



**Australian Government**

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**Department of the Environment**

Assessment of the  
**Queensland Mud Crab Fishery**

OCTOBER 2015

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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 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: SUMMARY OF THE QLD MUD CRAB FISHERY**

<p><b>Key documents relevant to the fishery</b></p>	<ul style="list-style-type: none"> <li>▪ QLD <i>Fisheries Act 1994</i></li> <li>▪ QLD <i>Marine Parks Act 2004</i></li> <li>▪ <i>Great Barrier Reef Marine Park Act 1975</i></li> <li>▪ QLD Fisheries Regulation 2008</li> <li>▪ Progress Report – QLD Mud Crab Fishery, 2012 – 2014</li> <li>▪ Annual Status Report – QLD Mud Crab Fishery, 2011</li> <li>▪ Annual Status Report – QLD Mud Crab Fishery, 2012</li> <li>▪ Annual Status Report – QLD Mud Crab Fishery, 2013</li> <li>▪ Department of the Environment Assessment Report of the QLD Mud Crab Fishery 2007.</li> </ul>
<p><b>Area</b></p>	<p>The Queensland Mud Crab Fishery (QMCF) covers the majority of Queensland tidal waters, except closed waters (Figure 1).</p>  <p><b>Figure 1: Boundary and regional delineations of the Queensland Mud Crab Fishery: Gulf of Carpentaria and East Coast.</b></p>
<p><b>Target Species</b></p>	<p>The QMCF targets the Giant Mud Crab species (<i>Scylla spp.</i>), which are widely distributed along tropical and subtropical areas from southern New South Wales, north to the Exmouth Gulf in Western Australia and reside in sheltered estuaries, tidal mangrove rivers, streams and mud</p>

	<p>flats.</p> <p>Female mud crabs are highly fecund (produce many young) and can migrate up to 95km offshore for spawning, with multiple spawnings possible in one season (Flood et al., 2012). The species grows fast, particularly in tropical waters, and may live for up to four years (Kailoa et al 1993). Mud crabs achieve sexual maturity in 12-18 months (9-10 cm) in the tropical waters of Papua New Guinea and up to 27 months (13.8 cm) in sub-tropical southeast Queensland waters (Heasmann, 1980).</p> <p>While the majority of the catch taken in the fishery is comprised of mud crabs, commercial fishers operating under a 'C1' fishery symbol are allowed to take any species of crab, with the exception of spanner crab.</p>
<p><b>Fishery status</b></p>	<p>The QMCF harvest mud crab in two distinct genetic groups or 'clades': a widespread clade distributed along the eastern seaboard of Australia and an endemic north-west Australian clade (Flood et al., 2012). These clades are referred to as the 'east coast' biological stock, and the 'Gulf of Carpentaria' (GoC) biological stock, respectively (see Figure 1). More than 85% of reported mud crab harvested in Queensland is sourced from the east coast stock.</p> <p>According to the 'Status of Key Australian Fish Stocks 2014', the GoC biological stock is listed as 'sustainable'. The commercial harvest of the GoC biological stock overlaps three jurisdictions: Queensland, Northern Territory and Western Australia. Queensland accounts for approximately 30% of the overall harvest of mud crab in the GoC, but fishing operations are restricted by infrastructural limitations such as serviced roads and boat ramps.</p> <p>Since the release of the Status of Key Australian Fish Stocks Reports (SAFS) in 2014, the East Coast biological stock classification for the QMCF has changed from 'undefined' to 'sustainable' stock. In addition to the prohibition on taking female and undersize crabs, the sustainable stock status is largely attributed to the targeted species' high fecundity and the dense population sheltered in surrounding marine reserves, which purportedly provides sufficient recruitment to nearby fishing areas. The SAFS report also suggests that the fishery's recent high catch rate indicates that fluctuation in stock numbers is more dependent on environmental variables rather than the pressure from fishing activities. While these factors support the QMCF's sustainable stock status, there remains uncertainty about the reliability of commercial catch-and-effort data for eastern Queensland and limited data on the comparatively large non-commercial take (see <b>Recommendation 1, Table 4</b>).</p>
<p><b>Byproduct Species</b></p>	<p>Fishers are allowed to retain other species of crab excluding spanner crabs (<i>Ranina ranina</i>).</p>

<b>Gear</b>	<p>Commercial fishers are permitted to use a maximum of 50 baited dillies (collapsible dillies) and/or crab pots (with rigid or collapsible frames) per C1 symbol (maximum of two C1 symbols per licence). Dimensions of the pots vary but most are cylindrical and have at least two side entrance funnels. Crabs are enticed into the pot or trap by bait attached to the inside of the apparatus.</p> <p>Fishers operating in waters outside of Moreton Bay are also permitted to set their gear in 'trotlines'. A 'trotline' consists of a number of crab pots, dillies or traps attached to each other with a buoy, set at one end of the line and a flagged buoy set at the other end. A maximum of 10 pots can be joined in a single trot line in the MCF.</p> <p>Recreational fishers are permitted to use a maximum of four traps, pots or dillies per person.</p>								
<b>Season</b>	<p>The fishing season is open all year round however, for management purposes the season commences on 01 January and concludes on 31 December of each year.</p>								
<b>Commercial harvest</b>	<p>According to the MCF's 2013 status report, the Commercial sector harvested 1351 tonnes in 2013 - 2014.</p> <p><b>Table 1: Catch of Mud Crab (tonnes) from logbook returns between 2011-2013 (Source: CFISH Database, 20 June 2014).</b></p> <table border="1" data-bbox="608 1070 1326 1238"> <thead> <tr> <th>Year</th> <th>Catch (tonnes)</th> </tr> </thead> <tbody> <tr> <td>2013 – 2014</td> <td>1351</td> </tr> <tr> <td>2012 – 2013</td> <td>1450</td> </tr> <tr> <td>2011 – 2012</td> <td>1439</td> </tr> </tbody> </table>	Year	Catch (tonnes)	2013 – 2014	1351	2012 – 2013	1450	2011 – 2012	1439
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<b>Value of commercial harvest</b>	<p>The 1351 tonnes of mud crab commercially caught was estimated to be worth \$21.6 million.</p>								
<b>Take by other sectors</b>	<p>According to current estimates, the combined take by recreational and Indigenous fishers account for approximately 40 per cent of the overall catch of the east coast biological stock (Flood et al., 2012). However, recent data obtained from commercial logbooks and departmental monitoring programs estimate recreational harvest constitutes more than 25 per cent of the overall total harvest of the east coast biological stock (SAFS 2014).</p> <p>Take by the charter boat sector is estimated at 0.3 tonnes and the recreational sector 366 tonnes (2010 Statewide Recreational Fishing Survey).</p>								

