



**Australian Government**

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**Department of the Environment and Energy**

Assessment of the  
**South Australian Lakes and Coorong Fishery**

February 2018

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This report should be attributed as '*Assessment of the South Australian Lakes and Coorong Fishery, February 2018*, Commonwealth of Australia 2018'.

## Disclaimer

This document is an assessment carried out by the Department of the Environment and Energy of a commercial fishery against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*. It forms part of the advice provided to the Minister for the Environment and Energy on the fishery in relation to decisions under Parts 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999*. The views expressed do not necessarily reflect those of the Minister for the Environment and Energy or the Australian Government.

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## EXECUTIVE SUMMARY OF THE ASSESSMENT OF THE SOUTH AUSTRALIAN LAKES AND COORONG FISHERY

In September 2016, the Department received an application to undertake an assessment of the South Australian Lakes and Coorong Fishery (the fishery) under the wildlife trade provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The sustainability of the fishery's management arrangements have also been assessed against the Australian Government's 'Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition'. A public comment period was open from 23 September 2016 until 31 October 2016.

The fishery operates under the *Management Plan for the South Australian Commercial Lakes and Coorong Fishery 2016*, the Fisheries Management (Lakes and Coorong Fishery) Regulations 2009 (SA), the Fisheries Management Act (2007) and the Fisheries Management (General) Regulations 2017 (SA) in force under the *Fisheries Management Act 2007* (SA). In addition, the Draft Management Plan for Recreational Fishing in South Australia 2016 forms the basis of new management arrangements for recreational fishing (excluding Aboriginal traditional fishing). The Fisheries Management Act allows PIRSA to develop Aboriginal Traditional Management Plans.

The fishing operations are based on three clearly defined habitat and gear sectors – freshwater large-mesh gillnet, estuarine large-mesh gillnet, and estuarine small-net gillnet. Management arrangements include limited entry capped at 36 licences, specific harvest strategies for finfish and pipi, gear restrictions, bag and possession limits, restrictions on the take of Murray cod, and seasonal and area closures.

The management arrangements aim to minimise identified risks of fishing on target stocks. The fishery targets black bream, mullet, greenback flounder, yelloweye mullet, golden perch and pipi as well as the exotic European carp and redfin. Approximately forty species are taken as byproduct. Catch and effort for target stocks are reviewed and the total allowable catch is set at annual stakeholder forums. The South Australian Research and Development Institute (SARDI) conduct regular assessments for stocks of key native species. The assessments measure stocks against performance indicators and limit reference points.

Fishing operators record daily catch (kg) and effort (days, fisher days, number of nets) for target and byproduct species, and interactions with threatened, endangered or protected species (TEPS) in logbooks. Bycatch is not recorded unless the species is listed as a TEPS. The impact on bycatch species is considered low. Mitigation measures such as seal exclusion devices are used to minimise the risks.

The Department considers that overall the fishery's management arrangements aim to ensure that fishing is conducted in a manner that minimises the likelihood of overfishing, and where overfishing may occur, has the capacity to develop and implement suitable measures to recover overfished species stocks. The management regime provides for fishing operations to be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem. Key challenges for this fishery include:

- ***Monitoring, and implementing appropriate management measures, as required, to minimise the impacts of fishing on target species stocks:*** Murray cod has historically been a target species in this fishery but commercial and recreational take is now subject to strict seasonal and area closures. Black bream is considered overfished and PIRSA is consulting with the recreational and commercial sectors on a suitable management approach. Greenback flounder is known to be environmentally limited by seasonal freshwater flows. PIRSA has given an undertaking to monitor the sustainability of these and other species.
- ***Developing appropriate management arrangements to reduce the high numbers of discards for all target species:*** High numbers of undersized primary and secondary target species are discarded annually, particularly mullet and yelloweye mullet. PIRSA acknowledge the need to monitor and implement appropriate management measures to avoid target species becoming recruitment overfished.

- ***Reducing the increasing numbers of interactions with TEPS:*** Since 2011, there has been a significant increase in the number of interactions with New Zealand fur seals, although no mortalities have been recorded. PIRSA has given an undertaking to continue monitoring TEPS interactions and implement appropriate management responses.

Until it can be demonstrated that the issues detailed in this report have been adequately addressed, the harvest operations of the fishery is declared an approved wildlife trade operation for one year, until 1 March 2019, subject to the conditions listed in Section 4.

Unless a specific timeframe is provided, each condition must be addressed within the period of the approved wildlife trade operation declaration for the fishery. Annual reports to the Department must describe progress towards the agreed conditions and any changes to the management arrangements.

**SECTION 1: ASSESSMENT SUMMARY OF THE SOUTH AUSTRALIAN LAKES AND COORONG FISHERY AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES (2ND EDITION), CONSISTENT WITH THE EPBC ACT.**

Guidelines	Meets	Partially meets	Does not meet	Details
Management regime	9 of 9			The management regime is well developed, precautionary, and effectively deals with the uncertainties and risks. The Fishery Management Plan has been reviewed, and is based on up-to-date research. The management regime includes objectives, strategies, and performance measures. The harvest of finfish species is based on gear types and habitat conditions that link to the biology of target species. In cases where stocks are overfished, such as black bream, PIRSA consult with key stakeholders, review fishing practices, and develop and implement appropriate management arrangements.
Principle 1 (target stocks)	7 of 11	4 of 11		PIRSA recognise the risks and uncertainties in managing the target stocks, and undertake regular reviews of the management arrangements to ensure that target stocks can maintain fishing pressure. PIRSA has developed management options to recover black bream stocks, and are consulting with key stakeholders on the most appropriate action. Yelloweye mullet, pipi, and golden perch stocks are being fished sustainably. However, greenback flounder stocks are environmentally limited and there are concerns about high numbers of undersized mullet discards. PIRSA has given an undertaking to monitor catches, including discards, for all target species, and to implement measures to ensure stocks can continue to sustain fishing pressure. Logbooks are used to record catch and effort for target and byproduct species. The take by recreational and traditional fishers are considered low, and is limited by the resource allocation policy.
Principle 2 (bycatch and TEPS)	8 of 12	1 of 12	3 or 12	Bycatch is not recorded unless the species is listed as TEPS. High numbers of undersized and juvenile target species are discarded. PIRSA are monitoring catch trends for a number of species, and will manage accordingly. PIRSA has facilitated risk assessments for impacts on listed TEPS including marine mammals and bird species. While interactions with long-nosed fur seals has increased, no mortalities have been reported, and PIRSA is working with industry to ensure the risk remains low. The management regime includes measures to help minimise the likelihood of impacts to bycatch species and TEPS.

Principle 2 (ecosystem impacts)	5 of 5			PIRSA facilitated a risk assessment that included the impact of fishing on the marine environment. The management regime accounts for risks and impacts on the Coorong and Lakes Alexandrina and Albert Ramsar wetland in which the fishery operates. The risks to the marine environment, including the Ramsar site, are considered low.
<b>EPBC requirements</b>	<b>Meets</b>	<b>Partially meets</b>	<b>Does not meet</b>	<b>Details</b>
Part 12				Not applicable, as the fishery operates within state waters only, and therefore does not impact on a Commonwealth marine area.
Part 13				Not applicable, as the fishery operates within state waters only, and therefore does not require Part 13 accreditation for managing impacts in Commonwealth waters.
Part 13A				The fishery is consistent with the Objects of Part 13A, the Department recommends approval as a wildlife trade operation for 1 year, until 1 March 2019. This timeframe is to ensure that management measures are put in place for the recovery of black bream stocks.
Part 16				The Department considers that precautionary measures are in place to prevent serious or irreversible environmental damage being caused by this fishery.

