



UNIVERSITY of TASMANIA

IMAS 

Institute for Marine and Antarctic Studies

**SUSTAINABLE
MARINE RESEARCH
COLLABORATION
STRATEGIC PLAN**

2022—2026

The Agreement

The Sustainable Marine Research Collaboration Agreement (SMRCA) is a collaborative agreement between the Crown and the University of Tasmania (University).

The Institute for Marine and Antarctic Studies (IMAS), as part of the University, is an independent research institute, with one of its objectives being to provide world class research to the Crown.

The SMRCA supports the effective and sustainable management of Tasmania's living marine resources so that the maximum benefit accrues to the Tasmanian community. This is achieved by providing fisheries, marine aquaculture, and supporting environmental research services to the Crown, the University, and to Indigenous, commercial and recreational seafood sectors.

The SMRCA aims to assist goals of the University and the Crown of encouraging new industry, effectively promoting Tasmania's advantages, and ensuring Tasmania's natural resources are managed in a sustainable way now and for future generations.

SMRCA research creates new ideas and provides new knowledge to balance economic, environmental, and social benefit to the community from Tasmania's living marine resources. The SMRCA extends into the community, drawing upon rich local resources to work locally, nationally, and internationally, acting as a catalyst for change, demonstrating leadership and serving the public good.

The SMRCA fishery and marine aquaculture research program is one of Australia's largest and most successful with total activities averaging more than \$10 million per annum and includes:

- An operational budget of the order of \$5M funded by the Tasmanian State Government and the University.
- The leverage of operational resources and infrastructure into an additional \$5M of externally funded research projects.
- A significant number of research higher degree projects.
- Significant research output that contributes to the attainment by the University of Tasmania of world class research in fisheries science.¹

¹ As assessed by the Australian Research Council's Excellence in Research for Australia evaluation which measures the quality of research produced by Australian universities against world standards. An ERA 5 score is evidence of outstanding performance that is well above world standard. UTAS received an ERA 5 score in each ERA evaluation.

Aims

Activities in the SMRCA advance the aims defined by the Department of Natural Resources and Environment Tasmania (NRE Tas) to:

- Cultivate prosperity in Tasmania's primary industries.
- Strike the right balance between social, economic and environmental values.
- Help people value, use and enjoy Tasmania's social, economic and environmental resources.

In addition to these aims taken directly from NRE Tas, the SMRCA also has aims linked to the University's requirement for IMAS research to have both scientific and community impact:

- Conduct world leading research.
- Conduct research to benefit the Tasmanian community.

Purpose

The purpose of activities in the SMRCA is to:

- Support world class sustainable development and management of Tasmanian marine resources for the benefit of the Tasmanian community

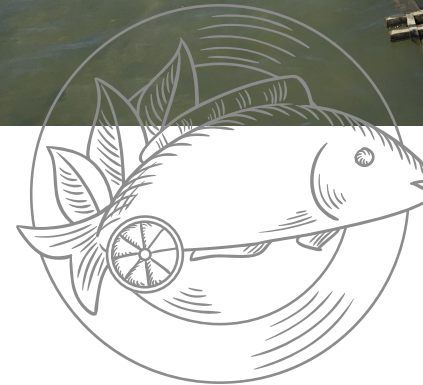
Priority areas

The Crown, through NRE TAS, has identified several priority areas that can be assisted by SMRCA research:

- Sustainable management and stewardship of all wild fisheries and marine aquaculture resources, including salmon, rock lobster, abalone, scalefish, oysters, urchins, scallops, mussels and seaweed.
- Co-management of Indigenous fisheries.
- Sustainable development of new Tasmanian commercial wild fisheries and aquaculture.
- Tasmanian marine recreational fisheries.
- Fisheries and aquaculture extension and communications.
- Integrated marine coastal resource information, with a priority on socio-economics and governance.
- Diversification of key seafood market access points to add value across the supply chain.

The University, through IMAS, has identified priority areas where SMRCA research contributes:

- To improve understanding of temperate marine, Southern Ocean, and Antarctic environments, their resources and their roles in the global climate system through research, education and outreach.
- Progress knowledge on the cultural, social, economic and ecological values from Tasmanian marine resources to the community.
- Deliver trained researchers, serving the needs of academic institutions, industry and the community.
- Develop relationships with the Tasmanian community and key stakeholder groups and national and international research networks to deliver world class academic research for Tasmania to the world.



