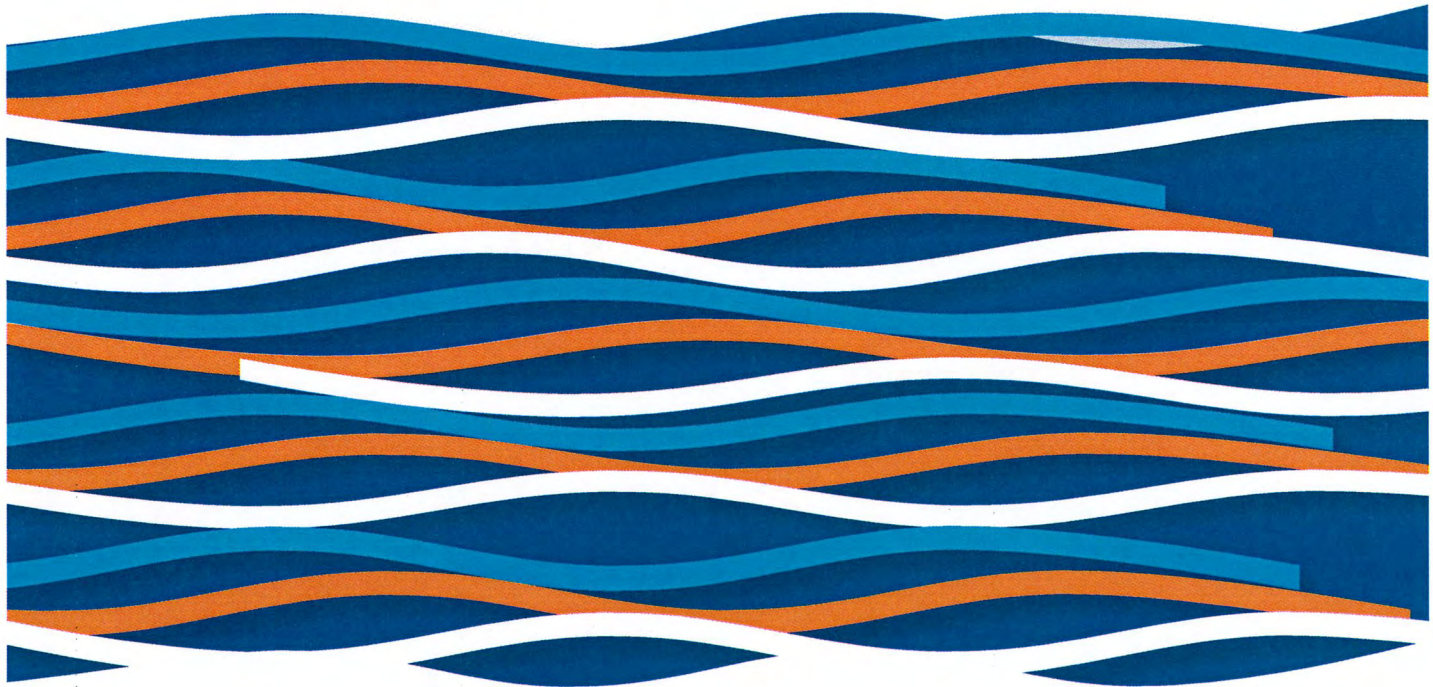


NORTHERN TERRITORY

Timor Reef Fishery

Environmental Management System



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OVERVIEW OF ENVIRONMENTAL MANAGEMENT SYSTEM

This Timor Reef fishery EMS establishes a process for planning, implementing, reviewing and improving the actions of operators in the Timor Reef fishery to manage risks and opportunities relating to;

- environment
- food quality and safety
- occupational health and safety
- profitability
- public relations and communications

PURPOSE

- To document how Timor Reef Licensee Committee members are currently meeting, and will continue to meet, their responsibilities as users of a public resource.
- To provide a basis for Timor Reef Licensee Committee members to communicate and cooperate with other resource users and resource managers involved with the Timor Reef fishery.

SCOPE

The EMS encompasses environmental, economic and social aspects of fishing operations conducted by Timor Reef Licensee Committee members, to ensure that the ecologically sustainable development of the fishery is maintained.

DEVELOPMENT

The EMS is based on a risk analysis of the commercial Timor Reef fishery. Risks which the Committee has direct influence over are internal risks and can be managed. External risks are those which are associated with the activities of other people which may directly or indirectly impact on the Timor Reef fishery.

Based on the risk analysis, the Timor Reef Licensee Committee has developed a suite of practical guidelines, including a Code of Conduct, Code of Practice and Action Plan. This suite of guidelines and commitments is the core of the EMS.

REVIEW

The success of actions against objectives will be reviewed annually. An annual EMS summary report will be produced and distributed to all Timor Reef Licensee Committee members and made available to other stakeholders.

