

NORTHERN TERRITORY MUD CRAB FISHERY

A REPORT AGAINST THE GUIDELINES FOR THE ECOLOGICALLY SUSTAINABLE MANAGEMENT OF FISHERIES – 2007



**A report prepared for the Department of Environment and
Water Resources (DEW) for assessment of the Northern
Territory Mud Crab Fishery under Parts 13 and Part 13A of the
Environment Protection and Biodiversity Conservation Act
1999 (EPBC Act)**



Northern Territory Government

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Introduction

In July 2002, the Northern Territory Government's Department of Primary Industry, Fisheries and Mines (DPIFM) submitted a document to the Department of Environment and Water Resources (DEW) for assessment of the NT Mud Crab Fishery (NTMCF) under Parts 13 and 13 A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The assessment resulted in the fishery being declared exempt from the export regulations of the EPBC Act for a period of five years beginning in September 2002.

Following the initial assessment of the NTMCF, a substantial level of information is now publicly available regarding the environmental performance of the fishery. In order to focus limited resources on continuous improvement within the fishery and to build on the findings from the initial assessment, the submission requirements were streamlined (by the regulating authority) to align with annual reporting requirements for the fishery.

As part of this new process, Guidelines for the Ecologically Sustainable Management of Fisheries (the Guidelines) were developed, along with accompanying terms of reference. The terms of reference require the preparation of a draft assessment report that assesses all impacts of the fishery on the environment. The draft assessment report is then used to determine if the fishery is ecologically sustainable.

The NTMCF is now due for reassessment against the Guidelines. DPIFM has prepared a draft assessment report that includes this document and the annual Fishery Status Reports published since the initial assessment in 2002. In compiling the report, DPIFM has addressed the Guidelines and where necessary, responded to each of the issues outlined.

As a result of the initial assessment of the fishery in 2002, a series of recommendations were agreed to between DEW and DPIFM. These agreed recommendations were focused on ensuring the continuation and enhancement of good management practices. This document specifically addresses these recommendations and provides a response to each.

The document should be read in conjunction with the Annual Fishery Status Reports and the initial assessment document that was provided to DEW in 2002. For a comprehensive understanding of the management arrangements in place for the NTMCF please refer to the Mud Crab Fishery Management Plan available for download at <http://www.nt.gov.au/dpifm/Fisheries/index.cfm?header=Legislation>

It is also important to note that DPIFM has conducted two stock assessments in the NTMCF since the initial assessment of the fishery in 2002. The 2004 stock assessment was an important management action that identified a fishery under stress and acted to rectify it. The stock assessment ultimately lead to changes to the MCFMP including a 10mm increase in the minimum legal size for commercially caught mud crabs, greater penalties for offences

that affect sustainability, and a reduction in the ability of “ghost” pots to impact on the environment. Results of the stock assessment are available on the following website: <http://www.nt.gov.au/dpifm/Fisheries/>.

The following progress has been made by DPIFM in implementing the DEW recommendations:

DEW Recommendation 1

“Incorporate recreational and indigenous catch in stock and ecosystem assessments.”

DPIFM's Response

The Northern Territory Government undertook broad scale recreational fishing surveys in 1986, 1995 (FISHCOUNT) and 2000/01 as part of its wider fisheries research program. The most recent survey, the National Recreational Fishing Survey: The Northern Territory (NRFSNT) included both recreational and indigenous catch and was undertaken between April 2000 and May 2001. This survey provided national, state and territory databases with information and was jointly funded by each jurisdiction and the Federal Government. An agreement between federal, state and territory fisheries agencies, reached in 1994, to support a repeat of this survey every five years with similar funding arrangements was unfortunately nullified when some states withdrew support in 2005.

NT Fisheries is currently exploring alternative cost effective survey techniques in order to provide up to date information on both the recreational and indigenous fishing catch of the NT. A consultant has been contracted to explore various options and these options have been provided to the NT Government for consideration.

The most recent data on recreational and indigenous catch of mud crabs was collated in 2000/2001 and during this period (1 year) it is estimated that the recreational and indigenous sectors harvested 82,000 and 86,500 crabs respectively.

In conducting the 2004 stock assessment, researchers considered the NRFSNT data however they chose to forego its inclusion in the intensive analysis due to the lack of continuous catch and effort data.

DPIFM believes that the use of commercial log books offers NT Fisheries the most effective use of resources in order to generate data for fishery assessments.