**Notes:****Assessment history:**

Information on previous assessments for the SA Lakes and Coorong Fishery is available on the Department's website at <http://www.environment.gov.au/marine/fisheries/sa/coorong>.

- 1st assessment finalised November 2005 – wildlife trade operation (WTO) until 25 November 2008 with 3 conditions and 10 recommendations. The list of exempt native specimens was amended to include product from the fishery while a WTO was in place (F2005L03826).
- 2nd assessment finalised April 2009 – wildlife trade operation (WTO) until 27 November 2010 with 7 conditions and 2 recommendations. The list of exempt native specimens was amended to include product from the fishery while a WTO was in place (F2009L02074).
- 3rd assessment finalised May 2011 – wildlife trade operation (WTO) until 21 May 2014 with 4 conditions and 2 recommendations. The list of exempt native specimens was amended to include product from the fishery while a WTO was in place (F2011L00853).
- The Department subsequently granted short term extensions to export approval via the list of exempt native specimens until 2 March 2018 (F2017L01378).

**Fishery reporting:**

- The Department has not received any annual reports in relation to this fishery since the 2011 assessment under the EPBC Act.

**Key links:**

- Primary Industries and Regions, South Australia fisheries information – <http://pir.sa.gov.au/fishing>
  - Aboriginal traditional fishing – [http://pir.sa.gov.au/fishing/aboriginal\\_traditional\\_fishing](http://pir.sa.gov.au/fishing/aboriginal_traditional_fishing).
  - Recreational fishing information – [http://pir.sa.gov.au/fishing/recreational\\_fishing](http://pir.sa.gov.au/fishing/recreational_fishing).
- Lakes and Coorong Fishery information including stock assessments for target species – [http://pir.sa.gov.au/fishing/commercial\\_fishing/fisheries/lakes\\_and\\_coorong\\_fishery](http://pir.sa.gov.au/fishing/commercial_fishing/fisheries/lakes_and_coorong_fishery).
- Management Plan for the SA Commercial Lakes and Coorong Fishery 2016) – [http://pir.sa.gov.au/data/assets/pdf\\_file/0016/12742/Final\\_Management\\_Plan\\_for\\_the\\_South\\_Australian\\_Lakes\\_and\\_Coorong\\_Fishery\\_March\\_2016.pdf](http://pir.sa.gov.au/data/assets/pdf_file/0016/12742/Final_Management_Plan_for_the_South_Australian_Lakes_and_Coorong_Fishery_March_2016.pdf).
- SA Research and Development Institute (SARDI) – <http://pir.sa.gov.au/research>.
- Lakes and Coorong Fishery Consultative Committee – <http://www.coorongfishery.com/pages/fishery-information/consultative-committee.php>.
- Recreational Fishing Advisory Council SA (RecFish SA) – <https://recfishsa.org.au/>.

**Enforcing legislation:**

- South Australian legislation – <https://www.legislation.sa.gov.au/index.aspx>.
- *Fisheries Management Act 2007* (SA) – <https://www.legislation.sa.gov.au/LZ/C/A/FISHERIES%20MANAGEMENT%20ACT%202007.aspx>.
- Fisheries Management (Lakes and Coorong Fishery) Regulations 2009 – <https://www.legislation.sa.gov.au/LZ/C/R/FISHERIES%20MANAGEMENT%20%28LAKES%20AND%20COORONG%20FISHERY%29%20REGULATIONS%202009.aspx>.
- Fisheries Management (General) Regulations 2017 – [https://www.legislation.sa.gov.au/LZ/C/R/Fisheries%20Management%20\(General\)%20Regulations%202017.aspx](https://www.legislation.sa.gov.au/LZ/C/R/Fisheries%20Management%20(General)%20Regulations%202017.aspx).

**Risk assessments:**

- Ecological risk assessment reports were included in PIRSA's submission – <http://www.environment.gov.au/marine/fisheries/sa/coorong/agency-application-2016>.



## SECTION 2: DETAILED ANALYSIS OF THE SOUTH AUSTRALIAN LAKES AND COORONG FISHERY AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES (2ND EDITION)

	Comment		
<b>THE MANAGEMENT REGIME</b>			
The management regime does not have to be a formal statutory fishery management plan as such, and may include non-statutory management arrangements or management policies and programs. The regime should:			
Be documented, publicly available and transparent	<p><b>Meets</b></p> <p>Information relating to the fishery's management regime is publicly available (see website links above under Notes).</p> <p>The <i>Fisheries Management Act 2007</i> (SA) provides the broad statutory framework for managing the state's fisheries. Governance arrangements are specified in the Fisheries Management (Lakes and Coorong Fishery) Regulations 2009 (SA) and the Fisheries Management (General) Regulations 2017 (SA). The <i>Management Plan for the South Australian Commercial Lakes and Coorong Fishery 2016</i> (Fishery Management Plan) provides the policy framework.</p> <p>Recreational fishing (excluding Aboriginal traditional fishing) is managed separately under the <i>Draft Management Plan for Recreational Fishing in South Australia</i>.</p>		
Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public	<p><b>Meets</b></p> <p>A statutory consultative process is described in the Fisheries Act and subordinate legislation including the need to prepare fishery management plans in consultation with the public and the fishery advisory committee.</p> <p>PIRSA has engaged stakeholders during a review of the annual management arrangements for Murray cod, and is consulting with professional and recreational fishers in relation to proposed management options for overfished black bream stocks.</p>		
Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process	<p><b>Meets</b></p> <p>PIRSA engage with a range of expertise and public interest groups to ensure good fishery management and governance. The Lakes and Coorong Fishery (LCF) Consultative Committee, LCF Management Advisory Committee, and SA Recreational Fishing Advisory Council (RecFish SA) provide input to the management arrangements. The LCF Consultative Committee comprises representatives from professional fishers, Department of Environment and Heritage, Ngarrindjeri traditional owners, local governments and Conservation Council SA. The South Australian Research and Development Institute (SARDI) Aquatic Sciences provide scientific evaluation of the status of target species stocks against performance indicators and limit reference points.</p>		
Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured	<p><b>Meets</b></p> <p>The Fishery Management Plan (PIRSA 2015) includes goals, objectives, co-management arrangements, separate harvest strategies for finfish species and for pipi, resource sharing allocations between the commercial, recreational and Aboriginal sectors, research priorities, compliance and monitoring, and governance arrangements.</p> <p>The Regulations specify operational limitations including licencing, gear and catch restrictions, and financial penalties. The finfish and pipi harvest strategies are managed by the LCF Management Advisory Committee.</p>		
Be capable of controlling the level of harvest in the fishery using input and/or output controls	<p><b>Meets</b></p> <p>The level of harvest is managed through a complex mix of output and input controls (see Table 2.1).</p> <p>Table 2.1 Harvest control measures for the SA Lakes and Coorong Fishery.</p> <p style="text-align: center;"><b>OUTPUT (CATCH) CONTROLS</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;"><i>Net (finfish) Fishery</i></td> <td style="width: 50%; text-align: center;"><i>Pipi Fishery</i></td> </tr> </table>	<i>Net (finfish) Fishery</i>	<i>Pipi Fishery</i>
<i>Net (finfish) Fishery</i>	<i>Pipi Fishery</i>		

