



Australian Government

Department of the Environment and Water Resources

Assessment of the
Queensland Blue Swimmer Crab Fishery

October 2007

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This document is an assessment carried out by the Department of the Environment and Water Resources of a commercial fishery against the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries*. It forms part of the advice provided to the Minister for the Environment and Water Resources on the fishery in relation to decisions under Parts 13 and 13A of the *Environment Protection and Biodiversity Conservation Act 1999*. The views expressed do not necessarily reflect those of the Minister for the Environment and Water Resources or the Australian Government.

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Table 1: Summary of the Queensland (QLD) Blue Swimmer Crab Fishery

<p>Publicly available information relevant to the fishery</p>	<ul style="list-style-type: none"> • <i>QLD Fisheries Act 1994</i> • <i>QLD Fisheries Regulation 1995</i> • <i>Great Barrier Reef Marine Park Act 1975</i> • <i>QLD Marine Parks Act 2004</i> • Annual Status Report 2005 – QLD Blue Swimmer Crab Fishery • Annual Status Report – QLD Blue Swimmer Crab Fishery, 2006 • Annual Status Report –Blue Swimmer Crab Fishery, 2007 • Department of the Environment and Water Resources’ (DEW, formerly the Department of the Environment and Heritage) Assessment Report of the <i>QLD Blue Swimmer Crab Fishery 2004</i>.
<p>Area</p>	<p>The area of the Blue Swimmer Crab Fishery encompasses all QLD tidal waters, however the fishery mainly operates along the south-east coast of QLD, particularly Moreton Bay and Hervey Bay - waters south of the Great Barrier Reef Marine Park (GBRMP).</p>
<p>Fishery status</p>	<p>The 2007 Annual Status Report for the QLD Blue Swimmer Crab Fishery notes that total reported commercial catch has increased from 870 tonnes (t) in 2005 to 921 t in 2006. In 2004, the total reported commercial catch was 1560 t. In 2006, commercial fishing effort increased slightly from 2005.</p> <p>The stock status of blue swimmer crabs is currently unknown, however it should be noted that performance indicators were triggered in 2006 in relation to the average commercial catch and catch rate.</p>
<p>Target Species</p>	<p>Blue swimmer crab (<i>Portunus pelagicus</i>), also known as sand crabs.</p> <p>Information on the biology of this species can be found in DEW’s initial assessment of the fishery at: http://www.environment.gov.au/coasts/fisheries/qld/blue-swimmer-crab/index.html</p>
<p>Byproduct Species</p>	<p>C1 licence holders are only permitted to retain other crab species, apart from Spanner crabs.</p>
<p>Gear</p>	<p>Commercial fishers are permitted to use a maximum of 50 baited collapsible traps or crab pots. Recreational fishers are permitted to use a maximum of four traps, pots or dillies.</p>
<p>Season</p>	<p>No set season - majority of catch taken between November and May.</p>
<p>Commercial harvest 2006</p>	<p>The total harvest from all commercial sectors was approximately 921 t (an increase from the 2005 total harvest of 870 t). The commercial harvest from the fishery (pots) was approximately 722 t while the commercial harvest (trawl) was approximately 58 t.</p> <p>In the Moreton Bay region, the annual reported catch decreased from 289 t in 2005 to 261 t in 2006, while the reported catch of blue swimmer crabs in the Hervey Bay region increased from 207 t in 2005 to 322 t in 2006. In the Offshore region, the reported catch decreased from 182 t in 2005 to 119 t in 2006. The commercial harvest of blue swimmer crabs in the North East and Gulf Regions in 2006 was approximately 9 t and 1.4 t respectively.</p>

	DPI&F indicate that the decrease in commercial blue swimmer crab harvest in 2006 in the Moreton Bay and the offshore region is paralleled by a decrease in the number of commercial fishing days and boats accessing the fishery.
Commercial gross value of production	Approximately \$5.8 million – pot harvest only (2006).
Take by other sectors	<p>Blue swimmer crabs are listed as permitted species in the East Coast Otter Trawl Fishery (ECOTF), although possession limits are in place. In 2006, 58 t of blue swimmer crabs were harvested as byproduct in the ECOTF, equating to approximately 6% of the total catch. In 2004, 81 t of blue swimmer crabs were harvested in the ECOTF, while 57 t were harvested in 2005.</p> <p>Preliminary results from the 2005 Recreational Fisheries Information System diary survey indicate that approximately 140 t of blue swimmer crabs were harvested by the recreational sector in 2005 – a slight decrease from the 2002 estimate of 160 t. This represents approximately 15% of the estimated total annual harvest of blue swimmer crabs in QLD waters.</p> <p>It is estimated that in 2000/01, the indigenous harvest of blue swimmer crabs was less than 1 t. The National Recreational and Indigenous Fishing Survey found that 882 blue swimmer crabs were taken by indigenous fishers.</p> <p>The charter sector is the smallest component of the total annual harvest, with less than 70 kg a year having ever been harvested. In 2006, charter operators reported a harvest of 13 kg.</p>
Commercial licences issued	<p>As of June 2006, 859 licences (C1 endorsements) are allocated for the QLD Blue Swimmer Crab Fishery, with 190 commercial boats accessing the fishery. DEW had purchased 77 C1 crab fishing licences as a result of the GBRMP Structural Adjustment Package (SAP), however have since surrendered the licences, which will not be available for reallocation.</p> <p>As of July 2005, 501 licences (T1 trawl fishery endorsements) were allocated for the ECOTF, with 37 licences restricted to Moreton Bay. In 2005, 443 commercial boats accessed the ECOTF (68 in Moreton Bay).</p>
Management arrangements	<p>The fishery is managed under the <i>QLD Fisheries Act 1994</i>, in accordance with the <i>QLD Fisheries Regulation 1995</i>. A range of input and output controls are in place to manage the fishery including:</p> <ul style="list-style-type: none"> • a minimum legal size limit applied to commercial and recreational fishers, including the trawl sector (11.5 cm carapace width); • a prohibition on the take of all female blue swimmer crabs, including the trawl sector; • gear restrictions, including 50 pots per commercial licence and 4 pots per recreational fisher; • limited entry (C1 endorsement required); • limit on the number of blue swimmer crabs that can be retained by

