



Australian Government

Department of the Environment and Energy

Assessment of the
**SOUTH AUSTRALIAN
SARDINE FISHERY**

August 2016

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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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TABLE 1: SUMMARY OF THE SOUTH AUSTRALIAN (SA) SARDINE FISHERY

Key documents relevant to the fishery	<ul style="list-style-type: none">▪ SA <i>Fisheries Management Act 2007</i>▪ SA Fisheries Management (General) Regulations 2007▪ SA Fisheries Management (Marine Scalefish Fisheries) Regulations 2006▪ <u>Management Plan for the SA Commercial Marine Scalefish Fishery, PART B – Management arrangements for the taking of sardines</u> (PIRSA 2014)▪ <u>SA Sardine (<i>Sardinops sagax</i>) Fishery: Stock Assessment Report 2015</u> (Ward et al. 2015a)▪ <u>Code of Practice for mitigating of interactions of the SA Sardine Fishery with wildlife – 2015</u> (SA Sardine Industry Association)▪ <u>Effectiveness of the industry Code of Practice in mitigating operational interactions of the SA Sardine Fishery with the short-beaked common dolphin (<i>Delphinus delphis</i>)</u> (Ward et al. 2015b)▪ <u>Operational Interactions with Threatened, Endangered or Protected Species in SA Managed Fisheries – Data Summary: 2007/08 - 2013/14</u> (McLeay et al 2015)▪ <u>Ecological Assessment of the SA Sardine (<i>Sardinops sagax</i>) Fishery – Reassessment Report August 2014</u>▪ <u>Marine Bioregional Plan for the South-west Marine Region 2012</u>
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<p>Area</p>	<p>The SA Sardine Fishery operates in both state and Commonwealth waters, including all the waters adjacent to South Australia to the edge of the 200 nautical mile Australian Fishing Zone (Figure 1). For management purposes, the fishery is composed of two zones, the Gulfs Zone (within the Spencer Gulf and the Gulf of St Vincent) and the Outside Zone (the remainder of the fishery outside the gulfs). The operation of this fishery occurs within the South-west and South-east Marine Regions.</p> <p>Figure 1. Management boundaries of the SA Sardine Fishery (Source: ESD risk assessment of South Australia's Sardine Fishery, PIRSA).</p> 
<p>Target species</p>	<p>The primary target species is Australian sardine (<i>Sardinops sagax</i>). For the purposes of fisheries management, there are four separate biological stocks in Australia, including a single biological stock occurring off South Australia and western Victoria. This is the only stock fished by the SA Sardine Fishery.</p> <p>Take of Australian anchovy (<i>Engraulis australis</i>) is also permitted, however there has been no recorded catch of anchovies in recent years.</p>
<p>Fishery status</p>	<p>The primary performance indicator for this fishery is the estimate of spawning biomass obtained from undertaking a daily egg production method (DEPM) survey. Estimates of spawning biomass between 2003 and 2014 ranged between 152 000–263 000 tonnes (t). In 2014 the estimate of spawning biomass was 244 000 t and the target reference point for the fishery was 150 000 t (Ward et al. 2015b).</p> <p>Catches have ranged between ~30 000–34 000 t annually since 2007, therefore annual exploitation rates are unlikely to cause the stock to become recruitment overfished and there are no resource concerns for Australian sardines in SA. The SA Sardine Fishery is classified by the SA Research and Development Institute (Ward et al. 2015b) and the Status of Australian Fish Stocks (Ward et al. 2014) as sustainable.</p>

