

NSW Commercial Wild-Harvest Fishing

Research, Development & Extension
Strategic Plan

2018-2023

About the NSW Commercial Wild-Harvest Fishing Industry

Its vision:

A profitable and internationally competitive seafood industry that is innovative, socially resilient and uses fisheries natural resources in an ecologically sustainable way

Its business environment:

- The NSW commercial wild- harvest fishing industry (industry) is primarily made up of about 800 small family businesses whose success relies upon high levels of local knowledge and skills learnt over many generations. These businesses use some of the most environmentally sound technology available, such as world leading by-catch reduction devices, and operate under stringent controls regarding their fishing times, seasons, equipment and reporting requirements.
- The industry recognises that its economic viability, profitability and sustainability depend on sound fisheries management and community support. Consequently, the industry is striving to work closely with the Department of Primary Industries (DPI), OceanWatch Australia and other relevant organisations to continually improve the environmental performance of fisheries.
- The industry is supported by world class research capabilities including those that can be drawn from other states and territories and from overseas, and it contributes more than \$200,000 each year to the Fisheries Research and Development Corporation (FRDC) for which it receives more than twice the amount in the cost of end-user driven research, development and extension (RD&E). Industry, DPI and research providers also make significant in-kind contributions to RD&E.
- The industry underpins the economy of many coastal towns providing wealth, services and employment in places, and at times of the year, where there is little other economic activity. The industry generates over half a billion dollars of economic activity each year,

employing more than 4000 people. Of this, the industry is worth more than \$90 million dollars at first point of sale and over \$500 million for its flow on benefit to the NSW economy. See below for total production and value figures over the past eight years.

- NSW has a subtropical-temperate climate that produces a wide range of commercial species some of which are shared by the recreational and Indigenous customary sectors.
- The health benefits of seafood are well known and so commercial fishers, wholesalers, processors and retailers, work together with the restaurant and catering industry to ensure NSW seafood is made available to consumers throughout the State as well as to interstate and overseas markets. NSW has the highest seafood consumption in Australia and is the foremost Australian state for seafood sales.

Its key challenges:

1. Establishing and maintaining secure, rights-based access to and allocation of aquatic resources
2. Encouraging an all-inclusive approach to fisheries management
3. Understanding, protecting and enhancing productivity of aquatic ecosystems
4. Improving community and government knowledge about, and support for, the industry and the aquatic resources on which it depends
5. Attracting, maintaining and developing a skilled workforce in and supporting the industry
6. Developing industry leadership and a united advocacy capacity
7. Creating and spreading consumer respect and demand for NSW wild-harvest seafood products
8. Optimising the profitability derived from targeted and discarded species and processing waste through value adding, market development and consumer awareness
9. Ensuring seafood products are safe and of high-quality
10. Competing with low cost imported products with no mandatory transparency in provenance in the food service sector
11. Identifying new and existing technologies to improve practices and performance
12. Fostering a culture of marine safety
13. Strengthening the industry's capacity to respond to and manage pests and disease outbreaks
14. Strengthening the industry's capacity to adapt and respond to major changes to its business environment

About this Plan

- This plan provides guidance for the development and implementation of RD&E in support of the NSW commercial wild-harvest fishing industry.
- This plan was developed at a workshop on the 6 - 7 March 2018 hosted by the Professional Fishermen's Association (PFA) with funding from the FRDC and considering:
 - advice from commercial fishers, NSW DPI staff, other stakeholders and experts;
 - NSW Fisheries Research Strategic Plan 2014-2018;
 - National RD&E Strategy for Fishing and Aquaculture 2015-20;
 - FRDC RD&E Plan 2015-20;
 - other relevant plans or RD&E reviews; and
 - completed, current and planned RD&E and related activities
- Highlighted in the plan are the RD&E priorities for individual fisheries and common to all fisheries, and attempts have been made to arrange these priorities under the FRDC RD&E programs. Consequently, in several cases the priorities maybe relevant to more than one program.
- The plan will be used collaboratively by industry sectors and enterprises, research organisations, relevant government agencies and others working in support of the industry. It will form a component of the NSW Research Advisory Committee's (RAC) plan and will help to inform the RAC's recommendations to the FRDC for funding.
- The plan will be reviewed each year to ensure that it remains relevant to end-users.
- Copies of this plan are available from the PFA as a download from www.nswpfa.com.au.
- During the consultative and development processes several priorities were identified that were not RD&E by nature, but rather related to activities that would nevertheless enhance the resilience and performance of the industry, and importantly, better enable it to participate in the planning and execution of RD&E and the adoption of results. These 'enabling' priorities have, therefore, been included in this plan.

