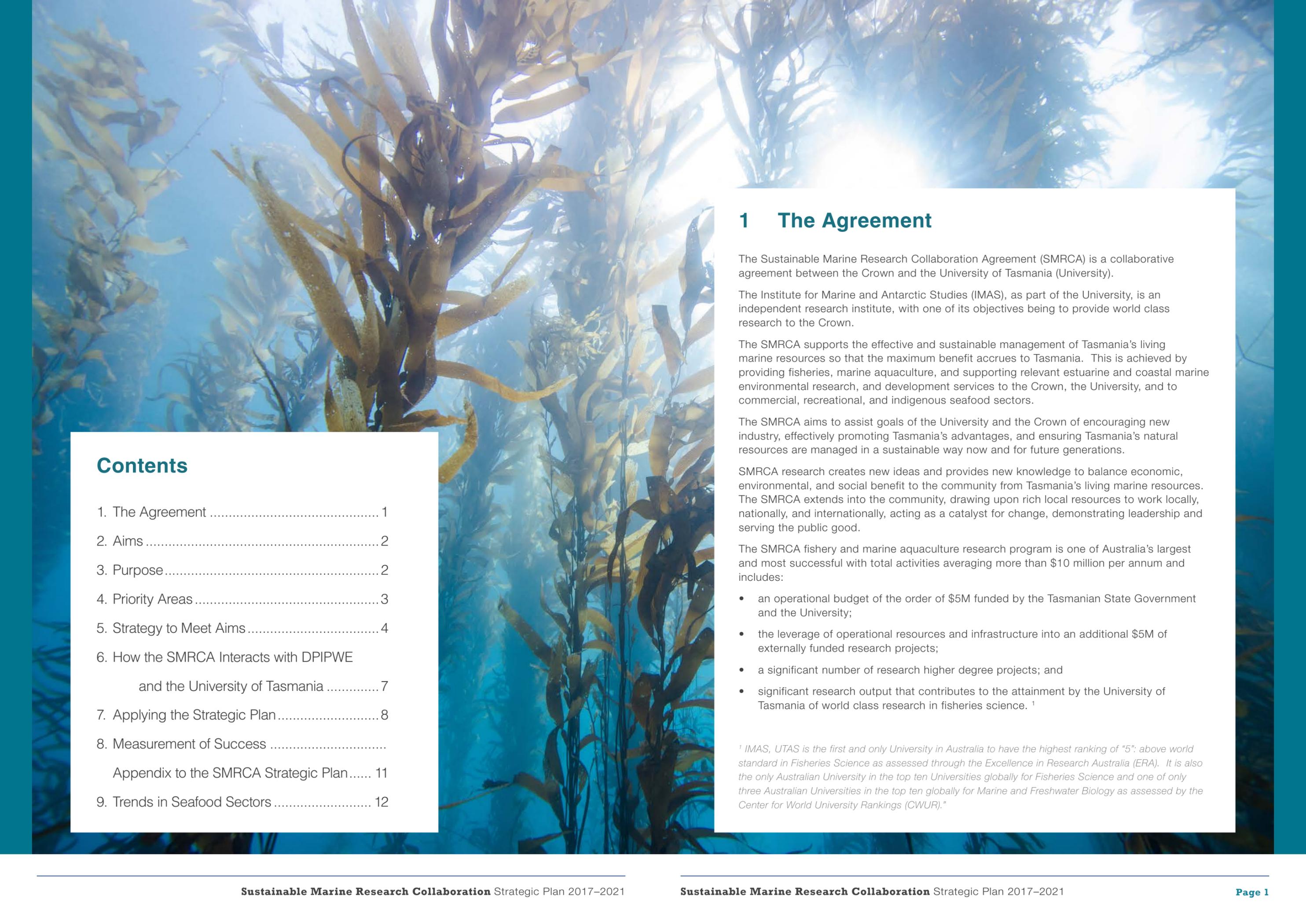


# Sustainable Marine Research Collaboration

Strategic Plan (2017-2021)

WORLD CLASS MARINE AND ANTARCTIC EDUCATION AND RESEARCH





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## 1 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 Tasmania. This is achieved by providing fisheries, marine aquaculture, and supporting relevant estuarine and coastal marine environmental research, and development services to the Crown, the University, and to commercial, recreational, and indigenous seafood sectors.

