



Australian Government

Department of the Environment

Assessment of the

**WESTERN AUSTRALIAN TEMPERATE DEMERSAL
GILLNET AND DEMERSAL LONGLINE FISHERIES**

comprising the

**JOINT AUTHORITY SOUTHERN DEMERSAL GILLNET AND
DEMERSAL LONGLINE MANAGED FISHERY
(JASDGDLF)**

and the

**WEST COAST SOUTHERN DEMERSAL GILLNET AND DEMERSAL
LONGLINE (INTERIM) MANAGED FISHERY
(WCDGDLF)**

August 2015

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This report should be attributed as '*Assessment of the Western Australian Temperate Demersal Gillnet and Demersal Longline Fisheries August 2015*, Commonwealth of Australia 2015'.

Disclaimer

This document is an assessment carried out by the Department of the Environment 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 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 or the Australian Government.

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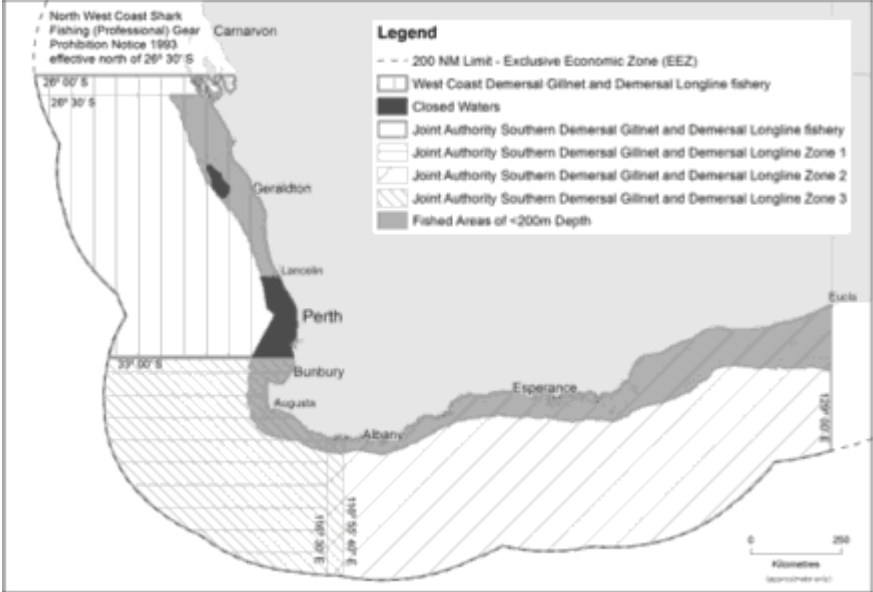
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Table 4 contains a description of the issues identified by the Department with the current management regime for these fisheries and outlines the proposed recommendations that would form part of the delegate’s decision to declare these fisheries an approved wildlife trade operation.

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TABLE 1: SUMMARY OF THE WESTERN AUSTRALIAN TEMPERATE DEMERSAL GILLNET AND DEMERSAL LONGLINE FISHERIES (WA TDGDLFS)

<p>Key documents relevant to these fisheries</p>	<ul style="list-style-type: none"> • <i>WA Fish Resources Management Act 1994</i> • <i>WA Fish Resources Management Regulations 1995</i> • <i>WA Department of Fisheries' 'Application to the Department of the Environment on Western Australia's Temperate Demersal Gillnet and Demersal Longline Fisheries – June 2015'</i> • <i>Status reports of the fisheries and aquatic resources of Western Australia 2013/14</i> • <i>Joint Authority Southern Demersal Gillnet and Demersal Longline Management Plan 1992</i> • <i>West Coast Demersal Gillnet and Demersal Longline (Interim) Management Plan 1999</i> • <i>Marine Bioregional Plan for the South-west Marine Region 2012</i> • <i>Marine Bioregional Plan for the North-west Marine Region 2012</i>
<p>Area</p>	<p>The WA TDGDLFs comprise the Joint Authority Southern Demersal Gillnet and Demersal Longline Fishery (JASDGDLF) and the West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery (WCDGDLF).</p> <p>The JASDGDLF covers state and Commonwealth waters from latitude 33°S to the WA/SA border. For management purposes, the fishery is composed of three zones shown in Figure 1. The operation of this fishery occurs within the South-west Marine Region.</p> <p>The WCDGDLF covers state and Commonwealth waters between latitudes 33°S to 26°S, although there are a number of closures to shark fishing within this area (Figure 1). The operation of this fishery occurs primarily within the South-west Marine Region, with a small section occurring partially within the North-west Marine Region.</p>  <p>Figure 1. Management boundaries of the WA TDGDLFs (source: <i>Status reports of the fisheries and aquatic resources of Western Australia 2013/14</i>).</p>

<p>Target Species</p>	<p>The four key commercial species in these fisheries are:</p> <ul style="list-style-type: none"> • gummy shark (<i>Mustelus antarcticus</i>) • dusky shark (<i>Carcharhinus obscurus</i>) • whiskery shark (<i>Furgaleus macki</i>) • sandbar shark (<i>Carcharhinus plumbeus</i>) <p>The main shark species targeted by fishers on the south coast are gummy shark and dusky shark. Off the west coast, the primary target species are dusky shark and sandbar shark. Whiskery shark is an important component of the catch in both fisheries.</p>
<p>Fishery status</p>	<p>Total effort in these fisheries has been restricted to 2001/02 levels since the fishing season of 2006/07, following identification of overexploitation of some species from 1997–2004. The total catch for 2012/13 was within the identified target range, similar to previous years, and assessed as ‘acceptable’ given effort levels.</p> <p>The annual <i>Status reports of the fisheries and aquatic resources of Western Australia</i> describe stock assessments for the four key commercial species. These species have been selected as indicator species for the suite of temperate sharks caught in these fisheries, as they comprise 80 % of the catch and represent the range of life history characteristics of other shark species caught.</p> <p>The 2013/14 report assessed gummy shark and whiskery shark as being at ‘acceptable’ levels, with dusky shark and sandbar shark as ‘recovering’.</p>
<p>Byproduct Species</p>	<p>Byproduct includes other sharks and rays, such as:</p> <ul style="list-style-type: none"> • hammerhead sharks (Family Sphyrnidae) • spinner shark (<i>Carcharhinus brevipinna</i>) • wobbegong sharks (Family Orectolobidae) • common sawshark (<i>Pristiophorus cirratus</i>) • ray species (Order Batoidea) <p>Scalefish species caught as byproduct include:</p> <ul style="list-style-type: none"> • queen snapper (<i>Nemadactylus valenciennesi</i>) • blue groper (<i>Achaoerodus gouldii</i>) • pink snapper (<i>Pagrus auratus</i>) • dhufish (<i>Glaucosoma hebraicum</i>) • Samsonfish (<i>Seriola hippus</i>) • mulloway (<i>Argyrosomus hololepidotus</i>) • red fishes (<i>Centroberyx</i> spp.)
<p>Gear</p>	<p>The majority of operators in these fisheries employ demersal gillnets and power hauled reels. This gear is set on the ocean floor in continental shelf waters along the south and lower west coasts. Demersal longline is also a permitted method of fishing but is not widely used. The use of metal trace wires and large hooks on longlines (previously used to target large whaler sharks) is prohibited.</p>