Plan framework

The framework is based on the 'input – output - outcome' model of investment. In this context:

- Inputs are the resources – in the form of people, expertise, materials, energy, facilities and funds – that research organisations and their partners use in activities to produce outputs.
- Outputs are the goods and services – mainly knowledge, processes and technology – that research organisations and their partners produce for end-users.
- Outcomes are the results, impacts or consequences flowing from the adoption of outputs by end-users.

RD&E investment performance

The ability to measure RD&E investment performance depends on the quantity and quality of available data. Further, it depends on the nature of the activity. For example, the performance of an activity with a strong public good component would be more difficult to measure (usually qualitative) than one with a strong private benefit component (usually quantitative). The key performance indicators (KPI) described below are a guide only to how performance could be measured. Ideally, such indicators with targets should be detailed in individual projects.

As indicated in the program framework below, the balance between the public good and private benefit components of RD&E varies between programs and priorities. As a rule, public good RD&E attracts a higher government investment than private benefit. Therefore, for RD&E with strong private benefit components to attract government investment, there needs to be evidence of market, institutional, technical, policy or political failure.

Environment

Program outcome: The aquatic resources on which the industry depends are healthy, productive, valued and responsibly used.

Outputs Knowledge, processes and technology relating to:	Fisheries management structures, processes and technologies	Industry structures, processes and technologies	Aquatic ecosystems health	Aquatic animal health and welfare
Fishery	Sectoral Priorities			
Abalone Fishery Sea Urchin and Turban Shell Restricted Fishery	Develop and adopt new technologies to reduce costs and resources to capture and use detailed activity information Progress co-management ¹ Develop, where relevant, effective harvest strategies ² to increase maximum sustainable economic yield Improve the knowledge of commercial and non- commercial harvest of targeted and non-targeted species	Progress co-management Investigate third-party environmental certification	Restore balance of habitat to increase yield for abalone and sea urchin	Maintain and advance biosecurity preparedness in the industry
Estuary General Fishery			Improve understanding of environmental input processes on health and yield of product Develop techniques to improve the abundance and health of supportive habitat Improve understanding of gear impact on harvest, other aquatic resources and ecosystems, and possible alternate techniques	Maintain and advance biosecurity preparedness in the industry Develop and maintain welfare standards (NOTE: link to the Australian Animal Welfare Aquatics Committee)

¹ Note 1: Fisheries co-management is defined as an arrangement in which responsibilities and obligations for sustainable fisheries management are negotiated, shared and delegated between government, fishers, and other interest groups and stakeholder

² Note 2: A harvest strategy is defined as a framework that specifies the pre-determined management actions in a fishery for defined species (at the stock or management unit level) necessary to achieve the agreed ecological, economic and/or social management objectives

Estuary Prawn Trawl Fishery		Progress co-management	<p>Improve understanding of environmental input processes on health and yield of product</p> <p>Develop techniques to improve the abundance and health of supportive habitat</p> <p>Improve understanding of gear impact on harvest other, aquatic resources and ecosystems, and possible alternate techniques</p>	Maintain and advance biosecurity preparedness in the industry
Lobster Fishery	<p>Progress co-management</p> <p>Improve the knowledge of commercial and non-commercial harvest of targeted species</p>	<p>Progress co-management</p> <p>Investigate third-party environmental certification</p>	<p>Improve understanding of environmental input processes on health and yield of product (specifically including impact of petroleum exploration, sonar and high traffic activities)</p> <p>Improve understanding of gear impact on harvest, other aquatic resources and ecosystems, and possible alternate techniques</p>	<p>Maintain and advance biosecurity preparedness in the industry</p> <p>Develop and maintain welfare standards (NOTE: link to the Australian Animal Welfare Aquatics Committee)</p>
Ocean Hauling Fishery	Develop and adopt new technologies to reduce costs and resources to capture and		Improve understanding of environmental input processes on health and yield of product	

	<p>use detailed activity information</p> <p>Progress co-management ³</p> <p>Develop, where relevant, effective harvest strategies ⁴to increase maximum sustainable economic yield</p>		<p>Develop techniques to improve the abundance and health of supportive habitat</p> <p>Improve understanding of gear impact on harvest, other aquatic resources and ecosystems, and possible alternate techniques</p>	
Ocean Trap & Line Fishery	<p>Improve the knowledge of commercial and non-commercial harvest of targeted and non-targeted species</p>		<p>Improve understanding of environmental input processes on health and yield of product (including impact of petroleum exploration, sonar and high traffic activities)</p> <p>Develop techniques to improve the abundance and health of supportive habitat</p> <p>Improve understanding of gear impact on harvest, other aquatic resources and ecosystems, and possible alternate techniques</p>	
Ocean Trawl Fishery				

Inland Restricted Fishery	NOTE: priorities for this fishery will be determine on a situational basis.	
Developmental Commercial Fisheries	Improve the approval process to ensure the development of economically viable fisheries	NOTE: priorities for this fishery will be determine on a situational basis.

