Annual status report 2008
Mud Crab Fishery
The Department of Primary Industries and Fisheries (DPI&F) seeks to maximise the economic potential of Queensland’s primary industries on a sustainable basis.

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Introduction

Mud crabs (*Scylla* spp.) are found throughout the Indo-Pacific region. In Australia, they are found in tropical and subtropical areas in association with mangrove-lined estuaries from southern New South Wales, north to the Exmouth Gulf in Western Australia. Fast growth rates, early maturity, wide distribution and high fecundity are all biological characteristics that contribute to the resilience of mud crabs to harvest. Mud crabs are highly desired in both the commercial and recreational sectors. Queensland is unique among Australian states in protecting all female mud crabs and only allowing males to be harvested. This report covers the 2007 calendar year.

Fishery profile 2008

Total harvest from all sectors: Approximately 1558 t

Commercial harvest: Approximately 906 t

Recreational harvest 2005: Approximately 638 t

Indigenous harvest: Approximatey 12 t

Charter harvest: Approximately 1.5 t

Commercial Gross Value of Production (GVP): Approximately $14.5 million

Number of licences: 779

Commercial fishing boats accessing the fishery: 410

Fishery season: January to December


Description of the fishery

Fishing methods

Commercial operators are permitted to use collapsible traps and crab pots. In addition to pots and traps, recreational fishers are also permitted to use dillies. Dimensions of pots vary, but most are cylindrical and have two entrance funnels. Mud crabs are enticed into the pot or trap by bait attached to the inside of the apparatus.

Fishing area

The Mud Crab Fishery comprises the following tidal waters on the East Coast:

- east of longitude 142°31’49” E
- north of latitude 10° S and between longitude 141°20’ E and longitude 142°31’49” E,

and in the Gulf of Carpentaria:

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1 For the purpose of this report, the total harvest estimate for 2008 includes the recreational harvest estimate from 2005, based on the assumption that the subsequent years of catch would be similar.
2 The indigenous estimate is still derived from the 2000-01 National Recreational and Indigenous Fishing Survey (NRIFS).
3 Traps, pots and dillies are defined under the Fisheries Regulation 2008.
4 Ibid.
Main management methods used

The Department of Primary Industries and Fisheries (DPI&F) Queensland manages the Mud Crab Fishery in accordance with ecologically sustainable development principles. The Mud Crab Fishery is managed under the Queensland Fisheries Act 1994 and in accordance with the Queensland Fisheries Regulation 2008.

A range of input and output controls are in place to manage the harvest of mud crabs by commercial and recreational fishers, including:

- minimum legal size limit that applies to both commercial and recreational fishers (150 mm carapace width)
- a prohibition on taking female crabs
- apparatus restrictions (50 pots per licence for the commercial fishery and four pots per person for the recreational fishery)
- limited entry to the commercial fishery (C1 endorsement required)
- prescriptions on the size of the float that may be used
- 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 Great Barrier Reef Marine Park Act 1975 and the Queensland Marine Parks Act 2004).

Approximate allocation between sectors

Information provided to DPI&F through commercial fisher logbooks and recreational fisher diaries indicates that the commercial sector harvests the majority of the catch (approximately 58%) with the recreational sector harvesting slightly less (approximately 41%). Compared with the recreational and commercial sectors, the annual harvest of mud crabs by the Indigenous and charter sectors is considered very low (less than 1% combined).

Fishery accreditation under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The Mud Crab Fishery was granted a five year Wildlife Trade Operation (WTO) exemption on 21 August 2007 under Part 13A of the Australian Government EPBC Act. This accreditation acknowledges that the Mud Crab Fishery is being managed in an ecologically sustainable manner and allows the export of catch. The exemption expires on 21 August 2012.

Catch statistics

Commercial

Queensland mud crab fishers are required to report commercial catch in a daily logbook which is maintained and validated by DPI&F. Total reported commercial mud crab catch in Queensland has decreased from 980 t in...
$2006^5$, to 906 t in 2007 (Figure 2). The decrease in reported catch has been paralleled by a decrease in reported effort (days fished) from 39 417 days in 2006 to 36 737 days 2007 (Table 1).

Catch per unit effort (CPUE) calculated as kg/day has remained relatively stable since 2000, ranging between approximately 23–26 kg/day (Figure 2, Table 1). This stability in yield is mirrored when CPUE is calculated as kg/pot lift, though this data is less reliable and therefore not presented in this report.