OVERVIEW OF FISHERY

The Timor Reef fishery is a deep water snapper fishery approximately 8,400 nm² in area. The fishery is located some 24 hours steaming north west of Darwin, positioned against the Australian / Indonesian fishing boundary and it is the premier dropline and trap fishery in the Northern Territory.

The majority of catch is Goldband snapper but important secondary species include Saddletail snapper and Crimson snapper. The fishery can operate all year round but is generally most productive between October and May.

The selective nature of both dropline and trap fishing gear ensures there are very few interactions with non target fish species. Observer data records that less than 1% of the total catch is by-catch.

Fishing trips usually last for around ten days and most vessels range between 15 to 24 metres in length with four to six crew onboard.

In 2003, the Timor Reef fishery was assessed by the Commonwealth Department of the Environment and Heritage (DEH) as being ecologically sustainable for export, against Australian Government guidelines based on the *Environment Protection and Biodiversity Conservation Act* (EPBC Act).

LICENSEE COMMITTEE ENVIRONMENTAL POLICY

VISION

To responsibly conduct the harvesting of resources in the Northern Territory Timor Reef fishery on behalf of the community to ensure continued resource and ecological sustainability and economic viability.

NT Timor Reef Licensee Committee members are committed to;

- taking all reasonable measures to minimise impacts on the environment
- promoting harmonious relations with other resource users
- ensuring a continuous supply of high quality seafood to the community.

OBJECTIVES

1. Continue to protect the habitats which underpin the ecological health of the Timor Reef fishery.
2. Ensure that the overall harvests of Timor Reef resources remain within sustainable biological limits.
3. Minimise interactions with and impacts on non retained species.
4. Conduct environmental management in a transparent and cooperative manner with other key stakeholders.
5. Actively participate in reviews, legislation development and resource management decision making forums that may impact on the Timor Reef fishery.
6. Support research which enhances ecological sustainability, productivity, protection of the environment and the viability of fishing operations.
7. Promote and participate in industry training and education opportunities in environmental awareness, conservation principles and good management practices.
8. Minimise resource consumption, waste production and pollution associated with fishing operations.
9. Comply with all relevant legislation.

EMS ACTION PLAN

The Timor Reef Licensee Committee has identified and committed to a series of objectives, strategies and performance indicators to maintain the ecologically sustainable development of the fishery. Where information gathered indicates actual or potential problems, the relevant management arrangements will also be reviewed for their effectiveness.

OBJECTIVE 1

Continue to protect the habitats which underpin the ecological health of the Timor Reef fishery.

Marine Pests

Strategy

Generally monitor and report, together with samples if possible, any unusual plants or animals observed in an area.

Report every sighting of foreign fishing vessels in Australian waters.

Performance Indicator

Timely reporting of unusual plants or animals that are detected.

Timely reporting of foreign fishing vessel sightings.

Background

With an increase in reported and captured illegal Indonesian fishermen occurring in waters off the Northern Territory, the chances of marine pest incursions occurring have increased. As illegal fishing is often undertaken in the Timor Reef fishing area, commercial fishermen can often be among the first to observe abnormal situations in respect to marine pests.

Water pollution incidents

Strategy

Monitor areas being worked for debris and other water pollution and report to the appropriate authority.

Review marine pollution reports annually and assess the level and types of pollution occurring and the adequacy of existing provisions to minimise it.

Performance Indicator

Timely reporting of pollution incidents.

Reviewed and assessed annually.

Reef Structure

Strategy

Voluntarily monitor reef structure where possible and report changes.

Discuss reef structure habitats specifically at a Licensee Committee General Meeting.

Performance Indicator

Timely reporting of changes to the responsible Government agency.

Discussion occurs annually.

Background

Reef structures within the Timor Reef fishery provide essential habitat to fish. Droplines are generally used on soft coral or sand mud reefs and cause little damage. The effect of traps on reef structures has not been well studied and future projects may be required to investigate this further.

OBJECTIVE 2

Ensure that the overall harvests of Timor Reef resources remain within sustainable biological limits.

Strategy

Ensure stock assessments are undertaken every five to seven years.

Review catch data annually.

Performance Indicator

Stock assessments undertaken.

Catch data reviewed.

OBJECTIVE 3

Minimise interactions with and impacts on non retained species.

Strategy

Release any non commercial species as gently and quickly as possible.

Share information with other operators on areas in which increased levels of protected species are observed.

Performance Indicator

Non commercial catch released as per Code of Practice.

Increased communication between operators on areas with observed levels of protected species activity.

Background

Due to the highly selective nature of the fishing gear used, interactions with protected species are extremely rare and the impact of the fishery on non retained species is very low.

