

Western Rock Lobster Research Network

Research Priorities and Business Plan Publication

November 2022



Western
**ROCK
LOBSTER**

World leading sustainable fishery



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1.0 Preamble

Navigating challenges and opportunities and giving effect to change is not new territory for our industry. Over the course of its approximate 100-year history, fishers, processors, financiers, researchers, and regulators have worked together to develop and implement new ways of fishing, managing the natural resource and capitalising on market opportunities. Despite turbulent times throughout this history, the western rock lobster industry continues to be recognised globally for its sustainability and highly sought-after premium product.

The investment in scientific research that has enabled this is significant, particularly as it relates to establishing and maintaining the western rock lobster fishery's Marine Stewardship Council (MSC) certification. The historical research portfolio that supports the MSC certification has led some to form a view that the western rock lobster industry is adequately researched. It is not. In the context of climate change, increasing global competition and rising costs we must continue to make carefully targeted strategic investments in the development of knowledge, decision tools and technology that help us make the resource management, strategic, investment and operating decisions that underpin continued sustainability of our fishery, competitiveness of our products in international markets and profitability of our businesses.

In recent times we have seen the emergence of a range of ecological, political and market threats that have cumulatively resulted in unprecedented challenges – an almost 'perfect storm'. The Western Rock Lobster Council's Risk Register identifies 17 potential catastrophic risks, many of which have materialised (loss of main market, loss of confidence in the quality of product and reduction in Gross Value of Product), or present significant probability of materialising in the short-to-medium term such as reduced government funding, changes in climate and ocean acidification, seismic survey and drilling, change in puerulus survival and behaviour, under-utilisation of resource resulting in pressure for reallocation and difficulty in accessing capital). Additional issues have recently emerged fuelling industry concerns: increased protected areas and plans to establish an extensive network of windfarms on the reefs off the WA coast.

These challenges will continue, just as new opportunities for our industry will emerge. There is no question that current industry conditions place considerable constraint on industry's ability to invest more in research and development. However, in the context of an increasingly complex and dynamic industry and market environment, the need to adopt, at the very least, a more strategic, efficient and effective approach to attaining the knowledge and technology that we need from the compulsory indirect investment the industry currently makes into research and development via the Western Australian Government's contribution to the Fisheries Research and Development Corporation (FRDC) derived from the resource access fee cannot be more important.

Finally, in progressing efforts to deliver western rock lobster fishers, processors and other stakeholders a more effective and innovative system, we cannot ignore the irrefutable fact that industry investment in research and development and achieving our primary objective of optimal resource access security are intrinsically linked – we need access to world class knowledge to continue to prosecute our case to government and the community, increased investment in local innovation capability contributes to government support and social license to operate, but somewhat perversely, industry cannot invest confidently in research unless it has confidence it will be able to adequately fish the natural resource into the future.

This research priorities and business plan for the Western Rock Lobster Research Network sets out the priority areas of research, an enhanced governance and management framework for making research investment decisions and managing research projects and their outcomes. Its primary focus is ensuring that industry gets optimal benefit from its Industry Partnership Agreement (IPA) with the FRDC by ensuring a strategic approach to prioritisation, leveraging the IPA resources against other external funding sources and where appropriate, partnering in research project delivery and realising benefits.

The research priorities, management and governance framework set out in this document have been developed independently through consultation with WRL Members, its Board, and other stakeholders. I am confident that the strategic approach to investing in research and development that is articulated in this plan will deliver significant benefits to the western rock lobster industry over the short-, medium- and longer-term and look forward to working with Members and other stakeholders in the western rock lobster industry in its implementation.



Terry Lissiman

Chair

Western Rock Lobster Council Inc.

2.0 Introduction and background

2.1 The western rock lobster industry

The commercial western rock lobster fishery is the highest value single species wild-catch fishery in Australia and the second largest sector ¹of the Australian seafood industry. Accounting for around 65 percent of Western Australian fishing and aquaculture Gross Value of Product (GVP), the western rock lobster fishery was the first fishery globally to be certified as sustainable under the Marine Stewardship Council (MSC) standards.

A highly sought-after premium product in domestic and particularly international markets, the commercial fishing supply chain that delivers live, fresh, and frozen product to seafood markets, restaurants, and retail outlets locally and across the globe, harmoniously shares the resource with a local recreational sector. With the fishing effort based in coastal regional communities from Kalbarri in the north to Augusta in the south, the western rock lobster industry is fundamental to the economic and social fabric of many regional coastal settlements in Western Australia.

2.2 The Western Rock Lobster Council

Established in 2001, the Western Rock Lobster Council (WRL) is the peak industry body for the western rock lobster commercial fishery with its Board directly elected from its membership base of over 750 western rock lobster managed fishery license holders. WRL performs an important advocacy function, representing the interests of the industry to governments and the community, as well as providing direct services to industry including management of the sector's Industry Partnership Agreement (IPA) with the Fisheries research and Development Corporation (FRDC).

Consistent with the industry's relative Gross Value of Product (GVP), the contribution that the western rock lobster industry makes indirectly through the Western Australian Government to the Fisheries Research and Development Corporation (FRDC) is also significant. Like 14 other sectors, who together with western rock lobster, account for around 75 percent of Australian fisheries and aquaculture value, WRL is party to an Industry Partnership Agreement (IPA) with the FRDC. The IPA is designed to ensure that, as a major contributor to the FRDC, research and development specifically targeting the needs of the western rock lobster industry benefits from the significant leverage that the FRDC receives from the Commonwealth Government. However, compared to other sectors of the Australian fishing and aquaculture industry, the western rock lobster industry has substantially underperformed in this regard.

With a current value of approximately \$1.0 million per annum, the IPA represents funds that are effectively quarantined by the FRDC for investment in research and development pertaining to the western rock lobster industry. These funds are derived in part from the portion of the western rock lobster resource access fee that is paid to the FRDC by the Western Australian Government and in part from matching funds provided by the FRDC. WRL is responsible for negotiation with the FRDC on how these funds are invested, with the Western Australian Department of Primary Industries and Regional Development (DPIRD) having some input.

2.3 The vital importance of science and innovation

Effective investment in research and development that generates knowledge that can be used by industry to support strategic, investment and operational decisions, or to generate new technology is vital to the sustainability, competitiveness, and profitability of all primary industries. The western rock lobster industry is no different to any other primary industry in this regard.

In the context of the western rock lobster industry, continuous research and development is required to:

¹ The Tasmanian Atlantic salmon aquaculture fishery is Australia's largest seafood sector.

- Understand and respond to the ever-changing ecosystem that supports the western rock lobster fishery, as well as cumulative impacts on that ecosystem.
- Improve certainty associated with methods used for determining sustainable and economically optimal levels of harvest of that natural resource.
- Improve the productivity and safety and therefore, competitiveness and profitability, of the fishing effort and downstream processes.
- Ensure strong, evidence-based cases can be made to government and communities that underpin resource access security for the industry and its social license to operate.
- Understand and be able to respond to changes in market and industry conditions.

Importantly, research developing this knowledge must remain targeted on achieving outcomes that are aligned with the specific knowledge needs of industry and produce knowledge, decision-tools and technologies that can be effectively adopted and used by industry.

2.4 The Western Rock Lobster Research Network

For some time, WRL has espoused significant concern that the direct and indirect investment that the western rock lobster industry makes in research and development is not adequately effective – the process of identifying specific research needs, designing, and assembling projects, organising the resourcing of those projects, and managing projects and outcomes has been inefficient and cumbersome.

WRL has investigated different options for addressing these concerns, including initially the proposed Australasian Institute for Spiny Lobster Research² and then in the process that led to the proposed WRL Research Network, various other mechanisms including outsourcing the research function and collaborating with the wider Western Australian fishing industry in a potential Western Australian Fishing and Aquaculture Research Institute. While these more robust, formalised institutional models may demonstrate merit in the not-too-distant future, a less administrative resource intensive approach is necessary in the immediate term to produce more immediate results for WRL members and the wider western rock lobster fishing industry.

As either a permanent or interim measure, the proposed WRL Research Network will achieve this by:

- Setting very clear, agreed research priorities for the western rock lobster industry
- Implementing a robust governance process for making decisions pertaining to investments in research through the WRL IPA and potentially other mechanisms
- Deploying professional research management to work collaboratively with industry, other stakeholders, FRDC and other research funders and research organisations to design research projects, assemble research teams, manage the implementation of research projects, and ensure their outcomes are delivered to industry and other stakeholders.

