



**Australian Government**

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**Department of the Environment**

Assessment of the  
**Tasmanian Gould's Squid Fishery**

JUNE 2014

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#### **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 Part 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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This section contains the Department’s assessment of the fishery’s performance against the Australian Government’s *Guidelines for the Ecologically Sustainable Management of Fisheries – 2<sup>nd</sup> Edition* and outlines the reasons the Department recommends that product from the fishery be included in the list of exempt native specimens.

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Table 4 contains a description of the issues identified by the Department with the current management regime for the fishery and outlines the proposed recommendations that would form part of the delegate’s decision to include product derived from the Tasmanian Gould’s Squid Fishery in the list of exempt native specimens.

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**TABLE 1: SUMMARY OF THE TASMANIAN GOULD'S SQUID FISHERY**

<p><b>Key documents relevant to the fishery</b></p>	<ul style="list-style-type: none"> <li>▪ Tasmanian <i>Living Marine Resources Management Act 1995</i></li> <li>▪ Tasmanian Fisheries (Scalefish) Rules 2004</li> <li>▪ Institute for Marine and Antarctic Studies (IMAS) – Tasmanian Scalefish Fishery Assessment 2010/12 pp.88-92</li> <li>▪ Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) - Fishery Status Reports – 2010, 2011, 2012, (Southern Squid Jig Fishery)</li> <li>▪ Fisheries Research and Development Corporation (FRDC) – Status of Key Australian Fish Stocks Reports 2012</li> <li>▪ Tasmanian Arrow Squid Fishery – Status Report – 2001 – Internal Report</li> </ul>
<p><b>Area</b></p>	<p>The area of the Tasmanian Gould's Squid Fishery is all state waters surrounding Tasmania, extending out to three nautical miles from the high-water mark (Figure 1).</p>  <p><b>Figure 1: Tasmanian state waters open to fishing for Gould's squid.</b></p>
<p><b>Target Species</b></p>	<p>The Tasmanian Gould's Squid Fishery harvests Gould's squid (<i>Nototodarus gouldi</i>), a species also known as arrow squid.</p>

	<p>Gould's squid are found in shelf waters from Geraldton in Western Australia (WA), east around southern Australia up to 27°S in southern Queensland (QLD) and including Bass Strait and Tasmania. Gould's squid are also commonly found in New Zealand waters (Stewart, 1993), though it is unclear if Australian and New Zealand populations share the same stock structure (Wilcox et al., 2001).</p> <p>Gould's squid are a short lived, highly fecund (capable of producing an abundance of offspring) species living for approximately 12 months and reaching sexual maturity after 171 days. The most recent population estimate, completed in 2012, estimates the breeding population Australia wide to be approximately 500,000 tonnes.</p>
<p><b>Fishery status</b></p>	<p>The <i>Status of Key Australian Fish Stocks 2012</i> (Flood et al., 2012) describes the whole Gould's squid stock (which encompasses WA, Tasmania, South Australia (SA), Victoria, New South Wales (NSW) and southern QLD) as sustainably fished. A sustainable classification is given to a stock for which the biomass is considered to be at a level sufficient to ensure that, on average, future levels of recruitment are adequate (i.e. not recruitment overfished) and for which fishing pressure is adequately controlled to avoid the stock becoming recruitment overfished.</p> <p>Within this classification, the <i>Status of Key Australian Fish Stocks 2012</i> notes that changing environmental factors such as sea temperature and nutrient concentrations have been linked to growth rates for Gould's squid, particularly for females, and these factors are widely acknowledged as influences on larval and juvenile survival. The species' susceptibility to environmental conditions is further compounded by its variable population and short life span (1 year), which may impact subsequent recruitment. Currently, the management arrangements for the Tasmanian Gould's Squid Fishery do not explicitly address these factors.</p> <p>However, taking into account the high fecundity of the target species, the highly selective fishing method employed (squid jigs) and the low harvest rates in southern Australian waters comparative to historical levels, Gould's squid appears to be sufficiently robust to the region's current harvest practices. The Gould's squid biological stock is monitored through annual catch and effort reports to the Commonwealth Government, continued collaboration with the adjacent Southern Squid Jig Fishery (Commonwealth) and the upcoming national stock review, the Status of Key Australian Fish Stocks report, to be released in 2014.</p>
<p><b>Byproduct Species</b></p>	<p>Due to the selective fishing method used in the fishery (squid jig), byproduct is minimal.</p>