	<ul style="list-style-type: none"> <li>• Total allowable commercial catch (TACC)</li> <li>• Individual Transferable Quota (ITQ) system</li> <li>• Restrictions on moving catch between Managed Areas.</li> <li>• Harvest strategy with specific objectives, strategies, performance measures, and decision rules for setting the TACC.</li> </ul> <p><b>Recreational sector</b></p> <ul style="list-style-type: none"> <li>• Bag, boat and possession limits for certain species.</li> <li>• Minimum and maximum size limits.</li> <li>• No take for egg-bearing female spanner crabs.</li> </ul> <p style="text-align: center;"><b>INPUT (EFFORT) CONTROLS</b></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;"><b>Commercial sector</b></td><td style="width: 50%; text-align: center;"><b>Recreational sector</b></td></tr> <tr> <td> <ul style="list-style-type: none"> <li>• Limited entry – 36 net fishery licence holders &amp; 23 pipi fishery quota holders.</li> <li>• Licence endorsements such as the type and number of nets, and permitted species.</li> <li>• Gear and vessel restrictions.</li> <li>• Spatial closures.</li> <li>• Temporal closures including spawning seasons.</li> </ul> </td><td> <ul style="list-style-type: none"> <li>• Unlimited number of SA Recreational Fishing Permits.</li> <li>• Gear restrictions – type and amount of gear.</li> <li>• Spatial closures.</li> <li>• Temporal closures including spawning seasons.</li> </ul> </td></tr> </table> <p>Commercial fishing for Murray cod is banned in all state waters. Recreational fishing is prohibited from 1 August to 31 December (inclusive). For the River Murray and Lower lakes (excluding waters of the Coorong), recreational fishing for Murray cod is restricted to catch and release from 1 January to 1 July (inclusive).</p>	<b>Commercial sector</b>	<b>Recreational sector</b>	<ul style="list-style-type: none"> <li>• Limited entry – 36 net fishery licence holders &amp; 23 pipi fishery quota holders.</li> <li>• Licence endorsements such as the type and number of nets, and permitted species.</li> <li>• Gear and vessel restrictions.</li> <li>• Spatial closures.</li> <li>• Temporal closures including spawning seasons.</li> </ul>	<ul style="list-style-type: none"> <li>• Unlimited number of SA Recreational Fishing Permits.</li> <li>• Gear restrictions – type and amount of gear.</li> <li>• Spatial closures.</li> <li>• Temporal closures including spawning seasons.</li> </ul>
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Contain the means of enforcing critical aspects of the management arrangements	<p><b>Meets</b></p> <p>Enforcement officers conduct random checks on professional and recreational fishing activities. The Fishery Management Plan includes a compliance and monitoring strategy containing objectives, a three year planning cycle, and a risk assessment and reporting process. Penalties are set out in the legislation.</p>				
Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria	<p><b>Meets</b></p> <p>State legislation requires the Fishery Management Plan to be reviewed at five year intervals, although its effectiveness may be assessed at any time. In SA, Regulations are reviewed at ten year intervals. Until January 2018, the fishery was managed under the Fisheries Management (General) Regulations 2007. The Lakes and Coorong Fishery Management Advisory Committee is responsible for managing the finfish and pipi harvest strategies. These harvest strategies are to be reviewed three years after they began. The Fishery Management Plan requires that a 'Fishery and Environmental Performance Report' and an 'Ecosystem-based Stock Assessment Report' be produced annually for the net sector, and a 'Stock Assessment Report' be produced every four years for the pipi sector.</p>				
Be capable of assessing, monitoring and avoiding, remedying or mitigating any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates.	<p><b>Meets</b></p> <p>Management arrangements are capable of effectively identifying and managing the impacts on the wider marine ecosystem. The Fishery Management Plan includes a compliance and monitoring strategy. PIRSA facilitated a risk assessment of the fishery based on the national ecological sustainable development reporting framework for Australian fisheries (see Commonwealth of Australia 1992; Fletcher et al. 2002). Risks to the marine environment are regularly monitored and assessed (PIRSA 2011; Stoklosa 2013; PIRSA 2015).</p>				

Requires compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy.	<p><b>Meets</b></p> <p>The fishery is compliant with all relevant plans and policies as they apply to state waters, including management of the Coorong and Lakes Alexandrina and Albert Ramsar site.</p>
<b>PRINCIPLE 1</b> - A fishery must be conducted in a manner that does not lead to over-fishing, or for those stocks that are over-fished, the fishery must be conducted such that there is a high degree of probability the stock(s) will recover.	
<b>Objective 1</b> - The fishery shall be conducted at catch levels that maintain ecologically viable stock levels at an agreed point or range, with acceptable levels of probability.	
<b>Information requirements</b>	
<p><b>1.1.1</b> There is a reliable information collection system in place appropriate to the scale of the fishery. The level of data collection should be based upon an appropriate mix of fishery independent and dependent research and monitoring.</p>	<p><b>Meets</b></p> <p>Commercial operators use logbooks to record information identifying the fisher, location, effort (number of fished days), date, gear, primary and secondary species, landed catch and its condition, and interactions with threatened, endangered and protected species (TEPS). Operators provide monthly reports to SARDI for review and monitoring. This information is included in fishery and environmental performance reports and stock assessment reports for the net and pipi sectors.</p> <p>The primary target species are <b>black bream</b> (<i>Acanthopagrus butcheri</i>), <b>yelloweye mullet</b> (<i>Aldrichetta forsteri</i>), <b>mulloway</b> (<i>Argyrosomus japonicus</i>), <b>pipi</b> (<i>Donax deltoides</i>), <b>golden perch</b> (<i>Macquaria ambigua</i>), <b>bony bream</b> (<i>Nematalosa erebi</i>), and <b>greenback flounder</b> (<i>Rhombosolea tapirina</i>). The exotic <b>European carp</b> (<i>Cyprinus carpio</i>) and <b>redfin</b> (<i>Perca fluviatilis</i>) are also targeted. <b>Murray cod</b> (<i>Maccullochella peelii peelii</i>) is a key species but an ongoing state-wide ban is in place for this species. <b>Yabbies</b> (<i>Cherax</i> spp.) are taken primarily as bait by the recreational sector. Over 40 species are permitted to be taken as byproduct. The amount of biological information on byproduct species varies.</p> <p>SARDI conduct regular research on target species, which includes a process to identify any reduction in biological diversity and/or reproductive capacity, and other aspects of commercial fishing including the effectiveness of gear and methods. SARDI has facilitated stock surveys for golden perch (Ferguson and Ye 2012), yelloweye mullet (Earl and Ferguson 2013), pipi (Ferguson 2013), mulloway (Earl and Ward 2014), greenback flounder (Earl and Ye 2016), and black bream (Earl, Ward &amp; Ye 2016). These assessment reports were based on the following performance indicators (see Sloan 2005) for the net sector – i) total catch, ii) 4-year total catch trend, iii) mean annual catch per unit effort (CPUE) for large mesh gill nets, iv) mean annual CPUE trend for large mesh gillnets, v) mean annual CPUE for swinger nets, and vi) mean annual CPUE trend for swinger nets. The following performance indicators were used to assess the pipi stocks – i) relative biomass, and ii) presence/absence of pre-recruits (PIRSA 2015).</p>
<b>Assessment</b>	
<p><b>1.1.2</b> There is a robust assessment of the dynamics and status of the species/fishery and periodic review of the process and the data collected. Assessment should include a process to identify any reduction in biological diversity and/or reproductive capacity. Review should take place at regular intervals but at least every three years.</p>	<p><b>Meets</b></p> <p>Annual catch and effort data for key species is reviewed annually during stakeholder forums. Key species stocks are assessed regularly (3 to 5 years) against performance measures and reference points. The 2011 ERA identified a number of risks associated with all target species stocks (PIRSA 2011). Subsequent stock assessments have classified some species stocks as sustainable including yelloweye mullet, mulloway, golden perch and pipi. However, the risks and uncertainties identified in the 2011 ERA are still present, and require ongoing monitoring and appropriate management to ensure that for all target species stocks remain sustainable. Environmental conditions, particularly freshwater inflows have an impact on recruitment strength and spawning success for a number of key species including black bream, yelloweye mullet, and greenback flounder.</p> <p><b>Black bream</b> stocks are <b>overfished</b>, and fishing mortality is considered too high to allow this species stocks to recover (Earl et al. 2016). Ferguson and Ye (2008) reported a decline in annual catches, and that stocks were in a weakened state following the 2006–07 black bream stock assessment. While freshwater inflows are important for recruitment, low spawning biomass is considered the most likely cause of low recruitment levels rather than environmental conditions. <b>Yelloweye mullet</b> stocks are <b>sustainable</b>, however they are at risk of becoming recruitment overfished if landings of juvenile (two and three year old) fish</p>