Season	The WA TDGDLFs are open year round. For management purposes the fishing season commences on 1 June and closes on 31 May each year.																																																
Commercial harvest	<p>In 2012/13, the total reported catch of sharks and rays was 938 tonnes (t). This catch is consistent with the total take reported annually since the mid 1990s. The total reported catch of scalefish in 2012/13 was 134 t, also consistent with annual reported catches since the mid 1990s.</p> <p>In 2012/13, the combined catch of the four key shark species accounted for 80 % (750 t) of the total catch of sharks and rays, as indicated in the table below (source: <i>Status reports of the fisheries and aquatic resources of Western Australia 2013/14</i>).</p> <table border="1"> <thead> <tr> <th>Shark and ray species</th> <th>t</th> <th>Scalefish species</th> <th>t</th> </tr> </thead> <tbody> <tr> <td>Gummy shark</td> <td>378</td> <td>Queen snapper</td> <td>33</td> </tr> <tr> <td>Dusky whaler</td> <td>204</td> <td>Blue groper</td> <td>34</td> </tr> <tr> <td>Whiskery shark</td> <td>119</td> <td>Pink snapper</td> <td>18</td> </tr> <tr> <td>Sandbar shark</td> <td>49</td> <td>Dhufish</td> <td>11</td> </tr> <tr> <td>Hammerhead spp.</td> <td>60</td> <td>Samsonfish</td> <td>10</td> </tr> <tr> <td>Spinner shark</td> <td>68</td> <td>Mulloway</td> <td>5</td> </tr> <tr> <td>Wobbegongs</td> <td>28</td> <td>Redfish</td> <td>4</td> </tr> <tr> <td>Rays</td> <td>12</td> <td>Other scalefish</td> <td>19</td> </tr> <tr> <td>Common sawshark</td> <td>8</td> <td>Total scalefish</td> <td>134</td> </tr> <tr> <td>Other sharks and rays</td> <td>13</td> <td></td> <td></td> </tr> <tr> <td>Total sharks and rays</td> <td>938</td> <td></td> <td></td> </tr> </tbody> </table>	Shark and ray species	t	Scalefish species	t	Gummy shark	378	Queen snapper	33	Dusky whaler	204	Blue groper	34	Whiskery shark	119	Pink snapper	18	Sandbar shark	49	Dhufish	11	Hammerhead spp.	60	Samsonfish	10	Spinner shark	68	Mulloway	5	Wobbegongs	28	Redfish	4	Rays	12	Other scalefish	19	Common sawshark	8	Total scalefish	134	Other sharks and rays	13			Total sharks and rays	938		
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Value of commercial harvest	The estimated commercial value of the WA TDGDLFs in 2012/13 was between \$1–5 million.																																																
Take by other sectors	<p>In 2012/13 approximately 3 t of sharks and rays were caught by other commercial fisheries operating within the area of the WA TDGDLFs.</p> <p>Recreational catch of sharks, based on a study undertaken in 2005/06, is estimated to be substantially less than 5 % of the commercial catch annually.</p> <p>An integrated survey of boat-based recreational fishing during 2011/12 estimated that approximately 15 t of sharks were retained by recreational fishers in the area of the fisheries.</p>																																																
Commercial licences issued	<p>There are 57 licences in the JASDGLF (24 in Zone 1 and 33 in Zone 2) and 20 permits in the WCDGLF, which can be used collectively in conjunction with a fishing boat licence.</p> <p>Only five Zone 1, thirteen Zone 2 and four WCDGLF vessels reported active fishing returns during 2012/13, similar to the levels of participation in these fisheries over the last five years.</p>																																																
Management arrangements	The JASDGLF is managed under the <i>Joint Authority Southern Demersal Gillnet and Demersal Longline Fishery Management</i>																																																

	<p><i>Plan 1992</i> and the WCDGDLF is managed under the <i>West Coast Demersal Gillnet and Demersal Longline (Interim) Fishery Management Plan 1997</i>. These two management plans are complementary.</p> <p>Both fisheries are managed through input controls in the form of transferable hourly time/gear effort units, with additional gear restrictions. Since 2006/07, fishing effort in each management zone has been explicitly capped to 2001/02 levels, to expedite recovery of historically overfished whiskery, dusky and sandbar sharks and to maintain acceptably low risks to threatened, endangered and protected species.</p> <p><u>Input controls</u></p> <ul style="list-style-type: none"> • restrictions on mesh and hook sizes • restrictions on net height and maximum net length • prohibition of the use of wire traces • monitoring by satellite-based Vessel Monitoring System • spatial closures <p><u>Output controls</u></p> <ul style="list-style-type: none"> • fishers required to submit statutory returns with fine scale data on catch and effort • a commercial maximum inter-dorsal fin size limit of 70 cm for dusky shark (supplemented by an equivalent limit for all whaler sharks caught by recreational fishers) • prohibition on possession of sharks and rays in all state managed commercial fisheries outside the recognised shark fisheries
Export	Some product is exported after processing to markets in Asia.
Bycatch	<p>Catch in these fisheries includes some discarded bycatch of unsaleable species of sharks, rays and scalefish. During an ecologically sustainable development risk assessment undertaken in 2002, all impacts on stocks of bycatch species were determined to be low risk.</p> <p>A recent multi-fisheries bycatch assessment identified Port Jackson shark (<i>Heterodontus portusjacksoni</i>) among the higher risk bycatch species in the West Coast Bioregion. While this species is one of the largest components of bycatch in the TDGDLFs, cumulative risk was assessed as low-moderate due its very high post-capture survival from gillnet fisheries.</p> <p>The potential risk to stocks of all bycatch species is planned for review within the next few years.</p>
Interaction with Protected Species¹	<p>An observer program from 1994 to 1999 found that observed rates of protected species captures were very low throughout these fisheries. Rates of observed capture were:</p> <ul style="list-style-type: none"> • marine mammals at just over one per 10 000 km/gillnet hour • seabirds at one capture per 25 000 km/gillnet hour, and • sea turtles at one capture per 100 000 km/gillnet hour.

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>Ongoing recording of protected species interactions in these fisheries is monitored through daily logbooks and reported publicly in the <i>Status reports of the fisheries and aquatic resources of Western Australia</i>. There is ongoing low catch of grey nurse sharks (<i>Carcharias taurus</i>), with 38–69 recorded as being released alive annually and 16–27 mortalities recorded annually since 2006/07.</p> <p>Low numbers of white sharks (<i>Carcharodon carcharias</i>) are also recorded, with the majority of these reported as being released alive. Additional bycatch taxa, recorded at only a few individuals per year, include dolphins, manta rays, seabirds, sawfish, seals and marine turtles.</p> <p><u>Australian sea lions</u></p> <p>Potential risk to Australian sea lions (<i>Neophoca cinerea</i>) has been identified as the key protected species issue in these fisheries, as this species is susceptible to fatal interactions with demersal gillnets that can be difficult to detect. The conservation of Australian sea lions is identified as a regional priority in the <i>Marine Bioregional Plan for the South-west Marine Region 2012</i>.</p> <p>Recorded interactions of Australian sea lions with these fisheries are rare (<3 per year) and an assessment of the overlap of fishing effort with Australian sea lion foraging areas has determined that potential encounters between gillnets and Australian sea lions are likely to be very low (Hesp <i>et al.</i>, 2012).</p> <p>However, the unusual life history characteristics of the species and its extreme natal site-fidelity make the small populations in WA particularly susceptible to even low levels of anthropogenic mortality. The WA Department of Fisheries has therefore proposed a network of gillnet exclusion zones around Australian sea lion breeding colonies that will reduce the number of potential encounters of Australian sea lions with gillnets by a minimum of 75 %, with some breeding colonies having predicted reductions in potential encounters of up to 96 %. This is predicated on 25 km exclusion zones around west coast colonies and 20 km exclusion zones around south coast colonies, with a total closure area of 24 050 km².</p> <p>These proposed closures are substantial and should significantly reduce the risk of fatal interactions between Australian sea lions and these fisheries. However, the proposed gillnet exclusion zones do not cover the full foraging range of Australian sea lions in the area of these fisheries (Goldsworthy <i>et al.</i>, 2014). Therefore, fishing effort in these areas will need to be monitored closely and reviewed annually, to ensure the closures still contain at least 75 % of potential encounters.</p>
Ecosystem Impacts	<p>The <i>Marine Bioregional Plan for the South-west Marine Region 2012</i> has identified that there are key ecological features present in the area of these fisheries, including the Commonwealth marine environments surrounding the Recherche Archipelago and the Houtman Abrolhos Islands and the demersal slope and associated fish communities of the</p>

