



Australian Government

Department of the Environment

Assessment of

**AUSTRALIAN FISHING IN EXPLORATORY FISHERIES
IN CCAMLR DIVISIONS 58.4.1 AND 58.4.2**

DECEMBER 2015

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This report should be attributed as '*Australian Fishing in Exploratory Fisheries in CCAMLR Divisions 58.4.1 and 58.4.2 December 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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Table 1 contains a brief overview of the operation of the fisheries including: the gear used, species targeted, byproduct species, bycatch species, annual catch, management regime and ecosystem impacts.

Table 2 contains the Department's assessment of the CCAMLR Exploratory Fisheries' management arrangements against the Guidelines for the Ecologically Sustainable Management of Fisheries (2nd edition).

Table 3 contains the Department's assessment of the CCAMLR Exploratory Fisheries' management arrangements against all the relevant parts of the *Environment Protection and Biodiversity Conservation Act 1999* that the Minister must consider before making a decision; and the reasons the Department recommends that product from the fisheries be included in the list of exempt native specimens

Table 4 contains a description of the issues identified by the Department with the current management regime for the CCAMLR Exploratory Fishery and outlines the proposed recommendations that would form part of the Minister's decision to include product derived from the fisheries in the list of exempt native specimens.

Table 1: Summary of Australian fishing in exploratory fisheries in CCAMLR divisions 58.4.1 and 58.4.2 (CCAMLR Exploratory Fisheries)

Brief description of fisheries	<p>This assessment covers proposed operations by Australian flagged vessels in the Commission for the Conservation of Antarctic Marine Living Resources¹ (CCAMLR) 'Exploratory fisheries for <i>Dissostichus</i> spp. in Sub-areas 58.4.1 and 58.4.2' of the CCAMLR Convention Area in the Southern Ocean adjacent to Antarctica.</p>
Key documents relevant to the fisheries	<ul style="list-style-type: none"> • Antarctic Marine Living Resources Conservation Act 1981 • Fisheries Management Act 1991 (FM Act) • Fisheries Management Regulations 1992 (FM Regulations) • Guide to CCAMLR New and Exploratory Fisheries February 2015 • Schedule of Conservation Measures in Force 2015/16 Season • Fishery Report 2014: Exploratory Fishery for <i>Dissostichus</i> spp. in Division 58.4.1 • Fishery Report 2014: Exploratory Fishery for <i>Dissostichus</i> spp. in Division 58.4.2
Area	<p>The CCAMLR Convention Area is divided into three internationally agreed Areas:</p> <ul style="list-style-type: none"> • Area 48 (Atlantic Ocean sector) • Area 58 (Indian Ocean sector) • Area 88 (Pacific Ocean sector). <p>These Areas are further subdivided into Divisions (Figure 1).</p> <p>Area 58.4 is adjacent to Australia's Antarctic Territory and overlaps Australia's Antarctic Exclusive Economic Zone (EEZ) and the Australian Fishing Zone (AFZ). Divisions 58.4.1 and 58.4.2 are adjacent to Australia's Antarctic Territory and overlap Australia's Antarctic EEZ (Figure 2).</p> <div data-bbox="502 1249 1433 1928"> </div> <p>Figure 1. CCAMLR convention area (Source: CCAMLR website)</p>

¹ Antarctic marine living resources means the populations of fin fish, molluscs, crustaceans and all other species of living organisms, including birds, found south of the Antarctic Convergence.

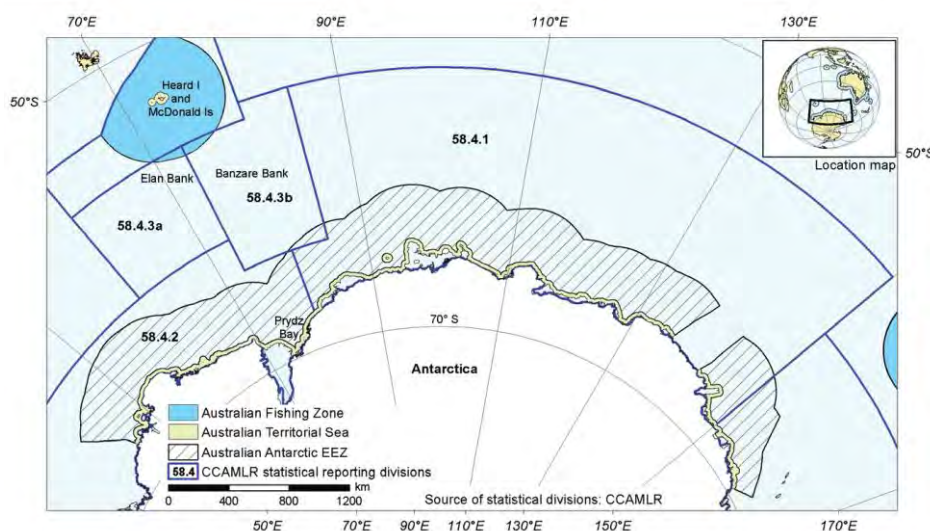


Figure 2. CCAMLR Divisions 58.4.1 and 58.4.2 (Source: [ABARES Fishery Status Reports 2011](#)).

Target Species

The target species for CCAMLR Divisions 58.4.1 and 58.4.2 are Antarctic toothfish (*Dissostichus mawsoni*) and Patagonian toothfish (*D. eleginoides*). Catches in 58.4.2 are dominated by Antarctic toothfish which are only found in the Southern Ocean south of the [Antarctic Convergence](#).

Both species are characterised by slow growth, late reproductive maturity, low fecundity and protracted spawning periods; this makes them particularly vulnerable to overfishing.

Spawning can extend from late autumn into spring, but mainly occurs in winter when sea ice presents a natural limit to fishing. Spawning is not thought to occur in Divisions 58.4.1 or 58.4.2.

Fishery status

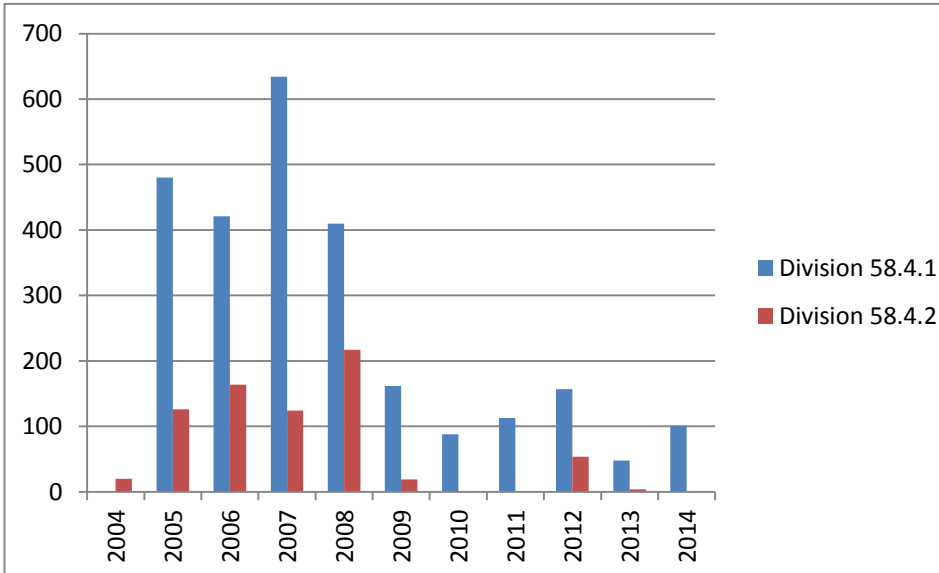
Stocks in Divisions 58.4.1 and 58.4.2 were classified as overfished and subject to overfishing from 2009 until they were removed from the annual Australian Government Fishery Status Reports in 2012. This was because Australia had not commercially fished these divisions since 2005, had no future intention to do so at that time, and because the total Australian catch (including research catch) since 1990 had been relatively small (149 tonnes (t)).

Assessments undertaken in 2008 for Divisions 58.4.1 and 58.4.2 found catch rates were low compared to those in the Ross Sea, suggesting Divisions 58.4.1 and 58.4.2 were unlikely to support a large population of toothfish ([Welsford 2011](#)).

Illegal, unreported and unregulated (IUU) fishing was the likely cause of the initial depletion, and in 2012 was expected to continue to exceed the CCAMLR catch limits. IUU fishing remains a significant challenge to the sustainable management of CCAMLR fisheries.

Information on stocks remains limited, however management arrangements are precautionary and designed to improve understanding of the fisheries. CCAMLR does not consider stocks to be below the limit reference point which is set at 20% of the unfished biomass.

Under CCAMLR arrangements, the fisheries will remain exploratory fisheries until sufficient information is available for more robust stock assessments, setting appropriate catch and effort levels and managing the potential impacts on dependent and related species.