<b>Gear</b>	Operators in the Tasmanian Gould's Squid Fishery use automatic jigging machines and hand jigs (a device with barbless lures attached to one or more jig lines that are rotated by elliptical spools) to harvest Gould's squid.												
<b>Season</b>	The Tasmanian Gould's Squid Fishery is open year round. For reporting purposes, the fishing year commences on 1 March and extends to 01 February the following year. There are no closed seasons applied to Gould's squid fishing in Tasmania.												
<b>Commercial harvest</b>	<p>Commercial harvest in the fishery is highly variable. Between 1990-91 and 2005-06, total catch was below 100 tonnes every year excluding 1999-2000 when close to 500 tonnes were taken. Catch was high again seven years later in 2006-07, at close to 700 t, after which catch dropped back below 100 tonnes.</p> <p>Total harvest of Gould's squid in recent years in the area of the fishery is recorded below (Figure 2).</p> <table border="1" data-bbox="608 842 1326 1093"> <thead> <tr> <th>Year</th> <th>Catch (tonnes)</th> </tr> </thead> <tbody> <tr> <td>2008 – 2009</td> <td>45</td> </tr> <tr> <td>2009 – 2010</td> <td>124</td> </tr> <tr> <td>2010 – 2011</td> <td>160</td> </tr> <tr> <td>2011 – 2012</td> <td>992</td> </tr> <tr> <td>2012 – 2013</td> <td>Not provided</td> </tr> </tbody> </table> <p><b>Figure 2: Catch of Gould's squid (tonnes) from Tasmanian waters.</b></p>	Year	Catch (tonnes)	2008 – 2009	45	2009 – 2010	124	2010 – 2011	160	2011 – 2012	992	2012 – 2013	Not provided
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<b>Value of commercial harvest</b>	The value of commercial harvest for 2010 was estimated at \$300 000												
<b>Take by other sectors</b>	<p>Substantial amounts of Gould's squid are caught as byproduct in the Commonwealth Trawl sector and the Great Australian Bight Trawl sector of the Southern and Eastern Scalefish and Shark Fishery (Wilson et al. 2009). In 2008, the combined bycatch in these two fisheries was approximately 700 tonnes.</p> <p>Gould's squid is taken in small amounts in fisheries targeting southern calamari in Victorian and SA state fisheries and as a small component of byproduct in the NSW Ocean Prawn Trawl Fishery.</p> <p>A survey of recreational fishing in Tasmania (Lyle et al. 2009) estimates that 37 tonnes of Gould's squid was harvested in recreational activities during 2007/08. Although no estimate of Indigenous harvest of Gould's squid has been provided, the catch is considered to be low.</p> <p>The take of Gould's squid from the Tasmanian Gould's Squid Fishery is included in stock assessments for the entire Australian squid stock and overall the stock is considered to be sustainably fished.</p>												

<b>Commercial licences issued</b>	There were 18 licences in 2014 – 2015 that were authorised to take Gould’s squid in the Tasmanian Gould’s Squid Fishery. The Tasmanian Department of Primary Industries, Parks, Water and Environment has advised that no additional licences will be issued.
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<b>Management arrangements</b>	<p>The Tasmanian Gould's Squid Fishery is managed by the Tasmanian Department of Primary Industries, Parks, Water and Environment in accordance with the Tasmanian <i>Living Marine Resources Management Act 1995</i> and the Tasmanian Fisheries (Scalefish) Rules 2004.</p> <p>Gould's squid catch within the Tasmanian Gould's Squid Fishery is managed using input controls, including gear-based statutory fishing rights, limited licences and gear limits for holders of a fishing licence (scalefish A) or (scalefish B), enabling total allowable effort to be apportioned between licence holders in the form of gear units.</p>
<b>Export</b>	No estimation of export value has been provided, however, export markets are in development.
<b>Bycatch</b>	Due to the selective fishing method used by the Tasmanian Gould's Squid Fishery (squid jig), bycatch is minimal.
<b>Interaction with Protected Species<sup>1</sup></b>	The jig fishing methods used by the Tasmanian Gould's Squid Fishery (squid jig) are highly selective for the target species. There were no interactions reported with protected species in the fishery in 2013.
<b>Ecosystem Impacts</b>	<p>Jig fishing is an effective way to take squid as the use of powerful lights at night attracts squid and prey species alike and creates dense aggregations. Squid are aggressive and voracious feeders and readily attack jigs where prey species generally do not.</p> <p>Jig fishing is therefore considered to have minimal environmental impacts with very little bycatch and physical habitat damage (Caton and McLoughlin, 1999). An ecological risk assessment of an adjacent fishery, the Commonwealth Southern Squid Jig Fishery, was completed in 2006 and did not identify any indicators of threat to the environment from jig fishing.</p>
<b>Impacts on CITES species</b>	Gould's squid are not listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Therefore, no assessment under CITES was conducted for the Tasmanian Gould's Squid Fishery's impact on Gould's squid.
<b>Impacts on World Heritage property/Ramsar site</b>	Fishing is not permitted within any World Heritage or Ramsar sites within the Tasmanian Gould's Squid Fishery. Therefore, no assessment of the Tasmanian Gould's Squid Fishery's impacts on World Heritage properties or Ramsar sites has been conducted.

<sup>1</sup> '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.

