



**Australian Government**

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**Department of the Environment, Water, Heritage and the Arts**

Assessment of the  
**South Australian Sardine Fishery**

**November, 2009**

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#### **Disclaimer**

This document is an assessment carried out by the Department of the Environment, Water, Heritage and the Arts of a commercial fishery against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – 2<sup>nd</sup> Edition*. It forms part of the advice provided to the Minister for the Environment, Heritage and the Arts 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, Heritage and the Arts or the Australian Government.

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**Table 1: Summary of the South Australian Sardine Fishery**

<p><b>Publicly available information relevant to the fishery</b></p>	<ul style="list-style-type: none"> <li>• <i>South Australian (SA) Fisheries Management Act (2007)</i></li> <li>• <i>SA Fisheries Management (General) Regulations 2007</i></li> <li>• <i>SA Fisheries Management (Marine Scalefish Fisheries) Regulations 2006</i></li> <li>• Management Plan for South Australian Pilchard Fishery 2005</li> <li>• Primary Industries and Resources South Australia (PIRSA) Ecological Assessment of the South Australian Sardines (<i>Sardinops sagax</i>) Fishery Reassessment Report 2009 (2009 Submission)</li> <li>• Department of Environment and Heritage Assessment of the South Australian Pilchard Fishery 2004 (2004 Assessment)</li> <li>• PIRSA Ecological Assessment of the South Australian Pilchard Fishery 2004 (2004 Submission)</li> <li>• South Australian Research and Development Institute (SARDI) Aquatic Sciences Australian Sardine (<i>Sardinops sagax</i>) Fishery, Fishery Assessment Report for PIRSA 2008. (2008 Fishery Assessment Report)</li> <li>• SARDI Aquatic Sciences Report, Operational interactions of the South Australian Sardine Fishery with the Common Dolphin: November 2004 to March 2009.</li> <li>• South Australian Sardine Industry Association, Code of Practice for Mitigation of Interactions of the South Australian Sardine Fishery with Threatened Endangered and Protected Species (2009)</li> <li>• SARDI Aquatic Sciences Report, Optimising the use of a continuous underway fish egg sampler in daily egg production studies of sardine, <i>Sardinops sagax</i>, off South Australia. (2009).</li> <li>• SARDI Aquatic Sciences Report, Spawning biomass of sardine, <i>Sardinops sagax</i>, in waters off South Australia in 2009. Final Report to PIRSA Fisheries. (2009).</li> </ul>
<p><b>Area</b></p>	<p>The area of jurisdiction of the commercial South Australian Sardine Fishery (SASF) includes all the waters adjacent to the State of SA out to the 200 nautical mile Australian Fishing Zone, with the exception of aquatic reserves and net closures. Sardine fishers are provided exemptions to operate in some netting closures as the netting closures are not intended to refer to nets utilised by sardine fishers (purse seine nets).</p> <p>The 2008 Fishery Assessment Report noted that most of the SASF catch is taken from the Southern Spencer Gulf, with significant catches taken from Coffin Bay and Investigator Strait in some years.</p>

	 <p>The map displays the southern coastline of Australia, including parts of Western Australia, New South Wales, and Victoria. It highlights several fishing zones with concentric lines representing 3, 12, 24, and 200 nautical mile limits. Major coastal towns and ports are marked with red dots, including Woomera, Hawker, Port Augusta, Port Pirie, Port Broughton, Adelaide, and Melbourne. Inland lakes such as Lake Eyre, Lake Torrens, and Lake Frome are also shown. A legend in the bottom-left corner defines the symbols for the nautical mile limits, highways, and secondary roads. A scale bar indicates distances up to 140 kilometers, and the map projection is noted as Equidistant Conic.</p>
<p><b>Fishery status</b></p>	<p>The 2008 Fishery Assessment Report notes that there has been a steady rise of the estimates of spawning biomass since the 1998/99 mass mortality event and the estimated spawning biomass obtained in 2007 is the highest recorded for the sardine stock off Australia. There is no evidence of localised depletion of the spawning stock within the main fishing area.</p> <p>Available evidence suggests that the SASF sardine stock is in a strong position.</p>
<p><b>Target Species</b></p>	<p>Australian Sardine (<i>Sardinops sagax</i>) under quota management arrangements.</p> <p>Information on the biology of this species can be found in the 2004 assessment of the fishery located on the DEWHA website.</p>
<p><b>Byproduct Species</b></p>	<p>None.</p>