Therefore, given the relatively high annual exploitation rate of the crab resource, the time period since the NRFSNT data was compiled, the substantial reduction in the overall harvest of crabs taken in the commercial

sector since the 2000 survey and the ability of log books to reflect change in the fishery, the inclusion of the NRFSNT data was considered unreliable.

An ecological risk assessment is yet to be conducted on the NTMCF (See DEW Recommendation 7). When the risk assessment data is being compiled, it will include the latest information on both the recreational and indigenous harvest of mud crabs.

DEW Recommendation 2

“Continue existing complementary arrangements, provided under Memorandums of Understanding, to consider the proportion of the mud crab stock being caught in Western Australian and Queensland waters in any research, assessment or management response.”

DPIFM's Response

DPIFM continue to work closely with QLD and WA researchers and managers involved in the sustainable management of the Mud Crab resource.

The FRDC funded “Research Priorities Workshop” that was held in Darwin in June 2007, involved both researchers and managers from the NT, QLD, WA and NSW. The workshop’s focus was to develop research priorities and a strategy for mud crab research for the next 6 – 8 years. Researchers from the NT, QLD and NSW have also agreed to meet annually to discuss research issues. Additionally, there is a study planned to look at the environmental drivers of mud crab catches on a national level.

Furthermore, data regarding straddling stocks of mud crab have been incorporated into both the 2004 and 2007 stock assessments and the outcomes of these stock assessments are used to drive management responses.

DEW Recommendation 3

“Develop guidelines for undertaking review of the fishery management plans once reference points and triggers are reached. In the absence of such guidelines being developed, a timetable for the review process will be incorporated into the mud crab fishery management plan.”

DPIFM's Response

Objectives, performance indicators, trigger points and management responses are now included within the MCFMP (See DEW Recommendation 4 below). However, at this stage, guidelines or a timetable for review of the management arrangements are not included in the MCFMP, and are not considered necessary. Guidelines and a timetable for review are currently included within annual status reports produced for the fishery.

DEW Recommendation 4

“Link the objectives, performance indicators, trigger points and management responses already established by NT Fisheries together and incorporate them into the management plan.”

DPIFM's Response

Objectives, performance indicators, trigger points and management responses have been included in the MCFMP and were Gazetted on 1 May 2006. These fishery-specific indicators apply to the target species, byproduct, bycatch and the impacts of the fishery on the environment.

The inclusion of these indicators in the MCFMP is available at:
<http://www.nt.gov.au/dpifm/Fisheries/index.cfm?header=Legislation>

DEW Recommendation 5

“Incorporate the current habitat mapping in future management arrangements for the fishery.”

DPIFM's Response

The FRDC funded project “Methods for Monitoring the Abundance and Habitat of the Northern Australian Mud Crab, (*Scylla serrata*)”, is now complete and results were published in 2005.

The project successfully mapped the mud crab habitat of both Queensland and the Northern Territory and incorporated the information into a GIS database. The database is a valuable reference tool that should be considered in any future discussion regarding area closures or Marine Park planning within the NTMCF. Additionally, the database could provide a means to predict the annual stock size by region across the NTMCF if the need arises for future regional management of the fishery.

The results of the habitat mapping project is one of a suite of tools that are utilised in the management of the NTMCF. Where appropriate, the results of the project are used to assist in determining management decisions. For example, both the depletion and web trapping data have been included in the 2004 and 2007 stock assessments. These stock assessments in turn influenced the management changes implemented since the 2002 assessment, such as the 10mm increase in carapace width for commercially harvested male and female mud crabs.

DEW Recommendation 6

“Review the appropriateness and effectiveness of existing bait net provisions and log books, particularly in relation to capture of, and interaction with, species listed for protection under relevant State or Commonwealth legislation.”

DPIFM's Response

In January 2007, DPIFM conducted a review into the restricted bait net entitlement in the NTMC Fishery. The outcomes of the review are summarised below:

- The Mud Crab Fishery Code of Conduct will be amended to inform fishers of their responsibilities to report catches and interactions with protected species accurately and completely.
- Restricted bait net fishery log sheets will be amended to streamline their use and to include the capacity to report interactions with protected species
- Identification sheets of protected shark and sawfish species will be produced.
- Education and training on the importance of complete and accurate reporting of all catch and protected species interactions will be targeted at mud crab trader/processors and fishers.

DPIFM has already begun to implement the outcomes of the review. A copy of the review can be found at Attachment 1 in this document.

An additional measure to improve the reporting of interactions with Threatened, Endangered and Protected (TEP) species has also been introduced into the fishery since the original submission in 2002. This involved the inclusion of reporting requirements printed on the front cover of commercial fisher log books explaining their requirements under the EPBC Act.