2.4.1 What is the Western Rock Lobster Research Network?

The Western Rock Lobster Research Network (WRL Research Network) will be established and operate as an internal business unit of the WRL.

As summarised in Figure 1 below, the WRL Research Network has three key components – WRL Research Priorities Plan, governance framework and executive function.

² Australian Venture Consultants (2021), *Australasian Institute for Spiny (Rock) Lobster Research: A Concept Study*, Western Rock Lobster Council

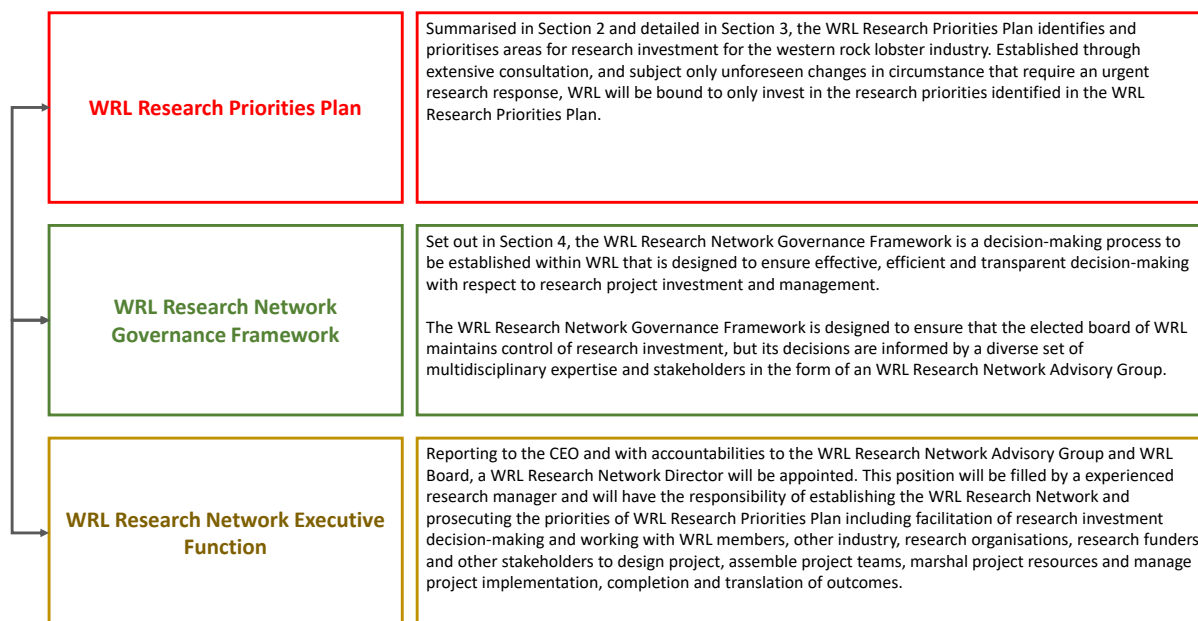


Figure 1 – Key components of the Western Rock Lobster Research Network

2.4.2 How has the Western Rock Lobster Research Network been developed?

The WRL Research Network has been developed over the course of 12 months and has included:

- **Preliminary consultation**
To determine the research issues that are important to industry semi-structured interviews were undertaken with 42 fishers, processors, researchers, research funders, regulators and other stakeholders and experts. The outcome of this preliminary consultation was the identification of 50 specific research areas deemed to be of importance, organised according to research priorities framework set out in Section 3.
- **State-of-the-art review**
To ensure that any future research that might be undertaken with respect to the 50 specific research areas identified in the preliminary consultation is additive and to identify scope for future valuable research in those areas, a literature review was undertaken, assessing over 130 publications whose primary research outcomes are targeted at those research areas. This state-of-the-art review is available from WRL upon request.
- **Consultation working draft**
The outcomes of the preliminary consultation and state-of-the-art review were synthesised into a Consultation Working Draft. This document described the background to the proposed WRL Research Network, identified contemporary issues facing the western rock lobster industry, detailed the research priorities framework, identified research areas and the state-of-the-art review, and provided several options as to structures that could be deployed to give effect to the proposed WRL Research Network. This document was provided to individuals and organisations that were interviewed in the preliminary consultation, the WRL Board and other key stakeholders for feedback and comment.
- **Final consultation draft**
Based on the feedback provided on the Consultation Working Draft the total number of research areas to be addressed was reduced to 38, including 22 'first order' research priorities. This final consultation draft prioritised the identified research areas using the methodology described in Appendix 1, both across the entire research priority framework and within each of the themes and detailed a preferred governance and management structure for implementing and operating the WRL Research Network. This was made available to all WRL members for their review and comment.
- **Final draft for WRL Board approval**

Following the incorporation (as deemed appropriate) of feedback on the final consultation draft, member feedback, together with a final draft was presented to the WRL Board for its consideration and formal endorsement.

3.0 The Western Rock Lobster Research, Development and Extension Priorities Plan

3.1 A Western Rock Lobster industry research, development, and extension priorities plan

This Research, Development and Extension Priorities Plan (RD&E Plan) is that of the western rock lobster commercial fishing industry, as represented by its peak body, WRL. As discussed below, it has been developed primarily from input from western rock lobster fishers, with additional perspectives sought from downstream industry, the recreational sector, current researchers, regulators, and research funders. Therefore, it articulates the priorities of WRL members. In many cases these priorities will be aligned with the priorities of these other stakeholders, but in some instances they may not be.

Further, like all competent research strategies, the priorities identified in this RD&E Plan address current circumstance, as well as future opportunities and risks. The natural resource, social, economic, and political environment in which the industry operates is continually evolving. Of particular relevance is the nature of the implementation of the *Aquatic Resources Management Act 2016 (WA)*. Drafted to replace the former *Fisheries Resources Management Act 1994 (WA)*, work on the new legislation commenced approximately 15 years ago, was partly proclaimed in 2016, has yet to be fully implemented and its supporting policy framework has yet to be finalised. It is also due for a review 5 years after the repeal of the *Pearling Act 1990 (WA)*. As of writing, it is not yet known when the Pearling Act will be repealed.

In such an environment, WRL is obliged to continue to ensure that it has the knowledge required to understand regulatory implications for its members as the economic, social, political, and environmental circumstances facing the industry continue to evolve. Therefore, while some research priorities identified in this section may seem, *prima facie*, less aligned with the nature of direction of the legislation or evolving associated government policy, they have been deemed priorities by the western rock lobster industry so that WRL can continue to advocate in their interests on an evidence-basis.

3.2 Rigorous innovation gaps and priority setting

The priorities set out in this RD&E Plan have been determined by an extensive research priorities planning process that was undertaken by an independent expert³ over the course of 12 months to inform the establishment of the WRL Research Network. Research priorities were developed as the result of direct consultation with 42 individual fishers, processors, researchers, research funders, regulators and other stakeholders and experts, further developed and refined by a comprehensive literature review that identifies the state of the art in key areas together with innovation gaps, validated across the entire WRL membership, and finally endorsed by the Board of WRL.

This process is described above in Section 2.4.2 and detailed further in Appendix 1.

3.3 The WRL Research Priorities Framework Architecture

The WRL research priorities are organized according to a thematic framework that logically addresses the key issues of what can be fished, what should be fished and how it should be fished, making sure industry

³ The development of the WRL Research Priorities Plan and Research Network Business Plan was led by Australian Venture Consultants (www.ventureconsultants.com.au)

continues to have access to the natural resource to be able to fish and putting the knowledge, tools and technologies that enable this into practice.

This framework, illustrated in Figure below, contains 38 research areas that were identified by the planning process as requiring research, development, and extension attention. Some of these are areas where WRL shares responsibility or interest in outcomes with other stakeholders, whereas some are of exclusive interest to WRL and its sole responsibility.