<b>Gear</b>	<p>Maximum of two vessels per licence.</p> <p>A maximum of one sardine net (purse seine net) per vessel, with the maximum following dimensions: 1,000 metres (m) in length, 200m deep (at stretched mesh and measured on land) with meshes of 14 to 22 millimetres.</p>
<b>Season</b>	<p>The SA sardine season spans the twelve months of the year. The majority of the total catch is taken between February and June with significant catches in November and December as well (2008 Fishery Assessment Report).</p>
<b>Commercial harvest</b>	<p>In the 2008/09 season 26 692 tonnes (t) of Australian Sardines were harvested.</p> <p>Since the last assessment catches continued growing steadily from the 3548t caught in 1999, after the last mass death event and peaking in 2005 at 42, 475t. Catches have since hovered between 25, 137t and 30, 000t per year.</p>
<b>Value of commercial harvest</b>	<p>\$16 331 000 in the 2008/09 season.</p>
<b>Take by other sectors</b>	<p>Take of Australian Sardines by the recreational sector is negligible, due to their method of capture. Two Western Australian (WA) fisheries and the Commonwealth Small Pelagics Fishery also take Australian Sardines.</p>
<b>Commercial licences issued</b>	<p>There are a total of 14 licences in the fishery. Currently all 14 are operated by 8 owners using 12 boats.</p>
<b>Management arrangements</b>	<p>The fishery is managed under the <i>Management Plan for South Australian Pilchard Fishery 2005</i>, the <i>SA Fisheries Management Act (2007)</i>, the <i>Fisheries Management (General) Regulations 2007</i>, and the <i>Fisheries Management (Marine Scalefish Fisheries) Regulations 2006</i>.</p> <p><u>Output controls</u></p> <ul style="list-style-type: none"> <li>• Managed through a Total Allowable Commercial Catch (TACC) and Individual Transferable Quota (ITQ) system.</li> <li>• The TACC is currently set at 30, 000t (2142t per licence holder).</li> <li>• A Catch Disposal Record (CDR) must be filled out and forwarded to PIRSA Fisheries on a per trip basis.</li> <li>• Each licence holder is required to complete a research log book, with one form per net set and return it within a legislated time frame.</li> </ul> <p><u>Input controls</u></p> <ul style="list-style-type: none"> <li>• Maximum number of two vessels per licence</li> <li>• Maximum number of one sardine net per vessel</li> <li>• Maximum sardine net dimension of 1000m in length, 200m in depth (measured stretched on land) with meshes of 14 to 22mm.</li> </ul>

<b>Export</b>	97% of catch from the SASF is sold locally as tuna fodder. The rest is sold for human consumption, pet food, and as live bait to recreational fishers (Economic Indicators for the SASF 2007/8). Sardines are exported mainly to New Zealand, exports to China are in the trial stages and this is seen as a growth market.
<b>Bycatch</b>	<p>Common dolphins (<i>Delphinus delphis</i>) are identified as the species with which the fishery has the most interactions with. A number of mitigation methods are being undertaken.</p> <p>According to PIRSA, bycatch is otherwise relatively low given the targeted nature of the equipment. Bycatch species include Blue Sprats, Anchovies and Marays.</p>
<b>Interaction with Protected Species<sup>1</sup></b>	<p>A research project undertaken in 2004/05 by SARDI revealed high rates of encirclement (1.78 per net set) and mortality (0.39 per net set) of common dolphins (<i>Delphinus delphis</i>).</p> <p>In 2005, a Code of Practice (CoP) was introduced to the fishery after a two month closure enforced by the South Australian Minister. All licensees were required to sign the CoP.</p> <p>Every fishing master and crew member must undertake an awareness and training session prior to the commencement of each season. The skippers and crew must make the TEPS mitigation strategy part of normal fishing practice, this includes: communicating the presence of dolphins to other boats; co-ordinated net setting, designated crew members to visually assess for presence of dolphins prior to net set; all crew members to scan for dolphins as soon as net set; skipper to let front of net go as soon as possible when dolphins detected; and, if required, the TEPS cradle to be used to guide dolphin out of net.</p> <p>Under the CoP operators must have the following on board:</p> <ul style="list-style-type: none"> <li>• A copy of the current TEPS CoP;</li> <li>• A vessel specific flowchart of TEPS mitigation procedures;</li> <li>• A TEPS identification manual;</li> <li>• A TEPS cradle;</li> <li>• A skipper/vessel contact list for the fishery; and</li> <li>• A Wildlife Interaction Logbook as issued by PIRSA/SARDI.</li> </ul>

<sup>1</sup> 'Protected species' means all species listed under Part 13 of the EPBC Act, including whales and other cetaceans and threatened, marine and migratory species.

	<p>Skippers must report interactions in the wildlife interactions logbook on trips with and without an observer. It is a legislative requirement under the <i>Fisheries Management Act 2007</i> (SA) and the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwth) (EPBC Act).</p> <p>In 2008 the minimum level of observer coverage was increased from 10% to 30% to improve the quality of the data being collected.</p> <p>A TEPS Working Group has been established by the South Australian Sardine Industry Association (SASIA). The group meets at minimum four times a year. It monitors interactions rates and the implementation, success and review of the CoP.</p> <p>With a number of revisions to the CoP the rates of encirclement and mortality have reduced significantly. Between July 2008 and March 2009 the encirclement rate was down to 0.3043 per net set and mortality down to 0.0175 dolphins per net set.</p> <p>Ongoing work in the fishery on TEPS interactions includes:</p> <ul style="list-style-type: none"> <li>▪ Implementation and continual review of the CoP, including: <ul style="list-style-type: none"> <li>○ Regular skippers meetings conducted by the SASIA;</li> <li>○ Induction and training of crews by SASIA; and</li> <li>○ Quarterly TEPS working group meetings to continually revise and update the Code.</li> </ul> </li> <li>▪ Observer coverage;</li> <li>▪ Annual published reports and quarterly SARDI data summaries on dolphin interactions, which are provided to the TEPs working group and PIRSA Fisheries.</li> </ul> <p>Interactions are reported for several other TEPS species including seals, sea-lions, and sharks. PIRSA has indicated that the incidental mortality rate for these species is extremely low or non-existent.</p>
<p><b>Ecosystem Impacts</b></p>	<p>Australian Sardines are a small pelagic fish and provide an important food source for predatory fish. Predators fluctuate in response to changes in productivity in the regions where they feed. Aspects of the reproductive and feeding ecology of predators have been used to monitor the health of marine ecosystems, and to monitor the effectiveness of fishery management regimes.</p> <p>SARDI is currently undertaking the project “Establishing ecosystem-based management for the South Australian Sardine Fishery; developing ecological performance indicators and reference points to assess the need for ecological allocations”. Identifying key marine predators of Sardines and their population parameters. This project is due to be completed in December 2009.</p> <p>The South Australian Sardine Management Plan was updated in 2005 to include a harvest strategy consistent with the following goals:</p>

