

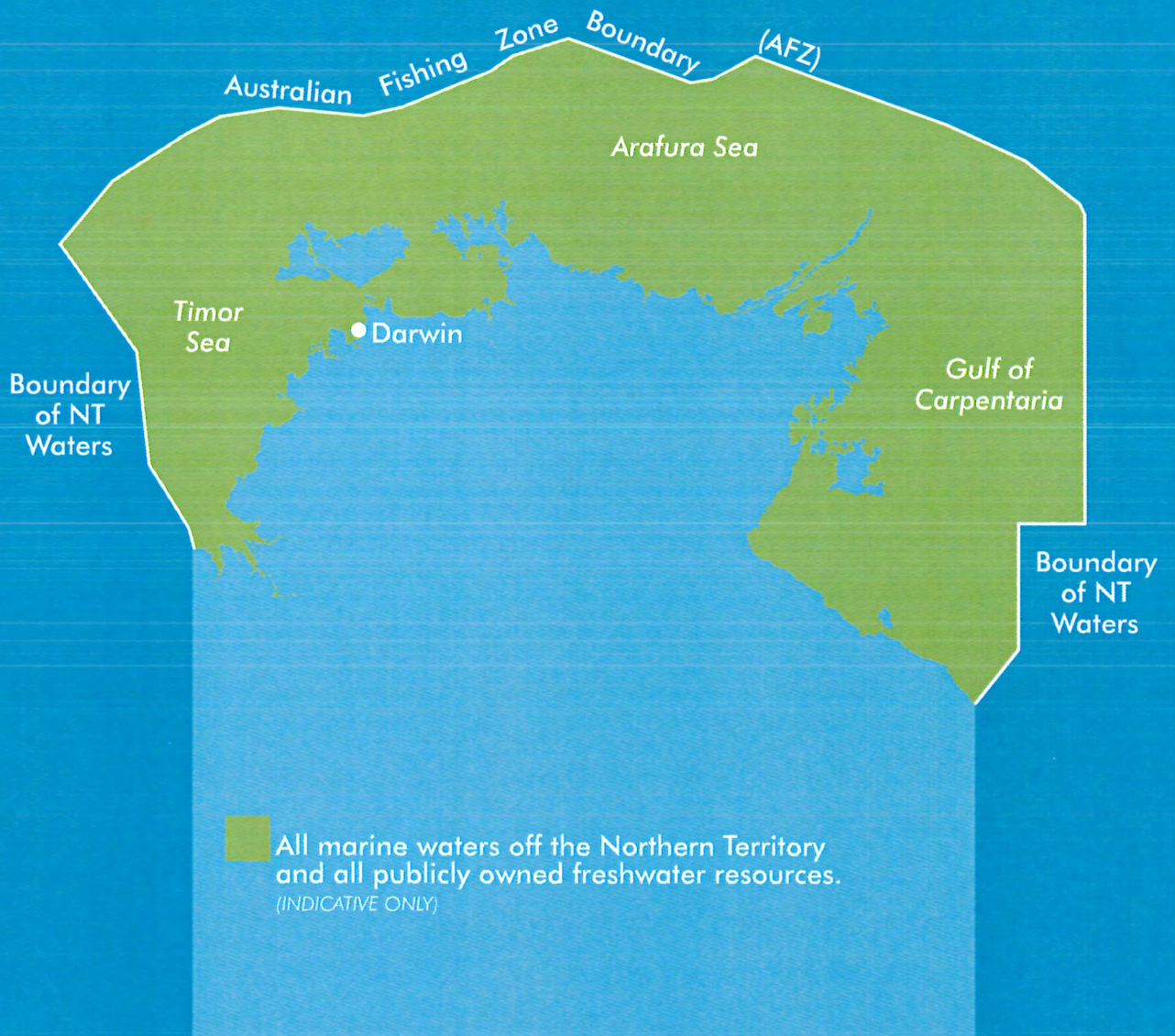
NORTHERN TERRITORY

Aquarium *Fishery*



CODE OF PRACTICE

AQUARIUM FISHERY





OBJECTIVE

To provide operators in the Northern Territory Aquarium fishery with the knowledge and understanding to further enhance the ecological sustainability of the fishery and safety of operations, while maximising the quality and value of product.

