PIRSA FISHERIES & AQUACULTURE
COST RECOVERY PROGRAM
2014-15

MARINE SCALEFISH FISHERY
including MUD COCKLES
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## SUMMARY TABLE MARINE SCALEFISH FISHERY

<table>
<thead>
<tr>
<th>2013-14 $</th>
<th>PROGRAM AREA</th>
<th>2014-15 $</th>
<th>COMMENTS</th>
<th>DAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RESEARCH COSTS</td>
<td></td>
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<tr>
<td>824,037</td>
<td>Stock Assessment and Monitoring</td>
<td>857,751</td>
<td>One year program, as per SARDI project scope</td>
<td></td>
</tr>
<tr>
<td>27,280</td>
<td>Economic Assessment</td>
<td>27,287</td>
<td>Contract for services finalised with supplier for 2014-15</td>
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<tr>
<td>11,488</td>
<td>Other Research</td>
<td>13,162</td>
<td>Contribution towards Threatened and Endangered Species</td>
<td></td>
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<tr>
<td></td>
<td>PIRSA RELATED COSTS</td>
<td></td>
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<tr>
<td>191,337</td>
<td>Policy and management</td>
<td>197,301</td>
<td>Same level of service as previous year</td>
<td>220</td>
</tr>
<tr>
<td>8,380</td>
<td>Legislation</td>
<td>9,499</td>
<td>Same level of service as previous year</td>
<td>10</td>
</tr>
<tr>
<td>73,644</td>
<td>Licensing</td>
<td>67,519</td>
<td>Same level of service as previous year</td>
<td>90</td>
</tr>
<tr>
<td>15,718</td>
<td>Directorate</td>
<td>14,442</td>
<td>Same level of service as previous year</td>
<td>16</td>
</tr>
<tr>
<td>1,105,084</td>
<td>Compliance</td>
<td>1,148,258</td>
<td>Same level of service as previous year</td>
<td>967</td>
</tr>
<tr>
<td>38,221</td>
<td>Vessel</td>
<td>42,669</td>
<td>Same level of service as previous year</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>OTHER COSTS</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>55,606</td>
<td>FRDC</td>
<td>54,773</td>
<td>Funding based on 0.25% of rolling three year average GVP</td>
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<tr>
<td>131,040</td>
<td>Co-Management Services</td>
<td>131,040</td>
<td>Requested for 2014-15</td>
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<tr>
<td></td>
<td>$2,481,837</td>
<td>Total $2,563,701</td>
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<td></td>
<td>Licence Fees 2014-15</td>
<td>$</td>
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<tr>
<td></td>
<td>Base Fee</td>
<td>5,171</td>
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<tr>
<td></td>
<td>Net Fee</td>
<td>4,761</td>
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<tr>
<td></td>
<td>Licence Fees 2013-14</td>
<td>$</td>
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<td></td>
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<tr>
<td></td>
<td>Base Fee</td>
<td>4,938</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Net Fee</td>
<td>4,529</td>
<td></td>
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</tbody>
</table>

Licence Fees 2013-14

<table>
<thead>
<tr>
<th>Base Fee</th>
<th>Net Fee</th>
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</thead>
<tbody>
<tr>
<td>4,938</td>
<td>4,529</td>
</tr>
</tbody>
</table>

Licence Fees 2014-15

<table>
<thead>
<tr>
<th>Base Fee</th>
<th>Net Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,171</td>
<td>4,761</td>
</tr>
</tbody>
</table>
### SUMMARY TABLE MARINE SCALEFISH MUD COCKLE FISHERY

<table>
<thead>
<tr>
<th>2013-14 $</th>
<th>PROGRAM AREA</th>
<th>2014-15 $</th>
<th>COMMENTS</th>
<th>DAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESEARCH COSTS</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>40,717</td>
<td>Stock Assessment and Monitoring</td>
<td>45,937</td>
<td>In 2013-14, there was one SARDI project scope for Mud Cockle. In 2014/15, this was split into 2 scopes: Coffin Bay and West Coast. There is no project scope for Section Bank as this will be closed in 2014-15. Comments on scopes for 2014-15, as below: Coffin Bay: Two-year program 2014-15 and 2015-16. Total cost of program is $37,919. Program cost to be recovered from industry in equal amounts of $18,959.50 each year under the program. West Coast: Two-year program 2014-15 and 2015-16. Total cost of program is $53,955. Program cost to be recovered from industry in equal amounts of $26,977.50 each year under the program.</td>
<td></td>
</tr>
<tr>
<td>1,236</td>
<td>Economic Assessment</td>
<td>1,600</td>
<td>Contract for services finalised with supplier for 2014-15</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Other Research</td>
<td>0</td>
<td>Contribution towards Threatened and Endangered Species - not to be collected for fishery in 2014/15.</td>
<td></td>
</tr>
</tbody>
</table>

### PIRSA RELATED COSTS

| 39,137 | Policy and management | 40,357 | Same level of service as previous year | 45 |
| 4,190 | Legislation | 4,749 | Same level of service as previous year | 5 |
| 8,183 | Licensing | 7,502 | Same level of service as previous year | 10 |
| 1,965 | Directorate | 1,805 | Same level of service as previous year | 2 |
| 43,426 | Compliance | 45,123 | Same level of service as previous year. Section Bank Closed for 2014-15 | 38 |
| 6,578 | Quota Monitoring | 7,083 | Same level of service as previous year | 11.3 |

### OTHER COSTS

<table>
<thead>
<tr>
<th>2,427</th>
<th>FRDC</th>
<th>2,750</th>
<th>Funding based on 0.25% of rolling three year average GVP</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>147,859</td>
<td>Total</td>
<td>156,907</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Licence Fees 2014-15</th>
<th>$</th>
<th>Licence Fees 2013-14</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Fee</td>
<td>3,501</td>
<td>Base Fee</td>
<td>3,647</td>
</tr>
<tr>
<td>(plus MSF Base fee)</td>
<td>5,171</td>
<td>(plus MSF Base fee)</td>
<td>4,938</td>
</tr>
<tr>
<td>Total Base:</td>
<td>8,672</td>
<td>Total base</td>
<td>8,585</td>
</tr>
<tr>
<td>Section Bank Quota Unit Fee</td>
<td>0.00</td>
<td>Section Bank Quota Unit Fee</td>
<td>0.00</td>
</tr>
<tr>
<td>Coffin Bay Quota Unit Fee</td>
<td>59.35</td>
<td>Coffin Bay Quota Unit Fee</td>
<td>58.90</td>
</tr>
<tr>
<td>West Coast Quota Unit Fee</td>
<td>41.55</td>
<td>West Coast Quota Unit Fee</td>
<td>34.25</td>
</tr>
</tbody>
</table>
INTRODUCTION

Wild catch commercial fisheries in South Australia will continue to be managed in accordance with the previously established cost recovery policy. This policy requires commercial fishery licence fees to fund services related to commercial fisheries management costs. PIRSA Fisheries & Aquaculture will continue to manage the process of consulting with service providers and relevant industry associations to establish fishery based management programs which will form the basis of annual licence fees.

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

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

This documentation provides a framework for discussions to assist in the establishment of appropriate research, policy, compliance and support services to manage a fishery.
## MANAGEMENT OBJECTIVES 2013/14 to 2015/16: MARINE SCALEFISH FISHERY