	<ol style="list-style-type: none"> <li>1. Sustainability of the resource</li> <li>2. Greater certainty and stability; and</li> <li>3. Optimal productivity and profitability</li> </ol> <p>The harvest strategy sets out clear decision rules and sets a conservative maximum exploitation rate of 20%. This lower level of exploitation aims to ensure sufficient Sardine biomass for healthy ecosystem function.</p>
<p><b>Impacts on CITES-listed specimens</b></p>	<p>No specimens listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) are permitted to be harvested in the fishery. Therefore no assessment of the SASF's impact on specimens listed under CITES has been conducted.</p>

**Table 2: Progress in implementation of recommendations made in initial assessment of the SASF**

Recommendation	Progress	Recommended Action
<p>1. That PIRSA advise DEH of any material change to the South Australian Pilchard Fishery's management arrangements that could affect the criteria on which EPBC decisions are based, within 3 months of that change being made.</p>	<p><b>Ongoing</b> When in 2007, PIRSA introduced new regulations and legislation for South Australian Fisheries, DEWHA was advised in a timely manner. DEWHA was also informed well ahead of time when the Management Plan was introduced in 2005.</p>	<p>PIRSA have been consistent in advising DEWHA of changes to management arrangements. It is recommended that this continues, as referred to in <b>Recommendation 1, Table 4.</b></p>
<p>2. Within 3 months of becoming aware of the breaching of a performance measure, PIRSA to finalise a clear timeframe for the implementation of appropriate management responses.</p>	<p><b>Ongoing</b> No ecological performance measures have been breached. The only performance measure that has been breached was the economic indicator. This was a direct result of investment in bigger boats in the fishery and not a sustainability issue.</p>	<p>DEWHA recognises that PIRSA has been monitoring performance measures in the fishery. It is recommended that this continue in <b>Recommendation 7, Table 4.</b></p>
<p>3. That PIRSA develop within 2 years a performance indicator and performance measure to ensure that bycatch is minimised in the South Australian Pilchard Fishery.</p>	<p><b>Ongoing</b> PIRSA has progressed the intention of this recommendation through a number of actions designed to monitor and minimise bycatch of protected species.</p>	<p>PIRSA has progressed the intention of this recommendation and DEWHA has further addressed the recommendation in the <b>Part 13 Condition and Recommendations 4 and 5, Table 4.</b></p>
<p>4. That PIRSA provide a mechanism, which allows fishers to record interactions with</p>	<p><b>Met</b> PIRSA and SARDI have produced a 'Wildlife Interaction'</p>	<p>DEWHA appreciates that PIRSA has followed through on this recommendation and created a logbook and supported SASIA's creation of a training and education program.</p>

<p>protected/listed species at a species level. PIRSA to implement an education program to ensure that industry has the capacity to make these reports at an appropriate level of accuracy.</p>	<p>Identification and Logbook. As part of the new CoP, created by SASIA, which is signed by all licence holders, all vessels are to carry this logbook along with a TEPS identification manual (Protected Marine Species Identification Guide, Natural Heritage Trust). All fishing masters and all crew must also undertake an awareness and training session prior to the start of each season.</p>	
<p>5. Should new information determine that the fishery is having significant interactions with any endangered, threatened or protected species, PIRSA will develop appropriate measures to mitigate those interactions. Measures should be implemented within 12 months of the information becoming available.</p>	<p><b>Met, Ongoing</b>          After the SARDI research project released in June 2005 showed the high rate of common dolphin encirclement and mortality the fishery was closed for July and August of that year.</p> <p>In September 2005, the TEPS working group finalised the CoP for Mitigation of Interactions of the South Australian Sardine Fishery with Threatened Endangered and Protected Species.</p> <p>This CoP has been revised a number of times as mitigation measures have been refined. Observer coverage has also</p>	<p>PIRSA handled the new information on dolphin interactions well, developing mitigation methods and implementing them in a timely manner.</p> <p>It is recommended by DEWHA that interactions between sardine fishers and common dolphins continue to be closely monitored and the mitigation measures continually refined. <b>(Recommendation 5, Table 4)</b>. DEWHA also recommends that, should new information determine that the fishery is having significant interactions with any other TEPS species, PIRSA will develop appropriate measures to mitigate those interactions. Measures should be implemented within 12 months of the information becoming available. <b>(Recommendation 6, Table 4)</b></p>

