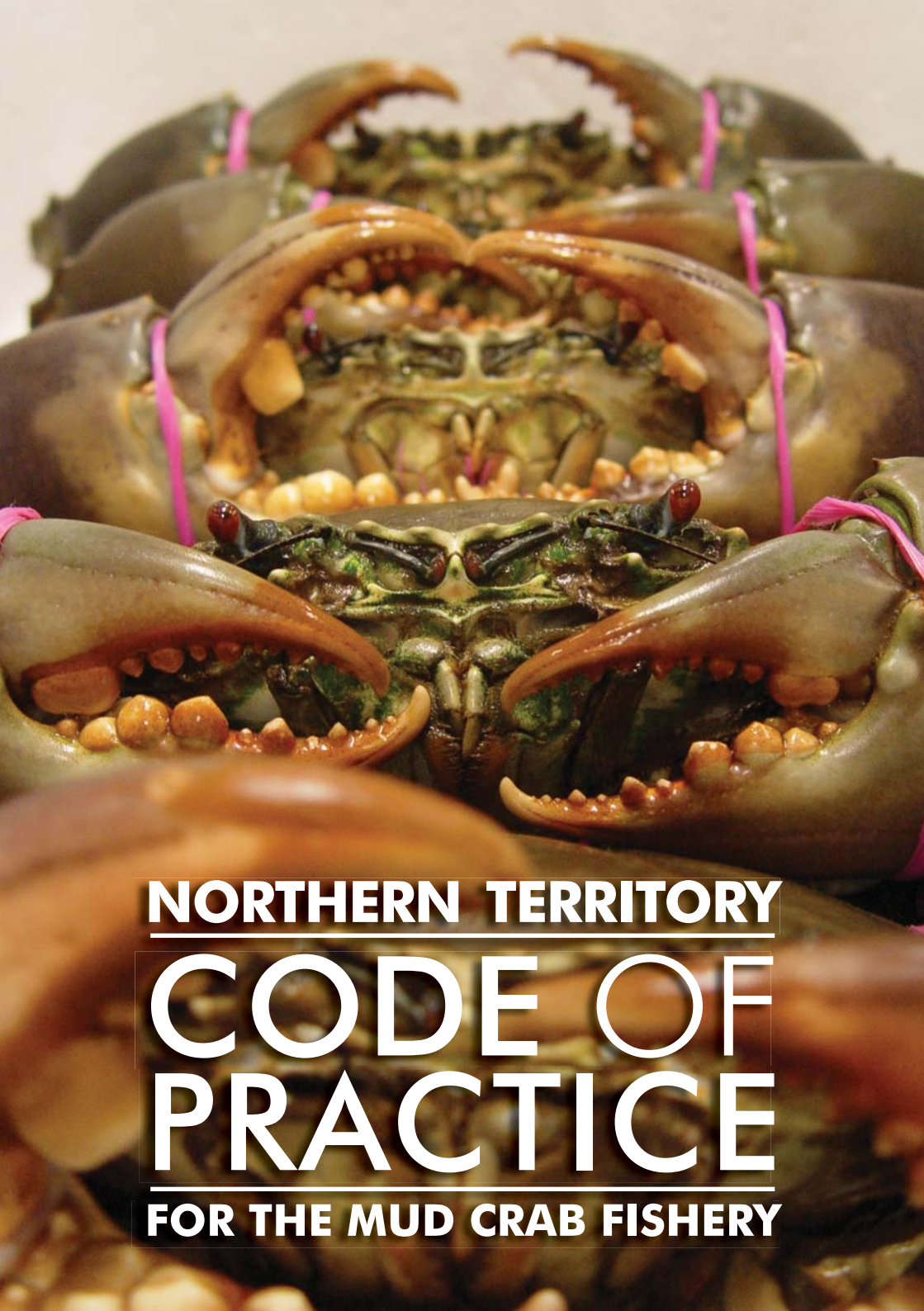


NORTHERN TERRITORY

CODE OF PRACTICE

FOR THE MUD CRAB FISHERY

OBJECTIVE

Every person *involved in the* ***mud crab*** *fishery should strive to* ***maximise*** *the* ***sustainability****, quality and* ***value*** *of the catch by only keeping commercially suitable,* ***quality*** *crabs and maintaining them in the* ***best*** *possible condition for supply to the* ***consumer.***

MAXIMISE SUSTAINABILITY

The Northern Territory mud crab fishery is harvested and managed sustainably. In the interests of the stock, the industry and the wider community, the NT Mud Crab Licensee Committee fully supports continued management for the production of sustainable, quality Australian seafood.