**East coast**

The east coast of Queensland is defined as waters between the New South Wales border and the tip of Cape York. Total reported commercial catch has decreased from 822 t in 2006 to 784 t in 2007 (Figure 3). The decrease in catch is paralleled by decreased effort in the fishery, from approximately 33 786 days in 2006 to 31 792 in 2007. CPUE (kg/day) has remained relatively stable on the east coast over the past eight years (Figure 3).

**Gulf of Carpentaria**

The Gulf of Carpentaria is defined as intertidal waters from the tip of Cape York to the Northern Territory border. Reported commercial catch has decreased from 158 t in 2006 to approximately 123 t in 2007 (Figure 4). The reported decrease in catch is paralleled by a decrease in effort in the Gulf of Carpentaria, from 5 629 boat-days in 2006 to 4 939 in 2007.

The observed general increase in CPUE from 2003 onwards (Figure 4) suggests that mud crab stocks are showing resilience to effort and take in this region.

**Recreational**

Preliminary results from the 2005 Recreational Fisheries Information System (RFISH) diary survey indicates that approximately 638 000 mud crabs were harvested in 2005 and approximately 2.3 million mud crabs were released (Table 1). These estimates equate to a recreational harvest of approximately 638 t—a decrease from the 2002 estimate of 874 t. The recreational harvest represents approximately 41% of the estimated total annual harvest of mud crabs.

The 2001 National Recreational and Indigenous Fishing Survey (NRIFS) (Henry and Lyle 2003) indicated that Queensland recreational fishers take the largest proportion of the national mud crab harvest at 71%, and that they primarily used pots and traps to harvest mud crabs.

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$^5$The previously reported catch for 2006 was 898 t. A logbook compliance run in early 2008 resulted in the return of some overdue catch reports from 2006 by a small number of fishers, bringing the 2006 estimate up to 980 t.

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Table 1. Recreational catch of mud crab estimated from RFISH surveys (Source: DPI&F RRISH database 14 April 2008).

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2002</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number caught</td>
<td>3 512 250 (± 7.1%)</td>
<td>3 880 048 (± 7.1%)</td>
<td>2 762 591 (± 7.4%)</td>
</tr>
<tr>
<td>Number released</td>
<td>2 518 813 (± 6.9%)</td>
<td>3 006 462 (± 7.6%)</td>
<td>2 124 518 (± 7.9%)</td>
</tr>
<tr>
<td>Number retained</td>
<td>993 436 (± 6.9%)</td>
<td>873 586 (± 6.3%)</td>
<td>638 072 (± 7.4%)</td>
</tr>
<tr>
<td>Estimated weight of retained</td>
<td>993 t</td>
<td>873 t</td>
<td>638 t</td>
</tr>
</tbody>
</table>

Charter

The charter component of the Mud Crab Fishery represents the smallest portion of the total annual mud crab harvest at less than 1%. Data from compulsory charter logbooks indicates that in 2007, 1464 kg of mud crabs were caught, of which 364 kg were released (Table 2). In 2007 there was one less operator than in 2006, along with a 45% drop in the total number of days fished by charter operators.

Table 2: Charter catch and effort 2003-07 (Source: DPI&F CFISH database 8 May 2008).

<table>
<thead>
<tr>
<th>Year</th>
<th>Retained catch (kg)</th>
<th>Discarded catch (kg)</th>
<th>Number of operators</th>
<th>Number of fished days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>846</td>
<td>302</td>
<td>15</td>
<td>571</td>
</tr>
<tr>
<td>2004</td>
<td>886</td>
<td>642</td>
<td>20</td>
<td>587</td>
</tr>
<tr>
<td>2005</td>
<td>826</td>
<td>335</td>
<td>13</td>
<td>470</td>
</tr>
<tr>
<td>2006</td>
<td>826</td>
<td>424</td>
<td>12</td>
<td>286</td>
</tr>
<tr>
<td>2007</td>
<td>1100</td>
<td>364</td>
<td>11</td>
<td>157</td>
</tr>
</tbody>
</table>

Indigenous

There have been no updates to the estimates of Indigenous harvest since the previous Mud Crab annual status report.

