

PIRSA

Cost Recovery Implementation Statement for the Pipi Fishery and Net Sector (Lakes and Coorong)

1 July 2022 to 30 June 2023



**Government
of South Australia**
Department of Primary
Industries and Regions

Cost Recovery Implementation Statement

Information current as of February 2022
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Contents

Introduction	6
Summary Table.....	7
Program Daily Charge Out Rate 2022-23	8
Fishery Management Objectives (Net Sector)	9
Fishery Management Objectives (Pipi Sector)	11
Fisheries Management Program	12
Program summary	12
Objectives	12
Program strategies and supporting actions and initiatives	12
Anticipated outcomes	12
Performance indicators	13
Program effort allocation	13
Legal Services Program	16
Program summary	16
Objectives	16
Program strategies and supporting actions and initiatives	16
Program effort allocation	16
Anticipated outcomes	17
Leasing and Licensing Program	18
Program summary	18
Objectives	18
Program strategies and supporting actions and initiatives	18
Anticipated outcomes	18
Program effort allocation	18
Directorate Program	21
Program summary	21
Objectives	21

Program strategies and supporting actions and initiatives	21
Program effort allocation	21
Anticipated outcomes	22
Fisheries Compliance Operations Program	23
Net Sector	23
Program summary	23
Legislative and regulatory framework.....	23
Program effort, funding and resources	23
IT systems, technology and data.....	25
Delivery outputs	25
Intelligence	25
Education and awareness	25
Effective deterrence, monitoring and surveillance.....	26
Enforcement.....	26
Anticipated outcomes.....	26
Awareness	27
Behaviour	27
Impact	28
Fisheries Compliance Operations Program	30
Pipi Fishery	30
Program summary	30
Legislative and regulatory framework.....	30
Program effort, funding and resources	30
IT systems, technology and data.....	31
Delivery outputs	32
Intelligence	32
Education and awareness	32
Effective deterrence, monitoring and surveillance.....	32
Enforcement.....	32

Risk assessment and management (work priorities)	33
Anticipated outcomes.....	33
Awareness	33
Behaviour	34
Impact	35
Stock Assessment and Monitoring Program	36
Finfish Sector	36
1. Project details	36
2. Project description	37
3. Deliverables	39
4. Funding arrangements.....	42
5. Project staff.....	43
6. Project cost summary	43
Stock Assessment and Monitoring Program	44
Pipi Sector.....	44
1. Project details	44
2. Project description	45
3. Deliverables	47
4. Funding arrangements.....	49
5. Project staff.....	50
6. Project cost summary	51

Introduction

Wild catch commercial fisheries in South Australia are managed in accordance with the Department of Primary and Industries and Regions (PIRSA) Cost Recovery Policy. This policy requires commercial fishery licence fees to fund services related to commercial fisheries management costs. PIRSA Fisheries and Aquaculture continue to manage the process of consulting with service providers and relevant industry associations to establish fishery-based management programs, which form the basis of annual licence fees.

For each sector, the program required to manage the fishery has the following components:

- Assessment and Research Services.
- Fisheries Management Services.
- Compliance Services, including communication, enforcement and monitoring activities.
- Support Services, including Legislation, Licensing and Business Services (Directorate).

This documentation provides a framework to assist in establishing appropriate research, policy, compliance and support services to manage a fishery.

For further information relating to Cost Recovery Reviews, Policy and Framework, they can be found at https://www.pir.sa.gov.au/fishing/commercial_fishing/pirsa_services_to_fisheries_industry

Consistent with Principle 7 of the PIRSA Cost Recovery Policy, an annual schedule of meetings for stakeholder engagement and support for the cost recovery process in relation to commercial fisheries is outlined below:

Annual schedule of meetings		
Date	Activity	Parties
Sept/Oct	Review long-term objectives for fishery and update if necessary. Identify priority outcomes for upcoming financial year.	PIRSA and industry association
October	Develop policy, research and compliance work programs in readiness for discussions (fisheries managers with industry) in November.	PIRSA
November	Discuss proposed programs with relevant industry associations and reach agreement on programs for the upcoming period. Industry associations to consult with wider industry.	PIRSA and industry association
February	Formal meetings with industry associations to finalise work programs and summarise costs.	PIRSA and industry association
March	Submit proposed licence fees to Minister. Prepare Ministerial Notice briefing to vary and prescribe lease and licence fees for the next financial year.	PIRSA and government agencies
June	Invoices sent for annual licence fees.	PIRSA

* Dates above are indicative only and may vary due to unforeseen circumstances that may arise throughout any year.** If a four-year agreement has been adopted, the Cost Recovery Implementation Agreement (CRIA) will determine that an annual meeting will occur to enable annual stakeholder engagement.

Summary Table

2021-22		Program Area	2022-23		Comments	Days	FTE
Pipi (\$)	Lakes and Coorong (\$)		Pipi (\$)	Lakes and Coorong (\$)			
RESEARCH COSTS							
205,536	95,823	Stock Assessment and Monitoring	213,466	163,233	Year 4 of 4 year research project scope		
5,249	5,934	Economic Assessment	5,406	6,112	As per contract services 2022-23		
	1,644	Other Research		1,715	Contribution towards Threatened and Endangered Species		
PIRSA RELATED COSTS							
34,320	34,320	Fisheries Management	35,000	35,000	Same level of service as previous year	80	0.40
4,620	4,620	Legislation	4,710	4,710	Same level of service as previous year	10	0.05
6,045	6,045	Licensing	6,162	6,162	Same level of service as previous year	13	0.07
1,706	1,706	Directorate	1,740	1,740	Same level of service as previous year	4	0.02
62,550	50,040	Compliance	63,800	51,040	Same level of service as previous year	90	0.45
16,960	-	Quota Monitoring	17,300		Same level of service as previous year	20	0.10
OTHER COSTS							
14,492	10,246	FRDC	14,869	11,070	Funding based on 0.25% of rolling three year average GVP		
	90,000	Co-Management Services		91,000	Co-Management Services requested for 2022-23		
351,478	300,378	TOTAL	\$362,453	371,782			

Licence Fees for 2022-23 (\$)			
Lakes and Coorong Access Fee	2,745	Pipi Base	5,680
Net Sector Base	1,630	Pipi Unit Fee	300
Net Fee	182		

Licence Fees for 2021-22 (\$)			
Lakes and Coorong Access Fee	2,710	Pipi Base	5,562
Net Sector Base	1,582	Pipi Unit Fee	290
Net Fee	124		

Program Daily Charge Out Rate 2022-23

	DAILY RATE (\$)					
	Compliance	Quota	Directorate	Legislation	Licensing	Fisheries Management
Total Employee Expenses	653	432	636	734	513	634
Total Operating Expenses	325	128	92	66	129	100
Depreciation and Capital Costs	70	0	0	0	0	0
Total Other Expenses*	227	305	141	141	305	141
TOTAL DAILY RATE	1,276	865	870	942	948	875

Please Note: All dollar values have been rounded to the nearest dollar figure.

* Other expenses includes ICT, finance, human resources, WHS, accommodation, insurance and other costs incurred corporately in providing services to divisions, apportioned across PIRSA using a range of cost drivers such as number of logons, headcount, volume data and other workload indicators, in accordance with PIRSA's cost recovery policy.

Fishery Management Objectives (Net Sector)

Management Plan Objectives	Outcomes	Fisheries Management	Compliance	Assessment and Research	Leasing and Licensing
Ensure LCF resources are harvested within ecologically sustainable limits.	Implementation of Management Plan under the <i>Fisheries Management Act 2007</i> , including Harvest Strategies.	<p>Implement Management Plan, including annual TACE decision making.</p> <p>Assist the finfish sector with transitioning to electronic reporting.</p> <p>Develop and implement recovery strategy for Black Bream.</p> <p>Consult with industry to address emerging issues.</p>	<p>Support implementation of Management Plan.</p> <p>Implement compliance plan in accordance with risk assessment.</p> <p>Support review of Management Plan.</p>	<p>Support implementation of Management Plan.</p> <p>Annual fishery and environmental statistical report.</p> <p>Fishery assessment reports and advice notes as required.</p> <p>Support development of recovery strategy for Black Bream and Greenback flounder.</p> <p>Support review of Management Plan.</p>	Support Management Plan implementation and review.
Optimum utilisation and equitable distribution of the LCF resources.	<p>Monitor and manage catches of each sector within allocated shares.</p> <p>Mitigate interactions with long-nosed fur seals.</p>	<p>Catch and effort managed within allocations and changes in shares detected and acted on appropriately.</p> <p>Develop and implement arrangements to mitigate interactions with long-nosed fur seals.</p>		FRDC project Developing alternative strategies for managing seal-fisher interactions in the South Australian Lakes and Coorong Fishery'.	