<p><b>Commercial licences issued</b></p>	<p>There are 430 commercial crabbing licence holders (can take blue swimmer crab and mud crab), of which 384 licences recorded mud crab catch in 2013.</p> <p>The authority to harvest mud crab and blue swimmer crab in Queensland commercial fisheries is given in the form of a C1 'fishery symbol' that is written onto a Commercial Fishing Boat Licence. As Queensland's commercial fisheries are limited entry, no new fishery C1 symbols can be issued. However, an existing symbol can be purchased or moved between two Commercial Fishing Boat Licensees or a Commercial Fishing Boat Licence with a C1 symbol can be temporarily transferred between two parties.</p>
<p><b>Management arrangements</b></p>	<p>The fishery is managed by the Queensland Department of Agriculture and Fisheries (QDAF) under the Queensland <i>Fisheries Act 1994</i> and the Queensland Fisheries Regulation 2008.</p> <p><u>Commercial and Recreational arrangements</u></p> <ul style="list-style-type: none"> <li>• A minimum legal size limit of 150 mm carapace width, at the widest part</li> <li>• A prohibition on taking female crabs</li> <li>• A mud crab must not be possessed with the carapace removed</li> <li>• Spatial closures (Eurimbula Creek and all adjoining waterways are closed to the harvesting of mud crabs, along with closures enforced through marine park zoning established under the Australian Government <i>Great Barrier Reef Marine Park Act 1975</i> and the Queensland <i>Marine Parks Act 2004</i>)</li> </ul> <p><u>Commercial only arrangements</u></p> <ul style="list-style-type: none"> <li>• Apparatus restrictions (50 pots per C1 symbol)</li> <li>• Limited entry to the commercial fishery (C1 endorsement required)</li> </ul> <p><u>Recreational only arrangements</u></p> <ul style="list-style-type: none"> <li>• Apparatus restrictions (4 pots/dillies per person)</li> <li>• Possession limit of 10 crabs per person</li> </ul>
<p><b>Export</b></p>	<p>QDAF are not aware of any exports by the QMCF.</p>
<p><b>Bycatch</b></p>	<p>Bycatch may include undersized three-spot crabs, female and undersized mud crabs, female and undersized blue swimmer crabs and some fish species.</p> <p>There is some concern that the allowance of 100 pots for fishers with two C1 symbols may increase bycatch. This issue is being addressed in conditions for the fishery (see <b>Condition 4, Table 4</b>).</p>

<p><b>Interaction with Protected Species<sup>1</sup></b></p>	<p>Current licence conditions require commercial fishers to record any interaction with protected species in the SOCI logbook. According to QDAF Annual Fishing Report for 2011 and 2012, the QMCF reported no interactions with protected species and recorded only one turtle interaction in 2013, which was released alive.</p> <p>The StrandNet database, which records information on marine wildlife strandings and deaths in Queensland, is summarised in reports produced by the Queensland Department of Environment and Heritage Protection. The latest of these reports states that of the interactions related to fishery activities, crab pots and float lines associated with crab pots continue to be a major source of anthropogenic mortality for marine turtles in Queensland (Meager &amp; Limpus 2012). Of the cases where strandings or mortalities were identifiable, 37 turtles were recorded as entangled or caught in crab pots or associated gear: 13 of these turtles were released alive while 24 of these cases were mortalities (Meager &amp; Limpus 2012). StrandNet database records as recent as 2014 continue to identify crab pot entanglement as a source of interaction with, and mortality of, EPBC Act listed protected species (including dugongs) (See <b>Part 13: Condition 1, Table 4</b>).</p> <p>While it is difficult to determine in which crab fishing sector these interactions occurred (as interactions are reported by gear type), Queensland's crab fisheries do employ gear identified as a concern. An Ecological Risk Assessment (ERA) conducted in 2009 by QDAF for all Queensland Crab Fisheries underpins these concerns, specifying fishing and gear loss on target and protected species as the main ecological risks in the fishery.</p> <p>Since the Fishery's last assessment by the Department in 2007, QDAF have implemented some mitigation measures to help reduce potential interaction with EPB Act listed protected species, such as promoting voluntary improvements to gear, prohibiting the use of inverted dillies and introducing trotlines in the northern waters of Moreton Bay. While acknowledging these measures, the Department remains concerned that fishery interactions with EPBC Act listed protected species is still occurring and is inadequately reported (see <b>Part 13: Condition's 1 and 2, Table 4</b>).</p>
<p><b>Ecosystem Impacts</b></p>	<p>The impact of the fishery on the broader ecosystem is considered minimal given the benign harvesting method used and the habitat (muddy/sandy bottom) in which the fishery operates.</p> <p>Lost or abandoned pots have the potential to impact the broader marine ecosystem by 'ghost fishing'.</p>

<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.



<p><b>Impacts on World Heritage property/RAMSAR site</b></p>	<p>While the QMCF operates mainly in inter tidal areas outside the Great Barrier Reef Marine Park (GBRMP), the assessment considered the possible impacts on the World Heritage values of the GBRMP World Heritage Area (WHA).</p> <p>The Department notes that some areas of the fishery are subject to fishing closures through marine park zoning established under the Commonwealth <i>Great Barrier Reef Marine Park Act 1975</i> and the <i>Marine Parks Act 2004</i>, and serve to protect areas of the WHA from the impacts of this fishery.</p> <p>On this basis the Department considers that an action taken by an individual fisher, acting in accordance with the fishery management regime, would not be expected to have a significant impact on the World Heritage matter protected under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).</p>
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**Table 2: Progress in implementation of recommendations made in previous assessment of the QLD Mud Crab Fishery**

Recommendation	Progress	Recommended Action
<p>1. DAFF (formally known as DPI&amp;F) to inform the Department of the Environment (formally known as DEW) of any intended amendments to the management arrangements that may affect the criteria on which EPBC Act decisions are based.</p>	<p>No changes to management arrangements in the Queensland Mud Crab Fishery (QMCF) were made during 2012 and 2013. In May 2014, changes to the legislation allowed multiple C1 licenses to be written on a Commercial Fishing Boat Licence allowing up to a maximum of 100 pots, traps or dillies. QDAF discussed this impending change with the Department of the Environment. A letter was sent on 28 May 2014 from QDAF to the Department of the Environment detailing all changes to the regulation including C1 licences.</p>	<p>Changes to the C1 licence condition were legislated in May 2014. QDAF informed the Department of these changes on 28 May 2014. Taking into account that legislative changes typically undergo an interrelated process involving approval, drafting, coordination and advice, the Department considers it was not adequately informed of the intent to change the C1 licence condition, which may affect the criteria on which the EPBC Act decisions were based.</p> <p>Therefore, the Department considers the issues covered by this recommendation to be partially met.</p> <p>The Department recommends that this recommendation continue to apply (as a condition) under the new export approval for this fishery (see <b>Condition 2, Table 4</b>).</p>
<p>2. Queensland to continue to produce and present reports to the Department of the Environment. Reports to include:</p> <ul style="list-style-type: none"> <li>Information sufficient to allow assessment of the progress of DAFF in implementing the recommendations made in the Assessment of the</li> </ul>	<p>QDAF continues to produce fishery reports on an annual basis. The QMCF Annual Status Reports for the 2011, 2012 and 2013 fishing year have been produced and are available on the Department's website: <a href="http://www.environment.gov.au/marine/fisheries/qld/mud-crab/agency-application">http://www.environment.gov.au/marine/fisheries/qld/mud-crab/agency-application</a></p>	<p>The Department of the Environment considers that this recommendation has been met.</p> <p>The Department recommends that this recommendation continue to apply (as a condition) under the new export approval for this fishery (see <b>Condition 3, Table 4</b>).</p>