In 2002 the NT mud crab fishery was assessed by the Commonwealth Department of the Environment and Heritage as being ecologically sustainable for export, under Australian Government guidelines based on the *Environment Protection and Biodiversity Conservation Act 1999*. In 2007 the mud crab fishery was reassessed under the guidelines and accepted for further export approval.

Maximise value

The value of the mud crab fishery to both participants and the Northern Territory community is maximised when only full, healthy mud crabs are taken and then cared for appropriately. Commercially unsuitable crab, as described in this Code of Practice, together with undersized animals and berried animals (a female with eggs), must always be returned to the water as soon as possible after being removed from a pot. Maintaining healthy mud crabs in and out of the water is the key to maximising value.

Maximise quality

A strong, healthy mud crab commands the highest price. Ensuring that mud crabs are handled, transported and stored according to this Code of Practice will maximise a quality product to the consumer and help obtain the best price for everyone involved – from capture to sale.

FEMALE

Underside view of a female mud crab

Minimum size limit 150 mm across the carapace

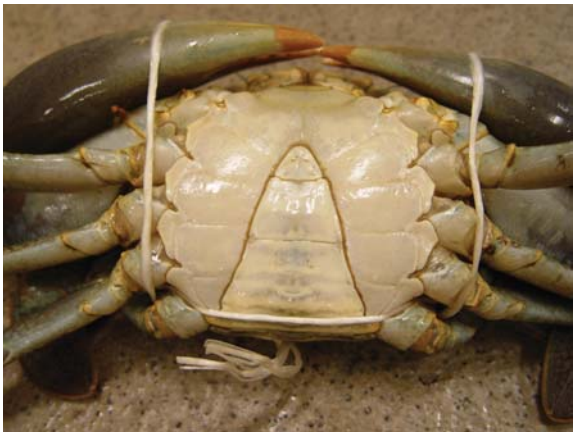
Females with eggs must be released

Female with eggs attached under the abdominal flap – "berried female"

MALE

Underside view of a male mud crab

Minimum size limit 140 mm across the carapace



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INTRODUCTION

In 2001 the Mud Crab Fishery was the first fishery in the Northern Territory to develop a voluntary Code of Practice. Ten years later, recognising the need to review the code and include new information, the fishery will also be the first to review and update their Code.

A best-practice guide for the Mud Crab Fishery, this Code of Practice is specifically designed to assist operators to maximise the quality and value of product, minimise wastage and contribute to the ongoing ecological and economic health of the Mud Crab Fishery and those businesses that rely on its sustainability.

The Code covers handling, storing, transporting, recovery and tanking procedures from capture to wholesale operation and provides fishers, transporters and wholesalers with clear recommendations to ensure the post-harvest survival of mud crabs along the supply chain. The intention is to maximise revenue for those involved in the fishery by maintaining the crab in the best possible condition from capture to sale. This also contributes to sustainability by reducing post-harvest mortality, thus maximising the use of the resource.

The Code has been guided by the results of research undertaken by Innovative Food Technologies (Primary Industries and Fisheries, Queensland) in conjunction with the NT Seafood Council (NTSC) and the NT Mud Crab Licensee Committee. The research project Maximising Revenue Within the NT Mud Crab Fishery by Enhancing the Post-Harvest Survival of Mud Crabs was funded by the Fisheries Research and Development Corporation (FRDC).

This voluntary Code of Practice has been developed by the NT Mud Crab Licensee Committee of the NTSC, with assistance from OceanWatch Australia's SeaNet Program and Innovative Food Technologies, Department of Employment, Economic Development and Innovation (DEEDI), Queensland. Financial support has been provided by DEEDI and the FRDC.

THE FISHERY

The Northern Territory Mud Crab Fishery operates in tidal waters between the Western Australian and Queensland borders, with most activity concentrated in the Gulf of Carpentaria. Commercial crabbing is not permitted in Darwin Harbour and in most creeks adjoining Shoal Bay, Leaders Creek and the waterways of Kakadu National Park.

Many commercial fishers work from remote locations under difficult environmental conditions and limited, if any, infrastructure. Crab pots are baited with fresh meat or fish and set in estuarine or coastal waters. The majority of crab fishers work from 5 to 6.2 metre outboard powered dinghies and have semi-permanent land-based camps where the crabs are stored prior to transport to Darwin.

Crabs are transported to Darwin by road in temperature controlled trucks, usually inside crates lined and covered with damp hessian bags. At the trader/processor premises the crabs are repacked in waxed cardboard or foam boxes for shipment interstate or to export markets.