DEW Recommendation 7

“Undertake a risk assessment of the removal of the mud crab from the ecosystem. The risk assessment will consider the impact of the removal of mud crabs on ecologically related and dependant species. The National Research Priorities for Mud Crabs is to have regard to the outcomes of this risk assessment.”

DPIFM's Response

A risk assessment in the NTMCF should be completed before the end of 2007. However, the current risk to the ecosystem from the NTMCF is considered low. The original DEW assessment of the NTMCF concluded that the fishery was unlikely to have a significant impact on the marine environment generally owing to the following factors;

- The fishing method has limited interaction on the physical environment,
- There are low levels of bycatch in the fishery and
- The mud crab has not been identified as a keystone species.

Since the initial assessment there have been additional measures introduced into the fishery that further reduce the level of risk.

- A recent review of the restricted bait net entitlement has improved recording systems for bycatch and protected species. Refer to Attachment 1.
- The industry code of practice is being changed to highlight the importance of accurate reporting of bycatch and protected species interactions.
- An Environmental Management System (EMS) is also being developed by the Northern Territory Seafood Council.

Furthermore, results of a project on monitoring the abundance and habitat of the mud crab is now complete and this information can be used to assess associations between mud crabs and specific habitat. It can also be used to monitor changes within these habitat areas.

DPIFM has also conducted two stock assessments in the NTMCF since the initial assessment of the fishery in 2002. The 2004 stock assessment was an important management action that identified a fishery under stress and acted to rectify it. The stock assessment ultimately lead to changes to the MCFMP including a 10mm increase in the minimum legal size for commercially caught mud crabs, greater penalties for offences that affect sustainability, and a reduction in the ability of "ghost" pots to impact on the environment. Results of the stock assessment are available on the following website <http://www.nt.gov.au/dpifm/Fisheries/>.

A further stock assessment was conducted in 2007 following a Ministerial commitment to industry to review the results of the recently introduced management changes. Preliminary results of this stock assessment are available now and final results should be available by late 2007.

DPIFM is confident that the mud crab resource is sustainable under the current management arrangements. Additionally, given the nature of the fishing gear used and the biological characteristics of the species harvested, it is unlikely that the fishery will have significant impact on the broader marine environment. DPIFM does however acknowledge that a stock assessment focuses on the target species and does not consider in detail the impact of the removal of mud crabs on ecologically related and dependent species. As a

result, a risk assessment will be conducted by DPIFM that expressly considers the impact of the removal of mud crabs on ecologically related and dependant species. This risk assessment should be completed prior to the end of 2007.

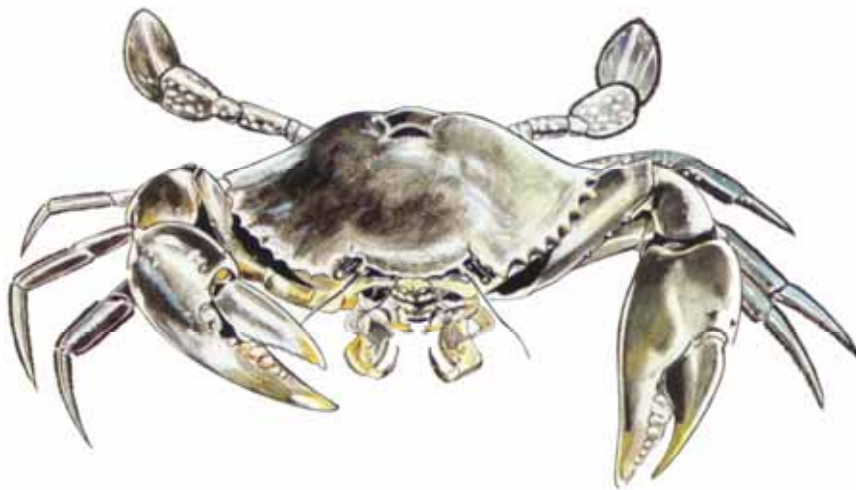
DEW Recommendation 8

“Incorporate outcomes from the risk assessment described in recommendation 7 into the management of the fishery. This may include development of objectives and performance indicators that relate to that risk assessment. It may also include identification of areas that are sensitive to fishing.”

DPIFM's Response

When complete, DPIFM will incorporate outcomes from the risk assessment into the management of the fishery, where necessary. Importantly, as previously mentioned, given the nature of the gear used and the biological characteristics of the species harvested, it is unlikely that the fishery will have a significant impact on the broader ecosystem.