OBJECTIVE 4

Conduct environmental management in a transparent and cooperative manner with other key stakeholders.

Strategy

Annually review the progress, compliance and continuing relevance of the EMS at a Timor Reef Licensee Committee General Meeting.

Produce an annual report on the status of the EMS and circulate to key stakeholders.

Advise of the annual EMS status report on the Northern Territory Seafood Council website.

Performance Indicator

Review completed at a General Meeting annually.

Production and circulation of an annual report.

Appropriate information posted on website.

Background

As the EMS is an ongoing process, it is important that a formal annual review mechanism is implemented and that both industry and the wider community are aware, and appreciate the value of, the EMS process in ensuring the responsible use of the community owned resource.

OBJECTIVE 5

Actively participate in fishery reviews, legislation development and resource management decision making forums.

Strategy

Ensure representatives of the Licensee Committee are present at all relevant forums.

Performance Indicator

Licensee Committee represented in all relevant forums.

Strategy

Clearly identify and pursue management arrangements that enhance the ecological and economic viability of the fishery.

Performance Indicator

Appropriate arrangements are in place.

Background

The Timor Reef Licensee Committee is represented on a number of advisory and decision making forums that directly impact on the Timor Reef fishery. The Northern Territory Seafood Council represents licensee interests in a number of other forums which may impact on Timor Reef fishery operators.

OBJECTIVE 6

Support research which enhances ecological sustainability, productivity, protection of the environment and the viability of fishing operations.

Strategy

Review the fishery's research priorities annually to ensure that projects are relevant and prioritised accordingly.

Ensure that research agreed to with DEH under export accreditation is carried out in a timely manner.

Provide assistance wherever possible to researchers on investigations in relation to the continued ecologically sustainable development of the Timor Reef fishery.

Performance Indicator

Formal annual review of the relevance of research priorities and their potential management action outcomes.

Agreed research is undertaken.

Practical assistance provided by industry where necessary.

Background

A Timor Reef Fishery Reference Group (F.R.G.) has been established by industry in consultation with the NT Government and this will further enhance the evaluation processes regarding research relevance, prioritisation and continuing industry contribution to the conducting of specific projects. The Licensee Committee is also representative on the NT Fisheries Research Advisory Board, which prioritises projects at the wider Territory level.

OBJECTIVE 7

Promote and participate in industry training and education opportunities in environmental awareness, conservation principles and good management practices.

Strategy

Identify areas in which industry training and education can be undertaken to improve environmental awareness and best practice.

Design and implement courses and strategies to ensure good environmental, conservation and management practices among people who work in the Timor Reef fishery.

Identify key community education opportunities and utilise as many as possible on an ongoing basis.

Performance Indicator

Training areas identified.

Relevant courses and strategies designed, implemented and available on an ongoing basis.

Participation in key events that provide community education opportunities.

Background

Key factors for the future of the Timor Reef fishery are informed operators complying with management rules and a wider community which values the importance of the commercial fishery. The turnover of staff in fishing operations is such that an ongoing introductory package for operating in the fishery is necessary.

OBJECTIVE 8

Minimise resource consumption, waste production and pollution associated with fishing operations.

Strategy

Retain all litter generated during fishing operations.

Maintain engines in optimum condition to minimise greenhouse gas emissions.

Performance Indicator

Litter disposed of at land facilities.

Engines maintained in optimum condition across fleet.

Strategy

Where appropriate check refrigeration door seals on a weekly basis.

Where appropriate install signage on vessels to remind crew to keep refrigeration equipment doors closed.

Cleaning products used aboard a vessel should be biodegradable.

Performance Indicator

Refrigeration seals maintained on all vessels.

Signage installed on refrigeration equipment.

Biodegradable chemicals are used.

Background

Rubbish generated during a fishing trip should be retained aboard the vessel and disposed of on land at the end of the trip. Fish wastes are disposed of at sea and provide a food source for marine organisms. Disposal of plastics at sea is prohibited, as this can cause significant threats to marine life. Details on this matter are contained in the fishery's Code of Practice.

OBJECTIVE 9

Comply with all relevant legislation.

Strategy

Develop a concise introductory package regarding legislation which can be provided to all new people working in the fishery.

Operators who witness illegal fishing activities to report them to Fishwatch on 1800 065 522.

Keep a register of charges for non-compliance in the fishery and report results annually to the Licensee Committee.

Performance Indicator

Introductory package developed.

Timely reports of illegal fishing activities.

On going register kept.

Background

Non compliance with key regulations and management mechanisms not only reflects badly on fishery participants as a whole, but can have adverse effects on stocks at a local level. It is incumbent on all in the fishery to be aware of this and act accordingly during fishing operations.