**Table 2 – Assessment of the Tasmanian Gould's Squid Fishery against the *Guidelines for the Ecologically Sustainable Management of Fisheries 2<sup>nd</sup> Edition***

**MANAGEMENT REGIME**

<p>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:</p>	
<ul style="list-style-type: none"> <li>• <b>Be documented, publicly available and transparent</b></li> </ul>	<p>Fisheries under Tasmanian jurisdiction are administered through the provisions of the Tasmanian <i>Living Marine Resources Management Act 1995</i> (the Act) and its subordinate legislation.</p> <p>The Act stipulates the objectives and processes that must be undertaken for the development, implementation and subsequent review of statutory fishery management plans. This includes mandated processes that provide for transparent decision making that must be publicly available upon which written representations are sought. Any changes to a management regime must be progressed through these mandated processes. This ultimately results in a report to the Minister on procedural outcomes and comprises of any written representations received and their respective responses.</p>
<ul style="list-style-type: none"> <li>• <b>Be developed through a consultative process providing opportunity to all interested and affected parties, including the general public</b></li> </ul>	<p>The take of Gould's squid in waters within Tasmanian jurisdiction falls within the Tasmanian Fisheries (Scalefish) Rules 2004. All Tasmanian legislation, including the Fisheries (Scalefish) Rules 2004, is publically available on the Tasmanian legislation website at <a href="http://www.thelaw.tas.gov.au">www.thelaw.tas.gov.au</a>.</p> <p>Information on the Scalefish Fishery is also available to the public and stakeholders on the Department of Primary Industries, Parks, Water and Environment (DPIPWE) website at <a href="http://www.fishing.tas.gov.au">www.fishing.tas.gov.au</a>. The website also contains other information regarding the policy framework for the management of Tasmanian fisheries and more specifically the Scalefish Fishery.</p> <p>All changes to a management regime must be released for public consultation with all stakeholders and the wider public.</p>

<ul style="list-style-type: none"> <li>• <b>Ensure that a range of expertise and community interests are involved in individual fishery management committees and during the stock assessment process</b></li> </ul>	<p>Advisory committees are formed under the provisions of the Act to provide advice to the Tasmanian Minister on the management of Tasmanian fisheries, including considerations of stock viability. To ensure a range of expertise and community interests are represented, these advisory committees include a range of expertise from the recreational fishery, management, police, scientists and broader community.</p> <p>Relevant fishing industry representatives are also provided membership to the relevant advisory committee to ensure appropriate representation and consultative processes. The commercial sector is also represented by the Tasmanian Scalefish Fishermen's Association.</p>
<ul style="list-style-type: none"> <li>• <b>Be strategic, containing objectives and performance criteria by which the effectiveness of the management arrangements are measured</b></li> </ul>	<p>The objectives and performance measures for assessing the effectiveness of management arrangements for the harvesting of Gould's squid are contained within the supporting Scalefish Fishery Policy document and fishery assessment reports. As the Scalefish Fishery management plan is undergoing a review, the policy document is also being reviewed and updated. The new management plan for the Tasmanian Scalefish Fishery should be implemented by the beginning of November 2014.</p> <p>The performance measures are detailed in the latest fishery assessment report, which has also been updated to follow the newly developed national reporting format.</p>
<ul style="list-style-type: none"> <li>• <b>Be capable of controlling the level of harvest in the fishery using input and/or output controls</b></li> </ul>	<p>The dedicated squid fishery—the auto jig sector—is managed through input controls with a limited number (18) of fishing licence (automatic squid jig).</p> <p>The fishing licence authorises the holder to use more than four automatic squid jig machines, lamps and lines to take Gould's squid. The licence is limited to the harvest of Gould's squid and does not authorise the take and/or possession of any other type of fish or bycatch.</p> <p>Scalefish licence holders that do not hold a fishing licence (automatic squid jig) are restricted to the use of not more than four automatic squid jig machines and lights of no more than a total of 2,000 watts.</p>

<ul style="list-style-type: none"> <li>• <b>Contain the means of enforcing critical aspects of the management arrangements</b></li> </ul>	<p>The Fisheries (Scalefish) Rules 2004 are a statutory set of rules. Each rule contains a grade of penalty attached to it, which mandates the penalty that must be imposed by the Court if an offence is proven. Also, provisions apply for infringement notices with mandated smaller penalties—which can be issued at discretion by a fisheries officer for lesser or first offences.</p> <p>Enforcement of these rules is undertaken by Tasmania Police, who are authorised fishery officers under the Act.</p>
<ul style="list-style-type: none"> <li>• <b>Provide for the periodic review of the performance of the fishery management arrangements and the management strategies, objectives and criteria</b></li> </ul>	<p>All management plans and regimes are subject to periodical formal review—generally every five years. However, if issues arise then more specific reviews can be undertaken if statutory management changes are required.</p> <p>The fishery assessment report for the Scalefish Fishery has recently been updated to reflect the national reporting format. The assessment report contains the performance measures in place for the fishery and reports against those measures using the new standardised methodology.</p>
<ul style="list-style-type: none"> <li>• <b>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</b></li> </ul>	<p>Given the highly selective nature of the fishing gear used, interactions with threatened, endangered or protected species are not concerns for this fishery. Available information suggests that the current take of squid in Australian waters is very low in comparison to historical catch levels, and that adverse impacts on the wider marine ecosystem are unlikely (see section 1.1.5).</p>
<ul style="list-style-type: none"> <li>• <b>Requires compliance with relevant threat abatement plans, recovery plans, the National Policy on Fisheries Bycatch, and bycatch action strategies developed under the policy</b></li> </ul>	<p>There are no relevant plans or strategies relating to threat abatement, recovery or bycatch with which the fishery is required to be compliant. Bycatch in this fishery is negligible due to the highly selective fishing gear used, i.e., unbaited squid jigs. This view is supported by the experience and data collected in the Commonwealth Southern Squid Jig Fishery (Commonwealth SSJF).</p>