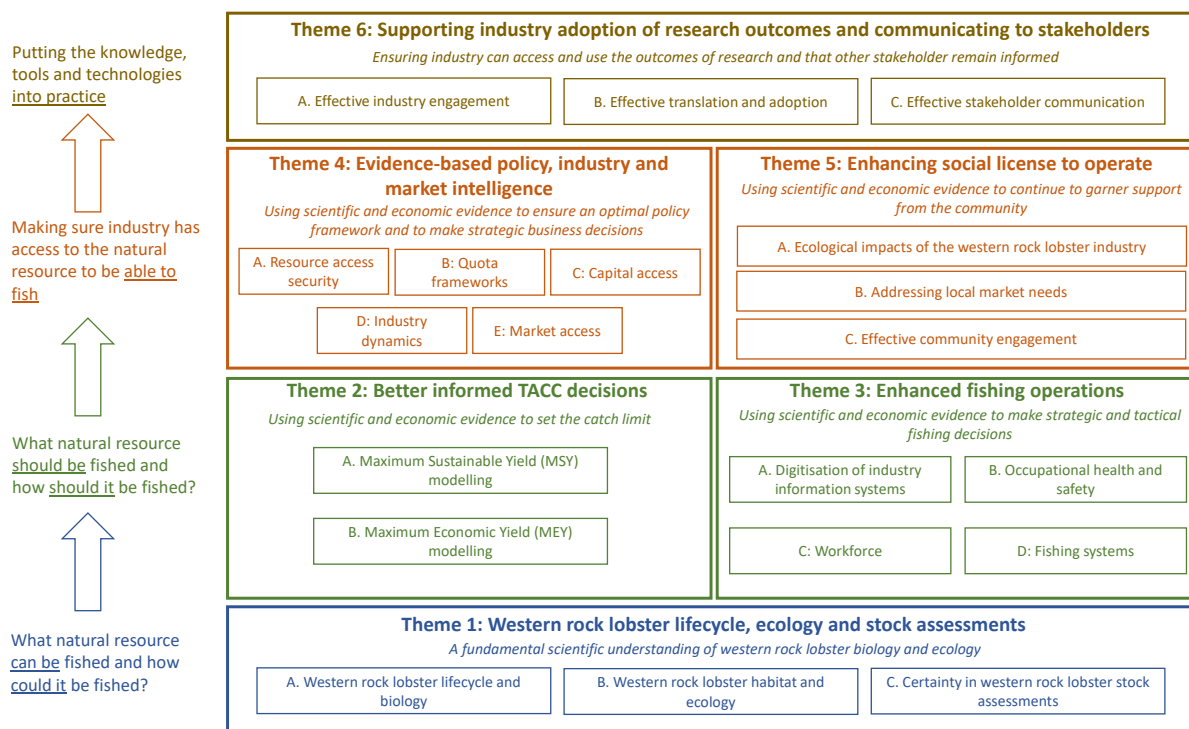


Figure 2 – Western Rock Lobster Research Priorities Framework

3.3.1 First order Western Rock Lobster research priorities

The first order research priorities represent areas of knowledge and technology acquisition that have been deemed a priority based on an assessment of their criticality, urgency, and the extent to which, if not addressed by WRL research, are unlikely to be adequately addressed. Table 1 summarises the first order research priorities for WRL.

Table 1- Western Rock Lobster First Order Research Priorities

Programme	Research Area
Theme 1: Western rock lobster lifecycle, ecology, and stock assessments	
Programme A: Western rock lobster lifecycle and biology	<p>Toward and evidence-based understanding of western rock lobster migration</p> <p>While there is an understanding of the destination of western rock lobster in their annual ‘whites’ migration run, the precise pathway(s) that are taken and events that may occur along that migration pathway are not understood. An evidence-based, more detailed understanding of migration pathway(s) and factors that impact on that pathway will inform both tactical fishing decisions and provide a broader understanding of ecological factors that may impact on western rock lobster lifecycle. For example, what impacts do quota changes have on the balance of whites and reds caught and what is the optimal balance of catching migrating whites versus reds for the fishery.</p> <p><i>Given its importance to fishing productivity and understanding and managing cumulative impacts on the fishery, this research area is considered to demonstrate a high level of criticality and moderate to high urgency. Furthermore, given its relevance to fishery management decisions, it should also be an area of research that is of importance to the Department of Primary Industries and Regional Development (DPIRD). Potential collaborators in research in this area include The University of Western Australia (UWA) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).</i></p>
Programme B: Western rock lobster habitat and ecology	<p>Impact of seismic surveys on the western rock lobster lifecycle</p> <p>The impact of seismic survey operations conducted by the offshore oil and gas industry on the lifecycle of various commercial fishery species has been the focus of research in areas across the globe where petroleum prospective offshore basins intersect with areas important for supporting the lifecycle of commercially fished species.</p>

Programme	Research Area
	<p>The nature of this interaction is unique to every circumstance based on the specific species, the stage of lifecycle impacted, frequency and nature of seismic survey and specific oceanography. In the case of western rock lobster, its significant migratory footprint at various stages of its lifecycle and the intensity of seismic survey along the Western Australian coast, particularly in the Carnarvon and increasingly, Perth Basins, arguably make its circumstance particularly unique.</p> <p><i>An evidence-based scientific understanding of the specific impact of offshore seismic surveys on the western rock lobster lifecycle is important for informing predictive stock models, tactical fishing decisions, fishing investment decisions and ultimately rights to compensation for loss of access to the fishery that may result from seismic survey activity. Furthermore, offshore petroleum exploration is increasing in areas adjacent to and within the western rock lobster fishery. For these reasons, this area of research is considered to be of high criticality and urgency and is primarily the responsibility of WRL – while Southern Rock Lobster Limited (SRL) has also conducted some work in this area, the intensity of oil and gas exploration in offshore Western Australia and uniqueness of the bathymetry and marine ecosystem means that very focused work is likely required for Western Rock Lobster.</i></p>
<p>Programme C: Certainty in stock assessments</p>	<p>Shared responsibility for stock assessments</p> <p>The stock observations of fisherman who interact with the natural resource on an almost daily basis is a potentially rich source of additional information on the status of the resource, and ecological and other factors that influence stocks. DPIRD currently utilise relationships with some fishers to conduct surveys. However, a broader and deeper relationship regarding the collection of measured and observational data and discussion of various aspects of stock assessment and its outputs with industry would likely lead to enhanced outcomes.</p> <p><i>This issue is a shared responsibility with DPIRD and is considered by industry to be an issue of high criticality and urgency.</i></p>
	<p>Certainty in assessment of the recreational catch</p> <p>The number of western rock lobster taken by the recreational sector is a significant component of the Total Allowable Catch and impacts on the sustainability of the fishery. Whereby the commercial catch is accurately monitored and measured, assessment of the recreational take is measured by surveys of recreational fishers and some periodic and <i>ad hoc</i> monitoring at recreational boat ramps.</p> <p>Significantly greater accuracy in the measurement of the recreational catch could be achieved through the development of a mobile phone application that uses real-time data entry, digital imaging, GIS and potentially block-chain technology that is linked to individual recreational licenses to monitor the recreational catch in real time with much greater accuracy.</p> <p>Greater certainty as to the number of lobsters taken throughout a season at different locations would provide greater certainty in managing the sustainability of the resource and provide a platform for potential migration toward quota trading between the sectors. This data could also be used to better inform predictive stock assessment models.</p> <p><i>Uncertainty with respect to the recreational catch is potentially a major point of inaccuracy in stock assessments. Therefore, improving the accuracy of the assessment of the recreational catch is a critical issue that requires relatively urgent resolution. However, this is a responsibility that is shared with the recreational sector (Recfishwest) and DPIRD. Additional potential partners in this program include UWA and CSIRO. Further if the solution is to include mobile phone applications Edith Cowan University and private sector mobile application development may also be suitable partners.</i></p>
<p>Theme 2: Better informed TACC decisions</p>	
<p>Programme A: Optimising maximum sustainable yield (MSY) modelling</p>	<p>Evidence-based case for MSY v MEY determination of TACC</p> <p>The recent decline in price for western rock lobster that is the result of the suspension of exports to the People's Republic of China (PRC) has led to some to call for the TACC to be set at or close to the MSY. This argument is based on two logics. The first is that without the premium pricing attainable in the PRC market, Australian lobster will trend away from being a luxury product towards commoditisation and therefore fishing business returns will be increasingly driven by volume. The second is that, setting TACC against MEY in current market conditions means that the commercial sector is fishing substantially below MSY, creating a potential case for reallocation of the resource to the benefit of the recreational, customary and charter sectors.</p> <p>These arguments are countered by the notion that, subject to the robustness of the MEY model, TACC set against MEY will deliver the best economic outcome for industry and in almost all circumstances the best conservation outcome. Developing an evidence-based argument on this issue and market-based re-allocation process will be important for protecting industry's interests.</p> <p><i>This issue is considered to be of medium-to-high criticality and urgency and is primarily a WRL responsibility.</i></p>
<p>Programme B: Optimising maximum economic yield (MEY) modelling</p>	<p>MEY and DPIRD's new statutory responsibilities</p> <p>While DPIRD's primary statutory responsibility will remain as ensuring the sustainability of the natural resource, as industry transitions to regulation under the <i>Aquatic Resource Management Act 2016</i> (WA), DPIRD will be compelled, to some degree, to take into account economic issues at least as a secondary consideration in its resource management decisions.</p> <p>This will likely require the MEY model to take into account DPIRD requirements under the <i>Aquatic Resource Management Act 2016</i> (WA), as determined by DPIRD. A determination of these requirements and development of inputs and algorithms that address those requirements will be important to ensure the integrity and usefulness of the MEY model in the new regulatory environment.</p> <p><i>This is determined to be an issue of high criticality and urgency and is a shared responsibility with DPIRD. Other potential collaborators include Curtin University (Curtin), UWA, CSIRO and the private sector.</i></p> <p>Enhanced MEY algorithms</p>