Gear	Demersal longline (details are available in the CCAMLR on-line gear library: http://www.ccamlr.org/en/publications/fishing-gear-library). Additional bycatch mitigation devices are also associated with the gear and are prescribed through CCAMLR conservation measures (CMs) and conditions on permits issued by the Australian Fisheries Management Authority (AFMA).																																				
Season	The annual fishing season for each sub-area is defined in CM 32-01 . In 2015-16 this is 1 December to 30 November for all CCAMLR Areas. Fishing typically begins in December following the sea ice breakup and ends between January and May, depending on ice conditions.																																				
Commercial harvest	<p>Over the past three seasons the total toothfish catch from Division 58.4.1 has ranged between 48 and 157 t. In 2014-15 it was 100 t. In Division 58.4.2, catch ranged from 4-54 tonnes. No catch was reported for 2014-15 in this Division.</p> <p>Historic catch has almost exclusively comprised of Antarctic toothfish, with very little Patagonian toothfish reported from either Division.</p> <p>Catch limits for the 2015-16 fishing season are set at 660 t (total toothfish) for Division 58.4.1 and 35 t for Division 58.4.2. These limits are defined in CM 41-11 and CM 41-05 respectively.</p> <p>Catches vary considerably and appear to reflect changes in fishery participation rather than stock abundance (Figure 3).</p>  <table><caption>Data for Figure 3: Reported catch of toothfish (tonnes)</caption><thead><tr><th>Year</th><th>Division 58.4.1</th><th>Division 58.4.2</th></tr></thead><tbody><tr><td>2004</td><td>0</td><td>20</td></tr><tr><td>2005</td><td>480</td><td>120</td></tr><tr><td>2006</td><td>420</td><td>160</td></tr><tr><td>2007</td><td>630</td><td>120</td></tr><tr><td>2008</td><td>410</td><td>210</td></tr><tr><td>2009</td><td>160</td><td>20</td></tr><tr><td>2010</td><td>80</td><td>0</td></tr><tr><td>2011</td><td>110</td><td>0</td></tr><tr><td>2012</td><td>150</td><td>50</td></tr><tr><td>2013</td><td>40</td><td>10</td></tr><tr><td>2014</td><td>100</td><td>0</td></tr></tbody></table> <p>Figure 3. Reported catch of toothfish from Divisions 58.4.1 and 58.4.2. (Source data derived from CCAMLR Fishery Reports 2014). Note years 2007, 2009, 2010 and 2011 do not include catch data quarantined by CCAMLR due to lack of confidence in the location and/or quantity of the take. These catch figures range between 47 and 136 tonnes per Division per year and are detailed in the CCAMLR Fishery Reports.</p>	Year	Division 58.4.1	Division 58.4.2	2004	0	20	2005	480	120	2006	420	160	2007	630	120	2008	410	210	2009	160	20	2010	80	0	2011	110	0	2012	150	50	2013	40	10	2014	100	0
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2014	100	0																																			
Value of commercial harvest	Information on the potential value of commercial harvest is not available. Historic information is also confidential due to the small number of operators participating in the fisheries.																																				
Take by other sectors	<p>Toothfish are taken by fisheries in other areas, however the stocks in these other fisheries are considered separate to those in Divisions 58.4.1 and 58.4.2.</p> <p>Removals from the fisheries by the commercial sector are highly regulated. There is no recreational or indigenous catch given the remote</p>																																				

	<p>location of the fisheries. CCAMLR and its Members actively monitor and manage IUU fishing, and consider its potential impact each year when setting CMs, including catch limits.</p> <p>IUU catch in 2015 was estimated to be between 1264 t and 1500 t, for the whole of the CCAMLR area. However, this is likely to be an underestimate, as it is based only on the vessels actually detected (three) and does not include mortality associated with lost IUU gillnets ('ghost fishing'). Recent shifts in IUU fishing from longline to gillnets have made it more difficult to estimate IUU catches, however, estimates of IUU catch from Divisions 58.4.1 and 58.4.2 have been historically far greater than the catch limits set by CCAMLR (58.4.1 and 58.4.2).</p>
Commercial licences issued	<p>CCAMLR has approved a total of five vessels to fish in Divisions 58.4.1 and 58.4.2 during 2015-16. This includes one Australian vessel (to which this assessment applies) as well as an additional four vessels from France, Japan, the Republic of Korea and Spain.</p>
Management arrangements	<p>Management arrangements are defined in conservation measures and applied to Australian operations through conditions on fishing permits administered by AFMA under the FM Act.</p> <p>Broadly, harvest controls in these fisheries include limited entry, gear restrictions, catch triggers and limits, spatial and temporal controls. Catch limits are prescribed for toothfish (CM 41-05 and CM 41-11), bycatch (CM 33-03) as well as vulnerable marine ecosystems (CM 22-07) in each of the two Divisions. Within each Division fishing is directed to occur over as large a geographic and bathymetric range as possible. Each fishery has a data collection plan, a research plan and a tagging program. These plans are used to set requirements for catch, effort and related biological, ecological and environmental data, including plans for directing fishing effort. Research needs are prescribed in CCAMLR conservation measures and include general provisions for all species (CM 21-02), measures designed for toothfish (CM 41-01) and measures tailored to Divisions 58.4.1 (CM 41-11) and 58.4.2 (CM 41-05).</p> <p>Management arrangements are considered precautionary and designed to improve understanding of the fisheries. There is regular monitoring, assessment and revision of management performance. Access to the fisheries is carefully managed by CCAMLR and its Members; this includes management of licensed fishers as well as IUU fishing.</p> <p><i>Monitoring and data collection</i></p> <p>Fishing activity is closely monitored by CCAMLR which notifies Contracting Parties such as AFMA when catches are likely to reach a limit. Concession holders must cease fishing in part or all of the fisheries if certain triggers are met.</p> <p>There are strict monitoring and data collection requirements for participants in CCAMLR managed fisheries. All catch must be reported by the Vessel Master on a shot by shot basis, as well as by two independent scientific observers who are present on all voyages. The Vessel Master must also operate Integrated Computerised Vessel Monitoring Systems (VMS) which provide information on the vessel's location and course, and notify AFMA prior to entering and exiting the fisheries, transshipping fish, persons or any other goods to limit the opportunity for IUU catch.</p> <p>AFMA plays an important role in surveillance and enforcement activities within the region. Although this area is not part of the AFZ for the purposes of the FM Act, the FM Regulations extend the Act to Australian citizens and bodies corporate, Australian vessels and all</p>

	persons on any Australian vessel in this area (Patterson and Skirtun, 2012).
Export	No information is available on the potential export of product from these fisheries, however it is likely that catch will be unloaded in New Zealand.
Byproduct and bycatch	<p>No distinction is made between byproduct and bycatch species in CCAMLR New and Exploratory Fisheries.</p> <p>Current bycatch categories are based on catch composition rather than any consideration of value as an indicator of ecological impact. However, a recent study in Divisions 58.4.1 and 58.4.2 found grenadiers were the main prey item for toothfish (47.6% by weight stomach contents), and were also the primary bycatch species in these waters.</p> <p>Bycatch limits for three groups (skates and rays (Rajids), grenadiers (Macrourids), and all other species) are set as either a proportion of the target species catch limits, or a defined amount (whichever is greater). These limits are prescribed in CCAMLR CM 33-03 and are spatially restricted within each Division. Where possible all catch is reported at a species level. Move-on provisions apply if catches of any one species reach one tonne in a single haul, and closures apply where catches reach defined levels.</p> <p>Fishing in Divisions 58.4.1 and 58.4.2 is also restricted to demersal longline methods in waters deeper than 550 metres (m) to minimise the potential impacts on juvenile toothfish and vulnerable marine ecosystems (CM 22-08).</p> <p>Bycatch levels are monitored and managed by CCAMLR and AFMA. Monitoring is achieved through daily shot by shot catch reports, active vessel satellite monitoring systems and information from two independent onboard scientific observers.</p> <p>Catches are considered annually when conservation measures are reviewed and bycatch levels in both Divisions have been significantly lower than the prescribed limits for all years since the commencement of the fisheries in 2003 and 2005 (CCAMLR Fishery Reports 2014).</p>
Interaction with Protected Species²	<p>Protected species interactions are monitored and managed by CCAMLR and AFMA. CCAMLR has developed risk frameworks for seabirds and marine mammals, and the CCAMLR Working Group on Incidental Mortality Associated with Fishing undertakes regular assessments for all Divisions.</p> <p>Since the inception of Division 58.4.1 in 2005, when two southern giant petrels (<i>Macronectes giganteus</i>) and three sooty shearwaters (<i>Puffinus griseus</i>) were reported injured or killed, there have been no incidental mortalities of seabirds or marine mammals. Since the inception of Division 58.4.2 in 2003, there have been no observed incidental mortalities of seabirds, and only one reported mortality of a leopard seal (<i>Hydrurga leptonyx</i>). This occurred in 2005 (CCAMLR Fishery Reports 2014).</p> <p>CCAMLR and AFMA require wildlife interaction reports to be completed and submitted within 24 hours of an interaction with a protected species. Each report must include a detailed response to each wildlife interaction, which must be implemented immediately by the fisher to minimise the likelihood of similar interactions. These reports are reviewed regularly by AFMA's Sub-Antarctic Resource Assessment</p>