The supply chain from harvest to market for mud crabs in the NT can be up to 15 days. The physical demands on the crab are extreme as they are transported and distributed by road and air.

Mortality rates of mud crab can be minimised through development of appropriate, practical and cost-effective handling procedures along the harvest-to-market supply chain.

The Mud Crab Fishery is a valuable fishery in the NT and the sustainable use of the resource is supported by both industry and government.

A highly regarded fishery aims to maintain a top quality product while operating in an environmentally responsible way in all its activities.

DURING CRABBING

Clear pots at least once every 24 hours

Don't allow crab pots to dry out or be left in hot, shallow water – sun and hot water can stress the crab. Stress makes the crab more likely to die or to reach market in poor condition.

One of the biggest causes of crab deaths is when hot water comes in over the mud flats on the incoming tide.

Haul pots in a steady, continuous motion

Steadily hauling pots and placing them gently in the boat will avoid physical damage and stress to crabs.

Remove crabs from pots gently

Open the pot door and let the crabs slide out. Don't shake them out as this causes physical damage and stress.

Crabs must be sorted and tied as soon as possible after being removed from pots

Carefully return berried females, undersized animals, and commercially unsuitable crabs (CUC) to the water as soon as you can after being removed from a pot. The crab then has more chance of surviving to reproduce or grow to a legal size.

Newly moulted crabs are easily stressed and can't handle transport and temperature changes.

Crabs kept for market must be tied as soon as possible. If the weather is bad, tie the crabs in the nearest calm water. They must not be returned to camp untied.

Tying a crab is a legal obligation

Tie the crab's claws hard against the body to restrict movement. This will minimise the crab's stress, aggression and the possibility of damage to other crabs and handlers.

A well tied crab should have its mouth clear of string, its claws firmly restricted and the string cut no more than 30 mm from the knot. Too much string looks bad when the crab gets to market, can get caught around legs leading to leg loss and can break loose and clog up holding tanks.

String ends should be kept on the boat and appropriately disposed of at camp.

Always handle crabs gently

A carefully handled crab has a much higher chance of survival, whether it is being returned to the water or kept for market.

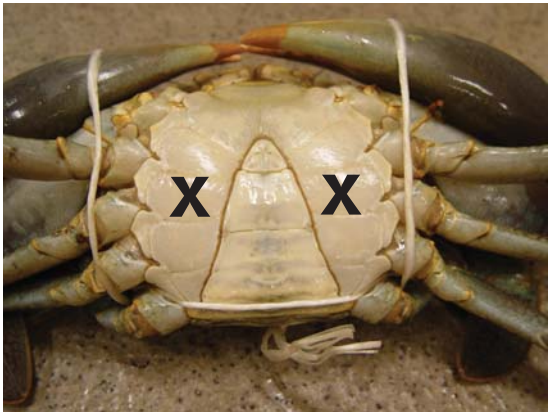
By-catch

While by-catch in the fishery is very low, all attempts should be made to quickly release non-retained animals alive with the minimum of stress and injury.

COMMERCIALLY UNSUITABLE CRABS (CUC)

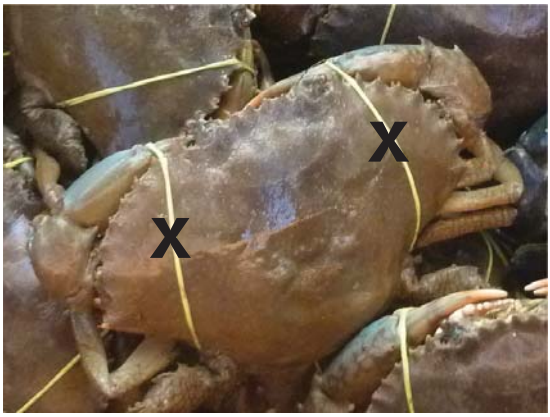
Male (Buck)

A commercially unsuitable male is one whose underside opposite the middle leg (marked with an X on the diagram) can be depressed. CUCs must be returned to the water unharmed.



Female (Jenny)

A commercially unsuitable female is one which makes an audible clicking sound when both forward quadrants (see diagram) of the shell (carapace) are pressed. CUCs must be returned to the water unharmed.



There are only two to three weeks between a commercially unsuitable and a full, healthy crab once it is returned to the water.

STORING CRABS ON THE BOAT

Avoid breeze and sunlight

Hold crabs in clean, damp, insect-proof, hessian-lined and covered crates to limit disturbance, minimise moisture loss and stop breeze and sunlight affecting the crabs.

