the regulation of coastal climate and habitats, and dilution and assimilation of wastes including greenhouse gases. Accordingly, the health and wellbeing of coastal communities can depend heavily on healthy marine ecosystems.”

While their design may differ according to the objectives they are trying to achieve, appropriately-designed and managed protected areas offer an effective, efficient, and publicly acceptable tool to achieve scientific, fisheries and/or biodiversity conservation purposes.^{80, 81}

In Tasmanian coastal waters, protected areas comprise approximately 1.1% with high levels of protection, and 2.7% with partial protection.⁸² This deficit in habitat protection occurs despite the objectives of this Act, overwhelming evidence in support of the effectiveness of protecting habitat for multiple objectives,⁸³ government commitments past and present at

⁷⁷ Australian Government (2021) *Australia joins international alliance to conserve planet’s biodiversity* <https://www.pm.gov.au/media/australia-joins-international-alliance-protect-planet%E2%80%99s-biodiversity>

⁷⁸ AMSA (2022) *AMSA Position Statement: Climate Change*

⁷⁹ Australian Marine Sciences Association (2019) *AMSA Position Statement on Marine Protected Areas (MPAs)*

⁸⁰ Edgar GJ, Ward TJ, Stuart-Smith RD. *Rapid declines across Australian fishery stocks indicate global sustainability targets will not be achieved without an expanded network of ‘no-fishing’ reserves*. *Aquatic Conserv: Mar Freshw Ecosyst*. 2018;1–14.

⁸¹ Australian Marine Sciences Association (2019) *AMSA Position Statement on Marine Protected Areas (MPAs)*

⁸² Wescott, G. & Fitzsimons, J. (2016) *Big, Bold and Blue: Lessons from Australia’s Marine Protected Areas*. CSIRO Publishing.

⁸³ Australian Marine Sciences Association (2019) *AMSA Position Statement on Marine Protected Areas (MPAs)*

state and national levels,⁸⁴ and community support for action to protect Tasmania's ocean.^{85, 86} There is currently an incongruence between Tasmanian and Federal government commitment to habitat protection.

Recommendation 14:

Comprehensive, adequate and representative habitat protection be embedded in an integrated ecosystem based management framework. Without such reference areas, there is no way to accurately measure impacts or success.

Integrating science in decision-making

Marine spatial planning is a well-recognised methodology to incorporate best available science into decision-making. Many scientists agree that spatial management is a core component of managing marine resources.⁸⁷ It is a tool used to implement integrated ecosystem based management. Tasmania's Marine Atlas Project will provide useful data for marine spatial planning.⁸⁸

Victoria's Marine and Coastal Act 2018 explicitly aims 'to build scientific understanding of the marine and coastal environment' and tools and requirements exist to embed scientific evidence into decision making. The Australian Academy of Science highlights this in a recent case study.⁸⁹ The Victorian Marine and Coastal Act requires scientific evidence and data, along with the views of rights-holders and stakeholders as input to the state-wide Marine Spatial Planning (MSP) Framework in the Victorian Marine and Coastal Policy. The Victorian MSP Framework has three primary functions:⁹⁰

1. To support integration and coordination of planning and management across marine sectors, the land-sea interface and jurisdictional boundaries,

⁸⁴ Ibid

⁸⁵ The Australia Institute (2021) *Polling: Majority of Tasmanians Want Pause of Tasmanian Salmon Farm Expansion* <https://australiainstitute.org.au/post/polling-majority-of-tasmanians-want-pause-of-tasmanian-salmon-farm-expansion/>

⁸⁶ Wescott, G. & Fitzsimons, J. (2016) *Big, Bold and Blue: Lessons from Australia's Marine Protected Areas*. CSIRO Publishing.

⁸⁷ Little LR, Day J, Haddon M, et al. *Comments on the evidence for the recent claim on the state of Australian fish stocks*. *Aquatic Conserv: Mar Freshw Ecosyst*.2019;29:329-330. <https://doi.org/10.1002/aqc.2992330> COMMENTARY AND CORRESPONDENCE ARTICLE

⁸⁸ IMAS (2022) *Tasmania's marine Atlas Project*, <https://www.imas.utas.edu.au/research/fisheries-and-aquaculture/projects/projects/tasmanias-marine-atlas-project>

⁸⁹ Future Earth Australia (2021). *Sustainable oceans and coasts national strategy 2021-2030*. Australian Academy of Science, Canberra, Australia <https://www.futureearth.org.au/publications/sustainable-oceans-and-coasts-strategy>

⁹⁰ State of Victoria. (2020) *Marine and Coastal Policy*. <https://www.marineandcoasts.vic.gov.au/coastal-management/marine-and-coastal-policy>.

2. To support Traditional Owners, marine sectors, marine users and the community participate in marine planning and management, and
3. To provide a process for initiating, approving and undertaking marine spatial planning.