Programme	Research Area
	<p>Ensuring that the MEY is optimally accurate, that its integrity is maintained, that it is adequately robust enough to incorporate and model inputs that impact on its outcome is critically important. Changes in the structure of the industry and responses to changes in stock across the zones will result in changes in fishing strategy and tactics.</p> <p><i>The accuracy of the MEY model will be substantially enhanced if it is able to take into account changes in fishing strategies tactics. This issue is considered to be of high criticality, but medium urgency. It is primarily a WRL responsibility and research partners might include SRL, UWA, Curtin, CSIRO, Institute of Marine and Antarctic Studies (IMAS), DPIRD and the private sector.</i></p>
<p>Theme 3: Enhanced fishing operations</p>	
<p>Programme A: Digitisation of industry information systems</p>	<p>Modernisation of the DPIRD industry administrative interface As a result of both lags in digital infrastructure investment and the merger of three separate operating platforms when DPIRD was formed through the amalgamation of the former Departments of Agriculture, Regional Development and Fisheries, much of the administrative interface between DPIRD and the industry is antiquated and inefficient. This occurs to the extent that presentation of a physical paper cheque is still required to renew fishing licenses.</p> <p>While modernisation of the DPRID's digital and online systems its entirely a Western Australian Government responsibility and DPIRD is currently in the process of assessing and implementing new systems, industry has a vested business motivation to ensure those systems deliver optimal administrative certainty and efficiency.</p> <p>The likelihood of this being the case is optimised by a proactive approach from industry with respect to presenting DPIRD with its administrative systems requirements.</p> <p><i>Progressing this issue to a conclusion is considered an issue of high criticality and urgency and is a shared responsibility with DPIRD. Potential collaborators include private sector ICT service companies.</i></p> <hr/> <p>Access to DPIRD data for supply chain decision-making Currently the efficiency of the western rock lobster supply chain is suboptimal as the result of a range of uncertainties as to fishing effort and outputs in daily supply chain decision, particularly uncertainty as to sizes of catches, times of landing, locations of landing and bait requirements for following days. This uncertainty manifests in suboptimal logistics operations and downstream processes such as frozen production, live pack-outs and daily sales offers.</p> <p>Data collected by DPIRD through the DPIRD IVR system and FishEye provides a data platform for systems that could be used to better inform supply chains participants on fishing activities, resulting in a decision-making tool that allows supply chain systems to respond in near-real-time to the fishing effort and activities, improving overall industry productivity and profitability. Similarly, DPIRD would benefit from such a system through scope for automation of processes such as reconciliation of reported catch with processed catch.</p> <p>A study that scopes the nature and usefulness of data generated through the DPIRD IVR, FishEye and other systems in use in western rock lobster supply chain optimisation, potential data governance frameworks, architectures for developing Application Programming Interfaces (API) that allow industry to access the DPIRD data and a business case for development of that architecture and API would present a pathway for enhanced western rock lobster supply chains.</p> <p>Progressing this issue to a conclusion is considered an issue of high criticality and urgency and is a shared responsibility with DPIRD. Potential collaborators include private sector ICT service companies and the western rock lobster downstream supply chain industry.</p>
<p>Programme C: Workforce</p>	<p>Accreditation of the lobster fishing skillset Across many sectors of industry, previously 'unlicensed' or 'unaccredited' skill sets are transitioning to a 'licensed' or 'accredited' regime. This is driven by a desire to improve, standardise and certify quality of skills and OHS and to provide a basis for benchmarked remuneration. While lobster fishing shares many of the skill requirements of other commercial fishing operations, it has its own unique skill sets. In an environment where the master of the vessel is licensed and not the crew, significant risk will accrue to the vessel master. A vessel master will have limited scope to manage the risk with crew under employment conditions without accredited programs.</p> <p>A study exploring the merits and viability of accreditation of the lobster fishing skillset should be the first stage in exploring the business case for investing in the development of an accreditation program with the vocational education and training sector.</p> <p><i>This is considered to be an issue of high criticality and urgency given the prosecution of vessel Master under Aquatic Resources Management Act 2016 WA (ARMA). This would represent a shared responsibility with the TAFE sector or private vocational training organisations.</i></p>
<p>Programme D: Fishing systems</p>	<p>Developing systems that optimise lobster welfare Addressing escalating market and community concerns with respect to animal welfare has become core business for many livestock and wild-catch oriented industries across the globe. While this is currently only a potential issue for the western rock lobster industry, fishing operations, processing and live export will almost certainly draw attention at some stage.</p> <p>A study that identifies the risk areas in this regard and scopes the nature and viability of potential solutions along the supply chain would provide industry with a basis for pre-emptive action should this issue escalate for the industry.</p> <p><i>This issue is considered to be of medium criticality and urgency and is principally the responsibility of WRL. Potential partners include UWA, Curtin and CSIRO.</i></p>
<p>Theme 4: Evidence-based policy, industry, and market intelligence</p>	