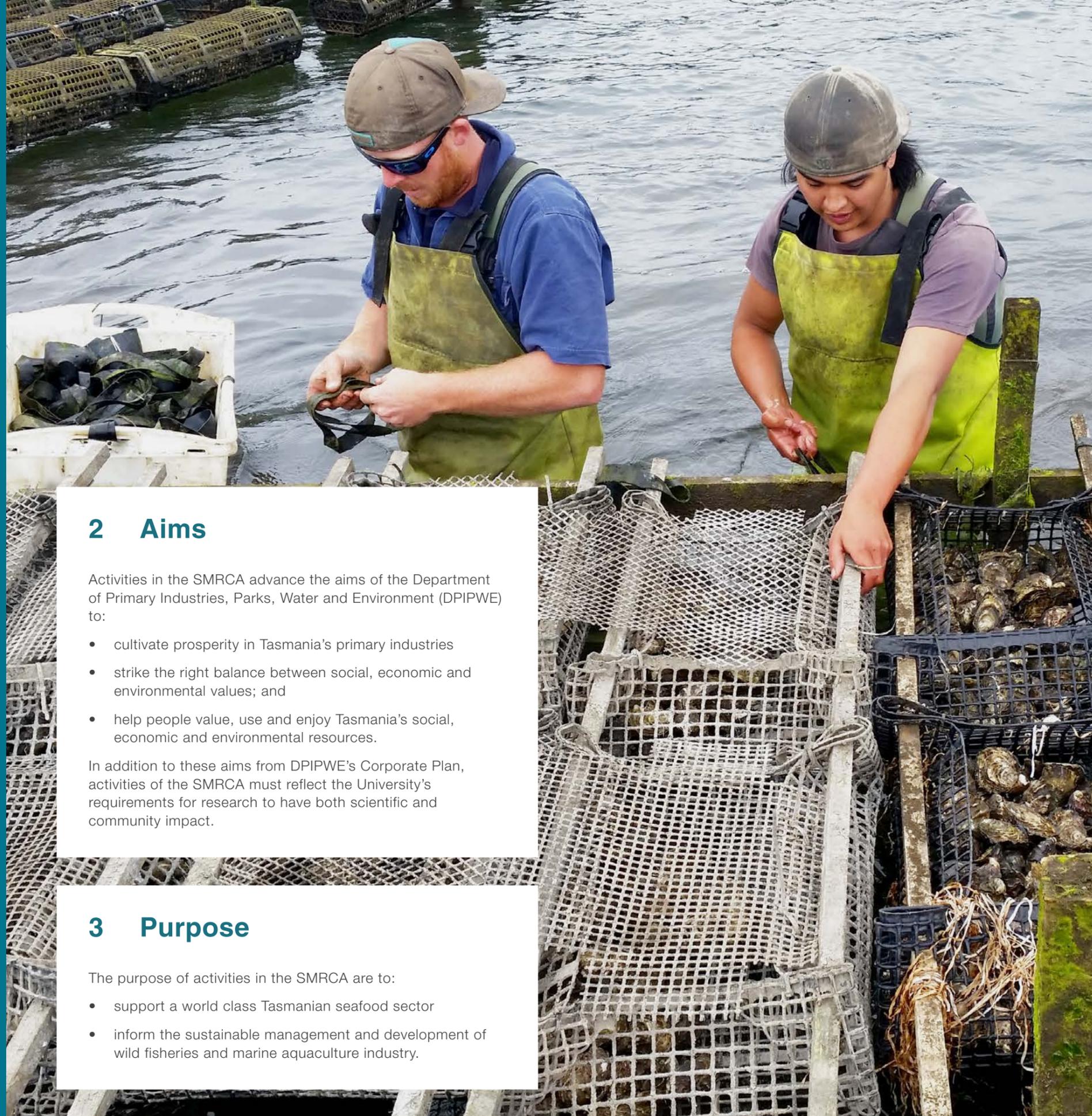
The SMRCA aims to assist goals of the University and the Crown of encouraging new industry, effectively promoting Tasmania's advantages, and ensuring Tasmania's natural resources are managed in a sustainable way now and for future generations.