Recommendation	Progress	Recommended Action
<p>QLD Mud Crab Fishery 2007; and</p> <ul style="list-style-type: none"> <li>A description of the fishery, management arrangements in place, recent catch data for all sectors of the fishery, status of target stock including performance of the fishery against objectives, performance indicators and measures, interactions with protected species, impacts of the fishery on the ecosystem in which it operates and research and monitoring outcomes.</li> </ul> <p>Information should only be provided on those aspects which are relevant to the fishery and that articulate 'changes' since the last annual report</p>		
<p>3. Fisheries Queensland to continue to actively pursue the development of collaborative research with other jurisdictions and agencies and ensure that</p>	<p>A number of collaborative research and extension projects were conducted relating to the QMCF.</p> <ul style="list-style-type: none"> <li>As an extension of a fisheries research project developed in the Northern Territory, a small number of Queensland mud crab fishers worked with</li> </ul>	<p>Although no substantial research or collaborative work has occurred within the fishery for several years, the Department notes that QDAF have collaborated with other jurisdictions and agencies in pursuit of complementary management and research of shared mud crab stocks. Therefore,</p>

Recommendation	Progress	Recommended Action
<p>management arrangements for the Queensland Mud Crab Fishery continue to take account of the results of research conducted.</p>	<p>fisheries observers in trialling escape vents in their pots.</p> <ul style="list-style-type: none"> <li>• Government agencies from Northern Territory, Queensland, New South Wales and Western Australia and Griffith University have collaborated to investigate the effect of climate variability on mud crab stocks. The project, funded by the Fisheries Research and Development Corporation, finished in 2010 and three papers have been finalised relating to this work.</li> <li>• In 2009, QDAF held a workshop to evaluate the risks and benefits of allowing the harvest of female mud crabs in Queensland. There was no strong unified support for a change to the single-sex harvest policy (SSHP) from industry or the community.</li> </ul>	<p>the Department of the Environment considers that this recommendation has been met.</p> <p>The Department recommends that this recommendation continue to apply under the new export approval for this fishery (see <b>Recommendation 2, Table 4</b>).</p>

Recommendation	Progress	Recommended Action
<p>4. By the end of 2008, Fisheries Queensland to review the Performance Measurement System for the Queensland Mud Crab Fishery to ensure that indicators (including that for bycatch) are relevant and are targeted at achieving precautionary management outcomes. Fisheries Queensland to ensure that appropriate information is collected from the fishery to ensure that these indicators can be monitored effectively.</p>	<p>The QMCF's Performance Measurement System (PMS) was originally developed and implemented in April 2007 and was reported against in 2008, 2009, 2010, &amp; 2011 annual reports. In January 2010, the PMS was reviewed by QDAF representatives and experts. Recommendations were made to improve the robustness of the existing performance measures. In 2012, QDAF finalised the new measures based on those recommendations and these are now publically available at:  <a href="http://www.daff.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/performance-measurement-systems">http://www.daff.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/performance-measurement-systems</a></p> <p>The revised PMS was used to assess performance in the QMCF in the 2011, 2012 and 2013 fishing year report.</p>	<p>Although the review of Performance Measurement System was conducted after the requested deadline, the Department of the Environment considers that this recommendation has been met.</p> <p>The Department recommends that this recommendation continue to apply under the new export approval for this fishery (see <b>Recommendation 1, Table 4</b>).</p>
<p>5. By the end of 2008, Fisheries Queensland to implement management responses for risks ranked as 'moderate' or above in the Queensland Mud Crab Ecological Risk Assessment.</p>	<p>The 2003 Ecological Risk Assessment assigned a moderate consequence score to several activities, specifying fishing and gear loss on target and EPBC Act listed protected species as 'moderate'. QDAF has implemented a number of changes to the management arrangements since the last fishery assessment to address these issues, including:</p> <ul style="list-style-type: none"> <li>• The implementation of the <i>Policy for the Removal of Excess Fishing Capacity in Queensland's Line, Crab, Beam Trawl and Eel Fisheries</i> in 2008–09 has removed a number of crab (C1) fishery symbols (approximately 40%), and thus reduced the number of potential active fishers, fishing effort days and number of apparatus</li> </ul>	<p>The Department acknowledges the management responses developed and implemented by QDAF. However, evidence suggests that fishery interactions with EPBC Act listed protected species still occurs and is likely underreported. Therefore, the Department considers that this recommendation has been partially met.</p> <p>The Department recommends that this recommendation continue to apply (as conditions) under the new export approval for this fishery (see <b>Part 13: Condition 1 and Condition 2, Table 4</b>).</p>

Recommendation	Progress	Recommended Action
	<p>being deployed in the QMCF area.</p> <ul style="list-style-type: none"> <li>• From 2 April 2010 the use of inverted dillies was prohibited in the QMCF. This type of apparatus is prone to being lost and its multifilament net construction is often associated with the entanglement and subsequent mortality of other marine animals, particularly marine turtles.</li> <li>• An amendment was made in October 2009 to ensure a crab fishing apparatus that is not marked with a float is attached to a fixed object above high water mark (e.g. mangrove tree, jetty).</li> <li>• An amendment was made to allow commercial crab fishers to use trotlines in the northern waters of Moreton Bay. This regulation change reduces the number of ropes hanging vertically in the water column, thus reducing the likelihood of interactions between the apparatus and EPBC Act listed protected species.</li> <li>• The use of negatively buoyant rope to attach floats to crab pots is also seen as an important aspect in reducing the potential for interactions, and as such, has been promoted and employed as part of a best practice approach as can be seen in the link below.  <a href="http://www.dpi.qld.gov.au/documents/Fisheries_RecreationalFishing/Responsible-crabbing-in-Qld-DL-flyer.pdf">http://www.dpi.qld.gov.au/documents/Fisheries_RecreationalFishing/Responsible-crabbing-in-Qld-DL-flyer.pdf</a></li> </ul>	