Byproduct species	<p>There are no provisions under the SA Sardine Fishery's license conditions to retain any species other than the target species (Australian sardines and Australian anchovies), therefore there are no byproduct species.</p> <p>Due to the specificity of the fishing method, the target species comprise more than 98% of the landed catch. This is consistent with an international review that found purse seine fishing for small pelagic fishes generally has very low to negligible discard rates (Kelleher 2005).</p>
Gear	<p>Sardines are caught with large purse seine nets of up to 1000 metres (m) in length. Most fishing activity occurs at night, with schools of sardines generally located by sonar. Nets are deployed around a school, then pursed and drawn into a smaller area adjacent to the vessel. The catch is removed from the net with a pump and transferred into the hold of the vessel.</p>
Season	<p>For management purposes, the fishing season commences on 1 January each year, however the fishery is open year round. Fishing effort and catches usually peak in the period from March to June (Ward et al. 2015a)</p>
Commercial harvest	<p>Since 2005, catch has been stable at around 28 000 – 34 000 tonnes (t) of sardines annually (PIRSA 2014).</p>
Value of commercial harvest	<p>The value of harvest in 2011/12 was \$20.7 million (PIRSA 2014).</p>
Take by other sectors	<p>Recreational and Indigenous harvest of the southern Australian stock of sardines is negligible. The majority of commercial harvest of this stock is taken by the SA Sardine Fishery, with much smaller catches in Port Phillip Bay in Victoria (Ward et al. 2014).</p>
Commercial licences issued	<p>There were 14 licences issued in the 2014 fishing season.</p>
Management arrangements	<p>The SA Sardine Fishery is managed under the SA <i>Fisheries Management Act 2007</i>, the SA Fisheries Management (General) Regulations 2007 and the SA Fisheries Management (Marine Scalefish Fisheries) Regulations 2006.</p> <p>Management arrangements are articulated in the <i>South Australian Commercial Marine Scalefish Fishery, PART B – Management arrangements for the taking of sardines</i> (PIRSA 2014), which includes the harvest strategy for the fishery. These management measures include:</p> <p><u>Input controls</u></p> <ul style="list-style-type: none"> ▪ Maximum of two vessels per licence ▪ Maximum of two nets per licence ▪ Regulated dimensions for nets ▪ Limited entry ▪ Closed areas enforced by Vessel Monitoring Systems

	<p><u>Output controls</u></p> <ul style="list-style-type: none"> ▪ Total Allowable Commercial Catch (TACC) and Individual Transferable Quota (ITQ) system, informed by harvest strategy ▪ Catch Disposal Records submitted upon landing on a per trip basis ▪ Daily logbook catch and effort data submitted monthly <p>Parts of the fishery operate within the Commonwealth Marine Reserve network of the South-east and the South-west Marine Regions.</p>
Export	The majority of product is sold locally, as fodder for tuna farms.
Bycatch	Due to the high specificity of the fishing method bycatch is minimal, with the target species comprising over 98% of landed catch.
Interaction with Protected Species¹	<p>An independent research program in 2004-05 found high interaction rates between the SA Sardine Fishery and short-beaked common dolphins (<i>Delphinus delphis</i>). In response to this discovery, the SA Sardine Industry Association implemented a <i>Code of Practice for mitigating the interactions of the South Australian Sardine Fishery with wildlife</i> (the CoP) to mitigate against interactions with all protected wildlife (including sharks and seals), but with a special focus on common dolphins. PIRSA continued with its independent observer program and commenced compliance monitoring of fishers' adherence to the CoP. The effectiveness of the CoP has been reviewed by independent scientists and publically reported on annually since 2007 (Ward et al. 2015a).</p> <p>The CoP has been refined since its inception and appears to have significantly reduced interaction rates. In the 2014-15 fishing season, encirclement rates recorded by independent observers and in industry logbooks were ~8 per 100 net sets, a reduction of 87% since the introduction of the CoP. The CoP has also been a useful mechanism for identifying the most effective measures for safely releasing dolphins that are not observed until after the net is deployed, through quarterly meetings of stakeholders to review interaction reports.</p> <p>However, despite these encouraging improvements, there have been ongoing discrepancies in catch and effort data that correlate to the times when observers are onboard (Ward et al 2015) and some differences in the rate of dolphin mortalities reported by observers compared to those reported in logbooks. While overt and covert surveillance undertaken by PIRSA indicates fishers are complying with the CoP when observers are not on board, further investigation is required to ensure the total mortality of short-beaked common dolphins in the fishery is accurately understood.</p>

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

<p>Ecosystem Impacts</p>	<p>While the SA Sardine Fishery operates within both the South-east and South-west Marine Regions, the majority of fishing effort occurs in the Spencer Gulf Shelf Province (Provincial Bioregion 33) in the South-west Marine Region.</p> <p>The Marine bioregional plan for the South-west Marine Region 2012 has identified that there are three key ecological features present in this area of the fishery. These are ancient coastline at 90-120 m depth, upwellings around the Eyre Peninsula and aggregations of small pelagic fish.</p> <p>Due to the low impact harvesting method used in the fishery (purse seining), impacts to the physical ecosystem such as the ancient coastline, are negligible. Fishing activity is closely linked to the remaining relevant key ecological features of regional upwellings and small pelagic fish aggregations, however impacts on the food web are unlikely given that take of the target species is limited to ecologically sustainable levels, as prescribed in the fishery's management plan. Incidental impacts of the fishery bycatch species are minimised through specific industry practices to avoid these species, such as through the <i>Code of Practice for mitigating of interactions of the SA Sardine Fishery with wildlife</i> (SASIA 2015).</p>
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Table 2: Progress in implementation of conditions and recommendations made in 2009 assessment of the South Australian (SA) Sardine Fishery