Spatial issues/trends

The Queensland Mud Crab Fishery operates along the entire coast of Queensland. In 2007, regions of high effort and high catch included Moreton Bay, Gladstone, Stanage (North of Rockhampton), Hinchinbrook Channel (North of Townsville), Hervey Bay (East of Maryborough) and Karumba (Gulf of Carpentaria) (Figure 6).

Figure 6. Spatial distribution of effort (days) and catch (kg) in the Mud Crab Fishery.
Closer examination of yield trends in these focal regions suggests that CPUE has remained relatively constant over the past five years (Figure 7). These trends are also reflected in the data from the independent and standardised sampling of DPI&F’s Long Term Monitoring Program (LTMP), indicating that currently there is no cause for concern over higher effort and catch in these areas.

**Socio-economic characteristics and trends**

The majority of mud crabs are sold to local and interstate markets and are an important ‘icon’ species to the tourist and hospitality trade. There is a small live export trade to Asia from northern Queensland centres. Most often, the crabs are sold whole; either live or cooked and chilled. Fishers were paid between $10/kg and $20/kg for mud crabs in 2007 depending on the quality and availability of the product, the time of year and the product form. The typical price paid to fishers was $16/kg.6

The majority of fishers earn $40 000 or less per year from the Queensland Mud Crab Fishery (Figure 8).

**Fishery performance**

**Appraisal of fishery in regard to sustainability**

The Queensland Mud Crab Fishery is managed in a more precautionary manner than any other Australian mud crab fishery—this produces confidence in its sustainability. The prohibition on taking female and undersized crabs protects the spawning capacity of the stock from increases in effort.

**Progress in implementing Department of the Environment and Water Resources (DEWHA) recommendations**

DEWHA made a range of recommendations to DPI&F during its first assessment of the Queensland Mud Crab Fishery in August 2004. Recommendations 1—7 and 11—15 are complete and the progress against each of these can be found in the 2007 annual status report for the mud crab fishery. Progress against the final three recommendations, numbers 8—10, is summarised in Table 3.

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6 Figures supplied to DPI&F by Queensland Seafood Marketing Association 2008.
Table 3: Final progress report for remaining round one DEWHA recommendations.

<table>
<thead>
<tr>
<th>Round 1 Recommendation</th>
<th>Final Progress Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. DPI&amp;F to develop and implement separate management arrangements for the Gulf of Carpentaria mud crab stock by 30 June 2005.</td>
<td>Separate management arrangements for the East Coast and Gulf of Carpentaria Mud Crab fishery will not be developed until after the latent effort in this fishery has been addressed. The recent Draft Policy for the Removal of Excess Fishing Capacity in Queensland's Line, Crab, Beam Trawl and Eel Fisheries is intended to address latent effort in the C1 fishery (Mud and Sand Crab) for all Queensland waters.</td>
</tr>
<tr>
<td>9. DPI&amp;F to develop a strategy to remove or substantially reduce the amount of latent effort in the fishery, which includes clearly defined management actions linked to specific timeframes, by 31 December 2004. DPI&amp;F to implement the strategy prior to the introduction of the management plan.</td>
<td>Complete</td>
</tr>
<tr>
<td>10. As part of the management planning process, DPI&amp;F to review existing management measures designed to control mud crab harvest by recreational fishers to ensure that these measures are appropriate, adequately constrain recreational effort and minimise impacts on bycatch and protected species. Should the review indicate that existing measures are not appropriate DPI&amp;F will develop new measures in a timely manner.</td>
<td>The recent Draft Policy for the Removal of Excess Fishing Capacity in Queensland's Line, Crab, Beam Trawl and Eel Fisheries will further enhance DPI&amp;F's management of latent effort risk.</td>
</tr>
</tbody>
</table>

DEWHA made a range of recommendations to DPI&F during its second assessment of the Queensland Mud Crab Fishery in August 2007 in order to address any perceived risks or uncertainties. Details of the progress DPI&F has made in implementing each of these recommendations are provided in Table 4.

Table 4: Implementation progress of round 2 DEWHA recommendations for the Queensland Mud Crab Fishery.