Recommendation	Progress	Recommended Action
<p>6. By the end of 2008, Fisheries Queensland to review the Performance Measurement System for the Queensland Mud Crab Fishery to ensure that it incorporates a precautionary indicator/s to monitor activation of latent effort in the Queensland Mud Crab Fishery on an annual basis. Fisheries Queensland to ensure that appropriate information is collected from the fishery to ensure that this indicator/s can be monitored effectively.</p>	<p>The then Department of the Environment and Water Resources' reassessment of the QMCF in October 2007 identified latent effort in the fishery as a risk to the long-term sustainability of Queensland's crab stocks. In July 2008, QDAF implemented the <i>Policy for the Removal of Excess Fishing Capacity in Queensland's Line, Crab, Beam Trawl and Eel Fisheries</i>. The implementation of this Policy during 2008–09 removed a significant number (approximately 40%) of crab (C1) fishery symbols, thus addressing some of the underlying risks associated with this recommendation.</p> <p>The QMCF's Performance Measurement System was reviewed in January 2010 by QDAF representatives and experts. Workshop participants did not believe the inclusion of a specific latent effort performance measure was necessary due to the effectiveness of the <i>Policy for the Removal of Excess Fishing Capacity in Queensland's Line, Crab, Beam Trawl and Eel Fisheries</i>. QDAF monitors effort trends in all of its fisheries and since 2008 there has been a drop in the number of licences responsible for mud crab catch (Table 1).</p>	<p>The Department of the Environment considers that this recommendation has been met.</p> <p>The Department recommends that this recommendation continue to apply under the new export approval for this fishery (see <b>Condition 4 and Recommendation 1, Table 4</b>).</p>

**Table 3: The Department of the Environment’s assessment of the QLD Mud Crab Fishery against the requirements of the EPBC Act related to decisions made under Part 13 and Part 13A.**

**Please Note** – the table below is not a complete or exact representation of the EPBC Act. It is intended as a summary of relevant sections and components of the EPBC Act to provide advice on the fishery in relation to decisions under Part 13 and Part 13A. A complete version of the EPBC Act can be found at <http://www.comlaw.gov.au/>.

**Part 13**

<p><b>Division 1 Listed threatened species</b>  <b>Section 208A Minister may accredit plans or regimes</b></p>	<p><b>The Department’s assessment of the QLD Mud Crab Fishery</b></p>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <p>i. made by a State or self-governing Territory; and</p> <p>ii. in force under a law of the State or self-governing Territory;</p> <p>if <b>satisfied</b> that:</p> <p>(f) the plan, regime or policy requires persons engaged in fishing under the plan, regime or policy to take all reasonable steps to ensure that members of listed threatened species (other than conservation dependent species) are not killed or injured as a result of the fishing; and</p>	<p>The Queensland Mud Crab Fishery (MCF) will be managed under the Queensland <i>Fisheries Act 1994</i> and the Queensland Fisheries Regulation 2008.</p> <p>The management regime for the MCF was most recently accredited under section 208A (Part 13) of the EPBC Act in 2007. While there have been changes to the management regime since that time, those changes do not materially change the requirement for fishers to take all reasonable steps to ensure that members of listed threatened species are not killed or injured as a result of the fishing.</p> <p>The Queensland Fisheries Regulation 2008 prescribes the restrictions on fishing gear used in the fishery. A number of these restrictions operate to reduce the risk of mortality of listed threatened species potentially encountered in the fishery such as turtles and dugongs.</p> <p>Restrictions include:</p> <ul style="list-style-type: none"> <li>• no inverted dillies</li> </ul>



<p>(g) the fishery to which the plan, regime or policy relates does not, or is not likely to, adversely affect the survival or recovery in nature of the species.</p>	<ul style="list-style-type: none"> <li>• the introduction of trotlines in Moreton Bay will allow up to 10 pots to be attached to one trot-line</li> <li>• developed and distributed a brochure to promote best-practice</li> <li>• all lines attached to pots must be kept above the water line</li> </ul> <p>Given the measures described above, and in Table 1, the Department considers that the current management regime for the MCF requires persons engaged in fishing under that regime to take all reasonable steps to ensure that members of listed threatened species are not killed or injured as a result of the fishing.</p> <p>Currently, evidence suggests that the MCF has some interactions with listed threatened species, such as turtles and dugongs. The Department has identified gear type and reporting validation as the primary concern. Given the measures described above, and in Table 1, the Department considers that the current operation of the MCF does not, or is not likely to, adversely affect the survival or recovery in nature of any listed threatened species. Due to the recent reported catches of turtles and dugongs through StrandNet, the Department considers that accreditation of the management regime for the MCF under this section should be subject to a condition requiring QDAF to adjust fishery operations to reduce the risk of listed threatened species entanglement, and improve monitoring and implement a system to independently validate commercial fishery interactions with listed threatened species (see <b>Part 13 Condition 1 and 2, Table 4</b>).</p>
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**Part 13 (cont.)**

<p><b>Division 2 Migratory species</b> <b>Section 222A Minister may accredit plans or regimes</b></p>	<p><b>The Department's assessment of the QLD Mud Crab Fishery</b></p>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p>	

<p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ol style="list-style-type: none"> <li>i. made by a State or self-governing Territory; and</li> <li>ii. in force under a law of the State or self-governing Territory;</li> </ol> <p>if <b>satisfied</b> that:</p> <p>(f) the plan, regime or policy requires persons engaged in fishing under the plan, regime or policy to take all reasonable steps to ensure that members of listed migratory species are not killed or injured as a result of the fishing; and</p>	<p>The QMCF will be managed under the Queensland <i>Fisheries Act 1994</i> and the Queensland Fisheries Regulation 2008.</p> <p>The management regime for the MCF was most recently accredited under section 222A (Part 13) of the EPBC Act in 2007. While there have been changes to the management regime since that time, those changes do not materially change the requirement for fishers to take all reasonable steps to ensure that members of listed migratory species are not killed or injured as a result of the fishing. The Queensland Fisheries Regulation 2008 prescribes the restrictions on fishing gear used in the fishery. A number of these restrictions operate to reduce the risk of mortality of listed migratory species potentially encountered in the fishery such as turtles and dugongs.</p> <p>Restrictions include:</p> <ul style="list-style-type: none"> <li>• no inverted dillies</li> <li>• the introduction of trotlines in Moreton Bay will allow up to 10 pots to be attached to one trot-line</li> <li>• developed and distributed a brochure to promote best-practice</li> <li>• all lines attached to pots must be kept above the water line</li> </ul> <p>Given the measures described above, and in Table 1, the Department considers that the current management regime for the MCF requires persons engaged in fishing under that regime to take all reasonable steps to ensure that members of listed migratory species are not killed or injured as a result of the fishing.</p>
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<p>(g) the fishery to which the plan, regime or policy relates does not, or is not likely to, adversely affect the conservation status of a listed migratory species or a population of that species.</p>	<p>Currently, evidence suggests that the MCF has some interactions with listed migratory species, such as turtles and dugongs. The Department has identified gear type and reporting validation as the primary concern. Given the measures described above, and in Table 1, the Department considers that the current operation of the MCF does not, or is not likely to, adversely affect the survival or recovery in nature of any listed migratory species. Due to the recent reported catches of turtles and dugongs through StrandNet, the Department considers that accreditation of the management regime for the MCF under this section should be subject to a condition requiring QDAF to adjust fishery operations to reduce the risk of listed migratory species entanglement, and improve monitoring and implement a system to independently validate commercial fishery interactions with migratory species (see <b>Part 13 Condition 1 and 2, Table 4</b>).</p>
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**Part 13 (cont.)**