Minimise impacts on the ecosystem.	Participate in relevant environmental water flow Initiatives. Progress DAWE recommendations.			Produce overall TEPS report.	
Cost-effective, efficient and participative management of the fishery.	Support industry to maintain MSC accreditation. Effective engagement with industry in accordance with agreed co-management arrangements.	Support ongoing MSC accreditation. Liaise with industry and attend LCFMAC and LCCC meetings as appropriate. Consult with SFA and GPHA on policy and management issues. Finalise and implement consultative arrangements in line with Co-management arrangements.	Support ongoing MSC accreditation. Liaise with industry and attend LCFMAC and LCCC meetings as appropriate.	Support ongoing MSC accreditation. Liaise with industry and attend LCFMAC and LCCC meetings as appropriate.	Provide ongoing support for licensing, quota and transfer queries.

Fishery Management Objectives (Pipi Sector)

Management Plan objectives	Outcomes	Fisheries Management	Compliance	Assessment and Research	Leasing and Licensing
Ensure LCF Pipi resources harvested within ecologically sustainable limits.	Implement Management Plan under the <i>Fisheries Management Act 2007</i> , including Harvest Strategy. Facilitate industry economic and market development initiatives.	Implement Management Plan, including annual TACC decision making. Consult with industry to address emerging issues.	Support implementation of new Management Plan. Implement compliance plan in accordance with risk assessment. Support implementation of new Management Plan.	Annual advice note regarding Harvest Strategy performance indicators for Pipi. Continue development of a method for estimating relative abundance of pre-recruits to the Pipi fishery. Support implementation of Management Plan. .	Support development of new Management Plan.
Optimum utilisation and equitable distribution of the resources for the benefit of the community.					
Minimise impacts on the ecosystem.	Progress DAWE recommendations.		Implement compliance plan in accordance with risk assessment.	Produce overall TEPS report.	
Cost-effective, efficient and participative management of the fishery.	Finalise and implement agreed co-management arrangements.	Consult with SFA and GPHA on policy and management issues. Liaise with industry and attend meetings as appropriate.	Liaise with industry and attend meetings as appropriate.	Liaise with industry and attend meetings as appropriate.	Provide ongoing support for licensing, quota and transfer queries.

Fisheries Management Program

Program Manager:

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Program summary

The Fisheries Management Unit of PIRSA Fisheries and Aquaculture undertakes activities such as day-to-day management, long-term planning and policy development for South Australian commercial, recreational and Aboriginal traditional fisheries.

The Fisheries Management unit has the following core functions:

- Administer the *Fisheries Management Act 2007* and regulations.
- Day-to-day management of fisheries resources, to ensure catch and effort levels are commensurate with resource sustainability.
- Develop and implement Management Plans, including Harvest Strategy development and ESD risk assessment, in accordance with the *Fisheries Management Act 2007*.
- Provide advice to the Minister for Primary Industries and Regional Development and Chief Executive on matters relating to fisheries.
- Represent the Executive Director, Fisheries and Aquaculture on committees and other forums on matters related to the administration of the *Fisheries Management Act 2007*.
- Develop over-arching policy frameworks to support fisheries management.
- Build and maintain relationships with key stakeholders, with a particular focus on the commercial and recreational fishing sectors.
- Progress Australian Government recommendations under EPBC Act (1999) assessment.

Objectives

To provide day-to-day fisheries management services to the Lakes and Coorong Fishery to government and industry, as well as advice and facilitation of fisheries policy and management issues, through the Fisheries Management Program.

Program strategies and supporting actions and initiatives

Anticipated outcomes

1. Provision of clear instructions for complex legal drafting or compilation of drafts of simple legislative instruments in consultation with the legal manager as necessary for the management of the Lakes and Coorong Fishery (regulations, closure notices, licence conditions, Ministerial exemptions etc).

2. Provide advice to the Minister or his/her delegate on setting total allowable commercial catch and effort levels for the Lakes and Coorong Fishery.
3. Prepare policies to support fisheries management.
4. Prepare submissions to enable regular assessment of the Lakes and Coorong Fishery under the EPBC Act.
5. Prepare annual report to the Australian Government on EPBC Act requirements for the Lakes and Coorong Fishery.
6. Prepare regular fisheries status reports.
7. Develop and maintain day-to-day productive working relationships and outcomes through cooperative management and collaboration with stakeholders.
8. Further the development of co-management arrangements.

Performance indicators

1. Strong industry and government involvement in co-management relationship and adherence to formally agreed co-management arrangements.
2. Develop and implement Management Plan. Management Plans to include Harvest Strategies that protect sustainability of the fishery based on ESD risk assessment processes.
3. Australian Government recommendations met in relation to EPBC assessment.
4. Setting of TACC and TACE for Lakes and Coorong Fishery.

Program effort allocation

The table below includes an abbreviated suite of core activities and initiatives used to manage risks and reflect the anticipated split of effort and associated costs.

Activity	Days	FTE	Cost (\$)
Fisheries Management – Pipi	40	0.20	35,000
Fisheries Management – Lakes and Coorong	40	0.20	35,000

Please Note: All dollar values have been rounded to the nearest dollar figure.

	Deliverables	Due date
1.	PIRSA to action items that arise as a result of a workshop to examine the results of previous initiatives and future initiatives to help fishers with seal interactions in the Lakes and Coorong.	30 December 2022
2.	Review the Fisheries Management (Lakes and Coorong) Regulations 2009 and support implementation of amendments if required	1 September 2022
3.	Assist the finfish sector to transition to electronic reporting	30 June 2023
4.	Participate in inter and intra-departmental meetings and workshops on issues relevant to fisheries management.	Ongoing
5.	Liaise within the Fisheries and Aquaculture Division, with SARDI Aquatic Sciences, other parts of PIRSA and other State and Commonwealth agencies on matters relevant to fisheries management.	Ongoing
6.	Liaise within PIRSA, with other government agencies and with industry representatives in implementing decisions relevant to fisheries management.	Ongoing
7.	Conduct regular assessment or review of existing management arrangements for fisheries management, including analysis of statistical information on fisheries and interactions with threatened, endangered and protected species, within fisheries policy.	Ongoing
8.	Consult with industry and SARDI in regards to the future management plans for Black bream and Greenback flounder stocks in the LCF.	Ongoing
9.	Coordinate consultation with fishery stakeholders through established co-management processes. <ul style="list-style-type: none"> Lakes and Coorong Fishery Management Advisory Committee (LCFMAC) Lakes and Coorong Fishery Consultative Committee 	Ongoing Ongoing
10.	Participate in industry liaison in the field and on vessels to strengthen fishery management knowledge and understanding, and develop rapport with licence holders.	Ongoing
11.	Participate in industry development initiatives related to fisheries management.	Ongoing
12.	Attend to general correspondence and enquiries relevant to the Lakes and Coorong Fishery.	Ongoing
13.	Provide advice to Minister in relation to the management of fisheries and Ministerial correspondence.	Ongoing

14.	Communicate on fisheries management issues to key stakeholder groups and the broader community.	Ongoing
15.	Continue to support MSC accreditation for the Pipi sectors Support process for finfish sector MSC re-accreditation	Ongoing

Legal Services Program

Program Manager:

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Program summary

PIRSA Fisheries and Aquaculture Directorate provides legal services to the Executive Director and all other members of the Division, in particular the policy group, on a daily basis. Among other things these services include strategic advice and problem-solving, review of draft documentation and correspondence, statutory interpretation and the provision of general advice and statutory interpretation, in consultation with the Crown Solicitor's Office where necessary, regarding any legal issues relating to proposed actions and the implementation or administration of Lakes and Coorong fisheries management and regulatory arrangements through existing legislative frameworks and licence conditions. Consideration is also given to the impacts and effects of other related legislation if and when required.

Objectives

To provide legal services supporting the implementation of necessary, appropriate and effective statutory and administrative changes to government administration of all fishery sectors, as well as strategic advice and facilitation of related policy development, legislative and regulatory issues, through the Legal Services Program.

Program strategies and supporting actions and initiatives

Program effort allocation

The table below includes an abbreviated suite of core activities and initiatives used to manage risks and reflect the anticipated split of effort and associated costs.

Activity	Days	FTE	Cost (\$)
Legislation - Pipi	5	0.025	4,710
Legislation – Lakes and Coorong	5	0.025	4,710

Please Note: All dollar values have been rounded to the nearest dollar figure.