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Progress</th>
<th>Improvements to management regime</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPI&amp;F to inform DEWHA of any intended amendments to the management arrangements that may affect the criteria on which EPBC Act decisions are based.</td>
<td>In progress</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>There have been no changes to management arrangements in the mud crab fishery in 2007.</td>
<td></td>
</tr>
<tr>
<td>DPI&amp;F to continue to produce and present reports to DEWHA.</td>
<td>Ongoing</td>
<td>Public reporting on the status of Queensland’s fisheries is an important aspect of managing fisheries on behalf of the Queensland community.</td>
</tr>
<tr>
<td></td>
<td>This document is the fourth annual status report for the Queensland Mud Crab Fishery. It is available to the public and other stakeholders through DPI&amp;F’s website: <a href="http://www.dpi.qld.gov.au">www.dpi.qld.gov.au</a></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Progress</th>
<th>Improvements to management regime</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPI&amp;F to continue to actively pursue the development of collaborative research with other jurisdictions and agencies and ensure that management arrangements for the Queensland Mud Crab Fishery continue to take account of the results of research conducted.</td>
<td>In progress&lt;br&gt;In June 2007, DPI&amp;F monitoring and research staff and a Queensland Seafood Industry Association (QSIA) representative participated in an FRDC-funded mud crab workshop in Darwin&lt;br&gt;In partnership with QSIA, DPI&amp;F (with NSW collaboration) intend to re-submit a proposal to investigate the effects of relaxing the single sex harvest policy to FRDC in 2008.</td>
<td>Collaborative research with other states and agencies is an important component of DPI&amp;F's commitment to ensuring the sustainability of mud crab populations that potentially have cross-jurisdictional distributions.</td>
</tr>
<tr>
<td>By the end of 2008, DPI&amp;F to implement management responses for risks ranked as ‘moderate’ or above in the Queensland Mud Crab Ecological Risk Assessment.</td>
<td>In progress&lt;br&gt;The <em>Ecological Risk Assessment of Queensland’s Blue Swimmer, Spanner and Mud Crab Fisheries</em> (Hill 2007b) identified fishing and gear loss as being of moderate risk to green turtle populations. Several innovative commercial fishers in the blue swimmer crab fishery have initiated trials of modified fishing gear in 2008 (lead core rope and dividing string at trap entrance), designed to reduce interactions with protected species and to reduce the loss of crab pots and subsequent ghost fishing. These modifications to the fishing gear are potentially beneficial in the Mud Crab Fishery. DPI&amp;F will liaise with the research co-ordinator who has been involved on trialling the new pot designs at the end of the program to obtain results provided they are available.</td>
<td>DPI&amp;F has committed to developing a management response for risks ranked as moderate or higher in the Ecological Risk Assessment of Queensland’s Blue Swimmer, Spanner and Mud Crab Fisheries. The management response will serve to mitigate identified risks.</td>
</tr>
<tr>
<td>By the end of 2008, DPI&amp;F 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. DPI&amp;F to ensure that appropriate information is collected from the fishery to ensure that this indicator/s can be monitored effectively.</td>
<td>In progress&lt;br&gt;A review of the mud crab performance measurement system was initiated in May 2008. It is anticipated that the revised PMS will be presented to the Scientific Advisory Group (SAG) and the Management Advisory Committee (CrabMAC) for comment and reported on in the next annual status report.</td>
<td>A performance measurement system (PMS) provides a formal set of transparent and verifiable measures against which DPI&amp;F can assess and report on the performance of the fishery and demonstrate its sustainability. Regular review of the PMS ensures that it is precautionary, responsive and meaningful.</td>
</tr>
</tbody>
</table>
Performance against fishery objectives

Performance measures for the Queensland Mud Crab Fishery (Table 5) were developed in collaboration with the CrabMAC and other stakeholders, including members of the commercial fishing sector, fishery managers, researchers and assessment and monitoring staff. Input from a broad range of stakeholders was sought to ensure the performance measurement system (PMS) was meaningful, defensible and precautionary, taking into account data limitations but incorporating the most appropriate information available. The PMS was approved by a delegate of the Chief Executive in 2007 and is a formal instrument for measuring performance of this fishery.

The delineation of regions used in the first performance measure is displayed in Figure 9.

Figure 9. Regional boundaries in the Mud Crab Fishery.