Programme	Research Area
<p>Programme A: Resource access security</p>	<p>Maintaining thought leadership</p> <p>The paramount advocacy issue for the western rock lobster industry is ensuring resource access security. WRL has undertaken extensive work in this area, which has entrenched its position as the thought leader in Western Australia on the natural resource management, economic and legal case for secure commercial fishing rights. This complements other similar work undertaken by national and international commercial fishing organisations.</p> <p>However, to mitigate the risks of required legislative amendments not being put into place, or further attempts by governments to appropriate commercial fishing rights, the western rock lobster industry must maintain its legitimacy as the intellectual authority on this issue.</p> <p>Maintaining a watching brief on relevant development in commercial fishing rights across the globe and working with national bodies to coordinate policy development will serve to ensure that the industry is equipped to respond when and if necessary.</p> <p><i>The encroachment by governments on commercial fishing rights is an ever-present threat. This issue is considered to be of high criticality and of medium to high urgency. It is the primary responsibility of WRL and an area that can draw on natural resource economics and legal expertise of UWA and Curtin, as well as the private sector.</i></p>
<p>Programme B: Quota frameworks</p>	<p>Assessment of the case for split quotas</p> <p>A significant benefit associated with quota-based systems for resource allocation is that through individual transferrable quota systems they facilitate the use of more efficient market mechanisms for allocation. However, somewhat perversely, they also provide governments with a mechanism to pursue policy objectives through arbitrary allocation of quota beyond just the commercial, recreational, customary and charter sectors.</p> <p>An example of this is the current local market quota allocation under the commercial quota in the form of the Back-of-Boats (BOBs) program. In an extreme and undesirable circumstance this could evolve into specific local market quotas, or even quotas for particular product forms or overseas markets, albeit this would be a contravention of many of Australia's bilateral and multilateral trade agreements.</p> <p>Understanding the commercial and license to operate implications of different forms of split-quota that governments may endeavour to impose on industry will be key to ensuring any changes in quota are of optimal benefit to the industry.</p> <p><i>This issue is considered to be of medium criticality and urgency and a share responsibility with DPIRD. Potential collaborators include UWA and private economics, legal and market advisory services.</i></p> <p>Toward cross sector quota trading</p> <p>It is widely understood that a system of integrated fisheries management based on set quota that is transparently grounded in sound scientific assessment of the resource, secure fishing rights and individual transferrable quota allocation is world-best-practice for managing most fisheries from an economic efficiency and resource sustainability perspective.</p> <p>With an established and relatively reliable systems for resource assessment, a cross sectoral quota framework and individual transferrable quota system operating within the commercial quota, there is a basis for a cross sectoral market-based re-allocation trading system in western rock lobster. This would allow market forces to efficiently re-allocate quota between the commercial, recreational, charter and customary sectors.</p> <p>The first stage in assessing this is a scoping study that explores the merits, viability, and potentially operating models for cross sectoral market-based re-allocation as a basis for deep preliminary consultation with stakeholders in each sector of the western rock lobster fishery and DPIRD.</p> <p><i>This issue is considered to be of medium criticality and urgency and a share responsibility with DPIRD and Recfishwest. Potential collaborators include UWA and private economics, legal and market advisory services.</i></p>
<p>Programme C: Capital access</p>	<p>Industry financial benchmarking</p> <p>The outcomes of the recent asset seizure have potentially undermined the bankability of the sector. A key input to the bankability of an industry is credible industry benchmark data that financiers can use to assess the bankability of actual businesses. Sectors that have previously had financing issues have overcome this problem through the development of reliable industry benchmarking data systems.</p> <p>The first step in this is scoping the trialling of a data collection, aggregation, analysis, and anonymised reporting of that analysis across key drivers of western rock lobster fishing business cash flow and profitability such as days fished, average catch, average labour costs, average fuel costs, average bait utilisation and costs, average repairs and maintenance cost, average capital intensity, etc. The trial would be on a voluntary basis and undertaken in conjunction with the banking sector to design and test its utility.</p> <p><i>This is primarily a WRL responsibility and is considered to be of medium to high criticality and urgency. Potential partner in this area are banks and finance advisory services.</i></p> <p>Unit registry reform</p> <p>The outcome of the recent asset seizure has undermined a perception held by industry and financiers that liens listed on the DPIRD unit register against quota were secure. A unit registry that does not provide for secure registration of liens over quota has limited if any use for financing purposes, other than to confirm quota ownership.</p> <p>A feasibility study should be undertaken to determine the legal and practical issues that need to be overcome to implement a unit register that facilitates secure registration of liens by financiers hosted by either WRL, DPIRD or another authorised third party service provider. This study should also consider the scope of a prospective online quota trading platform that is the subject of Program A in Theme 3.</p> <p><i>This issue is business critical but of low to medium urgency and secondary to resolving the quota trading platform issue. It is a shared responsibility between WRL and DPIRD, with potential partners including private sector legal advisory services.</i></p>
<p>Programme D: Market access</p>	<p>Market intelligence</p> <p>Deep knowledge of specific markets for western rock lobster is a source of competitive advantage for downstream processors, distributors, and marketers of western rock lobster. However, from a whole of industry perspective,</p>

Programme	Research Area
	<p>fishing businesses need to have some understanding of trends in key markets and industry peak bodies require knowledge of geopolitical trends that may lead to market disruption or opportunities to inform their advocacy. This information can be attained most efficiently through clear arrangements with downstream businesses, where appropriate market intelligence is shared with the peak body and integrated with information in the public domain to keep industry informed and to inform advocacy.</p> <p><i>This issue is considered of high criticality and urgency. It is a shared responsibility with the downstream sector and would be undertaken with private sector seafood market research organisations.</i></p> <p>Residue testing</p> <p>Potential presence of trace elements in exported western rock lobster was the cited reason for the most recent market disruption. The development of reliable and efficient pre-emptive testing for regulated trace elements by processors would substantially mitigate this risk in the future.</p> <p>This issue can be progressed through research that seeks to develop reliable, rapid, cost-effective residue tests that do not impact product quality and can be effectively deployed in the processing flow-of-product line.</p> <p><i>This issue is considered of high criticality and urgency. It is a shared responsibility with the downstream sector and SRL and would be undertaken with testing organisations.</i></p>
Theme 5: Enhancing social licence to operate	
Programme A: Ecological impacts of the western rock lobster industry	<p>Plastics reduction in fishing gear</p> <p>Western rock lobster fishing gear typically incorporates a significant number of plastic components including bait traps, ropes, floats and in some instances, the pots themselves.</p> <p>Although western rock lobster commercial fishing gear pollution is estimated to be minor compared to its international counterparts, innovation that presents competitive and practical alternatives to plastics in western rock lobster fishing gear will serve to alleviate market and community concerns in this regard.</p> <p><i>Ocean plastics is a very topical issue. This is seen to be an issue of high criticality and urgency and a share responsibility with SRL. Potential partners include fishing equipment manufacturers.</i></p>
Programme B: Local market access	<p>Understanding local market lobster demand dynamics</p> <p>An absence of accessible and affordable supply of western rock lobster in local markets has been cited as a social-license-to-operate challenge for the western rock lobster and has been the subject of Western Australian Government policy intervention.</p> <p>To respond effectively to this challenge, industry must understand how 'real' the issue is and its true nature. A study that delivers evidence-based analysis as to issues such as trends in local demand throughout the year, identification and segmentation of the end customer, preferred purchase methods and practical issues associated with different purchase methods (e.g. BOBs), extent of product value appropriation by restaurants (i.e. margin) and use and informal distribution of the recreational catch, will assist industry in understanding the precise nature of the issue and how best to respond to it to reinforce industry's license to operate.</p> <p><i>This issue is primarily a WRL concern and is of medium to high criticality and urgency. Potential partners are UWA, Curtin and private sector market research firms.</i></p>
Programme C: Effective community engagement	<p>Effective engagement with the recreational sector</p> <p>As the industry's main partner in the shared western rock lobster shared resource, it is in industry's interests to ensure that it has a functional and harmonious relationship with the recreational sector. Research that revolves around collaboration with the recreational sector and delivers mutual benefits is beneficial in this regard.</p> <p><i>This is a shared responsibility with Recfishwest and is considered an issue of high criticality and urgency.</i></p> <p>Effective engagement with local fishing communities</p> <p>Historically, the economies of many coastal towns in Western Australia have revolved around the western rock lobster industry. A reduction in the operational footprint of the industry that occurred when the industry shifted to quota combined with economic diversification of the larger coastal settlements means that in many instances the western rock lobster industry isn't as critical to the economic and social fabric of those towns as it once was.</p> <p>However, support for these industries from these coastal communities is vital for the industries social-license-to-operate. Research that informs initiatives that can continue to underpin community support in this regard will ensure the industry is able to operate.</p> <p><i>This is primarily a WRL responsibility and of high criticality and urgency. Potential partners include UWA, Curtin and private sector community engagement advisory firms.</i></p>

3.3.2 Second order Western Rock Lobster Research Priorities

The research areas that are considered a second order of priority are business critical, but by their nature there is less urgency in developing solutions because either a satisfactory, albeit suboptimal, solution currently exists or by virtue of circumstance there is limited scope for WRL to intervene in any event. Further, the research that is undertaken to resolve these issues is either a shared responsibility or the primary responsibility of another organisation.

Table 2 – Second Order Western Rock Lobster Research Priorities

Programme	Research Area
Theme 1: Western rock lobster lifecycle, ecology, and stock assessments	

Programme B: Western rock lobster habitat and ecology	Enhanced prediction of warm water events and effects on the biomass.
	Enhanced prediction of currents.
Programme C: Certainty in stock assessments	Integrating enhanced understanding of impacts on western rock lobster lifecycle, habitat, and ecology into predictive modelling.
Programme	Research Area
Theme 3: Enhanced fishing operations	
Programme A: Digitisation of industry information systems	Scoping an online quota trading platform.
	Provenance traceability for processed production.
Programme B: Occupational health and safety	Accredited lobster fishing OHS induction course.
Programme C: Workforce	Training in ICT systems
Programme	Research Area
Theme 5: Enhancing social licence to operate	
Programme A: Ecological impacts of the western rock lobster industry	Reducing the fishing fleet carbon footprint

3.3.3 Third order Western Rock Lobster Research Priorities

The third order Western Rock Lobster Research Priorities are considered less business critical. These include research areas that are the primary responsibility of WRL, a shared responsibility and the primary responsibility of another organisation. The following Table 3 sets out the WRL third order research priorities.