	<p>Central Western Province. However, there is no evidence to suggest any systematic change to species diversity or richness caused by these fisheries, indicating fishing effort is not having a material impact on the food chain or trophic structure. The physical impact of the fishing gear is low, with gillnets and longlines estimated to have a combined footprint that would contact the bottom in less than 5 % of the area of the fisheries.</p>																				
<p>Impacts on CITES species</p>	<p>The assessment also considered the possible impacts on species harvested in the WA TDGDLFs which are listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). These species are smooth hammerhead shark (<i>Sphyrna zygaena</i>) and scalloped hammerhead shark (<i>S. lewini</i>).</p> <p>As a party to the Convention, Australia must apply all CITES provisions of the EPBC Act to smooth hammerhead shark and scalloped hammerhead shark imports and exports as appropriate. Under these provisions, export of CITES specimens may only occur where a permit, supported by a non-detriment finding, has been issued by the CITES Scientific Authority of the country of export. As Part 13A of the EPBC Act incorporates the requirements of CITES, there are no changes to the criteria for export approval, aside from administrative changes to the permits issued. As a result of the listing, specimens of hammerhead shark taken from the wild or bred in captivity may only be exported under either a single or multiple use CITES permit.</p> <p>Ongoing hammerhead shark catch in the WA TDGDLFs is reported to Family level. Smooth hammerheads are the main component of this catch, confirmed by a study that identified 3 309 hammerhead sharks retained in these fisheries from 1994 – 2007. The majority of these were smooth hammerheads, with 1.5 % being scalloped hammerheads.</p> <p>Catch of hammerhead sharks in the WA TDGDLFs in recent years has been:</p> <table border="1" data-bbox="496 1447 1433 1686"> <thead> <tr> <th>Year</th> <th>South coast bioregion (t)</th> <th>West coast bioregion (t)</th> <th>Total (t)</th> </tr> </thead> <tbody> <tr> <td>2009/10</td> <td>54.7</td> <td>16.3</td> <td>71.0</td> </tr> <tr> <td>2010/11</td> <td>42.6</td> <td>25.0</td> <td>67.6</td> </tr> <tr> <td>2011/12</td> <td>39.2</td> <td>20.8</td> <td>60.0</td> </tr> <tr> <td>2012/13</td> <td>42.9</td> <td>17.0</td> <td>59.9</td> </tr> </tbody> </table> <p>This ongoing harvest is within the levels considered by the 2014 non detriment finding made by the CITES Scientific Authority for hammerhead shark species harvested in Australia and is not considered to represent a significant impact to the species.</p>	Year	South coast bioregion (t)	West coast bioregion (t)	Total (t)	2009/10	54.7	16.3	71.0	2010/11	42.6	25.0	67.6	2011/12	39.2	20.8	60.0	2012/13	42.9	17.0	59.9
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Table 2: Progress in implementation of conditions and recommendations made in the previous 2012 assessment of the Western Australian Temperate Demersal Gillnet and Demersal Longline Fisheries (WA TDGDLFs)

Conditions	Progress	Recommended Action
<p>Condition 1 (Part 13A): Operation of the Western Australian Temperate Demersal Gillnet and Demersal Longline Fisheries will be carried out in accordance with the management arrangements in force under the <i>Western Australian Fish Resources Management Act 1994</i>.</p>	<p>The JASDGLF and WCDGDLF continue to be managed in accordance with their respective management plans and the <i>WA Fish Resources Management Act 1994</i>.</p>	<p>The Department of the Environment considers that this condition has been met.</p> <p>The Department considers that a new approved wildlife trade operation declaration for the WA TDGDLFs specify a similar condition (see Condition 1, Table 4).</p>
<p>Condition 2 (Part 13A): The Western Australian Department of Fisheries to inform the Department of Sustainability, Environment, Water, Population and Communities of any material change to the Western Australian Temperate Demersal Gillnet and Demersal Longline Fisheries management arrangements that may affect the assessment of the fishery against the criteria on which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are based, within three months of that decision being made.</p>	<p>There have been no material changes to the management arrangements in the WA TDGDLFs since the previous assessment.</p>	<p>The Department of the Environment considers that this condition has been met.</p> <p>The Department considers that a new approved wildlife trade operation declaration for the WA TDGDLFs specify a similar condition (see Condition 2, Table 4).</p>

Conditions	Progress	Recommended Action
<p>Condition 3 (Part 13A): The Western Australian Department of Fisheries to produce and present reports to the Department of Sustainability, Environment, Water, Population and Communities annually, as per Appendix B to the 'Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition'.</p>	<p>A report on the performance of the WA TDGDLFs against its identified sustainability measures is included in the WA Department of Fisheries annual publication, the <i>Status reports of the fisheries and aquatic resources of Western Australia</i>. This report is provided annually to the Department of the Environment.</p>	<p>The Department of the Environment considers that this condition has been met.</p> <p>The Department considers that a new approved wildlife trade operation declaration for the WA TDGDLFs specify a similar condition (see Condition 3, Table 4).</p>
<p>Condition 4 (Part 13A): The Western Australian Department of Fisheries to continue to:</p> <p>a) review the outcomes of actions taken to rebuild sandbar shark stocks and publicly report these outcomes; and</p>	<p>The WA Department of Fisheries has implemented a number of actions to rebuild stocks of dusky and sandbar sharks, including through gear restrictions, effort reductions, size restrictions and the introduction of state-wide commercial protection for all shark species. These measures are reported publicly in the annual <i>Status reports of the fisheries and aquatic resources of Western Australia</i>, which reflects the outcomes of the measures in annual considerations of stock status of each target species in these fisheries.</p>	<p>The Department considers that this part of Condition 4 has been met.</p>

Conditions	Progress	Recommended Action
<p>b) continue to develop strategies to ensure the recovery of dusky and sandbar shark stocks to acceptable levels within biologically appropriate timeframes.</p>	<p>Based on catch and catch-per-unit-effort data, the stock status of sandbar shark has transitioned from 'over-exploited' to 'recovering' since the previous assessment. This is reported publicly in the <i>Status reports of the fisheries and aquatic resources of Western Australia</i>, as well as in the national FRDC publication <i>Status of Key Australian Fish Stocks 2014</i>. Timeframes to full recovery for dusky shark and sandbar shark have not been articulated.</p>	<p>The Department considers the issues covered by this part of Condition 4 to be partially met and ongoing.</p> <p>The Department recommends that the WA Department of Fisheries continue to refine strategies to ensure the rebuilding of dusky and sandbar sharks (see Recommendation 3, Table 4).</p>
<p>Condition A (Part 13): The Western Australian Department of Fisheries to:</p> <p>a) continue monitoring fishing effort around Australian sea lion colonies (on an annual or per breeding cycle basis) and investigate and implement (in consultation with the Department), management measures to minimise fishery interactions with the species;</p>	<p>The WA Department of Fisheries monitors fishing effort throughout the area of the WA TDGDLFs. This includes information on net locations, enabling examination of spatial patterns of effort throughout the fisheries, including in areas around Australian sea lion colonies. Patterns in effort around colonies have generally decreased over time, although not in all areas and not as a direct result of management intervention. A number of management measures to minimise fishery interactions with Australian sea lions have been actively investigated since the previous assessment.</p>	<p>The Department considers that this part of Condition 4 has been partially met.</p>