<p><b>Division 3 Whales and other cetaceans</b> <b>Section 245 Minister may accredit plans or regimes</b></p>	<p><b>The Department's assessment of the QLD Mud Crab Fishery</b></p>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ul style="list-style-type: none"> <li>i. made by a State or self-governing Territory; and</li> <li>ii. in force under a law of the State or self-governing Territory;</li> </ul> <p>if <b>satisfied</b> that:</p> <p>(f) the plan, regime or policy requires persons engaged in fishing under the plan, regime or policy to take all reasonable steps to ensure that cetaceans are not killed or injured as a result of the fishing; and</p>	<p>The QMCF will be managed under the Queensland <i>Fisheries Act 1994</i> and the Queensland Fisheries Regulation 2008.</p> <p>The management regime for the MCF was most recently accredited under section 245 (Part 13) of the EPBC Act in 2007. While there have been changes to the management regime since that time, those changes do not materially change the requirement for fishers to take all reasonable steps to ensure that cetaceans are not killed or injured as a result of the fishing.</p>

<p>(g) the fishery to which the plan, regime or policy relates does not, or is not likely to, adversely affect the conservation status of a species of cetacean or a population of that species.</p>	<p>The Queensland Fisheries Regulation 2008 prescribes the restrictions on fishing gear used in the fishery.</p> <p>Currently, evidence suggests that the MCF only has minimal interactions with whales and other cetaceans. Therefore, the Department considers the current operation of the MCF is not likely to adversely affect the conservation status of a species of cetacean or a population of that species.</p>
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**Part 13 (cont.)**

<b>Division 4 Listed marine species</b> <b>Section 265 Minister may accredit plans or regimes</b>	<b>The Department's assessment of the QLD Mud Crab Fishery</b>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <p>i. made by a State or self-governing Territory; and</p> <p>ii. in force under a law of the State or self-governing Territory;</p> <p>if <b>satisfied</b> that:</p> <p>(f) the plan, regime or policy requires persons engaged in fishing under the plan, regime or policy to take all reasonable steps to ensure that members of listed marine species are not killed or injured as a result of the fishing; and</p>	<p>The QMCF will be managed under the Queensland <i>Fisheries Act 1994</i> and the Queensland Fisheries Regulation 2008.</p> <p>The management regime for the MCF was most recently accredited under section 265 (Part 13) of the EPBC Act in 2007. While there have been changes to the management regime since that time, those changes do not materially change the requirement for fishers to take all reasonable steps to ensure that members of listed marine species are not killed or injured as a result of the fishing.</p> <p>The Queensland Fisheries Regulation 2008 prescribes the restrictions on fishing gear used in the fishery. A number of these restrictions operate to reduce the risk of mortality of listed marine species potentially encountered in the fishery such as turtles and dugongs.</p> <p>Restrictions include:</p> <ul style="list-style-type: none"><li>• no inverted dillies</li><li>• the introduction of trotlines in Moreton Bay will allow up to 10 pots to be attached to one trot-line</li><li>• developed and distributed a brochure to promote best-practice</li><li>• all lines attached to pots must be kept above the water line</li></ul> <p>Given the measures described above, and in Table 1, the Department considers that the current management regime for the MCF requires</p>

<p>(g) the fishery to which the plan, regime or policy relates does not, or is not likely to, adversely affect the conservation status of a listed marine species or a population of that species.</p>	<p>persons engaged in fishing under that regime to take all reasonable steps to ensure that members of listed marine species are not killed or injured as a result of the fishing.</p> <p>Currently, evidence suggests that the MCF has some interactions with listed marine species, such as turtles and dugongs. The Department has identified gear type and reporting validation as the primary concern. Given the measures described above, and in Table 1, the Department considers that the current operation of the MCF does not, or is not likely to, adversely affect the survival or recovery in nature of any listed marine species. Due to the recent reported catches of turtles and dugongs through StrandNet, the Department considers that accreditation of the management regime for the MCF under this section should be subject to a condition requiring QDAF to adjust fishery operations to reduce the risk of listed marine species entanglement, and improve monitoring and implement a system to independently validate commercial fishery interactions with listed marine species (see <b>Part 13 Condition 1 and 2, Table 4</b>).</p>
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### Part 13 (cont.)

<b>Section 303AA Conditions relating to accreditation of plans, regimes and policies</b>	<b>The Department's assessment of the QLD Mud Crab Fishery</b>
(1) This section applies to an accreditation of a plan, regime or policy under section 208A, 222A, 245 or 265.	The Department recommends that the management regime for the QMCF be accredited under sections 208A, 222A, 245 and 265.
(2) The Minister may accredit a plan, regime or policy under that section even though he or she considers that the plan, regime or policy should be accredited only: (a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with. In such a case, the instrument of accreditation is to specify the period, circumstances or condition.	The Department considers that two conditions are required for the accreditation of the management regime for the MCF under Part 13 (See <b>Part 13 Conditions 1 and 2, Table 4</b> ).
(7) The Minister must, in writing, revoke an accreditation if he or she is satisfied that a condition of the accreditation has been contravened.	