Table 3 – Third Order Western Rock Lobster Research Priorities

Programme	Research Area
Theme 1: Western rock lobster lifecycle, ecology, and stock assessments	
Programme B: Western rock lobster habitat and ecology	Enhanced prediction of warm water events and effects on the biomass.
	Enhanced prediction of currents.
Programme C: Certainty in stock assessments	Integrating enhanced understanding of impacts on western rock lobster lifecycle, habitat, and ecology into predictive modelling.
Programme	Research Area
Theme 3: Enhanced fishing operations	
Programme A: Digitisation of industry information systems	Scoping an online quota trading platform.
	Provenance traceability for processed production.
Programme B: Occupational health and safety	Accredited lobster fishing OHS induction course.
Programme C: Workforce	Training in ICT systems
Programme	Research Area
Theme 5: Enhancing social licence to operate	
Programme A: Ecological impacts of the western rock lobster industry	Reducing the fishing fleet carbon footprint

4.0 Governance and Operations of the Western Rock Lobster Research Network

The Consultation Working Draft identified five separate structural options for delivering on the Research Priorities Framework:

1. Continuation of the current research management arrangement utilised by WRL
2. An enhanced research governance and management function within WRL
3. Outsourcing the research function to the Western Australian Marine Science Institution
4. Establishing a stand-alone western rock lobster research subsidiary
5. Progressing to a larger stand-alone Western Australian Fishing and Aquaculture Research Institute under which western rock lobster research would form part of a broader Western Australian seafood industry, recreational and customary research portfolio.

The overwhelming preference among consulted stakeholders was for the Research Priorities Framework to be implemented under an enhanced research governance and management function within WRL, with potential future progression to a Western Australian Fishing and Aquaculture Research Institute.

The focus of this governance and operating model is exclusively on the establishment and operations of the WRL Research Network in accordance with the preferred model.

4.1 Guiding principles

The governance and operations of the WRL Research Network will be guided by the principles outlined in the following Table 4.

Table 4 – Guiding principles for the WRL Research Network

Principle	Description
1. Genuine end-user engagement	To ensure that the WRL Research Network remains end-user focused, there will be continuous and deep engagement with fishers, processors and other key stakeholders in research project design, implementation, and outcome translation.
2. Primacy of the Research Priorities Plan	The Research Priorities Plan will be the primary document that guides research investments. Developed in deep consultation with end-users and other stakeholders it sets out agreed priorities. Deviation from these priorities should only occur in the case of unforeseen critical issue that require urgent research attention and only through due process.
3. Professional research project management	The processes associated with designing research projects, assembling research teams, applying for research grants and other sources of funding, managing the implementation of research projects, and translating their outcomes should be undertaken by a professional research manager.
4. Efficient research investment	Because research resources are scarce, all effort should be made to minimise duplication of research efforts, optimisation of strategic collaborations and minimisation of administrative overheads.
5. Building local capability and accessing	While a specific objective of the WRL Network will be to continue to develop Western Australia's world-class lobster research capability, the WRL Network will ensure that it brings the world's best research capabilities to bear on industry opportunities and challenges.

worlds-best capabilities

- 6. Translated outcomes The WRL Research Network will have a significant focus on ensuring the outcomes of all its research are effectively communicated and useable by end-users.

4.2 Governance framework

The purpose of the governance framework that applies to the WRL Research Network is to ensure the integrity of the decision-making process such that investments made under the WRL Research Network efficiently produce optimal outcomes for end-users.

Operating internally within WRL, the WRL Research Network governance framework is comprised of the following key components:

- WRL Research Priorities Plan
- WRL Board
- WRL Research Advisory Group
- WRL Executive

The WRL Research Network governance and operating framework is illustrated in the following Figure 2 and detailed in the subsequent subsections.

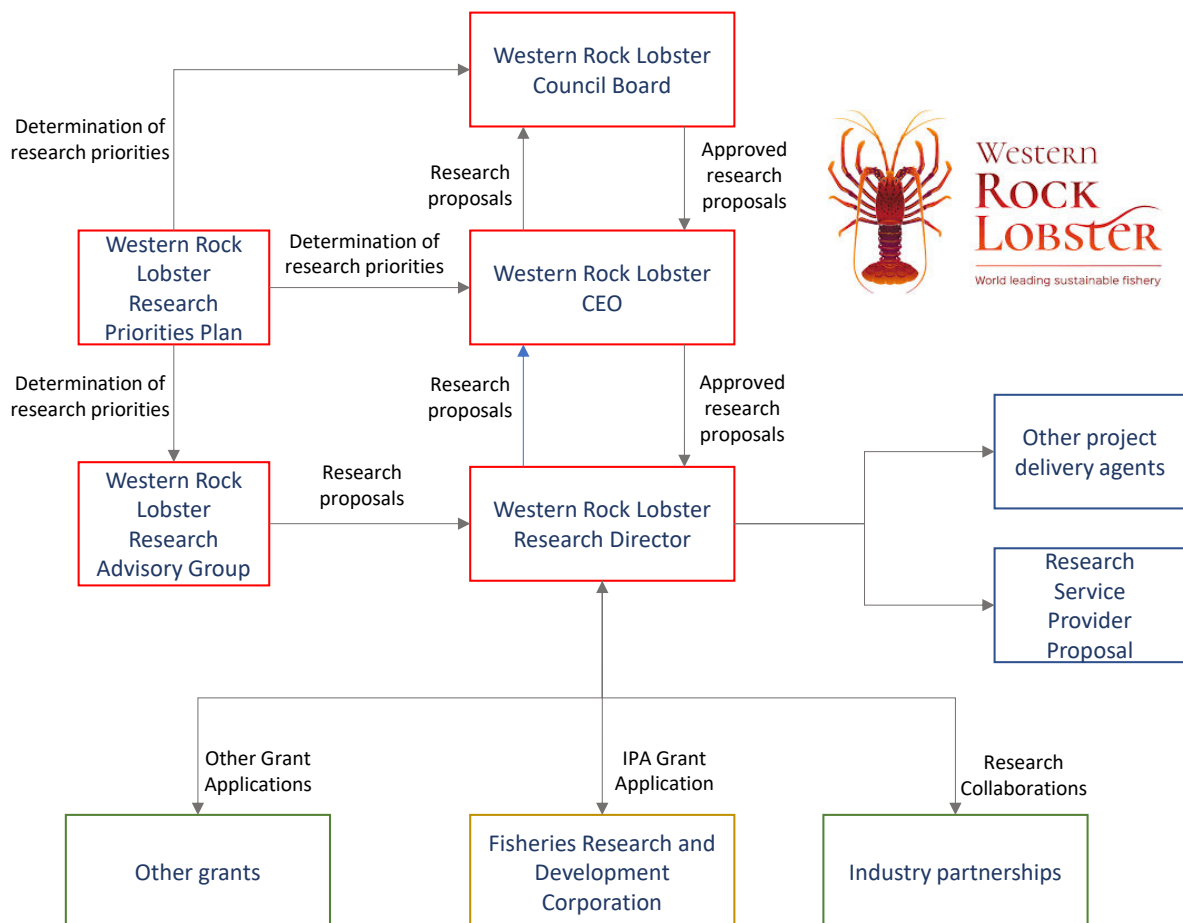


Figure 2 – WRL Research Network Governance and Operations Framework

4.2.1 WRL Research Priorities Plan

The Research Priorities Plan set out in 3.0 will form a key element of the WRL Research Network governance framework.

Sets the research program

The Board of WRL will pass a resolution that means that subject to periodic review and emergency responses (see below), the Board may not approve any research project that is not within the scope of the research areas identified in the Research Priorities Plan and must allocate research investments in accordance with the priorities set out in the Research Priorities Plan.

Periodic review

Changes in the natural resource, regulatory environment, market, and industry dynamics over time will mean that research priorities may change, and new research areas may emerge. To address this, the Research Priorities Plan will be the subject of a prescribed periodic review process.

The Research Priorities Plan will be the subject of a topical review by the Board every two years. This topical review will involve no more than the Board, working with the CEO and Research Director, reflecting on the research areas and priorities of the plan to ensure that they remain comfortable that priorities and areas remain appropriate.

Every five years, the Research Priorities Plan will be subject to a major independent review that will include extensive consultation with membership of WRL, processors, scientific sector and regulators similar to that used to develop the inaugural Research Priorities Plan.

Emergency research responses

From time-to-time ecological, natural resource, market, policy and other issues will arise that require an urgent research response. At the time these issues arise they may not be within the scope of a priorities research area or even with the scope of the Research Priorities Plan.

To address this issue the WRL Board will have the flexibility to allocate research resources to such 'emergencies' when they arise. In doing so, the WRL Board must be able to convince itself that the emergency is such that it justifies deviating from the current Research Priorities Plan and post decision, explain the rationale for the deviation to the WRL membership.