<table>
<thead>
<tr>
<th>Fishery</th>
<th>Draft Management Plan Goals</th>
<th>Outcomes 2013/14 to 2015/16</th>
<th>Policy and Management</th>
<th>Compliance</th>
<th>Assessment and Research</th>
<th>Systems &amp; Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Scalefish Fishery</td>
<td>Ensure MSF resources are harvested within ecologically sustainable limits</td>
<td>Implement management plan, including harvest strategies</td>
<td>Lead implementation of management plan, including harvest strategies</td>
<td>Implement and review fishery compliance plan, informed by risk assessment. Support implementation of management plan.</td>
<td>Support implementation of management plan, including harvest strategies</td>
<td>Support implementation of management plan, including issue of 10-year licences</td>
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<tr>
<td></td>
<td></td>
<td>Implement outcomes of Snapper review</td>
<td>Support implementation of Snapper management changes</td>
<td>Discretionary research project – Fishery independent index of Abundance for Snapper</td>
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<td></td>
<td></td>
<td>Ongoing meetings of the Garfish Working Group to review and propose measures to meet harvest strategy</td>
<td>Support implementation of Garfish management changes</td>
<td>Input and expertise into consultation processes with MFA (and or working groups) (Project 1)</td>
<td>Implement changes to licensing systems and update licences as required</td>
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<td>Monitor the biological performance of the fishery and ensure the collection of fishery and biological data</td>
<td>Facilitate the distribution of research outcomes. Consider stock assessment and stock status report with industry/SARDI, address any performance indicators (harvest strategy) as needed.</td>
<td>Stock assessment report for key species as per schedule in the harvest strategy (Project 3). Market sampling of key species to feed into fishery assessment reports as per schedule in the harvest strategy (Project 2)</td>
<td></td>
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<tr>
<td>Area of Activity</td>
<td>Activities and Responsibilities</td>
<td>Comments</td>
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<tr>
<td>Increase knowledge on shark species to support sustainable management</td>
<td>Increase knowledge on shark species to support sustainable management</td>
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<td></td>
<td>Provide advice on model inputs, various management scenarios to be tested</td>
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<td></td>
<td>Consider outcomes of the report with the MFA and review management arrangements as necessary</td>
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<td></td>
<td>Undertake 3 year ARC project on biology and population structure of Bronze and Dusky Whaler Sharks (Project due June 2015)</td>
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<tr>
<td>Logbook review to improve catch validation and confidence of fishery dependent information which is used to monitor the stocks and allocations</td>
<td>Lead process to review logbook and reporting requirements for MSF species with the MFA</td>
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<td></td>
<td>Support logbook review, as required</td>
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<td></td>
<td>Support logbook review, as required</td>
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<td>Update logbook and database and assist in education, as required.</td>
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<tr>
<td>Minimise impacts on the ecosystem</td>
<td>Address recommendations and conditions from DotE under EPBC Act accreditation</td>
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<tr>
<td></td>
<td>Reassessment of the fishery before January 2015</td>
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<tr>
<td></td>
<td>Lead development and implementation of a management strategy to mitigate the risk of fishery interactions with Australian sea lions.</td>
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<td></td>
<td>Prepare submission on ecological sustainability for Commonwealth EPBC Act assessment</td>
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<td></td>
<td>Address other conditions/recommendations as required</td>
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<tr>
<td></td>
<td>Support development and implementation of management strategy</td>
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<tr>
<td></td>
<td>Support development of management strategy</td>
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<td></td>
<td>Implement changes to licensing systems and update licences as required</td>
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</tr>
<tr>
<td>Optimum utilisation and equitable distribution of Marine Scalefish Fishery resources</td>
<td>Manage catch of each sector within allocated shares</td>
<td></td>
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<td></td>
<td>Review any breaches of allocations and implement management arrangements as necessary</td>
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<td></td>
<td>Status reports include assessment of catches against allocation triggers</td>
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<tr>
<td>Cost-effective and participative management of the fishery</td>
<td>Support industry body to participate and function within the co-management framework of the fishery</td>
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<tr>
<td></td>
<td>Support MFA in the development and implementation of a consultative model within the MSF</td>
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<tr>
<td></td>
<td>Develop and implement communication protocol, with annual review</td>
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<tr>
<td></td>
<td>Regular communication with industry and Executive Officer, Marine Fishers' Association and attendance of meetings, as required</td>
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<td></td>
<td>Implement and review fishery compliance plan, informed by risk assessment</td>
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<td></td>
<td>Attend meetings with MFA and provide compliance advice, as required</td>
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<tr>
<td></td>
<td>Industry liaison, attendance of meetings with MFA and provision of research advice, as required</td>
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<tr>
<td></td>
<td>Provide ongoing support for licensing queries</td>
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<tr>
<td></td>
<td>Support and coordination of FISHWATCH number</td>
<td></td>
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<tr>
<td>Implement rules review outcomes</td>
<td>Lead implementation of rules review outcomes, and consultation and regulatory changes to implement Snook size limit changes, via relevant legislative means</td>
<td>Support implementation of rules review outcomes, Assist in development of user guide, Participation in gear review and support implementation</td>
<td>Participation in gear review (Project 1)</td>
<td>Support implementation of rules review outcomes, Implement changes to licensing systems and update licences as required, Assist in development of user guide</td>
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<tr>
<td>Finalise and implement gear review</td>
<td>Develop and draft operators user guide (updated yellow book) Undertake review of lift nets (combining hoop nets and drop nets) (NB: linked with review of recreational arrangements) Lead finalisation of gear review, undertake consultation and commence implementation of legislative changes</td>
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<tr>
<td>Develop, agree and commence implementation of a strategic direction and plan for the MSF with the MFA</td>
<td>Assist the MFA in developing a strategic direction for the fishery (including consultation and seeking industry input and support) Develop a project plan to implement key projects to address the strategic issues Commence implementation of project plan to undertake agreed projects</td>
<td>Participation in projects and support of implementation</td>
<td>Participation in projects and support of implementation</td>
<td>Participation in projects and support of implementation</td>
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</tr>
</tbody>
</table>
## MANAGEMENT OBJECTIVES 2014/15: MUD COCKLE FISHERY

<table>
<thead>
<tr>
<th>Long term objectives</th>
<th>Outcomes 2012/13 to 2015/16</th>
<th>Fishery Policy and Management</th>
<th>Compliance</th>
<th>Assessment and Research</th>
<th>Systems &amp; Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure the Mud Cockle resource is harvested sustainably</td>
<td>Determine annual TACCs for quota zones according to biannual biomass estimates. Undertake review of the management arrangements for the Mud Cockle fishery Review status of Port River closure R&amp;D for Port River stock enhancement</td>
<td>Recommend annual TACCs for quota zones, in consultation with industry Implement Mud Cockle harvest strategy in management plan for the Marine Scalefish Fishery Review status of Port River closure with industry and SARDI Consider stock enhancement initiatives for Port River, and support, where necessary Provide management advice for the review of management arrangements for the Mud Cockle fishery</td>
<td>Implement compliance program, informed by risk assessment. Provide compliance advice for the review of management arrangements for the Mud Cockle fishery</td>
<td>Provide scientific advice to support harvest strategy, underpinned by biomass estimates Provide scientific advice for the review of management arrangements for the Mud Cockle fishery Support review of status of Port River closure with industry and PIRSA</td>
<td>Provide ongoing support for licensing quota and transfer queries Provide licensing advice for the review of management arrangements for the Mud Cockle fishery</td>
</tr>
<tr>
<td>Optimal utilisation and equitable distribution of the Mud Cockle resource</td>
<td>Address recommendations and conditions from DotE under EPBC Act accreditation Reassessment of the fishery before January 2015</td>
<td>Prepare EPBC Act reassessment report Address DotE conditions and recommendations Provide management advice on fish kills, as required</td>
<td></td>
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</tr>
<tr>
<td>Minimise impacts on the ecosystem</td>
<td>Support co-management of the fishery</td>
<td>Maintain regular communication with Executive Officer of the Marine Fishers’ Association and be accessible to all licence holders Provide management advice, where necessary, throughout the licensing year</td>
<td>Maintain regular communication with industry representatives Provide compliance advice, where necessary, throughout the licensing year</td>
<td>Maintain regular communication with industry representatives Provide scientific advice, where necessary, throughout the licensing year</td>
<td></td>
</tr>
<tr>
<td>Cost effective and participative management of the Mud Cockle Fishery</td>
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</table>
BRIEF DESCRIPTION OF FUNCTION
The Fisheries Policy and Management Unit of PIRSA Fisheries & 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 Policy and 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 Agriculture, Food and Fisheries, Chief Executive and Executive Director on matters relating to fisheries
- Represent the Executive Director 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
- Provide support and advice on fisheries management issues to the Fisheries Council of South Australia
- Progress Australian Government recommendations under EPBC Act assessment

OUTPUTS AND ACTIVITIES

Day-to-day fisheries management includes:

- Participation in inter and intra-departmental meetings and workshops on issues relevant to fisheries management
- Liaison 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
- Liaison within PIRSA, with other government agencies and with industry representatives in implementing decisions relevant to fisheries management
- Conducting 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
- Coordinating consultation with fishery stakeholders through established co-management processes
- Participation in industry liaison in the field and on vessels to strengthen fishery management knowledge and understanding, and develop rapport with licence holders
- Participation in industry development initiatives related to fisheries management
- Attending to general correspondence and enquiries relevant to fisheries
- Provision of advice to Minister in relation to the management of fisheries and Ministerial correspondence
- Communication of fisheries management issues to key stakeholder groups and the broader community
Key deliverables of the Fisheries Policy and Management Unit are:

- Development and implementation of management plans for commercial and recreational fisheries, including harvest strategy development and ESD risk assessment
- Development and implementation of Aboriginal traditional fishing management plans, in accordance with Indigenous Land Use Agreements
- Day-to-day preparation of necessary legislative instruments and/or advice required for the management of fisheries (regulations, closure notices, licence conditions, Ministerial exemptions etc).
- Day-to-day provision of advice to the Minister or his/her delegate on setting total allowable commercial catch and effort levels
- Preparation of other policies to support fisheries management
- Preparation of submissions to enable regular assessment of commercial fisheries under the EPBC Act
- Preparation of annual report to the Australian Government on EPBC Act requirements for all SA fisheries
- Preparation of regular fisheries status reports
- Delivery of Fisheries Council projects
- Day-to-day development and maintenance of productive working relationships and outcomes through cooperative management and collaboration with stakeholders

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 plans in accordance with Fisheries Council schedules and statutory consultative processes. Management plans to include harvest strategies that protect sustainability of the fishery based on ESD risk assessment processes.

Program Contact Officer:
Keith Rowling, Manager Fisheries Policy and Management Unit
08 8226 2369
keith.rowling@sa.gov.au
PROGRAM: LEGAL SERVICES

BRIEF DESCRIPTION OF FUNCTION

The Legislation Unit of PIRSA Fisheries & Aquaculture provides legal services to the Executive Director and the Director, Aquaculture and Fisheries and to all other members of the Division on an as needs basis. Among other things these services include problem solving and the provision of advice, in consultation with the Crown Solicitor’s Office where necessary, regarding any legal issues involving the implementation or administration of fisheries management arrangements through existing legislative framework and licence conditions.

OUTPUTS AND ACTIVITIES

These activities include:

1. Co-ordination of the introduction, amendment or revocation of Fisheries and Aquaculture legislation i.e. Act or regulation amendments, the introduction of new regulations and drafting of other legislative and administrative instruments such as delegation, permit or exemption instruments as required under the Fisheries Management Act 2007. New regulations or amendments involve the drafting of Cabinet submissions, including the preparation of drafting instructions, for consideration by government to provide for the necessary legislative framework to implement approved fishery management policy. This service includes co-ordinating divisional liaison with the Office of Parliamentary Counsel and the Crown Solicitor’s Office to ensure that regulations and proposed activities of the Division are accurately and effectively drafted and or implemented.

2. Maintenance and review of licensing arrangements required to appropriately implement approved fishery management policy and measures within the limitations of the Fisheries Management Act 2007. The service includes working with the Licensing program (part of Systems and Information) to set up efficient administrative systems and finalise forms and instruments that are legally sound.

3. Problem solving together with the provision and co-ordination of legal advisory services in liaison with the Crown Solicitor’s office relating to the implementation and administration of the Fisheries Management Act 2007, Regulations and fisheries management policies, and the defence of those policies and arrangements in litigation.

4. Responsible for the coordination of applications for Ministerial exemptions and Permits under Part 7 Division 2 of the Fisheries Management Act 2007.

5. To safeguard the ongoing sustainability of a fishery may require additional legal services in any particular year, depending on positive or negative scientific indicators, to implement new fisheries management arrangements (for example the introduction or variation of a quota system) or new administrative arrangements (for example, changes to licensing processes, conditions, introduction of closures).

Program Contact Officer:
Lambertus Lopez, Manager, Legal and Legislative Programs
08 8226 0266
Lambertus.Lopez@sa.gov.au
PROGRAM: LEASING AND LICENSING

BRIEF DESCRIPTION OF FUNCTION

The Fisheries Leasing & Licensing Section of PIRSA Fisheries & Aquaculture is responsible for the management of Licensing, Quota Monitoring and VMS 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.