² '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>Group, who advise AFMA on ways to further refine management arrangements.</p> <p>Current measures in place to minimise risk to protected species and ecological communities include:</p> <ul style="list-style-type: none"> • Prohibition on offal discharge, and restrictions on bycatch release to avoid attracting and provisioning wildlife • Contingency arrangements for disposal of fish meal if the fish meal plant breaks down • Using integrated weight line, paired streamer lines, brickle curtains and seasonal closures to avoid seabirds attending baits • Minimising lighting on fishing vessels to reduce the risk of seabirds colliding with vessels • Prohibition on use of plastic packaging bands to secure bait boxes. • Requirement that all plastic be burned and the residue not discarded at sea • Prohibition on the dumping of oil, plastic, garbage, food waste, sewage and ash • Restriction on the discharge of poultry products and brassicas to avoid the introduction of avian diseases and non-native plants <p>Australia has a strong record of compliance with these requirements, which are reviewed and reported on annually by CCAMLR.</p> <p>AFMA's management arrangements are also consistent with the following national and international plans for the conservation for protected species:</p> <ul style="list-style-type: none"> • CCAMLR conservation measures • National recovery plan for threatened albatrosses and giant petrels 2011–2016 • Threat Abatement Plan 2014 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations, and • Agreement on the Conservation of Albatrosses and Petrels.
Ecosystem Impacts	<p>Due to the harvesting method used in the CCAMLR Exploratory Fisheries (demersal longlines) impacts to the physical ecosystem are considered to be relatively low. However, to mitigate potential impacts, on potentially vulnerable marine ecosystems, such as sponge-dominated communities, cold water corals and seep and vent communities, CCAMLR applies a risk framework with regular risk assessments undertaken for all Divisions.</p> <p>In line with international guidelines (FAO 2014b), CCAMLR has developed means to identify and protect vulnerable marine ecosystems from the effects of fishing; these are reflected in conservation measures including CM 22-05, CM 22-06, CM 22-07, CM 22-08 and CM 22-09 which cover:</p> <ul style="list-style-type: none"> • assessment of bottom fishing proposals by CCAMLR's Scientific Committee, and ongoing assessment of impacts • prohibition of fishing in depths shallower than 550 m • avoidance of registered vulnerable marine ecosystems • data collection to identify high risk areas, and • catch limits and move-on provisions to avoid damage to high risk areas encountered when fishing. <p>All fishing is closely monitored and managed by CCAMLR and AFMA</p>

	<p>through a combination of daily shot-by-shot catch reports, active vessel satellite monitoring systems and information from the two independent onboard scientific observers.</p> <p>Spatial closures and move-on provisions apply when interactions with vulnerable marine ecosystems reach defined limits. These limits are further divided within each Division to maximise the value of fishery data being collected and minimise any risk of localised impact.</p> <p>Madrid Protocol</p> <p>The Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol) requires vessels engaged in fishing in CCAMLR fisheries to adopt several measures to prevent impacts on the ecosystem caused by marine pollution:</p> <ul style="list-style-type: none"> • prohibition on plastic packaging bands, avoiding any possible impact these bands may have on wild animals • a requirement that plastic residue not be discarded at sea to avoid wild animals having any interactions with plastic from the fisheries • a restriction on the discharge of poultry products to avoid the introduction of avian diseases • operators are required to make attempts to retrieve any lost fishing gear. <p>These measures are reflected in CCAMLR conservation measures.</p>
Impacts on CITES species	There are no CITES species taken in the fisheries.
Impacts on World Heritage property/Ramsar sites	<p>There are no Ramsar sites in the vicinity of the fisheries.</p> <p>The fisheries do not operate in the vicinity of the Macquarie Island World Heritage Area or the Heard and McDonald Island World Heritage Area. We consider that actions taken in accordance with the management regime for the CCAMLR exploratory fisheries will not have a significant impact on these areas.</p>

Table 2: Assessment of Australian Fishing in Exploratory Fisheries in the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) Divisions 58.4.1 and 58.4.2 (CCAMLR Exploratory Fisheries) against the Guidelines for the Ecologically Sustainable Management of Fisheries (2nd edition)

Summary

	Meets	Partially meets	Does not meet	Summary
Management regime	8	1	0	<p>The management regime meets requirements.</p> <p>Arrangements are precautionary and are closely monitored and regulated by CCAMLR and the Australian Fisheries Management Authority (AFMA). Management is transparent and information is mostly publically accessible, although the general public is not involved in consultation processes.</p>
Principle 1 (target stocks)	6	5	0	<p>Target stocks are well managed although do not meet all the requirements under the Guidelines.</p> <p>Robust stock assessment and catch limits according to CCAMLR decision rules are yet to be determined. However, stock considerations and catch limits are precautionary, and considerably more robust than is typical of other new and exploratory fisheries. They are also consistent with Australian Government policy, and are reviewed annually to account for new information.</p> <p>A research plan has been developed to improve future stock assessments and inform the necessary considerations of spatial structure, biomass and connectivity of toothfish populations. Environmental data will also be collected and contribute to models of toothfish habitat use, which inform spatial management approaches for toothfish, and the conservation of representative areas of benthic biodiversity. This will also help map the bathymetry of fishable areas, and improve understanding of the distribution, relative abundance, and life histories of bycatch species. CCAMLR expects to achieve these outcomes over the next five years.</p>

Principle 2 (bycatch and TEPS)	6	0	0	<p>Risks to bycatch and protected species are well managed and meet requirements.</p> <p>CCAMLR includes an assessment of potential risk to bycatch and protected species and broader ecosystem impacts in developing its management arrangements. However, there has not yet been a formal ecological risk assessment undertaken for Australian activities in Divisions 58.4.1 and 58.4.2.</p> <p>Fishing in these zones is new and exploratory and management is therefore precautionary. Risk assessments performed for similar, nearby fisheries have not identified any species at high risk and risk mitigation measures recommended in these assessments are reflected in CCAMLR and Australia's management of Divisions 58.4.1 and 58.4.2.</p>
Principle 2 (ecosystem impacts)	7	3	0	<p>Ecological risk is well managed and meets requirements.</p> <p>As per Principle 2 (bycatch and TEPS) above.</p>

Detailed analysis

Guidelines for the Ecologically Sustainable Management of Fisheries (2nd edition) ³	Meets ⁴	Partially meets	Does not meet	Comment ⁵
THE MANAGEMENT REGIME				
The management regime does not have to be a formal statutory fishery management plan as such, and may include non-statutory management arrangements or management policies and programs. The regime should:				
Be documented, publicly available and transparent	Yes, yes and yes	Documented but not publicly available	No, no and no	<p>The management regime is clearly defined, transparent and publically available on the CCAMLR website.</p> <p>Information on fishery performance, including catch of target and bycatch species, and compliance with CCAMLR conservation measures are also published on the CCAMLR website.</p> <p>Meetings where management arrangements are developed are well documented on CCAMLR and AFMA websites.</p> <p>Australia's management arrangements are broadly defined in the <i>Fisheries Management Act 1991</i> (FM Act) and the Fisheries Management Regulations 1992 (FM Regulations).</p> <p>AFMA and the Australian Antarctic Division (AAD) also publish a Guide to CCAMLR New and Exploratory Fisheries which outlines the process for Australian companies or persons to apply for a permit to fish in CCAMLR New and Exploratory Fisheries.</p>

³ This text in this column is from the *Guidelines for the Ecologically Sustainable Management of Fisheries* (2nd edition)

⁴ Text in these three columns is indicative only and does not necessarily represent the individual fishery. The colour shown indicates to the extent the management arrangements for the fishery meet the *Guidelines for the Ecologically Sustainable Management of Fisheries* (2nd edition)

⁵ Text in this column explains the situation in the individual fishery.

Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public	Fully open and transparent public process	Consultative but not open to general public	Developed with no consultation	<p>Management is consultative and transparent, but not open to the general public.</p> <p>CCAMLR meetings, where management arrangements for the fisheries are defined, are restricted to delegates from member countries and approved observers. Australia's delegation includes Commonwealth, State and Territory government representatives, fishing industry and conservation interests.</p> <p>Within Australia, consultation is similarly broad, but not open to all interested and affected parties. This includes meetings of the CCAMLR Consultative Forum, as well as meetings of AFMA's Management Advisory Committee and Resource Assessment Groups.</p>
Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process	Range of expertise and public interests involved	Limited expertise and public interest involved	No external input	<p>Management draws on a wide range of expertise and interests.</p> <p>CCAMLR draws on a wide range of scientific, fisheries management and other expertise in developing its management arrangements. Australia's delegation to CCAMLR includes Commonwealth, State and Territory government representatives, fishing industry and conservation interests.</p> <p>Stock assessment processes undertaken by CCAMLR appear to be more limited in their representation, but within Australia, the CCAMLR Consultative Forum, Sub-Antarctic Resource Assessment Group and Sub-Antarctic Fisheries Management Advisory Committee include representatives from research, government, and non-government sectors, including the fishing industry and conservation interests.</p>

Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured	Has strategic objectives and performance measures to measure effectiveness	Has general objectives and performance criteria, not regularly used to assess effectiveness	Inadequate or non-existent objectives and performance criteria Management effectiveness not measured	<p>Management is strategic, with clear objectives and performance management processes.</p> <p>Conservative catch limits and triggers are set, based on available information and the information required to better understand the fisheries' potential. These requirements are regularly reviewed and defined in CCAMLR research and data collection plans.</p> <p>Compliance with management arrangements is actively monitored by AFMA and reported to CCAMLR by all CCAMLR members. The performance of fisheries against CCAMLR's objectives is also monitored and reported by CCAMLR.</p>
Be capable of controlling the level of harvest in the fishery using input and/or output controls	Effective controls in place	Controls have some capacity to limit harvest	Controls do not have capacity to limit harvest	<p>Effective harvest controls are in place.</p> <p>CCAMLR has a well developed suite of input and output controls defined in its conservation measures. These have been demonstrated to be effective for managing harvest in the fisheries by authorised vessels. For Australian operations these arrangements are reflected in conditions on permits issued by AFMA.</p> <p>Catches from licensed operators are rigorously monitored and reported against, and since 2012 (at least), have been well below the limits set by CCAMLR.</p> <p>IUU fishing continues to pose a significant challenge for CCAMLR. Although IUU catches have not been estimated in recent years due to methodological difficulties, they have been well in excess of the legal catch limits and potentially on the increase. Australia continues to play a key role in surveillance and enforcement activities within the region and is having a positive effect.</p>

Contain the means of enforcing critical aspects of the management arrangements	Effective enforcement capability	Limited enforcement capability	No enforcement capability	<p>Effective enforcement capability for legal fishing is in place.</p> <p>CCAMLR prescribes binding arrangements for management of fisheries in the region. CCAMLR Members are then responsible for regulating the operations of their vessels in CCAMLR fisheries. Australia gives effect to the arrangements through conditions on permits issued by AFMA under section 33 of the FM Act. Australia and other CCAMLR Members also play an important role in managing IUU fishing in the region.</p> <p>AFMA's powers are conferred through Part 6 of the FM Act.</p> <p>Although the area of the fisheries is not part of the AFZ for the purposes of the FM Act, the FM Regulations extend the Act to Australian citizens and bodies corporate, Australian vessels and all persons on any Australian vessel in this area (Patterson and Skirtun, 2012).</p> <p>AFMA monitors compliance by requiring:</p> <ul style="list-style-type: none"> • prior notification when fishing vessels enter and exit the fisheries • any transshipment of fish, goods or persons between vessels to be approved, observed and verified by an independent observer • operation of VMS to monitor vessel activities • carriage of two independent scientific observers on all voyages to monitor and record data and fisher's compliance with management arrangements. A formal process also allows observers to raise any compliance issues with the Vessel Master • compliance with the CCAMLR Catch Documentation Scheme, to verify and track catch
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				<p>throughout the supply chain</p> <ul style="list-style-type: none"> daily reporting through fishing logbooks and wildlife interaction reports completed by the Vessel Master
Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria	Regular performance reviews built into management	Performance reviews provided for, but not on regular timeframe	Performance reviews not required	<p>Management includes a robust, regular and transparent performance management regime.</p> <p>The CCAMLR Commission receives advice from its Scientific Committee which is itself informed by various working groups focussed on ecosystem monitoring and management, statistics, assessments and modelling, and fish stock assessments.</p> <p>This advice, in addition to the advice from the Standing Committee on Implementation and Compliance is considered by the Commission at its annual meetings, and used to review and further develop the conservation measures.</p> <p>AFMA also monitors fishery performance and responds to any issues to ensure compliance with the conservation measures.</p> <p>Where appropriate Australia's delegation raises issues for consideration by CCAMLR at their annual meetings.</p>

Be capable of assessing, monitoring and avoiding, remedying or mitigating any adverse impacts on the wider marine ecosystem in which the target species lives and the fishery operates	Capable of effective management of impacts on wider marine ecosystem	Limited capability to manage impacts on wider marine ecosystem	No capacity to manage impacts on wider marine ecosystem	<p>Management includes acceptable mitigation of ecological risk.</p> <p>There are strict monitoring and data collection requirements for participants in CCAMLR managed fisheries.</p> <p>Formal mechanisms allow independent scientific observers to raise issues with the Vessel Master, ensuring operators are aware of, and comply with management measures, and Vessel Masters are required to immediately define and implement strategies in response to any interactions with protected species.</p> <p>Limits and triggers are set for vulnerable marine environments and where these are identified, relevant areas are closed to fishing.</p> <p>CCAMLR conservation measures include a range of protections for vulnerable marine ecosystems, non-target species including bycatch and protected species. These include area closures and gear restrictions. These measures are implemented and furthered by the management arrangements administered by AFMA.</p>
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Requires compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy	Compliant with all relevant plans	Partially compliant with relevant plans	Not compliant with relevant plans	<p>Management is compliant with all relevant threat abatement, recovery and bycatch mitigation strategies.</p> <p>Ecological risk assessments for Australian operations in the new and exploratory fisheries have not yet been undertaken. AFMA's Antarctic Fisheries Bycatch Action Plan 2003, and more recently, Australian sub-Antarctic fisheries bycatch and discard workplan 2013 are consistent with Australian Government Policy, but do not explicitly focus on the new and exploratory fisheries in Divisions 58.4.1 and 58.4.2. Notwithstanding, these documents may still provide a useful guide to management in these Divisions.</p> <p>Australian vessels are required to comply with the following measures, and the Australian applicant has a demonstrated history of compliance in other CCAMLR Divisions:</p> <ul style="list-style-type: none"> • CCAMLR conservation measures • National recovery plan for threatened albatrosses and giant petrels 2011–2016 • Threat Abatement Plan 2014 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations, and • Agreement on the Conservation of Albatrosses and Petrels.
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PRINCIPLE 1 - A fishery must be conducted in a manner that does not lead to over-fishing, or for those stocks that are over-fished, the fishery must be conducted such that there is a high degree of probability the stock(s) will recover.				
Objective 1 - The fishery shall be conducted at catch levels that maintain ecologically viable stock levels at an agreed point or range, with acceptable levels of probability.				
Information requirements				
1.1.1 There is a reliable information collection system in place appropriate to the scale of the fishery. The level of data collection should be based upon an appropriate mix of fishery independent and dependent research and monitoring.	Up-to-date log books and adequate observer coverage.	Logs present however, data is not adequate or incomplete.	No log books or no observer coverage.	<p>There is a robust research and monitoring system that includes both fishery-dependent and independent data collection.</p> <p>The information needs for new and exploratory fisheries are considered by specialist working groups and the CCAMLR Scientific Committee. They are then prescribed in CCAMLR conservation measures each year. Current measures include both fishery-dependent and independent monitoring and data collection.</p> <p>This regime balances the need for precautionary management, with the need to quickly reduce uncertainty for future development. The current plans are expected to deliver more robust assessments within 3-5 years.</p> <p>CCAMLR Fishery Reports for Divisions 58.4.1 and 58.4.2 have identified problems with reporting from some particular vessels (not Australian) in the past, but these issues appear to have been addressed and do not affect data from 2012 onwards.</p>
Assessment				
1.1.2 There is a robust assessment of the dynamics and status of the species/fishery and periodic review of the process and the data collected. Assessment should include a process to identify any reduction in biological diversity and /or reproductive capacity. Review should take place at regular intervals but at least every three years.	Annual stock assessment or annual surveys.	Stock assessments irregular, or pending, precautionary management	No planned regular stock assessments or surveys.	<p>Annual stock assessments are robust but data is limited; management is therefore precautionary by necessity.</p> <p>Information and understanding of the new and exploratory fisheries remains limited. However, the CCAMLR Working Group on Fish Stock Assessment considers available data and research when providing advice on catch limits to the CCAMLR Scientific Committee (WG-FSA-15). In these data</p>

				<p>poor fisheries, this involves developing biomass density estimates based on available catch data and information from similar fisheries which have had more robust assessments undertaken. These estimates are then scaled to the relevant sea bed area. Where tag-recapture data is available this is also used to inform the assessment.</p> <p>Given the limited data available and the potential need for stock recovery in some areas, catch limits are set conservatively at levels of 3-4% of the estimated current unfished biomass (item 5.29 WG-FSA-15) and are designed to not be substantially higher than the level required to evaluate the fisheries.</p>
<p>1.1.3 The distribution and spatial structure of the stock(s) has been established and factored into management responses.</p>	<p>Robust surveys or equivalent research finalised.</p>	<p>Spatial information is collected but yet to be used.</p>	<p>Spatial information unclear.</p>	<p>Stock assessments consider all available information on distribution and spatial structures. Information is limited however.</p> <p>The fisheries are new and exploratory; meaning information on stock distribution and spatial structure is limited and not well understood.</p> <p>A research plan has been developed to improve future stock assessments for the Divisions and to inform considerations of spatial structure, biomass and connectivity of toothfish populations. This is expected to deliver outcomes within 3-5 years (CCAMLR Fishery Reports 2014).</p> <p>The plans set requirements for catch, effort and related biological, ecological and environmental data collection, and also direct fishing effort. This seeks to maximise the value of the data collected during exploratory fishing and minimises the likelihood of any adverse impacts.</p> <p>Environmental data will also be collected to inform models of toothfish habitat use, spatial management approaches for toothfish, and the conservation of representative areas of benthic biodiversity. This will</p>