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; and
- significant research output that contributes to the attainment by the University of Tasmania of world class research in fisheries science. <sup>1</sup>

<sup>1</sup> *IMAS, UTAS is the first and only University in Australia to have the highest ranking of "5": above world standard in Fisheries Science as assessed through the Excellence in Research Australia (ERA). It is also the only Australian University in the top ten Universities globally for Fisheries Science and one of only three Australian Universities in the top ten globally for Marine and Freshwater Biology as assessed by the Center for World University Rankings (CWUR).*"



## 2 Aims

Activities in the SMRCA advance the aims of the Department of Primary Industries, Parks, Water and Environment (DPIPWE) to:

- cultivate prosperity in Tasmania's primary industries
- strike the right balance between social, economic and environmental values; and
- help people value, use and enjoy Tasmania's social, economic and environmental resources.

In addition to these aims from DPIPWE's Corporate Plan, activities of the SMRCA must reflect the University's requirements for research to have both scientific and community impact.

## 3 Purpose

The purpose of activities in the SMRCA are to:

- support a world class Tasmanian seafood sector
- inform the sustainable management and development of wild fisheries and marine aquaculture industry.

## 4 Priority Areas

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

- management and stewardship of all commercial wild fisheries and marine aquaculture including oysters, salmon, scallops, rock lobster, abalone, scalefish, and mussels
- further development of the Tasmanian salmonid marine farming industry
- developmental commercial fisheries
- Tasmania's marine recreational fishery
- an east coast rock lobster translocation program
- socio-economic information on the Tasmanian marine recreational fishery
- transition commercial fisheries into the digital age
- evaluate biosecurity risks for all seafood sectors.

The University, through IMAS, has further identified areas through which it can assist with SMRCA research:

- 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
- contribute to sustainable fisheries and aquaculture development and management in Tasmania, the rest of Australia, and the Southern Ocean
- establish and maintain broad-ranging and relevant collaborations and networking
- deliver trained researchers, serving the needs of academic institutions, industry, government and the community
- respond to stakeholder needs and, therefore, enhance the reputation of the University of Tasmania, the State of Tasmania, and Australia.

Additional specific priorities for the SMRCA identified by the Sustainable Marine Research Advisory Committee include:

- marine mammal interactions
- environmental ecosystem changes in the coastal environment
- changes in the productivity of fish stocks.

## 5 Strategy to Meet Aims

### 5.1 Cultivate prosperity from Tasmania's primary industries

Prosperity from our seafood industries is a complex interaction of the amount of product that is sustainably produced, utilised, or harvested, the cost of production or access, and the price or other benefits that are obtained. 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:

Growth through:

- marine aquaculture industry development and innovation
- novel methods to increase production such as translocation and enhancement
- improved fishery performance and yield
- tailoring wild harvesting to changes in population biology
- developmental fisheries opportunities.

Reducing costs of production:

- efficient management, innovation, regulation and governance
- efficient fleets, and utilisation of resources supply chains, production methods, and logistics
- improved survival, performance metrics, and improved efficiencies for aquaculture industries.

Improving price:

- post-harvest practices and supply chain
- supporting environmental accreditation
- ensuring food safety and quality
- tailoring wild harvests to market dynamics/demand
- protection of provenance.

Stability and surety for marine resource industries:

- target species sustainability
- risk management
- resilience to shocks, environmental effects, and climate change
- fish health and biosecurity
- transparent decision processes
- maintaining ecosystem productivity
- harvest strategies that aim to maximise social and economic benefit to the Tasmanian community through global competitiveness and best practice
- robust and contemporary resource management and monitoring systems.