Strategy to meet aims

Cultivate sustainable primary industries in Tasmania

Prosperity from our seafood industries is affected by the amount of product that is sustainably produced, utilised, or harvested, the cost of production or access, the price or other benefits that are obtained, and how these benefits are distributed through the community. Stability is also important for long-term prosperity so primary industries need to be sustainable and resilient.

Prosperity for the seafood sector will be maximised through research which promotes:

- Improvements in marine resource usage through transparent and sustainable environmental and resource management, fish health and biosecurity measures, risk management and harvest strategies.
- Growth through development and innovation to increase yield and production through robust science, understanding community values and the exploration of developmental fisheries opportunities.
- Reducing costs by identifying efficiencies across all aspects of seafood harvesting, production, management and governance.

Strike the right balance between social, economic and environmental values

Information to support decision making that maximises benefits to the Tasmanian community from its living marine resources by:

- Understanding trade-offs, especially between different users, employment vs economic yields, employment vs environment impacts, and social impacts. Understanding trade-offs leads to targeted reference point setting.
- Develop metrics and monitor social, economic and environmental performance that balances the security of those who access resources with community needs.
- Economic assessments of the distribution of benefits from marine resources.

Ecologically sustainable development

- Assessments and harvest strategies that address by-product, bycatch, protected species, habitat and ecosystem.
- Understanding marine aquaculture environmental interactions.

Optimal sharing of stocks and spatial areas between different users

- Identify the benefits and values to all stakeholders, such as the spatial allocation for aquaculture.
- Models to inform understanding of resource sharing.
- Decision making tools that maximise benefit to the community including direct usage by recreational and Indigenous fishers.

Help people value, use and enjoy Tasmania's social, economic and environmental resources

Understanding Tasmania's marine resources by

- Promoting marine literacy through targeted and expanded marine science communications and extension.
- Improving knowledge of Tasmanian marine environmental values.

Experiencing Tasmania's marine resources by

- Improving community accessibility to marine science information.
- Training and developing future participants in marine resource industries.

Celebrating Tasmania's marine resources by

- Promoting pride in our marine resources and environments, as well as the benefits of healthy marine systems and sound stewardship



How the SMRCA interacts with NRE Tas and the University of Tasmania

The aims, purpose and priority areas of the SMRCA are shaped by strategic plans of NRE TAS and the University.

IMAS aims for research that contributes *“tangibly to a more efficient, profitable, and sustainable suite of marine industries in Tasmania and across Australia”*². This fits comfortably with the aims of NRE TAS to *“cultivate prosperity in Tasmania’s primary industries”*, striking *“the right balance between social, economic and environmental values”* and helping *“people value, use and enjoy Tasmania’s social, economic and environmental resources”*³.

These aims of the two organisations are combined within the objectives of the Collaboration Agreement to:

- (a) Undertake world-leading temperate marine and coastal research.
- (b) Support the effective and sustainable management of Tasmanian living marine resources and ensure that the maximum benefit accrues to Tasmania.
- (c) Support the Crown’s legislative and administrative obligations under the *Living Marine Resources Management Act 1995* and the *Marine Farming Planning Act 1995*.
- (d) Assist in developing and encouraging new industry, marketing Tasmania’s advantages, and ensuring Tasmania’s natural resources are managed for future generations.

Research needs are developed with input from Research Advisory Groups, which have representation from major stakeholder groups.

The Research Advisory Groups make recommendations on research priorities and on industry development issues within the framework of the SMRCA Strategic Plan. This role includes fostering collaboration between research institutions, providing advice to funding agencies on priorities, advice on method of relevant proposals, and assisting in extension of research findings.

² IMAS Strategic Plan, 2017-2022.

³ DPIPWE Corporate Plan, 2018-2022.