**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.**

<b>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.</b>	
<p><b>Information requirements</b></p> <p><b>1.1.1</b></p> <p>There is a reliable information collection system in place appropriate to the scale of the fishery. The level of data collection should be based upon an appropriate mix of fishery independent and dependent research and monitoring.</p>	<p><b>1.1.1</b></p> <p>As a small fishery, information gathered is based around fishing returns and the analysis of catch, effort, and catch per unit effort (CPUE).</p> <p>The Commercial Catch, Effort and Disposal Record, formerly known as the General Fishing Returns and Scalefish Fishing Record, has been amended several times to provide finer spatial scales and greater operational detail. Current reporting practices are now aligned with the national methodology for reporting on fishery performance.</p> <p>The Gould's squid chapter in the <i>Status of Key Australian Fish Stocks Reports 2012</i> (Sahlqvist, P &amp; Lyle, J 2012) reported on the state of Gould's squid at a whole of stock level, providing a cross-jurisdictional stock analysis. This national report will be produced again in 2014.</p>
<p><b>Assessment</b></p> <p><b>1.1.2</b></p> <p>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<sup>2</sup>.</p>	<p><b>1.1.2</b></p> <p>The Scalefish Fishery Assessment Report is the primary vehicle for reporting on Gould's squid taken under Tasmanian jurisdiction. As suggested above, this report has now been aligned with the national methodology for reporting on fishery performance. The Commonwealth government also conducts an annual assessment of the Commonwealth SSJF that must account for catches taken in other jurisdictions, including Tasmania.</p> <p>The Gould's squid chapter in the <i>Status of Key Australian Fish Stocks Reports 2012</i> (Sahlqvist, P &amp; Lyle, J 2012), which will be produced again in 2014, provides a consistent format and approach for reporting on the performance of fisheries across the jurisdictions. The Tasmanian Gould's Squid Fishery will utilise this as a resource to</p>

<sup>2</sup> Review should be undertaken by the relevant management authority in a transparent way.

<p><b>1.1.3</b> The distribution and spatial structure of the stock(s) has been established and factored into management responses.</p> <p><b>1.1.4</b> There are reliable estimates of all removals, including commercial (landings and discards), recreational and indigenous, from the fished stock. These estimates have been factored into stock assessments and target species catch levels.</p> <p><b>1.1.5</b> There is a sound estimate of the potential productivity of the fished stock/s and the proportion that could be harvested.</p>	<p>inform local management practices.</p> <p>The Tasmanian Scalefish Fishery assessment has now been updated in accordance with the national format and processes.</p> <p><b>1.1.3</b> There is assumed to be a single biological stock of Gould’s squid throughout southern Australian waters and harvest is managed accordingly. Genetic studies are limited, but support this hypothesis (Flood et al., 2012).</p> <p><b>1.1.4</b> The commercial and recreational harvest of Gould’s squid, including the commercial harvest of Gould’s squid in the adjacent Commonwealth waters, is factored into local stock assessments and target species catch levels. Although no estimate of Indigenous harvest of Gould’s squid has been provided, the catch is considered to be low.</p> <p><b>1.1.5</b> No comprehensive stock assessment exists for Gould’s squid. However, Gould’s squid are short lived (&lt;1 year), spawn multiple times during their life, and display highly variable growth and size/age at maturity. These characteristics mean that the species can rapidly increase in numbers during favourable environmental conditions and is therefore less susceptible to overfishing than longer lived species.</p> <p>The total commercial catch of Gould’s squid in 2010 was 623 tonnes, of which the Tasmanian Scalefish Fishery contributed only 60 tonnes. In 2011–12, localised harvesting by the Tasmanian Scalefish Fishery had substantially increased, with the commercial catch estimated at 992 tonnes. Although it is possible that this could temporarily affect Gould’s squid populations in Tasmanian waters, there is no change expected to the overall biological stock and any decline in local populations are likely to recoup due to the straddling of stocks between jurisdictional boundaries.</p>
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	<p>It should also be noted that there has been an overall decline in harvest levels by other fisheries across the Gould's squid biological stock. The total fishing effort in the Commonwealth SSJF has decreased markedly since the peak fishing effort in 1997, to a historical low in 2010. Fishing effort from Commonwealth Trawl fisheries has also substantially decreased since 2000. The fall in fishing effort levels is considered a result of economic factors rather than long term changes in Gould's squid catch rates. This indicates that the current level of fishing mortality is unlikely to cause the biological stock to become recruitment overfished.</p> <p>The peak historical catch of Gould's squid in south-eastern Australian waters is estimated at 7,914 tonnes for the period of 1979–80. A preliminary analysis of biological stock depletion off western Victoria by foreign fishing during the early 1980s, and for the domestic fishery during 1995-2006, suggests that jigging or demersal trawling had not resulted in overfishing during these seasons. Comparative to these historical harvests, the total commercial catch of Gould's Squid in 2010 was 623 tonnes (Flood et al., 2012). These findings suggest that the current harvesting levels across the south-eastern Australian Gould's squid biological stock are sustainable.</p>
<p><b>Management responses</b></p> <p><b>1.1.6</b> There are reference points (target and/or limit), that trigger management actions including a biological bottom line and/or a catch or effort upper limit beyond which the stock should not be taken.<sup>3</sup></p> <p><b>1.1.7</b> There are management strategies in place capable of controlling the level of take.</p>	<p><b>1.1.6</b> The Tasmanian Gould's Squid Fishery has no reference points specified in the management regime. However, if any indicators such as assessments (including Commonwealth fishery assessments where relevant) or irregular harvest suggest declining stocks, the Department has been advised that a series of actions will be initiated. These may include further fishery assessments, consultation with the Tasmanian Minister's relevant fishery advisory committees (FACs) and peak bodies. The FACs and the Tasmanian DPIPWE managers would assess the issues and determine if any management response is required. This may potentially result in processes under the Act to initiate a review of the management regime.</p> <p><b>1.1.7</b> Management controls are in the form of input controls on the number of participants. There are 18 licences that allow targeting of Gould's squid using four or more</p>