	<p>continue to increase. The legal minimum size for yelloweye mullet (~210 mm TL) is below the size at which females reach sexual maturity (~226 mm–256 mm total length (TL)), which increases the risk of females being removed from the fishery before they reach their first spawning event (Earl and Ferguson 2013). <b>Mulloway</b> stocks are <b>sustainable</b>, and are not likely to be recruitment overfished under existing fishing pressures. However, there are concerns that high numbers of individuals are being discarded before they reach the size at maturity. If this trend continues there is an increased risk that stocks may become recruitment overfished without appropriate management (Earl and Ward 2014). <b>Greenback flounder</b> stocks are <b>environmentally limited</b>, however the current level of fishing mortality is considered not likely to cause the stock to become recruitment overfished. Low catches in recent years has been attributed to low targeted fishing effort rather than abundance (Earl and Ye 2016). It is important that PIRSA continue to actively monitor catch trends for all target stocks, and implement appropriate management actions as required to ensure that stocks remain sustainable (see Condition 6). Information is available on the dynamics and status for Murray cod stocks (National Murray Cod Recovery Team 2010). There is no assessment reports for exotic European carp and redfin.</p>
<p><b>1.1.3</b> The distribution and spatial structure of the stock(s) has been established and factored into management responses.</p>	<p><b>Meets</b></p> <p>Information relating to the distribution and spatial structure is included in the Fishery Management Plan, and forms part of stock assessments for target species. This information is factored into the management arrangements. Information is available on the distribution and spatial structure for Murray cod stocks (National Murray Cod Recovery Team 2010).</p>
<p><b>1.1.4</b> There are reliable estimates of all removals, including commercial (landings and discards), recreational and indigenous, from the fished stock. These estimates have been factored into stock assessments and target species catch levels.</p>	<p><b>Partially meets</b></p> <p>Logbooks are used to record daily catch and effort data for primary and secondary target species. However, discard data is not recorded for the net fishery unless the species is listed as threatened, endangered or protected. The number and species of bycatch is recorded in daily catch logs for the pipi sector only. This information is reported to PIRSA monthly. Commercial catch data is cross referenced with fishing processor records, and supported by annual reviews of the TACC and regular stock assessments. SARDI publish regular reports in relation to the fishery's statistics and performance indicators (Earl 2017; Ferguson and Hooper 2017). PIRSA consider the data to be reliable.</p> <p>The estimated removals by recreational and traditional fishers is unknown, however the resource allocation policy limits each sector to a maximum percentage of the TACC for each species. The allocation for recreational fishers is informed by past surveys in 2000–01 (Jones and Doonan 2005), 2007–08 (Jones 2009) and 2013–14 (Giri and Hall 2015). The 2000–01 survey included traditional fishing.</p>
<p><b>1.1.5</b> There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.</p>	<p><b>Meets</b></p> <p>The estimated productivity is informed by mandatory logbook records, regular stock assessments and annual review of the TACC. The Coorong hydrodynamic model provides regular water quality data including salinity, which is used to determine the fishable area based on the biology of key species. In SA, the professional, recreational and traditional fishing sectors are allocated a share of the aquatic resources. This allocation policy is separate to individual transferable quota entitlements within the fishery.</p>
<p><b>Management responses</b></p>	
<p><b>1.1.6</b> There are reference points (target and/or limit), that trigger management actions including a biological bottom line and/or a catch or effort upper limit beyond which the stock should not be taken.</p>	<p><b>Meets</b></p> <p>The Fishery Management Plan (see PIRSA 2016) includes separate harvest strategies for the pipi (p. 85) and net (p. 95) fisheries. The pipi harvest strategy includes objectives, strategies, and performance measures based on biological performance indicators, economic performance indicators, and reference points and decision rules that guide the TACC setting process. The net fishery harvest strategy includes objectives, and performance measures. The decision rules are based on environmental performance indicators – the mean annual water level for freshwater, and the amount of fishable area and salinity tolerance of key species for estuarine habitats. There are no primary biological decision rules proposed, however environmental</p>

	performance indicators have been developed as surrogate metrics for population abundance (Ferguson and Ward 2014; Knuckey et al. 2015).
<b>1.1.7</b> There are management strategies in place capable of controlling the level of take.	<b>Meets</b> The Fishery Management Plan includes strategies that aim to control the level of take such as limited entry, area and seasonal closures, and gear restrictions linked to fishing licences.
<b>1.1.8</b> Fishing is conducted in a manner that does not threaten stocks of byproduct species.	<b>Partially meets</b> The Environmental Sustainable Development risk assessment determined that the impact on byproduct species was negligible to low (PIRSA 2011). PIRSA consider the overall fishing effort to be moderate. However, the net fishery uses non-selective fishing methods and gear. The amounts and types of byproduct species are recorded in daily catch logs, but there are no stock assessments for any byproduct species' stock.
(Guidelines 1.1.1 to 1.1.7 should be applied to byproduct species to an appropriate level)	
<b>1.1.9</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	<b>Meets</b> Overall, the management arrangements are considered likely to meet the objective to conduct the fishery at catch levels that maintain target and byproduct stocks at an acceptable level.
<b>If overfished, go to Objective 2:</b> <b>If not overfished, go to PRINCIPLE 2:</b>	
<b>Objective 2</b> - Where the fished stock(s) are below a defined reference point, the fishery will be managed to promote recovery to ecologically viable stock levels within nominated timeframes.	
<b>Management responses</b>	
<b>1.2.1</b> A precautionary recovery strategy is in place specifying management actions, or staged management responses, which are linked to reference points. The recovery strategy should apply until the stock recovers, and should aim for recovery within a specific time period appropriate to the biology of the stock.	<b>Partially meets</b> PIRSA has implemented a precautionary recovery strategy to recover Murray cod stocks. This recovery strategy has been in place since 2011, and will continue until Murray cod stocks are able to be fished sustainably. The management approach includes an ongoing re-stocking program, and ongoing attempts to remove key threatening processes such as exotic species control. PIRSA is aware of the need to address the decline in catches for black bream to avoid a consequent reduction in the availability of spawning adult fish to sustain the fishery. A recovery strategy for black bream stocks has been developed, but not yet in place. PIRSA is in the process of consulting with key stakeholders to determine a suitable management approach to recover these stocks.
<b>1.2.2</b> If the stock is estimated as being at or below the biological and / or effort bottom line, management responses such as a zero targeted catch, temporary fishery closure or a 'whole of fishery' effort or quota reduction are implemented.	<b>Partially meets</b> Management responses to recover Murray cod stocks have been implemented, and will continue until stocks recover. No management response is in place to recover black bream stocks. However, PIRSA has developed an options paper, and is in consultation with the commercial and recreational sectors on the most suitable management approach. The three options under consideration are: a 300m spatial closure around barrages, a seasonal closure, and/or closure of the black bream fishery until stocks recover. Implementation of the most suitable option(s) will occur at the conclusion of stakeholder consultations.
<b>PRINCIPLE 2</b> - Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.	
<b>Objective 1</b> - The fishery is conducted in a manner that does not threaten bycatch species.	
<b>Information requirements</b>	