Applying the Strategic Plan

The SMRCA Strategic Plan will shape our research for the next four years. It will strengthen and prepare the management of Tasmanian marine resources for future challenges and opportunities (Refer Appendix –Trends in Seafood Sectors). It will be extended through a range of processes including:

- Closer collaboration between NRE Tas and IMAS staff, including on research investment and project outputs, but also through enhanced communications and extension initiatives, forums and workshops, field trips, hot desking and regular meetings.
- Informing marine resource management and policy development, including rapid research-based responses to emerging marine resource needs.
- Investment in infrastructure and resources to conduct research.
- IMAS and NRE Tas collaboration using Research Advisory Group (RAG) discussions to shape the annual operating plan.
- Engaging with FRDC's Tasmanian Research Advisory Committee (TasRAC).
- Regular reviews of individual projects and the portfolio of research activity, as well as prioritising projects submitted to SMRAC and to grant providers.
- Ensure capacity is available for research beyond biology, including continued support for socio-economic perspectives in marine resource management.
- Defining the skill sets we need in the team so that our capability can evolve, including attracting the next generation of marine scientists and students to IMAS.
- Increased collaboration with other researchers and experts at UTAS, including Centre for Marine Socioecology, Cooperative Research Centres and the Australian Maritime College.
- UTAS to leverage its global footprint by working with the Tasmanian Government on shared international priorities



Measures of success

The SMRCA will regularly measure the success of its strategies to meet its aims.

Key performance measures:

Financial

- Cost benefit analysis (CBA) of main elements of the SMRCA research program investment (usage benefits of research outputs).
- The level of external funding leveraged by SMRCA resources (a target to be both competitive and sustainable)⁴.
- An alignment of SMRCA investments to areas of most impact using market capitalisation (commercial fisheries), participation (recreational fisheries), and SMRAC guidance (e.g. developmental fisheries such as seaweed or Indigenous fisheries).
- >3% annual efficiency in core activities⁵.

Non-Financial

- The SMRCA maintains its outstanding performance that is well above world standard as measured by its ERA scoring provided this is not achieved at the expense of impact⁶.

- Annual Operational Plan is approved by the IMAS Board.
- At least 80% of SMRCA project and program milestones are completed on time.
- SMRCA research used in NRE TAS fisheries and aquaculture management decisions.
- The value of NRE TAS fisheries and aquaculture management decisions (e.g. total allowable catches, size limits), that involve explicit input of SMRCA research.
- The SMRCA Communication Plan is current and implemented.
- SMRCA stakeholders agree that SMRCA projects are well communicated.
- Research Advisory Groups (RAGs) are assessed by stakeholders as meeting the needs of the community, industry and government.
- SMRCA stakeholders agree that the SMRCA is appropriately responsive to a tactical research request (e.g. responding to the need to sample harmful algal blooms).

Recreational angler Damon Sherriff with donated snapper.



- 4 The target will be assessed annually by the Advisory Committee and will be based on reference to comparable research programs. A leverage ratio of between 2-3 of SMRCA resources is initially targeted.
- 5 Efficiencies in the core program to be identified through project and program independent reviews.
- 6 As assessed by the Australian Research Council's Excellence in Research for Australia evaluation which measures the quality of research produced by Australian universities against world standards. An ERA 5 score is evidence of outstanding performance that is well above world standard.

Appendix to the SMRCA Strategic Plan (2022–2026)



Trends in Seafood Sectors

The SMRCA Strategic Plan (2022–2026) considers how research supported through the SMRCA can prepare the Tasmanian seafood sector for changes that will occur during the next 20 years. We need to be responsive to drivers of change, including:

The internationalisation of seafood

Seafood has become one of the most traded food categories – seafood from Tasmanian wild commercial fisheries is now mainly directed to export markets. Farmed Tasmanian seafood supplies domestic markets around Australia but is also distributed overseas. In terms of consumption, most seafood eaten by Australians is now imported. This affects the way that marine resources provide benefit to the community. Consumers of commercially produced Tasmanian seafood now mainly reside out of the jurisdiction, so the benefit to the Tasmanian community is now mainly through employment and profitability of firms. This contrasts to the way commercial seafood industries were historically viewed, which was more around food security.

Seafood trade pathways and supply chains are evolving in response to international trade-deals and barriers that can change rapidly. Commercial producers are finding that success is not assured with global best practice.

Internationalisation of seafood trade affects the way food is handled due to the increased need to track product and demonstrate food safety to meet changing market demands and expectations. Issues like toxic algae, organic certification, environmental certification and fish welfare are increasingly important as markets evolve and as global distribution increases.

Consumer preference is increasingly important as growth in supply outstrips growth in demand

Consumers have greater access to seafood now, not only through trade, but also because production is rising faster than demand (through rapid growth in aquaculture). Population growth in the important seafood market of China has ceased and will begin to decline in the years ahead of this plan. This increases competition amongst suppliers in the international marketplace and has created

pressure on prices, leading to falls in real price of many globally traded species such as abalone, salmon, white fish and prawns. However, this marketplace driver is complicated. Supply of some species, notably lobster, is constrained so that price is more affected by international politics than supply. There are also some species of seafood that have achieved “brand” status so are not substitutes for other seafood product. For example, flathead has become a well-known species, has found greater status in the marketplace, supply is constrained, and price has risen.