Table 5: Performance measures and their outcomes for the Mud Crab Fishery.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>An annual limit reference point (LRP) of 30% above or below the average commercial</td>
<td>• Whole fishery: Not triggered</td>
</tr>
<tr>
<td>catch and catch rate for the previous five years in the following areas (Figure 10):</td>
<td>• East Coast: Not triggered</td>
</tr>
<tr>
<td>• Whole fishery</td>
<td>• Gulf: Not triggered</td>
</tr>
<tr>
<td>• East Coast (comprised of Remote, Northern Wet, Northern Dry, Swains, Capricorn,</td>
<td>• Regions within areas: Triggered.</td>
</tr>
<tr>
<td>Fraser Burnett and Moreton regions)</td>
<td></td>
</tr>
<tr>
<td>• Gulf region (comprised of Northern Gulf and Southern Gulf regions)</td>
<td></td>
</tr>
<tr>
<td>• For the regions within these areas.</td>
<td></td>
</tr>
<tr>
<td>The risk ranking assigned to bycatch species in the ERA process increases from the</td>
<td>Not measured</td>
</tr>
<tr>
<td>previous assessment.</td>
<td>An Ecological Risk Assessment was completed in</td>
</tr>
<tr>
<td></td>
<td>2007. DPI&amp;F intends to review risk assessments</td>
</tr>
<tr>
<td></td>
<td>every 3-5 years.</td>
</tr>
<tr>
<td>The risk ranking assigned to protected species in the ERA process increases from</td>
<td>Not measured</td>
</tr>
<tr>
<td>the previous assessment.</td>
<td>An Ecological Risk Assessment was completed in</td>
</tr>
<tr>
<td></td>
<td>2007 for the Mud Crab Fishery. DPI&amp;F intends to</td>
</tr>
<tr>
<td></td>
<td>review risk assessments every 3-5 years.</td>
</tr>
<tr>
<td>Performance Measure</td>
<td>Performance</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Interactions with turtles or crocodiles do not exceed the highest historical number of interactions reported through Species of Conservation Interest (SOCI) logbooks (2003–05).</td>
<td>Not triggered</td>
</tr>
<tr>
<td>The highest historical number of reported SOCI interactions is three interactions with turtles and four with crocodiles. In 2007, there were no reported interactions with crocodiles and only one with a (freshwater) turtle.</td>
<td></td>
</tr>
</tbody>
</table>

**Resource concerns**

DEWHA’s re-assessment of the Mud Crab Fishery in 2007 identified latent effort in the fishery as a risk to the long-term sustainability of Queensland’s crab stocks. In May 2008, DPI&F distributed the *Draft Policy for the Removal of Excess Fishing Capacity in Queensland’s Line, Crab, Beam Trawl and Eel Fisheries* to relevant stakeholders for a consultation and review period of one month. Once the Policy is finalised and implemented, DPI&F will monitor the effectiveness of the Policy on reducing latent effort in the Mud Crab Fishery.

**Ecosystem**

**Non-retained species/bycatch**

The Mud Crab LTMP has collected information on the bycatch species since the program began in 1999. The available fishery independent and dependent data suggest that discards associated with the fishery are predominately undersize or female mud crabs, with other bycatch species only occasionally present in pots. Survival of released crabs is believed to be high (McCormack 2005).

Mud crab pots are a non-destructive fishing apparatus as they function by trapping. Crabs are enticed into the pots with bait and their escape is restricted. Considered in combination with the general practice of daily pot checking, mud crab pots impart little physical damage to either mud crabs or bycatch, resulting in high survivability in released undersize and female mud crabs and other bycatch species.

**Interactions with protected species**

In 2007, there were two reported interactions with species of conservation interest (none in 2006).

The reported interactions were with a freshwater turtle (dead) and a darter/snake-bird (dead). Given the habitat in which mud crab trapping occurs, it is presumed that the freshwater turtle was incorrectly identified by the fisher. It is far more likely to have been a green turtle.

**Fishery impacts on the ecosystem**

The fishery’s impact on the ecosystem is considered to be negligible. The lightweight structure of crab fishing apparatus is considered to have little, if any, impact on the muddy/sandy substrates of the estuaries or foreshore areas in which they are set. Daily pot checks and frequent pot repositioning, which is standard practice in both the commercial and recreational fisheries, further reduces the potential for long-term impacts to benthic habitats and communities, or to water quality in general.

**Other ecosystem impacts**

Mangrove habitats play an important role in mud crab life cycles, and as such the species can be susceptible to impacts from habitat modification or pollution. More detailed information regarding other ecosystem impacts can be found in the *Annual status report 2007 - Mud Crab Fishery* (Hill 2007a).
Research and monitoring

Recent research and implications
A joint post-graduate study between James Cook University (JCU) and DPI&F was undertaken to assess optimal soak time of crab pots.