	<p>trawl operators (100 in Moreton Bay and 500 elsewhere);</p> <ul style="list-style-type: none"> • restrictions on the number and size of commercial vessels (pot sector); and • spatial closures under the Commonwealth <i>Great Barrier Reef Marine Park Act 1975</i>, the <i>QLD Marine Parks Act 2004</i> and the <i>QLD Fisheries Regulation 1995</i>.
Export	Limited export. Blue swimmer crabs are mainly sold to local and interstate markets.
Bycatch	While information on bycatch species in the fishery is limited, observations made during research surveys indicate Spanner crabs, three-spot crabs and undersize and female blue swimmer crabs are the main bycatch species. Other bycatch species observed included leatherjacket, juvenile snapper, red emperor, sweetlip, trumpeter and pearl perch. Levels of bycatch appear to be higher in offshore areas rather than in other areas of the fishery.
Interaction with Protected Species¹	<p>QLD blue swimmer crab fishers are required to record interactions with protected species in the ‘Species of Conservation Interest’ (SOCI) logbooks.</p> <p>A total of seven interactions with Threatened, Endangered or Protected (TEP) species were recorded by commercial net and crab fishers between 2003 and 2004. Four interactions occurred with crocodiles (three released alive), however DPI&F indicate that the interactions with crocodiles is unlikely to have been reported by blue swimmer crab operators since they are not generally found in the fishery areas. Two interactions were also reported with hawksbill turtles and one with a green turtle (all released alive).</p> <p>A total of eight interactions with TEP species were recorded for all crab fisheries over the 2005 fishery season. This included two sea snakes (released alive), three false water rats (released dead), a humpback whale (released alive) and two saltwater crocodiles (released dead).</p> <p>No interactions with a protected species were reported by crab fishers in QLD in 2006.</p> <p>While it is difficult to determine in which crab fishery these interactions occurred (as interactions are reported by gear type), it is likely that the humpback whale interacted with fishers in the QLD Blue Swimmer Crab Fishery.</p>
Ecosystem Impacts	DPI&F indicate that the impact of the fishery on the broader ecosystem is considered minimal given the benign harvesting method used and the habitat (mainly sand substrate) in which the fishery operates.
Impacts on World Heritage property	Although the QLD Blue Swimmer Crab Fishery is concentrated in southern QLD, its official area encompasses the GBRMP World

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

Heritage Area (WHA) and the Moreton Bay Ramsar site. Certain areas of the fishery are subject to fishing closures through marine park zoning established under the Commonwealth *Great Barrier Reef Marine Park Act 1975* and the *Marine Parks Act 2004*, and serve to protect areas of the WHA from the impacts of this fishery.

The GBRMP listed World Heritage values and the ecological character of the Moreton Bay Ramsar site are protected from the impacts of blue swimmer crab fishing through fishing closures, conservative management measures including the legal minimum size and protection of all female crabs and the relatively benign impact of fishing gear on the environment. DEW therefore 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 *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or on the Moreton Bay Ramsar site.

Table 2: Progress in implementation of conditions and recommendations made in initial assessment of the QLD Blue Swimmer Crab Fishery

Condition	Progress	Recommended Action
<p>1. Operation of the fishery will be carried out in accordance with the QLD Blue Swimmer Crab Pot Fishery management regime in force under the <i>Fisheries Act 1994</i> and the <i>Fisheries Regulation 1995</i>.</p>	<p>The fishery has operated in accordance with the legislated management regime over the course of the current export approval.</p>	<p>This condition has been met and will continue to apply as a condition to the WTO declaration under the new export approval for this fishery (Condition 1, Table 4).</p>
<p>2. DPI&F will inform DEW of any intended amendments to the QLD Blue Swimmer Crab Pot Fishery management regime that may affect the sustainability of the target species or negatively impact on bycatch, protected species or the ecosystem.</p>	<p>There have been no changes to the management arrangements that may affect sustainability of the target species or negatively impact on bycatch, protected species or the ecosystem.</p> <p>DPI&F have proposed to introduce a maximum size opening in crab apparatus to minimise interactions with juvenile turtles. This proposal is subject to community consultation.</p>	<p>This condition has been met and will continue to apply as a condition to the WTO declaration under the new export approval for this fishery (Condition 2, Table 4).</p>
<p>3. Reports to be produced and presented to DEW annually, and to include:</p> <ul style="list-style-type: none"> ○ information sufficient to allow assessment of the progress of DPI&F in implementing the recommendations made in the <i>Assessment of the QLD Blue Swimmer Crab Pot Fishery 2004</i>; ○ A description of the status of the fishery and catch and effort information; ○ A statement of the performance of the fishery against objectives, 	<p>DPI&F have produced publicly-available Annual Status Reports on the QLD Blue Swimmer Crab Fishery in 2005, 2006 and 2007. The reports contain information on progress in implementing recommendations, catch and effort trends and research undertaken or completed relevant to the fishery. The 2007 Annual Status Report included reporting against the Performance Measurement System (PMS). These report can be found at: http://www2.dpi.qld.gov.au/fishweb/17451.html</p>	<p>DEW considers that this condition has been met and notes that, as part of the new export approval, this will continue to apply as a condition for this fishery (Condition 3, Table 4).</p>

<p>performance indicators and measures once developed; and</p> <ul style="list-style-type: none"> ○ Research undertaken or completed relevant to the fishery. 		
Recommendation	Progress	Recommended Action
<p>1. DPI&F to inform DEW of any intended amendments to the management arrangements that may affect sustainability of the target species or negatively impact on bycatch, protected species or the ecosystem.</p>	<p>There have been no changes to the management arrangements that may affect sustainability of the target species or negatively impact on bycatch, protected species or the ecosystem.</p> <p>DPI&F have proposed to introduce a maximum size opening in crab apparatus to minimise interactions with juvenile turtles. This proposal is subject to community consultation.</p>	<p>DPI&F to continue to inform DEW of any amendments to the accredited management arrangements (Condition 2, Table 4).</p> <p>A condition for the QLD Blue Swimmer Fishery will also involve DPI&F to produce and present annual reports to DEW regarding the status and the performance of the fishery, research undertaken and progress in implementing DEW recommendations (Condition 3, Table 4).</p>
<p>2. DPI&F to actively engage with New South Wales in pursuit of collaborative or complementary management and research of shared blue swimmer crab stocks.</p>	<p>The submission indicates that DPI&F meets with New South Wales (NSW) Department of Primary Industries on an annual basis to pursue opportunities for collaborative or complementary management and research of shared species. In addition, DPI&F have established informal networks between government researchers over time, including Western Australian and South Australia. DPI&F also indicate that when a comprehensive review of the blue swimmer crab management arrangements is undertaken, they will collaborate with other jurisdictions (particularly NSW) on determining the potential for implementing complementary management arrangements for the species.</p> <p>However DEW notes that no collaborative research projects are currently underway, mainly due to research being developed for higher priority species</p>	<p>A recommendation has been made for DPI&F to actively pursue the development of collaborative research with other jurisdictions and agencies and ensure that management arrangements for the QLD Blue Swimmer Crab Fishery continue to take account of the results of research conducted (Recommendation 1, Table 4).</p>