Exposure to sun and wind will dehydrate a crab, lower its body weight and value and possibly lead to its death.

Water

Crabs can die from contamination by polluted water and contact with fuel. They should not be stored in the bilge compartment as it may have spilt fuel in it. Dual decks can avoid this problem.

Use only clean water to maintain crab safety and quality. Seawater from polluted waters must not be used on surfaces or containers containing crabs.

Keep quiet and disturb as little as possible

Limit any loud noises, vibration and impacts as these will cause increased stress levels in the crab. Avoid disturbing the crabs – each time you disturb the crabs you are increasing stress levels. Disturbance includes physical movement in rough weather or during road transport.

Handle gently

Minimise the handling movements and be careful when legs are stuck in baskets or caught on another crab. Pulling on a leg that is stuck can cause bleeding and lead to crab deaths.

STORING CRABS AT CAMP

Provide a stress-free environment

As with storing crabs on the boat, avoid breeze, sunlight, and contaminated water and minimise noise, disturbances and handling.

Store crabs out of direct sunlight in a cool, moist, wind proof and insect and vermin proof shelter. In a camp, this is best done with crates raised off the ground and with a pump and sprinkler system to keep conditions cool and moist.

The best storage area sheds are those constructed with double lined shade cloth on all sides and doors, and with a roof which is sun proof.

Packing

Hessian sacking should be double folded to keep flies out and to maintain a humid environment. Crates should not be overfilled as this can lead to crabs in some crates being crushed if other crates are stacked on top. Packaging used for crabs must be stored in a clean environment.

Keep temperature constant

Temperature fluctuations can be simply avoided by keeping the hessian damp at all times. Avoid large or sudden fluctuations (>10°C) of holding temperatures as sudden changes will cause stress.

Allow crabs to slowly get used to new temperatures and hold around 18°C to 25°C – no more than 10°C below their normal environmental temperature. Damp hessian will cool the temperature inside a crate of crabs by up to 5°C, so don't dampen on cool, dry season evenings.

Stored crabs should be checked regularly and weak or dead crabs removed

Remove weak, slow or bleeding crabs. These crabs have been stressed at some stage and they may benefit from a recovery step (see later section).

Dead crabs must be removed as their presence is harmful to adjacent live crabs. Best practice is to bury, burn, or dispose of dead crabs in deep water once the string ties have been removed.

By removing dead crabs, insects and vermin are less likely to be attracted to the storage area. It also removes a bacterial contamination source, which can infect healthy crabs.

Bury any contaminated, badly damaged, deformed, diseased or parasitic (loxi) crab.

SUMMARY OF HANDLING RECOMMENDATIONS FOR FISHERS

- Confirm legal size and not berried as per regulations
- Confirm the crab is not a commercially unsuitable crab (CUC). Newly moulted crabs are prone to stress and will not tolerate transport and temperature changes. CUCs returned to the water will become "A" grade crabs within weeks
- Bury or dispose of responsibly any contaminated, badly damaged, deformed, diseased or parasitic (loxi) crab
- Tie crab's claws hard against the body to restrict movement as soon as possible. This will minimise the crab's stress, aggression and the possibility of damage to other crabs and handlers
- Hold in clean, damp, insect proof, hessian-lined and covered crates to limit the disturbance, minimise moisture loss and stop direct breeze and sunlight affecting the crabs
- Avoid direct wind/breeze. Holding crabs in drafts during transport and storage will cause mortalities. Air-conditioning will also dry crabs out, but may be required to avoid very high temperatures
- Keep quiet. Limit any loud noises, vibration and impacts as these will cause increased stress levels in the crab
- Disturb as little as possible. Each time you disturb the crab you are increasing stress levels in the crab
- Handle gently. Minimise the handling movements and be careful when legs are stuck in baskets or caught on another crab. Pulling on a leg that is stuck can cause bleeding and increases the risk of mortality

- Keep temperature constant. Avoid large or sudden fluctuations (>10°C) of holding temperatures as sudden changes will cause stress. Allow crabs to slowly acclimatize to new temperatures and hold around 18°C to 25°C
- Remove weak, slow or bleeding crabs. These crabs have been compromised at some stage and may be included in a purge/ recovery step to help revive them but must be closely monitored
- Dead crabs must be destroyed/dumped. Even a recently dead crab is inedible and can be a health risk to adjacent live crabs
- All crabs held out of the water for more than 5 days would benefit from a recovery step (see later section)

BEFORE GOING CRABBING

Make sure your boat and motor are in good working order and regularly maintained

Fishing can be a dangerous occupation. Make sure boats and motors are always in good working order. Safety at sea is the first rule of a fishing operation.