<b>2.1.1</b> Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.	<b>Does not meet</b> Bycatch reporting in the pipi fishery is mandatory, however there is no mandatory reporting on the composition and abundance of bycatch in the net fishery unless the species is listed as a TEPS. Ferguson (2010) provided baseline data for interactions of non-target species with gill nets in the Coorong lagoons and Murray River estuary. The study identified up to forty bycatch species in the finfish sector including toadfish, silver perch, Murray River catfish, crustacean, bird species, and target species accidentally caught during closed seasons. The study also found high numbers of undersized target fish including yelloweye mullet, mulloway, bony bream, greenback flounder and Australian salmon. Overall, discards accounted for 14.6 per cent of catches (Ferguson 2010).
<b>Assessment</b>	
<b>2.1.2</b> There is a risk analysis of the bycatch with respect to its vulnerability to fishing.	<b>Meets</b> Following the 2011 ERA, PIRSA determined that the fishery's impact on bycatch species was low to negligible (PIRSA 2011). However, studies have identified high numbers of undersized fish including yelloweye mullet, mulloway, and greenback flounder being discarded in the fishery (Ferguson 2010; Earl et al. 2016). In March 2013, an ERA workshop was conducted to determine the impact of both water- and shore-based fishing on bird bycatch, particularly the impacts to fairy tern ( <i>Sternula nereis nereis</i> ) posed by onshore fishing. Stakeholders at the workshop considered the threats to bird species from all gear types used in the fishery. PIRSA determined the fishery's impact on bird species was low to negligible (Stoklosa 2013).
<b>Management responses</b>	
<b>2.1.3</b> Measures are in place to avoid capture and mortality of bycatch species unless it is determined that the level of catch is sustainable (except in relation to endangered, threatened or protected species). Steps must be taken to develop suitable technology if none is available.	<b>Meets</b> Measures are in place to avoid the capture and mortality of bycatch species including a requirement that nets contain seal exclusion devices, and mandatory vessel monitoring systems on all vessels.
<b>2.1.4</b> An indicator group of bycatch species is monitored.	<b>Does not meet</b> No monitoring occurs for an indicator group of bycatch species, despite the high numbers of undersized mulloway being discarded annually.
<b>2.1.5</b> There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.	<b>Does not meet</b> While the net fishery harvest strategy includes performance indicators and decision rules based on the fishable area and logbook data, bycatch including the number of undersized discards is not recorded. Therefore, the decision rules do not apply to bycatch species. The level of risk to breeding populations of bycatch species was assessed as low to negligible (PIRSA 2011) despite the high numbers of discards for some target species. PIRSA has informed the Department that future amendments to the Inland Waters Catch and Effort logbooks may incorporate mandatory bycatch reporting for all licence holders.
<b>2.1.6</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	<b>Partially meets</b> While the Department has identified risks and uncertainties in relation to data collection, overall the management arrangements are considered likely to achieve the objective of the fishery being conducted in a manner that does not threaten bycatch species.
<b>Objective 2</b> - The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species and avoids or minimises impacts on threatened ecological communities.	



## Information requirements

**2.2.1** Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.

### Meets

Interactions with TEPS is managed under the *Fisheries Management Act 2007* (SA), and the *National Parks and Wildlife Act 1972* (SA). In 2007, SA introduced mandatory reporting of TEPS interactions using a 'wildlife interaction' logbook. Logbook records include licence details, date and time of interactions, nature of interaction (caught, entangled, impact/collision, other), observed status (alive, injured, dead), and fate (released, retained, discarded). SARDI produce annual reports based on these logbook records (see Tsohos & Boyle 2013; McLeay, Tsohos & Boyle 2015).

The available information shows a significant increase in the number of TEPS interactions from 2007–08 to 2013–14 (see Table below) (McLeay, Tsohos & Boyle 2015). The majority of interactions has been with long-nosed fur seal (*Arctocephalus forsteri*). Most observations relate to advantageous depredation by seals on netted fish. Despite the increase, there has been no mortalities reported since 2007. However, the risk of mortality remains high due to the presence of high numbers of long-nosed fur seals. It is very important that PIRSA continue to work collaboratively with other government agencies, industry and broader public to minimise the risks.

Table 2.2: Interactions with threatened, endangered or protected species in the SA Lakes and Coorong Fishery (2007–08 to 2013–14).

Financial year	Reported interactions	Number of animals involved	Mortalities reported
2013–14	229	4366	0
2012–13	33	76	0
2011–12	0	0	0
2010–11	52	379	0
2009–10	80	582	0
2008–09	5	5	0
2007–08	6	7	3
<b>Total all years</b>	<b>405</b>	<b>5415</b>	<b>3</b>

**Murray cod** is listed **vulnerable** under Part 13 of the EPBC Act, and its stock status is **undefined** across South Australia. The Department's export approval for the fishery does not allow export of species listed under Part 13 of the *Environment Protection and Biodiversity Conservation Act 1999*, including Murray cod. PIRSA has implemented management actions for this species. A state-wide no-take ban is in place with restrictions on how individual fish are handled. Commercial licence holders have agreed not to target Murray cod until stock status improves.

PIRSA does not require fishers to record interactions with threatened ecological communities (TECs). However, management arrangements do include measures to minimise the impacts of fishing on the marine ecosystem. The Giant Kelp Marine Forests of South East Australia threatened ecological community (Giant Kelp TEC) occurs near the eastern-most boundary of the fishery. Given its location, there is very little chance that the fishery would have an impact on this TEC. There is no independent observer coverage to verify interactions with TEPS or TECs.

## Assessments

**2.2.2** There is an assessment of the impact of the fishery on endangered, threatened or protected species.

### Meets

The 2011 ERA considered the fishery's impact to a number of TEPS including Australian pelican, little black cormorant, turtles, silver perch, and long-nosed fur seal. The report determined that the fishery would have a low to negligible risk to the breeding populations of TEPS (PIRSA 2011).

Stoklosa (2013) considered the intensity versus consequence of various impacts from boat-based and shore-based fishing on listed bird species. The assessment of shore-based fishing identified disturbance of nest sites or nesting behaviour by humans