<sup>3</sup> Reference points can allow for seasonal fluctuations in stock recruitment and other areas of uncertainty.

<p><b>1.1.8</b> Fishing is conducted in a manner that does not threaten stocks of by-product species. (Guidelines 1.1.1 to 1.1.7 should be applied to by-product species to an appropriate level)</p> <p><b>1.1.9</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p>automatic squid jig machines. It should be noted that the take at stock level, including in Tasmanian State waters, is considered well below historical levels that were considered not to have resulted in the stock being classified as overfished.</p> <p><b>1.1.8</b> There are no concerns for by-product species identified in the fishery, due to the high selectivity of the fishing gear used for the target species, i.e., unbaited squid jigs. This view is supported by the experience and data collected in the Commonwealth SSJF. The Commonwealth SSJF operates in adjacent waters with dual licensed (Commonwealth and Tasmanian) fishers operating in both fisheries.</p> <p><b>1.1.9</b> The likelihood of the management strategy to constrain levels of take to within sustainable levels is high. While there are no specific precautionary actions in place, management responses may include further fishery assessments or consultation with the Minister's relevant fishery advisory committees and peak bodies to determine if further action is required.</p> <p>As Gould's squid is considered to be a stock straddling multiple jurisdictions, the Tasmanian Gould's Squid Fishery will also monitor harvest levels in the adjacent Commonwealth SSJF to provide relevant data for any assessment or management response on the harvesting of this species.</p>
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**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.**

**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.<sup>4</sup>

**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.

**1.2.1**

Stocks are considered robust and are not in a recovery state. Therefore, no specific management arrangements are in place to address a precautionary recovery response. However, if assessment indicators suggest stocks are declining, then a series of actions would be initiated. These may include further fishery assessments, consultation with the Minister's relevant fishery advisory committees (FACs) and peak bodies. The FACs and the Tasmanian DPIPWE managers would assess the issues and determine if any management response is required.

**1.2.2**

The current take at stock level, including in Tasmanian State waters, is well below historical levels and is considered sustainable. Therefore, no specific triggers or management responses are in place to address a precautionary recovery response.

<sup>4</sup> Strategies require that recovery should take place within specified times with certain degrees of probability.

**PRINCIPLE 2 – Fishing operations should be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem<sup>5</sup>**

<b>Objective 1: The fishery is conducted in a manner that does not threaten bycatch species.</b>	
<p><b>Information requirements</b></p> <p><b>2.1.1</b> Reliable information, appropriate to the scale of the fishery, is collected on the composition and abundance of bycatch.</p>	<p><b>2.1.1</b> Bycatch is considered negligible, due to the high selectivity of the fishing method.</p>
<p><b>Assessments</b></p> <p><b>2.1.2</b> There is a risk analysis of the bycatch with respect to its vulnerability to fishing.<sup>6</sup></p>	<p><b>2.1.2</b> Bycatch is considered negligible due to the highly selective fishing method, i.e., unbaited squid jigs. This is supported by the ecological risk assessment conducted for the Commonwealth SSJF.</p>
<p><b>Management responses</b></p> <p><b>2.1.3</b> Measures are in place to avoid capture and mortality of bycatch species unless it is determined that the level of catch is sustainable (except in relation to endangered, threatened or protected species). Steps must be taken to develop suitable technology if none is available.</p> <p><b>2.1.4</b> An indicator group of bycatch species is monitored.</p> <p><b>2.1.5</b> There are decision rules that trigger additional management measures when there are significant perturbations in the indicator species numbers.</p>	<p><b>2.1.3</b> No management measures are in place to specifically address the capture or mortality of bycatch. However, bycatch in this fishery is considered negligible due to the highly selective fishing method, i.e., unbaited squid jigs. Furthermore, licensed automatic squid jig operators are prohibited from retaining any species other than Gould’s squid and the risk of interacting with endangered, threatened or protected species is considered low.</p> <p><b>2.1.4</b> Bycatch in this fishery is considered negligible. Therefore, an indicator species has not been determined for monitoring purposes.</p> <p><b>2.1.5</b> Bycatch in this fishery is considered negligible. Therefore, decision rules that trigger additional management measures have not been developed.</p>