Part 13 Condition	Progress	Recommended Action
<p>PIRSA to:</p> <p>a) ensure that SASF participants adopt appropriate measures to mitigate interactions with common dolphins (<i>Delphinus delphis</i>)</p> <p>b) continue to investigate, develop and implement measures that seek to reduce the level of interactions between the SASF and common dolphins, and</p> <p>c) continue to monitor the level of interactions with all protected species in the SASF.</p>	<p>The SA Sardine Industry Association first developed and implemented an industry <i>Code of Practice for mitigating the interactions of the South Australian Sardine Fishery with wildlife</i> (the CoP) in 2005.</p> <p>This CoP was reviewed and refined in 2008 and 2015. The 2015 CoP describes the most effective measures currently known for avoiding and mitigating interactions with common dolphins and contains real-time review protocols for continuous improvement of mitigation measures.</p> <p>PIRSA continues to monitor the levels of interactions quarterly through a fishery-specific TEPS Working Group. This group monitors the level of interactions and differences between the interaction rates reported by fishers in logbook and those reported by independent observers, while also reviewing international standards for mitigation of interactions with marine mammals.</p>	<p>The Department of the Environment and Energy considers that this condition has been met.</p> <p>The Department considers that a new Part 13 accreditation for the SA Sardine Fishery specify a similar condition (see Table 4).</p>

Recommendation	Progress	Recommended Action
<p>1. 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 South Australian <i>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>Operation of the fishery has been carried out in accordance with fishery-specific management plans in force under the <i>SA Fisheries Management Act (2007)</i> and relevant SA fisheries regulations.</p> <p>In 2014, the <i>Management Plan for South Australian Pilchard Fishery 2005</i> was replaced by the <i>South Australian Commercial Marine Scalefish Fishery – Part B – management arrangements for the taking of sardines</i>.</p>	<p>The Department of the Environment and Energy considers that this recommendation has been met.</p> <p>The Department recommends that this action be continued (see Recommendation 1, Table 4).</p>
<p>2. 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>	<p>PIRSA consulted with the Department of the Environment and Energy in the development and implementation of the fishery’s new management plan in 2014, when the <i>Management Plan for South Australian Pilchard Fishery 2005</i> was replaced by the <i>South Australian Commercial Marine Scalefish Fishery – Part B – management arrangements for the taking of sardines</i>.</p> <p>PIRSA has also provided annual reports on interactions with protected species in the fishery and advised the Department when the <i>Code of Practice for mitigating the interactions of the South Australian Sardine Fishery with wildlife</i> was updated in 2015.</p>	<p>The Department of the Environment and Energy considers that this recommendation has been met.</p> <p>The Department recommends that this action be continued (see Recommendation 2, Table 4).</p>

Recommendation	Progress	Recommended Action
<p>3. PIRSA to produce and present reports to DEWHA annually as per Appendix B to the <i>Guidelines for the Ecologically Sustainable Management of Fisheries 2nd Edition</i>.</p>	<p>PIRSA has provided annual reports to the Department since 2005. These reports have been of high quality and consistent with the requirements of the <i>Guidelines for the Ecologically Sustainable Management of Fisheries 2nd Edition</i>.</p>	<p>The Department of the Environment and Energy considers that this recommendation has been met.</p> <p>The Department recommends that this action be continued (see Recommendation 3, Table 4).</p>
<p>4. PIRSA to:</p> <p>a) review common dolphin interactions quarterly and provide annual reports to DEWHA, 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>The SA Sardine Industry Association convenes a Threatened, Endangered and Protected Species (TEPS) Working Group, which meets quarterly to monitor and report to PIRSA on the interactions with TEPS. The working group includes representatives from industry, relevant SA government agencies and scientists.</p> <p>TEPS interactions are reviewed with consideration to international standards for mitigating interactions with marine mammals. As new information becomes available, the working group recommends refinements to existing practises as required.</p> <p>An annual published report on interactions of the fishery with short-beaked common dolphins and the effectiveness of the industry CoP to mitigate these interactions is prepared by the SA Research and Development Institute (SARDI). The rates of recorded interactions have steadily declined since the implementation of the CoP in 2005.</p>	<p>The Department of the Environment and Energy considers that this recommendation has been met.</p>