	or vehicles as the primary threats. The technical panel agreed that the intensity was negligible and consequence was negligible to minor. The assessment of boat-based fishing identified the capture of diving birds when using nets as having the highest risk. The technical panel agreed that the intensity and consequences of this type of interaction was negligible.
<b>2.2.3</b> There is an assessment of the impact of the fishery on threatened ecological communities.	<b>Meets</b> The 2011 ERA does not account for any impacts to threatened ecological communities including the Giant Kelp TEC, but does consider the impacts of fishing on the broader marine environment to be low to negligible (PIRSA 2011). The listing advice for the Giant Kelp TEC does not consider the methods or gear used in this fishery to pose a threat (TSSC 2012).
<b>Management responses</b>	
<b>2.2.4</b> There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.	<b>Meets</b> Management arrangements include measures such as exclusion devices, seasonal closures and gear restrictions that help to reduce or minimise the impact of fishing on TEPS. PIRSA in collaboration with SARDI and industry is currently undertaking research trials to develop suitable mitigation measures to reduce interactions with long-nosed fur seals.
<b>2.2.5</b> There are measures in place to avoid impact on threatened ecological communities.	<b>Meets</b> The Giant Kelp TEC may occur at the southern extremity of the fishery boundary, but is not expected to be impacted by this fishery (TSSC 2012).
<b>2.2.6</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	<b>Meets</b> Management arrangements are considered likely to achieve the objectives to conduct the fishery in a manner that minimises the impact of fishing on endangered, threatened or protected species and on threatened ecological communities.
<b>Objective 3 - The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.</b>	
<b>Information requirements</b>	
<b>2.3.1</b> Information appropriate for the analysis in 2.3.2 is collated and/or collected covering the fisheries impact on the ecosystem and environment generally.	<b>Meets</b> Data collection methods are considered adequate, and aim to inform and minimise impacts of fishing on the ecosystem and environment. Information includes risk assessments of the fishery (PIRSA 2011), risk assessments for listed bird interactions (Stoklosa 2013), and regular monitoring of water quality. The Fishery Management Plan summarises a number of state and commonwealth legislation, regulations, and policies, including the Coorong and Lakes Alexandrina and Albert Ramsar site management plan (DEH 2000), that aim to help stakeholders understand and address any potential risks of fishing in the area.
<b>Assessment</b>	
<b>2.3.2</b> Information is collected and a risk analysis, appropriate to the scale of the fishery and its potential impacts, is conducted into the susceptibility of each of the following ecosystem components to the fishery. 1. Impacts on ecological communities <ul style="list-style-type: none"> <li>• Benthic communities</li> <li>• Ecologically related, associated or dependent species</li> <li>• Water column communities</li> </ul>	<b>Meets</b> As part of the 2011 ERA, PIRSA considered the likely impacts of fishing on retained species, non-retained species, general ecosystem, human population, governance, and external factors such as disease, climate variability, terrestrial run-off, and freshwater in-flows. Impacts to the physical ecosystem was considered negligible (PIRSA 2011). The report found the impacts: <ul style="list-style-type: none"> <li>• of fishing in the freshwater and estuarine environments was high. Indicators and performance measures are yet to be determined, but are likely to be based on the ecological sustainable development (ESD) framework</li> <li>• of fishing in the marine environment is moderate. Indicators and performance measures are yet to be determined</li> <li>• impacts of inadvertently introducing marine pests/aquatic diseases into the fishery is moderate. If it occurred, the impacts could be major, but under current practices this is considered unlikely</li> </ul>



<p>2. Impacts on food chains</p> <ul style="list-style-type: none"> <li>• Structure</li> <li>• Productivity/flows</li> </ul> <p>3. Impacts on the physical environment</p> <ul style="list-style-type: none"> <li>• Physical habitat</li> <li>• Water quality</li> </ul>	<ul style="list-style-type: none"> <li>• on the ecological value of the fishery is a high risk based on the importance of a healthy Coorong ecosystem for the future of the fishery and future profits</li> <li>• of unforeseen or unknown external factors including climate change, rainfall/freshwater flows, diseases, and the influence of other fisheries are likely to be moderate to extreme</li> <li>• of flow regulation and associated risks including acid sulphate soils and hypersalinity was rated extreme, and may have a major consequence for the fishery over the next 5 or so years based upon past experience</li> <li>• of permanent barrages is extreme as they are likely to have a major consequence for the fishery into the future</li> <li>• of introduced exotic fishes (European carp and redfin) is considered an extreme risk, and</li> <li>• of marine parks is rated as extreme due to the uncertainty surrounding access and the placement of no-take zones.</li> </ul> <p>Stoklosa (2013) conducted a risk assessment for impacts of fishing on listed bird species as a requirement to meet Marine Stewardship Council certification (see 2.2.2 above). Information from these risk analyses informed the development of the management plan. Fishing operators are required to abide by the Coorong, and Lakes Alexandrina and Albert Ramsar Management Plan.</p>
<p><b>Management responses</b></p>	
<p><b>2.3.3</b> Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.</p>	<p><b>Meets</b></p> <p>The management arrangements includes objectives, goals and strategies, and specific management actions identified above to help minimise the impact of fishing to ecosystems. The unpredictable fluctuations in environmental conditions create many management challenges for the fishery. It is important that PIRSA continue to monitor trends in catch levels and environmental conditions, and to work with other government agencies, industry, recreational anglers and the broader public to develop appropriate and timely management measures that ensure stocks of target species remain sustainable.</p>
<p><b>2.3.4</b> There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a predetermined level, or where action is indicated by application of the precautionary approach.</p>	<p><b>Meets</b></p> <p>The Fishery Management Plan includes objectives, performance indicators and reference points that aim to minimise impacts of fishing on the ecosystem.</p>
<p><b>2.3.5</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p><b>Meets</b></p> <p>The management arrangements have a good chance of achieving the objective to conduct the fishery in a manner that minimises the impact of fishing operations on the ecosystem generally.</p>

### SECTION 3: ASSESSMENT OF THE SOUTH AUSTRALIAN LAKES AND COORONG FISHERY AGAINST THE REQUIREMENTS OF THE EPBC ACT

The table below is not a complete or exact representation of the EPBC Act. It is intended to show that the relevant sections and components of the EPBC Act have been taken into account in the formulation of advice on the fishery in relation to decisions under Part 13A.

#### Part 12

Section 176 Bioregional Plans	Comment
(5) Minister must have regard to relevant bioregional plans	<b>Not applicable</b> The fishery operates in state waters, and therefore will not impact on Commonwealth Marine Bioregional Plans.

#### Part 13A

Section 303BA Objects of Part 13A	
<p>The objects of this Part are as follows:</p> <ul style="list-style-type: none"> <li>(a) to ensure that Australia complies with its obligations under CITES and the Biodiversity Convention</li> <li>(b) to protect wildlife that may be adversely affected by trade</li> <li>(c) to promote the conservation of biodiversity in Australia and other countries</li> <li>(d) to ensure that any commercial utilisation of Australian native wildlife for the purposes of export is managed in an ecologically sustainable way</li> <li>(e) to promote the humane treatment of wildlife</li> <li>(f) to ensure ethical conduct during any research associated with the utilisation of wildlife, and</li> <li>(h) to ensure the precautionary principle is taken into account in making decisions relating to the utilisation of wildlife.</li> </ul>	
Section 303DC Minister may amend list (non CITES species)	Comment
<p>(1) The Minister may, by legislative instrument, amend the list referred to in section 303DB [list of exempt native specimens] by doing any of the following:</p> <ul style="list-style-type: none"> <li>(a) including items in the list;</li> <li>(b) deleting items from the list;</li> <li>(c) imposing a condition or restriction to which the inclusion of a specimen in the list is subject;</li> <li>(d) varying or revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or</li> <li>(e) correcting an inaccuracy or updating the name of a species.</li> </ul>	<p><b>Meets</b></p> <p>The Department <b>recommends</b> that specimens derived from species harvested in the fishery, other than specimens that belong to species listed under Part 13 of the EPBC Act (other than a conservation dependent species), and specimens that belong to taxa listed under section 303CA (Australia's CITES list), be <b>included</b> in the list of exempt native specimens while the fishery is subject to a declaration as an approved wildlife trade operation under section 303FN.</p>
(1A) In deciding to amend the LENS, the Minister must rely primarily on outcomes of Part 10, Div 1 or 2 assessment	<p><b>Not applicable.</b></p> <p>The fishery is not managed by the Commonwealth.</p>
(1C) The above does not limit matters that may be considered when deciding to amend LENS.	<b>Meets</b>