Conditions	Progress	Recommended Action
<p>b) independently monitor and validate interaction rates with Australian sea lions when/where fishing effort overlaps with foraging areas, such as through an appropriate study; and</p>	<p>Since the previous assessment, the agent-based model developed by Hesp <i>et al.</i> (2012) to predict encounters between Australian sea lions and fishing activity has been revised to include new data on foraging distances generated by a satellite tagging study of Australian sea lions that was financially supported by the WA Department of Fisheries. The model was further refined to include updated data on fishing effort within the potential foraging range of Australian sea lion colonies.</p> <p>The spatial distribution of simulated encounters derived from the model was relatively similar across years, with encounters recorded in areas around all Australian sea lion colonies.</p> <p>The last on-water observer program in these fisheries was in place from 1994-1999 and covered approximately 49.7 % of current levels of effort. Only one Australian sea lion mortality was recorded during this period.</p>	<p>The Department considers that this part of Condition 4 has been partially met.</p>

Conditions	Progress	Recommended Action
<p>c) until such time as the population status of Australian sea lions is reliably demonstrated, consider areas that may require closures, or other measures, to safeguard small colonies (producing less than 4-5 pups per cycle) as well as those identified as having potential significant encounterability with fishing gear.</p>	<p>Based on outputs of the revised Hesp <i>et al.</i> (2012) agent-based model, the WA Department of Fisheries has determined that a network of gillnet exclusion zones with a 25 km radius around west coast colonies of Australian sea lions and a 20 km radius around south coast colonies would provide a reduction of over 75 % in potential encounterability of Australian sea lions with fishing activity.</p> <p>This would provide safeguards to all colonies, including colonies with low pup production and those identified as being closest to existing fish effort. These exclusion zones have not yet been implemented.</p>	<p>The Department considers that this part of Condition 4 has been partially met.</p> <p>The Department considers that a new Part 13 accreditation for the WA TDGDLFs specify a similar condition (see Condition A, Table 4).</p>

Recommendation	Progress	Recommended Action
<p>Recommendation 1: The Western Australian Department of Fisheries to continue to improve the accuracy and recording of species-specific catch data for all sharks and rays, including target and byproduct species.</p>	<p>The WA Department of Fisheries produced a water proof Field Identification Guide to WA Sharks and Shark-like Rays in 2002, which has been provided to industry and new skippers to assist with meeting minimum species identification requirements. Where ongoing species identification issues are identified through statutory reporting anomalies, these are addressed through annual management meetings and/or skipper briefings.</p> <p>For the 2009/10 fishing year, 68 taxa were reported by fisheries with 89% of landings reported to species level. These reported taxa were comparable to the species diversity recorded by independent observers between 1994 and 1999.</p>	<p>The Department of the Environment considers that this recommendation has been met.</p>

Recommendation	Progress	Recommended Action
<p>Recommendation 2: By July 2014, the Western Australian Department of Fisheries to review and update the Ecologically Sustainable Development (ESD) report for the Western Australian Temperate Demersal Gillnet and Demersal Longline Fisheries. This should include a review of risk levels and updating or developing new objectives, performance measures, management responses and information requirements as appropriate.</p> <p>This should apply to target species, byproduct, bycatch (including protected species) and impacts on the marine environment.</p>	<p>Since the previous assessment, the WA Department of Fisheries has provided input to a number of state, national and cross-jurisdictional shark and fishery management priorities, which has precluded the review and update of the ESD report specific to the WA TDGDLFs. However, contribution to many of these priorities has required fresh consideration of relevant ecological risks, including through:</p> <ul style="list-style-type: none"> • reporting on WA's progress against Shark-Plan 2 • contributing to the Commonwealth marine bioregional planning process, and • pre-assessment of the WA TDGDLFs against Marine Stewardship Council principles in 2014. <p>Cumulative impacts on target species, bycatch (including protected species), habitats and marine ecosystems are reviewed annually by the WA Department of Fisheries at a regional level through the state-wide Ecosystem Based Fisheries Management approach. The cumulative risk status for ecological resources is reported annually through the <i>Status reports of the fisheries and aquatic resources of Western Australia</i>.</p>	<p>The Department acknowledges that while the issue covered by this recommendation has not been addressed through the specified document, the WA Department of Fisheries is effectively reviewing and managing ongoing ecological risks in these fisheries through other processes.</p> <p>However, the Department considers a fulsome review and update of the ESD report for these fisheries would be a worthwhile activity for the WA Department of Fisheries to undertake before the next assessment (see Recommendation 4, Table 4).</p>

Recommendation	Progress	Recommended Action
<p>Recommendation 3: The Western Australian Department of Fisheries to pursue and support ongoing research for target species, byproduct, bycatch (including Australian sea lions and other protected species) and impacts on the ecosystem to continue to improve the ecologically sustainable management of the fisheries.</p>	<p>Since the previous assessment, the WA Department of Fisheries has actively pursued ongoing research for target species, byproduct, bycatch and impacts on the ecosystem through supporting the following projects:</p> <ul style="list-style-type: none"> • NERP project on the ecology of white sharks • Stock assessments of south coast demersal scalefish stocks • Satellite tracking of Australian sea lions • Refining the 2012 Australian sea lion potential encounter risk model (Hesp <i>et al.</i>, 2012) • Collaborative acoustic telemetry research with national research bodies to collect data on a number of species that interact with these fisheries, including target and non-target species 	<p>The Department of the Environment considers that this recommendation has been met.</p>

Recommendation	Progress	Recommended Action
<p>Recommendation 4: The Western Australian Department of Fisheries to continue to monitor estimates of harvest from the recreational sector and factor this information into stock assessments to ensure harvest levels are ecologically sustainable.</p>	<p>Integrated assessment of recreational fishing activity commenced in WA in 2011. Estimates of recreational harvest of key species are reported annually in the <i>Status reports of the fisheries and aquatic resources of Western Australia</i> and are factored into stock assessments of key indicator shark species to ensure harvest levels are ecologically sustainable.</p>	<p>The Department of the Environment considers that this recommendation has been met.</p>
<p>Recommendation 5: The Western Australian Department of Fisheries to consider implementation of a quantitative monitoring program for Australian sea lion colonies identified at greatest risk (those producing less than 4-5 pups per cycle or as having potential significant encounterability with fishing gear) to collect data suitable for assessment of the population status of Australian sea lions in Western Australia.</p>	<p>The WA Department of Fisheries has advised that it does not have management jurisdiction for Australian sea lion colonies. However, since the previous assessment, it has been working collaboratively with the WA Department of Parks and Wildlife on refining management measures to mitigate the impact of gillnet fishing on Australia sea lions, and has financially supported satellite tagging work to better inform fisheries management decisions relevant to the foraging distance of Australian sea lions.</p>	<p>The Department of the Environment considers that this recommendation has not been met.</p> <p>The Department considers the issues covered by this recommendation remain ongoing and will require collaboration between the WA Department of Fisheries and the WA Department of Parks and Wildlife in future (see Recommendation 1 & 2, Table 4).</p>