TIMOR REEF EMS

ANNUAL REPORT TEMPLATE

OBJECTIVE 1

Continue to protect the habitats which underpin the ecological health of the Timor Reef fishery.

Strategy	Performance Indicator	Performance
Generally monitor and report, together with samples if possible, any unusual plants or animals observed in an area.	Timely reporting of unusual plants or animals that are detected.	
Report every sighting of foreign fishing vessels in Australian waters.	Timely reporting of foreign fishing vessel sightings.	
Monitor areas being worked for debris and other water pollution and report to the appropriate authority.	Timely reporting of pollution incidents.	
Review marine pollution reports annually and assess the level and types of pollution occurring and the adequacy of existing provisions to minimise it.	Reviewed and assessed annually.	
Voluntarily monitor reef structure where possible and report changes.	Timely reporting of changes to the responsible Government agency.	
Discuss reef structure habitats specifically at a Licensee Committee General Meeting.	Discussion occurs annually.	

OBJECTIVE 2

Ensure that the overall harvests of Timor Reef resources remain within sustainable biological limits.

Strategy	Performance Indicator	Performance
Ensure stock assessments are undertaken every five to seven years.	Stock assessments undertaken.	
Review catch data annually.	Catch data reviewed.	

OBJECTIVE 3

Minimise interactions with and impacts on non retained species.

Strategy	Performance Indicator	Performance
Release any non commercial species as gently and quickly as possible.	Non commercial catch released as per Code of Practice.	
Share information with other operators on areas in which increased levels of protected species are observed.	Increased communication between operators on areas with observed levels of protected species activity.	

OBJECTIVE 4

Conduct environmental management in a transparent and cooperative manner with other key stakeholders.

Strategy	Performance Indicator	Performance
Annually review the progress, compliance and continuing relevance of the EMS at a Timor Reef Licensee Committee General Meeting.	Review completed at a General Meeting annually.	
Produce an annual report on the status of the EMS and circulate to key stakeholders.	Production and circulation of an annual report.	

Advise of the annual EMS status report on the Northern Territory Seafood Council website.	Appropriate information posted on website.	
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OBJECTIVE 5
Actively participate in reviews, legislation development and resource management decision making forums that may impact on the Timor Reef fishery.

Strategy	Performance Indicator	Performance
Ensure representatives of the Licensee Committee are present at all relevant forums.	Licensee Committee represented in all relevant forums.	
Clearly identify and pursue management arrangements that enhance the ecological and economic viability of the fishery.	Appropriate arrangements are in place.	

OBJECTIVE 6
Support and participate in research which enhances ecological sustainability, productivity, protection of the environment and the economic viability of harvesting operations.

Strategy	Performance Indicator	Performance
Review the fishery's research priorities annually to ensure that projects are relevant and prioritised accordingly.	Formal annual review of the relevance of research priorities and their potential management action outcomes.	
Ensure that research agreed to with DEH under export accreditation is carried out in a timely manner.	Agreed research is undertaken.	
Provide assistance wherever possible to researchers on investigations in relation to the continued ecologically sustainable development of the Timor Reef fishery.	Practical assistance provided by industry where necessary.	

OBJECTIVE 7

Promote and participate in industry training and education opportunities in environmental awareness, conservation principles and good management practices.

Strategy	Performance Indicator	Performance
Identify areas in which industry training and education can be undertaken to improve environmental awareness and best practice.	Training areas identified.	
Design and implement courses and strategies to ensure good environmental, conservation and management practices among people who work in the Timor Reef fishery.	Relevant courses and strategies designed, implemented and available on an ongoing basis.	
Identify key community education opportunities and utilise as many as possible on an ongoing basis.	Participation in key events that provide community education opportunities.	