	The Department considers that it has taken into account all matters relevant to making an informed decision to amend the list of exempt native specimens to include product taken in this fishery.
(3) Before amending the LENS, the Minister must consult: (a) other Minister or Ministers as appropriate; and (b) other Minister or Ministers of each State and self-governing Territory as appropriate; and (c) other persons and organisations as appropriate.	<b>Meets</b> The Department considers that the consultation requirements have been met. The application for the fishery was released for public comment from 23 September 2016 until 31 October 2016. No comments were received.
<b>Section 303FN Approved wildlife trade operation</b>	<b>Comment</b>
(2) The Minister may, by instrument published in the Gazette, declare that a specified wildlife trade operation is an <b>approved wildlife trade operation</b> for the purposes of this section.	<b>Meets</b> An instrument of declaration as an approved wildlife trade operation will be registered on the Federal Register of Legislation, and a link to the declaration is available on the Department's website.
(3) The Minister must not declare an operation as an approved wildlife trade operation unless the Minister is <b>satisfied</b> that: (a) the operation is consistent with the objects of Part 13A of the Act; and	<b>Meets</b> The operation of the fishery is managed consistent with Objects of Part 13A – see Section 2.
(b) the operation will not be detrimental to: i. the survival of a taxon to which the operation relates; or ii. the conservation status of a taxon to which the operation relates; and (ba) the operation will not be likely to threaten any relevant ecosystem including (but not limited to) any habitat or biodiversity; and	<b>Partially meets</b> The fishery will not be detrimental to the survival or conservation status of a taxon to which it relates, nor will it threaten any relevant ecosystem within the next 1 year, given the management measures currently in place in the fishery. PIRSA has also informed the Department that management options to recover overfished black bream stocks have been developed, and the most suitable management option will be implemented once consultations with key stakeholders is complete. Additionally, PIRSA has given an undertaking to monitor catches and discards for all target species, and to implement appropriate management actions as required.
(c) if the operation relates to the taking of live specimens that belong to a taxon specified in the regulations – the conditions that, under the regulations, are applicable to the welfare of the specimens are likely to be complied with; and	<b>Not applicable</b> The Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations) do not specify crustacea or fish as a class of animal in relation to the welfare of live specimens.
(d) such other conditions (if any) as are specified in the regulations have been, or are likely to be, satisfied.	<b>Not applicable</b> There are no other conditions specified in relation to commercial fisheries in the EPBC Regulations.
(4) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to: (a) the significance of the impact of the operation on an ecosystem (for example, an impact on habitat or biodiversity); and	<b>Meets</b> The fishery is not expected to have a significant impact on the operation of the ecosystem.
(b) the effectiveness of the management arrangements for the operation (including monitoring procedures).	<b>Partially meets</b>

	The majority of management measures are considered to be effective. Where uncertainty still exists, PIRSA has given an undertaking to monitor catches for all target species to ensure these stocks continue to sustain fishing pressure. In addition, the development of specific management arrangements to recover black bream stocks, and implementation of an agreed management option, is intended to ensure that this stock can sustain fishing pressure.
(5) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have <b>regard</b> to: (a) whether legislation relating to the protection, conservation or management of the specimens to which the operation relates is in force in the State or Territory concerned; and (b) whether the legislation applies throughout the State or Territory concerned; and (c) whether, in the opinion of the Minister, the legislation is effective.	<b>Meets</b> The <i>Fisheries Management Act 2007</i> (SA) is in force at the time of this decision. The legislation under which the fishery is managed applies throughout South Australian waters. The Department considers that the legislation is likely to be effective.
(10) For the purposes of section 303FN, an operation is a wildlife trade operation if, and only if, the operation is an operation for the taking of specimens and: (d) the operation is a commercial fishery.	<b>Meets</b> The SA Lakes and Coorong Fishery is a commercial fishery.
<b>Section 303FR Public consultation</b>	<b>Comment</b>
(1) Before making a declaration under section 303FN, the Minister must cause to be published on the Internet a notice: (a) setting out the proposal to make the declaration; and (b) setting out sufficient information to enable persons and organisations to consider adequately the merits of the proposal; and (c) inviting persons and organisations to give the Minister, within the period specified in the notice, written comments about the proposal. (2) A period specified in the notice must not be shorter than 20 business days after the date on which the notice was published on the Internet.	<b>Meets</b> A public notice, which set out the proposal to declare the fishery an approved wildlife trade operation, and the application from PIRSA, were released for public comment on 23 September 2016 until 31 October 2016, a total of 25 business days.
(3) In making a decision about whether to make a declaration under section 303FN, the Minister must consider any comments about the proposal to make the declaration that were given in response to the invitation in the notice.	<b>Not applicable</b> No public comments about the proposal were received.
<b>Section 303FT Additional provisions relating to declarations</b>	<b>Comments</b>
(1) This section applies to a declaration made under section 303FN, 303FO or 303FP.	<b>Meets</b> A declaration as an approved wildlife trade operation for the fishery will be made under section 303FN.
(4) The Minister may make a declaration about a plan or operation even though he or she considers that the plan or operation should be the subject of the declaration only: (a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with.	<b>Meets</b> The standard conditions applied to commercial fishery wildlife trade operations include: <ul style="list-style-type: none"><li>• operation in accordance with the management regime</li><li>• notifying the Department of changes to the management regime, and</li><li>• annual reporting in accordance with the requirements of the Guidelines.</li></ul>

In such a case, the instrument of declaration is to specify the period, circumstances or condition.	The wildlife trade operation instrument for the fishery specifies the standard conditions, and four additional conditions.
(8) A condition may relate to reporting or monitoring.	<b>Meets</b> One of the standard conditions specified in Section 4 relates to reporting.
(11) A copy of an instrument under section 303FN, or this section is to be made available for inspection on the internet.	<b>Meets</b> The instrument made under section 303FN and the conditions under section 303FT will be registered as a notifiable instrument and made available on the Department's website.

## Part 16

<b>Section 391 Minister must consider precautionary principle in making decisions</b>	<b>Comment</b>
<p>(1) Minister must take account of precautionary principle</p> <p>(2) The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.</p>	<p><b>Meets</b></p> <p>Given the current and proposed management measures in place in the fishery (identified at Section 2), the Department considers that the management agency is taking a precautionary approach to managing risks to prevent serious or irreversible environmental damage being caused by this fishery.</p>