### Part 13A

<b>Section 303BA Objects of Part 13A</b>
(1) The objects of this Part are as follows: (a) to ensure that Australia complies with its obligations under CITES <sup>2</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>2</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 QLD Mud Crab 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 QMCF be included in the list of exempt native specimens until 12 October 2018.</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 MCF 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. The Department considers that the amendment of the list of exempt native specimens to include product taken in the QMCF until 12 October 2018 would be consistent with the provisions 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</li> </ul>



	<p>resource is being managed in an ecologically sustainable way (see Table 1)</p> <ul style="list-style-type: none"> <li>the operation of the MCF is unlikely to be unsustainable and threaten biodiversity within the next three years, and</li> <li>the Environment Protection and Biodiversity Conservation Regulations 2000 do not specify crustaceans 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 QDAF was released for public comment from 1 October 2014 to 4 November 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 MCF, and</li> <li>Fisheries Queensland application for the MCF.</li> </ul> <p>One comment was received during the public comment period and has been considered as part of the Department's assessment (<a href="#">Attachment K1</a>).</p> <p>Another comment was received prior to the public period and has been considered as part of the Department's assessment (<a href="#">Attachment K2</a>).</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 MCF made under section 303DC will be gazetted and made available through the Department's website.</p>

<b>Section 303FN Approved wildlife trade operation</b>	<b>The Department's assessment of the QLD Mud Crab Fishery</b>
<p>(2) The Minister may, by instrument published in the <i>Gazette</i>, declare that a specified wildlife trade operation is an <b>approved wildlife trade operation</b> for the purposes of this section.</p>	
<p>(3) The Minister must not declare an operation as an approved wildlife trade operation unless the Minister is <b>satisfied</b> that:</p>	

<p>(a) the operation is consistent with the objects of Part 13A of the Act; and</p> <p>(b) the operation will not be detrimental to:</p> <p>i. the survival of a taxon to which the operation relates; or</p> <p>ii. the conservation status of a taxon to which the operation relates; and</p> <p>(ba) the operation will not be likely to threaten any relevant ecosystem including (but not limited to) any habitat or biodiversity; and</p>	<p>The Department considers that the operation of the MCF is consistent with 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 MCF is unlikely to be unsustainable and threaten biodiversity within the next three years, and</li> <li>▪ the Environment Protection and Biodiversity Conservation Regulations 2000 do not specify crustaceans as a class of animal in relation to the welfare of live specimens.</li> </ul> <p>The Department considers that the QMCF will not be detrimental to the survival or conservation status of a taxon to which it relates within the next <b>3 years</b>, given the management measures currently in place, which include:</p> <ul style="list-style-type: none"> <li>• a minimum legal size limit of 150 mm carapace width, at the widest part</li> <li>• a prohibition on taking female crabs</li> <li>• a mud crab must not be possessed with the carapace removed</li> <li>• spatial closures</li> <li>• apparatus restrictions (50 pots per C1 symbol)</li> <li>• limited entry to the commercial fishery (C1 endorsement required).</li> </ul> <p>The Department considers that the MCF will not threaten any relevant ecosystem within the next <b>3 years</b>, given the management measures currently in place, which include:</p> <ul style="list-style-type: none"> <li>• a minimum legal size limit of 150 mm carapace width, at the widest part</li> </ul>
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<p>(c) if the operation relates to the taking of live specimens that belong to a taxon specified in the regulations – the conditions that, under the regulations, are applicable to the welfare of the specimens are likely to be complied with; and</p> <p>(d) such other conditions (if any) as are specified in the regulations have been, or are likely to be, satisfied.</p>	<ul style="list-style-type: none"> <li>• a prohibition on taking female crabs</li> <li>• a mud crab must not be possessed with the carapace removed</li> <li>• spatial closures</li> <li>• apparatus restrictions (50 pots per C1 symbol)</li> <li>• limited entry to the commercial fishery (C1 endorsement required).</li> </ul> <p>The Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations) do not specify crustaceans as a class of animal in relation to the welfare of live specimens.</p> <p>No other conditions are specified in relation to commercial fisheries in the EPBC Regulations.</p>
<p>(4) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have <b>regard</b> to:</p> <p>(a) the significance of the impact of the operation on an ecosystem (for example, an impact on habitat or biodiversity); and</p> <p>(b) the effectiveness of the management arrangements for the</p>	<p>The Department considers that the operation of the MCF will not have a significant impact on any relevant ecosystem within the next <b>3 years</b>, given the management measures currently in place, which include:</p> <ul style="list-style-type: none"> <li>• a minimum legal size limit of 150 mm carapace width, at the widest part</li> <li>• a prohibition on taking female crabs</li> <li>• a mud crab must not be possessed with the carapace removed</li> <li>• spatial closures</li> <li>• apparatus restrictions (50 pots per C1 symbol)</li> <li>• limited entry to the commercial fishery (C1 endorsement required).</li> </ul> <p>The Department considers that the management arrangements that</p>

<p>operation (including monitoring procedures).</p>	<p>will be employed for the MCF, as outlined in <b>Table 1</b>, are likely to be effective. The management regime for the MCF sets out performance indicators and trigger points against which the performance of the fishery is evaluated regularly. In addition, gear restrictions will be employed as well as area restrictions.</p>
<p>(5) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have <b>regard</b> to:</p> <p>(a) whether legislation relating to the protection, conservation or management of the specimens to which the operation relates is in force in the State or Territory concerned; and</p> <p>(b) whether the legislation applies throughout the State or Territory concerned; and</p> <p>(c) whether, in the opinion of the Minister, the legislation is effective.</p>	<p>The QMCF will be managed under the Queensland <i>Fisheries Act 1994</i> and the Queensland Fisheries Regulation 2008.</p> <p>The Queensland <i>Fisheries Act 1994</i> applies throughout Queensland waters.</p> <p>The Department considers that the legislation is likely to be effective.</p>
<p>(10) For the purposes of section 303FN, an operation is a wildlife trade operation if, and only if, the operation is an operation for the taking of specimens and:</p> <p>(d) the operation is a commercial fishery.</p>	<p>The MCF is a commercial fishery.</p>

<b>Section 303FR Public consultation</b>	<b>The Department's assessment of the QLD Mud Crab Fishery</b>
<p>(1) Before making a declaration under section 303FN, the Minister must cause to be published on the Internet a notice:</p> <ul style="list-style-type: none"> <li>(a) setting out the proposal to make the declaration; and</li> <li>(b) setting out sufficient information to enable persons and organisations to consider adequately the merits of the proposal; and</li> <li>(c) inviting persons and organisations to give the Minister, within the period specified in the notice, written comments about the proposal.</li> </ul>	<p>The Department considers that consultation requirements of the EPBC Act for declaring a fishery an approved wildlife trade operation have been met. A public notice, which set out the proposal to declare the QMCF an approved wildlife trade operation and included the submission for the QMCF, was released for public comment which closed on 4 November 2014 with one public comment received.</p>
<p>(2) A period specified in the notice must not be shorter than 20 business days after the date on which the notice was published on the Internet.</p>	<p>A public notice, which set out the proposal to declare the QMCF a wildlife trade operation and included the submission was released for public comment on 1 October 2014 and closed on 4 November 2014, a total of 22 business days.</p>
<p>(3) In making a decision about whether to make a declaration under section 303FN, the Minister must consider any comments about the proposal to make the declaration that were given in response to the invitation in the notice.</p>	<p>The public comments received on the submission are included at <b><u>Attachment L1 and L2</u></b> of the brief. The Department's assessment has considered the public comments received on the submission.</p>

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

**Part 16**

<b>Section 391 Minister must consider precautionary principle in making decisions</b>	<b>The Department's assessment of the QLD Mud Crab 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.	The Department has accounted for the precautionary principle in the preparation of its advice. QDAF has implemented precautionary management measures which reduce the risks of adverse impacts, for example, limited entry, gear restrictions and a prohibition on taking female crabs. Furthermore, the management regime for the MCF sets out performance indicators and trigger points against which the performance of the fishery is evaluated regularly.
(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.	