Table 3: The Department of the Environment’s assessment of the Western Australian Demersal Gillnet and Demersal Longline Fisheries (WA TDGDLFs) 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

<p>Division 1 Listed threatened species</p> <p>Section 208A Minister may accredit plans or regimes</p>	<p>The Department’s assessment of the WA TDGDLFs</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>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>The WA TDGDLFs will be managed under the <i>Joint Authority Southern Demersal Gillnet and Demersal Longline Management Plan 1992</i> and the <i>West Coast Demersal Gillnet and Demersal Longline (Interim) Management Plan 1997</i>, both made under the <i>WA Fish Resources Management Act 1994</i>.</p> <p>The management regimes for the WA TDGDLFs were last accredited in August 2012. The management arrangements relating to mitigating the impact of fishing on Australian sea lions in the fishery have been under significant review since this accreditation was granted. The WA Department has proposed a network of substantial gillnet exclusion zones around Australian sea lion breeding colonies, which will provide significantly improved protection to this species from fishing activity.</p> <p>Subject to this measure being implemented, as required by proposed Condition A (Table 4), the Department considers that the management regimes of these fisheries will continue to require persons fishing in accordance with the plan to take all reasonable steps to ensure listed threatened species are not killed or injured as a result of fishing.</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>While the proposed gillnet exclusion zones will provide substantial protection to Australian sea lions from interactions with gillnets, some of the foraging range of Australian sea lions will still be open to gillnetting. However, according to modelling undertaken by the WA Department of Fisheries (Hesp <i>et al.</i>, 2012), which considered precise fishing effort location and satellite tagging information from foraging Australian sea lions, the exclusion zones will reduce the current potential encounters of Australian sea lions with gillnets by more than 75 %.</p> <p>Given that the population of Australian sea lions in WA comprises only approximately 15 % of the national population, residual interactions that may occur beyond the exclusion zones in WA are unlikely to adversely affect the survival or recovery in nature of the species.</p> <p>Following the implementation of the gillnet exclusion zones, the WA Department of Fisheries will continue to monitor fishing effort outside the zones, as required by Condition A (Table 4), to determine if potential encounters remain very low.</p> <p>The WA TDGDLFs are known to interact with a number of other listed threatened species, including grey nurse sharks, white sharks, sawfish and marine turtles. Interactions with these species are recorded in logbooks and reported publicly, along with the life status of each individual following the interaction. Current evidence suggests that these interactions are minimal under the existing arrangements.</p> <p>Therefore, given the current measures in place in these fisheries, summarised above and in Table 1, along with the refined management measures for Australian sea lions as required by proposed Condition A (Table 4), the Department considers the operation of the WA TDGDLFs is not likely to adversely affect the survival or recovery in nature of any listed threatened species.</p>
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Part 13 (cont.)

Division 2 Migratory species	The Department’s assessment of the WA TDGDLFs
<p>Section 222A Minister may accredit plans or regimes</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 WA TDGDLFs will be managed under the <i>Joint Authority Southern Demersal Gillnet and Demersal Longline Management Plan 1992</i> and the <i>West Coast Demersal Gillnet and Demersal Longline (Interim) Management Plan 1997</i>, both made under the <i>WA Fish Resources Management Act 1994</i>.</p> <p>The management regimes for the WA TDGDLFs were last accredited in August 2012. The management arrangements that relate to listed migratory species have not significantly changed and continue to require persons engaged in fishing under the management regime to take all reasonable steps to ensure that listed migratory species are not killed or injured as a result of fishing.</p> <p>The WA TDGDLFs are known to interact with a number of listed migratory species, including white sharks, seabirds and marine turtles. Interactions with these species are recorded in logbooks and reported publicly, along with the life status of each individual following the interaction. Current evidence suggests that these interactions are minimal under the existing arrangements.</p> <p>Therefore, given the current measures in place in these fisheries, summarised above and in Table 1, the Department considers the operation of the WA TDGDLFs is not likely to adversely affect the conservation status of a listed migratory species or a population of that species.</p>

Part 13 (cont.)

Division 3 Whales and other cetaceans	The Department's assessment of the WA TDGDLFs
<p>Section 245 Minister may accredit plans or regimes</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 WA TDGDLFs will be managed under the <i>Joint Authority Southern Demersal Gillnet and Demersal Longline Management Plan 1992</i> and the <i>West Coast Demersal Gillnet and Demersal Longline (Interim) Management Plan 1997</i>, both made under the <i>WA Fish Resources Management Act 1994</i>.</p> <p>The management regimes for the WA TDGDLF were last accredited in August 2012. The management arrangements that relate to cetaceans have not significantly changed and continue to require persons engaged in fishing under the management regime to take all reasonable steps to ensure that cetaceans are not killed or injured as a result of fishing.</p> <p>The WA TDGDLFs have occasional interactions with dolphins. These interactions are recorded in logbooks and reported publicly, along with the life status of each dolphin following the interaction. Current evidence suggests that these interactions are minimal under the existing arrangements.</p> <p>Therefore, given the current measures in place in these fisheries, summarised above and in Table 1, the Department considers the operation of the WA TDGDLFs is not likely to adversely affect the conservation status of a species of cetacean or a population of that species.</p>

Part 13 (cont.)

Division 4 Listed marine species	The Department’s assessment of the WA TDGDLFs
<p>Section 265 Minister may accredit plans or regimes</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 WA TDGDLFs will be managed under the <i>Joint Authority Southern Demersal Gillnet and Demersal Longline Management Plan 1992</i> and the <i>West Coast Demersal Gillnet and Demersal Longline (Interim) Management Plan 1997</i>, both made under the <i>WA Fish Resources Management Act 1994</i>.</p> <p>The management regimes for the WA TDGDLFs were last accredited in August 2012. The management arrangements relating to mitigating the impact of fishing on Australian sea lions in the fishery have been under significant review since this accreditation was granted. The WA Department has proposed a network of substantial gillnet exclusion zones around Australian sea lion breeding colonies, which will provide significantly improved protection to this species from fishing activity.</p> <p>Subject to this measure being implemented, as required by proposed Condition A (Table 4), the Department considers that the management regimes of these fisheries will continue to require persons fishing in accordance with the plan to take all reasonable steps to ensure that members of listed marine species are not killed or injured as a result of fishing.</p> <p>While the proposed gillnet exclusion zones will provide substantial protection to Australian sea lions from interactions with gillnets, some of the foraging range of Australian sea lions will still be open to gillnetting. However, according to modelling undertaken by the WA</p>

Department of Fisheries (Hesp *et al.*, 2012), which considered precise fishing effort location and satellite tagging information from foraging Australian sea lions, the exclusion zones will reduce the current potential encounters of Australian sea lions with gillnets by more than 75 %.

Given that the population of Australian sea lions in WA comprises only approximately 15 % of the national population, residual interactions that may occur beyond the exclusion zones in WA are unlikely to adversely affect the conservation status Australian sea lions.

Following the implementation of the gillnet exclusion zones, the WA Department of Fisheries will continue to monitor fishing effort outside the zones, as required by **Condition A** (Table 4), to determine if potential encounters remain very low.

The WA TDGDLFs are known to interact with a number of other listed marine species, including fur seals, seabirds, marine turtles and sea snakes. Interactions with these species are recorded in logbooks and reported publicly, along with the life status of each individual following the interaction. Current evidence suggests that these interactions are minimal under the existing arrangements.

Therefore, given the current measures in place in these fisheries, summarised above and in Table 1, along with the refined management measures for Australian sea lions as required by proposed **Condition A** (Table 4), the Department considers the operation of the WA TDGDLFs is not likely to adversely affect the conservation status of a listed marine species or a population of that species.