Good boat design and maintenance also minimise the chance of contamination and physical damage to the crabs.

It is a legal requirement to have all the relevant safety gear on your fishing boat. If you are unsure, contact the NT Marine Safety Branch for manning requirements, safety equipment and boat buoyancy requirements.

Occupational health and safety

It is important that clear occupational health and safety guidelines are in place for the entire fishing operation and those involved clearly understand these and other relevant food safety and regulatory obligations.

When those involved in the fishery understand their responsibilities during fishing operations the chances of accidents are minimised.

Hygienic handling

Those involved in the fishery must comply with regulations relating to the hygienic handling of food products, such as mud crabs.

Any person with a contagious or notifiable illness must not be allowed to come in contact with crabs unless the integrity of the product can be guaranteed.

Smoking, eating and drinking should be prohibited in sorting and storage areas.

Secure harmful materials

Harmful and poisonous materials such as oils, insecticides and cleaning products must be stored and/or secured in an area where they cannot contaminate crabs or storage areas.

Never discard chemicals, fuel, oil or other non-environmentally friendly products in the water or in the bush – this is not only illegal but can have long term detrimental effects on crab and other marine species, as well as the environment generally.

Pest control

Rodents, birds and insects are all potential carriers of diseases which could contaminate crabs and it is important that adequate steps are taken to control pests on a boat and in storage areas. Domestic animals should not be kept on board.

Environmental and camp hygiene are essential for a continuing healthy fishery

Deck, mats, crab pots, holding containers and other potential crab contact surfaces should be clean to prevent any contamination.

The boat should be thoroughly cleaned before (and kept clean during) each fishing trip to remove any contaminants that may be present.

Ensure only "food safe" cleaning and sanitising products are used and always follow manufacturer's directions when using them.

Make sure you are familiar with and comply with the legislation that governs the management of the mud crab fishery

This Code of Practice is a guide only and doesn't remove your obligation to understand and comply with the legislation.

The legislation that governs the management of the mud crab fishery is a result of industry and government consultation over many years. It is there to ensure the continuing sustainability of the stocks that, in turn, our industry depends upon for our continuing viability. Copies of the Mud Crab Fishery Management Plan are available to download at www.ntsc.com.au/legislation.html

Overpotting is not only illegal, it affects the continuing viability of all who have investments in our fishery

The Licensee Committee has supported significant penalties in Fisheries legislation on those operators who use more than the pots they are allowed.

The Licensee Committee will not provide any support to those who overpot.

Respect the laws governing Aboriginal land

Aboriginal land in the Northern Territory is held as inalienable freehold title. Permits from the appropriate Aboriginal Land Council are required before entering on to this land.

When in the vicinity of an Aboriginal community, work should be conducted in a manner that is respectful of the community.

Pollution of the marine environment is strictly controlled by law and penalties for not complying are large

Plastics are not allowed to be discharged into the sea. All plastics must be kept on the boat and disposed of at appropriate facilities. Plastic waste which forms a continuous loop, such as bait bands, should be cut on board to minimise impacts in case it is accidentally lost at sea.

The discharge of noxious and hazardous liquids that are harmful to the aquatic environment are prohibited by law.

The law does not permit the disposal of non-plastic garbage, including food waste and string ends, within the area of the fishery.

The law does not allow oils or oily mixtures to be discharged into the sea. Waste oil and oily residues must be stored for disposal at appropriate waste disposal facilities.

Lost fishing gear and garbage can pose a significant threat to aquatic life. All efforts should be made to retrieve lost fishing gear. If it is not possible to collect, report the location of the gear to the relevant authorities.

Efforts should also be made to retrieve any non-degradable garbage or wastes found during fishing operations, for proper disposal at onshore facilities.

Any oil or chemical spills or other incidences of environmental damage in the area of the fishery should be reported to the Pollution Hotline 1800 064 567.

THREATENED SPECIES

There are a number of species listed as protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and under the Northern Territory's *Territory Parks and Wildlife Conservation Act*.

All interactions with protected species must be recorded in your logbook. Interactions can also be reported to Marine WildWatch.

Under the EPBC Act it is not an offence to interact with a protected species when conducting your regular fishing operations, even if the interaction results in the animal's death. However, it is an offence to not report an interaction with a protected species. Record the date of interaction, species involved, number of animals, approximate length, location, gear or bait used and whether the animal was released alive or dead.