OUTPUTS AND ACTIVITIES

Services to directly support the fishery:

1. Renew and maintain fishery licences.
2. Database management for licence renewal.
3. Collect licence fees and associated payments.
5. Record and track unpaid renewals.
6. Compose and send late payment instalment notices for unpaid quarterly instalments.
7. Draft and issue notices to Fishers.
8. 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 licence renewal forms, application for licence transfers, boat changes, gear enquiries and fishing regulations.
9. Regularly update information about licence holders.
10. Research and prepare documents for public record.
11. Liaise with government stakeholders to verify the credentials of fishers.
12. Liaise with PIRSA Fisheries & Aquaculture, SARDI Aquatic Sciences, Crown Solicitors and other state and local agencies on matters relevant to the fishery.
13. Draft and update licence conditions over the duration of the licensing year as determined by the Executive Director, Fisheries and Aquaculture and the Director, Fisheries and Aquaculture Policy.
14. Provide information to licence holders relating to the requirements pursuant to licence administration.
15. Manage calls from fishers regarding late payment notices, fees and general enquiries about their licences.
16. Provide support regarding an increased frequency of last minute administrative enquiries from fishers. e.g., master changes 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.
2. Liaise with relevant staff within PIRSA Aquaculture and Fisheries in implementing decisions relevant to the fishery.
3. Interrogate the PIIMS database to extract information for other stakeholders to use in preparing reports.
4. Prepare reports requested by internal and external customers including maintenance of a public register of licence holders.
5. Liaise with information technology providers to maintain PIIMS and administer licensing requests.
6. Generate quota management reports to update stakeholders on varying Total Allowable Commercial Catch (TACC) returns and end of season quota holdings.

PERFORMANCE INDICATORS

1. Issue of licences to licence holders in an accurate and timely manner.
2. Provision of accurate and timely information related to licences.
3. Quarterly activity report as required within one month at the end of each quarter.

Program Contact Officer:
Kim Terry, Manager Leasing & Licensing
08 8204 1374
Kim.Terry@sa.gov.au
BRIEF DESCRIPTION OF FUNCTION

Business Services, within Directorate of PIRSA Fisheries & 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.

OUTPUTS AND ACTIVITIES

Business Services provides support services to government and industry as well as advice and facilitation of corporate related policy and management issues:

1. Coordinate and facilitate cost recovery processes and program agreements, including liaising with program providers, managers and financial services as required.
2. Attend meetings relating to cost recovery, licence setting and related policy issues.
3. Develop and review cost recovery policy, processes and program agreements.
4. Manage major service providers’ service level agreements.
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.
6. Provide advice on procurement and invoicing requirements.
7. Consult with the Executive Director, Fisheries and Aquaculture, Director, Fisheries and Aquaculture Policy Management, Director, Operations, PIRSA fisheries managers, and the Office of the Minister and other parties as needed.
8. Management of industry funds and services.

PERFORMANCE INDICATORS

1. Plan, coordinate and facilitate the cost recovery process with industry associations and program providers in a timely and efficient manner.
2. Ongoing review, development and documentation of the cost recovery model, framework, processes and roles.
3. Meet agreed timeframes on management and administration of external contractual services
4. Appropriate management of industry funds and services.

Program Contact Officer:
Benn Gramola, Business Manager
08 8226 2317
Benn.Gramola@sa.gov.au
PROGRAM: FISHERIES COMPLIANCE OPERATIONS

BRIEF DESCRIPTION OF FUNCTION

The Fisheries & Aquaculture Operations Group is comprised of the Regional Operations teams, Offshore Patrol Operations and the Intelligence & Strategic Support teams. The complementary teams undertake compliance activities to educate fishers, deter opportunistic and financially motivated fishery related crimes, and enforce rules and regulations.

Each fishery has a dedicated coordination team assigned consisting of a State Coordinator, Regional Coordinators, Policy Manager, and the SARDI Program leader for the fishery. The coordination team is also supported by timely and accurate intelligence briefings from the Intelligence & Strategic Support Team.

In consultation with the fishery industry representatives a dedicated Compliance Plan has been developed for each fishery. Each Compliance Plan is developed to ensure compliance activities with the fishery are intelligence driven, cost effective and efficient and outcome focussed. The three core strategies in order of priority (Education and Awareness, Effective Deterrence and Appropriate Enforcement) are directed at increasing voluntary compliance and maximising effective deterrence.

Following the consultation process and a detailed analysis of all intelligence and information to hand the major risks have been identified, prioritised and rated for each fishery specific plan. The resulting plan itemises a series of strategies, actions, and initiatives aimed at achieving the targeted outcomes. In addition, any other risks will be addressed outside of the planned program as the need arises. The risks and strategies to address them are constantly reviewed and assessed for relevance. Contingency plans are in place to address any immersing trend or issues where intelligence received or changes in circumstances within the fishery require attention in addition to monitoring all the rules and requirements of each fishery.

The level of effort required to deliver the compliance program in accordance with the dedicated plan is also 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

Activity, effort and outcomes are collated and reported against each of the identified fishery specific risks and strategies.
ACTIVITIES

- Monitoring of all fishery management and quota systems for compliance
- Offence identification and response
- Operational and Investigation Planning and Surveillance
- Risk assessments, trend and threat analysis
- Master Operational Planning Process
- Legislative review for efficacy and relevance
- Prosecution system maintenance and development
- Prosecution Steering Committee coordination and assessment
- Industry liaison and education

OUTPUTS

- Delivery of Actions and Initiatives against Compliance Plan
- Educational material
- Induction & Pre-season information packages
- Intelligence driven operations and investigations
- On land and at sea inspections
- Engagement with fishers and attendance at industry meetings
- Cautions, Expiations and Prosecutions
- Intelligence briefings and target packages
- Consultative Industry initiatives and planning
- Engagement and participation in Rules & Gear Reviews
- Continued development of cost effective and efficient fishery specific compliance plans
- Quarterly or bi-annual compliance activity reports
- Annual fishery compliance outcomes and scorecard

PERFORMANCE INDICATORS

- Increased voluntary compliance
- Continued development of effective deterrence strategies
- Accurate intelligence and risk predictions
- Successful court outcomes for serious offences
- Development of efficient and cost effective compliance strategies
- Continued development of stakeholder engagement programs
- Reduced incidence of reported illegal activity
- Reduced incidence of documentation errors and inconsistencies
- Increased integrity in fishery management systems and/or quota systems
- Increased positive interactions & collaboration with stakeholders

The dedicated Fishery Compliance Plan for this fishery outlining each of the risks and strategies, actions and initiatives to address those risks is attached hereto.

Program Contact Officer:
Peter Dietman, Director, Operations
08 8226 2873
Peter.Dietman@sa.gov.au
Fishery Management Plan Goals:

1. Ensure the sustainably harvest of Marine Scalefish Fishery stocks.
2. Optimum utilisation and equitable distribution of the Marine Scalefish Fishery resource within the constraints of sustainability
3. Minimise adverse impacts of all fishing operations on the ecosystem upon which the Marine Scalefish Fishery depends.
4. Good governance of the Marine Scalefish Fishery

Compliance Risk Summary


   Risk includes multiple boats working with single licence holder AFMA / State dual licences. This risk is rated high due to the number of information reports received and the significant impact that illegal activity at this level could have on the fishery. This includes collusion between licensed fishers selling fish on behalf of unlicensed fishers eg. handing over gummy shark to comply with bag limits. This also includes State / AFMA fishers fishing both jurisdictions avoiding by catch limits and gear restrictions.

   Note – Actions & Initiatives to mitigate this risk are also addressed and delivered against the Recreational Fishery Compliance Plan

2. Fishing in Closed Seasons / Areas - PIRSA Risk Rating: MODERATE (Likelihood 6: Consequence 2: Score 12)

   This risk is rated high due to the potential of commercial fishing occurring during newly legislated closures regarding Snapper and nominated Garfish closures and the high impact that taking fish during closures could have on this fishery, specifically relating to Snapper and Garfish. Closed seasons are in place for sustainably reasons i.e. reduce fishing effort or minimise disturbance to spawning fish.


   Risk includes not marking gear correctly, using excess hooks / gear and using excess / non endorsed gear. Risk rated high due to the number of information reports received (in particular relating to not attending long lines, not marking buoys with licence numbers, using excess hooks, using haul nets of illegal dimensions, using unendorsed vessels, using excess long lines, using gear not endorsed and modifying fishing gear. Gear restrictions are in place to manage effort in the fishery, to minimise bycatch (including undersized fish) and adverse impacts on the ecosystem.

Risk includes take of Gummy / School Sharks and species substitution, by-catch limits. The impact of taking undersize fish or exceeding the bag limit of shark could have a significant impact on this fishery. In general terms size limits and trip limits are set for sustainability reasons. The size and age structures of Garfish stocks are truncated, commercial catches are largely comprises of only one and two year old fish as such many will be either just over or under the legal minimum length. A number of information reports have been received in relation to fishers exceeding their daily bag / trip limit of Gummy Shark, and exceeding Snapper trip limits.


This risk is rated moderate due to the number of information reports received and the impact this could have as research is based on these figures. The fishery catch and effort data collected by logbook returns is used to monitor the status of the fishery and monitor each sectors take in comparison to other sectors for allocation purposes; as such it is vital there is confidence in the data provided. There have been rumours that Snapper (King George Whiting and Calamari) were going to become quota monitored fisheries and people were inflating their reporting figures to establish an inflated show a catch history. There has also been information received of under reporting by fishers in the Rock Lobster sector due to not wanting to exceed their fishery’s allocation of key species.