## **The Department of the Environment's final conditions and recommendation to the Queensland Department of Agriculture and Fisheries for the Queensland Mud Crab Fishery**

The material submitted by the Queensland Department of Agriculture and Fisheries (QDAF) indicates that the Queensland Mud Crab Fishery operates in accordance with the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries 2<sup>nd</sup> edition*. Management arrangements, including limited entry, gear specifications and the prohibition on harvesting female or undersized crabs, suggest that the fishery is being managed in an ecologically sustainable way. As such, the Department considers that overall the management regime aims to ensure that fishing is conducted in a manner that does not lead to over-fishing and for fishing operations to be managed to minimise their impact on the structure, productivity, function and biological diversity of the ecosystem.

### **Stock Status and Recovery**

While the fishery is relatively well managed, the Department has identified a number of key challenges that must be addressed to ensure the fishery's sustainability, including:

- monitoring and managing the transfer and distribution of C1 symbols
- assessing and managing ecological risks associated with the allowance of two C1 symbols per licence
- developing appropriate responses to triggered performance indicators
- developing mechanisms to ensure the precision, validity and accountability of data from the commercial and recreational sector of the fishery
- the promotion of escape vents on pots to reduce bycatch of undersized crabs

### **Ecosystem Impacts**

The Department considers that, until it can be demonstrated that these issues have been adequately addressed, declaration of the harvest operations of the Queensland Mud Crab Fishery should be declared a Wildlife Trade Operation for three years, until 12 October 2018, is appropriate. The Department considers that the declaration should be subject to the conditions listed in Table 4. To contain and minimise the risks in the longer term the recommendations outlined in Table 4 have been made.

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



**Table 4: QLD Mud Crab Assessment – Summary of Issues, Conditions and Recommendations October, 2015**

Issue	Condition
<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, EPBC Act protected species or the ecosystem.</p>	<p><b>Condition 1:</b></p> <p>Operation of the Queensland Mud Crab Fishery (QMCF) will be carried out in accordance with management regime in force under the Queensland <i>Fisheries Act 1994</i> and the Queensland Fisheries Regulation 2008.</p> <p><b>Condition 2:</b></p> <p>The Queensland’s Department of Agriculture and Fisheries (QDAF) to inform the Department of the Environment of any intended material changes to the QMCF management arrangements that may affect the assessment against which <i>Environment Protection and Biodiversity Conservation Act 1999</i> decisions are made.</p>
<p><u>Annual Reporting</u></p> <p>It is important that reports be produced and presented to the Department annually in order for the performance of the fishery and progress in implementing the conditions and recommendations in this report and other managerial commitments to be monitored and assessed throughout the life of the declaration. Annual reports should follow Appendix B to the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition' and include a description of the fishery, management arrangements in place, research and monitoring outcomes, recent catch data for all sectors of the fishery, status of target stock, interactions with EPBC Act protected species, impacts of the fishery on the ecosystem in which it operates and progress in implementing the Department’s conditions and recommendations. Electronic copies of the guidelines are available from the Department’s website at <a href="http://www.environment.gov.au/resource/guidelines-">http://www.environment.gov.au/resource/guidelines-</a></p>	<p><b>Condition 3:</b></p> <p>The QDAF to produce and present reports to the Department of the Environment annually as per Appendix B of the <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i>.</p>

Issue	Condition
ecologically-sustainable-management-fisheries	
<p data-bbox="192 276 479 304"><u>C1 Licence Condition</u></p> <p data-bbox="192 336 1350 600">As of May 2014, changes to the C1 licence condition were legislated to allow a single licence holder up to two C1 symbols to use up to 100 pots, traps or dillies (50 per symbol). The ability for a fisher to service such an increased maximum number of pots in the east coast of Queensland in estuaries and intertidal mudflats, where there are diurnal tides (particularly in the tropics) on the same day is uncertain. This could potentially increase the ecological risk of the fishery with respect to target, threatened, endangered and protected (TEP) species.</p> <p data-bbox="192 647 1350 871">Under the management arrangements, a C1 symbol can be purchased or temporarily transferred between parties that hold Commercial Fishing Boat Licences. While noting that no new C1 symbols are expected to be issued, the Department is concerned by the potential for C1 symbols to be transferred from fishers targeting mud crabs in the Gulf of Carpentaria to fishers operating along Queensland's east coast, where a separate biological stock is subjected to greater fishing pressures.</p> <p data-bbox="192 919 1350 1302">Furthermore, since the same C1 symbol applies to all crab fisheries (with the exception of spanner crab), licence holders operating in different fisheries can transfer a C1 symbol to operate in each of these fisheries at any time, including in the Blue Swimmer Crab Fishery (BSCF). A C1 symbol being used in the BSCF can in turn be used to operate in the Gulf of Carpentaria or Queensland East Coast Mud Crab Fisheries at any time. The ability, under current management arrangements, for market and environmental circumstances to drive shifts in the use of C1 symbols across different crab fisheries, and to concentrate effort on alternate target species and to centralise fishing pressures, is a concerning management risk, especially for potential interactions with EPBC Act listed TEP species.</p> <p data-bbox="192 1350 1350 1414">An important fishery management control in the MCF is the numbers of pots able to be used. There is widespread recognition amongst crab fishery stakeholders and managers</p>	<p data-bbox="1373 276 1547 304"><b>Condition 4:</b></p> <p data-bbox="1373 336 2022 679">QDAF, in collaboration with crab fishery stakeholders, to investigate and implement management measures to monitor and manage the distribution of C1 symbols between the respective crab fisheries (Gulf of Carpentaria and Queensland East Coast MCF, and the BSCF) to ensure there is minimal risk to the target stock, bycatch, TEP species or the broader ecosystem from unsustainable fishing pressure.</p>