INTRODUCTION

A best practice guide for the Aquarium fishery, this is specifically designed to contribute to the ongoing ecological and economic health of the Aquarium fishery and businesses involved in it.

This voluntary Code of Practice has been developed by the Aquarium Committee of the Northern Territory Seafood Council, with funding assistance from the Fisheries Research and Development Corporation and the Northern Territory Government.

THE FISHERY

The Northern Territory Aquarium fishery involves the collection of a variety of both freshwater and marine species. Collection is permitted in all inland waters and waters seaward of the coastline to the outer boundary of the Australian Fishing Zone (AFZ).

Under current licensing arrangements aquatic animals are collected using a variety of passive methods. A wide range of live fish and benthic organisms are collected and transported to local, interstate and overseas aquarium markets. Due to the highly selective collecting in the fishery, there are extremely low levels of by-catch.

This fishery has very significant potential for growth and its contribution to the Northern Territory economy is expected to increase markedly over the next three years.





PREPARATION

Occupational health and safety

Clear, concise occupational health and safety guidelines should be in place for all operations involving vessels and land facilities. Crew members and staff should be aware of and abide by these.

Vessel and gear maintenance

All vessels and gear used in the collection operation should be well maintained, thoroughly checked and stowed or secured in a safe manner, as appropriate. Facilities for live products should be designed to maximise the survival of that product.

Cleaning

Deck, mats, catch buckets, storage facilities, utensils and other potential aquatic species contact surfaces should be kept clean to ensure that disease transference is not aided at any step in the collection and processing procedures. The vessel should be thoroughly cleaned prior to each fishing trip to remove any contaminants that may be present.

COLLECTION

Diving safety

In addition to standard safety requirements associated with diving, there are additional concerns in regards to dangerous animals in Northern Territory waters.

There are aquatic animal hazards such as sharks, crocodiles, box jellyfish, stingers, cone shellfish, leopard fish, stonefish, stingrays, sea snakes and stinging corals or fire corals.

Injuries or death may occur from predatory attacks (sharks, crocodiles, box-jellyfish) or defensive attacks (blue-ringed octopus, stonefish and sea snakes). Preventative measures can be taken and all crew should be aware of these.

Length of dive session

Dive sessions should be around 3 to 4 hours and a maximum of two sessions per day. The length of a dive session may vary due to operational constraints such as poor visibility, strong winds, currents and presence of predators or threats (e.g. crocodiles, sharks or jellyfish).

Handle organisms gently

As fish have a protective coating which acts as a natural defense and helps protect them against pathogens, handling with wet hands or gloves minimises the removal of scales and the protective coating.

Check pots regularly

When using pots, ensure that tidal movements do not allow exposure which may result in the death of any species in the pots. They should also be checked and emptied on a regular basis and at least once every 24 hours.

Fish decompression

Fish collected at depths greater than nine metres need to be decompressed by being brought slowly to the surface in gradual depth changes.

Some fish decompress well, while others will take hours. A rope or line with depth



intervals can be used to ensure the container holding the fish is slowly raised in the water at measured intervals.



Only skilled operators should perform bladder spiking, as if done incorrectly this procedure can introduce bacteria into the body cavity of the fish, which can result in internal infections.

By-Catch

While normally minimal, any non-target animals should be carefully released back into the water as soon as possible to ensure that their chances of survival are maximised.

Minimise the time out of water

Whenever possible, maintain constant water contact when transferring organisms from collection gear to holding containers. The less time out of the water, the greater the chances of survival and quality of the product.

Sorting catch

Carnivorous, poisonous or large fish can injure, kill or cause increased levels of stress to other fish within holding tanks. Organisms

should therefore be sorted and separated appropriately to ensure their safety.

Large carnivorous fish should be separated from smaller fish. Large fish of the same size or similar species should not be mixed together in small transport containers.

Live rock

Collection should be focused on rapid generation areas such as an outer reef or flat crest zone.



Select sections of live rock which, when removed, will not compromise the habitat structure of the reef.