6. **Other Compliance risks identified within the fishery that may occur will be addressed as they are detected. They include the following:**

- Fishing in closed areas
- Fishing with too many agents
- Biosecurity response
- Fishing with a vessel not endorsed on a licence
- Taking non-permitted species (species not listed on Schedule)
- Taking protected species
- Interfering with lawful fishing activity
- Failure to lodge SARDI catch and effort returns
- Inaccurate or misleading reporting of catch location and volume on SARDI Returns
- Assist / provide services to other agencies (ie SAPOL, threats at sea amongst Industry, vandalism)
### Risk Likelihood & Consequence Analysis:

<table>
<thead>
<tr>
<th>LIKELIHOOD</th>
<th>NEGLIGIBLE</th>
<th>MINOR</th>
<th>MODERATE</th>
<th>SEVERE</th>
<th>MAJOR</th>
<th>CATASTROPHIC</th>
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</tbody>
</table>

**Likelihood Definitions**

- **Likely**: It is expected to occur
- **Occasional**: May occur
- **Possible**: Some evidence to suggest this is possible here
- **Unlikely**: Uncommon, but has been known to occur elsewhere
- **Rare**: May occur in exceptional circumstances
- **Remote**: Never heard of but not impossible

**Consequence Definitions**

- **Negligible**: Local extinctions are imminent / immediate
- **Low**: Likely to cause local extinctions, if continued in longer term
- **Moderate**: Affecting recruitment levels of stocks / or their capacity to increase
- **High**: Full exploitation rate, but long term recruitment / dynamics not adversely impacted
- **Extreme**: Possibly detectable, but minimal impact on population size and none on dynamics
- **Very Extreme**: Insignificant impacts to population. Unlikely to be measurable against background variability for this population

**Risk Rating**

- Negligible
- Low
- Moderate
- High
- Extreme
**Strategies**

The following strategies have been developed to address each of the risks:

1. **Education & Awareness**
   - All interested parties understand their respective obligations
   - Develop Industry communication & relationship program

2. **Deterrence**
   - All aspects of Quota Management System are fully monitored
   - Enforcement Plan Communication Strategy
   - Enforcement Outcomes Communication Strategy
   - All aspects of fishing activity monitored

3. **Enforcement**
   - Maximise successful prosecutions Outcomes
   - Identify participants & methodology of Quota Evasions
   - Reduce ability to evade Quota Management System

**Target Outcomes**

The following target outcomes have been identified:

- Minimise collusion of illegal activity between sectors
- Minimise incidents of fishing in closed seasons & areas
- Minimise incidents of illegal fishing gear use
- Minimise take of undersize / over-limit fish
- Minimise occurrence of catch validation (eg. catch being over stated/understated)
## Coordination Team:
- Central – Pat Tripodi (State Coordinator)
- West – Trevor Puckridge
- Southern Ranger – Matt Read
- Limestone Coast - Morgan Trenaman
- Policy Manager – Michelle Besley

<table>
<thead>
<tr>
<th>Risks Addressed</th>
<th>Strategies</th>
<th>Initiative</th>
<th>Actions</th>
<th>Who</th>
<th>When</th>
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</thead>
<tbody>
<tr>
<td>1 2 3 4 5 1 2 3</td>
<td>1 2 3 5</td>
<td>1 on 1 interactions</td>
<td>Have 1 on 1 interactions with LH’s, RM’s and Fish Processors throughout the season; ensure all remain clear on the rules and their obligations</td>
<td>FO’s</td>
<td>As required</td>
</tr>
<tr>
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<td>Industry Days</td>
<td>FO’s</td>
<td>Ongoing</td>
</tr>
<tr>
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<td>3</td>
<td>Established liaison &amp; contact with Industry</td>
<td>Have regular contact with SARDI, Policy, Industry Representatives and Stakeholders</td>
<td>Regional Manager, SC, RC’s</td>
<td>Ongoing</td>
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<tr>
<td></td>
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<td></td>
<td>Attend Industry meetings. Communicate Industry performance. Raise compliance issues in a timely manner</td>
<td></td>
<td>As required</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Fishery working group/s</td>
<td>Participate in fishery working group/s, provide advice on draft regulations</td>
<td>Regional Manager, SC</td>
<td>Early 2013</td>
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<tr>
<td>3 4 5 1 2 3</td>
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<td>Field based inspections</td>
<td>Inspections at sea, landing, transit and at Fish Processor Includes:</td>
<td>Regions, SR</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>- Aerial surveillance</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Checking markings on gear, gear numbers, non-permitted species, size limits &amp; fishing during closed seasons &amp; areas</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Ensuring compliance with long line use</td>
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<td></td>
<td></td>
<td></td>
<td>- At sea inspections to target collusion between commercial and recreational fishers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 5 1 2 3</td>
<td></td>
<td>Regulatory review and revision</td>
<td>Contribute to amendment of legislation and policy where appropriate</td>
<td>SC’s, RC’s</td>
<td>As required</td>
</tr>
<tr>
<td>Risks Addressed</td>
<td>Strategies</td>
<td>Initiative</td>
<td>Actions</td>
<td>Who</td>
<td>When</td>
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<tr>
<td>x x x x x</td>
<td>x</td>
<td>Media</td>
<td>Utilise media to update on successful prosecution outcomes, season opening / closure and other relevant initiatives.</td>
<td>Regional Manager, SC, Regions, PIRSA Comms</td>
<td>As required</td>
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<tr>
<td>x x x x x x</td>
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<td>Intelligence</td>
<td>Collate and analyse information received through FISHWATCH and Stakeholders</td>
<td>Regions, Intel Analyst</td>
<td>Ongoing</td>
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<tr>
<td>x x x x x x</td>
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<td>Intelligence driven Operations</td>
<td>Develop investigations and carry out targeted operations in line with the Marine Scale Fishery Compliance Plan</td>
<td>Regions, SOG</td>
<td>As required</td>
</tr>
<tr>
<td>x x x x x x</td>
<td>x</td>
<td>Address non-compliance</td>
<td>Investigate instances of non-compliance</td>
<td>FO’s</td>
<td>As required</td>
</tr>
<tr>
<td>x x x x x x</td>
<td>x</td>
<td>Address non-compliance</td>
<td>Take enforcement action including issue of Caution, Expiation and Brief</td>
<td>FO’s</td>
<td>As required</td>
</tr>
<tr>
<td>x x x x x x</td>
<td>x</td>
<td>Brief Quality Assurance</td>
<td>Briefs of evidence meet evidentiary requirements and are vetted to ensure quality assurance</td>
<td>FO’s, Regional Manager, PSC</td>
<td>As required</td>
</tr>
</tbody>
</table>

Abbreviations: FO (Fisheries Officer); SR (Southern Ranger), SC (State Coordinator); RC (Regional Coordinator), SOG (Special Operations Group – PIRSA internal); PSC (Prosecution Steering Committee – PIRSA internal), Intel Analyst (Intelligence Analyst – PIRSA internal); PIRSA Comms (PIRSA Communications – PIRSA internal)
Fishery Management Plan Goals:

5. Sustainable harvest of Marine Scalefish fish stocks
6. Minimise adverse impacts of all fishing operations on the ecosystem upon which the Marine Scalefish Fishery depends
7. Optimal utilisation of Marine Scalefish Fishery resources within the constraints of sustainability imperatives
8. Good governance of the Marine Scalefish Fishery

In early 2014 a workshop involving PIRSA and Industry will be held. The aim of the workshop will be to identify future management arrangements for the fishery. At the time of this document being prepared the workshop had not been held.

It is important to note that should alternative management arrangements to those current be identified and ultimately implemented, each risk would be reviewed at a point in time thereafter and once the impact of each measure was known.

Risk Summary:

1. Quota Management System Integrity - PIRSA Risk Rating: MODERATE (Likelihood 5: Consequence 3: Score 15)

The Quota Management System (QMS) is the collection of elements, each including various measures that when adhered to, enable effective accountability of all fish taken and subsequently sold or transferred. Integrity is the term used to describe the effectiveness of the measures contained within the QMS. The more effective the measures, the better the integrity of the QMS.

The establishment of the QMS is in line with Fishery Management Plan goals and primarily aims to prevent over-fishing, which can lead to over-exploitation of the biomass and ultimately the collapse of the Fishery.

Until such time as Risk 4 “Fishing Outside Quota Zones” is addressed, the integrity of the QMS is reduced as there is potential for fish to be removed from within the permitted Quota Zone(s) and declared as fish caught outside of the Quota Zone(s).

The legal requirement for licences to submit catch information is pertinent for the monitoring of the QMS. The more licences and landings, the increased chance of errors or non-conformance occurs. The consequence may lead to disparity in the Fishery, incorrect information received by PIRSA Fisheries and an ineffective QMS.
Measures included within the Mud Cockle (MC) QMS that influence the integrity of the QMS include:

- Fisheries required to Prior Report in advance when they intend to land their fish, where etc.
- Fishers and Fish Processors required to accurately complete formwork (CDR) that accounts for all MC harvested
- Accurate and timely completion and submission of CDR by Fisher and Fish Processor

Each measure forms part of the overall QMS. Failure to comply with a measure(s) or exploitation of a measure(s) undermines the integrity of the QMS and heightens the risk of Quota Evasion.

The reduced ability of Fisheries Compliance to either prove or disprove intent where there is variance in the weight of fish declared is viewed by Fisheries Compliance as a shortfall in the QMS.


Quota Evasion is where a Commercial Fisher takes fish but does not document having taken the fish. The need for or opportunity to increase personal income is the primary driver for quota evasion to occur.

Factors including changed personal financial circumstances, reducing profit margins, product sale uncertainty, higher sale prices, reduced capacity to earn income as a result of changes to individual transferrable quota (ITQ) and also positive predicted catches all influence the likelihood of quota evasion occurring.

Elements of quota evasion can include:

- Fishing but not Prior Reporting
- Providing false or misleading information on CDR’s eg. under declaring weight of fish caught
- Fishing but failing to submit a CDR
- Collusion with a Processor(s). Consignment of fish to self in some instances, in isolated locations, presents risk
- Licence Holders who hold quota in two (2) zones taking fish from one zone and declaring fish caught in second zone
- Risk 4 “Fishing Outside Quota Zones” also represents risk that fish can be taken from within the permitted Quota Zone(s) and declared as being caught outside the permitted Quota Zone(s).

Over the past few years several instances of potential quota evasion have been investigated, with two of these resulting in Court Briefs being pursued but later withdrawn. Additional reports involving suspicious fishing activity and potential quota evasion have also been received and are subject to ongoing investigation by Fisheries Officers.