REVIEW OF RESTRICTED BAIT NET ENTITLEMENTS
IN THE NORTHERN TERRITORY
MUD CRAB FISHERY



JULY 2007

Introduction

In September 2002, the Northern Territory Mud Crab Fishery was declared exempt from the export regulations of the *Environment Protection and Biodiversity Conservation Act 1999*, for a period of five years. Assessment of the fishery concluded that the *NT Mud Crab Fishery Management Plan 1991* met the Commonwealth's *Guidelines for the Ecologically Sustainable Management of Fisheries*.

NT Fisheries agreed to a number of recommended actions, focused on ensuring the continuation and enhancement of good management practices, to be implemented before the next Commonwealth review of the fishery. One such recommendation was to:

“Review the appropriateness and effectiveness of existing bait net provisions and log books, particularly in relation to capture of, and interaction with, species listed for protection under relevant State or Commonwealth legislation.”

In implementing the above recommendation, NT Fisheries has conducted a review into the use of bait nets in the NT Mud Crab Fishery. Issues of concern have been discussed and outcomes of the review are summarised in this document.

Process

On the 30 January 2007, a formal review of the NT Restricted Bait Net Entitlement (RBNE) was conducted. The review team consisted of:

Doug Neville	-	Chairman, NT Crab Fishermen's Association
Sherwood Thorbjornson	-	Commercial licensee and transport operator
Katherine Sarneckis	-	Project Officer NT Seafood Council
Don Elphick	-	Aquatic Resource Manager NT Government
Michael Phelan	-	Senior Fisheries Scientist NT Government
Dr Mark Grubert	-	Fisheries Scientist NT Government

The review process consisted of:

- A draft review plan developed by Don Elphick (ref Appendix 1)
- Draft plan was circulated, amended and agreed to by all participants
- The team met at NT Fisheries on the 30/01/07 and:
 - Don Elphick gave a general presentation to define the review process
 - Dr Rik Buckworth gave a talk on the present status of sharks in the NT, the possible implications of the 'Northern Australian sharks and rays: the sustainability of target and bycatch species, phase 2 of which he is a co-author. Possible reporting options and species likely to be encountered particularly *Glyphis* and sawfishes were considered.
 - Dr Mark Grubert presented an analysis of catch data and in particular the link between crab catch, crab CPUE and RBNE catch
 - The team worked through the review plan addressing the issues highlighted by DEW
- Don Elphick wrote up the meeting notes and circulated to the team for comment/amendment.
- A final report was produced and incorporated into the export re-accreditation process

The Restricted Bait Net Entitlement

The Restricted Bait Net Entitlement is not a fishing licence. It is an entitlement to use a particular piece of gear to collect bait for use in the Mud Crab Fishery.

The gear, 'restricted bait net' is defined in the NT Fishing Regulations. The conditions under which it can be used are set out in the MCFMP.

A restricted bait net:

- must not be longer than 100m
- must have a mesh size of not more than 65mm
- has a drop of not more than 5m.
- can only be used seaward of the coast out to 3nm.

- may not be used in the Mary River fish exclusion zone, Darwin Harbour or Shoal Bay, Kakadu National Park or between Bing Bong and the Queensland border.
- can be fixed at one end only.
- must be cleared in water deeper than .3m
- must be attended at all times.

Log Books

All NT mud crab licensees are required to submit log returns for their mud crab fishing operations. The log returns consist of 2 components, the first of which provides catch and market data for the mud crab catch, the second providing catch information for their RBNE (ref Appendix 2). Licensees who purchase bait and do not use their RBNE must still submit a 'NIL' return. It is a legislative requirement to submit returns for all NT commercial fisheries. Reminder letters are sent to fishers to submit late returns. Fishers who do not submit returns face prosecution. As a result, a very high degree of compliance with reporting requirements has been achieved.

Returned log sheets are collated and entered into a proprietary oracle data base, Fishdat. All data is validated before release for research or management purposes.

In January 2007, Dr Mark Grubert of the NT Fisheries Coastal Research Unit, Lorretta Orlando the NT Fisheries returns officer and Don Elphick, the Aquatic Resource Manager responsible for the Mud Crab Fishery reviewed the original log returns for the RBNE.

Returns between 2000 and 2006 were extracted from the log storage system. Loretta was able to easily locate all the required logs from an obviously accurate and well maintained storage system. The logs were generally either NIL returns or filled out in detail. Catch data was generally completed to a functional group level for example 'blue salmon', 'catfish', 'mullet' and provided the mass of the catch in kilograms and the location and grid reference at which it was caught. During the 6 six year sample period, 41 out of 49 licences reported activity. This translates to 38% or 1331 licence months out of the total 3528 licence months available reporting activity.