<p>3. As part of the management planning process, or no later than December 2006, DPI&F to develop fishery specific objectives linked to performance indicators and performance measures for target, bycatch, protected species and impacts on the ecosystem.</p>	<p>DPI&F held a workshop with fishery managers, researchers and industry representatives in May 2006 to develop operational objectives, performance indicators, performance measures and management responses, including a three month timeline for implementation of appropriate management responses should a measure be triggered. The Crab Management Advisory Committee (CrabMAC) reviewed this process and the final version for the QLD Blue Swimmer Crab Fishery was implemented as policy in April 2007.</p> <p>The Performance Measurement System (PMS) is a formal instrument for measuring performance of the QLD Blue Swimmer Crab Fishery, containing objectives, performance indicators and performance measures for target, bycatch and protected species. Objectives for the QLD Blue Swimmer Crab Fishery include:</p> <ul style="list-style-type: none"> • to maintain fishery viability in all sectors by maintaining annual catch levels within acceptable ranges. Ensure sustainability of blue swimmer crabs through reducing the likelihood of overfishing; • minimise the impact of the fishery on bycatch species; and • to minimise the impact of blue swimmer crab pot fishing operations on stocks of protected species, particularly marine turtles. <p>Performance measures will be reported on annually in the QLD Blue Swimmer Crab Fishery Annual</p>	<p>DEW commends DPI&F for developing and implementing the PMS in relation to target, bycatch and protected species and is confident that DPI&F will regularly monitor and assess the fishery against the PMS.</p> <p>The performance of the fishery against the PMS was reported in the <i>Annual Status Report – QLD Blue Swimmer Crab Fishery, 2007</i> and will be included in future annual status reports. DEW notes from the 2007 Annual Status Report, that there was a breach of triggers in 2006 regarding low catch levels in several regions of the fishery. After significant discussions with stakeholders, DPI&F's response to the measure being triggered is that low annual catch in several regions can be attributed to extrinsic factors, however this remains uncertain. Notwithstanding this, DEW recommends DPI&F develop a strategy that determines the resource status of blue swimmer crabs in all areas of the fishery (Recommendation 3, Table 4)</p> <p>In addition, while DPI&F have developed performance indicators relating to the impact of the fishery on bycatch species as part of the PMS, DEW notes that limited information is currently available to inform the performance indicators and monitor the impact of the fishery on bycatch. A recommendation has been made for DPI&F to review the PMS for the QLD Blue Swimmer Crab Fishery to ensure that bycatch indicators are relevant and are targeted at achieving precautionary management outcomes. (see Recommendation 4, Table 4).</p>
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	Status Reports and will be reviewed after the first year of reporting to ensure that the performance measures are precautionary, responsive and meaningful.	
4. DPI&F to monitor the status of the fishery in relation to the performance measures once developed. Within 3 months of becoming aware that a performance measure not being met, DPI&F to finalise a clear timetable for the implementation of appropriate management responses.	DPI&F advise that performance measures will be regularly assessed and reported against in annual status reports for the QLD Blue Swimmer Crab Fishery. Within three months of becoming aware that a performance measure has been triggered DPI&F, in collaboration with the CrabMAC and stakeholders, will finalise a clear timetable for the implementation of appropriate management responses (as specified in the PMS).	DEW expects that DPI&F will monitor the fishery against the PMS and respond to any triggers in a timely manner.
5. DPI&F to develop a compliance strategy for the blue swimmer crab fishery. The strategy will explicitly address the following issues and provide for the periodic review of the effectiveness of the strategy (by end 2007): <ul style="list-style-type: none"> o Commercial and recreational catch and effort data validation; o Compliance with commercial and recreational gear restrictions (type and number); o Compliance with restriction on the take of female crabs and minimum size limit in the commercial and recreational sectors; o The potential for Queensland 	DPI&F conducted a compliance risk assessment for the QLD Blue Swimmer Crab Fishery in November 2006 to determine compliance priorities and allow for the most effective targeting of QLD Boating and Fisheries Patrol (QBFP) resources to higher risk issues. The assessment identified several activities in the fishery as having a high or an extreme level of risk. These include: <ul style="list-style-type: none"> • Interference with fishing apparatus; • Use of unauthorised gear in the commercial fishery; • Use of unauthorised gear in the recreational fishery; • Take/possession of regulated fish (females, undersize males) by recreational fishers; and 	The compliance risk assessment will be used by the QBFP in undertaking operational planning activities associated with management of the fishery. DPI&F indicate that through identification and prioritisation of compliance risks associated with the fishery, planning and operational processes at the district level should be improved and risks mitigated. DEW expects that DPI&F and the QBFP will closely monitor compliance within the fishery and DEW will monitor compliance reports through the QLD Blue Swimmer Crab Fishery Annual Status Reports.

<p>harvested female and undersize crabs to be laundered in other jurisdictions with different management measures; and</p> <ul style="list-style-type: none"> o The 'black market' sale of recreationally caught crabs. 	<ul style="list-style-type: none"> • Recreational fishers taking crabs for commercial purposes. <p>DPI&F also recognised that the possession or sale of certain crabs or crab meat is an important issue which should be addressed through targeted enforcement. Outcomes of the risk assessment have been incorporated into the QBFP district operational plans from 2007, which are reviewed annually.</p>	
<p>6. From 2005, DPI&F to report publicly on the status of the fishery on an annual basis, including explicit reporting against each performance measure once developed.</p>	<p>DPI&F have produced publicly-available Annual Status Reports on the QLD Blue Swimmer Crab Fishery in 2005, 2006 and 2007. The 2007 Annual Status Report included reporting against the PMS and DPI&F will continue to report against the PMS annually. These report can be found at: http://www2.dpi.qld.gov.au/fishweb/17451.html</p>	<p>It is important that reports be produced by DPI&F and presented to DEW 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.</p> <p>A condition to the WTO declaration has been made for DPI&F to continue to produce and present annual reports to DEW regarding the status and the performance of the fishery, research undertaken and progress in implementing DEW recommendations (see Condition 3, Table 4).</p>
<p>7. DPI&F to develop a system to ensure that catch data collected in compulsory logbooks is validated on an ongoing basis and to investigate methods for documenting and validating effort in the fishery.</p>	<p>DPI&F conducted a data validation report on the QLD Blue Swimmer Crab Fishery in early 2007 which utilised Vessel Monitoring System reports, fisheries observer program trip reports and recent Long Term Monitoring Program (LTMP) outcomes.</p> <p>DPI&F indicate that the report has been distributed to managers and relevant DPI&F personal. The outcomes of the validation process will be discussed at a planned upcoming meeting involving fishery managers, representatives from the</p>	<p>DEW commends DPI&F for conducting a data validation report for the fishery. However, DEW reinforces the recommendation arising from the 2004 assessment of the fishery for DPI&F to review and consider outcomes of the data validation report and continue to ensure that catch data collected in commercial logbooks is validated on an ongoing basis (see Recommendation 2, Table 4).</p>