Monitoring programs and results

Long Term Monitoring Program
Since 1999, the DPI&F LTMP has undertaken fishery independent monitoring of mud crabs. The primary objectives of the program are to collect length, sex and catch rate data to be used in determining the population status of the species.

The LTMP fishery independent mud crab survey was reviewed in 2007 to ensure the data being collected were appropriate to monitor mud crab stocks in Queensland. Reviewed objectives focussed on numbers of legal crabs and numbers of sub-legal crabs captured.

The interim results of a joint post-graduate JCU and DPI&F research project evaluating optimal crab pot soak times were also considered in the LTMP survey review.

The surveys recommenced in 2008 with no change to the sampling methods but some changes to the areas monitored. The revised monitoring areas better reflect those areas of high harvest and include regions in close vicinity to a large resident population. Sites were added at Broadsound and Shoalwater Bay, and some sites in North Queensland (Bizant River and Mitchell River) and Hervey Bay (Susan River) were removed. All areas were successfully surveyed during 2008.

Commercial fisher monitoring logbooks were trialled during late 2007 and early 2008. The logbook data could potentially provide a reliable source external to the LTMP on commercial catch rates and the level of bycatch in the fishery and could serve as an indication of the representativeness of the discard and bycatch data from LTMP’s standardised sampling. The logbook data may also be used to account for within season catch rate variability, rather than replicate the LTMP survey multiple times in a fishing season. Ten commercial fishers participated in the trial, recording numbers of legal, sub-legal and female mud crabs; as well as numbers of bycatch species. Data was collected, once a week for twelve weeks in each of the LTMP survey areas, six weeks either side of the survey date. Data is still being collected in some areas. Feedback from all of the participants has been positive, with additional fishers also volunteering their services during the trial. It is expected a similar program (slightly more fishers) will run in 2009, until the value of the dataset to the LTMP, fishery managers and industry has been established.

DPI&F will use LTMP data during fishery assessments, to provide a better understanding of the resource and ensure that the Mud Crab Fishery is managed in a sustainable manner.

Collaborative research
DPI&F monitoring and research staff and a Queensland Seafood Industry Association (QSIA) representative participated in the FRDC-funded mud crab workshop in Darwin in June 2007, the major objective of which was to develop a strategic plan for mud crab research and development over the next 5-8 years. Other outcomes of the meeting were:

- A Northern Territory proposal to investigate techniques to quantitatively sample post-settlement and early juvenile mud crabs as an alternative to pot-sampling adult crabs for population abundance estimation was rejected. The probability of satisfying the project aims was considered low.

- The workshop recommended more work be done on the effect of climate variability on mud crab stocks. Links between climate and mud crab stocks in Queensland have already been examined and
published; the project will build on this information by incorporating Northern Territory fishery data and some updated Queensland data.

- DPI&F and QSIA research and development (R&D) priorities focussed on the need for sound scientific advice on the effects of relaxing the single-sex harvest policy (Queensland being the only Australian State with this management arrangement for its mud crab fishery). As the other States do not have a single sex harvest policy (SSHP), this proposal featured as a lower priority in the workshop’s R&D recommendations. It should be noted here that genetic evidence indicates the Northern Territory and Queensland east coast mud crab fisheries are based on separate reproductive stocks.

Following the workshop, Northern Territory submitted a climate variability proposal to FRDC that was accepted after some budgetary revision. In partnership with QSIA, DPI&F (with NSW collaboration) submitted the SSHP proposal but it wasn’t supported by FRDC. It is intended that the 2007 proposal be revised and re-submitted to FRDC in 2008 provided it receives sufficient support from the State’s Fisheries Research Advisory Body (FRAB).

Fishery management

Compliance report

Compliance and enforcement in the Queensland Mud Crab Fishery is the responsibility of DPI&F’s Queensland Boating and Fisheries Patrol (QBFP).

During 2007, 4243 units were inspected in the Queensland Mud Crab Fishery area, including in the Gulf of Carpentaria. Of these, 434 were commercial vessel inspections. The majority of the remaining inspections were of recreational fishers, with the remainder comprising camp sites, fishing clubs, charter/tour operators, private property, motor vehicles and marketing premises.