Anticipated outcomes

	Deliverables	Due date
1.	Co-ordinate the introduction, amendment or revocation of Fisheries legislation in line with Fisheries Policy decisions i.e. Act or regulation amendments, the introduction of new regulations and drafting of other legislative and administrative instruments such as delegations, licences, permits, closures or exemption instruments as required under the <i>Fisheries Management Act 2007</i> (the Act). New regulations or amendments require the drafting of Cabinet submissions and supporting documentation, including the preparation of drafting instructions, for consideration by Cabinet. This service includes co-ordinating the cabinet process and working with the Office of Parliamentary Counsel and the Crown Solicitor's Office and other government agencies to ensure that proposed regulatory arrangements are accurately described, drafted and scrutinised before being implemented.	Ongoing
2.	Review licensing arrangements required on an as needs basis to lawfully implement approved fishery management policy and measures within the limitations of the Act. The service includes working with the Licensing program (part of Leasing and Licensing) and policy program to ensure licence conditions are effective and where necessary to implement efficient administrative systems and finalise forms and instruments that are legally sound.	Ongoing
3.	Problem solve and review policy developments together with the provision and co-ordination of legal advisory services in liaison with the Crown Solicitor's office relating to and the lawful implementation and administration of the Act, regulations and fisheries management policies, interaction with other Acts, and the defence of those policies and arrangements raised in litigation or industry correspondence.	Ongoing
4.	Coordinate applications for Ministerial exemptions under Part 10 Division 1 and Permits under Part 7 Division 2 of the Act and review draft notices.	Ongoing
5.	Additional legal services to support and review, on an as needs basis, the legislative compliance of decision-making documentation created for the Executive Director, Fisheries and Aquaculture and the Director Operations and other delegates of the Minister under the Act to safeguard the ongoing sustainability of a fishery in any particular year (where required), depending on positive or negative scientific indicators, to implement new fisheries management arrangements (for example the introduction or variation of a quota system, carry over of quota arrangements) or new administrative or compliance arrangements (for example, changes to licensing processes, conditions, introduction of closures).	Ongoing
6.	Support compliance for statutory interpretation, problem solving and correspondence advice (per above).	Ongoing

Leasing and Licensing Program

Program Manager:

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Program summary

The Fisheries Leasing and Licensing unit of PIRSA Fisheries and Aquaculture is responsible for the management of licensing and quota monitoring services.

This business unit provides a range of services related to the timely processing and management of information leading to the issue of licences and other reporting services.

The unit administers a licensing call centre for licence inquiries and other administrative services. The success of these functions is based on maintaining the Primary Industries Information Management System (PIIMS) database.

Objectives

To provide leasing and licensing services to government and industry through the Leasing and Licensing Program.

Program strategies and supporting actions and initiatives

Anticipated outcomes

1. Issue licences to licence holders in an accurate and timely manner.
2. Provide accurate and timely information related to licences.
3. Provide reports as required.

Program effort allocation

The table below includes an abbreviated suite of core activities and initiatives used to manage risks and reflect the anticipated split of effort and associated costs.

Activity	Days	FTE	Cost (\$)
Leasing and Licensing - Pipi	6.5	0.035	6,162
Leasing and Licensing – Lakes and Coorong	6.5	0.035	6,162
Quota Monitoring – Pipi	20	0.10	17,300

Please Note: All dollar values have been rounded to the nearest dollar figure.

	Deliverables	Due date
	Services to directly support the fishery	
1.	Issue and maintain fishery licences.	Ongoing
2.	Database management for licence and licence holder information.	Ongoing
3.	Monitor and support eBusiness systems.	Ongoing
4.	Quota monitoring and management including applying overcatch and undercatch adjustments	Ongoing
5.	Collect licence fees and associated payments.	Ongoing
6.	Compose and send quarterly instalment notices.	Ongoing
7.	Record and track unpaid invoices.	Ongoing
8.	Compose and send late payment instalment notices for unpaid quarterly instalments.	Ongoing
9.	Draft and issue notices to fishers.	Ongoing
10.	Process requests for information from fishers who make such inquiries over the counter, through the call centre, via facsimile or e-mail. For example, helping fishers to process information relevant to licensing and quota, application for licence transfers, boat changes, gear enquiries and fishing regulations.	Ongoing
11.	Regularly update information about licence holders.	Ongoing
12.	Research and prepare documents for public record.	Ongoing
13.	Liaise with government stakeholders to verify the credentials of fishers.	Ongoing
14.	Liaise with PIRSA Fisheries and Aquaculture, SARDI Aquatic Sciences, Crown Solicitors and other state and local agencies on matters relevant to the fishery.	Ongoing
15.	Draft and update licence conditions over the duration of the licensing year as determined by the Executive Director, Fisheries and Aquaculture.	Ongoing
16.	Provide information to licence holders relating to the requirements pursuant to licence administration.	Ongoing
17.	Manage calls from fishers regarding late payment notices, fees and general enquiries about their licences.	Ongoing
18.	Provide support regarding an increased frequency of last-minute administrative enquiries from fishers. e.g., master changes, boat variations	Ongoing

	and quota transfers, as well as provide advice and support to fishers on licence information, to complete the required forms.	
	Services to support fisheries management	
1.	Participate in inter and intra departmental meetings and workshops on issues relevant to the fishing industry.	Ongoing
2.	Liaise with relevant staff within PIRSA Fisheries and Aquaculture in implementing decisions relevant to the fishery.	Ongoing
3.	Interrogate the PIIMS database to extract information for other stakeholders to use in preparing reports.	Ongoing
4.	Prepare reports requested by internal and external customers including maintenance of a public register of licence holders.	Ongoing
5.	Liaise with information technology providers to maintain PIIMS and administer licensing requests.	Ongoing
6.	Generate quota management reports to update stakeholders on varying Total Allowable Commercial Catch (TACC) returns and end of season quota holdings (Pipi sector).	Ongoing

Directorate Program

Program Manager:

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Program summary

Business Strategy, within the Directorate Unit of PIRSA Fisheries and Aquaculture, provides a range of services to support fisheries management. These include coordinating the cost recovery process and establishing agreements with service providers; coordinating program provider reports; administering external contracts and agreements; and providing audit, financial and human resource functions.

Objectives

To provide support services to government and industry, as well as advice and facilitation of corporate related policy and management issues, through the Directorate Program that incorporates the Fisheries and Aquaculture Business Strategy unit.

Program strategies and supporting actions and initiatives

Program effort allocation

The table below includes an abbreviated suite of core activities and initiatives used to manage risks and reflect the anticipated split of effort and associated costs.

Activity	Days	FTE	Cost (\$)
Directorate - Pippi	2	0.01	1,740
Directorate – Lakes and Coorong	2	0.01	1,740

Please Note: All dollar values have been rounded to the nearest dollar figure.

Anticipated outcomes

	Deliverables	Due date
1.	Coordinate and facilitate cost recovery processes and program agreements, including liaising with program providers, managers and financial services as required.	Ongoing
2.	Meet with industry on matters relating to cost recovery, licence setting and related policy issues.	Ongoing
3.	Develop and review cost recovery policy, processes and program agreements.	Ongoing
4.	Manage major service providers' contractual agreements, and co-management services contractual agreements with industry associations.	Ongoing
5.	Project manage and administer external contractual services and agreements – including liaising with PIRSA Accredited Purchasing Unit, preparing acquisition plans and selecting evaluation criteria, managing tender processes, drafting purchase recommendations and liaising with the Crown Solicitor's office to develop contractual agreements.	Ongoing
6.	Provide advice on procurement and invoicing requirements.	Ongoing
7.	Consult with the Chief Executive, Executive Director, Fisheries and Aquaculture, Director Operations, PIRSA fisheries managers, and the Office of the Minister and other parties as needed.	Ongoing
8.	Ongoing review, development and documentation of the cost recovery model, framework, processes and roles.	Ongoing
9.	Meet agreed timeframes on management and administration of external contractual services.	Ongoing
10.	Appropriate management of industry funds and services.	Ongoing

Fisheries Compliance Operations Program

Net Sector

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Program summary

PIRSA Fisheries and Aquaculture teams coordinate compliance activities (outputs) to build awareness and behavioural outcomes that have a long term beneficial impact in the Lakes and Coorong Fishery. The objective of the compliance activities (outputs) is to minimise the risks to aquatic resource sustainability, resource allocation and access rights and ultimately commercial economic viability.

The coordination of the compliance outputs is guided by an industry specific compliance plan which was developed in consultation with members of the Lakes and Coorong Fishing Industry. These outputs are aimed at educating fishers, deterring opportunistic and financially motivated crimes, enforce the rules and regulations and reducing overall compliance risks to resource sustainability.

Legislative and regulatory framework

Fisheries Management Act 2007

Fisheries Management (Lakes and Coorong Fisheries)

Regulations Fisheries Management (Fish Processors) Regulations 2007

Fisheries Management (General) Regulations 2007 Schedule 2

Fisheries Management (Demerit Points) Regulations 2009

Lakes and Coorong Fishery Management Plan

Program effort, funding and resources

The level of effort required to deliver the compliance program in accordance with the dedicated plan is reviewed annually taking into account:

- previous effort required to deliver established programs developed over last 10 years.
- the identified risks to the fishery and any associated changes.
- shifts or changes to the fishery management.