Issue	Condition
<p>that the ability to enforce input controls (numbers of pots used per commercial C1 symbol or recreational fisher) is extremely difficult. Investigation and trials of the use of official identification tags on commercial crab pots are a suggested measure to promote the effective management of input controls in the MCF to ensure compliance with use of designated numbers of pots per C1 symbol.</p> <p>To date, no assessment has been undertaken to determine the potential ecological impacts or substantiate that management arrangements can sufficiently respond to these potential problems if they occur. Taking into account the existing commercial and recreational fishing pressures on crab stocks along Queensland's east coast, the Department is concerned that existing management arrangements, including the recent change allowing the use of two C1 symbols per licence, may lead to increased and unsustainable fishing pressure at local and stock levels as well as increasing possible interactions with TEP species. The Department considers it important that QDAF monitor and control the distribution of active and latent C1 symbols across the three respective crab fisheries (i.e. Gulf of Carpentaria and Queensland East Coast Mud Crab Fisheries, and the BSCF) to support an ecologically sustainable harvest of target species without having negative effects on TEP species.</p>	
<p><u>Improve fishing gear for bycatch and protected species</u></p> <p>In the Annual Fishing Report for 2011 and 2012, the MCF and BSCF reported no interactions with EPBC Act listed TEP species. In 2013, one turtle interaction was recorded, which was released alive. In contrast, the StrandNet database, which is operated by the Queensland Department of Environment and Resource Management, identified 37 turtles as entangled or caught in crab pots or associated gear (Meager &amp; Limpus 2012), and continues to identify crab pot entanglement as a source of interaction with, and mortality of, TEP species in recent unreleased reports.</p> <p>In 2009, an Ecological Risk Assessment for the Crab Fisheries identified both fishing activity and gear loss as the primary risk to protected species, allocating them both a 'moderate' risk classification. The report cited widespread and daily fishing activity in tidal waters throughout Queensland as the reason for the heightened risk classification. The</p>	<p><b>Part 13 Condition 1:</b></p> <p>QDAF, in consultation with crab fishery stakeholders and other government agencies to:</p> <ul style="list-style-type: none"> <li>a) complete a robust evaluation of operational management measures to examine the risk of TEP species entanglements with crab pots; and</li> <li>b) taking into account the evaluation of management arrangements, implement a suite of management measures to minimise the risk of TEP species entanglement with crab pots.</li> </ul>

Issue	Condition
<p>Department is concerned that increasing the pot allowance for commercial crab fishers with two C1 symbols may exasperate the risks to bycatch species (including TEP species and undersize female crabs), particularly in intertidal areas. Without appropriately investigating and mitigating the possible risks associated with servicing an increased number of crab pots on the east coast, the allowance for two C1 symbols may have heightened the ecological risks identified in the previous ERA for the Crab Fisheries (2009).</p> <p>Since the last assessment in 2007, QDAF has implemented some management arrangements to mitigate possible interactions with TEP species, such as prohibiting the use of inverted dillies, introducing trotlines in the northern waters of Moreton Bay and distributing brochures to inform and promote improved fishing gear amongst the recreational fishing sector. The Department also commends QDAF for recently conducting a cleanup of abandoned crab pots in Hinchinbrook Channel, which had successfully seized 144 unattended and abandoned crab pots over the three day initiative.</p> <p>Given that interactions with TEP species is occurring and that current reporting methods only rely on self reporting by commercial fishers, the Department considers that it is essential that QDAF undertake a robust evaluation of the operational management measures to identify if there is any underreporting of interactions with, and mortality of, EPBC Act listed TEP species or lost pots by the commercial and recreational sectors. To ensure that the data accurately reflects the fishery and recreational practices, the Department also considers it important that QDAF work with industry to develop and implement an independent data validation framework to ensure reliable reporting by commercial fishers and incorporate any findings into the crab fisheries management arrangements.</p>	<p>Measures could include spatial and seasonal closures and/or potential gear modifications.</p> <p><b>Part 13 Condition 2:</b></p> <p>QDAF to work with crab fishery stakeholders, to:</p> <ul style="list-style-type: none"> <li>a) investigate and improve monitoring and reporting of protected species interactions by fishers in the commercial sector; and</li> <li>b) implement a system to independently validate commercial fishery interactions with TEP species.</li> </ul>



**Table 4: Queensland Mud Crab Assessment – Summary of Issues, Conditions and Recommendations October 2015**

Issue	Recommendation
<p><u>Addressing key gaps in data</u></p> <p>While the release of the Status of Key Australian Fish Stocks Reports (SAFS) in 2014 supports the fishery’s sustainable stock status, some concerns identified in the previous SAFS report published in 2012 are still unaddressed. According to the SAFS 2012 report, considerable uncertainty about the reliability of commercial catch-and-effort data for eastern Queensland, coupled with limited data on the comparatively large non-commercial take, were key gaps in determining the stock status.</p> <p>The discrepancy in available data extends across the commercial, recreational and Indigenous fishing sectors. The SAFS 2014 report highlights that not enough data on catch estimates is available to adequately account for the recreational and Indigenous sectors. Recreational catch of mud crab appears to comprise a significant proportion of the total catch, with the Queensland component of the east-coast biological stock being estimated as 25 per cent of overall catch (SAFS, 2014).</p> <p>According to the <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i>, reliable estimates of all removals, including recreational catch, should be factored into stock assessments and catch levels. Accurate catch and effort data is fundamental to understanding stock viability and informing future management arrangements.</p> <p>The Department recommends that QDAF continue to work with the relevant State agencies, industry and public to obtain robust data of the commercial and recreational fishing sectors. Due to the significant harvest level, recreational catch estimates should be updated on a regular basis and appropriate management arrangements be considered and, if required, implemented to reduce the recreational catch.</p>	<p><b>Recommendation 1:</b></p> <p>QDAF to work with relevant agencies and crab fishery stakeholders to improve data confidence and accountability of stock estimates for target and discard species. This should include:</p> <ul style="list-style-type: none"> <li>a) robust catch-and-effort data should be recorded for the commercial sector and estimated from surveys for the recreational and Indigenous fishing sectors;</li> <li>b) robust estimates of bycatch and discard species interaction and mortality should be determined for all sectors;</li> <li>c) measures to effectively monitor and respond to triggered performance indicators;</li> <li>d) appropriate triggers for the commercial sector that account for the cumulative impact of the recreational sector.</li> </ul>
<p><u>Improve fishing gear for bycatch</u></p> <p>The QDAF report on the progress against the Department of the Environment recommendations 2012-2014 for the Mud Crab Fishery advises that a small number of</p>	<p><b>Recommendation 2:</b></p> <p>QDAF to work with relevant agencies and crab fishery stakeholders to further assess and actively promote the use of escape vents in the</p>

Issue	Recommendation
<p>Queensland crab fishers have been trialling escape vents in their pots. The report advises that the trial of rectangular shaped escape vents, which are designed to allow undersized crabs that have entered the pots to escape, have received very positive feedback. According to the report, fishers have noticed “almost no cannibalism of crabs and very few undersize crabs present in lifted pots – compared to pots without escape vents”.</p> <p>Rectangular escape vents have proven to be very effective at allowing escape of undersize crabs and retaining legal sized mud crabs in the commercial fishery. It is possible that the use of such rectangular escape vents would have the same benefits to the recreational component of the fishery.</p>	<p>commercial and recreational crab fishing sectors.</p>

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