The challenge here for producers and the research that supports them is to be aware of the importance of consumer preference and to respond to changes.

Beyond sustainability

Australian fisheries management is moving beyond just ensuring stocks are harvested sustainably.⁷ The Australian Fisheries Management Forum has promoted a range of projects to progress management across all jurisdictions.

This national agenda is driving harmonisation across harvest strategies, fish stock status reporting, management of by-catch, science standards, risk assessments, governance, ecosystem based fisheries management, and economic methods.

These drivers are especially important for harvest strategies, which are needed for all sectors of all our fisheries (including limit and target reference points, plus decision rules, based on accepted standards). These usually require economic and social input to select targets and identify aspirations for fisheries. Harvest strategies may need to conform to science standards in the future, which means greater independence of the process from fishers and more independent scrutiny. They need to use accepted, standard processes for measuring and managing interactions with by-catch, protected species, habitats, and ecosystems.

Management will need to be designed to be resilient to dynamic processes such as change in fleet distribution, technological advances, market trends, or stock changes as well as complex natural challenges such as from climate change or disease.

The battle against commodity

Tasmanian seafood tends to be marketed/sold as a premium product. Despite this status, producers in many Tasmanian seafood sectors believe the product often behaves in the marketplace as a commodity in the sense that it is readily substituted by consumers with product from elsewhere. Tasmanian seafood producers aspire to shift their position towards products where branded traits such as provenance, quality, safety and sustainability are valued.

Research in marine resources has tended to focus on producers/harvests but the battle against commodity involves engaging the whole chain from processors through to retailers. This has been critical to successful approaches where provenance is emphasised.

The importance of community acceptance

Public scrutiny of aquaculture and fisheries has never been more intense so the seafood sector must effectively respond to changing community expectations. Aquaculture and fisheries must continue to play an important role in community health and wellbeing.

⁷ Sustainability is defined in Australia as where the “Stock is at a level sufficient to ensure that, on average, future levels of recruitment are adequate (i.e. not recruitment overfished) and for which fishing pressure is adequately controlled to avoid the stock becoming recruitment overfished”. www.fish.gov.au.

It's also an opportunity to promote aspects of Tasmanian marine resources where we are leaders.

This scrutiny could require more explicit consideration of the balance of social, economic, and environmental issues such as:

- The targets or objectives of benefit from our living marine resource industries. These tend to be focused on the producer but there may need to be greater consideration of benefits to the wider community.
- Improved communication systems and public transparency of industry (e.g. water quality, protected species interactions, stock concerns).
- Third party certification and *Environment Protection and Biodiversity Conservation Act 1999* reporting (or meeting benchmarks some other way).
- Emerging issues, such as monitoring and management of CO₂ emissions, fish welfare, life cycle analyses, source of inputs, labour force safety and ethics.
- Food safety.

Technology

Developments in technology are expanding the type of research and improving efficiency and cost of production, that is feasible and directly impacting on our living marine resources:

- Individual tracking of fishers and product is changing the management of harvests and supply chains (e.g. sharing of catch data in abalone industries, traceability for food safety, marketing of product).
- Telemetry and miniaturised transponders are creating new approaches to biological research and decision support systems (e.g. physiology of Maugean skate, biosensors).
- Computing power (e.g. evaluation of management options for East Coast ecosystem recovery, modelling of the dispersal of lobster larvae, dispersal and current flows around marine farms).
- Genetics and molecular techniques (e.g. selective breeding, population dynamics).
- Ocean and ecosystem modelling (e.g. Integrated Marine Observing System facilities).

Environmental risks

Marine systems are naturally highly variable which creates challenges for management and seafood sectors. Aside from normal variation, living marine resource industries can experience shocks in production or events because of changes to the marine ecosystems, including climate change. There are research opportunities here around building resilience into systems and preparedness. Examples of shocks or changes in production and responses are:

- Changes in patterns of recruitment due to changing ocean conditions (temperature, salinity, currents, tides), much due to climate change.
- Disease outbreaks (e.g. Pacific Oyster Mortality Syndrome, Abalone Viral Ganglioneuritis).
- Toxic algal bloom closures.
- Environmental shocks (e.g. marine heatwaves and circulation events in Salmon).
- Market closures (e.g. SARS, border closures, and food health scares).