	<p>dramatically increased, from 5% in 2004/05 to 10% in 2005/06 and 30% in 2008/09. All this has resulted in a significant drop in encirclement and mortality rates.</p>	
<p>6. Should the ecological effects survey determine that the fishery is having significant ecosystem impacts, PIRSA will develop and implement appropriate measures to mitigate those impacts in a timely manner.</p>	<p><b>Met, Ongoing</b>  When in 2005, it was discovered that the fishery was impacting the local dolphin population, PIRSA took the necessary steps to mitigate the impact in a timely manner. In studies undertaken by SARDI no other significant ecosystem impacts have been detected. SASF's precautionary TACC is helping to ensure this does not become an issue.</p>	<p>PIRSA has implemented mitigation methods in a timely manner for the issues that have arisen so far. It is recommended that PIRSA continues to monitor for ecosystem impacts and be ready to develop and implement appropriate measures to mitigate those impacts in a timely manner. <b>(Recommendation 7, Table 4)</b></p>

**Table 3: The Department of the Environment, Water, Heritage and the Arts (DEWHA) assessment of the SASF against the requirements of the EPBC Act related to decisions made under Parts 13 and 13A**

**Please Note** – the table below is not a complete or exact representation of the EPBC Act. It is intended as a summary of relevant sections and components of the EPBC Act to provide advice on the fishery in relation to decisions under Parts 13 and 13A. A complete version of the EPBC Act can be found on the DEWHA website.

**Part 13**

<p><b>Division 1 Listed threatened species</b>  <b>Section 208A Minister may accredit plans or regimes</b></p>	<p><b>DEWHA assessment of the SASF</b></p>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <p style="margin-left: 20px;">i. made by a State or self-governing Territory; and</p> <p style="margin-left: 20px;">ii. in force under a law of the State or self-governing Territory</p> <p>if <b>satisfied</b> that:</p> <p>(f) the plan, regime or policy requires persons engaged in fishing under the plan, regime or policy to take all reasonable steps to ensure that members of listed threatened species (other than conservation dependent species) are not killed or injured as a result of the fishing; and</p> <p>(g) the fishery to which the plan, regime or policy relates does not, or is not likely to, adversely affect the survival or recovery in nature of the species.</p>	<p>The SASF will be managed under the <i>Management Plan for South Australian Pilchard Fishery 2005</i>, the <i>South Australian Fisheries Management Act (2007)</i>, the <i>Fisheries Management (General) Regulations 2007</i>, and the <i>Fisheries Management (Marine Scalefish Fisheries) Regulations 2006</i>.</p> <p>The management regime for the SA Sardine Fishery was accredited in November 2007. The management arrangements for the SA Sardine Fishery have not significantly changed since this accreditation was granted. As such, the fishery will be reaccredited under Part 13.</p> <p>Currently, evidence suggests that the SASF only has minimal interactions with listed threatened species (including dolphins, seals and sea lions). Therefore, DEWHA considers the current operation of the SASF is not likely to adversely affect the survival or recovery in nature of any threatened species.</p>

<b>Division 2 Migratory species</b> <b>Section 222A Minister may accredit plans or regimes</b>	<b>DEWHA assessment of the SASF</b>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ul style="list-style-type: none"> <li>i. made by a State or self-governing Territory; and</li> <li>ii. in force under a law of the State or self-governing Territory;</li> </ul> <p>if <b>satisfied</b> that:</p> <p>(f) the plan, regime or policy requires persons engaged in fishing under the plan, regime or policy to take all reasonable steps to ensure that members of listed migratory species are not killed or injured as a result of the fishing; and</p> <p>(g) the fishery to which the plan, regime or policy relates does not, or is not likely to, adversely affect the conservation status of a listed migratory species or a population of that species.</p>	<p>The SASF will be managed under the <i>Management Plan for South Australian Pilchard Fishery 2005</i>, the <i>South Australian Fisheries Management Act (2007)</i>, the <i>Fisheries Management (General) Regulations 2007</i>, and the <i>Fisheries Management (Marine Scalefish Fisheries) Regulations 2006</i>.</p> <p>The Management regime for the SA Sardine Fishery was accredited in November 2007. The management arrangements for the SA Sardine Fishery have not significantly changed since this accreditation was granted. As such, the fishery will be reaccredited under Part 13</p> <p>The report provided by PIRSA indicates in the past there have been a high number of interactions with common dolphins (<i>Delphinus delphis</i>). The fishery now has a number of effective mitigation methods in place. Therefore, DEWHA considers the current operation of the SASF is not likely to adversely affect the survival or recovery in nature of any listed migratory species.</p>