High priorities are acknowledged in red

RD&E under this program would be expected to have a strong public good component.

Investment target: 45 %

Key performance indicators:

- Production. This relates to the level of increase in sustainable harvesting.
- Sustainability. This relates to the number of species determined as sustainable according to the *Status of Australian Fish Stocks*

Industry

Program outcome: Increased demand and access to premium markets for NSW seafood; fulfilment of consumer demands for safe, high-quality, nutritious seafood products; and increased profitability throughout the value chain.

Outputs Knowledge, processes and technology relating to:	Consumer, retailer and food service sector knowledge, skills and demands	Product and market development	Food quality and safety	Supply chain efficiency and profitability
Fishery	Sectoral Priorities			
Abalone Fishery Sea Urchin and Turban Shell Restricted Fishery	Develop an understanding of consumer demand	Develop marketing initiatives and opportunities within the domestic market Investigate and develop packaging and branding to ensure consumer confidence in product quality and provenance Develop an export opportunity for sea urchin roe	Develop techniques or identification methods to address quality, contamination or food safety matters	Investigate technology to ensure supply chain security and traceability Continually develop improved technologies to increase supply chain efficiencies, reduced impact on the environment, user-conflicts and profitability
Estuary General Fishery	Develop an understanding of consumer demand for NSW wild harvested seafood	Develop marketing initiatives and opportunities within the domestic and international markets (including branding to ensure consumer confidence in product quality and provenance)		
Estuary Prawn Trawl Fishery				
Lobster Fishery	Develop and trial consumer, retailer and food service sector education program			
Ocean Hauling Fishery				
Ocean Trap & Line Fishery				

<p>Ocean Trawl Fishery</p>		<p>Investigate opportunities for full utilisation of harvested species, including market development</p> <p>Investigate opportunities for utilisation of undervalued or un-marketed species</p> <p>Investigate and develop supply chain security and traceability</p> <p>Investigate and develop cost effective processing and handling/transport technology to create market ready product</p> <p>Continually develop supply chain handling and transport of product to improve quality and reduce downgrade/mortality</p>		
<p>Inland Restricted Fishery</p>	<p>NOTE: priorities for this fishery will be determine on a situational basis.</p>	<p>Investigate potential product development of underutilised inland species, including infrastructure/transport feasibility</p>		
<p>Developmental Commercial Fisheries</p>				

high priority

RD&E under this program would be expected to have a strong private benefit component.

Investment target: 20 %

Key performance indicators:

- Value. This relates to the gross value of fisheries production
- Consumption. This relates to the level of consumption of fishery products.
- Consumer knowledge. This relates to the level of consumer knowledge of fishery products.
- Consumer satisfaction. This relates to the level of consumer satisfaction with fishery products.
- Market access. This relates to the level and effectiveness of access to domestic and international markets.
- Retailer knowledge. This relates to the level of retailer knowledge of fishery products.
- Profitability. This relates to the level of profitability throughout the value chain.

Community and Government

Program outcome: The community and government are knowledgeable and supportive of the industry, the aquatic resources on which it depends and its economic and social benefits to Australia.

Outputs Knowledge, processes and technology relating to:	Community and government knowledge of the industry and related aquatic resources	Community and government involvement in ways that will benefit the industry and related aquatic resources	Aquatic resource access and allocation
Fishery	Sectoral Priorities		
Abalone Fishery Sea Urchin and Turban Shell Restricted Fishery	Utilise results of the study on the social and economic benefits of the industry to regional NSW (by UTS).	Develop opportunities for the community to participate in a stewardship role with respect to the natural resources on which the industry depends.	Develop understanding and create awareness of non-commercial (including unregulated) interaction and harvest of target and non- targeted species Ensure a balance between aquatic resource protection and sustainable harvest of the resource
Estuary General Fishery	Continue to build on the evaluation of the social and economic benefits of the industry to NSW		
Estuary Prawn Trawl Fisher	Enhance techniques for regional community engagement initiatives		
Lobster Fishery	Increased awareness of the industry and Status of Australian Fish Stock species		
Ocean Hauling Fishery	Inform the community and government of the stewardship role that the industry plays in protecting the environment and aquatic resources.		
Ocean Trap & Line Fishery	Improve public perception of NSW wild- harvest seafood.		
Ocean Trawl Fishery	Increasing the community and government awareness of the sustainable harvest and		