<sup>5</sup> The issues addressed under the principle are those that define components of ecosystem integrity.

<sup>6</sup> The vulnerability of a bycatch species may be its vulnerability to fishing technology (eg its catchability), or its vulnerability in terms of ecological impact (e.g. loss of predators or prey).

<p><b>2.1.6</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p><b>2.1.6</b> Bycatch in this fishery is considered negligible. Therefore, a management response has not been developed.</p>
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<p><b>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.<sup>7</sup></b></p>	
<p><b>Information requirements</b> <b>2.2.1</b> Reliable information is collected on the interaction with endangered, threatened or protected species and threatened ecological communities.</p>	<p><b>2.2.1</b> The Commonwealth SSJF is not known to interact with any endangered, threatened or protected species. It is considered that this information is also indicative of the adjacent Tasmanian fishery that uses the same gear type, i.e., non-baited squid jigs.  An environmental risk management report for the Commonwealth SSJF was completed in April 2009 and submitted to the Department of the Environment. This report showed that the risk of jigging to the 216 protected (TEP) species identified as occurring within the area of this fishery was considered negligible or minor.</p>
<p><b>Assessments</b> <b>2.2.2</b> There is an assessment of the impact of the fishery on endangered, threatened or protected species.  <b>2.2.3</b> There is an assessment of the impact of the fishery on threatened ecological communities.</p>	<p><b>2.2.2</b> There is no physical contact of the fishing gear with any threatened ecological communities and interactions with threatened, endangered or protected species are considered negligible to zero. As such the impact of this fishery is considered benign.  <b>2.2.3</b> As per 2.2.2</p>

<sup>7</sup> 'Protected' species are those which warrant a higher degree of conservation and for which explicit legislative or other mechanisms exist, e.g. they may be categorised under separate legislation as 'endangered', 'threatened' or 'protected'.

<p><b>Management responses</b></p> <p><b>2.2.4</b> There are measures in place to avoid capture and/or mortality of endangered, threatened or protected species.</p> <p><b>2.2.5</b> There are measures in place to avoid impact on threatened ecological communities.</p> <p><b>2.2.6</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p><b>2.2.4</b> As per 2.2.2.</p> <p><b>2.2.5</b> As per 2.2.2</p> <p><b>2.2.6</b> As per 2.2.2</p>
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<b>Objective 3: The fishery is conducted, in a manner that minimises the impact of fishing operations on the ecosystem generally.</b>	
<p><b>Information requirements</b></p> <p><b>2.3.1</b> Information appropriate for the analysis in 2.3.2 is collated and/or collected covering the fisheries impact on the ecosystem and environment generally.</p>	<p><b>2.3.1</b> While an analysis of risks has not been completed for the Tasmanian Gould's Squid Fishery, an ecological risk assessment of the Commonwealth SSJF was completed in 2006 and did not identify any indicators of threat to the environment from jig fishing (Flood et al., 2012). It is considered that this information is also indicative of the adjacent Tasmanian fishery that uses the same gear type, i.e., non-baited squid jigs.</p> <p>The annual Tasmanian Scalefish Fishery Assessment Report is now assessed using the new national framework, which includes performance indicators and reference points. Although Tasmania has no formal data sharing arrangement with the Commonwealth, all Tasmanian state catch and effort is reported to the Commonwealth and Gould's squid is included in the new national <i>Status of Key Australian Fish Stocks</i> report.</p>
<p><b>Assessment</b></p> <p><b>2.3.2</b> Information is collected and a risk analysis, appropriate to the scale of the fishery and its potential impacts, is conducted into the susceptibility of each of the following ecosystem components to the fishery.</p> <p><b>(a) Impacts on ecological communities</b></p> <ul style="list-style-type: none"> <li>• Benthic communities</li> <li>• Ecologically related, associated or dependent species</li> <li>• Water column communities</li> </ul> <p><b>(b) Impacts on food chains</b></p> <ul style="list-style-type: none"> <li>• Structure</li> <li>• Productivity/flows</li> </ul> <p><b>(c) Impacts on the physical environment</b></p> <ul style="list-style-type: none"> <li>• Physical habitat</li> <li>• Water quality</li> </ul>	<p><b>2.3.2</b> Due to the limited licences in the fishery, the highly selective fishing method and a relatively low catch comparative to historical quotas, the Tasmanian Gould's Squid Fishery is considered to have negligible to zero bycatch and no significant impact on physical habitat or water quality. The submission provided by DPIPWE also states that there is no contact on benthic and/or water column communities in the fishery. However, due to the relatively small size of the fishery and fluctuating nature of the Gould's squid, there is no specific research available regarding broader food chain impacts.</p>