	Queensland Boating and Fisheries Patrol and the Director of Fisheries Compliance Information.	
<p>8. As part of the management planning process, or no later than December 2006, DPI&F to assess the appropriateness and effectiveness of current management arrangements for the offshore component of the fishery with regard to the sustainable harvest of the target species, minimisation of bycatch and interactions with threatened species.</p>	<p>DPI&F conducted an Ecological Risk Assessment (ERA) in May 2006 to assess the impact of the QLD Blue Swimmer Crab Fishery on target and bycatch species (not including threatened, endangered or protected (TEP) species). The ‘Ecological Risk Assessment for Effects of Fishing’ Level One model, developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), was selected by DPI&F as the most appropriate methodology to assess ecological risks in the QLD Blue Swimmer Crab Fishery.</p> <p>The outcomes of the ERA process were presented to the CrabMAC for review and finalisation. The ERA identified the following issues as high risk (with consequence scores of three or above):</p> <ul style="list-style-type: none"> • capture of the target species through fishing activity; • direct impact without capture of target and bycatch species through gear loss; • the addition of non-biological material on target and bycatch species through gear loss; • the capture of target and bycatch species through other fishery methods (e.g. trawl fisheries). <p>The outcomes from the ERA will be incorporated into ongoing management planning processes.</p>	<p>DEW commends DPI&F on completing the ERA process for the QLD Blue Swimmer Crab Fishery and considers that the implementation of management responses to address moderate-risk issues should be given priority (see Recommendation 6, Table 4).</p>

	DPI&F will develop management responses to issues identified as high risk.	
9. By 31 December 2004, DPI&F to develop a strategy to remove or substantially reduce the amount of latent effort in the fishery. The strategy is to include clearly defined management actions linked to specific timeframes. DPI&F to implement the strategy prior to the introduction of the management plan.	<p>DPI&F anticipates that the new licensing and fees policy introduced from 1 July 2006 should result in a reduction in latent effort. DPI&F expects that the policy will considerably reduce the retention of unused licences. Changes in crab fishery licence numbers will be reported in future Annual Status Reports for the fishery.</p> <p>DPI&F intends to monitor the effects of the new licensing and fee arrangements to determine whether C1 licence holders surrender previously unused fishery symbols. If this does not result in the removal of latent effort, DPI&F will investigate alternative approaches.</p>	<p>While the GBRMP SAP removed 77 crab licences from the fishery, DEW notes that, as of June 2006, 859 commercial crab licences remain with only 190 commercial fishing boats accessing the fishery in 2006.</p> <p>With currently no blue swimmer crab stock assessment and noting that the LTMP has only recently commenced collecting fishery-independent information on blue swimmer crabs, DEW considers that latent effort issues is still a potential hindrance facing the QLD Blue Swimmer Crab Fishery. A recommendation has therefore been made for DPI&F to actively develop a strategy to remove or substantially reduce the amount of latent effort in the fishery (see Recommendation 7, Table 4).</p>
10. As part of the management planning process, DPI&F to review existing management measures designed to control blue swimmer crab harvest by recreational fishers to ensure that these measures are appropriate and adequately constrain recreational effort to within sustainable levels. Should the review indicate that existing measures are not appropriate DPI&F will develop new measures in a timely manner.	<p>A management planning process for blue swimmer crabs has not yet commenced due to priority being given to other fisheries such as the QLD East Coast Inshore Fin Fish Fishery.</p> <p>Preliminary results from the 2005 Recreational Fisheries Information System (RFISH) diary survey indicates that approximately 140 t blue swimmer crabs were harvested in 2005 (which equates to approximately 15% of the total fishery harvest) – a slight decrease from the 2002 estimate of 160 t.</p>	DEW expects the DPI&F, based on the information available, will take into account the blue swimmer crab harvest from the recreational sector in assessments and should also acknowledge the overall take of blue swimmer crabs when developing and implementing a strategy to determine precautionary estimates of the stock status of blue swimmer crabs in all areas of the fishery (see Table 4).
11. DPI&F to identify fishery areas at risk of overfishing within two years. DPI&F to undertake independent surveys in these areas with a view to	Areas at higher risk from overfishing were assessed in a review of commercial and recreational catch and effort data in 2005. A blue swimmer crab LTMP has been designed and trialled; data	A performance measure relating to total annual catch and catch rate was triggered for certain areas in the first assessment of the PMS recently developed for the fishery. While DPI&F indicate that the overall blue swimmer crab stocks are healthy, DEW

<p>detecting any significant changes in crab abundance and take appropriate management action to address resource sustainability concerns.</p>	<p>collection began in March 2006.</p>	<p>considers that a slight increase only one year after a significant drop in catch and CPUE in 2005 suggests that caution is required when assuming that stocks are healthy in all regions of the fishery despite sharp differences in total catch and declines in CPUE over the last three years. Of particular concern is the significant decrease in total catch and effort for the whole fishery and the offshore and North East regions. While this decline in total catch and effort could be attributed to extrinsic factors, the reasons behind the decline remain uncertain.</p> <p>A recommendation has been made for DPI&F to develop and implement a strategy that determines precautionary estimates of the resource status of blue swimmer crabs in all areas of the fishery, taking into account the overall take of blue swimmer crabs to ensure overall catch levels are sustainable (see Recommendation 3, Table 4).</p>
<p>12. DPI&F to develop a system for the collection and monitoring of information on discarded undersize and female blue swimmer crab and key bycatch species sufficient to enable identification of long-term trends in bycatch and discards.</p>	<p>DPI&F are investigating other opportunities for commercial and recreational fishers to provide information on discarded female and undersize crabs and other bycatch (e.g. implementing commercial fisher research logbooks). The DPI&F RFISH survey collects information from participants regarding why crabs were released.</p>	<p>DEW acknowledges the recent commencement of the LTMP and the possibility of introducing commercial fisher research logbooks. DEW also notes that a post-release survival in crab pot fisheries project has been completed by DPI&F which included an analysis of historical data. The study concluded that post-release survival of discarded undersize and female mud crabs in the fishery appears to be high, based on field observations and mark-recapture studies.</p>
<p>13. Within one year, to support the implementation of the Species of Conservation Interest logbooks, DPI&F to ensure that an education program for fishers, both recreational and commercial, is developed and implemented, to promote the importance of protected species</p>	<p>DPI&F launched a comprehensive education program in September 2005 to increase awareness about protected species interaction reporting by both commercial and recreational fishers.</p> <p>DPI&F anticipates that the education package should increase the level of confidence in the data obtained from the SOCI logbooks.</p>	<p>DEW considers that the education program is likely to enhance the reliability of data on protected species interactions and commends DPI&F on their efforts in developing and implementing it.</p> <p>DEW will continue to monitor and assess the level of interactions with TEP species in the fishery through the Annual Status Reports.</p>