4.2.2 WRL Board

As the ultimate decision-making body of WRL, the role of the WRL Board in the governance of the WRL Research Network is to, within the scope prescribed by the WRL Research Priorities Plan and related processes set out in Section 4.2.1 above, approve or reject research proposals presented to it by the WRL executive.

In reviewing proposals, the WRL Board may ask the WRL executive to revise certain aspects of proposals and in approving or rejecting a proposal it must convince itself that its decision is consistent with the requirements set out in 4.2.1 above.

4.2.3 WRL Research Advisory Group

To support advice provided by the WRL executive to the WRL Board with respect to research project proposals, a WRL Research Advisory Group will be established.

Terms of Reference

The Terms of Reference for the Research Advisory Group are, with absolute reference to the WRL Research Priorities Plan, work with the WRL Research Director to:

1. Identify specific research project opportunities.
2. Advise on the assembly of research project teams.
3. Advise of the design of research projects; and
4. Review and advise on research project outcomes.

Composition and operations

The Research Advisory Group will be comprised of representation of end-users and other key stakeholders as well as appropriate scientific expertise and will include:

- WRL Chief Executive Officer (Chair)
- WRL Research Director (ex-officio)
- Three representatives of fishers
- Two representatives of processors and seafood marketing
- One representative from DPIRD
- One representative from FRDC
- Two representatives from the university sector (rotating periodically)

The WRL Research Advisory Group will meet at least quarterly.

4.2.4 WRL Executive

Western Rock Lobster Research Network Director

A new position (see Section 4.3.1 below), the WRL Research Director will have primary responsibility for implementation and management of the WRL Research Network.

Western Rock Lobster Chief Executive Officer

The WRL Chief Executive Officer is responsible for chairing the WRL Research Advisory Group and is the main interface between the WRL Research Network and WRL Board.

4.3 Operating plan

4.3.1 Executive function: WRL Research Network Director

Role description

To give effect to the WRL Research Network a new position of Research Network Director will be created within WRL. With primary responsibility for implementation and ongoing management of the WRL Research Network, the key functions of the WRL Research Director will be to:

- Working with the WRL Research Advisory Group, design research projects that address the priorities set out in the Research Priorities Plan
- Work with other stakeholders to ensure WRL has significant input into research projects for which there are shared interests, or the research subject matter is a major focus of another organisation
- Assemble research project teams on the advice of the WRL Research Advisory Group
- Work with the WRL CEO to prepare research project proposals for WRL Board review and approval
- Engage with the FRDC and other external sources of research funding to optimise leverage
- Project manage approved and funded research projects
- Report on research project progress to the WRL Research Advisory Group, CEO and Board, as well as to external stakeholders as required
- Ensure that research project outcomes are communicated and translated effectively to WRL members

Capability requirements

The WRL Research Director should be an experienced research project manager.

Critical criteria include:

- At least a rudimentary understanding of fisheries issues
- Understanding and appreciation of strategic approaches to industry-oriented research
- Experience in research project planning and management
- Successful track record in scientific (fundamental and applied) grant applications
- Demonstrated ability to facilitate and lead research where there are shared interests across multiple sectors and organisations
- Experience in working with multi-disciplinary and industry-oriented boards and advisory groups
- Experience in translating research outcomes

Other desirable criteria include:

- Existing networks with relevant research and research funding organisations
- Fisheries or other marine science expertise

Key Performance Indicators (KPIs) should include:

- Giving effect to the research priorities that are principally the responsibility of WRL
- Putting together and effectively working in cross-organisation and cross-sector teams to give effect to research priorities that are shared responsibilities and to ensure there is adequate WRL input to research priorities that are a major focus of other organisations
- Achieving adequate leverage from the research funds available through the WRL IPA (see Section 4.4).

4.4 Budget

4.4.1 Operating budget

Table 4 summarises the proposed operating budget for the WRL Research Network. Most of the administrative component of the budget in the early years is the salary cost of the WRL Research Network Director. In the early years, the WRL Research Network will share the internal executive officer and communications capabilities of WRL. However, it is anticipated that as the research portfolio grows, the WRL Research Network will require its own capacity in this regard, commencing 2024-25/2025-26.

Table 5 – WRL Research Network operating budget

	2022-23	2023-24	2024-25	2025-26	2026-27	Five-year Total
Governance						
Advisory Group operating expenses and sitting fees	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000
Subtotal - Governance	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000
Operations						
WRL Research Network Director salary and oncosts	\$ 190,000	\$ 190,000	\$ 190,000	\$ 190,000	\$ 190,000	\$ 950,000
WRL Research Network Executive Officer ⁴	\$ -	\$ -	\$ 100,000	\$ 100,000	\$ 100,000	\$ 300,000
WRL Research Network Communications Officer ⁵	\$ -	\$ -	\$ -	\$ 100,000	\$ 100,000	\$ 200,000
Data and research management IT	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000
Travel budget	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000
Reporting and communications budget	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000
Subtotal - Operations	\$ 220,000	\$ 220,000	\$ 320,000	\$ 420,000	\$ 420,000	\$ 1,600,000
Total Administration Budget	\$ 230,000	\$ 230,000	\$ 330,000	\$ 430,000	\$ 430,000	\$ 1,650,000

4.4.2 Research budget

While the industry adjusts to the market disruption caused by the actions taken by the People’s Republic of China, it is anticipated that the three-year rolling average of industry GVP will decline over the coming years. This will, in turn, result in a declining amount allocated to the WRL IPA. However, by pursuing a more strategic approach to research investment in accordance with the Research Priorities Plan and leverage additional resources such as those identified in the following subsection, the WRL Research Network will substantially increase the research resources available to it, potentially as high as 4:1. This will not only better resource the

⁴ Executive officer functions will be shared with WRL corporate in early years

⁵ Communications officer functions will be shared with WRL corporate in early years

projects addressing WRL’s research priorities, but will also decrease the WRL Research Network administrative costs as a portion of the research investment. This is summarised in Table 6.

Table 6 – WRL Research Network research budget

	2022-23	2023-24	2024-25	2025-26	2026-27	Five-year Total
Estimated FRDC hypothecation to the WRL IPA ⁶	\$ 750,907	\$ 621,669	\$ 604,167	\$ 625,000	\$ 625,000	\$ 3,226,743
Leverage 1:1	\$1,501,814	\$1,243,338	\$1,208,334	\$1,250,000	\$1,250,000	\$ 6,453,486
Leverage 2:1	\$2,252,721	\$1,865,007	\$1,812,501	\$1,875,000	\$1,875,000	\$ 9,680,229
Leverage 3:1	\$3,003,628	\$2,486,676	\$2,416,668	\$2,500,000	\$2,500,000	\$ 12,906,972
Leverage 4:1	\$3,754,535	\$3,108,345	\$3,020,835	\$3,125,000	\$3,125,000	\$ 16,133,715
Administration costs (1:1)	31%	37%	55%	69%	69%	26%
Administration costs (2:1)	10%	12%	18%	23%	23%	17%
Administration costs (3:1)	8%	9%	14%	17%	17%	13%
Administration costs (4:1)	6%	7%	11%	14%	14%	10%

4.4.3 Resourcing strategy

It is the intent that the WRL Research Network Director salary will be at least part funded from the WRL IPA. The balance of the annual IPA funds will be invested in research in accordance with the processes discussed in Section 4.2 and 4.3, with identifying opportunities to leverage those funds against other relevant external sources a key component of the development of all projects.

The following Table 7 summarises some potential other sources of research funding that could be used to leverage the WRL IPA resources.

Table 7 – External Grant Sources

Grant Name	Organisation	Funding Purpose
Science and Research Fund	Marine Stewardship Council	Grants for research projects that help fisheries to meet and maintain sustainability best practice. Up to £50,000.
Recertification Assistance Fund	Marine Stewardship Council	Assists MSC certified fisheries with the cost of Conformity Assessment Body fees for the second or subsequent recertification audit.
AMFA Research Program	Australian Fisheries Management Authority (AMFA)	Funding for research projects aligned with AMFA’s annual research plan.
Recreational Fishing Initiatives Fund	Recfishwest	Funding for research projects aimed at enhancing recreational fishing in WA.