- changes to fishing practices.
- additional pressures or influences on fishers or the fishery.
- intelligence holdings.
- trends or change behaviours that required monitoring and/or investigation.
- cost effectiveness and identified efficiencies.
- any other relevant information required to deliver an effective compliance program to monitor and enforce the rules and regulations for each fishery.

PIRSA has continually reviewed the Lakes and Coorong fishery compliance program, gaining efficiencies through data driven and targeted operations and re-directing compliance effort where necessary to address current and emerging issues and risks.

The following table includes the number of days predicted to reflect the anticipated split of effort and associated costs to deliver the compliance outputs for 2022/23.

Compliance Outputs	Days	FTE	Cost (\$)
Education Awareness	10	0.05	12,760
Effective Deterrence, Monitoring and Surveillance	10	0.05	12,760
Enforcement	20	0.10	25,520
TOTAL OFFICER DAYS	40	0.20	51,040

Please Note; to comply with Work Health and Safety obligations and evidentiary requirements, operational activities are generally required to be undertaken by a minimum of two (2) officers at any time.

IT systems, technology and data

Fisheries and Aquaculture Compliance Operations are supported by a number of electronic systems which continue to be refined to allow optimum delivery of information in a reliable and timely way. Some of the key systems that assist to drive the compliance outputs include:

- iBase and Analyst Notebook (Intelligence system).
- FACT (Fisheries and Aquaculture Information Collection Tool).
- Timewise (Effort Reporting Tool).
- Evidence.com (Video Evidence Collection Tool).
- PIIMS (Primary Industries Information Management System – Quota and Licence Information).
- eCatch.
- eBrief (prosecutions system).
- Commercial Fishing Application.

Delivery outputs

The coordination of compliance outputs is guided by an industry specific compliance plan which was developed in consultation with the Lakes and Coorong Industry. The plan ensures compliance effort is intelligence driven, efficient, and cost effective and outcome focused. The compliance plan comprises three core outputs (Education and Awareness, Effective Deterrence and Appropriate Enforcement) and is optimised towards increasing voluntary compliance and maximising effective deterrence.

Analysis of intelligence and information holdings is regularly conducted to identify the major risks to the sustainable harvest of Lakes and Coorong resources. The combination of strategies, actions, and initiatives are critical to focus the primary compliance effort to manage the risks and achieve targeted outcomes. The details are identified herein.

Intelligence

- Information collection, evaluation and collation.
- Analysis and testing of information voracity.
- Provide recommendations for targeted operations.
- Develop strategic assessments.

Education and awareness

- Conduct education meetings with new entrants into the fishery and participate in industry days.
- Provide electronic distribution of educational material to fishers and licence holders.
- Ensure all interested parties understand their respective obligations.

- Develop Industry communication programs to facilitate discussion of topics such as compliance inspection outcomes and issues impacting the Lakes and Coorong fishery.
- Ongoing one on one education during inspections.

Effective deterrence, monitoring and surveillance

- Ensure all aspects of monitoring, such as reporting of relief days, and associated chain of custody requirements in maintaining records are met.
- Ensure all aspects of commercial fishing activities are monitored such as inspections of catch at sea, when landed, in transit and at fish processing premises.
- Conduct intelligence driven operations that give rise to appropriate enforcement action.
- Respond to reported incidents/issue.
- Communicate activities in formal reporting.

Enforcement

- Investigate reports of non-compliance and where appropriate take action.
- Issue expiations and cautions notices.
- Prepare briefs of evidence for the Crown Solicitors Office to consider court enforced actions.
- Communicate enforcement outcomes in formal reporting.
- Service of suspension notices.
- PIRSA will assess the efficacy of the compliance program by evaluating particular outcomes. The outcomes will be in the form of stakeholder awareness, behaviour and impact. Evaluating these outcomes will support decision making and progress towards a common view of a mature fishery and ultimately co-management.

PIRSA use information obtained from intelligence, monitoring, surveillance and enforcement processes to assess compliance and sustainability risks to the fishery. This subsequently informs work priorities for service delivery. The priorities are prone to change during the fishing season however the following are currently relevant to the Lakes and Coorong Fishery.

1. Use Excess, Unregistered or Illegal Gear.
2. Taking Undersize.
3. Use Excess Agents.
4. Fail to Supply Periodic Returns to SARDI.

Anticipated outcomes

PIRSA will assess the efficacy of the compliance program by evaluating particular outcomes. The outcomes will be in the form of stakeholder awareness, behavior and impact. Evaluating these outcomes

will support decision making and progress towards a common view of a mature fishery and ultimately co-management.

Awareness

Awareness is a short term outcome that is necessary to prevent unnecessary use of enforcement activities. Awareness constitutes and improved community and stakeholder attitude towards compliance, an improved understanding of legislation and regulation, improved stakeholder buy-in and participation and community support for offence detection. The attributes for each are articulated herein.

Improved community and stakeholder attitude

- Confidence in compliance ability to use statutory and discretionary powers appropriately.
- Understanding of the public value of compliance.
- Comprehension of services delivered by compliance against the objects of the Act.
- Confidence in compliance ability to sustain resource allocation equity amongst direct resource users.

Improved understanding of legislation and regulation

- Understanding fishing obligations.
- Legislation and regulation is considered simple and fair to follow.

Improved stakeholder buy-in and participation

- Actively engage with compliance in development of risk assessments, reporting frameworks and reviewing rules.
- Collaborative problem-solving.

Community support for offence detection and sanctions

- Actively provide relevant information.
- Industry driven initiatives and evidence of self-regulation.

Behaviour

Successful outcomes and long term sustainable fisheries are ultimately driven by behavior that is in the interest of sustainability, ongoing economic viability and public value. The behavioural outcomes that are important to PIRSA include stewardship, voluntary compliance and proactive approaches to compliance issues. The attributes for each are articulated herein.

Stewardship

Stewardship is the aggregation of a number of actions and behaviours where industry is entrusted with the management of the Lakes and Coorong resources and the associated compliance of its members within the regulatory and legislative input constraints.

Some of the behaviours of stewardship include:

- An acceptance of change from traditional approaches and attitudes to strong partnerships between government, industry and key stakeholder groups.
- An established mutual trust and respect between government, industry and key stakeholders.
- An alignment of values that gives rise to industry and PIRSA communicating the same message focusing on the sustainability of the aquatic resource and associated ongoing economic viability as the primary drivers.
- PIRSA compliance appears seamless to industry. Inputs and outputs are shared. Joint investigations and national problem solving actions are taken by all, collectively and with representative groups engaged in partnership.
- Minimal conflict exists with other stakeholder groups or industry has clear mechanisms or a demonstrated capacity to address the conflict.

Voluntary compliant behaviour

- All appropriate attempts to understand and adhere to rules and regulations are made by industry.
- PIRSA Fisheries and Aquaculture compliance is contacted when industry is unable to meet regulatory requirements so an alternative legal solution can be arranged.
- Industry members report other commercial fishers who fail to meet regulatory requirements.

Proactive approaches to compliance issues (incl. participation in governance process)

- Use established industry structures to collaborate on compliance issues to deliver the shared objective of sustainability and public value.
- Actively participate and respond to compliance issues.
- Highlight deficiencies in compliance programs and suggest improvements.
- Influence other industry participants to promote voluntary compliance.

Impact

The awareness and behavior changes will lead to a longer term impact that is reflected in economic and ecological sustainability, broad confidence in the allocation of Lakes and Coorong species between user groups, a confidence in the ability of PIRSA to manage Lakes and Coorong resources and an industry that is free from the influence of serious and organised crime. The attributes for each impact is articulated herein.

Ecological and economic sustainability of aquatic resources

- SARDI stock status assessments reflect an ecological sustainability.
- Industry reflect economic sustainability.

Confidence and equity in resource allocation and access

- Recreational, commercial and Aboriginal fishing stakeholders are confident that the division of Lakes and Coorong resources is fair and equitable.
- Investment support continues for ecologically and economically sustainable harvest of Lakes and Coorong resources.

Reduced opportunity for recidivist offenders and Serious Organised Crime to exploit aquatic resources

- Regulators, law enforcement and industry have closed opportunities for Serious Organised Crime to participate in the Lakes and Coorong fishing industry.
- Industry has not had any impact resulting from Serious Organised Crime activities for a significant period of time.

Confidence in management of aquatic resources

- Positive public perception in the management of Lakes and Coorong stocks.
- Positive consumer perception for commercially harvested species from the Lakes and Coorong.
- An absence of adverse industry publicity.

Deliverables

In line with the annual performance report the compliance deliverables will be presented separately.