<p>protection and accurate incident reporting.</p>		
<p>14. DPI&F will implement measures to mitigate interaction with protected species at risk of interacting with the fishery, in particular measures to mitigate against capture and entanglement of marine turtles, to ensure that any risks to protected species can be minimised. DPI&F to also identify areas of the fishery where the risk of protected species interactions is higher, and to take appropriate management actions.</p>	<p>While DPI&F undertook an ERA on the QLD Blue Swimmer Crab Fishery in May 2006, DEW notes that the ERA did not assess the impact of the fishery on TEP species.</p> <p>DPI&F indicate that there has been a proposal to prescribe a maximum size opening in crab apparatus to minimise interactions with juvenile turtles. This proposal will be subject to community consultation, anticipated to be undertaken towards the end of 2007.</p>	<p>A recommendation has been made for DPI&F to update the ERA by including information on the impact on protected species from the commercial sector of the fishery, including the level and effects of ghost fishing by lost or discarded commercial and recreational crab apparatus on protected species (see Recommendation 5, Table 4).</p>

Table 3: DEW assessment of the QLD Blue Swimmer Crab Fishery against the requirements of the EPBC Act related to decisions made under Parts 13 and 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 Parts 13 and 13A. A complete version of the EPBC Act can be found on the DEW website.

Part 13

Division 1 Listed threatened species Section 208A Minister may accredit plans or regimes	DEW assessment of the QLD Blue Swimmer Crab Fishery
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ul style="list-style-type: none"> i. made by a State or self-governing Territory; and ii. in force under a law of the State or self-governing Territory; 	<p>The management regime for the QLD Blue Swimmer Crab Fishery, as managed under the QLD <i>Fisheries Regulation 1995</i> and the QLD <i>Fisheries Act 1994</i>, was accredited under Part 13 of the EPBC Act in October 2004. The management arrangements for the QLD Blue Swimmer Crab Fishery have not significantly changed since this accreditation was granted and reported interactions with a listed threatened species with the fishery are low. Consequently, a new Part 13 declaration is not needed at this time.</p>
Division 2 Migratory species Section 222A Minister may accredit plans or regimes	DEW assessment of the QLD Blue Swimmer Crab Fishery
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ul style="list-style-type: none"> i. made by a State or self-governing Territory; and ii. in force under a law of the State or self-governing Territory; 	<p>The management regime for the QLD Blue Swimmer Crab Fishery, as managed under the QLD <i>Fisheries Regulation 1995</i> and the QLD <i>Fisheries Act 1994</i>, was accredited under Part 13 of the EPBC Act in October 2004. The management arrangements for the QLD Blue Swimmer Crab Fishery have not significantly changed since this accreditation was granted and reported interactions with a listed migratory species with the fishery are negligible. Consequently, a new Part 13 declaration is not needed at this time.</p>

<p>Division 3 Whales and other cetaceans Section 245 Minister may accredit plans or regimes</p>	<p>DEW assessment of the QLD Blue Swimmer Crab Fishery</p>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ol style="list-style-type: none"> i. made by a State or self-governing Territory; and ii. in force under a law of the State or self-governing Territory; 	<p>The management regime for the QLD Blue Swimmer Crab Fishery, as managed under the <i>QLD Fisheries Regulation 1995</i> and the <i>QLD Fisheries Act 1994</i>, was accredited under Part 13 of the EPBC Act in October 2004. The management arrangements for the QLD Blue Swimmer Crab Fishery have not significantly changed since this accreditation was granted and reported interactions with whales or other cetaceans with the fishery are negligible. Consequently, a new Part 13 declaration is not needed at this time.</p>

<p>Division 4 Listed marine species Section 265 Minister may accredit plans or regimes</p>	<p>DEW assessment of the QLD Blue Swimmer Crab Fishery</p>
<p>(1) Minister may, by instrument in writing, accredit for the purposes of this Division:</p> <p>(c) a plan of management, or a policy, regime or any other arrangement, for a fishery that is:</p> <ol style="list-style-type: none"> i. made by a State or self-governing Territory; and ii. in force under a law of the State or self-governing Territory; 	<p>The management regime for the QLD Blue Swimmer Crab Fishery, as managed under the <i>QLD Fisheries Regulation 1995</i> and the <i>QLD Fisheries Act 1994</i>, was accredited under Part 13 of the EPBC Act in October 2004. The management arrangements for the QLD Blue Swimmer Crab Fishery have not significantly changed since this accreditation was granted and reported interactions with a listed marine species with the fishery are low. Consequently, a new Part 13 declaration is not needed at this time.</p>

Part 13A

<p>Section 303DC Minister may amend list</p>	<p>DEW assessment of the QLD Blue Swimmer Crab Fishery</p>
<p>(1) Minister may, by instrument in published in the Gazette, amend the list referred to in section 303DB (list of exempt native specimens) by:</p> <ol style="list-style-type: none"> (a) including items in the list; or (b) deleting items from the list; or 	

<p>(c) imposing a condition or restriction to which the inclusion of a specimen in the list is subject; or</p> <p>(d) varying of revoking a condition or restriction to which the inclusion of a specimen in the list is subject; or</p> <p>(e) correcting an inaccuracy or updating the name of a species.</p>	
<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 public comment period on DPI&F's submission sought comment on the 2005, 2006 and 2007 annual reports for the QLD Blue Swimmer Crab Fishery and provided sufficient opportunity for consultation with other persons and organisations.</p> <p>A letter to the Hon Tim Mulherin MP, QLD Minister for Primary Industries and Fisheries advises him of the intention to declare the fishery a WTO under Part 13A of the EPBC Act.</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 QLD Blue Swimmer Crab Fishery made under section 303DC will be gazetted and made available on the DEW website.</p>

Section 303FN Approved wildlife trade operation	DEW assessment of the QLD Blue Swimmer Crab Fishery
<p>(2) The Minister may, by instrument published in the <i>Gazette</i>, declare that a specified wildlife trade operation is an <i>approved wildlife trade operation</i> for the purposes of this section.</p>	
<p>(3) The Minister must not declare an operation as an approved wildlife trade operation unless the Minister is satisfied that:</p> <p>(a) the operation is consistent with the objects of Part 13A of the Act; and</p>	<p>The QLD Blue Swimmer Crab Fishery is consistent with objects of Part 13A (listed after this table) as:</p> <ul style="list-style-type: none"> ▪ the fishery will not harvest any CITES listed species; ▪ there are management arrangements in place to ensure that the resource is being managed in an ecologically sustainable way (see Table 1); ▪ the operation of the QLD Blue Swimmer Crab Fishery is unlikely to be