### 5.2 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:

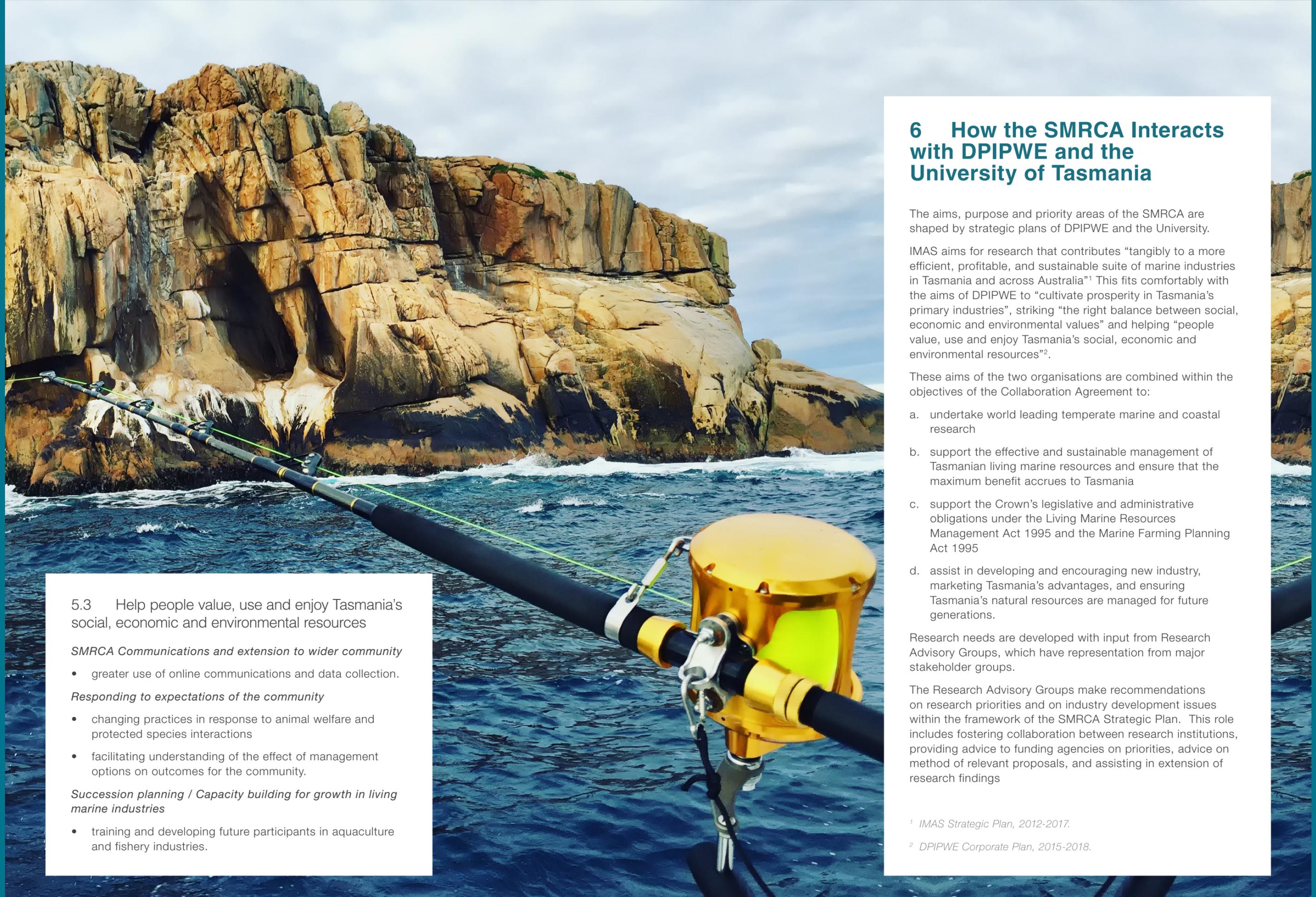
- understanding trade-offs, especially between employment and economic yields, or employment and environment
- develop metrics and monitor social, economic and environmental performance.