			<p>also help map the bathymetry of fishable areas, and improve understanding of the distribution, relative abundance, and life histories of bycatch species.</p> <p>A tag-recapture program is also in force across all areas of the fisheries.</p> <p>Research results are used in CCAMLR's annual stock considerations and are peer reviewed by the CCAMLR Working Group on Fish Stock Assessment and CCAMLR Scientific Committee when assessing New and Exploratory fisheries.</p>
<p>1.1.4 There are reliable estimates of all removals, including commercial (landings and discards), recreational and indigenous, from the fished stock. These estimates have been factored into stock assessments and target species catch levels.</p>	<p>Robust surveys/ research undertaken, with appropriate management response.</p>		<p>Stock assessments consider all removals from the fisheries, however reliable estimates of IUU removals have not been available since 2012.</p> <p>Removals from the fisheries are closely monitored and highly regulated.</p> <p>CCAMLR also includes estimates of IUU fishing when setting conservation measures, including catch limits, each year.</p> <p>CCAMLR's preliminary Report of the Working Group on Fish Stock Assessment (WG-FSA-15, item 3.44) noted that estimates of IUU catch in 2015 for the whole of the Convention area, were between 1264 and 1500 tonnes, and were likely to be an underestimate because they were based on the three vessels actually detected, and did not include mortality associated with lost IUU gillnets (ghost fishing).</p> <p>The Working Group also noted that recent moves in IUU fishing to gillnets and uncertainties in estimating IUU catches mean that toothfish catches have not been estimated over the past five years, since 2011 (WG-FSA-15, item 5.25).</p> <p>IUU catch has historically been far in excess of the catch limits set by CCAMLR however (Fishery Reports 2014 for Divisions 58.4.1 and 58.4.2).</p>

				<p>All catch from CCAMLR fisheries is recorded and reported by the Vessel Master on a shot by shot basis, as well as by two independent scientific observers who are present on all voyages. The Vessel Master must also notify AFMA prior to entering and exiting the fisheries, transshipping fish, persons or any other goods to limit the opportunity for IUU catch.</p> <p>Concession holders must fulfil the obligations of CCAMLR's Catch Documentation Scheme for the unloading of toothfish product, and facilitate in-port monitoring of all catch unloads, by an authority of the Port State. This allows CCAMLR to verify the data reported by the observers and the Vessel Master.</p>
<p>1.1.5 There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.</p>	<p>Sound estimate of productivity is available.</p>	<p>Productivity is currently being estimated.</p>	<p>No estimate of productivity available.</p>	<p>Productivity is not well understood, however plans are in place to reduce uncertainty and improve stock assessments.</p> <p>Conservative catch limits are set annually by CCAMLR and take into account advice from the CCAMLR Working Group on Fish Stock Assessment, and the CCAMLR Scientific Committee.</p> <p>Information from previous fishing in these areas, as well as other CCAMLR areas informs CCAMLR's decisions, and catch limits are set at levels not substantially above that required to evaluate the distribution, abundance and demography of the target species, estimate the fisheries' potential yield, review the fisheries' potential impacts on dependent and related species, and allow the Scientific Committee to advise on catch and effort levels, and fishing gear.</p>

Management responses				
<p>1.1.6 There are reference points (target and/or limit), that trigger management actions including a biological bottom line and/or a catch or effort upper limit beyond which the stock should not be taken.</p>	<p>Robust reference points are in place.</p>	<p>Reference points under development, or developed but trigger response is not prescribed.</p>	<p>No reference points under development or planned.</p>	<p>Precautionary reference points are in place, reflecting limited information on stock status.</p> <p>Given the limited data available for new and exploratory fisheries, and the potential need for stock recovery in some areas, catch limits are set conservatively at levels of 3-4% of the estimated current unfished biomass (WG-FSA-15 item 5.29).</p> <p>Catch limits are revised annually by CCAMLR at levels not substantially above that required to evaluate the distribution, abundance and demography of the target species, estimate the fisheries' potential yield, review the fisheries' potential impacts on dependent and related species, and to allow the Scientific Committee to advise the Commission on catch and effort levels as well as fishing gear.</p> <p>Catch limits ensure the median estimated spawning stock biomass (not total biomass) is greater than or equal to 50% of the average pre-exploitation spawning biomass after a further 35 years of fishing, with the additional condition that there is less than a 10% probability that the spawning biomass will decline below 20% of the pre-exploitation level at any time during this period.</p> <p>These reference points are more precautionary than prescribed in Australia's Commonwealth Fisheries Harvest Strategy Policy and Guidelines (2007).</p>

<p>1.1.7 There are management strategies in place capable of controlling the level of take.</p>	<p>TAC, limited entry.</p>	<p>Limited entry, but strategies could be stronger.</p>	<p>Level of take not adequately controlled.</p>	<p>Effective harvest controls are in place.</p> <p>Total allowable catch limits and limited numbers of licenses control the level of take in the fisheries.</p> <p>Fishing activity, including catches is closely monitored by CCAMLR and its members, including Australia.</p> <p>Although CCAMLR noted there was potential for large overruns in catches in some discrete areas, it agreed with its Scientific Committee that there was no evidence to suggest this was a threat to its conservation objectives (items 5.30 and 5.31 CCAMLR meeting XXXIV).</p> <p>The Commission has requested an assessment of capacity metrics and advice on how such metrics could be developed to reduce the likelihood of overruns in the future.</p>
<p>1.1.8 Fishing is conducted in a manner that does not threaten stocks of by-product species.</p>	<p>Effort is relatively low, take of by-product species is low, or impacts on by-product whole stock have been demonstrated to be low.</p>	<p>Effort is moderate, impact on stock of by-product species is moderate or unclear.</p>	<p>Effort is high, take of by-product is also high and likely to impact whole stock, method does not allow effective selection of target vs by-product species.</p>	<p>Effective controls are in place to manage risks to all species, including by-product species.</p> <p>The CCAMLR conservation measures prescribe catch limits for skates and rays (Rajids), grenadiers (Macrourids) as well as all other species encountered as bycatch.</p> <p>Fishing in Divisions 58.4.1 and 58.4.2 is also restricted to demersal longline methods in waters deeper than 550 m (CM 22-08) to minimise the potential impacts on juvenile toothfish and vulnerable marine ecosystems.</p> <p>Within each Division, catch limits are further subdivided smaller areas based on a proportion of the target species catch limit, or a defined amount (whichever is greater). These limits are prescribed in CM 33-03. Triggers exist to minimise interaction rates (e.g. move-on provisions if catches of any one species reach one tonne in a single haul, and closures where catches reach defined levels).</p>

(Guidelines 1.1.1 to 1.1.7 should be applied to by-product species to an appropriate level)				
1.1.9 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	No outcome required.	No outcome required.	No outcome required.	<p>Effective controls are in place to manage risks to all species, including by-product species.</p> <p>Management arrangements are precautionary and designed to improve understanding of the fisheries. There is regular monitoring and assessment of management performance as well as opportunity for revision where necessary. No further requirements have been identified at this time.</p>
<p>If overfished, go to Objective 2: If not overfished, go to PRINCIPLE 2:</p>				
<p>Objective 2 - Where the fished stock(s) are below a defined reference point, the fishery will be managed to promote recovery to ecologically viable stock levels within nominated timeframes.</p>				
Management responses				
1.2.1 A precautionary recovery strategy is in place specifying management actions, or staged management responses, which are linked to reference points. The recovery strategy should apply until the stock recovers, and should aim for recovery within a specific time period appropriate to the biology of the stock.	Precautionary recovery strategy in place.	Recovery strategy being developed, but not yet in place.	No recovery strategy under development or in place.	<p>Stock status is unclear but management is precautionary and designed to reduce this uncertainty.</p> <p>Stocks in Divisions 58.4.1 and 58.4.2 were classified as overfished and subject to overfishing from 2009 until they were removed from annual Australian Government Fishery Status Reports in 2012. This was because Australia had not commercially fished these divisions since 2005, had no future intention to do so at that time, and because the total Australian catch (including research catch) since 1990 had been comparatively small (149 t).</p> <p>IUU fishing was the likely cause of the initial depletion, and in 2012, these catches were expected to continue to exceed the CCAMLR catch limits.</p> <p>Information on stocks remains limited and management arrangements are considered to be precautionary and are designed to improve understanding of the fisheries.</p>

1.2.2 If the stock is estimated as being at or below the biological and / or effort bottom line, management responses such as a zero targeted catch, temporary fishery closure or a 'whole of fishery' effort or quota reduction are implemented.	Adequate management responses have been implemented.	Management responses have been implemented but are incomplete or inadequate.	No management responses in place.	<p>Stock status is unclear but management is precautionary and designed to reduce this uncertainty.</p> <p>Although information on stocks is limited CCAMLR does not consider them to be below the limit reference point. Management arrangements are precautionary and designed to improve understanding of the fisheries.</p>
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PRINCIPLE 2 - Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.