Part 13 (cont.)

Section 303AA Conditions relating to accreditation of plans, regimes and policies	The Department's assessment of the WA TDGDLF
(1) This section applies to an accreditation of a plan, regime or policy under section 208A, 222A, 245 or 265.	The Department recommends that the management regime for the WA TDGDLFs be accredited under sections 208A, 222A, 245 and 265.
<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 208A we recommend that the WA TDGDLFs be accredited under Part 13 subject to a condition that requires the WA Department of Fisheries to:</p> <ul style="list-style-type: none"> a) implement an effective network of gillnet exclusion zones to protect foraging Australian sea lions by no later than mid 2016 b) continue to monitor and annually review fishing effort within the foraging range of Australian sea lion and report on likely encounters, and c) implement further mitigation measures to minimise interactions, should encounter rates increase outside the gillnet exclusion zones.
(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

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 303 CG Minister may issue permits (CITES species)	The Department's assessment of the WA TDGDLF
<p>(3) The Minister must not issue a permit unless the Minister is satisfied that:</p> <p>(a) the action or actions specified in the permit will not be detrimental to, or contribute to trade which is detrimental to:</p> <ul style="list-style-type: none"> i. the survival of any taxon to which the specimen belongs; or ii. the recovery in nature of any taxon to which the specimen belongs; or iii. any relevant ecosystem (for example, detriment to habitat or biodiversity). 	<p>Given these fisheries' management arrangements in place to monitor and control the level of harvest of CITES species and noting the acceptable level of CITES species being exported from the fishery, the Department considers that the WA TDGDLFs will not be detrimental to the survival of any taxon to which the CITES specimen belongs in the short to medium term. A condition on the WTO declaration for the WA TDGDLFs includes annual reporting requirements, which will allow the Department to monitor CITES specimens harvested in the fishery.</p> <p>The CITES specimens (smooth hammerhead shark and scalloped hammerhead shark) harvested from the fishery are not considered to be overfished in WA. Management arrangements in place, including limited fishing effort and identified target catch ranges, assist in ensuring their ecologically sustainable harvest.</p> <p>Recognising the nature of harvest and gear used in the fishery (e.g. demersal gillnets and lines), the potential for the WA TDGDLFs to impact unacceptably and unsustainably on any relevant ecosystem generally is considered quite low. The Department is satisfied that these fisheries are conducted in a manner that minimises the impact of fishing operations on the ecosystem generally.</p>

Part 13A

Section 303FN Approved wildlife trade operation	The Department’s assessment of the WA TDGDLFs
<p>(2) The Minister may, by instrument published in the <i>Gazette</i>, declare that a specified wildlife trade operation is an approved wildlife trade operation for the purposes of this section.</p>	
<p>(3) The Minister must not declare an operation as an approved wildlife trade operation unless the Minister is satisfied that:</p> <p>(a) the operation is consistent with the objects of Part 13A of the Act; and</p> <p>(b) the operation will not be detrimental to:</p> <p>i. the survival of a taxon to which the operation relates; or</p> <p>ii. the conservation status of a taxon to which the operation relates; and</p> <p>(ba) the operation will not be likely to threaten any relevant ecosystem including (but not limited to) any habitat or biodiversity; and</p>	<p>The Department considers that the operations of the WA TDGDLFs are consistent with objects of Part 13A (listed above) as:</p> <ul style="list-style-type: none"> ▪ there are management arrangements in place to ensure that the resource is being managed in an ecologically sustainable way (see Table 1) ▪ the operations of the WA TDGDLFs are unlikely to be unsustainable and threaten biodiversity within the next 3 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>The Department considers that the WA TDGDLFs will not be detrimental to the survival or conservation status of a taxon to which they relate within the next 3 years, given the management measures currently in place, which include limited effort, spatial closures, size limits for appropriate species, gear restrictions, and vessel monitoring.</p> <p>The Department considers that the WA TDGDLFs will not be likely to threaten any relevant ecosystem within the next 3 years, given the management measures currently in place, which include limited effort, spatial closures and gear restrictions.</p>

<p>(c) if the operation relates to the taking of live specimens that belong to a taxon specified in the regulations – the conditions that, under the regulations, are applicable to the welfare of the specimens are likely to be complied with; and</p> <p>(d) such other conditions (if any) as are specified in the regulations have been, or are likely to be, satisfied.</p>	<p>The Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations) do not specify fish as a class of animal in relation to the welfare of live specimens.</p> <p>No other conditions are specified in relation to commercial fisheries in the EPBC Regulations.</p>
<p>(4) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) the significance of the impact of the operation on an ecosystem (for example, an impact on habitat or biodiversity); and</p> <p>(b) the effectiveness of the management arrangements for the operation (including monitoring procedures).</p>	<p>The Department considers that the operations of the WA TDGDLFs will not have a significant impact on any relevant ecosystem within the next 3 years, given the management measures currently in place, which include limited effort, spatial closures and gear restrictions.</p> <p>The Department considers that the management arrangements that will be employed for the WA TDGDLFs, as outlined in Table 1, are likely to be effective. The total fishing effort will remain restricted to sustainable levels, gear restrictions will be employed as well as spatial closures to mitigate the impact of fishing on particular species. Catch and effort data will be monitored through daily logbooks and an electronic reporting system is being developed to improve the speed and accuracy of reporting.</p>
<p>(5) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) whether legislation relating to the protection, conservation or management of the specimens to which the operation relates is in force in the State or Territory concerned; and</p>	<p>The WA TDGDLFs will be managed under the <i>Joint Authority Southern Demersal Gillnet and Demersal Longline Management Plan 1992</i> and the <i>West Coast Demersal Gillnet and Demersal Longline (Interim) Management Plan 1997</i>.</p>

<p>(b) whether the legislation applies throughout the State or Territory concerned; and</p> <p>(c) whether, in the opinion of the Minister, the legislation is effective.</p>	<p>The WA <i>Fish Resources Management Act 1994</i> applies throughout WA waters.</p> <p>After evaluation of the fishery management measures in place in these fisheries, summarised in Table 1, the Department considers that the WA legislation that enforces these measures is likely to be effective.</p>
<p>(10) For the purposes of section 303FN, an operation is a wildlife trade operation if, and only if, the operation is an operation for the taking of specimens and:</p> <p>(d) the operation is a commercial fishery.</p>	<p>The WA TDGDLFs are commercial fisheries.</p>

Section 303FR Public consultation	The Department's assessment of the WA TDGDLFs
<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"> (a) setting out the proposal to make the declaration; and (b) setting out sufficient information to enable persons and organisations to consider adequately the merits of the proposal; and (c) inviting persons and organisations to give the Minister, within the period specified in the notice, written comments about the proposal. 	<p>The Department considers that consultation requirements of the EPBC Act for declaring a fishery an approved wildlife trade operation have been met. A public notice, which set out the proposal to declare the WA TDGDLFs an approved wildlife trade operation and included the WA Department of Fisheries' application, annual reports and relevant research reports, was released for public comment which closed on 22 July 2015. One public comment was received before the comment period closed, three additional comments were received in the following weeks. All four comments have been considered in the Department's assessment.</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 declare the WA TDGDLFs a wildlife trade operation and included the WA Department of Fisheries' application, annual reports and relevant research reports, was released for public comment on 22 June 2015 and closed on 22 July 2015, a total of 23 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 application and associated documents are included at Attachment C of the brief. The Department's assessment has considered the public comments received on the submission.</p>