<b>Division 3 Whales and other cetaceans</b> <b>Section 245 Minister may accredit plans or regimes</b>	<b>DEWHA assessment of the SASF</b>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ul style="list-style-type: none"> <li>i. made by a State or self-governing Territory; and</li> <li>ii. in force under a law of the State or self-governing Territory;</li> </ul> <p>if <b>satisfied</b> that:</p> <p>(f) the plan, regime or policy requires persons engaged in fishing under the plan, regime or policy to take all reasonable steps to ensure that cetaceans are not killed or injured as a result of the fishing; and</p> <p>(g) the fishery to which the plan, regime or policy relates does not, or is not likely to, adversely affect the conservation status of a species of cetacean or a population of that species.</p>	<p>The SASF will be managed under the <i>Management Plan for South Australian Pilchard Fishery 2005</i>, the <i>South Australian Fisheries Management Act (2007)</i>, the <i>Fisheries Management (General) Regulations 2007</i>, and the <i>Fisheries Management (Marine Scalefish Fisheries) Regulations 2006</i>.</p> <p>The management regime for the SA Sardine Fishery was accredited in November 2007. The management arrangements for the SA Sardine Fishery have not significantly changed since this accreditation was granted. As such, the fishery will be reaccredited under Part 13.</p> <p>The report provided by PIRSA indicates that in the past there have been a high number of interactions with common dolphins (<i>Delphinus delphis</i>). The fishery now has a number of effective mitigation methods in place. Therefore, DEWHA considers the current operation of the SA Sardine Fishery is not likely to adversely affect the conservation status of a species of cetacean or a population of that species.</p>

<b>Division 4 Listed marine species</b> <b>Section 265 Minister may accredit plans or regimes</b>	<b>DEWHA assessment of the SASF</b>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ul style="list-style-type: none"> <li>i. made by a State or self-governing Territory; and</li> <li>ii. in force under a law of the State or self-governing Territory;</li> </ul> <p>if <b>satisfied</b> that:</p> <p>(f) the plan, regime or policy requires persons engaged in fishing under the plan, regime or policy to take all reasonable steps to ensure that members of listed marine species are not killed or injured as a result of the fishing; and</p> <p>(g) the fishery to which the plan, regime or policy relates does not, or is not likely to, adversely affect the conservation status of a listed marine species or a population of that species.</p>	<p>The SASF will be managed under the <i>Management Plan for South Australian Pilchard Fishery 2005</i>, the <i>South Australian Fisheries Management Act (2007)</i>, the <i>Fisheries Management (General) Regulations 2007</i>, and the <i>Fisheries Management (Marine Scalefish Fisheries) Regulations 2006</i>.</p> <p>The management regime for the SA Sardine Fishery was accredited in November 2007. The management arrangements for the SA Sardine Fishery have not significantly changed since this accreditation was granted. As such, the fishery will be reaccredited under Part 13</p> <p>The report provided by PIRSA indicates that in the past there have been a high number of interactions with common dolphins (<i>Delphinus delphis</i>). The fishery now has a number of effective mitigation methods in place. Evidence suggests that the SASF only has minimal interactions with other listed marine species (including seals and sea lions). Therefore, DEWHA considers the current operation of the SASF is not likely to adversely affect the conservation status of a listed marine species or a population of that species.</p>

<b>Section 303AA Conditions relating to accreditation of plans, regimes and policies</b>	<b>DEWHA assessment of SASF</b>
(1) This section applies to an accreditation of a plan, regime or policy under section 208A, 222A, 245 or 265.	DEWHA recommends that SASF be accredited under sections 208A, 222A, 245 and 265.
(2) The Minister may accredit a plan, regime or policy under that section even though he or she considers that the plan, regime or policy should be accredited only: <ul style="list-style-type: none"> <li>(a) during a particular period; or</li> <li>(b) while certain circumstances exist; or</li> <li>(c) while a certain condition is complied with.</li> </ul> In such a case, the instrument of accreditation is to specify the period, circumstances or condition.	To satisfy the requirements of section 208A we recommend that SASF be accredited under Part 13 subject to a condition that requires PIRSA to ensure compliance with the Code of Practice and continue to closely monitored and research mitigation of interactions between the SASF and common dolphins.  The Part 13 instrument for SASF specifies this condition.
(7) The Minister must, in writing, revoke an accreditation if he or she is satisfied that a condition of the accreditation has been contravened.	

### Part 13A

<b>Section 303DC Minister may amend list</b>	<b>DEWHA assessment of the SASF</b>
(1) Minister may, by instrument in published in the Gazette, amend the list referred to in section 303DB (list of exempt native specimens) by: <ul style="list-style-type: none"> <li>(a) including items in the list;</li> <li>(b) deleting items from the list; or</li> <li>(c) imposing a condition or restriction to which the inclusion of a specimen in the list is subject; or</li> <li>(d) varying of 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>	
(3) Before amending the list referred to in section 303DB (list of	

<p>exempt native specimens), the Minister:</p> <ul style="list-style-type: none"> <li>(a) must consult such other Minister or Ministers as the Minister considers appropriate; and</li> <li>(b) must consult such other Minister or Ministers of each State and self-governing Territory as the Minister considers appropriate; and</li> <li>(c) may consult such other persons and organisations as the Minister considers appropriate.</li> </ul>	<p>DEWHA considers that the consultation requirements have been met. The public comment period on the PIRSA submission sought comment on the submission for the SASF and provided sufficient opportunity for consultation with other persons and organisations.</p> <p>A letter to the SA Agriculture, Food and Fisheries Minister advises him of the intention to declare the fishery an approved WTO under the EPBC Act.</p>
<p>(5) A copy of an instrument made under section 303DC is to be made available for inspection on the Internet.</p>	<p>The instrument for the SASF made under sections 303DC will be gazetted and made available on the DEWHA website.</p>