Recommendation	Progress	Recommended Action
<p>5. 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>	<p>The <i>Wildlife Interaction Identification and Logbook</i> is used by all SA fisheries and provides a useful guide for identifying most taxa SA vessels may encounter. The guidance in this resource is insufficient to determine between dolphin and whale species, so PIRSA has provided additional resources (the Australian Fisheries Management Authority's Species Identification Guide) to fishers in the SA Sardine Fishery to improve species specific identification of cetaceans. In addition, ongoing education and awareness of the importance of species specific reporting within the fishery is a focus of the SA Sardine Industry Association and the fishery-specific TEPS Working Group.</p>	<p>The Department of the Environment and Energy considers that this recommendation has been met.</p>

Recommendation	Progress	Recommended Action
<p>6. 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 then implement measures to ensure that risks identified through this process are addressed and minimised as appropriate.</p>	<p>An ecological risk assessment was conducted in 2013 that considered the SA Sardine Fishery's impact on target, byproduct, bycatch and protected species. Risks to all species (retained and non-retained) ranged between negligible to medium. Risks to the ecosystem, including trophic structure and habitat disturbance, were all low. Risks to the broader environment were all low except for brine discharge, which was rated high.</p> <p>Measures to address these risks have been addressed through the SA Sardine Fishery's revised management plan (2015), and through complementary measures undertaken by industry through the <i>Code of Practice for mitigating the interactions of the South Australian Sardine Fishery with wildlife – 2015</i>.</p>	<p>The Department of the Environment and Energy considers that this recommendation has been met.</p>
<p>7. 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 implementation of an appropriate management response.</p>	<p>A new management plan was adopted for the SA Sardine Fishery in November 2014, including a harvest strategy with a structured decision-making framework to ensure the ecologically sustainable development objectives of the SA <i>Fisheries Management Act 2007</i> are achieved. The harvest strategy requires annual reviews of sardine spawning biomass, DEPM surveys and mean sardine size to determine yearly TACCs.</p> <p>The harvest strategy further prescribes a limit reference point of 75 000 t. If spawning biomass is determined to fall below this level this fishery will be closed to sardine fishing.</p>	<p>The Department of the Environment and Energy considers that this recommendation has been met.</p>

Recommendation	Progress	Recommended Action
<p>8. 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>	<p>All reports produced about the SA Sardine Fishery are made available to fishery management agencies in other jurisdictions and most reports are made publically available on the PIRSA or SARDI websites. Open communication is maintained between the AFMA South East Management Advisory Committee, responsible for the Small Pelagic Fishery. PIRSA fishery scientists collaborate with colleagues from relevant jurisdictions to produce a national assessment of sardine stocks every two years through the <i>Status of Australian Fish Stocks</i> reports (Ward et al 2014).</p>	<p>The Department of the Environment and Energy considers that this recommendation has been met.</p>

Table 3: The Department of the Environment and Energy’s assessment of the South Australian (SA) Sardine Fishery against the requirements of the EPBC Act related to decisions made under Part 13 and Part 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 Part 13 and Part 13A. A complete version of the EPBC Act can be found at <http://www.comlaw.gov.au/>.

Part 13

Division 1 Listed threatened species	The Department’s assessment of the SA Sardine Fishery
Section 208A Minister may accredit plans or regimes	
<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>i. made by a State or self-governing Territory; and</p> <p>ii. in force under a law of the State or self-governing Territory;</p> <p>if satisfied 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 SA Sardine Fishery will be managed under the <i>South Australian Commercial Marine Scalefish Fishery – Part B – management arrangements for the taking of sardines</i>, in force under the <i>South Australian Fisheries Management Act 2007</i>.</p> <p>The management regime for the SA Sardine Fishery was most recently accredited in November 2009. The <i>SA Fisheries Management Act 2007</i>, which stipulates that taking, injuring, damaging or otherwise harming a protected species is an offence, has not significantly changed since this accreditation was granted. However, the fishery’s management plan has been updated since the last accreditation was granted, consequently, a new Part 13 declaration is now needed.</p> <p>White sharks are the only listed threatened species recorded to interact with this fishery since the last assessment. Over this time, there have been one to three interactions recorded annually, where most interactions involve white sharks biting nets from the outside. Given that all of these white sharks were released alive, in accordance with requirements of the <i>SA Fisheries Management Act 2007</i>, the current operation of the fishery is not likely to adversely affect the survival or recovery in nature of any listed threatened species.</p>

Part 13 (cont.)