Section 303FT Additional provisions relating to declarations	The Department's assessment of the WA TDGDLFs
(1) This section applies to a declaration made under section 303FN, 303FO or 303FP.	A declaration for the WA TDGDLFs will be made under section 303FN.
<p>(4) The Minister may make a declaration about a plan or operation even though he or she considers that the plan or operation should be the subject of the declaration only:</p> <p>(a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with.</p> <p>In such a case, the instrument of declaration is to specify the period, circumstances or condition.</p>	<p>The standard conditions applied to commercial fishery wildlife trade operation include:</p> <ul style="list-style-type: none"> • operation in accordance with the management regime • notifying the Department of changes to the management regime, and • annual reporting in accordance with the requirements of the <i>Australian Government Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition</i>. <p>The wildlife trade operation instrument for the WA TDGDLFs specifies the standard conditions.</p>
(8) A condition may relate to reporting or monitoring.	One of the standard conditions relates to reporting.
(9) The Minister must, by instrument published in the <i>Gazette</i> , revoke a declaration if he or she is satisfied that a condition of the declaration has been contravened.	
(11) A copy of an instrument under section 303FN, or this section is to be made available for inspection on the Internet.	The instrument for the WA TDGDLFs made under sections 303FN and the conditions under section 303FT will be gazetted and made available through the Department's website.

Part 16

Section 391 Minister must consider precautionary principle in making decisions	The Department's assessment of the WA TDGDLFs
<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>(2) The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.</p>	<p>The Department has accounted for the precautionary principle in the preparation of its advice. Recognising the potential risks to biodiversity from the operation of the WA TDGDLFs identified in the Ecological Risk Assessment for the fishery (WA Department of Fisheries, 2005), the WA Department of Fisheries has implemented precautionary management measures which reduce the risks of adverse impacts, for example, limited effort, gear restrictions and spatial closures. The cumulative risk status for ecological resources is reviewed and reported annually through the <i>Status reports of the fisheries and aquatic resources of Western Australia</i>.</p>

Part 12

Section 176 Bioregional Plans	The Department's assessment of the WA TDGDLFs
<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 <i>Marine Bioregional Plan for the South-west Marine Region 2012</i> and the <i>Marine Bioregional Plan for the North-west Marine Region 2012</i> have been considered in the preparation of advice in relation to decisions under section 303DC and section 303FN. Harvesting of living resources has been identified as a pressure operating within the South-west Marine Region in which these fisheries operate and the conservation of Australian sea lions has been identified as a regional priority. There is no evidence to suggest that harvesting of living resources by these fisheries is causing systematic change to species diversity or richness within this area, indicating fishing effort is not having a material impact on the food chain or trophic structure. Impacts of the fisheries on Australian sea lions have also been very low to date, and will further decrease in future as gillnet exclusion zones are introduced around Australian sea lion breeding colonies.</p>

The Department of the Environment's final conditions and recommendations to the Western Australian Department of Fisheries for the Western Australian Temperate Demersal Gillnet and Demersal Longline Fisheries (WA TDGDLFs)

The material submitted by the WA Department of Fisheries demonstrates that the management arrangements for the WA TDGDLFs continue to meet most of the requirements of the *Australian Government Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition*.

Stock Status and Recovery

The WA TDGDLFs principally target sharks, with four indicator species (gummy, dusky, whiskery and sandbar shark) comprising approximately 80 % of retained catch of sharks and rays. Fishing catch and effort data is closely monitored to ensure harvest remains within ecologically sustainable limits.

Following identification of overexploitation in some species, effort in these fisheries has been capped to 2001/02 levels in each management zone since 2006/07, along with additional measures listed below. In 2013/14, the stock status of gummy shark and whiskery shark was assessed as 'acceptable', with dusky shark and sandbar shark assessed as 'recovering'.

The Department considers that overall the management regime for the WA TDGDLFs aims to ensure that fishing is conducted in a manner that does not lead to overfishing, with appropriate measures to rebuild recovering stocks.

Management measures in place in the fishery include:

- limited entry and limited effort
- gear restrictions
- maximum size limit for dusky sharks to protect breeding adults
- recreational gear restrictions and size limits for some species
- spatial closures enforced through vessel monitoring systems, and
- statutory reporting by fishers of fine scale catch and effort data inform annual reviews of the performance of the fishery against ecological indicators and performance measures.

Ecosystem Impacts

Taking into account the management measures for the fisheries, the limited effort and the relatively low impact the fishing gear has on the benthic environment, the Department considers that the management regimes for the WA TDGDLFs provide for fishing operations to be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.

Conclusion

While these fisheries are relatively well managed, the Department has identified a number of risks and uncertainties that must be managed to ensure that impacts are minimised. Primarily these reflect the need to implement appropriate protection for Australian sea lions, along with ongoing monitoring of potential encounterability between Australian sea lions and fishing activities.

The key challenge for these fisheries will be to continue recovering and rebuilding dusky and sandbar sharks, and to further develop measures to improve species-specific reporting of hammerhead sharks.

The Department considers that, until it can be demonstrated that these issues have been adequately addressed, declaration of the harvest operations of the WA TDGDLFs as an approved wildlife trade operation for three years, until 24 August 2018, is appropriate. The Department considers that the declaration should be subject to the conditions listed in Table 4. To contain and minimise the risks in the longer term the recommendations outlined in Table 4 have been made.

Unless a specific time frame is provided, each condition and recommendation must be addressed within the period of the approved wildlife trade operation declaration for the fishery.

Table 4: Western Australian Temperate Demersal Gillnet and Demersal Long Fisheries (WA TDGDLFs) Assessment – Summary of Issues, Conditions and Recommendations, August 2015

Issue	Part 13A Conditions
<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 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>Condition 1</p> <p>Operation of these fisheries will be carried out in accordance with the management regime under the <i>WA Fish Resources Management Act 1994</i> and the <i>WA Fish Resources Management Regulations 1995</i>.</p> <p>Condition 2</p> <p>The WA Department of Fisheries to inform the Department of the Environment of any intended material changes to these fisheries' 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 and recommendations 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 <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i> and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fishery, status of target stock, interactions with EPBC Act protected species, impacts of the fishery on the ecosystem in which it operates and progress in implementing the Department's conditions and recommendations. Electronic copies of the guidelines are available from the Department's website at http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries</p> <p>The Department acknowledges that the WA Department of Fisheries reports annually on the performance of WA fisheries in the publicly available <i>Status reports of the fisheries and aquatic resources of Western Australia</i>.</p>	<p>Condition 3</p> <p>The WA Department of Fisheries, in its annual <i>Status reports of the fisheries and aquatic resources of Western Australia</i>, to report on these fisheries against performance measures that relate to their sustainability.</p>