<b>Section 303FR Public consultation</b>	<b>DEWHA assessment of the SASF</b>
<p>(1) Before making a declaration under section 303FN, the Minister must cause to be published on the Internet a notice:</p> <ul style="list-style-type: none"> <li>(a) setting out the proposal to make the declaration; and</li> <li>(b) setting out sufficient information to enable persons and organisations to consider adequately the merits of the proposal; and</li> <li>(c) inviting persons and organisations to give the Minister, within the period specified in the notice, written comments about the proposal.</li> </ul>	<p>Under the EPBC Act, a decision to amend the LENS does not require a public consultation period. However, a public notice, which set out the proposal to grant export approval to the SASF and included the submission for the SASF was released for public comment which closed on 4<sup>th</sup> September 2009 with 1 submission received.</p>
<p>(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.</p>	<p>A public notice, which set out the proposal to grant export approval to the SASF and included the submission for the SASF was released for public comment on 3<sup>rd</sup> August 2009 and closed on 4<sup>th</sup> September 2009, a total of 25 business days.</p>
<p>(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.</p>	<p>The public comments received on the submission were included in the brief to the Delegate of the Minister for the Environment, Water, Heritage and the Arts. The DEWHA assessment has considered the public comment received on the submission.</p>

Part 16

<b>Section 391 Minister must consider precautionary principle in making decisions</b>	<b>DEWHA assessment of the SASF</b>
(1) The Minister must take account of the precautionary principle in making a decision under section 303DC and/or section 303FN, to the extent he or she can do so consistently with the other provisions of this Act.	The precautionary principle has been considered when making a decision to include specimens on the LENS.
(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.	

**Objects of Part 13A**

- (a) to ensure that Australia complies with its obligations under CITES and the Biodiversity Convention;
- (b) to protect wildlife that may be adversely affected by trade;
- (c) to promote the conservation of biodiversity in Australia and other countries;
- (d) to ensure that any commercial utilisation of Australian native wildlife for the purposes of export is managed in an ecologically sustainable way;
- (e) to promote the humane treatment of wildlife;
- (f) to ensure ethical conduct during any research associated with the utilisation of wildlife; and
- (h) to ensure the precautionary principle is taken into account in making decisions relating to the utilisation of wildlife.

## **DEWHA condition and recommendations to the Department of Primary Industries and Resources South Australia (PIRSA)**

The material submitted by PIRSA indicates that the SASF operates in accordance with the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries 2<sup>nd</sup> edition*. DEWHA considers that the fishery is well managed and unlikely to have an unacceptable or unsustainable impact on the environment in the medium term. Overall, DEWHA recognises that the Total Allowable Commercial Catch (TACC); Catch Disposal Records (CDRs) and logbooks; vessel and net limits; and level of observer coverage that are in place in the SASF are conservative and suggest that the fishery is being managed in an ecologically sustainable way.

In making its assessment, DEWHA considers that the range of management measures are sufficient to ensure that the fishery is conducted in a manner that does not lead to over-fishing and that stocks are not currently over-fished. Taking into account the close monitoring of take by individual fishers and the conservative TACC, DEWHA considers that fishing operations are managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem. Management of the fishery has a history of reacting appropriately to threats to sustainability and DEWHA is confident that PIRSA will continue to provide this high quality management.

PIRSA's has had a proactive approach and commitment to date to ensure that SASF participants adopt appropriate measures to mitigate interactions with common dolphins and EPBC Act listed species. However, these measures are not currently legislated, DEWHA considers that a new Part 13, with a condition to this effect is in order.

DEWHA is satisfied that the fishery will not be detrimental to the survival or conservation status of the taxon to which it relates in the medium term. Similarly, it is not likely to threaten any relevant ecosystem in the medium term. To contain and minimise the risks in the longer term, the recommendations listed below have been made. DEWHA believes that product taken in the fishery should be exempt from the export controls of Part 13A of the EPBC Act, with that exemption to be reviewed in five years.

DEWHA considers that the operation of the fishery does not, or is not likely to, adversely affect the survival in nature of a listed threatened species or population of that species, or the conservation status of a listed migratory species, cetacean or listed marine species or a population of any of those species. DEWHA also considers that under the management plan operators are required to take all reasonable steps to avoid the killing or injuring of protected species, and the level of interaction under current fishing operations is low.

For these reasons, the management plan as defined under the regulations in force under the *Fisheries Management Act 2007 (SA)*, the *Fisheries Management (General) Regulations 2007*, and the *Fisheries Management (Marine Scalefish Fisheries) Regulations 2006*, was accredited under Part 13 of the EPBC Act in November 2007. There have been no significant changes to the management arrangements since the last assessment of the fishery and the level of reported interactions with protected species in the fishery remains low as such DEWHA considers that the fishery should be reaccredited under Part 13.