Ecologically sustainable development

- harvest strategies that address by-product, bycatch, protected species, habitat and ecosystem
- understanding marine aquaculture environmental interactions
- support to living marine resources planning and long-term access to the marine resource.

Optimal sharing of stocks and spatial areas between different users

- identify the benefits and values to all stakeholders
- models to inform understanding of resource sharing
- decision making tools to maximise recreational and indigenous benefit.



## 6 How the SMRCA Interacts with DPIPWE and the University of Tasmania

The aims, purpose and priority areas of the SMRCA are shaped by strategic plans of DPIPWE 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”<sup>1</sup> This fits comfortably with the aims of DPIPWE 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”<sup>2</sup>.

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

<sup>1</sup> IMAS Strategic Plan, 2012-2017.

<sup>2</sup> DPIPWE Corporate Plan, 2015-2018.

### 5.3 Help people value, use and enjoy Tasmania’s social, economic and environmental resources

#### *SMRCA Communications and extension to wider community*

- greater use of online communications and data collection.

#### *Responding to expectations of the community*

- changing practices in response to animal welfare and protected species interactions
- facilitating understanding of the effect of management options on outcomes for the community.

#### *Succession planning / Capacity building for growth in living marine industries*

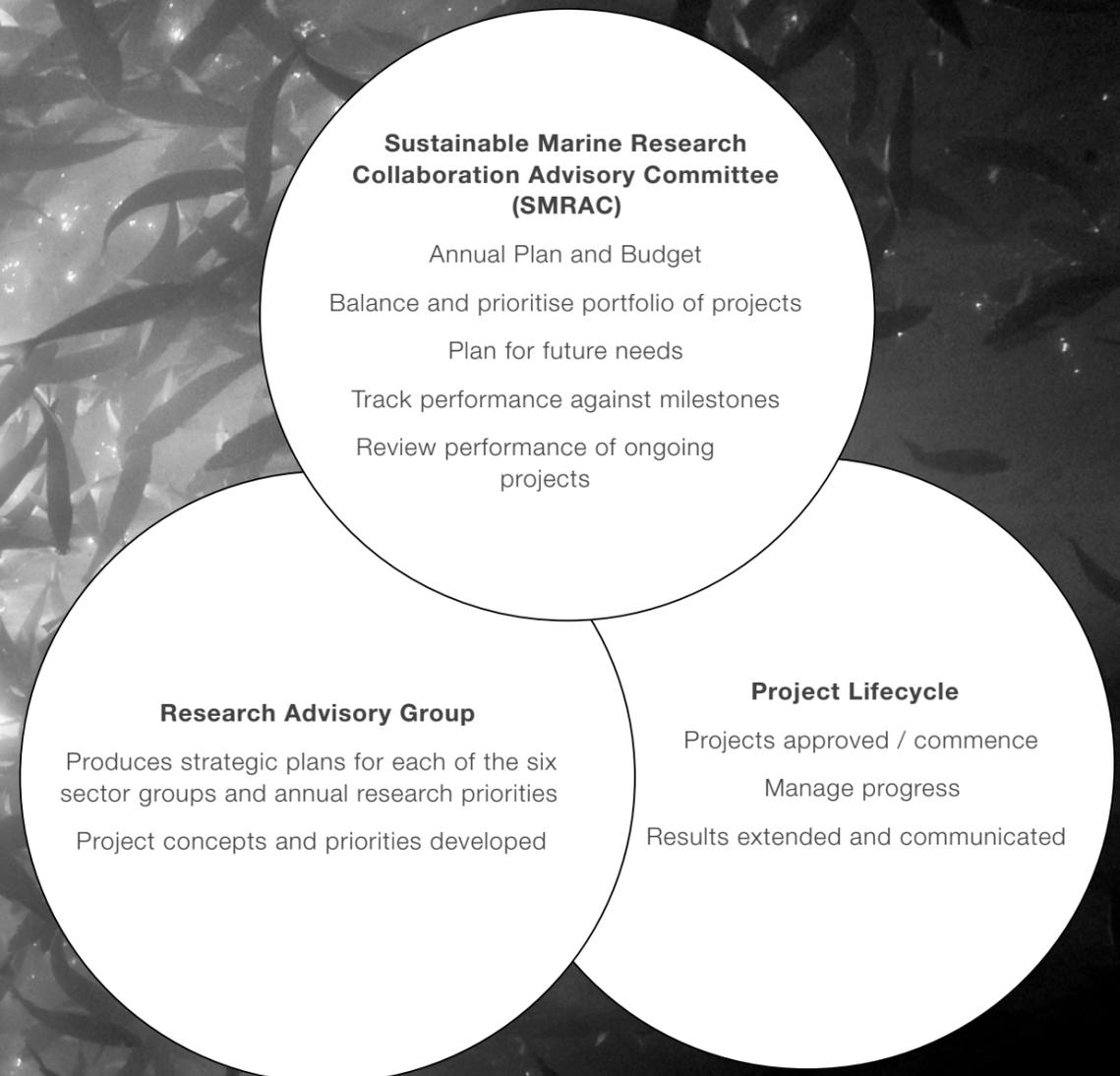
- training and developing future participants in aquaculture and fishery industries.