Recommendation 15:

The Act must require best available scientific evidence as the basis for decision-making. Planning and management should be informed by fishery independent data on species and ecosystem condition, as well as social and economic factors. This should be established through a science based and consultative, multi-sector marine spatial planning regulatory process to implement integrated ecosystem based management.

Consultation and decision-making: existing bodies and mechanisms

Fishery Advisory Committees (FAC) are formed under the Act to provide the Minister with advice in relation to the management of a fishery. These committees are the key vehicles for assessing and progressing management issues and proposals. Certified fishing bodies are automatically provided with membership of the relevant advisory committee.⁹¹ FACs can include community members, however these positions are not paid and the community sector is notoriously under resourced and may struggle to participate. Further, there is no stipulation for First Nations voices to be heard through these Committees.

Concerns about poor consultation processes and low levels of trust in such processes have been reported by participants in statutory consultation processes.⁹² Research into the 2005-08 Bruny Bioregion Inquiry found there was a tendency of political interventions to privilege narrow sectoral interests and override outcomes from statutory consultation processes that were informed by wide stakeholder input. Influence was found to be concentrated in relatively few actors, mostly members of the commercial and recreational fishing sectors, some government agencies, and the relevant Minister as the main decision-maker. Direction, political leadership and coordination across sectors and government levels were deemed unsatisfactory by the research participants.

Marine spatial planning is not only an effective tool for incorporating science into decision-making, it can be an effective mechanism to incorporate social, cultural and economic information. Australia's Marine Bioregional Planning and National Representative System of Marine Protected Areas processes used spatial planning. It built in different socio-economic

⁹¹ Tasmanian Government (2016) *Submission to the Australian Productivity Commission inquiry into the Regulation of Australian Marine Fisheries and Aquaculture*.

⁹² García, C. (2017) *Improving governance of marine protected areas in Tasmania, Australia*. PhD Thesis, University of Tasmania.

desires that sought to ensure areas for conservation avoided areas of highest value to commercial fishers, aquaculture, recreational fishing or with proximity to ports or marinas.⁹³

New Zealand also provides a model for consideration, where Maori values are incorporated into economic systems and customary management of marine areas. New Zealand undertook its first marine spatial planning process from 2013–2016. A review of this work found that marine spatial planning can support ecosystem-based management, collaborative processes can be powerful in achieving shared outcomes for the community and Indigenous knowledge can strengthen planning processes by providing more holistic knowledge.⁹⁴

The Australian Panel of Experts on Environmental Law (APEEL) remind us of past policy commitments to address the fragmented approach to marine and coastal governance. They recommend the use of marine spatial planning to achieve this and the completion of the National Representative System to include state and territory MPAs. They recommend recognition of sea-county as an essential part of these processes, including legal and non-legal mechanisms for sea country governance.⁹⁵

Recommendation 16:

A review of statutory consultation processes should be undertaken to provide transparency on input into, and the results of, statutory consultation processes.

Recommendation 17:

Community and First Nations involvement in consultation processes should be required and resourced appropriately.

Recommendation 18:

The Minister should be decoupled from day-to-day decision making as far as possible.

Reporting

Several of the sections above have highlighted the importance of data in marine management. There should be no reduction in reporting requirements as a result of this Review. Rather, given the effort taken to meet reporting obligations, better use should be made of all available data, for example through State of the Environment Reporting.

⁹³ Wescott, G. & Fitzsimons, J. (2016) *Big, Bold and Blue: Lessons from Australia's Marine Protected Areas*. CSIRO Publishing,

⁹⁴ Peart, R. (2019) Sea Change Tai Timu Tai Pari: addressing catchment and marine issues in an integrated marine spatial planning process. *Aquatic Conservation: Marine and Freshwater Ecosystems* **29**, 1561–1573

⁹⁵ Australian Panel of Experts on Environmental Law (2017) *Marine and Coastal Issues (Technical Paper 4)*.

Recommendation 19:

The Act should ensure robust and transparent reporting for all users of public resources.

Recommendation 20:

State of the Environment Reporting should recommence to provide multi-disciplinary ecosystem condition data and assessments.

Conclusions

Marine resources are a public asset. They are owned and managed by the state on behalf of, and for the benefit of, all Tasmanians.

The past 26 years has seen a deterioration of the condition of Tasmania's coastal waters.

Australia Institute research finds that the legislative and regulatory frameworks that manage marine resource use operate in isolation and need to be modernised and integrated.

Marine spatial planning, by definition, includes all sectors and values. This tool, used correctly, provides a powerful tool to plan for the various uses of Tasmania's ocean resources as they continue to expand and compete with one another in the future. It is a core element of integrated ecosystem based management.