Fisheries Compliance Operations Program

Pipi Fishery

Program Manager:

Randel Donovan, Regional Manager

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State Coordinator:

Chris Coomber, Senior Fisheries Officer

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Program summary

PIRSA Fisheries and Aquaculture teams coordinate compliance activities (outputs) to build awareness and behavioural outcomes that have a long term beneficial impact in the Pipi Fishery. The objective of the compliance activities (outputs) is to minimise the risks to aquatic resource sustainability, resource allocation and access rights and ultimately commercial economic viability.

The coordination of the compliance outputs is guided by an industry specific compliance plan which was developed in consultation with the Pipi Industry. These outputs are aimed at educating fishers, deterring opportunistic and financially motivated crimes, enforce the rules and regulations and reducing overall compliance risks to resource sustainability.

Legislative and regulatory framework

Fisheries Management Act 2007

Fisheries Management (Lakes and Coorong Fishery) Regulations 2009

Fisheries Management (Marine Scale Fishery) Regulations 2006

Fisheries Management (Fish Processors) Regulations 2007

Fisheries Management (General) Regulations 2007 Schedule 2

Fisheries Management (Demerit Points) Regulations 2009

Pipi Fisheries Management Plan

Program effort, funding and resources

The level of effort required to deliver the compliance program in accordance with the dedicated plan is reviewed annually taking into account:

- previous effort required to deliver established programs developed over last 10 years.

- the identified risks to the fishery and any associated changes.
- shifts or changes to the fishery management.
- changes to fishing practices.
- additional pressures or influences on fishers or the fishery.
- intelligence holdings.
- trends or change behaviours that required monitoring and/or investigation.
- cost effectiveness and identified efficiencies.
- any other relevant information required to deliver an effective compliance program to monitor and enforce the rules and regulations for each fishery.

PIRSA has continually reviewed the Pipi fishery compliance program, gaining efficiencies through intelligence driven and targeted operations and re-directing compliance effort where necessary to address current and emerging issues and risks. The table below includes the number of days predicted to reflect the anticipated split of effort and associated costs to deliver the compliance outputs for 2022/23.

Compliance Outputs	Days	FTE	Cost (\$)
Education Awareness	10	0.05	12,760
Effective Deterrence, Monitoring and Surveillance	20	0.10	25,520
Enforcement	20	0.10	25,520
TOTAL OFFICER DAYS	50	0.25	63,800

Please Note; to comply with Work Health and Safety obligations and evidentiary requirements, operational activities are generally required to be undertaken by a minimum of two (2) officers at any time.

IT systems, technology and data

Fisheries and Aquaculture Compliance Operations are supported by a number of electronic systems which continue to be refined to allow optimum delivery of information in a reliable and timely way. Some of the key systems that assist to drive the compliance outputs include:

- iBase and Analyst Notebook (Intelligence system).
- FACT (Fisheries and Aquaculture Information Collection Tool).
- Timewise (Effort Reporting Tool).
- Evidence.com (Video Evidence Collection Tool).
- PIIMS (Primary Industries Information Management System – Quota and Licence Information).
- eCatch.
- eBrief (prosecutions system).
- Commercial Fishing Application.

Delivery outputs

The coordination of compliance outputs is guided by an industry specific compliance plan which was developed in consultation with the Pipi Industry. The plan ensures compliance effort is intelligence driven, efficient, and cost effective and outcome focused. The compliance plan comprises three core outputs (Education and Awareness, Effective Deterrence and Appropriate Enforcement) and is optimised towards increasing voluntary compliance and maximising effective deterrence.

Analysis of intelligence and information holdings is regularly conducted to identify the major risks to the sustainable harvest of Pipi. The combination of strategies, actions, and initiatives are critical to focus the primary compliance effort to manage the risks and achieve targeted outcomes. The details are identified herein.

Intelligence

- Information collection, evaluation and collation.
- Analysis and testing of information voracity.
- Provide recommendations for targeted operations.
- Develop strategic assessments.

Education and awareness

- Conduct pre-season education meetings and participate in industry days.
- Provide electronic distribution of educational material to fishers and licence holders.
- Ensure all interested parties understand their respective obligations.
- Develop Industry communication and relationship programs to facilitate discussion of topics such as compliance inspection outcomes and issues impacting the Pipi Fishery.
- Ongoing one on one education during inspections.

Effective deterrence, monitoring and surveillance

- Ensure the Quota Management System are monitored such as prior reporting and chain of custody requirements in catch disposal records (CDR) including auditing.
- Ensure all aspects of commercial fishing activities are monitored such as inspections of catch at sea, when landed, in transit and at change of ownership in fish processing premises.
- Conduct intelligence driven operations that give rise to appropriate enforcement action.
- Respond to reported incidents/issues.
- Communicate activities in formal reporting.

Enforcement

- Investigate reports of non-compliance and where appropriate take action.

- Issue expiations and caution notices
- Prepare briefs of evidence for the Crown Solicitors office to consider court enforced actions.
- Communicate enforcement outcomes in formal reporting.
- Service of suspension notices.

Risk assessment and management (work priorities)

PIRSA use information obtained from intelligence, monitoring, surveillance and enforcement processes to assess compliance and sustainability risks to the fishery. This subsequently informs work priorities for service delivery. The priorities are prone to change during the fishing season however the following are currently relevant to the Papi Fishery.

1. Quota Management System Integrity.
2. Take Undersize.
3. Fail to Supply Periodic Returns to SARDI.

Anticipated outcomes

PIRSA will assess the efficacy of the compliance program by evaluating particular outcomes. The outcomes will be in the form of stakeholder awareness, behaviour and impact. Evaluating these outcomes will support decision making and progress towards a common view of a mature fishery and ultimately co-management.

Awareness

Awareness is a short term outcome that is necessary to prevent unnecessary use of enforcement activities. Awareness constitutes and improved community and stakeholder attitude towards compliance, an improved understanding of legislation and regulation, improved stakeholder buy-in and participation and community support for offence detection. The attributes for each are articulated herein.

Improved community and stakeholder attitude

- Confidence in compliance ability to use statutory and discretionary powers appropriately.
- Understanding of the public value of compliance.
- Comprehension of services delivered by compliance against the objects of the Act.
- Confidence in compliance ability to sustain resource allocation equity amongst direct resource users.

Improved understanding of legislation and regulation

- Understanding fishing obligations.
- Legislation and regulation is considered simple and fair to follow.

Improved stakeholder buy-in and participation

- Actively engage with compliance in development of risk assessments, reporting frameworks and reviewing rules.
- Collaborative problem-solving.

Community support for offence detection and sanctions

- Actively provide relevant information.
- Industry driven initiatives and evidence of self-regulation.

Behaviour

Successful outcomes and long term sustainable fisheries are ultimately driven by behavior that is in the interest of sustainability, ongoing economic viability and public value. The behavioural outcomes that are important to PIRSA include stewardship, voluntary compliance and proactive approaches to compliance issues. The attributes for each are articulated herein.

Stewardship

Stewardship is the aggregation of a number of actions and behaviours where industry is entrusted with the management of the Piri resource and the associated compliance of its members within the regulatory and legislative input constraints.

Some of the behaviours of stewardship include:

- An acceptance of change from traditional approaches and attitudes to strong partnerships between government, industry and key stakeholder groups.
- An established mutual trust and respect between government, industry and key stakeholders.
- An alignment of values that gives rise to industry and PIRSA communicating the same message focusing on the sustainability of the aquatic resource and associated ongoing economic viability as the primary drivers.
- PIRSA compliance appears seamless to industry. Inputs and outputs are shared. Joint investigations and national problem solving actions are taken by all, collectively and with representative groups engaged in partnership.
- Minimal conflict exists with other stakeholder groups or industry has clear mechanisms or a demonstrated capacity to address the conflict.

Voluntary compliant behaviour

- All appropriate attempts to understand and adhere to rules and regulations are made by industry.
- PIRSA Fisheries and Aquaculture compliance is contacted when industry is unable to meet regulatory requirements so an alternative legal solution can be arranged.
- Industry members report other commercial fishers who fail to meet regulatory requirements.

Proactive approaches to compliance issues (incl. participation in governance process)

- Use established industry structures to collaborate on compliance issues to deliver the shared objective of sustainability and public value.
- Actively participate and respond to compliance issues.
- Highlight deficiencies in compliance programs and suggest improvements.
- Influence other industry participants to promote voluntary compliance.

Impact

The awareness and behavior changes will lead to a longer term impact that is reflected in economic and ecological sustainability, broad confidence in the allocation of Pipi between user groups, a confidence in the ability of PIRSA to manage Pipi resources and an industry that is free from the influence of serious and organised crime. The attributes for each impact is articulated herein.

Ecological and economic sustainability of aquatic resources

- SARDI stock status assessments reflect an ecological sustainability.
- Industry reflect economic sustainability.

Confidence and equity in resource allocation and access

- Recreational, commercial and Aboriginal fishing stakeholders are confident that the division of Pipi resources is fair and equitable.
- Investment support continues for ecologically and economically sustainable harvest of Pipi.