<p>Division 2 Migratory species</p> <p>Section 222A Minister may accredit plans or regimes</p>	<p>The Department's assessment of the SA Sardine Fishery</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> <ul style="list-style-type: none"> i. made by a State or self-governing Territory; and ii. in force under a law of the State or self-governing Territory; <p>if satisfied 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 SA Sardine Fishery will be managed under the <i>South Australian Commercial Marine Scalefish Fishery – Part B – management arrangements for the taking of sardines</i>, in force under the <i>South Australian Fisheries Management Act 2007</i>.</p> <p>The management regime for the SA Sardine Fishery was most recently accredited in November 2009. The <i>SA Fisheries Management Act 2007</i>, which stipulates that taking, injuring, damaging or otherwise harming a protected species is an offence, has not significantly changed since this accreditation was granted. However, the fishery's management plan has been updated since the last accreditation was granted, consequently, a new Part 13 declaration is now needed.</p> <p>White sharks are the only listed migratory species recorded to interact with this fishery since the last assessment. Over this time, there have been one to three interactions recorded annually, where most interactions involve white sharks biting nets from the outside. Given that all of these white sharks were released alive, according to the requirements of the <i>SA Fisheries Management Act 2007</i>, the Department considers the current operation of the SA Sardine Fishery is not likely to adversely affect the conservation status of a listed migratory species or a population of that species.</p>

Part 13 (cont.)

<p>Division 3 Whales and other cetaceans</p> <p>Section 245 Minister may accredit plans or regimes</p>	<p>The Department's assessment of the SA Sardine Fishery</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> <ul style="list-style-type: none"> i. made by a State or self-governing Territory; and ii. in force under a law of the State or self-governing Territory; <p>if satisfied 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 SA Sardine Fishery will be managed under the <i>South Australian Commercial Marine Scalefish Fishery – Part B – management arrangements for the taking of sardines</i>, in force under the <i>South Australian Fisheries Management Act 2007</i>.</p> <p>The management regime for the SA Sardine Fishery was most recently accredited in November 2009. The <i>SA Fisheries Management Act 2007</i>, which stipulates that taking, injuring, damaging or otherwise harming a protected species is an offence, has not significantly changed since this accreditation was granted. However, the fishery's management plan has been updated since the last accreditation was granted, consequently, a new Part 13 declaration is now needed.</p> <p>Management measures to protect cetacean species are continually being refined. Current measures are listed in Tables 1, 2 and 4 and include the <i>Code of Practice for mitigating the interactions of the South Australian Sardine Fishery with wildlife – 2015</i>, which focuses on active avoidance of encirclement of common short-beaked dolphins, and adopting the most successful release procedures for dolphin inadvertently captured. Subject to these measures remaining in place and being adhered to by all fishers, as required by the new Part 13 condition at Table 4, the Department considers that 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>

Part 13 (cont.)

<p>Division 4 Listed marine species</p> <p>Section 265 Minister may accredit plans or regimes</p>	<p>The Department's assessment of the SA Sardine Fishery</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> <ul style="list-style-type: none"> i. made by a State or self-governing Territory; and ii. in force under a law of the State or self-governing Territory; <p>if satisfied 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 SA Sardine Fishery will be managed under the <i>South Australian Commercial Marine Scalefish Fishery – Part B – management arrangements for the taking of sardines</i>, in force under the <i>South Australian Fisheries Management Act 2007</i>.</p> <p>The management regime for the SA Sardine Fishery was most recently accredited in November 2009. The <i>SA Fisheries Management Act 2007</i>, which stipulates that taking, injuring, damaging or otherwise harming a protected species is an offence, has not significantly changed since this accreditation was granted. However, the fishery's management plan has been updated since the last accreditation was granted, consequently, a new Part 13 declaration is now needed.</p> <p>Low numbers of seals (unidentified species) are the only listed marine species recorded to interact with this fishery since the last assessment. Over this time, there have been 0-14 interactions recorded annually. All of these seals were released alive, according to the requirements of the <i>SA Fisheries Management Act 2007</i>. Therefore, the Department considers the current operation of the SA Sardine Fishery is not likely to adversely affect the conservation status of a listed marine species or a population of that species.</p>

Part 13 (cont.)