Conditions and Recommendations are provided below with a brief explanation of the related issue/intent. Unless a specific time frame is provided in the recommendation each recommendation must be addressed within the life of the declaration (5 years)

**Table 4: South Australian Sardine Fishery (SASF) Assessment– Summary of Issues, Conditions and Recommendations October 2009**

	<b>Issue</b>	<b>Recommendations/ Conditions</b>
1.	<p><u>General Management</u>                      Export decisions relate to the arrangements in force at the time of the decision. In order to ensure that these decisions remain valid and export approval continues uninterrupted, the Department of the Environment, Water, Heritage and the Arts (DEWHA) 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, protected species or the ecosystem.</p>	<p><b>Recommendation 1</b>                      Operation of the fishery will be carried out in accordance with the <i>Management Plan for South Australian Pilchard Fishery 2005</i> in force under the <i>South Australian Fisheries Management Act (2007)</i>, the <i>Fisheries Management (General) Regulations 2007</i>, and the <i>Fisheries Management (Marine Scalefish Fisheries) Regulations 2006</i>.</p> <p><b>Recommendation 2</b>                      The Department of Primary Industries and Resources, South Australia (PIRSA) to advise DEWHA of any material change to the SASF's management arrangements, including to the Code of Practice for Mitigation of Interactions of the South Australian Sardine Fishery with Threatened, Endangered and Protected Species, that may affect the assessment of the fishery against the criteria on which EPBC decisions are based, within three months of that change being made.</p>

2.	<p><b>Annual Reporting</b></p> <p>It is important that reports be produced and presented to DEWHA annually in order for the performance of 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.</p> <p>Annual reports should 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 protected species; impacts of the fishery on the ecosystem in which it operates; and information outlining progress in implementing conditions and recommendations resulting from the previous accreditation of the fishery (for a complete description of annual reporting requirements, see Appendix B of the Guidelines available from the DEWHA website at <a href="http://www.environment.gov.au/coasts/fisheries/publications/guidelines.html">http://www.environment.gov.au/coasts/fisheries/publications/guidelines.html</a>).</p> <p>DEWHA acknowledges and commends the efforts being made by industry and the South Australian Sardine Industry Association in developing and reviewing the code of practice for mitigation of interactions with protected species. As such, DEWHA recommends that PIRSA includes any changes to the code of practice to the annual reporting for the SASF.</p> <p>As there are many research projects being undertaken for this fishery in relation to potential environmental impacts, target, byproduct, bycatch species and interactions with protected species, DEWHA also sees value in being kept informed of research priorities and outcomes for the SASF through the annual reporting for the SASF.</p>	<p><b>Recommendation 3</b></p> <p>PIRSA to produce and present reports to DEWHA annually as per Appendix B to the Guidelines for the Ecologically Sustainable Management of Fisheries 2nd Edition.</p>
3.	<p><b>Protected Species</b></p> <p>A research project undertaken in 2004/05 by SARDI revealed high rates of encirclement (1.78 per net set) and mortality (0.39 per net set) of common dolphins (<i>Delphinus delphis</i>), and in 2005 the SA Government closed the fishery because of this. The fishery was reopened two months later, after a Code of Practice (CoP) had been developed and implemented and observer coverage in the fishery was increased.</p> <p>The CoP is reviewed on a regular basis and the rates of encirclement and mortality have reduced significantly as mitigation methods have been refined. Between July 2008 and</p>	<p><b>Part 13 Condition</b></p> <p>PIRSA to:</p> <ol style="list-style-type: none"> <li>a. ensure that SASF participants adopt appropriate measures to mitigate interactions with common dolphins (<i>Delphinus delphis</i>);</li> <li>b. continue to investigate, develop and implement measures that seek to reduce the level of interactions between SASF and</li> </ol>

	<p>March 2009 the encirclement rate recorded by observers showed that the encirclement rate was down to 0.3043 per net set and the mortality rate 0.0215 per net set. There continues to be under reporting of dolphin interactions and particularly mortalities in logbooks filled out when no observer is present.</p> <p>In their 2009 Submission PIRSA identified that while dolphin interactions had been identified as significant and thus mitigated appropriately, other protected species interactions are still considered to have low impact and resulted in one mortality. Observers collect data on interactions with all protected species.</p> <p>While it is noted that logbook reporting of interactions with protected species in the SASF has been improving in recent years there is still a significant discrepancy.</p> <p>The protected species guide provided by PIRSA in the Wildlife Interaction Identification and Logbook and the Protected Marine Species Identification Guide (National Heritage Trust) are used by all vessels in the fishery and provide fishers with a good resource for identifying animals with which they might interact.</p> <p>However, neither provides help in identifying whales or dolphins to a species level. DEHWA recommends that PIRSA rectifies this through updating the Wildlife Interaction Identification and Logbook to include species specific identification of the dolphin and whale species found in the area. However, DEHWA notes that all observers are trained in the identification of TEPS.</p>	<p>common dolphins; and</p> <p>c. continue to monitor the level of interactions with all protected species in the SASF.</p> <p><b>Recommendation 4</b> PIRSA to:</p> <p>a) review common dolphin interactions quarterly and provide annual reports to DEHWA; and</p> <p>b) Should new information determine that the fishery is having an increasing amount of interactions with protected species, PIRSA to develop appropriate measures to mitigate those interactions. Measures should be implemented within 12 months of the information becoming available.</p> <p><b>Recommendation 5</b> PIRSA to revise the current format of Wildlife Interaction Identification and Logbook to include species specific identification of the dolphin and whale species that occur within the SASF.</p>
4.	<p><u>Ecosystem Impacts</u></p> <p>Management of the SASF focuses on ensuring that Australian Sardines are exploited in a sustainable manner and that sardine stocks are maintained at a level that provides for all ecosystem functions. PIRSA has advised that in December 2009, the South Australian Research and Development Institute (SARDI) will complete the project</p>	<p><b>Recommendation 6</b> PIRSA to conduct an assessment of the risks to target species, byproduct, bycatch (including protected species) and the marine environment resulting from activities in the SASF. PIRSA to</p>