<p>(b) the operation will not be detrimental to:</p> <ul style="list-style-type: none"> i. the survival of a taxon to which the operation relates; or ii. the conservation status of a taxon to which the operation relates; and <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>(c) if the operation relates to the taking of live specimens that belong to a taxon specified in the regulations – the conditions that, under the regulations, are applicable to the welfare of the specimens are likely to be complied with; and</p> <p>(d) such other conditions (if any) as are specified in the regulations have been, or are likely to be, satisfied.</p>	<p>unsustainable and threaten biodiversity within the next three years; and</p> <ul style="list-style-type: none"> ▪ the EPBC Regulations 2000 do not specify fish as a class of animal in relation to the welfare of live specimens. <p>DEW considers that the QLD Blue Swimmer Crab Fishery will not be detrimental to the survival or conservation status of a taxon to which it relates within the next three years, given the management measures currently in place, which include: limited entry; minimum size limits; prohibition on the take of female blue swimmer crabs; gear restrictions; and spatial closures.</p> <p>DEW considers that the QLD Blue Swimmer Crab Fishery will not threaten any relevant ecosystem within the next three years, given the management measures currently in place, which include: limited entry; minimum size limits; prohibition on the take of female blue swimmer crabs; gear restrictions; and spatial closures.</p> <p>The EPBC Regulations 2000 do not specify fish as a class of animal in relation to the welfare of live specimens.</p> <p>No other conditions are specified in relation to commercial fisheries in the EPBC Regulations 2000.</p>
<p>(4) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <ul style="list-style-type: none"> (a) the significance of the impact of the operation on an ecosystem (for example, an impact on habitat or biodiversity); and (b) the effectiveness of the management arrangements for the 	<p>DEW considers that the QLD Blue Swimmer Crab Fishery will not have a significant impact on any relevant ecosystem within the next three years, given the management measures currently in place, which include: limited entry; minimum size limits; prohibition on the take of female blue swimmer crabs; gear restrictions; and spatial closures.</p> <p>The management arrangements that will be employed for the QLD Blue Swimmer</p>

operation (including monitoring procedures).	Crab Fishery are likely to be effective.
<p>(5) In deciding whether to declare an operation as an approved wildlife trade operation the Minister must have regard to:</p> <p>(a) whether legislation relating to the protection, conservation or management of the specimens to which the operation relates is in force in the State or Territory concerned; and</p> <p>(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 QLD Blue Swimmer Crab Fishery will be managed under the <i>QLD Fisheries Regulation 1995</i> and the <i>QLD Fisheries Act 1994</i></p> <p>The <i>QLD Fisheries Act 1994</i> applies throughout QLD waters.</p> <p>The management arrangements that will be employed for the QLD Blue Swimmer Crab Fishery are 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 QLD Blue Swimmer Crab Fishery is a commercial fishery.</p>

Section 303FR Public consultation	DEW assessment of the QLD Blue Swimmer Crab Fishery
<p>(1) Before making a declaration under section 303FN, the Minister must cause to be published on the Internet a notice:</p> <p>(a) setting out the proposal to make the declaration; and</p> <p>(b) setting out sufficient information to enable persons and organisations to consider adequately the merits of the proposal; and</p> <p>(c) inviting persons and organisations to give the Minister, within the period specified in the notice, written comments about the proposal.</p>	<p>Under the EPBC Act, a decision to amend the LENS does not require a public consultation period. However, a public notice, which set out the proposal to grant export approval to the QLD Blue Swimmer Crab Fishery and included the 2005, 2006 and 2007 Status Reports for the QLD Blue Swimmer Crab Fishery, was released for public comment which closed on 31 August 2007 with no submissions 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 grant export approval to the QLD Blue Swimmer Crab Fishery and included the 2005, 2006 and 2007 Status Reports for the QLD Blue Swimmer Crab Fishery was released for public comment on 30 July 2007 and closed on 31 August 2007, a total of 25 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>No public comments about the proposal were received.</p>

<p>Section 303FT Additional provisions relating to declarations</p>	<p>DEW assessment of the QLD Blue Swimmer Crab Fishery</p>
<p>(1) This section applies to a declaration made under section 303FN, 303FO or 303FP.</p>	<p>A declaration for the QLD Blue Swimmer Crab Fishery will be made under section 303FN.</p>
<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> <ul style="list-style-type: none"> (a) during a particular period; or (b) while certain circumstances exist; or (c) while a certain condition is complied with. <p>In such a case, the instrument of declaration is to specify the period, circumstances or condition.</p>	<p>The standard conditions applied to commercial fishery WTOs include:</p> <ul style="list-style-type: none"> • operation in accordance with the management regime; • notifying DEW of changes to the management regime; and • annual reporting in accordance with the requirements of the Australian Government <i>Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition</i>. <p>The WTO instrument for the QLD Blue Swimmer Crab Fishery specifies the standard and any additional conditions applied.</p>
<p>(8) A condition may relate to reporting or monitoring.</p>	<p>One of the standard conditions relates to reporting.</p>
<p>(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.</p>	
<p>(11) A copy of an instrument under section 303FN, or this section is to be made available for inspection on the Internet.</p>	<p>The instrument for the QLD Blue Swimmer Crab Fishery made under section 303FN and the conditions under section 303FT will be gazetted and made available on the DEW website.</p>

Part 16

Section 391 Minister must consider precautionary principle in making decisions	DEW assessment of the QLD Blue Swimmer Crab Fishery
(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.	You must consider the precautionary principle when making a decision to include specimens on the LENS.
(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.	

Objects of Part 13A

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

Final recommendations to DPI&F for the QLD Blue Swimmer Crab Fishery

The material submitted by DPI&F demonstrates that the management arrangements for the QLD Blue Swimmer Crab Fishery meet most of the requirements of the Australian Government *Guidelines for the Ecologically Sustainable Management of Fisheries – Edition 2*. Management arrangements include a prohibition on the take of all female blue swimmer crabs, gear restrictions, limited entry, minimum size limits and spatial closures. As such, DEW 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.

While the fishery is relatively well managed, DEW has identified a number of risks and uncertainties that must be managed to ensure that impacts are minimised:

- The need to review data validation mechanisms in the commercial sector of the fishery;
- The uncertain stock status of blue swimmer crabs and the triggering of performance measures in relation to the average commercial catch and catch rate;
- The lack of recent bycatch data and the need to ensure that performance measures for the fishery are accurately informed by the information currently being collected in the fishery;
- The lack of an ecological risk assessment on the impacts of the fishery on protected species; and
- The significant amount of latent effort in the fishery.

DEW is satisfied that the fishery will not be detrimental to the survival or conservation status of the taxon to which it relates in the short term. Similarly, it is not likely to threaten any relevant ecosystem in the short term. To contain and minimise the risks in the longer term the recommendations listed below have been made. DEW believes that the fishery should be declared a Wildlife Trade Operation (WTO) for a period of three years. Such a declaration would enable DPI&F to address some of the uncertainties in the fishery including the stock status of the target species, monitor the recent introduction of the Long Term Monitoring Program and incorporate any new information into management and allow DEW to review progress on addressing the conditions and recommendations on an annual basis.