Some examples of interactions that require reporting are:

- Any action resulting in the killing or injuring of a listed species
- The accidental capture of a listed species in a fishing operation
- A humane action that is necessary to relieve or prevent the suffering of a listed species
- An action taken to prevent risk to human health
- An action that is necessary to deal with an emergency where there is a serious threat to human life or property

Protected species include marine turtles, crocodiles, dugong, dolphins and sawfish.

THE TRANSPORT OPERATION

The role of the transport driver is crucial in ensuring crabs arrive at their destination in the best possible condition

Drivers should ensure they have permission to enter or cross Aboriginal land or private property and observe any restrictions that might apply, such as being in possession of alcohol.

A significant percentage of crab deaths occur during long distance transport by road to Darwin.

Vehicles should be properly maintained, cooling units regularly serviced and cargo areas kept clean and cool during transport of crabs.

Cargo areas should be shielded from the sun and wind, be free from fuel and exhaust odours, allow airflow around crates and have mechanisms to secure crates in place during transport.

For journeys longer than 3 hours a cooling system that keeps transport area at 18°C to 25°C will minimise stress in the crabs.

Healthy, full crabs that are loaded on a vehicle will handle a journey of many hours on the road if the vehicle transporting them is fitted with these basic but very necessary requirements.

Drivers should ensure that only live crabs are loaded into trucks

While it is the fishing operator's responsibility to provide only healthy crab, it is also the driver's responsibility to make sure that crates loaded on a truck do not obviously contain dead crabs or crabs infected by insects.

Crates should not be overfilled as this can lead to crabs in some crates being crushed if other crates are stacked on top.

An alert nose and pair of eyes can mean the difference between a healthy cargo delivered safely and a cargo that has unnecessary deaths and reduced quality that costs everyone financially.

Ensure that crates are suitably moist and appropriately stacked for transport for both short and long distances

Wet hessian bags before loading crates onto a truck. Securely fasten crates so they cannot move during transport. The forward cargo area provides a gentler ride.

Remember, gently handled crabs have a greater chance of reaching the consumer in the best possible condition.

Be aware that other people use boat ramps and conduct loading of trucks accordingly

Be aware of the rights of others at boat ramps and ensure that access to them is not denied because of the truck loading operation. Avoiding conflict with other user groups is important in ensuring continued access to the resource and support from the general public.

Do not leave rubbish or rejected crabs at boat ramps. The Licensee Committee will not provide any support to those who behave in such a manner.

THE TRADER/PROCESSOR OPERATION

The trader/processor is the final quality control point before mud crabs reach the buyers. As such, the trader/processor can have a major impact on prices received back through the chain to the fishing operation.

Sorting, packing and storage rooms on trader/processor premises must comply with all health regulations and be clean, sun proof, wind proof, insect and vermin proof

The care taken in the fishing and transport operations can be severely compromised if the trader/processor's premises are less than satisfactory. With the introduction of tough food safety laws, sub standard premises could mean the loss of a licence to handle crabs as a trader/processor.

Check and record temperature of the truck cargo area before unloading

The temperature of the cargo area of a truck at the premises is a critical point in the process of transporting crabs from point of capture to point of sale.

Unacceptably high or low temperatures at this point can cause a significant deterioration in crab quality between here and the market.

Both the transport operator and the fisher should be advised of any abnormal temperatures recorded as a matter of priority.

Unloading of trucks should be conducted as soon as possible with as little disturbance as possible

As the crab has been out of the water for some time, the gentle handling of crab at this point is crucial in maintaining quality and therefore value.

Crabs should be sorted and graded for market as soon as possible after being received by the trader/processor

Any crabs that are dead, slow or damaged should be separated out accordingly.

This will ensure that healthy crabs have the greatest chance of reaching the consumer in a healthy state.

Dead crabs should be double bagged if they are to be disposed of at a Council dump.

Maintain crabs in approved boxes at 18°C to 25°C until delivery to airport or local market

The temperature range of 18°C to 25°C is the optimum to ensure that live mud crabs have the best chance to reach the consumer in premium marketable condition. A healthy crab packed in an appropriate box and kept at this temperature will provide the best financial return to all sectors of the industry.

Crabs should be delivered to the airport as close to flight departure time as possible in a vehicle that has a covered cargo area. Best results are achieved if an air-conditioned vehicle is used.