In general the log sheets took one of two forms:

1. they were returned by the fisher himself (licence owner or lessee) where the name on the top corresponded to the signature at the bottom;
2. where the fisher (nominee) was named at the top and the sheet signed at the bottom by the licensee (or lessee).

Further investigation through interviewing crab truck drivers, trader processors and crabbers, revealed that the nominees were ringing through their catch data to the licence lessee or owner or sending the information back with their crabs on the crab truck. The general sense of the review group was that the logs that reported activity were probably relatively accurate, although this was not independently verified by

observers or other means. It was not possible to determine what proportion, if any, of RBNE activity was not reported.

One of the main drivers in the mud crab fishery is the trader processors. This group direct a significant proportion of mud crab fishing effort in the NT through owning and/or leasing blocks of licences to ensure a supply of product. They also provide a range of logistical services to fishers operating in remote regions.

New commercial fishers who enter the Mud Crab Fishery are interviewed by a fisheries manager who explains the management arrangements of the fishery. Fishers are given a log return kit prepared by the returns section which contains educational material and worked examples on how to complete a log return. The manager explains the importance of log returns to the fisher and demonstrates how to fill out a log book return.

Outcome:

The RBNE log returns are consistently returned to NT Fisheries. There is an efficient system for capture and storing of log data. The catch information recorded is sufficient to obtain a reasonable picture of how the RBNE is used in fishing operations. It also provides a record of the catch composition and the amount taken.

As a further precaution a number of actions were identified.

Actions:

- 1. Industry will amend the Mud Crab Fishery code of conduct to include an educational component informing the fishers of the importance of accurately completed log returns.**
- 2. Fisheries will amend the RBNE log return to include common species to assist fishers in completing log returns.**
- 3. Industry will prepare a letter to be endorsed by Fisheries to processors encouraging them to work with their fishers to ensure log returns are filled out accurately.**
- 4. Fisheries will speak with processors and provide support for them to assist fishers in providing accurate returns.**

Bycatch

Discussions with industry revealed that of the species allowed to be taken under the RBNE, all were considered as effective crab bait by fishers. There is little or no discarding.

The species excluded from the RBNE catch are species that are managed in other fisheries. These are Spanish mackerel, black jewfish, barramundi, golden snapper and king threadfin. There is zero take allowed of these species and they must be returned to the water. The 'bycatch' of the RBNE consists of these species.

The restricted bait net is a short (not more than 100m), small mesh net (max 65mm) which cannot be set in creeks or rivers and must be attended at all times by fishers. As a result, set times are relatively short and most bycatch is released alive.

All the bycatch species are managed through dedicated fisheries, such as the Spanish Mackerel Fishery, the Barramundi Fishery and the Coastal Line Fishery. There is well developed monitoring, research and reporting of catch in all these fisheries. Any changes in the status of managed species in these fisheries will be detected and investigated through these processes. The impact of the RBNE would be considered in any such investigation.

Outcome:

There is no bycatch taken by the RBNE other than species with their own well developed management regimes. Any impact on managed species will be identified through the ongoing management of the relevant fishery.

Action:

NIL

Protected Species

Restricted bait nets have the potential to interact with turtles, dugongs, crocodiles, sawfishes and *Glyphis spp.* However, there have been no reported interactions with endangered species in the RBNE. This is supported by three observer trips conducted in 2004.

From interviews with fishers and industry, occasional interactions with sawfishes do occur but these are logged as sharks under the current reporting arrangements. Although the majority of mud crab fishing activity occurs in the Gulf of Carpentaria where *Glyphis* has not been reported, there is the potential in some areas for the RBNE to interact with this group of sharks.

The restricted bait net is a short (max 100m), small mesh net (max 65mm) which must be attended at all times by the fisher. As a result, set times are relatively short. Any turtles, dugongs and crocodiles that are caught are released immediately. In the case of large crocodiles (of which there have been no reported interactions) it is expected that a common sense approach would apply with the safety of the fisher being the first consideration. Mud crab fishers generally work alone and operate their RBNE to minimize the possibility of interactions with large dangerous sharks, sawfishes or crocodiles.

Outcome:

Restricted bait nets are operated in inshore waters and have the potential to interact with a range of protected species. However, there have been no reported interactions.