Given the very nature of quota evasion and its association with some of the most serious offences under the Fisheries Management Act 2007, Compliance is of the view that this remains a high risk, both to the mud cockle Industry itself plus also Compliance.

At the workshop, PIRSA and Industry will meet to review the mud cockle QMS, identify any gaps and ensure appropriate legislation is in place to address those gaps. This initiative and the anticipated improvement to QMS integrity is expected to have a positive impact on this risk.

The purpose of minimum legal size limits is to protect juvenile fish and maintain spawning stocks. Should undersize Mud Cockle be taken on a large-scale basis, the cumulative effects could be significant in terms of overall biomass sustainability within South Australia.

Taking undersize includes mud cockles not being graded correctly. Current high prices and market demand increase the risk. Fish not graded at the point of taking and later returned to the water in unsuitable habitat is another factor required to be addressed. Coffin Bay zone implemented exemption of taking cockles at 33mm (Greys at 30mm).

Checks conducted by Fisheries Officers in 2012 / 2013 resulted in few instances of undersize mud cockle being detected, and is indicative of the continued improvement by Industry over the past few years.


There are currently no management arrangements in place restricting Quota and Non-Quota Holders from taking unlimited amounts of MC from outside the MC Quota Zones. There are known areas that hold good numbers of MC outside of the current Quota Zones and some of these areas fall inside SASQAP approved areas. The consequence has been rated “severe” as the state of the underlying bio-mass (and subsequent impact of fishing) within such areas is unknown.

5. **Fishing within Quota Closed Area - PIRSA Risk Rating: MODERATE (Likelihood 3: Consequence 4: Score 12)**

The Mud Cockle bio-mass within the Section Bank Quota Areas remains in a state of recovery. Should quota holders ignore the closure that remains in place within these areas and illegally fish, the recovery of the bio-mass to once again accommodate commercial fishing will be compromised.

6. **Other Compliance risks identified within the fishery that may occur will be addressed as they are detected. They include the following:**

- Use excess gear
- Biosecurity response
- Fishing from more than one vessel at a time
- Failure to lodge SARDI catch and effort returns
- Inaccurate or misleading reporting of catch location and volume on SARDI Returns
- Assist / provide services to other agencies (ie SAPOL, threats at sea amongst Industry, vandalism)
### Risk Likelihood & Consequence Analysis:

<table>
<thead>
<tr>
<th>LIKELIHOOD</th>
<th>CONSEQUENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NEGLIGIBLE</td>
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<tr>
<td></td>
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<tr>
<td>REMOTE</td>
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<tr>
<td>RARE</td>
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<tr>
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</tr>
<tr>
<td>LIKELY</td>
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</tbody>
</table>

#### Likelihood Definitions

- **LIKELY** - It is expected to occur
- **OCCASIONAL** - May occur
- **POSSIBLE** - Some evidence to suggest this is possible here
- **UNLIKELY** - Uncommon, but has been known to occur elsewhere
- **RARE** - May occur in exceptional circumstances
- **REMOTE** - Never heard of but not impossible

#### Consequence Definitions

- **NEGLIGIBLE** - Local extinctions are imminent / immediate
- **MINOR** - Likely to cause local extinctions, if continued in longer term
- **MODERATE** - Affecting recruitment levels of stocks / or their capacity to increase
- **SEVERE** - Full exploitation rate, but long term recruitment / dynamics not adversely impacted
- **MAJOR** - Possibly detectable, but minimal impact on population size and none on dynamics
- **CATASTROPHIC** - Insignificant impacts to population. Unlikely to be measurable against background variability for this population

#### Risk Rating

- **Negligible**
- **Low**
- **Moderate**
- **High**
- **Extreme**
**Strategies:**

The following strategies have been developed to address each of the risks:

1. **Education & Awareness**
   - All interested parties understand their respective obligations
   - Develop Industry communication & relationship program

2. **Deterrence**
   - All aspects of Quota Management System are fully monitored
   - Enforcement Plan Communication Strategy
   - Enforcement Outcomes Communication Strategy
   - All aspects of fishing activity monitored

3. **Enforcement**
   - Maximise successful prosecutions Outcomes
   - Identify participants & methodology of Quota Evasions
   - Reduce ability to evade Quota System

**Target Outcomes:**

The following target outcomes have been identified:

- Quota Management System integrity maintained
- Minimise Quota Evasion
- Minimise take of Undersize
- Minimise incidents fishing outside designated quota zones
- Minimise incidents fishing within closed areas
### Risks

1 = Quota Integrity  
2 = Quota Evasion  
3 = Take Undersize  
4 = Fishing Outside Quota Zones  
5 = Fishing Closed Areas

### Strategies

1 = Education & Awareness  
2 = Deterrence  
3 = Enforcement

### Coordination Team:

West – Chris Morrison (State Coordinator)  
Central South – Dale McKerlie  
Policy Manager – Lianos Triantafillos

<table>
<thead>
<tr>
<th>Risks Addressed</th>
<th>Strategies</th>
<th>Initiative</th>
<th>Actions</th>
<th>Who</th>
<th>When</th>
</tr>
</thead>
</table>
| 1 x 2 x 3 x 4 x 5 | 1 x 2 x 3 | 1 on 1 interactions | Update and distribute Fishery User Guide  
Meet with LH’s and Processors prior to season. Ensure have clear understanding of:  
- Legislative changes impacting coming season  
- Compliance focus for coming season  
Have 1 on 1 interactions with LH’s and Processors throughout the season; ensure all remain clear on the rules and their requirements | SC, RC | Pre Season |
| | | | | SC, Ops Mgrs | Pre Season |
| | | | | West | Season |
| | | | | FO’s | Season |
| x x x x x x | | Induct new entrants | Induct new entrants | RC’s | As required |
| x x x x x x | | Established liaison & contact with Industry | Have regular contact with SARDI, Policy, Industry Representatives and Stakeholders  
Prior to season commencing, communicate forthcoming Compliance focus.  
Attend Industry meetings. Communicate Industry performance. Raise Compliance issues in a timely manner | Ops Mgrs, SC, RC’s | As required |
<p>| | | | | SC, RC | Pre Season |
| | | | | Ops Mgrs, SC | Ongoing |</p>
<table>
<thead>
<tr>
<th>Risks Addressed</th>
<th>Strategies</th>
<th>Initiative</th>
<th>Action</th>
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<th>When</th>
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</thead>
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<td>Audit</td>
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<td>• Identification of CDR irregularities</td>
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<td>• Monitor quota balance for exceeding catch</td>
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<td>• Annual cross check of CDR data against Prior Reports and Parts A on select Licence Holders</td>
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<td>• Comparison of CDR and sales records</td>
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<td>Field based inspections</td>
<td>Inspections at sea, landing, transit and at Fish Processor</td>
<td>Regions</td>
<td>Season</td>
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<td>Media</td>
<td>Utilise media to update on successful prosecution outcomes</td>
<td>Ops Mgrs, SC, PIRSA Comms</td>
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<td>Policy review and revision</td>
<td>Contribute to amendment of legislation and policy where appropriate</td>
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<td>Intelligence</td>
<td>Collate and analyse information received through FISHWATCH and Stakeholders</td>
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<td>Intelligence driven operations</td>
<td>Develop investigations and carry out targeted operations in line with the Serious Offence Plan</td>
<td>Regions, SOG</td>
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<td>Investigate instances of non-compliance</td>
<td>FO’s</td>
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<tr>
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<td></td>
<td>Take enforcement action including issue of Caution, Expiation and Brief</td>
<td>FO’s</td>
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<td>Briefs of evidence meet evidentiary requirements and are vetted to ensure quality assurance</td>
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</table>

**Abbreviations:** FO (Fisheries Officer); Ops Mgrs (Regional Operations Manager); SR (Southern Ranger); SC (State Coordinator); RC (Regional Coordinator); West (West Region); PSC (Prosecution Steering Committee – PIRSA internal); SOG (Special Operations Group – PIRSA internal); Intel Analyst (Intelligence Analyst – PIRSA internal); PIRSA Comms (PIRSA Communications – PIRSA internal)
1. PROJECT DETAIL

1.1 Title  Marine Scalefish Fishery

1.2 Client Contact Details
Name: PIRSA Fisheries and Aquaculture
Address: GPO Box 1625, Adelaide, SA 5001
Attention: Sean Sloan
Email: Sean.Sloan@sa.gov.au
Telephone: 8226 2318, 0411 147 834
Facsimile: 8226 0434

1.3 Principal Investigator
Name: Dr Tony Fowler
Position: Marine Scalefish Sub-program Leader
Address: SARDI Aquatic Sciences
2 Hamra Avenue, West Beach, SA 5024
Email: anthony.fowler@sa.gov.au
Telephone: 8207 5432, 0421 617 118
Facsimile: 8207 5406

1.4 Timeframe
Commencement Date: 1 July 2014
Completion Date: 30 June 2015
2. PROJECT DESCRIPTION

2.1 BACKGROUND

The broad approach to research for South Australia’s Marine Scalefish Fishery has been to concentrate on the three primary species, with the focus changing between these species annually following a three year cycle. This protocol was initially established as a five-year plan in 2005 by the Marine Scalefish Fishery Management Committee. Although that five-year plan has now expired, it is intended to maintain the three-year cycle that has become well established. This approach is formalised in the new Management Plan for the South Australian Commercial Marine Scalefish Fishery (PIRSA 2013). According to this cycle, the broad work program for each year of 2014/15 to 2016/17 is:

1. to continue collection of commercial catch and effort data, and the delivery of advice to PIRSA and industry;
2. to undertake catch sampling in each year for two of the three primary species of snapper, King George whiting and southern garfish;
3. to do a full stock assessment for one of the three primary species in each year;
4. to undertake a discretionary project based on current research needs and issues.

In recent years the key management issues in the Marine Scalefish fishery have related to the snapper fishery (Fowler et al. 2013). This has been the dominant species in the fishery on the basis of record catches taken through the period of 2009 to 2011. The issues have related to a significant change in the spatial structure of the fishery associated with a dramatic decline in the fishery in Spencer Gulf and a considerable increase in fishing effort and effectiveness in Northern Gulf St. Vincent and also in the South East region.