Ensure that clean, dry crates and hessian bags are provided to the transport driver for delivery back to the fishing operation

The maintenance of quality control throughout the chain from harvest to the consumer is crucial to the continued economic and ecological health of the mud crab fishery.

Communication and cooperation between sectors is vital to ensure this.

TRANSPORT RECOMMENDATIONS FOR SHIPPING TO MARKET

- Cool crabs to 18°C to 25°C if possible prior to packaging
- Provide air holes in packaging container
- Line bottom of container with damp, old newspaper (fresh newsprint can be toxic)
- For middle and top layers use dry, old newspaper (damp newspaper smothers them)
- Place very large crabs on bottom layer
- Minimise rough handling and vibration during transport
- Provide traceability of product if possible – state of origin at least
- Mark containers as "live product, fragile, this way up, keep cool but not refrigerated

SUMMARY OF RECENT RESEARCH

High mortality rates of mud crab can be minimised through development of appropriate, practical and cost-effective handling procedures along the harvest-to-market supply chain.

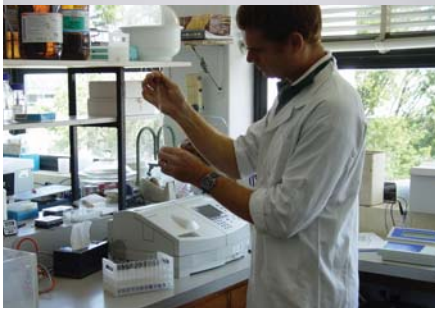
Research undertaken by Innovative Food Technologies, Department of Employment, Economic Development and Innovation (DEEDI, QLD) looked at how to enhance the post-harvest survival of mud crabs along the supply chain.

The research was able to identify which handling steps along the chain impose the greatest stress to crabs. With this information, alternative handling practices were developed to minimise stress and improve survival rates.

Feedback from harvesters, trader/processors and the retail sector has indicated increased survival and improved vigour of mud crabs when the alternative handling methods have been employed.

Industry has reported a 50% reduction in mortalities in the processing sector and a further 10% reduction at retail level. Mud crabs reach the consuming public in premium quality, raising public confidence in the product and improving public perception of the commercial operators.

Increased survival of the crabs within this fishery not only improves resource sustainability, but also improves public perception of commercial activities within the mud crab fishery.



The research found that the major causes of stress include emersion (holding crabs out of water), handling disturbance and temperature changes. When mud crabs are out of water, but held quietly, undisturbed and in a moist environment, stress levels are low.

Dehydration is a significant factor as the consequent water loss from the crabs reduces the total weight of a crab. This has implications for all sectors of the industry with respect to revenue return.

Mud crabs are handled frequently at different points during the supply chain. Each handling event involves physical movement of the crabs and often a degree of shock, with all such disturbances adding stress to the crabs. If carried out gently and with care, the physical disturbance only imposes temporary stress on the crabs, from which they recover quickly.

Grading and loading/unloading for transport involves greater physical movement and was found to be stressful to the crabs. A particular stress factor was exposure of the crabs to breeze. This caused very high stress levels and resulted in a high proportion of mortalities.

Holding crabs at an appropriate temperature and limiting temperature change is optimal for minimising stress. Sudden variations in temperature within the supply chain are common and the damp hessian used during storage and transport is not always effective in moderating these changes. The research concluded that mud crabs best tolerate a temperature range between 18°C to 25°C.

The major recommendation from the research is the inclusion of a recovery step within the distribution chain for live mud crab. It is important to include a purge step of 2-3 hours where the crabs are returned to aerated water to allow excretion of accumulated ammonia. The crabs can then be held in fresh seawater tanks to fully recover.

A copy of the full report can be obtained from John Mayze or Sue Poole. Please contact john.mayze@deedi.qld.gov.au or sue.poole@deedi.qld.gov.au

RECOVERY PROCEDURE FOR TRADERS/ PROCESSORS AND BUYERS

Prior to re-immersion

- Crabs and water should be about the same temperature before re-immersion
- Sort the crabs – badly damaged, very slow or frothing crabs should be killed and cooked as they are unlikely to survive additional stress from further transportation
- Isolate damaged or bleeding crabs, as blood in the water will increase inter-animal aggression
- Gently clean/rinse crabs of excessive mud, faeces or contaminates
- Ensure crabs are well-tied so they can't work their claws loose