Objective 1 - The fishery is conducted in a manner that does not threaten bycatch species.

Information requirements

2.1.1 Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.	Up-to-date logbooks and reliable records of bycatch capture.	Log books available but data is incomplete or inadequate.	No log books or log books not up-to-date.	<p>There is a robust research and monitoring system that includes both fishery-dependent and independent data collection.</p> <p>The CCAMLR conservation measures prescribe catch limits for skates and rays (Rajids), and grenadiers (Macrourids) as well as all other species encountered as bycatch. Where possible these are reported at a species level. Examples of reporting by Australian vessels in other Divisions shows reporting is generally at a species level.</p> <p>Within each Division, these limits are further divided across smaller areas based on a proportion of the target species catch limit, or a defined amount (whichever is greater). These limits are prescribed in CM 33-03.</p> <p>Triggers exist to minimise interaction rates (e.g. move-on provisions if catches of any one species reach one tonne in a single haul, and closures where catches reach defined levels).</p> <p>CCAMLR Fishery Reports for Divisions 58.4.1 and 58.4.2 acknowledge there have been problems with reporting from some vessels in the past, but these issues do not appear to affect the data since 2012.</p>
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Assessments				
2.1.2 There is a risk analysis of the bycatch with respect to its vulnerability to fishing.	Risk analysis of bycatch vulnerability has been conducted.	Risk analysis is under development.	No risk analysis of bycatch vulnerability has been conducted.	<p>Bycatch is considered as part of annual stock and management considerations, but data is limited, management is therefore precautionary.</p> <p>CCAMLR has developed risk frameworks for vulnerable marine ecosystems, seabirds and marine mammals. The CCAMLR Working Group on Incidental Mortality Associated with Fishing also undertakes regular risk assessments of CCAMLR fisheries by Division including new and exploratory fisheries. These assessments were not available for consideration in this assessment, however bycatch levels in both Divisions have been significantly lower than the prescribed catch limits for all years since their commencement (CCAMLR Fishery Reports 2014).</p> <p>Research results, including data collected through exploratory fishing are used in CCAMLR's annual stock considerations, and are peer reviewed by the CCAMLR Working Group on Fish Stock Assessment and CCAMLR Scientific Committee when assessing New and Exploratory fisheries.</p> <p>AFMA's Antarctic Fisheries Bycatch Action Plan 2003 considered available fishing data for the areas and concluded there were no species at high risk based on management arrangements at the time. These arrangements have been maintained and updated in CCAMLR conservation measures for the Divisions.</p> <p>Qualitative risk assessments undertaken on similar, nearby fisheries (Heard Island and Macquarie Island Fisheries, 2009 and an ERA undertaken for New Zealand operations in Divisions 54.8.1 and 58.4.2) found no species at risk of overfishing based on the management arrangements in place at the time. These management arrangements are consistent with those in force for the new and exploratory</p>

				fisheries in Divisions 58.4.1 and 58.4.2.
Management responses				
<p>2.1.3 Measures are in place to avoid capture and mortality of bycatch species unless it is determined that the level of catch is sustainable (except in relation to endangered, threatened or protected species). Steps must be taken to develop suitable technology if none is available.</p>	<p>Management responses are in place.</p>	<p>Management responses are under development.</p>	<p>No management responses in place.</p>	<p>Effective controls are in place to manage risk to all non-target species.</p> <p>Bycatch and protected species interactions are monitored and managed by CCAMLR and AFMA. Monitoring is achieved through daily shot by shot catch reports, VMS, and information from two independent onboard scientific observers. Formal mechanisms allow independent scientific observers to raise issues with the Vessel Master, ensuring operators are aware of, and comply with management measures, and Vessel Masters are required to immediately define and implement strategies in response to any interactions with protected species.</p> <p>Bycatch levels in both Divisions have been significantly lower than the prescribed catch limits for all years since their commencement.</p> <p>Since the inception of Division 58.4.1 in 2005, when two southern giant petrels (<i>Macronectes giganteus</i>) and three sooty shearwaters (<i>Puffinus griseus</i>) were reported injured or killed, there have been no incidental mortalities of seabirds or marine mammals. Since the inception of Division 58.4.2 in 2003, there have been no observed incidental mortalities of seabirds, and only one reported mortality of a leopard seal (<i>Hydrurga leptonyx</i>). This occurred in 2005 (CCAMLR Fishery Reports 2014).</p> <p>Incidence and response reports are also reviewed regularly at Sub-Antarctic Resource Assessment Group meetings and advice is then used by AFMA to further refine management arrangements.</p> <p>Current measures in place to minimise risk to protected species include:</p> <ul style="list-style-type: none"> • Prohibition on offal discharge to avoid attracting

				<p>and provisioning wildlife</p> <ul style="list-style-type: none"> • Using integrated weight line, paired streamer lines, brickle curtains and seasonal closures to avoid seabirds attending baits • Minimising lighting on fishing vessels to reduce the risk of seabirds colliding with vessels, and • Prohibition on use of plastic packaging bands to secure bait boxes. <p>Bycatch is controlled using catch limits, fishing depth restrictions, area closures and move-on provisions. AFMA's management arrangements are also consistent with the following measures:</p> <ul style="list-style-type: none"> • CCAMLR conservation measures • National recovery plan for threatened albatrosses and giant petrels 2011–2016 • Threat Abatement Plan 2014 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations, and • Agreement on the Conservation of Albatrosses and Petrels.
<p>2.1.4 An indicator group of bycatch species is monitored.</p>	<p>Monitoring of indicator group of bycatch species in place.</p>	<p>Monitoring of indicator group of bycatch species in place, but incomplete or inadequate.</p>	<p>No monitoring of indicator group of bycatch species in place.</p>	<p>Bycatch is comprehensively monitored but indicator species have not been identified.</p> <p>Bycatch limits are in place for skates and rays (Rajids), grenadiers (Macrourids) as well as all other species (as a group); catch reporting within these groups is typically at a species level.</p> <p>Limits are also in place for vulnerable marine ecosystems and seabirds. Catches are closely monitored and managed by CCAMLR and AFMA through a combination of daily shot-by-shot catch reports, active vessel satellite monitoring systems and information from the two independent onboard scientific observers.</p>

				Current bycatch categories are based on catch composition rather than any consideration of value as an indicator of ecological impact. However, a recent study in Divisions 58.4.1 and 58.4.2 found grenadiers were the main prey item for toothfish (47.6% by weight stomach contents), and were also the primary bycatch species in these waters.
2.1.5 There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.	Performance measures have been implemented.	Performance measures implemented but inadequate.	No performance measures implemented.	Precautionary decision rules, including triggers are in place and their performance is regularly assessed. Spatial closures and move-on provisions apply when catches of target and bycatch species, or interactions with vulnerable marine ecosystems reach defined limits. These limits are further divided over SSRUs to maximise the value of the fishery data being collected and minimise any risk of localised impact. Where interactions with protected species occur, the concession holder is also required to immediately implement measures outlined in their wildlife interaction reports to minimise the likelihood of similar interactions with protected species.
2.1.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.	No outcome required.	No outcome required.	No outcome required.	The close monitoring and management of the precautionary measures, and the scientific and other expertise involved in these processes provide confidence in the management actions.

Objective 2 - The fishery is conducted in a manner that avoids mortality of, or injuries to, endangered, threatened or protected species and avoids or minimises impacts on threatened ecological communities.				
Information requirements				
2.2.1 Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.	Up-to-date logbooks and reliable records of interactions with endangered, threatened or protected species and threatened ecological communities.	Log books available, but lacking important or adequate data on interactions with endangered, threatened or protected species and threatened ecological communities.	No records of interactions with endangered, threatened or protected species and threatened ecological communities.	<p>There is a robust research and monitoring system that includes both fishery-dependent and independent data collection.</p> <p>CCAMLR requires all participants in CCAMLR fisheries to complete and submit detailed daily fishing reports to monitor the catch of target, bycatch and protected species. These reports are typically at a species level.</p> <p>For protected species, the concession holder must also detail and immediately implement measures to minimise the likelihood of subsequent similar interactions.</p> <p>Australia has a strong record of compliance with these requirements, which are reviewed and reported on annually by CCAMLR.</p>
Assessments				
2.2.2 There is an assessment of the impact of the fishery on endangered, threatened or protected species.	Robust ERA conducted and risks identified as low or suitable management practices in place.	An ERA is currently being developed.	No ERA has been conducted.	<p>An ecological risk assessment, according to Australian and New Zealand standards, is yet to be undertaken. However relevant information is available and management is precautionary.</p> <p>This is considered appropriate for the scale of the fisheries at this time.</p> <p>CCAMLR has developed risk frameworks for vulnerable marine ecosystems, seabirds and marine mammals. The CCAMLR Working Group on Incidental Mortality Associated with Fishing also undertake regular risk assessments of CCAMLR fisheries by Division including for new and exploratory fisheries.</p> <p>While there is no formal evaluation of the ecosystem implications of fishing for either Area performed by CCAMLR, the risk level for seabirds in both Divisions, based on current conservation measures,</p>