## SECTION 4: SOUTH AUSTRALIAN LAKES AND COORONG FISHERY – SUMMARY OF ISSUES REQUIRING CONDITIONS, FEBRUARY 2018

Issue	Condition
<p><b><u>General Management</u></b></p> <p>Export decisions relate to the management arrangements in force at the time of the decision. To ensure that these decisions remain valid and export approval continues uninterrupted, the Department of the Environment and Energy (the Department) needs to be advised of any changes that are made to the management regime and make an assessment that the new arrangements are equivalent or better, in terms of ecological sustainability, than those in place at the time of the original decision. This includes operational and legislated amendments that may affect sustainability of the target species or negatively impact on byproduct, bycatch, EPBC Act protected species or the ecosystem.</p>	<p><b>Condition 1:</b></p> <p>Operation of the SA Lakes and Coorong Fishery will be carried out under the <i>Management Plan for the South Australian Lakes and Coorong Fishery 2016</i>, and in accordance with the Fisheries Management (Lakes and Coorong Fishery) Regulations 2009 (SA), Fisheries Management (General) Regulations 2007 (SA) and the <i>Fisheries Management Act 2007</i> (SA).</p> <p><b>Condition 2:</b></p> <p>The Department of Primary Industries and Regions South Australia to inform the Department of any intended amendments to the management arrangements that may affect the criteria on which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are based.</p>
<p><b><u>Annual Reporting</u></b></p> <p>It is important that reports be produced and presented to the Department annually in order for the performance of the SA Lakes and Coorong Fishery (the fishery) and progress in implementing the conditions and recommendations in this report and other managerial commitments to be monitored and assessed throughout the life of the declaration as a wildlife trade operation. Annual reports should follow Appendix B to the <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i> (the Guidelines) and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fishery, status of target stock, interactions with EPBC Act protected species, impacts of the fishery on the ecosystem in which it operates and progress in implementing the Department's conditions and recommendations. Electronic copies of the Guidelines are available from the Department's website at <a href="http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries">http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries</a>.</p>	<p><b>Condition 3:</b></p> <p>The Department of Primary Industries and Regions South Australia to produce and present reports to the Department annually as per Appendix B to the <i>Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition</i>.</p>
<p><b><u>Murray Cod</u></b></p> <p>Murray cod is a freshwater species listed as 'vulnerable', under Part 13 of the EPBC Act. The Department considers that there is unlikely to be sufficient recovery of Murray cod that will allow sustainable fishing pressure in the short to medium term. The Department supports the decision by the Department of Primary Industries and Regions South Australia (PIRSA) to implement temporary management arrangements to protect and support the recovery of the Murray cod population. These management arrangements have been ongoing since 2012, and the Department supports its continuation until the recovery of Murray cod stocks can once again sustain fishing pressure.</p> <p>Under these management arrangements there is no commercial take of Murray cod by the fishery until stocks improve to a level that can sustain fishing pressure. Recreational fishing for Murray cod is restricted to catch and release fishing from 1 January to 31 July. Recreational fishing for Murray cod is prohibited from 1 August to 31 December until such time that stocks improve to a level that can sustain fishing pressure. It is also important</p>	<p><b>Condition 4:</b></p> <p>The Department of Primary Industries and Regions South Australia to</p> <ol style="list-style-type: none"> <li>continue to annually review management arrangements for Murray cod stocks in the SA Lakes and Coorong Fishery, and</li> <li>implement appropriate and timely protection and management measures until stock levels increase and can be sustainably fished.</li> </ol>

Issue	Condition
that the management arrangements are regularly reviewed and appropriate measures implemented in a timely manner to minimise any adverse impacts on Murray cod stocks.	
<p><b>Stock status</b></p> <p>While most target and byproduct species taken in the fishery are fished sustainably, the information provided by PIRSA identified risks and uncertainties for a number of target species stocks. Earl et al. (2016) classifies <b>black bream</b> stocks as <b>overfished</b>. The stock assessment report recommends the introduction of appropriate mitigation measures to allow black bream stocks to recover. In response, PIRSA has developed the three options to manage black bream stocks in the foreseeable future:</p> <ol style="list-style-type: none"> <li>implement a 300m spatial closure around the Lakes and Coorong barrages to prohibit fishing for both recreational and commercial fishing</li> <li>implement seasonal closures, and</li> <li>closure of the black bream sector until recovery of the population to a sustainable status.</li> </ol> <p>PIRSA has informed the Department that it is consulting with the commercial and recreational sectors to determine the most suitable management approach to recover black bream stocks. It is important that PIRSA provide the Department with a copy of the agreed management approach once it is finalised. It is also important that PIRSA inform the Department in relation to the success or otherwise of implementing any management measures over the next 12 months.</p> <p>Earl and Ye (2016) classifies <b>greenback flounder</b> stocks as <b>environmentally limited</b>. The stock assessment report identifies low catches as a consequence of low freshwater flows that have resulted in a lack of suitable spawning habitat and low recruitment. While the report indicates that the level of fishing mortality is unlikely to result in recruitment overfishing, it is important that PIRSA continue to monitor catch trends for this species.</p> <p>Earl and Ferguson (2013) classifies <b>yelloweye mullet</b> stocks as <b>sustainable</b>. However, the stock assessment report identified an increase in landings of two and three year old yelloweye mullet as a risk to stock sustainability. It is important that PIRSA continue to monitor trends in catches for juvenile yelloweye mullet and to implement appropriate management measures to ensure this species does not become recruitment overfished.</p> <p>Earl and Ward (2014) classifies <b>mulloway</b> stocks as <b>environmentally limited</b>. The high numbers of undersized discards poses an increased long term risk for mulloway stocks to become recruitment overfished over time if not managed appropriately (Ferguson 2010). While the take of mulloway remains sustainable, PIRSA acknowledges the high numbers of undersized mulloway discards, and the need for more up-to-date research to support the view that the high discard rate is not likely to result in recruitment overfishing. The Department supports PIRSA's commitment to monitoring discards in the fishery.</p> <p>Ferguson and Ye (2012) classifies <b>golden perch</b> stocks as <b>sustainable</b>. However, the ESD risk assessment notes that adequate spawning may be limited by freshwater in-flows (PIRSA 2011). Ferguson and Ye (2012) identified a need to increase knowledge in relation to the number of discards for golden perch, and suggested that PIRSA consider a new performance indicator that is based on the number of golden perch discarded per net</p>	<p><b>Condition 5:</b></p> <p>The Department of Primary Industries and Regions South Australia to:</p> <ol style="list-style-type: none"> <li>develop and implement, in consultation with key stakeholders, effective measures that will support the recovery of black bream stocks, and provide a copy of the agreed measures to the Department, and</li> <li>provide the Department with a progress report on black bream stock recovery as part of its application for reassessment of the SA Lakes and Coorong Fishery by November 2018.</li> </ol> <p><b>Condition 6:</b></p> <p>The Department of Primary Industries and Regions South Australia to:</p> <ol style="list-style-type: none"> <li>continue to monitor trends in catch levels for greenback flounder and develop management measures that minimise the impact from fishing, as required, at times when environmental conditions are known to also be impacting the species</li> <li>continue to monitor catches of juvenile and female yelloweye mullet and implement measures to ensure that this species does not become recruitment overfished</li> <li>monitor trends and implement measures to reduce discarding of all target species, particularly mulloway, and to implement appropriate management measures to ensure target species do not become recruitment overfished</li> <li>continue to monitor trends in stock levels of all target species and implement measures to mitigate risks identified in the June 2011 risk assessment for the SA Lakes and Coorong Fishery, and</li> <li>actively work with other state and national water and land management agencies to align freshwater inflows with the known spawning events for all target species.</li> </ol>

Issue	Condition
<p>per day. It is important that PIRSA continue to monitor the take of golden perch and implement appropriate and timely management action to ensure stocks remain sustainable.</p> <p>Ferguson (2013) classifies <b>pipi</b> stocks as <b>sustainable</b>. The introduction of quota management has helped to increase pipi biomass from 2007–08 to 2012–13. Since 2007–08, pipi have been managed under a harvest strategy based on fishery-independent estimates of relative biomass (PIRSA 2016). However, the increasing popularity of the species requires ongoing monitoring to ensure that stocks continue to sustain fishing pressure.</p> <p>The <i>Ecological assessment of the South Australian Lakes and Coorong Fishery: reassessment report</i> (PIRSA 2011) indicates that fishing has a high risk on breeding populations of mullet, golden perch, greenback flounder, and black bream, and a moderate risk to pipi stocks. These risks are exacerbated by environmental conditions such as freshwater flows. Freshwater flows are important for food, habitat and spawning success of a number of key species including golden perch, greenback flounder, black bream, and yelloweye mullet. PIRSA has reviewed the fishery management plan (Sloan 2005), and the Department supports the implementation of measures such as harvest strategies for finfish species and pipi, and updated logbooks to include the number of discards for key species.</p> <p>Notwithstanding the progress made to address the concerns identified in the ESD risk assessment (PIRSA 2011), and given the risks and uncertainties identified above, the Department considers it appropriate to approve the Lakes and Coorong Fishery as a wildlife trade operation for a period of 12 months. This timeframe will allow time for PIRSA to finalise new management arrangements for black bream stocks. It is important that PIRSA provide an up-to-date summary of catch data and any changes to managing target stocks as part of its annual fishery reports to the Department.</p>	



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