<p>‘Establishing ecosystem-based management for the South Australian Sardine Fishery: developing ecological performance indicators and reference points to assess the need for ecological allocations’ which began in 2005. This report will considerably improve knowledge of the ecosystem impacts the fishery is having.</p> <p>A key component in PIRSA’s move towards ecosystem-based management of the SASF will be the undertaking of a comprehensive ecological risk assessment. PIRSA states that an ecological risk assessment is planned as part of the implementation of the SASF management plan, in accordance with the ‘National Ecological Sustainable Development Reporting Framework for Australian Fisheries’ to identify the environmental impacts of fishing.</p> <p>The comprehensive assessment should identify and review the risk levels for all components of the fishery and provide for appropriate consultation with relevant stakeholders (including recreational, indigenous, conservation and community groups). PIRSA should then develop and implement appropriate measures to address and mitigate identified risks and maintain precautionary management principles to ensure the ongoing ecological sustainability of the fishery.</p> <p>DEWHA recommends that PIRSA commit to conducting a comprehensive review of the fishery’s risk levels every three to five years and ensure the review outcomes are addressed in the management arrangements for the fishery, where appropriate.</p>	<p>then implement measures to ensure that risks identified through this process are addressed and minimised as appropriate.</p>
<p>5. <u>Control Rules and Performance measures</u></p> <p>PIRSA has implemented a very precautionary harvest strategy in the SASF with the total allowable commercial catch (TACC) a conservative 10-20% of the Spawning Biomass (SB).</p> <p>The current management plan allows for 30 000 t of Australian Sardines to be caught in the fishery, which equates to between 10-20% of the SB (&gt;150, 000 t - &lt; 300, 000 t). The decision rules state that should the SB fall below 120, 000 t the TACC should be reduced to 15% of the SB.</p> <p>In 1995 a mass mortality event killed 75% of the adult stock of Australian Sardines. In 1998/99 a second mass mortality event killed 70% of adult stock. In 1999 the estimated</p>	<p><b>Recommendation 7</b></p> <p>PIRSA to</p> <p>a) determine a reference point beyond which a recovery strategy would need to be developed to ensure long term sustainability of the SASF; and</p> <p>b) within three months of becoming aware of a breach of a limit reference point, PIRSA to finalise a clear timeframe for the</p>

	<p>SB was just 36 000 t (Australian Sardine (<i>Sardinops Sagax</i>) Fishery Assessment Report for PIRSA, 2008).</p> <p>Given the history of stock crashes in the fishery, DEWHA considers that the management arrangements for the fishery should include a control rule which ensures that a recovery strategy is developed and implemented in the event that the spawning biomass was to fall to an unsustainable level.</p> <p>The management plan for the SASF contains a series of limit reference points in relation to sustainable harvest of resources, minimising adverse impacts of fishing operations in the ecosystem, optimal utilisation of the resource. DEWHA commends SASF in the development of these reference points. The clear articulation of the management response to a breach of one of these reference points and the timeframe for the response are an important component of a plan of management. DEWHA recommends that in the event of a breach of these reference points, that PIRSA should finalise a clear timeframe for the implementation of appropriate management responses.</p>	<p>implementation of an appropriate management response.</p>
6.	<p><b>Collaborative management</b></p> <p>PIRSA reports that it has been collaborating with other relevant jurisdictions as required. DEWHA encourages continued cooperation which enables complementary management and research strategies and enhances cross jurisdictional studies such as the project that has recently received funding ‘Movement patterns and stock structure of Australian sardine (<i>Sardinops sagax</i>) off South Australia and the East Coast: implications for future stock assessment and management’.</p> <p>Other jurisdictions catching Australian Sardines include: the West Australian (WA) West Coast Purse Seine Managed Fishery; the WA South Coast Purse Seine Managed Fishery; and the Commonwealth Small Pelagic Fishery. As such, DEWHA considers it important that PIRSA continues to cooperate with relevant jurisdictions to pursue complementary management and research and ensure that the management arrangements for the fishery. PIRSA is the State Observer on the Small Pelagic Fishery MAC.</p>	<p><b>Recommendation 8</b></p> <p>PIRSA to continue to cooperate with relevant jurisdictions to pursue complementary research and ensure that the management arrangements for the fishery continue to take into account the results of research conducted.</p>

## References

### Acronyms

CDR	Catch Disposal Record
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CoP	Code of Practice
DEH	Department of Environment and Heritage
DEWHA	Department of Environment Water Heritage and the Arts
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERA	Ecological Risk Assessment
ERM	Ecological Risk Management
FRDC	Fisheries Research and Development Corporation
ITQ	Individual Transferable Quota
m	Metres
PIRSA	Primary Industries and Resources South Australia
SA	South Australia
SARDI	South Australian Research and Development Institute
SASF	South Australian Sardine Fishery
SASIA	South Australian Sardine Industry Association
t	Tonnes
TACC	Total Allowable Commercial Catch
TEPS	Threatened Endangered and Protected Species
WA	Western Australia
WTO	Wildlife Trade Operation