There are anecdotal reports of interactions with sawfishes and the potential for interactions with *Glyphis spp.*

Actions:

- 1. Fisheries will produce a simple identification sheet for common sharks, *Glyphis* and sawfishes.**
- 2. Fisheries will amend RBNE logs to provide provision for reporting interactions with protected species.**
- 3. Industry will amend the Mud Crab Fishery Code of Conduct encourage fishers to report protected species interactions.**
- 4. Fisheries will encourage reporting of protected species interactions with new entrants to the fishery during formal interviews.**
- 5. Industry will prepare a letter to be endorsed by fisheries to processors encouraging them to work with their fishers to ensure report all interactions with protected species**
- 6. Fisheries will speak with processors and provide support for them to ensure fishers report all interactions with protected species**

Discussion

The NT Mud Crab Fishery catch varies significantly over time due to environmental factors, particularly recruitment success. While market prices are often high when supply is low, this is not always the case. As a result of this fishers operate in a fishery with variable economic returns. One of the challenges faced by fishers in the NT Mud Crab Fishery is maintaining economic viability during the poor recruitment years. This is exacerbated by the fact that fishers make a significant investment in licence lease fees and remote area establishment expenses without knowledge of their catch or market prices.

The RBNE plays an important role in helping fishers adjust their fishing operation to suit the economic circumstances of a particular season. The relationship between mud crab catch and CPUE and RBN catch is presented in Figures 1 and 2. It is clear that the fishers are buying in bait (usually pet meat) when mud crab catches are high as they have the financial resources available and more of their time is consumed handling and processing their catch. As catches decrease, RBN catch rises as crabbers seek ways to reduce their operating costs.