In response to these concerns, significant management changes were implemented during both 2012 and 2013, aimed at controlling commercial catches and enhancing the opportunity for undisturbed spawning. The management changes will directly restrict catch and effort and probably contribute to changing fisher behaviour. This will influence the commercial fishing statistics and affect the comparability of all data from December 2012 onwards to the earlier catch and effort data back to 1983/84. Therefore, the relative significance of commercial statistics as fishery indicators has changed as a consequence of the new management arrangements. Consequently, PIRSA Fisheries and Aquaculture has identified the need for a ‘fishery independent’ indicator of stock biomass. The Daily Egg Production Method (DEPM) has been proposed as the most logistically tractable method for producing useful estimates of biomass of snapper. To establish the appropriate protocol for undertaking a DEPM for snapper, a three-year program has been planned, dependent on SLA and FRDC funding. This project was the discretionary project in 2013/14 and is proposed to run as such, through 2014/15 and 2015/16. The appropriate discretionary project for 2016/17 will be decided closer to that time.
PROJECT 1A – MANAGEMENT AND DELIVERY OF CORE PROGRAM

Project 1a – Collection of commercial catch and effort data from the Marine Scalefish fishery

1a.1 BACKGROUND
The collection of comprehensive commercial catch and effort data for the Marine Scalefish Fishery has operated continuously since July 1983, thus providing a continuous dataset of fishery statistics over a period that exceeds 30 years. These are the most significant long-term, statistical data available for assessing stock status in the Marine Scalefish Fishery. The general performance indicators and associated target reference points for assessing stock status that are specified in the Management Plan (PIRSA 2013), all relate to these commercial catch and effort statistics. Furthermore, these statistics constitute the basis for the three fishery models of WhitEst, SnapEst and GarEst. Clearly, to ensure the availability of up-to-date databases for stock assessment purposes it is fundamental to continue the collection of these data up to 2016/17.

1a.2 NEED
To continue to collect commercial catch and effort statistics through 2014/15 to 2016/17, in order to maintain this important data time series.

1a.3 OBJECTIVES
- to manage the comprehensive commercial logbook program;
- to collate the fishery logbook returns;
- to correct catch returns that are found to be erroneous, which involves contacting fishers about appropriate amendments;
- to develop and maintain databases, as required;
- to undertake data-entry;
- to undertake appropriate error-checking procedures for data entry;
- to provide statistical reports to PIRSA and industry for monitoring and managing the fishery;
- to provide subsets of data to scientists and fishery managers, as requested.

1a.4 METHODS
This project supports the on-going activities of the staff of the Fisheries - Information Services Group of SARDI Aquatic Sciences in relation to maintaining the commercial Marine Scalefish Fishery Information System.

1a. DELIVERABLES

1a.5 Service Provided:
To check for errors in the data that are provided in catch returns provided by fishers; to enter data to databases; to check for data-entry errors; to maintain the databases that constitute the Marine Scalefish Fishery Information System; and to provide summaries or subsets of data, as requested.

1a.6 Outcomes:
An up-to-date database that reflects the data provided by commercial fishers on Marine Scalefish fish species that has been checked for errors.
1a.7 Outputs and Extension:
Data will be provided in summarised form to PIRSA Fisheries and Aquaculture as fishery production figures and annual information and statistics reports. Detailed data will be provided, on request, to scientists who undertake the annual stock assessment for the appropriate primary species, and develop the annual Stock Status Report. Such reports summarise the catch and effort data for Primary, Secondary and some Tertiary species. Data will also be provided to the Marine Scalefish Fishery manager on request.

PROJECT 1B – PROJECT MANAGEMENT AND PROVISION OF ADVICE TO PIRSA

1b.1 BACKGROUND
This project largely refers to the role filled by the sub-program leader and other senior scientists with respect to preparing and communicating scientific advice, primarily through meetings with PIRSA Fisheries and Aquaculture, the Marine Fishers Association and other industry groups. The other role covered here is that of managing the sub-program with respect to personnel and finances. This involves the duties of: planning; developing external research grant applications; communication; and administration of the research group.

1b.2 NEED
To provide real-time advice on issues related to stock status, fishery sustainability and fish biology at meetings with representatives of PIRSA Fisheries and Aquaculture and industry, and to provide a leadership role for the sub-program within the Wild Fishery program at SARDI Aquatic Sciences.

1b.3 OBJECTIVES
- to prepare information for, and participate in, meetings with PIRSA Fisheries and Aquaculture, the Marine Fishers Association (MFA) and other working or industry groups;
- to provide advice on species other than the primary species, as requested by PIRSA Fisheries and Aquaculture and the MFA, utilizing data collected under Project 1a;
- to supervise projects, ensure quality control, and manage deliverables.

1b.4 METHODS
The duties are generally undertaken by the sub-program leader, who attends formal and informal meetings as required. However, this project also covers the attendance of other senior research scientists when required to provide scientific advice.

1b. DELIVERABLES

1b.5 Service Provided:
- to provide leadership for planning and directing the scientific research program;
- to provide real-time advice on fishery status and biology to fishery managers, the MFA and other industry groups;
- to provide appropriate advice and supervision to scientific and technical staff for the execution of research projects;
- to assist in production of reports;
- to produce annual versions of the ‘South Australian Marine Scalefish Fishery Status Report – Analysis of Fishery Statistics’ in each of 2014/15, 2015/16 and 2016/17;
- to update relevant chapters in status reports for PIRSA Fisheries and Aquaculture.
1b.6 Outcomes:
the delivery of verbal and written up-to-date information and advice regarding the biology of species, their interaction with the marine environment and sustainability of fisheries for Marine Scalefish species, as required. Annual versions of the ‘South Australian Marine Scalefish Fishery Status Report – Analysis of Fishery Statistics’ will be published.

1b.7 Outputs and Extension:
Verbal updates and written briefing sheets, memos, reports and formal presentations, as required.

PROJECT 2 – CATCH SAMPLING OF PRIMARY SPECIES

2.1 BACKGROUND
During the 1990s and early 2000s, computer fishery models were developed to assist in the stock assessments for the three primary Marine Scalefish species of King George whiting, snapper and southern garfish through two FRDC projects (FRDC 95/008, 99/145). Since then, the three models have been used as the main stock assessment tools. Prior to using one of these models in a particular year, it must be updated with the most recent commercial fishery statistics and biological data that reflect the current status of the fishery and the population structure. The model then produces estimates of output parameters that are assessed against prescribed target reference points as indicators of the current status of the fishery (PIRSA 2013). Thus, updating the fishery and biological data is an essential process for ensuring the integrity and accuracy of the outputs whenever a model is run. Furthermore, such recent data provide important insights into the demographic processes that drive the dynamics in population biomass and fishery productivity for each species.

The biological data that are collected regularly and used to update the fishery models are the population size and age structures. These population characteristics change over time as a consequence of inter-annual variation in year class strength, growth rates and fishing effort. The process of collecting new biological data through market sampling began in 2000 for snapper, in 2004/05 for King George whiting and 2005/06 for southern garfish. Initially, such catch sampling concentrated on one species in each year. This meant that for each species the data on population structure were collected only every third year, thereby causing considerable gaps in the data time series. Alternatively, it was considered preferable to provide greater certainty about year class strength by collecting information on population structure more regularly. Consequently, in 2006/07, a strategic market-sampling program was incorporated into the five-year research plan, whereby two of the three primary species were targeted for market sampling in every year, with the species changing each year on a rolling basis. From 2014/15 to 2016/17, two species will be sampled per year on a rolling basis: snapper and King George whiting in 2014/15; King George whiting and southern garfish in 2015/16; and in 2016/17 they will be southern garfish and snapper (PIRSA 2013).

2.2 NEED
The need is to continue to augment the three-yearly stock assessment process for the primary species of King George whiting, snapper and southern garfish by collecting data on size and age structures from the commercial fishery catches through regular market sampling.
2.3 OBJECTIVES
- to maintain a two-stage market sampling program for the appropriate two of three primary species in each year from 2014/15 to 2016/17 to:
  - provide measurements of fish from representative samples from fishery catches;
  - sub-sample the measured fish and to remove the otoliths for ageing work;
- to age fish from otoliths using validated protocols that involve quality assurance and control measures to minimise errors in ageing and to assess precision in otolith interpretation;
- to use estimates of fish age to develop age/length keys;
- to use age/length keys to convert length frequency distributions to age frequency distributions for incorporation into the fishery models and stock assessment reports;
- to interpret the data on population structure in terms of population dynamics to assist in interpreting the trends in fishery catches.

2.4 METHODS
Most market sampling is done through weekly visits to the SAFCOL fish market in Adelaide. Fishery catches are selected from those available, based on their likely region of capture. The fish are measured and a sub-sample is taken for collection of detailed biological information including the collection of otoliths for ageing. For southern garfish and King George whiting, the sub-samples will be purchased for processing. For snapper, the value of individual fish prohibits their purchase, and so the biological information will be collected from samples accessed from buyers at the fish market. From the estimates of fish age, age/length keys will be developed to convert the size structures to age structures. As a quality assurance measure, otolith reference collections are used to ensure that otolith readers are appropriately trained and calibrated to accurately interpret the otoliths from the different species.

2. DELIVERABLES

2.5 Service Provided:
- to implement an on-going, two-stage market sampling program that provides data on the sizes and ages of southern garfish, King George whiting and snapper from fishery catches taken by the commercial sector during 2014/15, 2015/16 and 2016/17;
- to undertake statistical processing to produce age/length keys to convert size structures of fishery catches into age structures;
- to make available the estimated size and age structures to fishery modellers for use in computer stock assessment models;
- and to report size and age structures in stock assessment reports to help determine the processes responsible for patterns in the population dynamics and population structure.

2.6 Outcomes:
- up-to-date biological data on population size and age structures that facilitate better stock assessment processes for each species;
- a high level of confidence in estimates of age from otoliths due to the quality assurance measures used.