<p>Section 303AA Conditions relating to accreditation of plans, regimes and policies</p>	<p>The Department's assessment of the SA Sardine Fishery</p>
<p>(1) This section applies to an accreditation of a plan, regime or policy under section 208A, 222A, 245 or 265.</p>	<p>The Department recommends that the management regime for the SA Sardine Fishery be accredited under sections 208A, 222A, 245 and 265.</p>
<p>(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:</p> <ul style="list-style-type: none"> (a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with. <p>In such a case, the instrument of accreditation is to specify the period, circumstances or condition.</p>	<p>To satisfy the requirements of section 245 we recommend that the SA Sardine Fishery be accredited under Part 13 subject to a condition that requires PIRSA to:</p> <ul style="list-style-type: none"> a) Ensure all SA Sardine Fishery participants adopt the most effective measures to mitigate interactions with dolphins. b) Ensure observer coverage captures seasonal and spatial variation in fishing activity across the fleet. c) Investigate and resolve uncertainties around differences in sardine catch-per-unit-effort (CPUE) when observers are present and when observers are not present, to improve reliability of observer data.
<p>(7) The Minister must, in writing, revoke an accreditation if he or she is satisfied that a condition of the accreditation has been contravened.</p>	

Part 13A

Section 303BA Objects of Part 13A

(1) The objects of this Part are as follows:

- (a) to ensure that Australia complies with its obligations under CITES² 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.

² Convention on International Trade in Endangered Species of Wild Fauna and Flora

Part 13A

Section 303DC Minister may amend list	The Department's assessment of the SA Sardine Fishery
<p>(1) Minister may, by instrument published in the Gazette, amend the list referred to in section 303DB (list of exempt native specimens) by:</p> <ul style="list-style-type: none"> (a) including items in the list; (b) deleting items from the list; or (c) imposing a condition or restriction to which the inclusion of a specimen in the list is subject; or (d) varying or revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or (e) correcting an inaccuracy or updating the name of a species. 	<p>The Department considers that product derived from the SA Sardine Fishery, other than specimens that belong to species listed under Part 13 of the EPBC Act, are eligible for inclusion in the list of exempt native specimens until 20 August 2021.</p>
<p>(1A) In deciding whether to amend the list referred to in section 303DB (list of exempt native specimens) to include a specimen derived from a commercial fishery, the Minister must rely primarily on the outcomes of any assessment in relation to the fishery carried out for the purposes of Division 1 or 2 of Part 10.</p>	<p>No assessment of the SA Sardine Fishery has been carried out under Part 10 of the EPBC Act.</p>
<p>(1C) The above does not limit the matters that may be taken into account in deciding whether to amend the list referred to in section 303DB (list of exempt native specimens) to include a specimen derived from a commercial fishery.</p>	<p>It is not possible to list exhaustively the factors that you may take into account in amending the list of exempt native specimens. The objects of Part 13A, which are set out above this table, provide general guidance in determining factors that might be taken into account. A matter that is relevant to determining whether an amendment to the list is consistent with those objects is likely to be a relevant factor.</p> <p>The Department considers that the amendment of the list of exempt native specimens to include product taken in the SA Sardine Fishery until 20 August 2021 would be consistent with the provisions of Part 13A (listed above) as:</p>