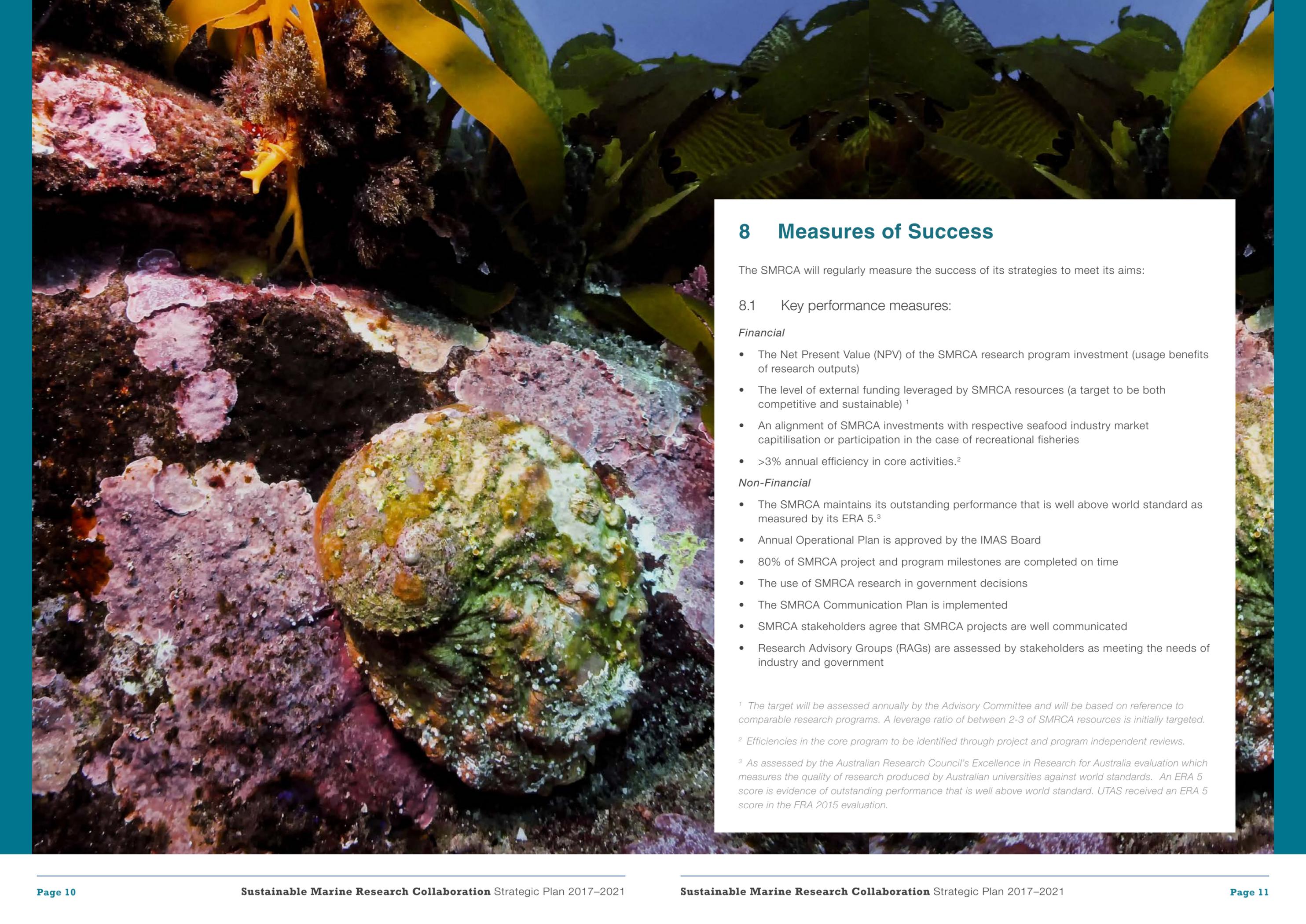
## 7 Applying the Strategic Plan

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

- Research Advisory Group discussions and alignment of their research plans
- directing investment in research
- shaping the annual operating plan
- guiding areas of collaboration
- prioritising projects submitted to the Advisory Committee of the SMRCA and to grant providers
- defining the skill sets we need in the team so that our capability can evolve
- required infrastructure and resources
- regular reviews of individual projects and the portfolio of research activity
- informing policy development.

The portfolio of research projects supported by the SMRCA is developed using input from advisory groups that represent all sectors. There is oversight of resourcing and performance by an advisory committee. Projects have varying lifecycles and as one is completed, resources are shifted to other research needs.





## 8 Measures of Success

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

### 8.1 Key performance measures:

#### *Financial*

- The Net Present Value (NPV) 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) <sup>1</sup>
- An alignment of SMRCA investments with respective seafood industry market capitilisation or participation in the case of recreational fisheries
- >3% annual efficiency in core activities.<sup>2</sup>

#### *Non-Financial*

- The SMRCA maintains its outstanding performance that is well above world standard as measured by its ERA 5.<sup>3</sup>
- Annual Operational Plan is approved by the IMAS Board
- 80% of SMRCA project and program milestones are completed on time
- The use of SMRCA research in government decisions
- The SMRCA Communication Plan is implemented
- SMRCA stakeholders agree that SMRCA projects are well communicated
- Research Advisory Groups (RAGs) are assessed by stakeholders as meeting the needs of industry and government

<sup>1</sup> 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.

<sup>2</sup> Efficiencies in the core program to be identified through project and program independent reviews.

<sup>3</sup> 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 the ERA 2015 evaluation.

## Appendix to the SMRCA Strategic Plan (2017-2021)

### 9 Trends in Seafood Sectors

The SMRCA Strategic Plan (2017-2021) 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:

#### 9.1 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 has a larger domestic market 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 with new international trade-deals that are reducing tariffs. 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.

#### 9.2 Consumer preference 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). This increases competition 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 has increased. 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.

#### 9.3 Beyond sustainability

Australian fisheries management is moving beyond just ensuring stocks are harvested sustainably. 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 bycatch, 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 bycatch, 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.

## 9.4 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 is mainly marketed as a commodity. They aspire to supply chains more similar to that of other high quality food where branded traits such as provenance, quality, safety and sustainability are marketed.

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.

## 9.5 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. 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.

## 9.6 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, such as their data portal and Marine Virtual Laboratory (MARVL)).

## 9.7 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, e.g., Western Rock Lobster experienced record low settlement from 2006-10 but this has had no effect on fishery economic yield – because their current harvest strategy is resilient. Preparedness in aquaculture can involve development of new stock lines and diversity of sites/systems.