2.7 Outputs and Extension:
The data on population structure will be reported in stock assessment reports for southern garfish in 2014/15, snapper in 2015/16 and King George whiting in 2016/17.
3.1 BACKGROUND

During the 2000s there have been significant management issues for each of the three primary species. First, there was a significant downturn in the King George whiting fishery. Then, there was the realisation of extreme exploitation rates on the southern garfish stocks. Most recently, there have the contrasting issues in the different regions of the snapper fishery. In each case, significant management changes were implemented by PIRSA Fisheries and Aquaculture. It is necessary to maintain on-going monitoring and assessment of the effectiveness of these changes. As such, a comprehensive stock assessment will be undertaken for each of these three species every third year. The proposed schedule for the stock assessments is: southern garfish in 2014/15, snapper in 2015/16 and King George whiting in 2016/17. Such assessments have been built into the harvest strategies of these three species (PIRSA 2013).

3.2 NEED

To provide a comprehensive assessment of stock status of one of the primary species in each year of 2014/15, 2015/16 and 2016/17.

3.3 OBJECTIVES

The focus in each year will be to update the appropriate computer fishery model (SnapEst, GarEst or WhitEst) with new catch and effort and biological data, and to undertake model runs to provide output parameters to be interpreted in terms of stock status. The specific objectives for each assessment are:

- to undertake a detailed regional analysis of the commercial catch and effort data collected through Project 1a;
- to incorporate into the appropriate model these new catch and effort data as well as biological data;
- to provide annual estimates of time-series of model-estimated parameters including recruitment, fishable biomass, and exploitation rate for each model region;
- to provide a stock assessment report to PIRSA Fisheries and Aquaculture that summarises the time-series of catch and effort statistics, the new biological data on size and age structures, the outputs from the model runs, and then indicates stock status based on assessment of the general and biological performance indicators against trigger reference points.

3.4 METHODS

The two primary datasets that will be updated and incorporated into each model are the commercial catch and effort data up to December in each year, and the regional, seasonal size and age structures collected up to September in the same year. The former data will be extracted from the commercial Marine Scalefish Fishery Information System that is maintained as part of Project 1a, based on the catch returns of fishers. The latter will come from the market sampling program and subsequent analysis of biological data (Project 2). Furthermore, new data from the recreational fishery will be input to the model as it becomes available. The model will then be run to produce time-series of biological performance indicators that will be compared against the limit reference points as specified in the new Management Plan (PIRSA 2013). The results of these analyses will be presented in the stock assessment report.
3. DELIVERABLES

3.5 Service Provided:

- for the appropriate species in each year, to undertake regional analyses of commercial catch and effort data;
- to develop size and age structures for those regional populations for which recent data have been collected;
- to update and run the appropriate model to provide estimates of output parameters for the various model regions;
- to assess general and biological performance indicators against target reference points to indicate stock status;
- to summarise all data and findings in a stock assessment report to be delivered in June of each year;
- and to update the relevant chapter in the status report for PIRSA Fisheries and Aquaculture.

3.6 Outcomes:

- runs of the appropriate model utilising new data;
- an assessment report that indicates the status of the regional stocks for the species of interest.

3.7 Outputs and Extension:

The primary output will be a comprehensive stock assessment report that will be augmented with presentations to PIRSA Fisheries and Aquaculture and the Marine Fishers Association.

PROJECT 4 – DEVELOPING DEPM TO ESTIMATE THE SPAWNING BIOMASS OF SNAPPER POPULATIONS IN THE SOUTH AUSTRALIAN GULFS

4.1 BACKGROUND

In recent years there have been concerns about the sustainability of South Australia’s snapper fishery due to the significant downturn in production in Spencer Gulf and the high recent exploitation in Northern Gulf St. Vincent (NGSV) and the South East. Consequently, during 2012 and 2013, PIRSA Fisheries and Aquaculture introduced a number of changes to the management regime to limit the commercial catch, including the introduction of a 500 kg daily trip limit as well as a cap of 200 longline hooks for use inside the gulfs. These changes will impact on the usefulness of commercial fishery statistics as fishery status indicators. As such, there is a need to develop a ‘fishery independent’ method for estimating fishable biomass of snapper. The Daily Egg Production Method (DEPM) has been applied successfully for estimating the biomass of populations of snapper elsewhere in Australia and also in New Zealand. The intention for this discretionary project is to resolve the techniques that are appropriate for applying the DEPM for snapper in South Australia, in terms of developing the field sampling techniques and molecular techniques for identifying the snapper eggs. This research commenced in 2013/14 and will continue through 2014/15 and 2015/16.

4.2 NEED

There is a need to develop a fishery independent method for estimating the spawning biomass of snapper populations in the gulfs of South Australia. The DEPM is the most tractable method for achieving this. As such, the appropriate technical methodology for applying the DEPM in NSG and NGSV will be developed. In 2014/15, the field sampling will be done in NGSV and in 2015/16 it will be done in both NGSV and NSG.

4.3 OBJECTIVES

- To undertake field and laboratory work in order to refine the techniques for applying a DEPM for snapper in NSG and NGSV.
4.4 METHODS
In 2014/15, the DEPM will be done for Gulf St. Vincent. In December 2014, the field work will be done throughout NGSV during which plankton sampling to quantify the snapper eggs and larvae and sampling of adult fish will be done. In December, i.e. around the peak spawning time, approximately 200 geo-structured stations will be sampled using plankton nets. These plankton samples will later be processed by removing all teleost eggs and larvae and identifying those from snapper using a DNA marker. Furthermore, during this field trip, there will be several fishing operations to collect samples of adults from which to estimate reproductive parameters such as batch fecundity and spawning frequency.

In 2015/16, the DEPM will be applied to both NSG and NGSV. As such, in December 2015, the egg and adult sampling will be done in both gulfs.

4. DELIVERABLES

4.5 Service Provided:

1. to undertake field trips on board the RV Ngerin during which plankton sampling will be undertaken to quantify the spatial distribution and abundance of snapper eggs and larvae;
2. to collect samples of adult snapper in order to provide estimates of adult parameters;
3. to process plankton samples to quantify the numbers of snapper eggs and larvae;
4. to provide estimates of spawning biomass for snapper in NGSV in June 2015, and both gulfs in June 2016.

4.6 Outcomes:
• an understanding of the issues involved in applying the DEPM for snapper in South Australia’s gulfs, allowing development of an appropriate protocol for future years
• preliminary estimates of spawning biomass for NSG and NGSV.

4.7 Outputs and Extension:
• to provide status reports to PIRSA Fisheries and Aquaculture in June 2015 and June 2016 that relate the outcomes of the DEPM work undertaken in each 12-month period, including preliminary estimates of spawning biomass for the two regions.
5. **FUNDING ARRANGEMENTS**

5.1 **PROJECT COSTING POLICY**
This Stock Assessment and Monitoring Project Scope and Costing has been costed at a Full cost recovery rate.

5.2 **PROJECT COST**

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5.3 **MILESTONE AND PAYMENT SCHEDULE**

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<td>TOTAL FUNDED</td>
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<td>857,751</td>
</tr>
</tbody>
</table>

6. **PROJECT STAFF**

<table>
<thead>
<tr>
<th>Staff (if identified)</th>
<th>Position</th>
<th>FTE Commitment</th>
<th>Funded/In-Kind</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.Mayfield</td>
<td>SPA Leader</td>
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<tr>
<td>A.Fowler</td>
<td>Sub-program Leader</td>
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<tr>
<td>J.Earl</td>
<td>Research Scientist</td>
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<td>Funded</td>
</tr>
<tr>
<td>M.Steer</td>
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<tr>
<td>W.Jackson</td>
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<tr>
<td>M.Lloyd</td>
<td>Research Officer</td>
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<tr>
<td>R.McGarvey</td>
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</tr>
<tr>
<td>J.Feenstra</td>
<td>Modeller</td>
<td>0.10</td>
<td>Funded</td>
</tr>
<tr>
<td>P.Burch</td>
<td>Modeller</td>
<td>0.20</td>
<td>Funded</td>
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### 1. PROJECT COST SUMMARY

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<td><strong>Total Cost</strong></td>
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<td>857,751</td>
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<tr>
<td><strong>Revenue – PRICE</strong></td>
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<tr>
<td>PIRSA F&amp;A</td>
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<td>857,751</td>
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<tr>
<td><strong>Total Revenue</strong></td>
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<td>857,751</td>
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<tr>
<td><strong>SARDI Investment</strong></td>
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</table>

**Breakdown explanations:**

*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

*Capital equipment*
1. PROJECT DETAIL

1.1 Title
South Australian Mud Cockle Fishery (Coffin Bay)

1.2 Client Contact Details
Name: PIRSA FISHERIES & AQUACULTURE
Address: GPO Box 1625, Adelaide, SA 5001
Attention: Sean Sloan
Email: Sean.Sloan@sa.gov.au
Telephone: 8226 2318
Facsimile: 8226 0434

1.3 Principal Investigator
Name: Stephen Mayfield
Position: Subprogram Leader: Molluscan Fisheries
Address: 2 Hamra Ave, West Beach, SA 5024
Email: Stephen.mayfield@sa.gov.au
Telephone: 8207 5427
Facsimile: 8207 5406

1.4 Timeframe
Commencement Date: 1 July 2014
Completion Date: 30 June 2016

1.5 Summary
The mud-cockle research program provides survey-based estimates of mud cockle biomass and estimates of the size at maturity in each of the three fishing zones in South Australia every two years. The next survey and reporting period is 2015/16.

This is the first Project Scope developed specifically for the Coffin Bay Zone of the South Australian Mud Cockle Fishery and the first two-year Project Scope for this Zone.

To avoid high inter-annual variation in licence fees, ~50% of the research costs are recovered each year. The primary outcome is a report that provides estimates of mud cockle biomass for each fishing zone in a risk-analysis framework.
2. PROJECT DESCRIPTION

2.1 BACKGROUND

There are three primary components to the research provided by SARDI Aquatic Sciences to PIRSA in support of the South Australian mud cockle fisheries, these are:

(1) conduct fisher-based surveys to determine the biomass of mud cockles on the key fishing grounds of the Port River, Coffin Bay and the West Coast;

(2) obtain estimates of the size at maturity, and it’s spatial variability, for mud cockles; and

(3) provide a summary report that presents estimates of mud cockle biomass in a risk-analysis framework and estimates of size at maturity.

Funds for research are collected annually, with the work undertaken every two years.

2.2 Need

This project addresses the need for biomass estimates and associated scientific information to support sustainable utilisation of mud cockles in SA.