Issue	Part 13 Condition
<p><u>Protection for Australian sea lions</u></p> <p>The boundaries of the WA TDGDLFs overlap extensively with the range of Australian sea lion populations in WA. Australian sea lions are listed as vulnerable under the EPBC Act and are highly susceptible to fatal interactions with gillnets, based on research in the Commonwealth-managed Southern and Eastern Scalefish and Shark Fishery (Goldsworthy <i>et al.</i>, 2010; Hamer <i>et al.</i>, 2013).</p> <p>Reported interactions between Australian sea lions and the WA TDGDLFs have been very low to date. An independent observer program from July 1994 – June 1999 recorded the capture of only one Australian sea lion. While there has been no independent observer coverage in these fisheries since 1999, industry log books recorded mortalities of two Australian sea lions in 2008/09, three in 2011/12 and one in 2012/13.</p> <p>Even though interactions of Australian sea lions with these fisheries are likely to be rare events, the species' unusual life history characteristics extreme natal site-fidelity make the small populations in WA particularly susceptible to even low levels of anthropogenic mortality. To inform development of effective management measures to mitigate risks to the species, the WA Department of Fisheries developed an agent-based model of potential 'encounterability' (Hesp <i>et al.</i>, 2012). This model simulates movements of Australian sea lions within the area of the fishery, and records an 'encounter' when a computer-generated Australian sea lion comes within 500 m of a gillnet. The model has been refined since 2012 and in 2015 includes new Australian sea lion foraging data (Goldsworthy <i>et al.</i>, 2014) and fishing effort data up to 2013/14.</p> <p>Using model simulations based on 200 synthetic Australian sea lions for 24 identified breeding colonies in WA, the WA Department of Fisheries has proposed a network of gillnet exclusion zones around each breeding colony that will reduce the number of simulated encounters by a minimum of 75 %, with some breeding colonies showing reductions in simulated encounters of up to 96 %. This is predicated on 25 km exclusion zones around west coast colonies and 20 km exclusion zones around south coast colonies, with a total closure area of 24 050 km².</p> <p>The Department considers that these substantial proposed closures are likely to significantly reduce the risk of fatal interactions between Australian sea lions and these fisheries. However, the proposed gillnet exclusion zones do not cover the full foraging range of Australian sea lions in the area of these fisheries (Goldsworthy <i>et al.</i>, 2014). Therefore, in the absence of independent observer coverage to validate interaction rates outside the closed areas, it is critical that fishing effort in these areas be monitored closely and reviewed annually against the potential encounterability model. Should fishing effort become concentrated near the boundaries of the exclusion zones after these are implemented, the boundaries may need to be adjusted to ensure they still contain at least 75 % of potential encounters.</p>	<p>Condition A</p> <p>The WA Department of Fisheries to:</p> <ul style="list-style-type: none"> a) implement an effective network of gillnet exclusion zones to protect foraging Australian sea lions by no later than mid 2016 b) continue to monitor and annually review fishing effort within the foraging range of Australian sea lions and report on likely encounters, and c) implement further mitigation measures to minimise interactions, should encounter rates increase outside the gillnet exclusion zones.

Issue	Recommendations
<p><u>Ongoing research and management of Australian sea lion populations</u></p> <p>The Department notes the WA Department of Fisheries' novel approach to developing practical management measures to minimise interactions with Australian sea lions where limited quantitative data is available on the species' population size and trends in WA. Noting that this management response (spatial closures) is based on outputs of the potential encounterability model (Hesp <i>et al.</i>, 2012), the Department recommends further research be undertaken that will provide more data on Australian sea lion movements and populations within the area of these fisheries. This data should then be incorporated in the model to further improve the predictability of encounters.</p> <p>The Department further recommends that the WA Department of Fisheries continues to work collaboratively with the WA Department of Parks and Wildlife as the primary agency responsible for monitoring and managing of Australian sea lion populations in WA.</p>	<p>Recommendation 1</p> <p>The WA Department of Fisheries to continue to undertake or support research projects to improve understanding of Australian sea lion movements and populations in these fisheries, to better inform the predictability of encounters.</p> <p>Recommendation 2</p> <p>The WA Department of Fisheries to continue to work cooperatively with the WA Department of Parks and Wildlife to ensure fishing impacts on Australian sea lions are minimised.</p>
<p><u>Rebuilding stocks of dusky and sandbar sharks</u></p> <p>The Department notes the success of management measures implemented to rebuild stocks of whiskery, dusky and sandbar shark in these fisheries, following overexploitation between 1997 and 2004.</p> <p>The most recent assessment (2013/14) has classified both dusky and sandbar shark as 'recovering' and the Department accepts that rebuilding these species to 'acceptable' levels will take some years, given their life history characteristics. The WA Department of Fisheries' precautionary management approach to these species should continue, with careful monitoring of catch and effort data to ensure fishing levels are consistent with recovery. Consideration should also be given to undertaking a new stock assessment for dusky shark, given the significant contribution this species makes to overall catch composition.</p>	<p>Recommendation 3</p> <p>The WA Department of Fisheries to continue to refine and implement strategies to rebuild sandbar and dusky shark.</p>

Issue	Recommendations
<p data-bbox="107 167 696 197"><u>Ecologically Sustainable Development report</u></p> <p data-bbox="107 204 1509 469">In 2005, the WA Department of Fisheries completed an Ecologically Sustainable Development report for the WA TDGDLFs. This report provided a comprehensive overview of the fishery and detailed operational objectives, performance measures, indicators, management responses and information requirements used to assess the performance of the fisheries. The <i>Status reports of the fisheries and aquatic resources of Western Australia</i> reports on the performance of these fisheries against objectives and performance measures outlined in the Ecologically Sustainable Development report, as well as an up to date cumulative risk status for each of the ecological resource assets within relevant WA marine bioregions.</p> <p data-bbox="107 504 1509 689">The WA Department of Fisheries has noted the value of updating the Ecologically Sustainable Development report for these fisheries and has further noted it intends to progress this following resolution of a number of active processes, including finalisation of a harvest strategy policy for WA and resolution of Commonwealth marine reserves. The Department recommends that the review be completed as soon as practicable, to ensure these fisheries remain ecologically sustainable and maintain precautionary management principles.</p>	<p data-bbox="1534 167 1816 197">Recommendation 4</p> <p data-bbox="1534 204 2096 469">The WA Department of Fisheries to review and update the Ecologically Sustainable Development report for the WA TDGDLFs. The updated report should apply to target species, byproduct, bycatch (including protected species) and impacts on the marine environment.</p>

Issue	Recommendations
<p><u>Meeting CITES requirements for hammerhead sharks</u></p> <p>The WA TDGDLFs have recorded take of approximately 60–70 t of hammerhead shark in recent years. While these sharks are recorded only to Family level (Family Sphyrnidae), the main component of this catch is smooth hammerhead (<i>Sphyrna zygaena</i>). This was confirmed by a study from 1994–2007 that identified the majority of retained hammerheads in these fisheries as smooth hammerheads, with 1.5 % identified as scalloped hammerheads (<i>S. lewinii</i>).</p> <p>The non detriment finding made by the CITES Scientific Authority in 2014 for the harvest of hammerhead sharks in Australia recommended that logbook reporting to species level for hammerheads be improved in the WA TDGDLFs, along with reporting of discards. The non detriment finding further noted that harvest of hammerhead sharks in WA should remain below the historical average.</p> <p>In response to these recommendations, the WA Department of Fisheries has already modified logbooks to include facility to record hammerhead sharks to species level. However, due to large variation in morphology between individuals of each species, species identification at sea will remain problematic. The WA Department of Fisheries will continue to develop tools to assist fishers to improve species identification.</p> <p>Given the gillnet mesh size used in the WA TDGDLFs, most hammerhead sharks caught are of marketable size so are retained. While discarding of hammerhead sharks is therefore uncommon, the modified logbooks now include fields for reporting discards.</p> <p>Catch levels of hammerhead sharks within the WA TDGDLFs have remained well below the historic average for some years. Catch levels are likely to further decrease over time, as additional gillnet exclusion zones closures are introduced in these fisheries around breeding colonies of Australian sea lions.</p>	<p>Recommendation 5</p> <p>The WA Department of Fisheries to:</p> <ul style="list-style-type: none"> a) further facilitate measures to improve species specific identification of hammerhead sharks in logbooks, and b) facilitate improved reporting of discarded hammerhead sharks.

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