	<p>stringent fisheries management arrangements under which the industry operates</p> <p>Creating community awareness in their purchasing choice of NSW seafood</p> <p>Inform and promote the community service role of the industry – search & rescue, donations, etc.</p> <p>Develop and adopt standards for responsible and socially acceptable behaviours and practices within the industry</p> <p>Develop communication strategies that target a range of communication media to promote an understanding and positive appreciation for the industry.</p> <p>Develop the capacity of the industry to professionally respond to criticisms and promote achievements across a range of communication media.</p>		
Inland Restricted Fishery	NOTE: priorities for this fishery will be determine on a situational basis.		
Developmental Commercial Fisheries	NOTE: priorities for this fishery will be determine on a situational basis.		

RD&E under this program would be expected to have a balance of public good and private benefit.

Investment target: 15 %

Key performance indicators:

- Community and government support. This relates to the level and effectiveness of community and government support for the industry and the natural resources on which it depends.
- Community and government involvement. This relates to the level and effectiveness of community involvement in the industry and in protecting and rehabilitating the natural resources on which it depends.
- Aquatic resource access and allocation. This relates to the level of support for industry's access and allocation of aquatic resources.

People

Program outcome: The knowledge and skills of people in and supporting the industry are developed and used to derive maximum economic, social and environmental benefits for the industry and Australia.

Outputs Knowledge, processes and technology relating to:	Leadership development among people in and supporting the industry	Vocational competence of people in and supporting the industry	Academic skills development	Employment and workforce
Fishery	Sectoral Priorities			
Abalone Fishery	Identify and support potential seafood industry leaders and promote training opportunities e.g. National Seafood Industry Leadership Program and afford them opportunities to become members of industry related entities and participate in industry meetings, forums, etc. Encourage succession planning within industry enterprises Facilitate and support the involvement of Indigenous fishers in commercially viable enterprises	Maintain an appropriately trained workforce throughout the entire seafood supply chain. Encourage industry enterprises to undertake business management, media, change management and other relevant training Development of industry understanding of fisheries management	Foster opportunities for researchers to work in industry enterprises Foster opportunities for industry to undertake relevant higher education	Improve workplace environments to ensure they are safe and rewarding. Investigate the barriers to new entrants to the industry and labour shortages Investigate assistance and support opportunities for new entrants to the industry
Estuary General Fishery				
Estuary Prawn Trawl Fishery				
Lobster Fishery				
Ocean Hauling Fishery				
Ocean Trap & Line Fishery				
Ocean Trawl Fishery				
Sea Urchin and Turban Shell Restricted Fishery				
Inland Restricted Fishery	NOTE: priorities for this fishery will be determine on a situational basis.			
Developmental Commercial Fisheries	NOTE: priorities for this fishery will be determine on a situational basis.			

RD&E under this program would be expected to have a balance of public good and private benefit.

Investment target: 10 %

Key performance indicators:

- People Development. This relates to the number and quality of people whose capabilities have been improved.
- People Advancement. This relates to the number of people who have succeeded in gaining leadership and other important positions in and supporting the industry.
- Workplace health and safety. This relates to the changes in the number of reported incidences.

Adoption

Program outcome: RD&E outputs are used in a way to derive maximum benefit from RD&E investment.

Outputs Knowledge, processes and technology relating to:	Extension of RD&E outputs	Facilitation of the adoption and, if appropriate, commercialisation of RD&E outputs
Fishery	Sectoral Priorities	
Abalone Fishery Sea Urchin and Turban Shell Restricted Fishery	Provide advice on all relevant research outputs	Investigate the need for sectoral extension officers
Estuary General Fishery	Provide advice on where to obtain information on completed, current and planned RD&E projects	Progress co-management and flexibility in management arrangements to allow industry adoption in a timely manner of RD&E outputs
Estuary Prawn Trawl Fishery	Undertake information days/workshops (Q&A for research outcomes/outputs)	Involve and assist end-users in projects from development to adoption
Lobster Fishery	Develop a one-stop shop for knowledge brokering	Assist industry to attend and experience best practices from around the world.
Ocean Hauling Fishery		
Ocean Trap & Line Fishery		
Ocean Trawl Fishery		

Inland Restricted Fishery	NOTE: priorities for this fishery will be determine on a situational basis.			
Developmental Commercial Fisheries	NOTE: priorities for this fishery will be determine on a situational basis.			