As there have been no management changes since the last assessment and noting the relatively low number of protected species interactions reported in the fishery, the management measures in place to minimise the risk of interactions and the implementation of an education program to support the protected species reporting mechanism, I consider that the existing Part 13 accreditation for this fishery in relation to protected species provisions under the EPBC Act still applies.

Unless a specific time frame is provided in the recommendation each recommendation must be addressed within the life of the declaration (3 years). Note that a standard condition of a WTO is an annual reporting requirement, the details of which are provided in Table 4.

Table 4: QLD Blue Swimmer Crab Fishery Assessment– Summary of Conditions, Issues and Recommendations October, 2007

	Issue	Condition
1	<p><u>General Management</u> Export decisions relate to the arrangements in force at the time of the decision. In order to ensure that these decisions remain valid, the Department of the Environment and Water Resources (DEW) 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 amendments that may affect sustainability of the target species or negatively impact on byproduct, bycatch, protected species or the ecosystem.</p>	<p>Condition 1: Operation of the QLD Blue Swimmer Crab Fishery will be carried out in accordance with the management regime in force under the QLD <i>Fisheries Regulation 1995</i> and the QLD <i>Fisheries Act 1994</i>.</p> <p>Condition 2: DPI&F to inform DEW of any intended amendments to the management arrangements that may affect the criteria on which EPBC Act decisions are based.</p>
2	<p><u>Annual Reporting</u> It is important that reports be produced and presented to DEW 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 <i>Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition</i> (the Guidelines) 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 protected species, impacts of the fishery on the ecosystem in which it operates and progress in implementing DEW recommendations. Electronic copies of the Guidelines are available from the DEW website at http://www.environment.gov.au/coasts/fisheries/publications/guidelines.html</p>	<p>Condition 3: DPI&F to produce and present reports to DEW annually as per Appendix B to the 'Guidelines for the Ecologically Sustainable Management of Fisheries - 2nd Edition'.</p>
	Issue	Recommendation
1	<p><u>Cross-Jurisdictional Management and Research</u> While DPI&F meet with NSW Department of Primary Industries on an annual basis, DEW notes that no recent research into blue swimmer crabs in QLD has been conducted since the previous assessment of the fishery in 2004, nor are any collaborative research projects currently underway.</p>	<p>Recommendation 1: Should priority research on shared stocks be identified by fisheries managers, DPI&F to actively pursue the development of collaborative research with other jurisdictions and agencies and ensure that management arrangements for the QLD Blue Swimmer Crab Fishery continue</p>

	<p>Noting the limited knowledge regarding blue swimmer crab stocks in QLD and that the species are shared across jurisdictions, DEW considers it important for DPI&F to continue to actively engage with other jurisdictions on issues relating to blue swimmer crabs to improve the ecologically sustainable management of the fishery.</p>	<p>to take account of the results of research conducted.</p>
2	<p>Data Validation A recommendation was made in the 2004 assessment of the fishery for DPI&F to develop a system to ensure that catch data collected in commercial logbooks is validated on an ongoing basis. DPI&F conducted a data validation report on the QLD Blue Swimmer Crab Fishery in early 2007 which utilised Vessel Monitoring System reports and fisheries observer program trip reports.</p> <p>DEW reinforces the recommendation arising from the 2004 assessment of the fishery for DPI&F to review and consider outcomes of the data validation report and continue to ensure that catch data collected in commercial logbooks is validated on an ongoing basis.</p>	<p>Recommendation 2: DPI&F to continue to review mechanisms to validate commercial logbooks in the QLD Blue Swimmer Crab Fishery.</p>
3	<p>Resource Assessment A performance measure relating to total annual catch and catch rate was triggered for certain areas in the first assessment of the Performance Measurement System (PMS) recently developed for the fishery. While DPI&F indicate that the overall blue swimmer crab stocks are healthy, DEW considers that a slight increase only one year after a significant drop in catch and CPUE in 2005 suggests that caution is required when assuming that stocks are healthy in all regions of the fishery despite sharp differences in total catch and declines in CPUE over the last three years. Of particular concern is the significant decrease in total catch and effort for the whole fishery and the offshore and North East regions. While this observed decline in total catch and effort could be attributed to extrinsic factors such as high fuel prices and the strength of the Australian dollar in international markets, the reasons behind the decline remain uncertain.</p> <p>DPI&F indicate that it is possible that the decline in annual catch in the offshore region is the result of the impacts of additional fishing effort from 2001 on a stock of mature blue swimmer crabs which had not been accessed before that time. DPI&F indicate that this issue will be considered by the Crab Scientific Advisory Group (CrabSAG) and reported on in the 2008 Blue Swimmer Crab Annual Status Report. Additionally, reported catches in the North East region</p>	<p>Recommendation 3: Within three years, DPI&F to develop and implement a strategy that determines precautionary estimates of the resource status of blue swimmer crabs in all areas of the fishery, taking into account the overall take of blue swimmer crabs to ensure overall catch levels are sustainable.</p>

	<p>have historically been very low. The significance of the very high reported catch and CPUE in 2003 is unknown. DPI&F indicate that this year is clearly an outlier and an investigation of the database will be undertaken to ensure that there is no alternative explanation for the 2003 result, and this will also form part of the deliberation of the CrabSAG.</p> <p>While DEW acknowledges the management arrangements currently in place, DEW notes a number of signals in the fishery that should be addressed to provide more certainty with the ongoing sustainable yield of blue swimmer crabs and the appropriateness of management measures in place. This includes:</p> <ul style="list-style-type: none"> • the recreational sector where there is currently no possession limit for blue swimmer crabs; • compliance with commercial effort (pot numbers); and • the need to continue verifying commercial landings. <p>In the absence of a reliable stock assessment model and the reliance on fishery-dependent information, DEW recommends DPI&F to develop a strategy that determines the resource status of blue swimmer crabs in all areas of the fishery. DPI&F should factor estimates of all removals (including the recreational sector and precautionary estimates of discards by the trawl sector) of blue swimmer crabs and consider the possible activation of latent effort (see Recommendation 7) when conducting the stock assessment to ensure the ecologically sustainable management of the fishery. DPI&F indicate that the LTMP surveys are aiming to provide an alternative indicator of stock abundance for use in future stock resource assessments to complement logbook data and move away from sole reliance on fishery-dependent information.</p>	
4	<p><u>Performance Measures (Bycatch species)</u></p> <p>As part of the PMS, DPI&F have developed performance indicators relating to the impact of the fishery on bycatch species. However, DEW has some concerns regarding the effectiveness of measuring the impact on bycatch species due to:</p> <ul style="list-style-type: none"> • The performance measure relating to bycatch species is reliant on the Ecological Risk Assessment (ERA) process, which will not be conducted annually; and • The shift in fishing effort across the fishery since 2001 when independent surveys were conducted. 	<p>Recommendation 4: By the end of 2008, DPI&F to review the Performance Measurement System for the QLD Blue Swimmer Crab Fishery to ensure that bycatch indicators are relevant and are targeted at achieving precautionary management outcomes. DPI&F to ensure that appropriate information is collected from the fishery to ensure that these indicators can be monitored effectively.</p>