Figure 1. Monthly mud crab catch v monthly RBNE catch

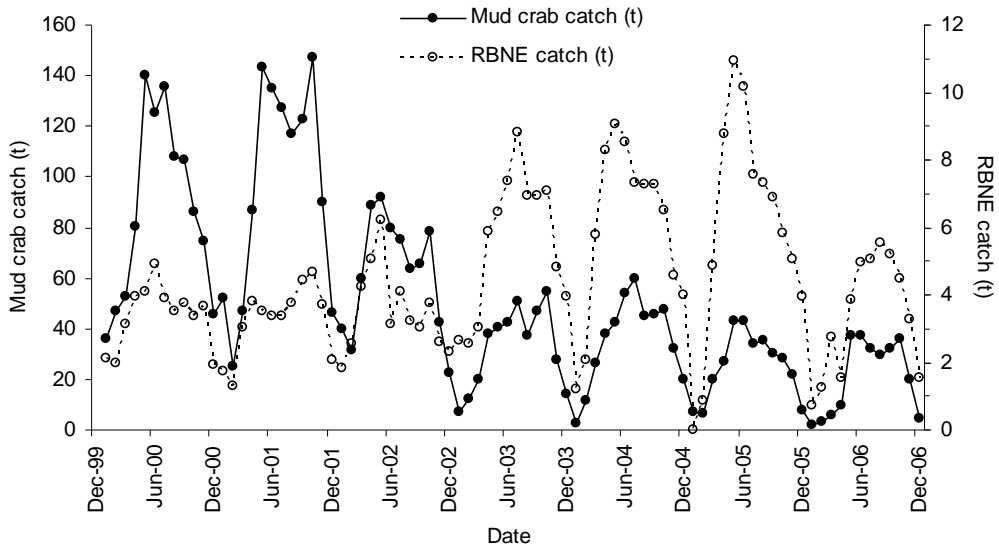


Figure 1: Mud crab catch v RBNE catch

Figure 2. Mean monthly mud crab CPUE v total monthly RBNE catch

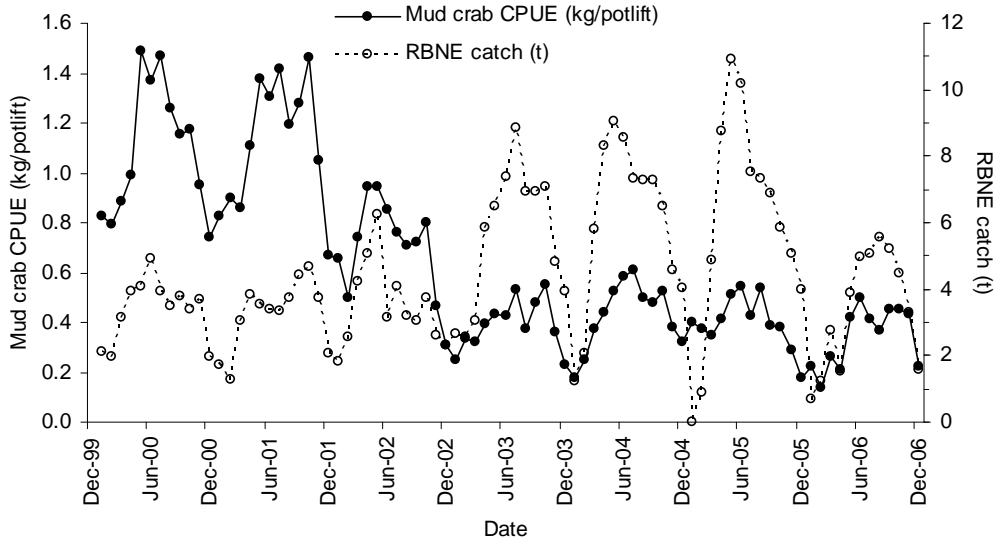


Figure 2: Mud crab CPUE v RBNE catch

Conclusion

A detailed review of the appropriateness and effectiveness of existing bait net provisions and log books, particularly in relation to capture of, and interaction with, species listed for protection under relevant State or Commonwealth legislation was conducted.

The review team included representatives of the NT Crab Fishermen's Association, the NT Seafood Council, NT Fisheries Scientists and Managers.

The team concluded:

1. that the existing restricted bait net provisions were appropriate to the fishery and provided an important tool to fishermen for adjusting their business operations to years of low economic return
2. that there was a very high degree of compliance with reporting requirements
3. restricted bait net entitlement log returns were not independently corroborated
4. that the catch information was sufficient to develop a reasonable picture of the catch composition and how the entitlement was operating within the Mud Crab Fishery
5. no interactions with protected species have been reported
6. anecdotal reports suggest that occasional interactions with sawfish occur and are reported as shark
7. the size and operating conditions of the RBNE mean the risk to protected species is very low
8. that all bycatch species are managed through dedicated fisheries with effective management arrangements which will identify any impacts of restricted bait net use
9. that a number of improvements to reporting arrangements are required
10. that additional education strategies are required.

Review outcomes

1. The Mud Crab Fishery Code of Conduct will be amended to inform fishers of their responsibilities to report catches and interactions with protected species accurately and completely.
2. Restricted bait net fishery log sheets will be amended to streamline their use and to include the capacity to report interactions with protected species (ref Appendix 3).
3. Identification sheets of protected shark and sawfish species will be produced.
4. Education and training on the importance of complete and accurate reporting of all catch and protected species interactions will be targeted at mud crab trader/processors and fishers.

References

Salini j, McAuly R, Blaber S, Buckworth R, Chidlow J, Gribble N, Ovenden J, Peverell s, Pillans R, Stevens J, Stobutzki I and Tarca C, Walker T (2007) Northern Australian sharks and rays: the sustainability of target and bycatch species, phase 2, CSIRO FRDC

Appendix 1

Plan for Review of the appropriateness and effectiveness of the existing Restricted Bait Net Entitlement provisions in the Northern Territory Mud Crab Fishery

Purpose

To provide an agreed process for the review of bait net provisions in the Mud Crab Fishery to be undertaken by industry representatives, fisheries managers and researchers on 30 January 2007.

Background

In August 2001 the Fisheries Division of the then Northern Territory Department of Business, Industry and Resource Development (NT Fisheries) submitted the document *Assessing the Ecologically Sustainability of the Northern Territory Mud Crab* for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The submission was assessed by DEW in accordance with the protected species provisions of Part 13 and the wildlife trade provisions of Part 13A of the EPBC Act.

DEW is satisfied that it is unlikely that mud crab fishing operations conducted in accordance with the management arrangements will adversely affect the conservation status of protected species, or affect the survival and recovery of threatened species. The fishery is managed under a comprehensive and adaptable regime capable of controlling, monitoring and enforcing the level of take from the fishery. The combination of management arrangements, data gathering, proposed research and nature of the target species provides confidence in the fishery's ability to maintain relatively low bycatch levels, minimise interaction with protected species and manage impacts on the wider ecosystem. On this basis DEW has amended the list of exempt native specimens to include green mud crab *Scylla serrata* and mud crab *Scylla olivacea*, for a period of five years from 12 September 02. Such listing will serve to exempt the fishery from other export controls of the Act and exempt exporters from requiring export permits under the Act.