Reduced opportunity for recidivist offenders and Serious Organised Crime to exploit aquatic resources

- Regulators, law enforcement and industry have closed opportunities for Serious Organised Crime to participate in the Pipi industry.
- Industry has not had any impact resulting from Serious Organised Crime activities for a significant period of time.

Confidence in management of aquatic resources

- Positive public perception in the management of Pipi stocks.
- Positive consumer perception for commercially harvested Pipi.
- An absence of adverse industry publicity.

Stock Assessment and Monitoring Program

Finfish Sector

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1. Project details

1.1 Title

Lakes and Coorong Fishery (Finfish)

1.2 Subcontractor/Collaborator

Not applicable

1.3 Timeframe

Commencement Date: 1 July 2019

Completion Date: 30 June 2023

1.4 Summary

This is the first four-year research program scope (2019/20–2022/23) for South Australia's Lakes and Coorong Fishery (LCF) for finfish. The primary objective of the program is to provide scientific information and assessment of stock status for the different LCF finfish species, including stock assessments for Mulloway and Yelloweye Mullet, to support the ecologically sustainable management of the fishery. The program largely conforms to the research and reporting plan outlined in the Management Plan for the South Australian Commercial Lakes and Coorong Fishery, allowing application of the Harvest Strategy for finfish and assessment of the condition of the environment in which the fishery operates based on established environmental performance indicators and reference points.

The primary outputs of the research program will be annual LCF reports, which will include stock assessments for Mulloway (2019/20, 2022/23) and Yelloweye Mullet (2020/21). These three reports will also determine stock status for several other finfish species; describe patterns in fleet dynamics; provide annual estimates of the environmental performance indicators to inform the Harvest Strategy for finfish; and identify future research needs and priorities. The 2021/22 report will not include the planned stock assessment for Golden Perch and will instead comprise of fishery statistics, stock status and environmental performance indicator report, similar to that delivered in 2018/19 whilst fee relief was in place for the fishery.

2. Project description

2.1 Background

There are five primary components to the research program provided by SARDI Aquatic Sciences to PIRSA in support of the LCF (finfish). These are:

1. collect, collate, enter and store commercial catch and effort data reported by fishers to maintain the long-term LCF Information System (i.e. existing logbook program);
2. undertake a commercial catch sampling program targeting Mulloway (2019/20, 2022/23) and Yelloweye Mullet (2020/21), through the SAFCOL fish market;
3. obtain Coorong Hydrodynamic Model outputs for the Coorong estuary and daily water level data for the Lower Lakes, and provide annual estimates of the environmental performance indicators to inform the Harvest Strategy for finfish;
4. deliver advice to PIRSA, industry and other stakeholders as requested by PIRSA;
5. provision of an annual LCF assessment report that will summarise:
 - LCF fleet dynamics (i.e. trends in catch and effort, by species, season, gear);
 - commercial fishery statistics (e.g. catch and effort data) for key finfish species;
 - a stock assessment for Mulloway (2019/20, 2022/23) and Yelloweye Mullet (2020/21), which will include analyses of fishery catch and effort data, species-specific size and age-based data from the catch sampling program; and relevant environmental information;
 - assessments of stock status for Golden Perch, Bony Herring, Black Bream, Greenback Flounder, based on analyses of fishery-dependent catch and effort data;
 - assessments of the environmental performance indicators against reference points in the Management Plan to inform the Harvest Strategy for finfish; and
 - identification of future research needs and priorities.

This research program builds on previous research by SARDI Aquatic Sciences that includes stock assessment reports for Mulloway (2003, 2011, 2014), Yelloweye Mullet (2005, 2013), Golden Perch (2004, 2011, 2012), Black Bream (2008, 2016) and Greenback Flounder (2007, 2016), and annual fishery statistics reports since 2006.

2.2 Need

This research program addresses the need for scientific information to support the sustainable utilisation of finfish resources in the LCF and application of the Harvest Strategy for finfish identified in the Management Plan for the fishery.

2.3 Objectives

- 2.3.1 To provide to PIRSA, an annual LCF assessment report that includes stock assessments for Mulloway (2019/20, 2022/23) and Yelloweye Mullet (2020/21), assigns stock status for other key finfish species, describes patterns in fleet dynamics, provides estimates of the

environmental performance indicators to inform the Harvest Strategy for finfish, and identifies future research needs and priorities to be delivered on April 30th each year; and:

2.3.2 To provide ongoing and ad hoc scientific advice.

2.4 Methods

2.4.1 Collect, collate, enter and store fishery-dependent catch and effort data from fishery catch returns in order to maintain the on-going LCF Information System.

2.4.2 Undertake market sampling at the SAFCOL fish market to collect age and length frequency data for Mulloway (2019/20, 2022/23) and Yelloweye Mullet (2020/21).

2.4.3 Obtain and analyse Coorong Hydrodynamic Model outputs and daily water level data for the Lower Lakes and provide annual estimates of the three environmental performance indicators to inform the Harvest Strategy for finfish.

2.4.4 Document and interpret the research findings into annual LCF reports.

3. Deliverables

The key deliverables of the 2021/22 LCF (finfish) stock assessment and monitoring program are tabulated below; additional work related to the core program is also identified:

Funding Source	Deliverable	Due Date
This SLA	Mulloway stock assessment and fishery statistics, stock status and environmental performance indicator report delivered.	30 April 2023
This SLA	Presentations of Fishery statistics, stock status and environmental performance indicator report provided to PIRSA Fisheries and Aquaculture and industry as required.	30 June 2023
Other SLA	Assessment of the South Australian Marine Scalefish Fishery	30 March 2023
PIRSA	Support the implementation of the Finfish harvest strategy and LCF Management Plan	30 June 2023
PIRSA	Work with PIRSA Fisheries and Aquaculture and industry to support the recovery of Black Bream and Greenback Flounder.	30 June 2023
PIRSA	Work with PIRSA Fisheries and Aquaculture and industry, as required, in fisher-LNFS interactions	30 June 2023
PIRSA	Support MSC re-accreditation of Yelloweye Mullet and Mulloway.	30 June 2023
FRDC	Project continuation: Seal-fisher-ecosystem interactions in the Lower Lakes and Coorong: understanding causes and impacts to develop longer-term solutions (FRDC project 2018/036; Principal Investigator: Dr Jason Earl).	30 June 2023
FRDC	Project continuation: Evaluation of a smart-phone application to collect recreational fishing catch estimates, including an assessment against an independent probability based survey, using South Australia as a case study (FRDC project 2020/056; Principal Investigator: Dr Crystal Beckmann).	30 June 2023

3.1 Service Provided

3.1.1 *Collect, collate and store fishery-dependent (catch and effort) data*

- Manage the comprehensive commercial fishing-logbook program, including transition to deckhand;
- Correct erroneous returns, involving contact with fishers when necessary;

- Enter data received into a secure database;
- Administer, maintain and develop the database;
- Securely store original logbook returns; and
- Validate returns, including consultation with fishers to correct errors.

3.1.2 *Collect, collate, store and analyse data from market sampling*

- Undertake a targeted market sampling program for Mulloway (2019/20, 2022/23) and Yelloweye Mullet (2020/21) that involves measurements from representative samples from fishery catches and collections of otoliths to determine ages of fish;
- Age fish from their otoliths using validated ageing protocols and established QA procedures;
- Generate age structures from otolith-based age estimates; and
- Interpret data on population structure in terms of population dynamics.

3.1.3 *Analyse, integrate and interpret fishery and biological data*

- Undertake stock assessments for Mulloway (2019/20, 2022/23) and Yelloweye Mullet (2020/21), which will include analysis of size and age structures;
- Describe key patterns in LCF fleet dynamics;
- Summarise annual commercial and recreational fishery data for multiple LCF taxa at the regional scale;
- Summarise all data and findings on stock status in a fishery assessment report; and
- Provide presentations to industry and PIRSA on the status of each permitted LCF species as requested.

3.1.4 *Collect, collate and store the relevant environmental data required to inform the Harvest Strategy for finfish*

- Obtain Coorong Hydrodynamic Model outputs for the Coorong estuary;
- Obtain daily water level data for the Lower Lakes;
- Collate, interrogate and analyse the above environmental data to provide estimates of the environmental performance indicators for the 2019/20, 2020/21, 2021/22 and 2022/23 reporting years (1 February–31 January); and
- Compare the annual estimates of the environmental performance indicators against reference points in the Management Plan to inform the Harvest Strategy for finfish.

3.2 Outcomes

The principal outcome will be the provision of relevant fishery and environmental information and scientific advice to support the sustainable management of the LCF.