	<p>Apart from independent surveys conducted between 1997 and 2001, no other information is currently available on the abundance and composition of bycatch in the fishery. Commercial fishers are not required to record bycatch in logbooks and the LTMP is focused on estimating abundance and length structure of male and female blue swimmer crab populations.</p> <p>In addition, the ERA conducted on bycatch species appeared to only consider three-spot crabs in the assessment. While three-spot crabs are considered one of the most at risk by-product/bycatch species in the fishery. An independent survey noted that there is potential for pot fisheries, in general, to capture large quantities of bycatch, including many invertebrate species and finfish species—it should be noted that this same study found the QLD Blue Swimmer Crab Fishery to be low-risk and to have low levels of bycatch.</p> <p>DEW recommends DPI&F ensure that performance measures for the fishery are accurately informed by the information currently being collected in the fishery. DEW notes that the PMS is designed to be a working document that may be reviewed and updated to reflect available data. The upcoming review of the PMS (after the first year of reporting) is an opportune time for DPI&F to consider the precautionary nature of performance measures and indicators and the suitability of the performance measures relating to bycatch.</p>	
5	<p><u>Protected species</u></p> <p>A recommendation was made in the initial assessment of the fishery for DPI&F to implement measures to mitigate interactions with protected species, particularly marine turtles and identify areas of the fishery where the risk of protected species interactions is higher. While the actual capture of protected species in the fishery appears to be low, DEW notes that no progress has been made by DPI&F in addressing this recommendation.</p> <p>A number of species of conservation interest including marine turtles, dugongs and cetaceans occur within the area of the fishery. While an ERA was completed for the fishery, the assessment did not take account of protected species or the impact of gear loss on protected species. With the introduction of the SOCI logbook for commercial fishers, DPI&F have the opportunity to use this information in an assessment of the type and level of interactions the fishery has with protected species.</p> <p>A maximum size opening in crab apparatus to minimise interactions with juvenile turtles has</p>	<p>Recommendation 5: Within two years, DPI&F to update the ecological risk assessment by including information on the impact on protected species from the commercial sector of the fishery, including the level and effects of ghost fishing by lost or discarded commercial and recreational crab apparatus on protected species. DPI&F to investigate measures to ensure that issues identified at risk are minimised.</p>

	<p>been proposed by DPI&F (subject to community consultation). However, DEW notes that the risk of turtle and other entanglement could be further exacerbated should the substantial latent effort in the fishery be activated or significant increases occur in recreational effort. In addition, the nature of protected species interactions could change as the fishery possibly expands into deeper, offshore areas, particularly as humpback whale migration routes overlap with QLD offshore fishing grounds.</p> <p>DEW recommends that DPI&F update the ERA with the impact of the QLD blue swimmer crab fishery and lost crab gear has on threatened, endangered or protected species, taking into account the potential lack of validated reporting on protected species interactions, latent effort in the fishery and the impacts on protected species by the recreational sector.</p>	
6	<p><u>Ecological Risk Management</u></p> <p>DEW recognises that an ERA on the impact of the Blue Swimmer Crab Fishery on target and bycatch species was completed by DPI&F in May 2006. The ERA identified the following as ‘moderate’ risk issues for the QLD Blue Swimmer Crab Fishery, a fishery which overall is considered to be low risk in terms of bycatch and protected species interactions and ecosystem impacts:</p> <ul style="list-style-type: none"> • capture of the target species through pot and trawl fishing activity; • direct impact without capture of target and bycatch species through gear loss; • the addition of non-biological material on target and bycatch species through gear loss; <p>DEW commends DPI&F on completing the ERA process for the QLD Blue Swimmer Crab Fishery and considers that the implementation of management responses to address moderate-risk issues should be given priority.</p>	<p>Recommendation 6: Within two years, DPI&F to implement management responses for risks ranked as ‘moderate’ or above in the QLD Blue Swimmer Crab Ecological Risk Assessment.</p>
7	<p><u>Latent Effort</u></p> <p>Latent effort in the QLD Blue Swimmer Crab Fishery was identified as a potential risk to the long-term sustainability of blue swimmer crab stocks in the 2004 DEW assessment of the fishery. While not the intention to remove latent effort, DPI&F implemented new licensing and fee arrangements on 1 July 2006 and will monitor the effects of these new arrangements to determine whether C1 licence holders surrender previously unused fishery symbols. To date, it is unsure whether some latent effort from the fishery has been removed as the proposed review</p>	<p>Recommendation 7: DPI&F to actively develop a strategy to remove or substantially reduce the amount of latent effort in the fishery.</p>

of this process has not been completed.

While the Great Barrier Reef Marine Park Structural Adjustment Package removed 77 crab licences from the fishery, 859 commercial crab licences remain with only 190 commercial fishing boats (with multiple crab licences) accessing the fishery in 2006. DPI&F indicate that very precautionary management arrangements are in place, with the minimum legal size limit and prohibition on the take of females limiting the proportion of the population that may be harvested to approximately 25%. This figure, however, remains uncertain, especially since trawlers are also able to retain blue swimmer crabs, where higher discard rates of trawl-caught crabs is a potential risk.

However, with currently no blue swimmer crab stock assessment and noting the potential effort in the recreational sector and that the LTMP has only recently commenced collecting fishery-independent information on blue swimmer crabs, DEW considers that latent effort issues is still a potential hindrance facing the QLD Blue Swimmer Crab Fishery.

Acronyms

CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPUE	Catch per Unit Effort
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEW	Australian Government Department of the Environment and Water Resources
DPI&F	Queensland Department of Primary Industries and Fisheries
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ERA	Ecological Risk Assessment
GBRMP	Great Barrier Reef Marine Park
GoC	Gulf of Carpentaria
LENS	List of Exempt Native Specimens
LTMP	Long Term Monitoring Program
MAC	Management Advisory Committee
NSW	New South Wales
PMS	Performance Measurement System
QLD	Queensland
QBFP	Queensland Boating and Fisheries Patrol
RFISH	Recreational Fisheries Information System
SAP	Structural Adjustment Package
SOCI	Species of Conservation Interest
TEP	Threatened, Endangered or Protected
WHA	World Heritage Area