While there are some environmental risks associated with this fishery, officers from DEW and NT Fisheries have discussed key areas requiring ongoing attention. They have agreed to a number of recommended actions to be implemented before the next Commonwealth review of the fishery in September 2007. These are focused on ensuring the continuation and enhancement of good management practices. Recommendation 6 requires that;

Review the appropriateness and effectiveness of existing bait net provisions and log books, particularly in relation to capture of, and interaction with, species listed for protection under relevant State or Commonwealth legislation.

Method

On 30 January 07 Fisheries and industry representatives will conduct the review of the restricted bait net entitlement recommended by DEW. Table 1 outlines the review process. It is envisaged the review will take 4 hrs.

Table 1 Review process

Review Component	Performance Indicator	Current Status	Review outcome
1) Data Sheet layout	Provide a simple, clear means for fishers to report detailed catch information including target species, bycatch and interactions with listed species	Log sheets currently provide a means to record detailed catch information including target species, bycatch and interactions with listed species but there is little guidance on the specific information required. Many fishers are ESL speakers and may not use the same common names for species as commonly used in the NT	Provide recommendations to Fisheries log book committee on modifications to log sheets that reflect the performance indicators. Provide fishers with clear guidance on the specific information required. Explore means to provide ESL speakers with training in species identification and logbook record keeping.
2) Review of historic log returns	All fishers are providing reliable, detailed and first hand log returns in a timely manner	It is unclear how accurately restricted bait net entitlement catches are being recorded.	A strategy is developed to ensure data collected is of high quality, meets reporting requirements and is practicable for fishers to complete.
3) Review of log data	Catch records enable fisheries to demonstrate management arrangements for the restricted bait net entitlement are sustainable and have minimal impact on bycatch	Bycatch is not currently reported. No interactions with listed species have been reported since 1995	Strategies are developed to ensure that bycatch and interactions with listed species are recorded and reported.

	and listed species		
4) Review of existing management arrangements	Management arrangements for the restricted bait net entitlement are sustainable and ensure minimal impact on bycatch and listed species	Based on available data, management arrangements for the restricted bait net entitlement are sustainable have minimal impact on bycatch and listed species. Additional information particularly shark catches is required.	Develop list of bycatch and listed species of most concern for incorporation into revised log sheets. Develop a strategy to gather the necessary information to ensure management arrangements for the restricted bait net entitlement are sustainable and have minimal impact on bycatch and listed species

Review outcomes

The outcome of this review will be twofold, it will:

1. provide a brief report that addresses recommendation 6 for the DEW reaccreditation review.
2. provide an agreed strategy for developing improved reporting arrangements for the restricted bait net entitlement.

Appendix 3

THE NORTHERN TERRITORY OF AUSTRALIA – FISHERIES ACT RESTRICTED BAIT ENTITLEMENT

LICENCE No: **A15/** _____ NAME (print): _____
 MONTH: _____ YEAR: _____ **NIL RETURN** (tick, if appropriate)
 N.T. PORT OF LANDING: _____ No. OF CREW: _____
 BOAT REGO No's: _____ TOTAL DAYS FISHED: _____

NOT TO BE SOLD. BAIT ONLY.

C A T C H D E T A I L S	GRID NUMBER									
	AREA (specify)									
	FISHING METHOD		RESTRICTED BAIT NET		RESTRICTED BAIT NET		RESTRICTED BAIT NET		RESTRICTED BAIT NET	
	START DATE	FINISH DATE								
	LENGTH OF NET (metres)									
	MESH SIZE (mm)									
	NET DROP (no. of mesh)									
	RETAINED CATCH (list species)		WEIGHT (kg)	CUT*	WEIGHT (kg)	CUT*	WEIGHT (kg)	CUT*	WEIGHT (kg)	CUT*
	CATFISH									
	MULLET									
	SALMON									
	OTHER FISH (specify)									
	MILK SHARK									
	BLACK TIPPED SHARK									
	SAWFISH									
OTHER SHARK (specify, if possible)										

* (trunk, fillet, gilled & gutted, whole, fins, etc)

R E L E A S E D S P E C I E S	RELEASED SPECIES <small>(all species to be released alive if possible)</small>	NUMBER RELEASED	CONDITION <small>(alive or dead when released)</small>	COMMENTS <small>(record all interactions such as boat strike or interactions while fishing)</small>
	Narrow Sawfish			
	Green Sawfish			
	Dwarf Sawfish			
	Freshwater Sawfish			
	Turtle <small>(note species if possible)</small>			
	Glyphis species			
	Dugong			
	Crocodile			
	Other (specify):			

COMMENTS: _____ official use only
 Signature of Licensee: _____ Date: ____/____/____