Coral

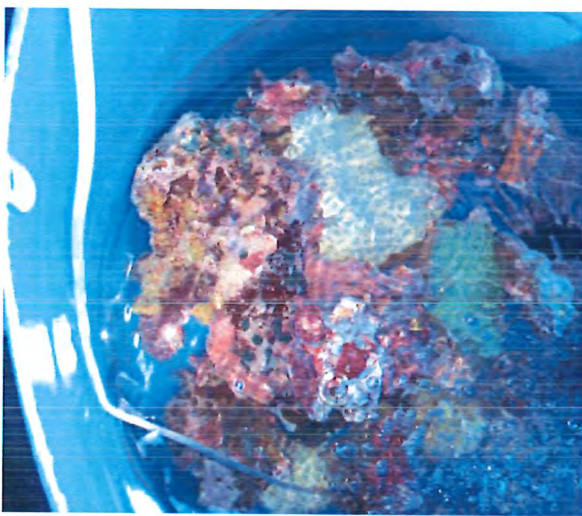
Target corals growing in healthy, competitive growth areas, rather than isolated, stressed or damaged colonies. Allow reef sections to recover before re-collecting. The time for this to occur will depend on the species.



HANDLING

Transport from collection site

Organisms should be transported from their collection site in water with adequate aeration. Keeping containers under shade prevents the rapid rise of water temperature and it is important to ensure that they are not overcrowded.



Minimise stress

By ensuring all water changes are both appropriate and gradual, the stress of organisms following collection is minimised. Changing the water too frequently will stress the organism unduly.

Ensure shade covering containers is not moving, as this may also cause additional stress to the organism, and stressed organisms are less resistant to diseases.

Aeration or pure oxygen supplied to containers can help prevent oxygen stress and allow more fish to be safely contained.

Species compatibility

Aggressive or carnivorous fish should be separated from other fish species to ensure that survival is maximised. An understanding of the behaviour of key species is important.

Check for disease and damage

Before transferring organisms to onshore holding facilities, check each one for any signs of disease or damage. Isolate and/or dispose of affected organisms in a humane manner.

Change holding water regularly

Some organisms excrete large amounts of mucus which will foul their holding water. Change or clean water on a regular basis to ensure water quality is maintained.

Organisms kept in bags for prolonged periods and in holding tanks without adequate filtration can be exposed to ammoniation, low pH and oxygen depletion, which will stress them.

Containers

It is important that containers are thoroughly cleaned before use and that fish held in them have place for free movement.





HUSBANDRY

Climatic conditions

Organisms kept in facilities that reproduce their natural climatic conditions will maintain their health much better. It is important to regularly monitor organisms for any physical or behavioural changes, preferably daily.

Feeding

To maintain the optimal health and well being of organisms, appropriate and sufficient amounts of food must be provided. Over feeding should be avoided as uneaten food left in the tanks will deteriorate water quality.

Maintain food quality

To prevent food spoilage, food supplies should be stored in a manner that maintains quality, such as an impervious closed container.

Chemicals

Solutions such as buffers, ion exchange, vaccines, sedatives and antibiotics should only be used when necessary and in accordance with good husbandry and manufacturer directions.

Water quality and temperature

Rapid fluctuations in light, temperature and chemical composition of water will stress organisms.

Water quality and temperature in holding facilities should be of a standard that allows for the optimal health of the organisms.

Monitor water quality

Equipment to test water quality parameters such as dissolved oxygen, salinity, ammonia, nitrates, temperature and pH should be calibrated on a regular basis.

Do not crowd organisms

It is important to ensure holding facilities are adequately set up to house the amount of product collected.

Over crowding tanks must be avoided as it will stress organisms and lead to a decline in water quality.



TRANSPORTING

Fasting

To reduce the chances of an organism fouling transport water, which can be detrimental to both water quality and the organism's welfare, allow a period of fasting immediately prior to packing. The length of fasting period depends on the type of organism.

Packing

To reduce stress and maintain water quality, pack one organism per bag where possible.



The value of oxygen

Replacing excess air in a bag with pure oxygen helps maintain dissolved oxygen levels. For fish it is recommended that the volume of oxygen in a bag or container be approximately 75% to ensure adequate surface to water ratio.

Prepare container for maximum time of transport

Packaging must take into account freight duration and other environmental conditions such as temperature. Containers should be prepared for maximum duration of transport time. Prepare containers to allow for potential delays during transport to market.

Label holding containers

Some fish may undergo colour changes due to stress, which in the absence of a label, may lead to inaccurate identification. A label will ensure correct identification of

the contained species. Labels should also contain relevant information for care of product, such as storage conditions.