Recovery stage (re-immersion) parameters

- Fresh, clean seawater, bore water, town water or rain water around 25°C
- 1:10 live crab weight (kg) to litre of water i.e. 1 kg crab to 10 litres of water
- Aeration is essential – without fine bubble aeration of the water all available oxygen is depleted within 15 minutes and crabs may die
- Immerse crabs individually – held with flippers pointing down and mouth just under water. Hold crab until water starts flowing over the gills and out of the mouth
- Immediately release into the water any lively crab that starts clawing at its mouth parts
- If a crab is not able to pump water across its gills after 2 minutes, then it is usually not able to recover successfully – cook as soon as possible

- If a crab drops a claw, remove it from the water immediately to stop it physically damaging others
- 3 hour immersion time – no longer, no shorter
- Return crabs to damp, hessian-lined crates, store at 18°C to 25°C. Be wary of air-conditioning and the evaporative cooling effect of damp hessian that will drop temperature by another 5°C
- Dispose of water (following appropriate local regulations) after crabs have been purged – the water will have high levels of ammonia

Notes

- The use of town water does not affect the flavour of the cooked product
- Some crabs will want to go upside down – let them as long as the air has been released from the crab
- If there is an ample water supply, run water through or replace some after one hour (use water of the same temperature)
- Hold crabs semi-immersed as above or they risk drowning if they are dumped in the water without releasing the trapped air and without the gill action starting

SEPARATE TANK HOLDING RECOMMENDATIONS FOR LONGER TERM STORAGE

- Recover crabs as previously outlined. This will minimise ammonia contamination in your tank's water
- Fresh **seawater** 18°C to 25°C – monitor water quality regularly
    - pH (7.9 - 8.1) use sodium bicarbonate to increase
    - salinity (15 - 35ppm)
    - ammonia (<0.1mg/L)
    - nitrate (<50mg/L)
    - nitrite (<0.3mg/L)
- Line lug baskets with shade cloth to stop leg tip damage or raise bottom of crates 25mm of tank floor
- Pack crabs tightly to reduce movement
- Ensure crabs are tied tightly - untied crabs can cause significant damage to other crabs
- Check all crabs regularly – one dead crab can cause others to die
- Regular water exchanges – toxic crab waste doesn't break down readily
- Tank covered to reduce exposure to light, evaporation and disturbance
- Bio-filter to suit tank volume/stocking density
- Protein skimmer to suit capacity
- Adequate but not vigorous circulation and/or aeration
- No feeding necessary or advisable for water quality issues

CONTACT LIST

Aquatic Biosecurity	
www.fisheries.nt.gov.au	
www.marinepests.gov.au	
Vessel Inspection	0413 381 094
Reporting	(08) 8999 2126
Customs and Border protection	
www.customs.gov.au	
Enquiries	1300 363 263
Reporting	1800 06 1800
Fishwatch/Fishkill info	
Illegal/suspicious fishing activities, fish kills	1800 891 136
Fisheries Police	(08) 8936 4819 0407 794736
Marine Safety Branch	
www.marinesafety.nt.gov.au	(08) 8924 7100
Marine WildWatch	
www.nt.gov.au/marinewildwatch	1800 453 941
NT Fisheries	
www.fisheries.nt.gov.au	
General Enquiries	(08) 8999 2144
Fisheries Fax	(08) 8999 2065
Licensing	(08) 8999 2305
Licensing Fax	(08) 8999 2057
Indigenous Liaison	(08) 8999 2164 0401 115 813
NT Pollution Hotline	
www.nt.gov.au/nreta/environment/waste/hotline.html	1800 064 567
Northern Territory Seafood Council	
www.ntsc.com.au	(08) 8981 5194
Rescue Co-ordination Centre Australia (RCC Australia)	
Reporting close collisions and pollution at sea beyond 3nm	1800 641 792 (02) 6230 6811
SeaNet NT/OceanWatch Australia	
www.oceanwatch.org.au	(08) 8981 5194 0421 054 274

Keep them cool. Keep the stress levels low and the chances of survival increase. Treat them with tender loving care. You look after the crab, and they look after you.

Sherwood Thorbjorsen, mud crab producer and exporter

When the lid comes off at the marketplace if the crabs jump out at them, the buyers light up and so does the price.

Sue Poole, principal seafood scientist and seafood team leader for Innovative Food Technologies, DEEDI Qld.

If he jumps out at you it is very exciting. That means the meat will be tender and sweet.

Jack Ho, Chef of Dragon Court Restaurant, Darwin

By following the handling recommendations fishers, wholesalers and retailers will ensure they get the best price for their crabs and enjoy the best reputation for their product and business.

Doug Neville, Chair, NT Mud Crab Licensee Committee

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NT Mud Crab Licensee Committee

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