2.3 Objectives

2.3.1 Review 2009/10, 2011/12 and 2013/14 sampling designs and implement an industry-based survey of mud cockle populations on commercially important fishing grounds in the Coffin Bay fishing zones;

2.3.2 Determine estimates of the harvestable biomass of mud cockles from the areas sampled;

2.3.3 Provide a report to PIRSA with biomass estimates in a risk analysis framework; and

2.3.4 Provide PIRSA with scientific advice to support the sustainable management of the South Australian mud cockle Fishery, including TACC setting.

2.4 Methods

2.4.1 Work with mud cockle fishers from the Coffin Bay fishing zones to review the 2009/10 and 2011/12 sampling design, incorporating changes to important commercial fishing grounds;

2.4.2 Re-map the commercial fishing grounds and sampling locations into a GIS layer;

2.4.3 Undertake a transect-based method, to obtain representative data on the density of mud cockles across those fishing grounds;

2.4.4 Apply a multi-level bootstrap analysis to determine estimates of mud cockle biomass in a risk-analysis framework; and

2.4.5 Document and interpret the research findings in a report.
3. DELIVERABLES

3.1 Service Provided:

3.1.1 Survey estimates of density and biomass
Review the commercially important fishing grounds.
Review (and amend as required) the 2009/10 and 2011/12 surveys to estimate mud cockle density and biomass.

3.1.2 Data analysis
Apply a multi-level bootstrap model to provide estimates of mud cockle biomass for the Coffin Bay fishing zone.

3.1.3 Management and quality assurance of research data
Provide effective storage and management of research data.
Develop and implement a formal quality assurance program.

3.1.4 Analysis and Interpretation
Interpret the results of the research program in a report.

3.1.5 Project management
Ongoing supervision of projects.
Management of deliverables.
Quality control
Liaise with PIRSA, industry, State and Commonwealth agencies on matters relevant to the fishery.
Participate in industry development initiatives.
Development and implementation of new projects and collaboration on proposed/existing projects
Update relevant chapter in status report for SA fisheries

3.2 Outcomes:
The principal outcome will be scientific advice to support sustainable management of the SA mud cockle fishery.

3.3 Outputs and Extension:
The principal output is a stock assessment report providing estimates of mud cockle biomass in a risk-analysis framework by 31 March 2016.

4. FUNDING ARRANGEMENTS

4.1 PROJECT COSTING POLICY
This Research Project Scope and Costing has been assessed and classified as project type Full cost recovery.

4.2 PROJECT COST

<table>
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<tr>
<td>GST</td>
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<tr>
<td>TOTAL</td>
<td>37,919</td>
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<th>Milestone</th>
<th>Payment ($) Ex GST</th>
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<td>December 2015</td>
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<td>March 2016</td>
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<td>May 2016</td>
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### 5. PROJECT STAFF

<table>
<thead>
<tr>
<th>Staff (if identified)</th>
<th>Position</th>
<th>FTE Commitment 2014/15</th>
<th>FTE Commitment 2015/16</th>
<th>Funded/In-Kind</th>
</tr>
</thead>
<tbody>
<tr>
<td>S Mayfield</td>
<td>Principal Scientist</td>
<td>0</td>
<td>0.035</td>
<td>Funded</td>
</tr>
<tr>
<td>J Dent</td>
<td>Research Officer</td>
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<td>0.070</td>
<td>Funded</td>
</tr>
<tr>
<td>D Matthews</td>
<td>Research Officer</td>
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</tr>
<tr>
<td>P Burch</td>
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# SCHEDULE 2 - PROJECT COSTING

## 1. PROJECT COST SUMMARY

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<td><strong>Total Revenue</strong></td>
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</tr>
<tr>
<td><strong>SARDI Investment</strong></td>
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</tbody>
</table>

Breakdown explanations:

*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

*Capital equipment*
1. **PROJECT DETAIL**

1.1 **Title**
South Australian Mud Cockle Fishery (West Coast)

1.2 **Client Contact Details**
Name: PIRSA FISHERIES & AQUACULTURE
Address: GPO Box 1625, Adelaide, SA 5001
Attention: Sean Sloan
Email: Sean.Sloan@sa.gov.au
Telephone: 8226 2318
Facsimile: 8226 0434

1.3 **Principal Investigator**
Name: Stephen Mayfield
Position: Subprogram Leader: Molluscan Fisheries
Address: 2 Hamra Ave, West Beach, SA 5024
Email: Stephen.mayfield@sa.gov.au
Telephone: 8207 5427
Facsimile: 8207 5406

1.4 **Timeframe**
Commencement Date: 1 July 2014
Completion Date: 30 June 2016

1.5 **Summary**

The mud-cockle research program provides survey-based estimates of mud cockle biomass and estimates of the size at maturity in each of the three fishing zones in South Australia every two years. The next survey and reporting period is 2015/16.

This is the first Project Scope developed specifically for the West Coast Zone of the South Australian Mud Cockle Fishery and the first two-year Project Scope for this Zone.

To avoid high inter-annual variation in licence fees, ~50% of the research costs are recovered each year. The primary outcome is a report that provides estimates of mud cockle biomass for each fishing zone in a risk-analysis framework.
2. PROJECT DESCRIPTION

2.1 BACKGROUND

There are three primary components to the research provided by SARDI Aquatic Sciences to PIRSA in support of the South Australian mud cockle fisheries, these are:

(4) conduct fisher-based surveys to determine the biomass of mud cockles on the key fishing grounds of the Port River, Coffin Bay and the West Coast;

(5) obtain estimates of the size at maturity, and it’s spatial variability, for mud cockles; and

(6) provide a summary report that presents estimates of mud cockle biomass in a risk-analysis framework and estimates of size at maturity.

Funds for research are collected annually, with the work undertaken every two years.

2.2 Need

This project addresses the need for biomass estimates and associated scientific information to support sustainable utilisation of mud cockles in SA.

2.3 Objectives

2.3.1 Review 2009/10, 2011/12 and 2013/14 sampling designs and implement an industry-based survey of mud cockle populations on commercially important fishing grounds in the West Coast fishing zones;

2.3.2 Determine estimates of the harvestable biomass of mud cockles from the areas sampled;

2.3.3 Provide a report to PIRSA with biomass estimates in a risk analysis framework; and

2.3.4 Provide PIRSA with scientific advice to support the sustainable management of the South Australian mud cockle Fishery, including TACC setting.

2.5 Methods

2.4.1 Work with mud cockle fishers from the West Coast fishing zones to review the 2009/10 and 2011/12 sampling design, incorporating changes to important commercial fishing grounds;

2.4.2 Re-map the commercial fishing grounds and sampling locations into a GIS layer;

2.4.3 Undertake a transect-based method, to obtain representative data on the density of mud cockles across those fishing grounds;

2.4.4 Apply a multi-level bootstrap analysis to determine estimates of mud cockle biomass in a risk-analysis framework; and

2.4.5 Document and interpret the research findings in a report.
3. DELIVERABLES

3.1 Service Provided:

3.1.6 Survey estimates of density and biomass
Review the commercially important fishing grounds.
Review (and amend as required) the 2009/10 and 2011/12 surveys to estimate mud cockle density and biomass.

3.1.7 Data analysis
Apply a multi-level bootstrap model to provide estimates of mud cockle biomass for the West Coast fishing zone.

3.1.8 Management and quality assurance of research data
Provide effective storage and management of research data.
Develop and implement a formal quality assurance program.

3.1.9 Analysis and Interpretation
Interpret the results of the research program in a report.

3.1.10 Project management
Ongoing supervision of projects.
Management of deliverables.
Quality control
Liaise with PIRSA, industry, State and Commonwealth agencies on matters relevant to the fishery.
Participate in industry development initiatives.
Development and implementation of new projects and collaboration on proposed/existing projects
Update relevant chapter in status report for SA fisheries

3.2 Outcomes:
The principal outcome will be scientific advice to support sustainable management of the SA mud cockle fishery.

3.3 Outputs and Extension:
The principal output is a stock assessment report providing estimates of mud cockle biomass in a risk-analysis framework by 31 March 2016.

4. FUNDING ARRANGEMENTS

4.1 PROJECT COSTING POLICY
This Research Project Scope and Costing has been assessed and classified as project type Full cost recovery.

4.3 PROJECT COST

<table>
<thead>
<tr>
<th>PROJECT COST</th>
<th>2014/15 &amp; 2015/16 ($)</th>
</tr>
</thead>
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<td>GST</td>
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4.3 MILESTONE AND PAYMENT SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
<th>Payment ($) Ex GST</th>
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<tbody>
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<td>December 2015</td>
<td>Third quarter Payment 2015/16 SLA</td>
<td>13,489</td>
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<tr>
<td>March 2016</td>
<td>Mud cockle biomass report</td>
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<tr>
<td>May 2016</td>
<td>Fourth quarter Payment 2015/16 SLA</td>
<td>13,488</td>
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<td><strong>SUBTOTAL</strong></td>
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<td><strong>53,955</strong></td>
</tr>
<tr>
<td><strong>GST</strong></td>
<td></td>
<td>NO GST</td>
</tr>
<tr>
<td><strong>TOTAL FUNDED</strong></td>
<td></td>
<td><strong>53,955</strong></td>
</tr>
</tbody>
</table>

5. PROJECT STAFF

<table>
<thead>
<tr>
<th>Staff (if identified)</th>
<th>Position</th>
<th>FTE Commitment 2014/15</th>
<th>FTE Commitment 2015/16</th>
<th>Funded/In-Kind</th>
</tr>
</thead>
<tbody>
<tr>
<td>S Mayfield</td>
<td>Principal Scientist</td>
<td>0</td>
<td>0.015</td>
<td>Funded</td>
</tr>
<tr>
<td>J Dent</td>
<td>Research Officer</td>
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<td>Research Officer</td>
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## 1. PROJECT COST SUMMARY

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<td>Revenue – PRICE</td>
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<tr>
<td>PIRSA F&amp;A</td>
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<tr>
<td>Total Revenue</td>
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</tr>
<tr>
<td>SARDI Investment</td>
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</tr>
</tbody>
</table>

Breakdown explanations:

*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*
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*Travel*
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*Office and communication*
Stationery, communications and publications

*Capital equipment*