3.3. Outputs and extension

The key outputs and extensions are:

- Three stock assessment reports (i.e. for Mulloway (2019/20, 2022/23) and Yelloweye Mullet (2020/21)), that also determine stock status for several other finfish species, describes patterns in fleet dynamics, provides estimates of the three environmental performance indicators to inform the Harvest Strategy for finfish, and identifies future research needs and priorities to be delivered on April 30 of 2020, 2021 and 2023;
- A fishery statistic, stock status and environmental performance indicator report by 30 April 2022; and
- Presentations to PIRSA and industry based on the stock assessment report.

4. Funding arrangements

4.1 Project costing policy

This Research Project Scope and **Costing** has been costed at a Discounted rate.

4.2 Project cost

Financial Year	Total Funded by Licence Holders \$ (GST N/A)	Total SARDI In-Kind (\$ No GST)	Total Project Cost (\$ No GST)
2019/20	\$149,411	\$27,248	\$176,659
2020/21	\$152,943	\$27,929	\$180,872
2021/22	\$95,823	\$16,295	\$112,118
2022/23	\$163,233	\$29,343	\$192,576
TOTAL PROJECT (over 4 financial years)	\$561,410	\$100,815	\$662,225

4.3 Milestone and payment schedule

Date	Milestone	Payment (\$) Ex GST
31 December 2019	First Half Payment 2019/20 SLA	\$74,705
30 April 2020	Report – 2020 LCF assessment report, which will include a stock assessment for Mulloway.	
31 May 2020	Second Half Payment 2019/20 SLA	\$74,706
31 December 2020	First Half Payment 2020/21 SLA	\$76,471
30 April 2021	Report – 2021 LCF assessment report, which will include a stock assessment for Yelloweye Mullet.	
31 May 2021	Second Half Payment 2020/21 SLA	\$76,472
31 December 2021	First Half Payment 2021/22 SLA	\$47,911
30 April 2022	Report – 2022 LCF fishery statistics, stock status and environmental performance indicators report.	
31 May 2022	Second Half Payment 2021/22 SLA	\$47,912
31 December 2022	First Half Payment 2022/23 SLA	\$81,616
30 April 2023	Report – 2023 LCF assessment report, which will include a stock assessment for Mulloway.	
31 May 2023	Second Half Payment 2022/23 SLA	\$81,617
SUBTOTAL		\$561,410
GST		NO GST
TOTAL COST		\$561,410

5. Project staff

Staff	2019/20 FTE	2020/21 FTE	2021/22 FTE	2022/23 FTE
Principal Scientist	0.02	0.02	0.02	0.02
Senior Research Officer	0.53	0.53	0.35	0.53
Research Officers	0.1	0.1	0.00	0.1
TOTAL	0.65	0.65	0.37	0.65

6. Project cost summary

Cost	Detail	2019/20 Total (\$) Ex GST	2020/21 Total (\$) Ex GST	2021/22 Total (\$) Ex GST	2022/23 Total (\$) Ex GST
Salaries (FTE)		0.65	0.65	0.37	0.65
Salaries (\$)		76,983	78,796	47,086	85,965
Operating (\$)					
Travel (\$)		2,000	2,000	1,000	2,000
Logbook program (\$)		17,860	18,396	18,948	19,516
Office and communication (\$)		1,000	1,000		1,000
Laboratory (\$)		1,000	1,000		1,000
Fieldwork (\$)		3,500	3,500		3,500
Capital equipment (\$)					
SARDI overhead (\$)		47,068	48,251	28,789	50,252
SARDI inkind (\$)		27,248	27,929	16,295	29,343
Total Cost (\$)		176,659	180,872	112,118	192,576
Revenue – PRICE					
Licence holders	85%	149,411	152,943	95,823	163,233
PIRSA F&A (\$)					
Total Revenue (\$)		149,411	152,943	95,823	163,233
SARDI Investment (\$)	15%	27,248	27,929	16,295	29,343

Explanation of costs above:

Logbook Program - Entry, validation, management and reporting of data

Payment to industry for surveys - Direct costs of using industry vessels and staff to undertake surveys

Fieldwork - Fieldwork costs including vessels, travel and OHS requirements

Laboratory - Costs for processing samples

Travel - Costs for attending meetings with industry, PIRSA F&A and stakeholders

Office and communication - Stationery, communications and publications

SARDI Overhead - Indirect costs that cannot be directly attributed to a specific business activity, product, or service

SARDI in kind – SARDI investment through supporting costs for specific equipment, capital depreciation, infrastructure and research facilities

Stock Assessment and Monitoring Program

Pipi Sector

Fisheries and Aquaculture Contact Person:

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SARDI Contact Person:

Dr Michael Steer, Research Director, SARDI Aquatic and Livestock Sciences
Telephone: 08 8429 0115 Email: michael.steer@sa.gov.au

1. Project details

1.1 Title

Lakes and Coorong Fishery (Pipi)

1.2 Subcontractor/Collaborator

Goolwa Pipi Harvesters Association

1.3 Timeframe

Commencement Date: 1 July 2019

Completion Date: 30 June 2023

1.4 Summary

This four-year scope of work will provide PIRSA Fisheries and Aquaculture with the information required for the ecologically sustainable management of the Pipi fishery in South Australia.

The primary outputs are (1) a fishery assessment report for Pipi which is scheduled each four years in the Management Plan for the Lakes and Coorong Fishery (due 30/6/2021), and (2) an annual presentation/advice note on the status of the Pipi stock based on biological performance indicators estimated from annual fishery-independent surveys of relative abundance and size structures

The primary biological performance indicators (relative abundance, presence/absence pre-recruits) are estimated from the fishery-independent surveys which are conducted cooperatively by fishers and SARDI. The biological performance indicators are used in the Harvest Strategy for Pipi to recommend an annual Total Allowable Commercial Catch (TACC) of Pipi through the Lakes and Coorong Fishery Management Advisory Committee (LCFMAC) in May each year. Supplemental information, based on fishery catch and effort data, is also provided.

This research scope also includes refinement of an index of relative abundance of pre-recruits targeting replacement of the existing indicator based on presence/absence of pre-recruits with a more robust quantitative indicator.

2. Project description

2.1 Background

This project supports sustainable management of the fishery for Pigi (*Donax deltoides*) and addresses a key finding of an industry workshop in 2007 that recommended that future assessments of the fishery should not rely solely on commercial CPUE.

The original Management Plan for the LCF (Sloan 2005) was reviewed and updated in 2015 (PIRSA 2015) and now includes separate Harvest Strategies for finfish and Pigi. The first Harvest Strategy for Pigi was implemented in 2012/13 and utilized two primary biological performance indicators (fishery-independent relative abundance, presence/absence pre-recruits) to recommend a biologically acceptable TACC. The first review of the Harvest Strategy was in 2015/16 and the second review which occurred in 2020/21, in conjunction with the second Management Plan review.

The methodology for estimating fishery-independent relative biomass was developed over three years and further evaluated after seven years (Ward et al. 2010; Ferguson et al. 2015). The strategy is to continue to build on the collaborative relationship between fishers, researchers, and managers established in 2007/08 to conduct cost-effective, fishery-independent surveys that involve coordinated scientific sampling and structured commercial fishing.

This project builds on

- (1) stock assessment reports on Pigi in 2002/03; 2005/06; 2013/14 and 2017/18;
- (2) annual stock status presentations/advice notes from 2007/08 to 2020/21;
- (3) an FRDC project to support development of the harvesting strategy for the Lakes and Coorong Fishery for Pigi; and
- (4) winter fishing/market trials conducted in 2010 and 2011

2.2 Need

This project addresses the need for scientific information to support sustainable harvesting of Pigi in the LCF for Pigi and application of the Harvest Strategy for Pigi identified in the Management Plan. The importance of annual fishery-independent estimates of relative biomass was identified as key to addressing uncertainty around commercial CPUE at an industry workshop in 2007 and several subsequent studies (Ward et al. 2010; Ferguson et al. 2015; Ferguson and Hooper 2017).

Development of an index of Pigi pre-recruits has also been identified as useful for sustainable development of this fishery at the Pigi Harvest Plan Development Workshop (19 Dec 2011, PIRSA, Grenfell Centre) and important for further development of the existing fishery-independent survey method (Ward et al. 2010; Ferguson et al. 2015; Ferguson and Hooper 2017; Ferguson et al. 2021).

2.3 Objectives

- 2.3.1 To provide PIRSA with an annual Advice Note on the status of the Pipi stock (May).
- 2.3.2 To provide PIRSA and the LCFMAC with an annual update/presentation on the status of the Pipi stock (May).
- 2.3.3 To provide a stock assessment of Pipi according to the schedule in the Management Plan (June 2021).
- 2.3.4 Conduct fishery-independent surveys to provide annual estimates of:
 - relative abundance of Pipi.
 - presence/absence of Pipi pre-recruits.
 - size/age frequency information to characterise the demographic structure of Pipi.
- 2.3.5 Refine the method for estimating relative abundance of pre-recruits to the Pipi stock.
- 2.3.6 Provide ongoing and ad hoc advice and information to PIRSA.