The Review of the Act provides the best opportunity in 26 years to fundamentally improve Tasmania's marine management framework. Tasmania has the opportunity to position itself as a world leading sustainable ocean economy in which effective protection, sustainable production and equitable prosperity go together.

Appendix A: Discussion questions

Introductory discussion questions:

1. How well do you think the Tasmanian legislative regime has supported the **protection and management of Tasmania's marine resources** over the past 26 years?
2. What do you think will be the **major challenges** for the sustainable management and development of Tasmania's living marine resources in the next 20 years?
3. How do you think the legislative regime will, or should, **respond to those challenges**?

Theme 1: Objectives and scope

4. Are the current **objectives** of the Act, including that of achieving sustainable development still relevant for the Act? What other objectives for the management of our living marine resources could be relevant?
5. The purposes refer to the community and the **community's interests**. What do you think community means and what are their interests?
6. Could the Act's objectives be strengthened with regards to **Aboriginal activities** and connection to sea country and sea country values?
7. What are your views on the **scope** of the Act? Are any key activities relating to the **protection, development and management** of our marine resources missing that should be added, or should anything be removed?
8. How should the **costs and benefits** from living marine resource use be calculated? You may want to consider biological, economic, Aboriginal cultural and social aspects.
9. Should there be a **return to the State and the Tasmanian community** from the use of a public resource? In addition to economic return, what Aboriginal cultural, environmental, and social benefit could be returned?
10. Are the character tests for **participation in the regulatory framework** appropriate?
11. Should the Act consider the character of **corporate entities** beyond the corporate structure?
12. What other **conditions** should be applied under the Act to those who seek or have been granted access to Tasmania's living marine resources?
13. Should the legislation include a framework for **resource sharing**?
14. If yes, what elements might comprise such a **framework**?
15. Is the Act easy to understand and follow?
16. In considering the three **legislative design** aspects above, what hierarchy between the Act and other instruments would best support sustainability?

17. What is the role of legislation to support **ceremonial, cultural and economic practices**?
18. How else can **Aboriginal Tasmanian communities** be supported to benefit from living marine resources through harvesting and other means?

Theme 2: Fisheries Management

19. Do you think the current **management framework for fisheries** making [sic] is effective, easy to understand and supports the objectives of the Act?
20. What **improvements** would you like to see?
21. Do the current requirements for the use of **scientific advice and evidence** provide adequate support for the sustainable management of Tasmania's living marine resources?
22. Are there alternative approaches to the **integration of science into decision-making** that should be considered?
23. Do the **consultation mechanisms** effectively and appropriately allow for engagement with all interested stakeholders? Are there better ways of consulting?
24. Are the **existing consultation bodies** and associated processes effective, and do they adequately cover the social, economic, and environmental needs of fisheries management?
25. What structures or mechanisms could encourage **Aboriginal Tasmanian communities** to share and participate in consultation and decision-making in fisheries management?
26. What should be considered when determining **who should be the decision maker** at each stage of the fisheries management framework?
27. How should developmental fisheries be supported and administered under the framework for fisheries management?

Theme 3: Regulatory Framework

28. Does the current direct government regulatory regime adequately support the objectives of the Act? How else could regulatory outcomes be achieved?
29. What should the control arrangements be in the Tasmanian fisheries framework? Could access be controlled in a simpler way while still achieving the objectives of the Act? Examples of your experiences with licensing under the Act can be provided.
30. Should there be a more defined framework for some activities currently regulated under the permits?
31. Is it suitable to have permit provisions that are broad and allow considerable discretion? Why?
32. How could the current fees and levy arrangements be improved?
33. How would you like to see charter fishing managed?
34. What are your views on the levels of **reporting required under the Act**?

35. How can the exemption process be improved, if at all?
36. What are your views on the balance of responsibility and penalties between licensees, deed holders, leases, divers and nominated natural persons?
37. Who should be responsible for ensuring compliance with a licence and activities conducted on water?
38. Are the current penalties for fisheries offences appropriate?
39. How could the rules dealing with compliance be improved?
40. Does the Act deal with IUU fishing effectively? What species are most at risk of IUU fishing in Tasmania and how should that risk be better addressed in the legislative arrangement?
41. What are your views about Tasmanian fisheries enforcement?
42. Are all necessary powers included, noting changes in fishing behaviour and practices?
43. In your view what opportunities are offered by emerging technology in fisheries management and compliance? You may want to consider opportunities for more cost effective data collection and improved fishing equipment.
44. How can the legislative design be responsive to emerging technology?
45. Is it appropriate to mandate certain technology where there is a clear management benefit for obtaining this information at a lower cost?
46. Are the review provisions sufficient to support the regulatory regime?
47. Should the register of authorisations be open and accessible by any interested persons? What of commercial and personal privacy considerations?
48. What information should be made available on permits?