OBJECTIVE 8

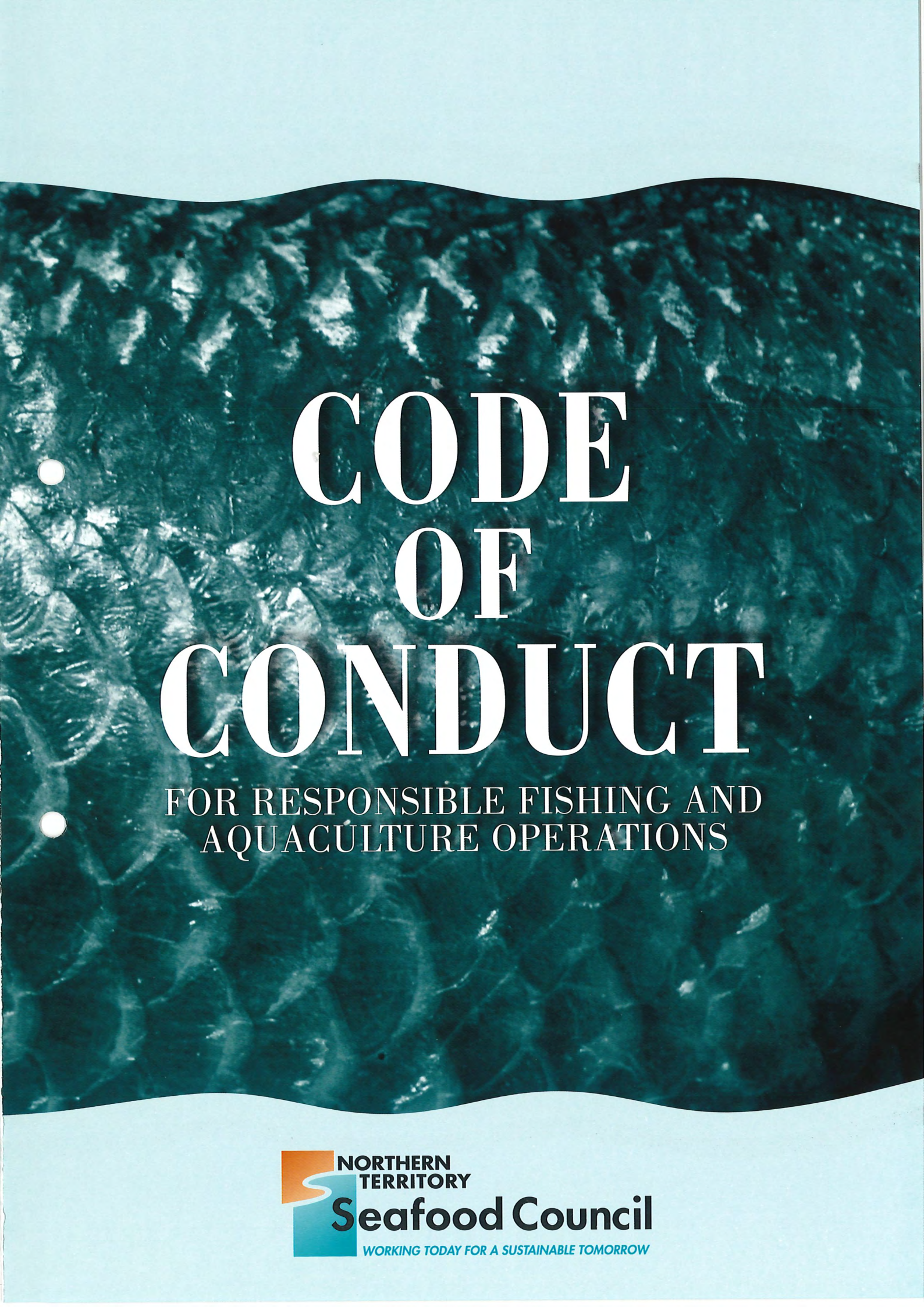
Minimise resource consumption, waste production and pollution associated with fishing operations.

Strategy	Performance Indicator	Performance
Retain all litter generated during fishing operations.	Litter disposed of at land facilities.	
Maintain engines in optimum condition to minimise greenhouse gas emissions.	Engines maintained in optimum condition across fleet.	
Where appropriate check refrigeration door seals on a weekly basis.	Refrigeration seals maintained on all vessels.	
Where appropriate install appropriate signage on vessels to remind crew to keep refrigeration equipment doors closed.	Signage installed on refrigeration equipment.	

Use cleaning products aboard a vessel that are biodegradable.	Biodegradable chemicals are used.	
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OBJECTIVE 9
Comply with all relevant legislation.

Strategy	Performance Indicator	Performance
Develop a concise introductory package regarding legislation which can be provided to all new people working in the fishery.	Introductory package developed.	
Operators who witness illegal fishing activities to report them to Fishwatch on 1800 065 522.	Timely reports of illegal fishing activities.	
Keep a register of charges for non-compliance in the fishery and report results annually to the Licensee Committee.	On going register kept.	



CODE OF CONDUCT

FOR RESPONSIBLE FISHING AND
AQUACULTURE OPERATIONS

CODE OF CONDUCT

The Northern Territory seafood industry understands and accepts its responsibility and accountability to conduct operations in a manner that continues to ensure resource sustainability, ecological integrity and economic viability.

This Code of Conduct specifies the principles and behaviour that industry participants commit to adhere to.