2.4 Methods

- 2.4.1 Fishery-independent surveys of Pipi on the Younghusband Peninsula use the method developed between SARDI, PIRSA and industry described in Ward et al. (2010) and Ferguson et al. (2015):
 - Each annual estimate of relative biomass is based on three sub-surveys conducted between October to May.
 - Sampling is done by commercial fisher crews using standardised commercial Pipi rakes.
 - Each commercial crew is accompanied by one scientific observer.
 - The observer collects length frequency data using a Pipi rake with fine mesh.
 - The observer records numbers of non-targeted species from commercial Pipi rakes.
 - Collect, collate and analyse data.
- 2.4.2 Refinement of a method for estimating relative abundance of pre-recruits:
 - Annual pre-recruit surveys, using a method based on the fishery-independent surveys, are conducted at a spatial scale consistent with that of the fishery.
 - Surveys are conducted during the main recruitment period in October/November and also in May/June to capture years when seasonally late recruitment occurs.
 - Surveys are conducted over several days to include the entire fishing ground.
 - Sampling is conducted with modified Pipi rake fitted with 20 mm mesh.
 - Pipi are graded into pre-recruits/recruits and each fraction weighed.
 - Collect, collate and analyse data.

3. Deliverables

The key deliverables of the 2022/23 Pipi stock assessment and monitoring program are tabulated below; additional work related to the core program is also identified:

Funding Source	Deliverable	Due Date
This SLA	Fishery independent biomass surveys completed	31 May 2023
This SLA	Advice Note on survey biomass and Pipi stock status delivered	31 May 2023
This SLA	Survey biomass and stock status presentation to PIRSA Fisheries and Aquaculture, Industry and the LCFMAC delivered as required.	30 June 2023
This SLA	Fishery pre-recruit surveys completed	30 June 2023
PIRSA	Support the implementation of the Pipi harvest strategy and LCF Management Plan	30 June 2023
PIRSA	Advice Note on bycatch from 2021/22 SARDI Pipi surveys delivered	30 June 2023
PIRSA	Support Pipi MSC annual review and audit	30 June 2023
FRDC/Goolwa Pipi Co.	Project continuation: Progress innovative Pipi harvesting based on real time biological and economic data (FRDC project 2017-151; Principal Investigator: Tom Robinson). Support modification of the existing project to encompass translocation	30 June 2023
FRDC	Project continuation: Evaluation of a smart-phone application to collect recreational fishing catch estimates, including an assessment against an independent probability based survey, using South Australia as a case study (FRDC project 2020/056; Principal Investigator: Dr Crystal Beckmann).	30 June 2023

3.1 Service Provided

3.1.1 Fishery-dependent (catch and effort) data

- Collect, collate and store data.
- Manage a comprehensive fishing-logbook program.
- Enter data received into a secure database.
- Administer, maintain and develop the database.
- Securely store original logbook returns.
- Validate returns, including consultation with fishers to correct errors.

3.1.2 Fishery-independent (survey) data

- Coordination of annual fishery-independent surveys.

- Training of new fishers and scientific observers.
- Collection, collation and storage of data from field surveys.
- Collection and storage of size/age samples.
- Laboratory processing of size/age samples.
- Effective storage of relative abundance and size data.
- Collection and storage of biological data e.g. reproductive, length-weight data.

3.1.3 *Analysis, interpretation and reporting*

- Analyse temporal/spatial trends in biomass through fishery-independent estimates of relative biomass.
- Analyse temporal/spatial trends in size/age structures.
- Assess performance of the fishery against biological performance indicators.
- Analyse temporal/spatial trends in fishery-dependent (catch and effort) data.
- Summarise information on non-targeted species from commercial Pipi rakes in fishery-independent surveys
- Interpret the results of the research program in reports and presentations.

3.1.4 *Project management*

- Project Supervision.
- Management of Deliverables.
- Quality control.
- Liaise with PIRSA, industry, State and Commonwealth agencies on matters relevant to the fishery.
- Work with PIRSA and stakeholders to identify research priorities and to develop and implement new projects.
- Update relevant chapter in status report for SA fisheries.

3.2 Outcomes

Stock assessment of the LCF for Pipi.

Scientific advice to support sustainable management of the LCF for Pipi.

Timely completion of fishery-independent surveys of the Pipi resource on Younghusband Peninsula.

3.3. Outputs and extension

Stock assessment report on pipi as scheduled in the Management Plan (June 2021).

Annual Advice Note to PIRSA Fisheries and Aquaculture on the stock status of pipi including annual estimates of biological performance indicators (annual, May).

As required, annual presentation on pipi stock status including annual estimates of biological performance indicators to PIRSA Fisheries and Aquaculture and the pipi LCFMAC (May).

4. Funding arrangements

4.1 Project costing policy

This Research Project Scope and Costing has been costed at a Discounted rate.

4.2 Project cost

Financial Year	Total by Holders \$ (GST N/A)	Total SARDI In-kind \$ (GST N/A)	Total Project Cost (\$ No GST)
2019/20	\$187,872	\$30,182	\$218,054
2020/21	\$191,720	\$30,937	\$222,657
2021/22	\$205,536	\$31,710	\$237,246
2022/23	\$213,466	\$32,503	\$245,969
TOTAL PROJECT (over 4 financial years)	\$798,594	\$125,332	\$923,926

4.3 Milestone and payment schedule

Date	Milestone	Payment (\$) Ex GST
31 December 2019	First Half Payment 2019/20 SLA	\$93,936
31 May 2020	Advice Note and pipi stock status Presentation provided to PIRSA and LCF MAC	
31 May 2020	Second Half Payment 2019/20 SLA	\$93,936
31 December 2020	First Half Payment 2020/21 SLA	\$95,860
31 May 2021	Advice Note and pipi stock status Presentation provided to PIRSA and LCF MAC	
31 May 2021	Second Half Payment 2020/21 SLA	\$95,860
30 June 2021	Pipi stock assessment report delivered	
31 December 2021	First Half Payment 2021/22 SLA	\$102,768
31 May 2022	Advice Note and pipi stock status Presentation provided to PIRSA and LCF MAC	
31 May 2022	Second Half Payment 2021/22 SLA	\$102,768
31 December 2022	First Half Payment 2022/23 SLA	\$106,733
31 May 2023	Advice Note and pipi stock status Presentation provided to PIRSA and LCF MAC	
31 May 2023	Second Half Payment 2022/23 SLA	\$106,733
SUBTOTAL		\$798,594
GST		NO GST
TOTAL COST		\$798,594

5. Project staff

Staff	2019/20 FTE	2020/21 FTE	2021/22 FTE	2022/23 FTE
Research Scientist	0.6	0.6	0.6	0.6
Research Officer	0.12	0.12	0.12	0.12
TOTAL	0.72	0.72	0.72	0.72

6. Project cost summary

Cost	Detail	2019/20 Total (\$) Ex GST	2020/21 Total (\$) Ex GST	2021/22 Total (\$) Ex GST	2022/23 Total (\$) Ex GST
Salaries (FTE)		0.72	0.72	0.72	0.72
Salaries (\$)		90,998	93,152	95,478	101,631
Operating					
Logbook program (\$)		12,279	12,647	13,027	13,417
Payment to industry for surveys (\$)		19,500	19,500	29,250	29,250
Fieldwork (\$)		10,500	10,500	10,500	10,500
Laboratory (\$)		1,000	1,000	1,000	1,000
Travel (\$)					
Office & communication (\$)		1,000	1,000	1,000	1,000
Capital equipment (\$)					
SARDI overhead (\$)		52,595	53,921	55,281	56,668
SARDI inkind (\$)		30,182	30,937	31,710	32,503
Total Cost (\$)		218,054	222,657	237,246	245,969
Revenue – PRICE					
Licence holders (\$)	86%	187,872	191,720	205,536	213,466
PIRSA F&A (\$)					
Total Revenue (\$)	86%	187,872	191,720	205,536	213,466
SARDI Investment (\$)	14%	30,182	30,937	31,710	32,503

Explanation of costs above:

Logbook Program - Entry, validation, management and reporting of data

Payment to industry for surveys - Direct costs of using industry vessels and staff to undertake surveys

Fieldwork - Fieldwork costs including vessels, travel and OHS requirements

Laboratory - Costs for processing samples

Travel - Costs for attending meetings with industry, PIRSA F&A and stakeholders

Office and communication - Stationery, communications and publications

SARDI Overhead - Indirect costs that cannot be directly attributed to a specific business activity, product, or service

SARDI in kind – SARDI investment through supporting costs for specific equipment, capital depreciation, infrastructure and research facilities



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