⁶ Estimated to decline over the short-to-medium term in accordance with industry GVP forecasts

Grant Name	Organisation	Funding Purpose
Regional Economic Development (RED) Grants	Department of Primary Industries and Regional Development (DPIRD)	Investment into community-driven projects that support efforts to create long-term economic growth and job sustainability in WA's regions.
Value Add Investment Grants	Department of Primary Industries and Regional Development (DPIRD)	Funding for WA businesses to boost local food and beverage manufacturing and value adding.
International Competitiveness Co-Investment Fund	Department of Primary Industries and Regional Development (DPIRD)	\$3 million committed across three funding rounds between 2020-2022. Support to businesses to rebuild existing Asian market business relationships disrupted by COVID-19 and to develop and implement strategies to capture export market opportunities, to ultimately benefit regional WA.
Agrifood and Beverage Voucher Program	Department of Primary Industries and Regional Development (DPIRD)	Support for WA agrifood and beverage manufacturers to engage business consultants or technical experts.
Value Add Agribusiness Investment Attraction Fund	Department of Primary Industries and Regional Development (DPIRD)	The fund aims to support businesses to invest in new projects or expansion opportunities in WA, that will build competitiveness, adopt innovative technologies, and grow their operations.
Export Market Development Grants (EMDG)	AUSTRADE	Grants to help Australian small and medium enterprises grow their exports in international markets.
Cooperative Research Centre (CRC) Grants	Australian Department of Industry, Science and Technology	Provide funding for medium to long-term, industry-led research collaborations, for up to 10 years.
Cooperative Research Centre (CRC) Projects Grants	Australian Department of Industry, Science and Technology	Provide funding support for short term, industry-led collaborative research, for up to 3 years.
The Linkage Program	Australian Research Council (ARC)	Promotes national and international research partnerships between researchers and business, industry, community organisations and other publicly funded research agencies.
Industrial Transformation Research Program (ITRP)	Australian Research Council (ARC)	Seeks to engage Australia's best researchers in issues facing the new industrial economies and training the future workforce. Food and agribusiness is one of the current industrial transformation priorities and the program. The

Grant Name	Organisation	Funding Purpose
		program funds Research Hubs and Training Centres.

5.0 Appendix 1: Research Prioritisation Process

The research priorities framework is comprised of six themes and 20 programmes across those themes. The consultation process initially identified approximately 50 research areas across those programmes. In an environment characterised by scarce resources, a process of further prioritisation is required to ensure prudent investment and optimal outcomes for industry.

This further prioritisation was given effect by a 'state-of-the-art' analysis, further consultation and a triage process further reduced the number research areas to 38..

State-of-the-art analysis

The Consultation Working Draft includes a review of literature pertaining to each of the research areas identified under the themes and programmes that comprise the research priorities identified in the Consultation Working Draft. This provided an indication as to the status of knowledge (or 'state-of-the-art') pertaining to a particular research area and assisted in prioritisation by ensuring that any research conducted under the WRL Research Network is not unnecessarily duplicative and is in fact advancing toward a solution. The state-of-the-art analysis is available from WRL.

Prioritisation triage

Because they are identified by western rock lobster fishers, processors and other key stakeholders as important issues requiring further knowledge to resolve, all the research areas identified in the Consultation Working Draft are important. However, because of scarce resources, not all the identified research areas can be addressed at once and in some instances, there are potentially more efficient ways of addressing a research area through collaborations or by leveraging of research being undertaken as a priority by other organisations.

To this end, the priority research areas identified in the framework are further triaged according to the following dimensions.

1. Criticality

Criticality refers to the extent to which developing new knowledge, decision tool or technology under an identified research area is important to the continuity, productivity, or profitability of the industry. This can include research areas that are challenge-oriented in the form of threats, or opportunity-oriented in the form of pathways for enhancing value for industry. Across this dimension, research areas can reside on a continuum from low to high criticality.

2. Urgency

Urgency refers to the timeframe that new knowledge, decision tool or technology to developed under an identified research area needs to be realised to optimally address an identified challenge or opportunity. Across this dimension, research areas can reside on a continuum from low to high urgency.

3. Opportunities to collaborate with or leverage from others

In some instance identified research areas are such that western rock lobster will have a shared, non-competitive interest in the research outcome with government, other sectors of the fishery, other industries, and mission-oriented research organisations. In such circumstances, the WRL Research Network can leverage its resources to achieve more efficient research outcomes. This can include significant co-investment where interests are more or less equal, to less significant input and outcome sharing where the area is a major research focus of another organisation. Across this dimension, research areas can be classified as principally the responsibility of WRL (Red), a shared responsibility with another entity (blue), a major focus of another entity (green).

This prioritisation landscape is illustrated in the following Figure 3.

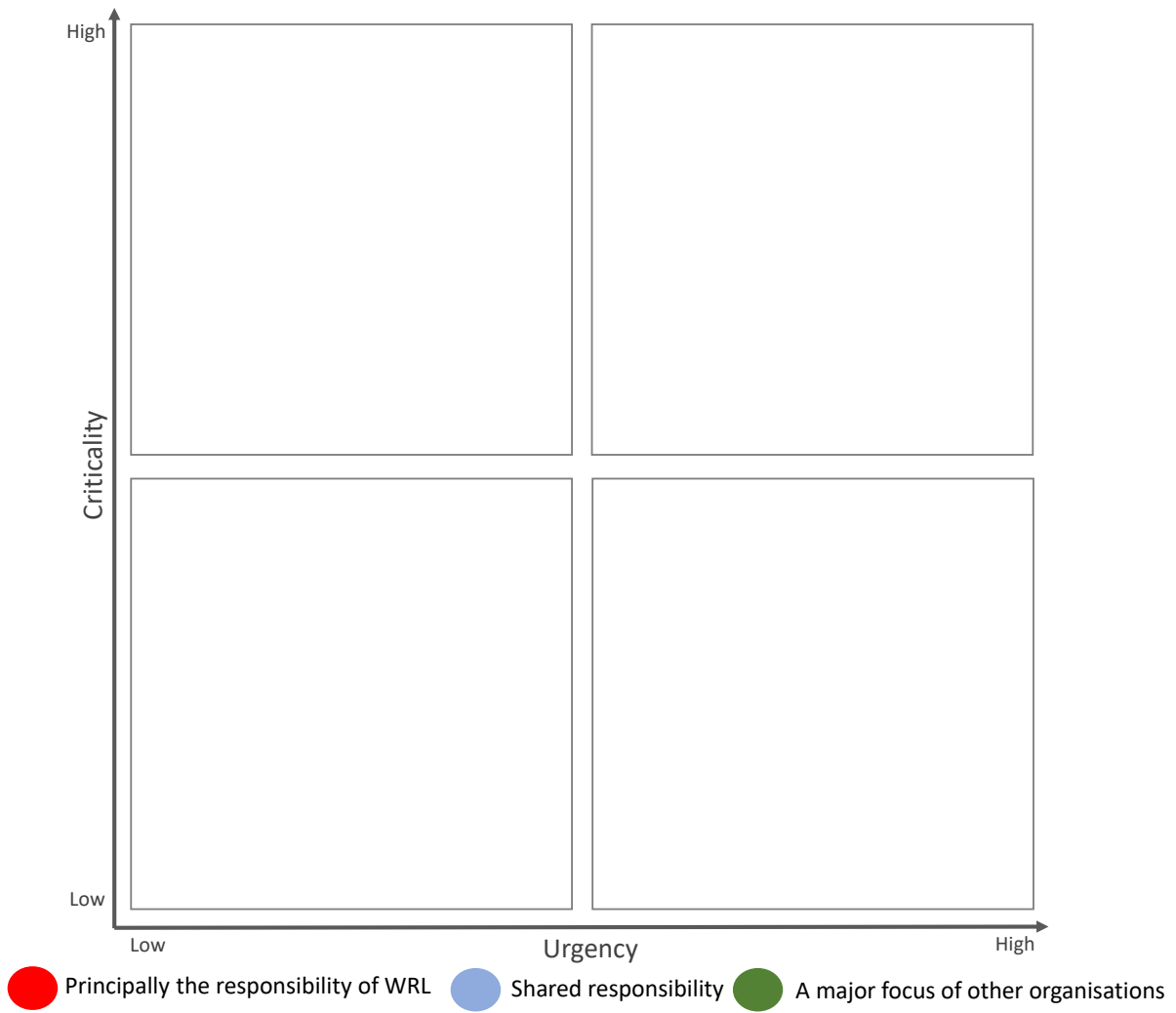


Figure 3 – WRL Research Prioritisation Landscape

Western Rock Lobster Research Network





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