Environment

- Ensure that operations are conducted in accordance with Northern Territory and Commonwealth laws and regulations, as well as with international laws, regulations, conventions, declarations and protocols adopted by Australia
- Take all reasonable measures to minimise impacts of their operational activities on the environment

Interactions with other user groups

- Acknowledgment of and respect for the rights of all other resource users, land holders and land owners when carrying out operations
- Positive promotion of harmonious relations with other resource users, land holders and land owners

Y SEAFOOD INDUSTRY

Ecological Sustainability

- Take appropriate measures to ensure fisheries continue to be harvested and utilised to maintain the sustainable use of Northern Territory aquatic resources
- Promotion and utilisation of new technologies and techniques which enhance sustainable fishing practices
- Continue to minimise impacts on non target species during fishing operations

Research

- Support for research, including active participation where possible, which enhances ecological sustainability, productivity, protection of the environment and the viability of industry operations

Conservation

- Acknowledgment that conservation is a shared responsibility and requires a spirit of cooperation among all industry participants, appropriate regulatory authorities and other key stakeholder groups

Resource Management

- Actively participate in reviews, development of legislation and more detailed resource management decision making forums

Education

- Promotion of and, when appropriate, participation in both specialised industry training and education opportunities in environmental awareness, conservation principles, occupational health and safety matters and good management practices

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Northern Territory Government



Australian Government
Fisheries Research and
Development Corporation

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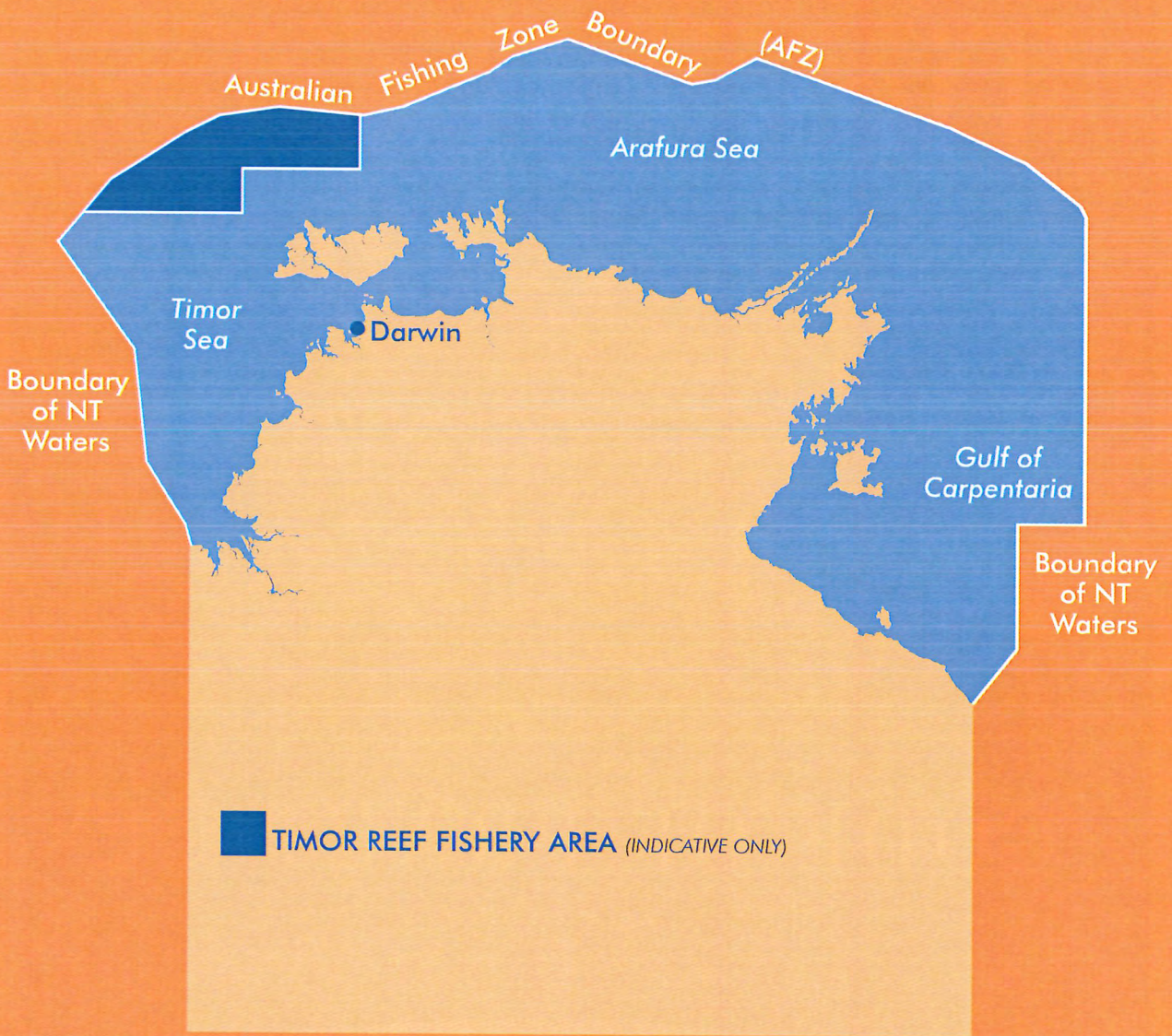
NORTHERN TERRITORY

Timor Reef *Fishery*



CODE OF PRACTICE

TIMOR REEF FISHERY





OBJECTIVE

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

INTRODUCTION

A best practice guide for the Timor Reef fishery, this 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 Timor Reef fishery and businesses involved in it.