				<p>is ranked 'category 2' - average to low (CCAMLR Fishery Reports 58.4.1 and 58.4.2, SC-CAMLR-XXX, Annex 8, paragraph 8.1).</p> <p>AFMA has also not yet undertaken a formal ecological risk assessment for CCAMLR Divisions 58.4.1 and 58.4.2.</p> <p>AFMA's Antarctic Fisheries Bycatch Action Plan 2003 was drafted prior to the introduction of Ecological Risk Assessment processes for Commonwealth managed fisheries, and considered available fishing data for the areas. The Action Plan concluded there were no species at high risk based on management arrangements at the time. These arrangements have been maintained and updated in CCAMLR conservation measures for the Divisions.</p> <p>Qualitative risk assessments undertaken on similar, nearby fisheries (Heard Island and Macquarie Island Fisheries, 2009 and for New Zealand operations in Divisions 58.4.1 and 58.4.2) found no species at risk of overfishing based on the management arrangements in place. These management arrangements are consistent with those in force for the new and exploratory fisheries in Divisions 58.4.1 and 58.4.2.</p> <p>Interactions with protected species have been very low (six interactions) since 2003; all occurred in 2005.</p>
<p>2.2.3 There is an assessment of the impact of the fishery on threatened ecological communities.</p>	<p>Robust ERA conducted and risks identified as low, or suitable management practices in place.</p>	<p>An ERA is currently being developed.</p>	<p>No ERA has been conducted.</p>	<p>An ecological risk assessment, according to Australian and New Zealand standards, is yet to be undertaken. However relevant information is available and management is precautionary.</p> <p>This is considered appropriate for the scale of the fisheries at this time.</p> <p>The fisheries are new and exploratory and as yet have not had a formal ecological risk assessment according to the Australian (and New Zealand)</p>

				<p>standards.</p> <p>Management arrangements are precautionary and designed to deliver information on the fisheries before any further development and longer-term investment occurs.</p> <p>Vulnerable marine ecosystems and impacts on the environment are considered in managing CCAMLR fisheries.</p>
Management responses				
<p>2.2.4 There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.</p>	<p>Mitigation strategy in place to avoid interactions with protected species.</p>	<p>Mitigation strategy for the avoidance of interactions with protected species is under development.</p>	<p>No mitigation strategy in place.</p>	<p>Effective strategies are in place to mitigate risks to protected species.</p> <p>Current measures include:</p> <ul style="list-style-type: none"> • Prohibition on offal discharge to avoid provisioning wildlife; • Using integrated weight line, paired streamer lines, brickle curtains and seasonal closures to avoid seabirds attending baits; • Minimising lighting on fishing vessels to reduce the risk of seabirds colliding with vessels; and • Prohibition on use of plastic packaging bands to secure bait boxes. <p>Fishing depth restrictions, area closures and move-on provisions provide additional protection.</p> <p>AFMA's management arrangements are also consistent with the following measures:</p> <ul style="list-style-type: none"> • CCAMLR conservation measures • National recovery plan for threatened albatrosses and giant petrels 2011–2016 • Threat Abatement Plan 2014 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations, and • Agreement on the Conservation of Albatrosses and Petrels.

2.2.5 There are measures in place to avoid impact on threatened ecological communities.	Mitigation strategy in place to avoid impact on threatened ecological communities.	Mitigation strategy for the avoidance of impact on threatened ecological communities under development.	No mitigation strategy in place.	Not applicable. No threatened ecological communities have been identified in the area.
2.2.6 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.				<p>An ecological risk assessment, according to Australian and New Zealand standards, is yet to be undertaken. However relevant information is available and management is precautionary.</p> <p>This is considered appropriate for the scale of the fisheries at this time.</p> <p>The fisheries are new and exploratory and as yet have not had a formal ecological risk assessment.</p> <p>Management arrangements are precautionary and designed to deliver information on the fisheries before further development and longer-term investment occurs.</p> <p>Vulnerable marine ecosystems and impacts on the environment are considered in managing CCAMLR fisheries.</p>
Objective 3 - The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.				
Information requirements				
2.3.1 Information appropriate for the analysis in 2.3.2 is collated and/or collected covering the fisheries impact on the ecosystem and environment generally.	Robust methods of data collection in place.	Methods of data collection in place, but not resulting in the adequate collection of data.	No data collection methods in place.	Robust data collection methods have been established by CCAMLR and are administered by AFMA, as described above at 2.1.1 and 2.2.1.

Assessment				
<p>2.3.2 Information is collected and a risk analysis, appropriate to the scale of the fishery and its potential impacts, is conducted into the susceptibility of each of the following ecosystem components to the fishery.</p> <ol style="list-style-type: none"> Impacts on ecological communities <ul style="list-style-type: none"> Benthic communities Ecologically related, associated or dependent species Water column communities Impacts on food chains <ul style="list-style-type: none"> Structure Productivity/flows Impacts on the physical environment <ul style="list-style-type: none"> Physical habitat Water quality 	Robust ERA has been conducted.	ERA not considered necessary for the scale of the fishery.	No risk analysis has been considered or conducted.	<p>An ecological risk assessment, according to Australian and New Zealand standards, is yet to be undertaken. However relevant information is available and management is precautionary.</p> <p>This is considered appropriate for the scale of the fisheries at this time.</p> <p>The fisheries are new and exploratory and as yet have not had a formal ecological risk assessment.</p> <p>Management arrangements are precautionary and designed to deliver information on the fisheries before any further development and longer-term investment occurs.</p> <p>Vulnerable marine ecosystems, and impacts on the environment are considered in managing CCAMLR fisheries.</p> <p>These arrangements are considered appropriate to the scale of the fisheries at this time.</p>
Management responses				
<p>2.3.3 Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.</p>	Management actions in place.	Management actions being developed.	No management actions in place.	<p>Management is precautionary and includes appropriate ecosystem protections.</p> <p>The fisheries are new and exploratory and as yet have not had a formal ecological risk assessment.</p> <p>Management arrangements are precautionary and designed to deliver information on the fisheries before any further development and longer-term investment occurs.</p> <p>Vulnerable marine ecosystems and impacts on the environment are considered in managing CCAMLR fisheries.</p> <p>These arrangements are considered appropriate to the scale of the fisheries at this time.</p>

<p>2.3.4 There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a predetermined level, or where action is indicated by application of the precautionary approach.</p>	<p>Performance measures in place.</p>	<p>Performance measures implemented but inadequate.</p>	<p>No performance measures implemented.</p>	<p>Precautionary decision rules, including triggers are in place and their performance is regularly assessed.</p> <p>Fishing activity is closely monitored by CCAMLR and AFMA and spatial closures and move-on provisions apply when catches of bycatch species and interactions with vulnerable marine ecosystems reach defined limits. These limits divided across smaller areas within each Division to maximise the value of fishery data being collected and minimise any risk of localised impact. The concession holder is also required to immediately implement measures outlined in their wildlife interaction reports to minimise the likelihood of subsequent similar interactions with protected species.</p>
<p>2.3.5 The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>No outcome required.</p>	<p>No outcome required.</p>	<p>No outcome required.</p>	<p>Management arrangements are precautionary and considered appropriate to the scale of the fisheries at this time.</p> <p>Management arrangements are precautionary and designed to deliver information on the fisheries before any further development and longer-term investment occurs.</p> <p>Vulnerable marine ecosystems and impacts on the environment are considered in managing CCAMLR fisheries.</p>

Table 3: The Department of the Environment’s assessment of the CCAMLR Exploratory Fisheries against the requirements of the EPBC Act related to decisions made under 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 fisheries in relation to decisions under Part 13A. A complete version of the EPBC Act can be found at <http://www.comlaw.gov.au/>.

Part 13A

Section 303BA Objects of Part 13A
<p>(1) The objects of this Part are as follows:</p> <ul style="list-style-type: none"> (a) to ensure that Australia complies with its obligations under CITES⁶ 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.

⁶ 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 CCAMLR Exploratory Fisheries
<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 recommends that product derived from the CCAMLR Exploratory Fisheries be included in the list of exempt native specimens until 27 November 2020.</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 CCAMLR Exploratory Fisheries 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 CCAMLR Exploratory Fisheries until 27 November 2020 would be consistent with the provisions of Part 13A (listed above) as:</p>

	<ul style="list-style-type: none"> the fisheries 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 CCAMLR Exploratory Fisheries is unlikely to be unsustainable and threaten biodiversity within the next five 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> <p>(a) must consult such other Minister or Ministers as the Minister considers appropriate; and</p> <p>(b) must consult such other Minister or Ministers of each State and self-governing Territory as the Minister considers appropriate; and</p> <p>(c) may consult such other persons and organisations as the Minister considers appropriate.</p>	<p>The Department considers that the consultation requirements have been met.</p> <p>The application from the AFMA was released for public comment from 31 August to 1 October 2015. The public comment period 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 CCAMLR Exploratory Fisheries, and the AFMA application for the CCAMLR Exploratory Fisheries. <p>No comments were received.</p>
<p>(5) A copy of an instrument made under section 303DC is to be made available for inspection on the Internet.</p>	<p>The instrument for the CCAMLR Exploratory Fisheries made under section 303DC will be gazetted and made available through the Department's website.</p>

Part 16

Section 391 Minister must consider precautionary principle in making decisions	The Department's assessment of the CCAMLR Exploratory Fisheries
(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.	Having regard to the precautionary management measures in place in the fishery, summarised in Tables 1 and 2, the Department considers that the precautionary principle has been accounted for in the preparation of advice in relation to a decision under section 303DC and section 303FN.
(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.	