<p><b>Management responses</b></p> <p><b>2.3.3</b> Management actions are in place to ensure significant damage to ecosystems does not arise from the impacts described in 2.3.1.</p> <p><b>2.3.4</b> There are decision rules that trigger further management responses when monitoring detects impacts on selected ecosystem indicators beyond a predetermined level, or where action is indicated by application of the precautionary approach.</p> <p><b>2.3.5</b> The management response, considering uncertainties in the assessment and precautionary management actions, has a high chance of achieving the objective.</p>	<p><b>2.3.3</b> As described in 2.3.1, there is no evidence of significant damage to ecosystems caused by this fishery, therefore no specific management actions are in place to address impacts to ecosystems. As mentioned above, however, the species' high fecundity, existing input controls (e.g., limited licensing), selective fishing apparatus, (i.e., unbaited squid jigs), and no known interactions with protected communities imply that the fishery is unlikely to have any significant impact on the ecosystem.</p> <p><b>2.3.4</b> As per 2.3.3</p> <p><b>2.3.5</b> As per 2.3.3</p>
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**Table 3: The Department of the Environment’s assessment of the Tasmanian Gould’s Squid Fishery 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 fishery 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**

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

- (a) to ensure that Australia complies with its obligations under CITES<sup>8</sup> 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.

<sup>8</sup> 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 Tasmanian Gould's Squid Fishery
<p>(1) Minister may, by instrument published in the Gazette, amend the list referred to in section 303DB (list of exempt native specimens) by:</p> <ul style="list-style-type: none"> <li>(a) including items in the list;</li> <li>(b) deleting items from the list; or</li> <li>(c) imposing a condition or restriction to which the inclusion of a specimen in the list is subject; or</li> <li>(d) varying or revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or</li> <li>(e) correcting an inaccuracy or updating the name of a species.</li> </ul>	<p>The Department recommends that product derived from the Tasmanian Gould's Squid Fishery be included in the list of exempt native specimens until 19 June 2019.</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 Tasmanian Gould's Squid Fishery has been carried out under Part 10 of the EPBC Act as it relates to Commonwealth fisheries 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 Tasmanian Gould's Squid Fishery until 19 June 2019 would be consistent with the objects of Part 13A (listed above) as:</p>

	<ul style="list-style-type: none"> <li>▪ the fishery will not harvest any Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listed species</li> <li>▪ there are management arrangements in place to ensure that the resource is being managed in an ecologically sustainable way (see Table 1)</li> <li>▪ the operation of the Tasmanian Gould's Squid Fishery is unlikely to be unsustainable and threaten biodiversity within the next 5 years, and</li> <li>▪ the Environment Protection and Biodiversity Conservation Regulations 2000 do not specify squid as a class of animal in relation to the welfare of live specimens.</li> </ul>
<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 Department of Primary Industries, Parks, Water and Environment (DPIPWE) was released for public comment from 31 January 2014 to 28 February 2014. The public comment period sought comment on:</p> <ul style="list-style-type: none"> <li>▪ the proposal to amend the list of exempt native specimens to include product derived from the Tasmanian Gould's Squid Fishery, and</li> <li>▪ the DPIPWE application for the Tasmanian Gould's Squid Fishery.</li> </ul> <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 Tasmanian Gould's Squid Fishery made under section 303DC will be gazetted and made available through the Department's website.</p>

## Part 16

<b>Section 391 Minister must consider precautionary principle in making decisions</b>	<b>The Department's assessment of the Tasmanian Gould's Squid Fishery</b>
(1) The Minister must take account of the precautionary principle in making a decision under section 303DC and/or section 303FN, to the extent he or she can do so consistently with the other provisions of this Act.	Having regard to the precautionary management measures in place in the fishery, summarised in Table 1, the Department considers that the precautionary principle has been accounted for in the preparation of advice in relation to a decision under section 303DC.
(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

<b>Section 176 Bioregional Plans</b>	<b>The Department's assessment of the Tasmanian Gould's Squid Fishery</b>
(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.	A bioregional plan has not been made covering Tasmania state waters.

## **The Department of the Environment's final recommendations to the Tasmanian Department of Primary Industries, Parks, Water and Environment for the Tasmanian Gould's Squid Fishery**

The material submitted by the Tasmanian Department of Primary Industries, Parks, Water and Environment demonstrates that the management arrangements for the Tasmanian Gould's Squid Fishery meet the requirements of the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition*.

### **Stock Status**

The Department of the Environment (the Department) considers that overall the target stock of Gould's squid is not overfished and that the management regime in place in the Tasmanian Gould's Squid Fishery aims to ensure that fishing is conducted in a manner that does not lead to overfishing.