	<ul style="list-style-type: none"> ▪ the fishery will not harvest any Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listed species ▪ there are management arrangements in place to ensure that the resource is being managed in an ecologically sustainable way (see Table 1) ▪ the operation of the SA Sardine Fishery is unlikely to be unsustainable and threaten biodiversity within the next 5 years, and ▪ the Environment Protection and Biodiversity Conservation Regulations 2000 do not specify fish as a class of animal in relation to the welfare of live specimens.
<p>(3) Before amending the list referred to in section 303DB (list of exempt native specimens), the Minister:</p> <ul style="list-style-type: none"> (a) must consult such other Minister or Ministers as the Minister considers appropriate; and (b) must consult such other Minister or Ministers of each State and self-governing Territory as the Minister considers appropriate; and (c) may consult such other persons and organisations as the Minister considers appropriate. 	<p>The Department considers that the consultation requirements have been met.</p> <p>The application from PIRSA was released for public comment from 1 October 2014 to 3 November 2014. The public comment notice sought comment on:</p> <ul style="list-style-type: none"> ▪ the proposal to amend the list of exempt native specimens to include product derived from the SA Sardine Fishery, and ▪ the PIRSA application for the SA Sardine Fishery. <p>One comment was received during this statutory public comment period and was considered by the Department. The comment expressed concerns about the SA Sardine Fishery's ongoing interaction with cetaceans, specifically:</p> <ul style="list-style-type: none"> ▪ a history of under-reporting dolphin interactions in the fishery ▪ limitations with the independent monitoring program ▪ the potential impact of cryptic mortalities, e.g. through unseen separation of dolphin calves from their mothers ▪ cumulative impact of the SA Sardine Fishery and other fisheries that potentially impact the same cetacean populations.
<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 SA Sardine Fishery made under section 303DC will be gazetted and made available on the Department's website.</p>

Part 16

Section 391 Minister must consider precautionary principle in making decisions	The Department's assessment of the SA Sardine Fishery
<p>(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.</p>	<p>Recognising the risks and uncertainties associated with the operations of the SA Sardine Fishery, PIRSA has put in place precautionary management arrangements for the fishery. Vessel and gear restrictions, area closures, limited entry, catch limits informed by regular stock assessments and independent observations of fishing activities provide a means by which damage to the environment can be avoided.</p> <p>Having regard to the precautionary management measures in place in this fishery, and the planned three year duration of the wildlife trade operation accreditation, the Department considers that the precautionary principle has been accounted for in the preparation of advice in relation to a decision under section 303DC.</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>	

Part 12

Section 176 Bioregional Plans	The Department's assessment of the SA Sardine Fishery
<p>(5) Subject to this Act, the Minister must have regard to a bioregional plan in making any decision under this Act to which the plan is relevant.</p>	<p>The Marine bioregional plan for the South-west Marine Region 2012 has been considered in the preparation of advice in relation to decisions under section 303DC. This plan identifies three key ecological features present in the area of the fishery, the ancient coastline at 90-120 m depth, upwellings around the Eyre Peninsula and aggregations of small pelagic fish.</p> <p>Extraction of living resources by commercial fishing has been identified as a pressure operating on the ancient coastline key ecological feature. However these pressures have been identified as being 'of potential concern' only and impacts by the SA Sardine Fishery are likely to be negligible, given purse seining is conducted at the surface and there is no contact of the gear with the benthos.</p> <p>Extraction of living resources and bycatch from commercial fishing has been identified as a pressure operating on the Eyre Peninsula regional upwelling, however these pressures have been identified as being 'of potential concern' only. The plan further notes that this assessment is conservative in the context of active fisheries management, as is undertaken by PIRSA for the SA Sardine Fishery.</p> <p>Pressures from commercial fishing (including bycatch) are identified as being 'of less or no concern' to small pelagic fish aggregations.</p> <p>The Department considers that overall, the impact of the SA Sardine Fishery on the conservation values identified with marine bioregional plans is very low.</p>

The Department of the Environment's final conditions and recommendations to Primary Industries and Regions South Australia (PIRSA) for the South Australian (SA) Sardine Fishery

The material submitted by PIRSA indicates that the SA Sardine Fishery operates in accordance with the Australian Government 'Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition'.

Target stocks

Entry to the fishery is limited, with target and limit reference points clearly articulated in the *South Australian Commercial Marine Scalefish Fishery – Part B – management arrangements for the taking of sardines*. This management plan incorporates a harvest strategy for the fishery, developed and implemented by PIRSA since the last EPBC Act assessment in 2009. The management plan provides a clear decision-making framework that is underpinned by robust scientific assessment of target stock status and consideration of ecological risks associated with fishing activity.

The Department considers that the management measures in place in the SA Sardine Fishery 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 overfished.

Ecosystem Impacts

Taking account of management measures including gear and spatial restrictions, incorporation of an ecological risk assessment into the management plan and comprehensive compliance and monitoring arrangements, the Department further considers that fishing operations are managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.