This voluntary Code of Practice has been developed by the Timor Reef Licensee 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 Timor Reef fishery is located in a remote region North-West of Darwin, adjacent to the outer limit of the Australian Fishing Zone.

Covering approximately 8,400 nm², the fishery is managed by the Northern Territory under NT law through a Joint Authority comprising the Northern Territory and Commonwealth Governments.

Two harvesting methods are permitted, dropline and trap.

The fishery's main target species is Goldband snapper, (comprising the three species *Pristipomoides multidentis*, *P. typus* and *P. filamentosus*). Other key species are Saddletail snapper (*Lutjanus malabaricus*) and Crimson snapper (*Lutjanus erythropterus*).





PREPARATION

Vessels

Good vessel design and maintenance minimise the chance of contamination and physical damage to the product.

Gear

Gear should be designed to minimise damage or loss of product. All gear used in the fishing operation should be maintained and stowed or secured in a safe manner when not in use.

Occupational health and safety

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

Wearing appropriate clothing and footwear, avoiding loose clothing and securing long hair are wise precautions.

When crew understand their responsibilities during fishing operations the chances of accidents are minimised.

Hygienic handling

Crew should be trained in the hygienic handling of food products.

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

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 fish product or handling areas.

Pest control

Rodents, birds and insects are all potential carriers of diseases which could contaminate product and it is important that adequate steps are taken to control pests on a vessel. Domestic animals should not be kept onboard.

Cleaning

Deck, mats, processing tables, fish bins, iceboxes, utensils and other potential fish contact surfaces should be cleaned and sanitised to prevent any contamination.

The vessel should be thoroughly cleaned prior to each fishing trip to remove any contaminants that may be present.

Ensure only "food safe" cleaning and sanitising products are used on product surfaces and always follow manufacturers directions in respect to their use.

Chilling and freezing facilities

If ice is used, sufficient supplies for both fish packing and storage should be taken aboard and equipment used during processing, handling or storage of ice should be clean.

Check brine tanks and refrigeration equipment prior to departure to ensure they are in working order.



HARVESTING

Bait preparation

Care should be taken when baiting hooks. By freezing bait at night its usefulness in the fishing operation is prolonged. If bait is to be cut, it should be carried out in a safe manner. Knives should always be stowed appropriately to ensure crew safety when not in use.

Shooting lines

Ensure that the line and hooks on the shooter bar are all connected before lines are shot.

Maximum line soak time

Generally, line soak time should be kept to 15 minutes for lines attached to boats.

For vessels using throwaway lines, this time may vary, depending on the number of lines and hooks used and other variables.

Soak time will also depend upon whether or not the boat is anchored.



Retrieving lines

The quality of the product depends highly on the winching speed when retrieving lines.

If the winching speed is too fast, fish can be damaged or lost. Once winching has stopped, the hooks should then be pulled onto the boat by hand.

Trap placement

When setting traps, consider their physical placement as they should be set on substrate which will cause minimal damage to benthic communities.

Hauling traps

Hauling traps too fast can stress and damage the fish, particularly in deeper water.

Removing fish from gear

Care should be taken when removing fish from gear to minimise any physical damage to the product.

By hooking fish under the gills rather than elsewhere, less damage will be done to the flesh. Landing heavy fish by lifting them by the tail should be avoided as it may cause the spine to break, resulting in flesh discolouration and muscle separation.

Handle fish gently

Each time fish are handled there is potential for damage, so they should always be handled gently and a minimum number of times. Fish should not be placed on hot, dry surfaces and should also be protected from the drying effects of the sun and wind.



By-catch

Fishing in areas where a high incidence of by-catch or protected species is known should be avoided. 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. Handling fish gently with wet hands or gloves will assist in minimising damage.

PROCESSING

Handle fish with clean hands

Before handling or processing catch, crew members should ensure their hands are clean. If gloves are used, they should be clean and rinsed regularly during processing. After use they should be cleaned and dried.

Processing surfaces and implements

Processing surfaces should be cleaned of waste, washed down and rendered sterile at the end of each processing run. During the run, regular rinsing off with clean seawater will also lessen the risk of contamination.

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

Water

Using only clean sea water or potable fresh water on product will maintain its safety and quality.

Seawater from polluted waters should not be used on product surfaces or containers.