Know the rules

Requirements for transporting live aquarium species by air are specified in the Seafood Air Transport Regulations. These are mandatory and can be found on the internet at the following site:

www.qantas.com.au/freight/pdf/SATRegulations.pdf

Label air freight packages

It is important that the packages are marked "Live Fish" on at least two opposing sides and that labels on all four sides of the package clearly indicate the correct orientation of the package.

Use "This Way Up" labels or contrasting tape to assist in loading boxes the correct way up.

Pressure changes

If oxygen or oxygen tablets are used in a bag, pack the container to allow for pressure differential at altitude as excess gas may cause the bag or container to burst.





WASTE & POLLUTION

Retrieval of Garbage and Lost Fishing Gear

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.

Report pollution

Any oil or chemical spills or other incidences of environmental damage in the area of the fishery should be reported as follows:

- Within 3nm, to the **Pollution Hotline 1800 064 567**
- Beyond 3nm, to the **Rescue Co-ordination Centre Australia** phone **1800 641 792** or fax **1800 622 153**

Plastics

It's illegal to discharge plastic into the water. All plastics must be retained on the vessel and disposed of at port facilities. Plastic wastes which form a continuous loop should be cut onboard to minimise impacts in the event that it is accidentally lost from a vessel.

Garbage

Non-plastic garbage which cannot be retained onboard for proper disposal

ashore may, by law, only be disposed of at sea if the vessel is more than 12 nm from the nearest land.

Noxious Liquid Substances

No discharge of residues containing noxious substances is permitted within 12 nm of the nearest land. The discharge of liquids in quantities and concentrations harmful to the aquatic environment are prohibited by law.

Oil and Oily Mixtures

By law, oils or oily mixtures are not to be discharged into the sea, nor should they be disposed into fresh waters. Waste oil and oily residues must be stored on board for disposal at port waste disposal facilities.





THREATENED SPECIES

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

On occasions, unintended interactions with protected species may occur. It is a legal requirement to report any such interactions to the Australian Government Department of the Environment and Heritage.

Some examples of interactions that require reporting are:

- Any action resulting in the killing, injuring, taking or trading 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

Reporting requirements

Under the EPBC Act, the Department of the Environment and Heritage (DEH) must be notified within 7 days of a person becoming aware of an interaction and the report should include the following details:

- Time and date
- Species involved
- Number of animals
- Specific location
- Gear or bait type used

To report an interaction or to seek further information:

Phone: 1800 641 806

Email: protected.species@deh.gov.au

Mail: Director, Wildlife Impact and Protection Section
Dept. Environment & Heritage
GPO Box 787 Canberra
ACT 2601



DEFINITIONS

By-Product – Catch which is kept to be sold but is not the principal target.

By-Catch – Catch which is returned to the sea either because it has little or no commercial value or because regulations preclude it being retained.

Ecologically Sustainable Development – Using, conserving and enhancing community resources so that ecological processes, on which life depends, are maintained and the total quality of life, now and in the future, can be increased

CONTACTS

Aquarium Committee
Industry Representative
Tel: 08 8981 5194 | Fax: 08 8981 5063

Australian Maritime Safety Authority (AMSA)
Queries regarding Commonwealth environmental laws.
Tel: 02 6279 5015 | Fax: 02 6279 5966

Bureau of Meteorology
Forecasts and warnings Tel: 08 8920 3826
General Enquires Tel: 08 8920 3800

CSIRO
Enquiries and reporting of tagged fish.
Tel: 1300 363 400

Department of the Environment and Heritage (DEH)
Reporting all listed species interactions.
Tel: 1800 641 806

Fishwatch
Reporting illegal fishing activities.
Tel: 1800 065 522

Museum and Art Gallery of the Northern Territory
Identification of unusual or exotic fish.
Tel: 08 8999 8201

NT Fisheries
Fisheries Management Agency
Tel: 08 8999 2144 | Fax: 08 8999 2065

NT Parks and Wildlife Commission
Interactions with tagged animals and NT protected species.
Tel: 08 8999 5511

NT Pollution Hotline
Reporting pollution within the NT.
Tel: 1800 064 567

Northern Territory Seafood Council
Peak industry body, NT.
Tel: 08 8981 5194 | Fax: 08 8981 5063

Rescue Co-ordination Centre Australia (RCC Australia)
Reporting close collisions and pollution at sea beyond 3nm.
Tel: 1800 641 792 | Fax 1800 622 153



For more information:
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