However, while the fishery is relatively well managed, the Department has identified a number of risks and uncertainties relating to ongoing interactions of the fishery with short-beaked common dolphins that must be managed to ensure that impacts are minimised. The industry-developed the *Code of Practice for mitigating the interactions of the South Australian Sardine Fishery with wildlife – 2015* describes an effective and innovative suite of measures to minimise the impact of the fishery on dolphins, the key challenge for this fishery will be to ensure and demonstrate that all fishers are adopting these measures to mitigate interactions with dolphins at all times.

Given the management measures in place, the Department considers that product taken in the SA Sardine Fishery is eligible for inclusion in the list of exempt native specimens under Part 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) until 20 August 2021. To ensure that the decisions for the SA Sardine Fishery under the EPBC Act continue to be valid, including ongoing accreditation under Part 13 of the EPBC Act for interactions with protected species, the conditions and recommendations listed in Table 4 have been made.

Table 4: South Australian (SA) Sardine Fishery Assessment – Summary of Issues, Conditions and Recommendations, August 2016

Issue	Part 13A Recommendation
<p><u>General Management</u></p> <p>Export decisions relate to the 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 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>Recommendation 1: Operation of the fishery will be carried out in accordance with the management regime under the SA <i>Fisheries Management Act 2007</i>, the Fisheries Management (Marine Scalefish Fisheries) Regulations 2006 and the Fisheries Management (General) Regulations 2007.</p> <p>Recommendation 2: PIRSA to inform the Department of the Environment and Energy of any intended material changes to the SA Sardine Fishery management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p>
<p><u>Annual reporting</u></p> <p>It is important that reports be produced and presented to the Department annually in order for the performance of the fishery and progress in implementing the conditions in this report and other managerial commitments to be monitored and assessed throughout the life of the declaration. Annual reports should follow Appendix B to the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition' 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 [if relevant] and recommendations. Electronic copies of the guidelines are available from the Department's website at http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries</p>	<p>Recommendation 3: PIRSA to produce and present reports to the Department annually as per Appendix B of the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition'.</p>

Issue	Part 13 Condition
<p><u>Interactions with protected species</u></p> <p>An independent research program in 2004-05 found high interaction rates between the SA Sardine Fishery and short-beaked common dolphins (<i>Delphinus delphis</i>). In response to this discovery, industry implemented a Code of Practice (CoP) to mitigate against interactions with common dolphins, while PIRSA continued with its independent observer program. The effectiveness of the CoP has been reviewed by independent scientists and publically reported on annually since 2007 (Ward et al. 2015).</p> <p>The CoP has been refined since its inception and appears to have significantly reduced interaction rates. In the 2014-15 fishing season, encirclement rates recorded by independent observers and in industry logbooks were ~8 per 100 net sets, a reduction of 87% since the introduction of the CoP. The CoP has also been a useful mechanism for identifying the most effective measures for safely releasing dolphins that are not observed until after the net is deployed.</p> <p>However, despite these encouraging improvements, uncertainties remain about fishing behaviour when independent observers are not on board. In the November 2015 review of the effectiveness of the CoP, Ward et al (2015a) note ongoing discrepancies in catch-per-unit-effort (CPUE) data between times when observers were onboard and when observers were not on board. Also, while the rates of dolphin encirclement reported in logbooks were similar in 2014-15 to that reported by observers, the rate of reported dolphin mortalities when observers were not present was less.</p> <p>Overt and covert surveillance of fishing activities undertaken by PIRSA indicate that fishers are complying with the CoP without observers on board. However, despite improvement of reporting rates since the CoP was adopted, the discrepancies in CPUE data raise questions about the total mortality of short-beaked common dolphins in the fishery. To address these issues and uncertainties, the Department considers it important that PIRSA resolves the remaining discrepancies between observer data and logbook data, while ensuring that the observer program is sufficient to allow robust scientific analysis of fisher behaviours.</p>	<p>PIRSA to:</p> <ul style="list-style-type: none"> a) Ensure all SA Sardine Fishery participants adopt the most effective measures to mitigate interactions with dolphins. b) Ensure observer coverage captures seasonal and spatial variation in fishing activity across the fleet. c) Investigate and resolve uncertainties around differences in sardine catch-per-unit-effort (CPUE) when observers are present and when observers are not present, to improve reliability of observer data.

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