Offences

During 2007, 328 offences relating to the Queensland Mud Crab Fishery were detected in association with 261 inspections. This corresponded to a compliance rate of 93.8% on units inspected. This does not include offences relating to unattended or incorrectly marked equipment.

A summary of offences is provided in Table 5, reported separately for the East Coast and Gulf of Carpentaria. The majority of prosecutions listed are still pending.

In addition to the inspections and offences in Table 6, a total of 85 incorrectly marked crab pots were seized from tidal waters in Queensland, including the Gulf of Carpentaria, during 2007.

Offences are reported as either a Fisheries Infringement Notice (FIN); Caution (FIN Caution or official caution issued by Legal); or Prosecution (to proceed by complaint summons).

Table 6. Offences recorded in the Queensland Mud Crab Fishery (East Coast) in 2007.

<table>
<thead>
<tr>
<th>OFFENCE</th>
<th>FIN</th>
<th>Prosecution</th>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take, possess or sell mud crabs regulated by size</td>
<td>118</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Take, possess or sell mud crabs regulated by gender</td>
<td>63</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Take, possess or sell mud crabs regulated by number</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Possession of certain crabs/crab meat (eg. crab claws, carapace missing)</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taking fish in a prohibited way</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Unlawfully interfere with fishing apparatus</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Failed to comply with seizure notice</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Recreational fisher using more than the prescribed number of apparatus</td>
<td>7</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Recreational fisher using prohibited fishing apparatus (eg. incorrectly marked)</td>
<td>65</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Commercial fisher failed to mark crab apparatus in the prescribed manner</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Failed to have a document required to be available for immediate inspection</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Contravened a condition of an authority</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Boat mark not placed as required</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Contravened Closed Waters</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>252</td>
<td>16</td>
<td>51</td>
</tr>
</tbody>
</table>
Compliance risk assessment

A compliance risk assessment was conducted for this fishery in November 2006 in order to determine compliance priorities and allow the most effective use of QBFP resources.

The assessment identified the following activities in the Queensland Mud Crab Fishery as having a high or extreme level of risk. The Queensland Boating and Fisheries Patrol will therefore direct their compliance resources to addressing:

- Interference with fishing apparatus,
- use of unauthorised gear in the recreational fishery,
- leaving fish in fishing apparatus out of the water,
- take/possession of regulated fish (undersized male) by recreational and commercial fishers,
- take/possession of regulated fish (female) – recreational,
- recreational fishers taking crabs for commercial purposes.

There are also a number of activities rated as having moderate risk, which will be addressed, but at lower priority. It was also recognised that the following issues are important enforcement tools and should also be addressed:

- Possession/sale of certain crabs or crab meat,
- Failure to keep daily logbook records.

Detailed strategies to address the risks identified by this assessment have been developed through the QBFP strategic and operational planning processes that are reviewed annually.

Changes to management arrangements in the reporting year

There were no changes to management arrangements in 2007.

Consultation/communication/education

Promotion of regulations applying to both commercial and recreational fishers, including those relating to mud crabs, is an ongoing role for DPI&F.

Consultation with stakeholders in the fishery mainly occurs through CrabMAC, with meetings generally held twice a year. CrabMAC provides advice to DPI&F on management measures for the fishery.

In early May 2008 a letter explaining DPI&F’s draft policy on the reduction of latent effort in the fishery was sent to each license holder in Queensland. Each fisher was given a one month opportunity in which to comment on the policy before it is finalised.

Complementary management

DPI&F continues to collaborate with other states on complementary management arrangements to enable a more complete assessment of mud crab stocks. The Queensland, Northern Territory and Western Australia government officers meet annually at the Northern Australian Fisheries Managers Forum to discuss the management of shared stocks, including those of mud crabs.

In early 2007, DPI&F met with the New South Wales Department of Primary Industries to discuss further developing complementary fishery management between the states.
References


Hill, F. 2007a, Annual status report 2007 - Mud Crab Fishery, Department of Primary Industries and Fisheries, Brisbane.

Hill, F. 2007b, Ecological Risk Assessment of Queensland’s Blue Swimmer, Spanner and Mud Crab Fisheries, Department of Primary Industries and Fisheries.

McCormack, C. 2005, Post-Release Survival in Crab Pot Fisheries – A compilation of historical data, Department of Primary Industries and Fisheries, Brisbane, Australia.

Information complied by
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Front cover image
Mud crab (Scylla serrata)