RD&E under this program would be expected to have a balance of public good and private benefit.

Investment target: 10 %

Key performance indicators:

- Extension. This relates to the level and effectiveness of the extension of R&D outputs.
- Adoption. This relates to the level and effectiveness of influence over the adoption of R&D outputs.

Total production over the past eight years

NSW reported commercial wild harvest landings (Gross Tonnes)

Source: NSW DPI 23-2018 extraction, ongoing validation may alter these figures

Landings Gross Tonnes Fishery	Fiscal							
	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Abalone	74.6	94.3	109.8	119.9	130.2	123.7	127.8	127.6
Estuary General	3,872.9	3,617.0	3,644.0	3,342.9	4,104.1	3,486.5	3,651.4	2,963.7
Estuary Prawn Trawl	240.8	424.9	422.5	439.8	427.3	475.1	330.2	333.3
Inland	86.8	87.8	169.5	262.9	194.1	147.8	141.3	133.7
Lobster	140.9	141.3	157.7	154.9	157.3	166.1	178.9	164.3
Ocean Hauling	5,899.3	4,191.6	3,558.8	3,451.2	4,286.3	3,588.9	3,385.2	2,891.0
Ocean Trap & Line	2,109.2	1,854.2	1,750.8	1,444.0	1,481.6	1,264.7	1,273.1	1,142.7
Ocean Trawl	3,383.2	3,611.0	3,099.7	2,963.8	2,623.4	2,626.7	2,532.7	2,659.7
s37 Permit	49.9	132.3	161.1	160.2	124.7	105.3	106.7	58.5
Sea Urchin & Turban Shell	68.9	46.5	84.4	79.3	87.0	79.9	128.0	100.0
Grand Total	15,926.5	14,200.9	13,158.2	12,419.0	13,615.9	12,064.6	11,855.4	10,574.5

Total value over the past eight years

NSW estimated commercial wild harvest gross Value of Product (GVP \$'000)

Source: NSW DPI 23-2018 extraction, ongoing validation may alter these figures

Landings Est GVP (\$'000) Fishery	Fiscal							
	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Abalone	\$1,940	\$2,829	\$3,372	\$3,838	\$3,876	\$3,515	\$3,582	\$3,663
Estuary General	\$20,660	\$19,999	\$19,064	\$20,775	\$25,466	\$24,721	\$29,429	\$24,337
Estuary Prawn Trawl	\$1,733	\$2,744	\$2,734	\$3,174	\$3,364	\$4,637	\$3,523	\$3,428
Inland	\$446	\$512	\$1,285	\$2,083	\$1,260	\$473	\$826	\$783
Lobster	\$6,859	\$7,713	\$8,185	\$7,608	\$10,076	\$11,481	\$11,878	\$11,315
Ocean Hauling	\$14,912	\$10,883	\$8,721	\$9,319	\$13,878	\$11,815	\$10,823	\$10,932
Ocean Trap & Line	\$12,548	\$11,616	\$13,010	\$11,446	\$11,846	\$10,132	\$11,392	\$10,327
Ocean Trawl	\$22,439	\$22,440	\$20,409	\$22,056	\$22,202	\$22,429	\$19,777	\$23,982
s37 Permit	\$212	\$334	\$421	\$423	\$373	\$350	\$375	\$266
Sea Urchin & Turban Shell	\$102	\$79	\$119	\$110	\$126	\$118	\$233	\$270
Grand Total	\$81,852	\$79,149	\$77,320	\$80,832	\$92,469	\$89,669	\$91,836	\$89,303



Submit an RD&E idea to the PFA

Below is the one-page form giving you an opportunity to advise the PFA of the constraints on the growth of your business, sector or whole of industry and to convey your ideas on how these constraints may be addressed through RD&E. You can detach this page and email your submission to admin@pfai.com.au

<p>Proponent: Provide your name and permit number (if applicable).</p>
<p>Need: Describe the constraint(s) on the growth of your business, sector or the whole industry.</p>
<p>Description: Describe how your RD&E idea would address the constraint(s).</p>
<p>Outcome: Describe the outcome you are seeking and, if possible, provide estimates of the potential difference it could make in terms of value or production.</p>
<p>Scope of Impact: Does your RD&E idea have enterprise, sector, regional (e.g. estuary), state or national significance?</p>
<p>Level of Support: Describe the level of support you have for your RD&E idea.</p>