Part 12

Section 176 Bioregional Plans	The Department's assessment of the CCAMLR Exploratory Fisheries
(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.	There is no marine bioregional plan relevant to these fisheries.

The Department of the Environment's final recommendations to the Australian Fisheries Management Authority for the CCAMLR Exploratory Fisheries

The material submitted by the Australian Fisheries Management Authority (AFMA) indicates that the permits issued under the *Fisheries Management Act 1991* (FM Act) authorising Australian vessels to operate in the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) exploratory longline fisheries for Antarctic toothfish (*Dissostichus mawsoni*) and Patagonian toothfish (*D. eleginoides*) in Divisions 58.4.1 and 58.4.2 (CCAMLR Exploratory Fisheries) will meet most of the requirements of the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition*.

As a member of CCAMLR, Australia is obligated to ensure that Australian vessels implement all relevant CCAMLR conservation measures when operating in CCAMLR fisheries. conservation measures under CCAMLR protect certain species from fishing, set catch limits, identify fishing regions, regulate when fishing may occur and what fishing methods can be used, and establish fisheries inspection procedures.

Each member country is responsible for regulating their nationals and flagged vessels. Accordingly, AFMA issues scientific permits under section 33 of the FM Act to operators of Australian vessels which have been granted access to CCAMLR exploratory fisheries through CCAMLR's annual notification of proposed exploratory fishing process.

CCAMLR exploratory fisheries are managed to ensure they do not expand faster than the acquisition of information necessary for managing the fisheries.

Stock Status and Recovery

The Department considers that the management and conservation measures in place in CCAMLR exploratory fisheries, and implemented for Australian operations by AFMA, are sufficient to ensure that fishing activity in the CCAMLR Exploratory Fisheries is conducted in a manner that does not lead to overfishing and that stocks are not currently overfished (see Table 2).

Management measures for the CCAMLR Exploratory Fisheries include:

- limited entry
- annual catch limits for each Division and for smaller areas within Divisions
- gear restrictions
- a Data Collection Plan designed to provide the information needed to inform stock assessments
- a catch documentation scheme that tracks toothfish from the point of landing throughout the trade cycle
- high levels of monitoring and data collection, and
- annual reviews of management arrangements and the performance of the fisheries against indicators and performance measures in the performance measurement system.

Ecosystem Impacts

Taking into account management measures described above and:

- the incidental catch limits, move-on and stop-fishing provisions for protection of non-target species
- the avoidance of designated vulnerable marine ecosystems, and the implementation of a data collection system for designated vulnerable marine ecosystems risk areas, and
- the requirement to implement mitigation measures for seabird interactions,

the Department considers that the management and conservation measures in place in the CCAMLR Exploratory Fisheries, and implemented for Australian operations by AFMA, are sufficient to ensure that fishing operations are managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.

While the fisheries are relatively well managed, the Department has identified a number of uncertainties that must be managed to ensure that impacts are minimised, including:

- the lack of an ecological risk assessment for the fisheries, and
- the uncertainties around stock productivity and distribution.

The Department considers these uncertainties present a relatively low risk given the current scale of the fisheries, and that the management arrangements in place are sufficient to avoid unsustainable impacts to marine ecosystems. The Department also recognises the significant efforts being made by CCAMLR and the AFMA to improve understanding of the fisheries and continually evolve management arrangements as information becomes available.

The key challenges for these fisheries will be to:

- collect information to improve understanding of the fishery and its potential impacts on the environment
- ensure the fishery is managed in a precautionary manner that effectively manages the risks associated with uncertainty
- support efforts to ensure compliance with CCAMLR conservation measures and objectives, including combating illegal, unreported and unregulated (IUU) fishing.

The Department considers that product taken in accordance with permits issued under the *Fisheries Management Act 1991* to operate in the CCAMLR exploratory fisheries for *Dissostichus* spp. in Divisions 58.4.1 and 58.4.2 (the CCAMLR Exploratory Fisheries) should be included in the list of exempt native specimens under Part 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for five years, until 27 November 2020.

Export decisions relate to the arrangements in force at the time of the decision. To ensure that the inclusion of product from Australian operations in the CCAMLR Exploratory Fisheries in the list of exempt native specimens remains valid, the recommendations in Table 4 below have been made.

Table 4: CCAMLR Exploratory Fisheries Assessment – Summary of Issues and Recommendations December, 2015

ISSUE	Department of the Environment Recommendation	Australian Fisheries Management Authority Comments
<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>The Department notes that stocks of toothfish (<i>Dissostichus spp.</i>) were classified as overfished and subject to overfishing in the area of the CCAMLR Exploratory Fisheries (Statistical Divisions 58.4.1 and 58.4.2) up until 2012 when they were removed from the Australian Government's annual Fishery Status Reports due to lack of Australian fishing activity. The Department also recognises the ongoing threat presented by illegal, unreported and unregulated fishing, and the challenges presented by the limited data, and uncertainty associated with new and exploratory fisheries. However, the Department considers that the management arrangements, including research and data collection, set by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and the suite of conservation measures and recommendations that make up the international governance arrangements for CCAMLR fisheries are sufficient to manage these issues.</p>	<p>Recommendation 1: The Australian Fisheries Management Authority (AFMA) to ensure that all relevant Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) conservation measures are implemented for the operation of Australian vessels in the CCAMLR Exploratory Fisheries in Statistical Divisions 58.4.1 and 58.4.2.</p> <p>Recommendation 2: AFMA to inform the Department of any intended material changes to the management arrangements for Australian operations in the CCAMLR Exploratory Fisheries 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 fisheries and progress in implementing the recommendations in this report and other managerial commitments to be monitored and assessed throughout the life of the approval. Annual reports should follow Appendix B to the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition' and include a description of the fisheries, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fisheries, status of target stock, interactions with EPBC Act protected species, impacts of the fisheries on the ecosystem in which it operates and progress in implementing the Department's 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: AFMA 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>	
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<p><u>Ecological risks of the effects of fishing</u></p> <p>The Department recognises that CCAMLR, the Australian Antarctic Division of the Department, and AFMA have a well developed research and data collection program to improve understanding of the stock status and the environmental impact of the fisheries. Over time this program should provide greater certainty in the management of ecological risk.</p> <p>The Department also recognises the small scale of the fisheries, and the precautionary management arrangements and scientific rigour that has been adopted by CCAMLR and underpins their management.</p> <p>The Department acknowledges the investment required to undertake a full ecological risk assessment, and notes there can diminished value in pursuing such assessments where information is limited.</p> <p>The Department also notes the range of risk mitigation strategies relevant to these fisheries, including the:</p> <ul style="list-style-type: none"> • CCAMLR conservation measures • National recovery plan for threatened albatrosses and giant petrels 2011–2016 • Threat Abatement Plan 2014 for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations. and • Agreement on the Conservation of Albatrosses and Petrels, <p>Notwithstanding, the Department considers monitoring and management of ecological risk to be an important part of sustainable fisheries management, and encourages AFMA, together with the Australian Antarctic Division of the Department to investigate what measures are appropriate for the fisheries at this time and through the course of the approval period as more information becomes available.</p>	<p>Recommendation 4: AFMA to continue to work collaboratively with relevant expertise, such as the Australian Antarctic Division of the Department, to ensure Australian operations in the CCAMLR Exploratory Fisheries reflect best practice for mitigation of ecological risks.</p>	
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Acronyms

AAD	Australian Antarctic Division
AFMA	Australian Fisheries Management Authority
AFZ	Australian Fishing Zone
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CM	Conservation measure
EEZ	Exclusive Economic Zone
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
FAO	Food and Agriculture Organisation
FM Act	<i>Fisheries Management Act 1991 (Cwlth)</i>
FM Regulations	<i>Fisheries Management Regulations 1992 (Cwlth)</i>
IUU	Illegal, unreported and unregulated
m	Metres
SARAG	Sub-Antarctic Resource Assessment Group
SouthMAC	Sub-Antarctic Fisheries Management Advisory Committee
SSRU	Small Scale Research Unit
t	Tonnes
TAC	Total Allowable Catch
TEP	Threatened, Endangered and Protected Species, listed under the <i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
VMS	Integrated Computerised Vessel Monitoring Systems
WG-FSA	Working Group on Fish Stock Assessment