Management arrangements in place in the fishery include:

- limited species approved for catch
- low impact gear
- reporting requirements, and
- gear based statutory fishing rights which limit the amount of gear used.

These management arrangements should enable the fishery to be ecologically sustainable in the short to medium term. Gould's squid are not currently judged to be over-fished and these management arrangements provide the basis to ensure that fishing is conducted in a manner that will not lead to over-fishing.

### **Ecosystem Impacts**

Taking into account the management measures for the target species and the benign fishing method (squid jigs), the Department considers that fishing operations conducted under the Tasmanian Fisheries (Scalefish) Rules 2004 will be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.

Given these management measures the Department considers that product taken in the Tasmanian Gould's Squid Fishery should be included in the list of exempt native specimens under Part 13A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) until 19 June 2019. To ensure that the decisions for the Tasmanian Gould's Squid Fishery under the EPBC Act continue to be valid, the recommendations listed in Table 4 have been made.

**Table 4: Tasmanian Gould’s Squid Fishery Assessment – Summary of Issues and Recommendations June, 2014**

Issue	Recommendation
<p><u>General Management</u></p> <p>Export decisions relate to the arrangements in force at the time of the decision. To ensure that these decisions remain valid and export approval continues uninterrupted, the Department of the Environment needs to be advised of any changes that are made to the management regime and make an assessment that the new arrangements are equivalent or better, in terms of ecological sustainability, than those in place at the time of the original decision. This includes operational and legislated amendments that may affect sustainability of the target species or negatively impact on byproduct, bycatch, protected species or the ecosystem</p>	<p><b>Recommendation 1:</b> Operation of the fishery will be carried out in accordance with the management regime in force under the Tasmanian <i>Living Marine Resources Management Act 1995</i>.</p> <p><b>Recommendation 2:</b> The Tasmanian Department of Primary Industries, Parks, Water and Environment (DPIPWE) to inform the Department of the Environment of any intended material changes to the Tasmanian Gould’s Squid Fishery management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p>
<p><u>Annual reporting</u></p> <p>It is important that reports be produced and presented to the Department annually in order for the performance of the fishery and progress in implementing the 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 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition' and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fishery, status of target stock, interactions with EPBC Act protected species, impacts of the fishery on the ecosystem in which it operates and progress in implementing the Department’s recommendations. Electronic copies of the guidelines are available from the Department’s website at <a href="http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries">http://www.environment.gov.au/resource/guidelines-ecologically-sustainable-management-fisheries</a></p>	<p><b>Recommendation 3:</b> The Tasmanian DPIPWE to produce and present reports to the Department of the Environment annually as per Appendix B of the ‘Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition’.</p>

<p><u>Reviewing management measures</u></p> <p>Harvest of Gould's squid is managed under the Tasmanian <i>Fisheries (Scalefish) Rules 2004</i>. This legislation underpins the Scalefish Policy Document, which describes the framework for decision making in the fishery. Performance measures for the Gould's squid sector of the Tasmanian Scalefish Fishery are reported against annually in a species specific chapter of the <i>Tasmanian Scalefish Fishery Assessment</i>.</p> <p>The <i>Fisheries (Scalefish) Rules 2004</i>, is due to expire in November 2014 and the Scalefish Policy Document is currently under review. While acknowledging that there are currently no resource concerns for Gould's squid and that the stock has been assessed as not being subject to overfishing, the Department recommends that the revised management documents substantiate appropriate performance indicators, reference points and decision rules for Gould's squid. These measures should be in accordance with the national stock assessment for Gould's Squid, the national reporting framework and the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition'.</p>	<p><b>Recommendation 4:</b></p> <p>The Tasmanian DPIPWE to periodically review existing management triggers and responses in line with the national stock assessment and reporting framework, and incorporate these into formal management arrangements as appropriate.</p>
<p><u>Complementary management measures</u></p> <p>The geographic range of the stock of Gould's squid extends into waters managed by other jurisdictions, including Western Australia, South Australia, Victoria, and New South Wales. On a localised scale, targeted fishing for Gould's squid within the boundaries of the proposed fishery is generally opportunistic and spread between the Commonwealth Southern Squid Jig Fishery and Tasmanian Gould's Squid Fishery (within the Tasmanian Scalefish Fishery), depending on environmental conditions and stock movement. The effectiveness of management measures for shared stocks is enhanced when management arrangements are complementary across the range of the stock. The Department therefore recommends that the Tasmanian DPIPWE continue to work collaboratively with other relevant jurisdictions to pursue complementary management arrangements for the shared stock of Gould's squid.</p>	<p><b>Recommendation 5:</b></p> <p>The Tasmanian DPIPWE to continue to work cooperatively with other relevant jurisdictions sharing the Gould's squid stock, including:</p> <ul style="list-style-type: none"> <li>a) data sharing for inclusion in national assessment and reporting processes, and</li> <li>b) taking account of management actions or changes, research and assessment information from other jurisdictions.</li> </ul>

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