Preparedness for these changes can include diversity in markets and products and contingency planning. It is clear that resilience to shocks in wild fisheries is linked to the design of the harvest strategy. Fisheries with high standing stocks do not need to adjust quotas as recruitment rises and falls. Preparedness in aquaculture can involve development of new stock lines and diversity of sites/systems.

Rising recognition of Indigenous values

Support for the Indigenous use of marine resources is overdue and an increasingly important aspect of marine resource management in Australia. Issues include:

- Access, especially in the context of colonial allocation of harvest rights.
- Indigenous usage occurs at many scales including recreational, commercial and cultural usage.
- Indigenous cultural usage may be optimised by harvest strategies with different targets to those for commercial or recreational usage. For example, shore based harvest of shellfish requires biomass targets higher than that which would deliver commercial maximum economic yield.

- Some Indigenous marine resource issues are unique to Tasmania and imply specific research capability – for example to manage the risk of toxic algae in shellfish harvests.

Rising recreational catch, effectiveness of effort, value and influence

There has been a substantial shift in Tasmanian scalefish harvests in the last few decades with contraction in the scale and economic value of the commercial sector and the development and growth of the recreational fishing sector. This shift involves change across many aspects of the fishery including:

- Diversification of species, sometimes with greater effort onto those with less understood biology or concerns on stock status, e.g. striped trumpeter.
- Shift in economic considerations, with economic yield more linked to strike rate and participation than total catch for food.
- Change in fleet patterns with impacts more concentrated around access points, especially East Coast.
- Reporting and monitoring challenges from the large number of participants.

- Different issues with management of by-catch, habitat impact, threatened/endangered/protected species interactions, and ecosystem interaction.

Business structures, ownership and flows of economic yield

The Tasmanian commercial seafood industry was historically a fleet of owner operators harvesting wild catch from regional areas and providing economic benefit and seafood to those areas. This has changed with consolidation of marine aquaculture producers into a smaller number of firms, while quota ownership in the wild commercial sector is now mainly separated from fishing businesses, and with amalgamation and consolidation of the fishing fleet. The position of Tasmanian seafood industries along the continuum from owner-operator to corporate quota holdings is controlled by policy settings and have been managed.

Beneficiaries of the economic yield from commercial seafood producers are increasingly located out of the jurisdiction. Business structures are becoming more complex with vertically integrated and international companies involved through the

supply chain. Ownership structures of both wild catch and marine aquaculture producers are now often complex and increasingly include large companies, sometimes publicly listed or based overseas.

The converging of fisheries and aquaculture

The traditional distinction between marine aquaculture and fisheries is increasingly blurred across Australia. For example:

- Enhancement of recreational fisheries with fingerlings and habitat.
- Translocation of lobster stock to faster growth regions.
- Grow-out of wild captured urchins and tuna.
- Abalone ranching on artificial reef.
- Holding fish to improve condition.

These changes present opportunities for increasing production, improved quality and continuous supply. However, there can also be biosecurity issues such as disease risk and impacts on genetics of wild stock and complexities with respect to policy, management and regulation.

Changing demographics and values

Changing values and demographics in the community affect usage of marine resources in ways that can be difficult to predict but can create opportunities. For example:

- The expansion of sushi consumption globally has opened new markets for tuna and other seafood.
- Large scale fish releases for Buddhist events in NSW creating demand for hatchery fish and also need for biosecurity management.
- Apartment design in Korea has shifted demand away from traditional species with strong smell (e.g. mackerel) to cephalopods.
- More generally, the landscape is changing in the way the community values natural resources with more scrutiny of issues such as animal welfare and wastage.

Funding of marine resource research

Government funding for living marine resource management and research has been in general trending downwards during the last decade. This has been variable between Australian jurisdictions with large declines in funding in some and relative stability in others.

This trend in funding has led to structural changes in the way marine resource research is being conducted, which includes:

- Changes in cost-recovery systems.
- Outsourcing of research services with a resultant increase in consultant research providers and government tenders.
- Greater emphasis on research extension in consideration of project funding.
- Efforts by government to encourage collaboration between jurisdictions and reduce duplication to promote efficiency and maximum return from available research investment.



Tagged fish release. Photo: Dennis Heinicke.



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