Dispatch in a timely and humane manner

Dispatching the fish as soon as possible may delay the onset of rigor and increase shelf life. Fish are effectively dispatched by swiftly destroying the brain using spiking (iki-jime).

Bleed fish immediately

Fish that require bleeding should be bled quickly with a sharp knife and immersed in an ice slurry as soon as possible.

Running clean water over the fish during bleeding will assist in keeping the fish cool and wash away the blood.





Chill fish as soon as possible

Delays in chilling the fish will adversely impact on product quality and safety.

Maintaining the cold chain throughout processing will assist in maintaining a high quality product.

Monitor brine tank temperature

Brine tank temperature should be between -1°C and $+4^{\circ}\text{C}$ and monitored regularly. Fish to be sold as fresh should not at any stage reach a temperature below -1°C as partial freezing may occur.

Fish should be packed in the brine tank in a manner capable of lowering the core temperature of product to below 4°C as quickly as possible.

Avoid leaving fish in the brine too long

Leaving whole fish in the brine too long may cause unsightly appearance, including a loss of colour, which can potentially lessen fish value. After the temperature of fish has been reduced, remove from the brine tank and process as soon as possible.

Change brine or slurry regularly

Only clean water should be used in brine tanks and it should be changed as required.

Removing viscera

Fish viscera contains digestive enzymes and micro-organisms and if not completely removed, may aid spoilage of product. Similarly, removed viscera should not come into contact with other fish.

Keep the deck clean

The vessel's deck should be continually washed down to remove any contaminants and to maintain a safe working environment.

Product utilisation

While markets and physical conditions during harvesting are factors, every effort should be made to maximise the utilisation of product.

Operators are encouraged to explore new markets for products.

PACKING & STORAGE

Use food grade packaging

Packaging used for product must be of food grade quality and stored in a contaminant and pest free environment.

Packing product

Pack product straight and with care. Do not straighten fish bent stiff with rigor, as this will tear the tissue.





Regularly check the accuracy of weights

To ensure packages contain correct weights of product, scales should be regularly checked for accuracy. Check weights should be available onboard and used at the beginning, at least, of each processing session.

Minimise transfer time from the brine or slurry to storage

Processing product in small batches will minimise the transfer time between brine and storage and will assist in maintaining the cold chain.

Regularly check thermometers

Fish quality and safety is dependent on temperature control and thermometers should be regularly checked for accuracy. A check thermometer should be available onboard and used at the beginning, at least, of each processing session.

Chilled storage

Whole fish should be soldier packed, with each layer of fish covered in ice. Regular visual inspections are required to ensure adequate ice coverage. Re-ice the fish as necessary and continually remove melt water.

Care must be taken when storing fish to prevent crushing.

Frozen storage

Ensure cartons are lined with a suitable plastic liner, such as 35 micron low density plastic. Pack fillets with plastic food grade sheets between each layer.

Ensure fish are protected from freezer burn

Product should be protected from dry freezer air. Exposed fish flesh will quickly suffer freezer burn, which will lower the quality of product.

Monitor freezer gauges

It is good practice to monitor freezer temperature three or four times daily. Frozen product must be kept at or below -18°C at all times and it is recommended that freezers be fitted with high temperature alarms.

TRANSPORT

It is important to ensure that the cold chain is maintained during unloading and transport to storage or market to ensure temperatures do not rise above the minimum recommended for frozen (-18°C) or move outside the chilled range (-1°C and $+4^{\circ}\text{C}$) as appropriate.

Transferring product from onboard storage in small batches to the receiving unit which in turn, should be pre-chilled, will help ensure integrity of the cold chain.

All deck equipment and holding tanks should be thoroughly cleaned, disinfected and rinsed following unloading. Remove any unused ice from the vessel before cleaning begins.



WASTE & POLLUTION

Fish waste

By removing processing waste as soon as practical, the risk of contaminating product is reduced.

Discarding waste within enclosed waters such as harbours and in the vicinity of communities should be avoided. Fish waste should be discarded on the opposite side of the vessel to the deck hose intake and where gear is being hauled.

Plastics

Plastics are not allowed to be discharged into the sea. All plastics must be retained on the vessel and disposed of at port facilities. Plastic waste which forms a continuous loop should be cut onboard to minimise impacts in the event that it is accidentally lost at sea.

Noxious liquids

No discharge of residues containing noxious substances is permitted within 12 nautical miles of the nearest land. The discharge of liquid in quantities or concentrations that are harmful to the aquatic environment is prohibited by law.

Garbage

Non-plastic garbage which cannot be retained onboard for proper disposal ashore may, by law, only be disposed of at sea provided the vessels is more than 12 nautical miles from the nearest land.

Oil and oily mixtures

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

Retrieval of lost fishing gear and garbage

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**



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

The following are protected species listed in Territory and/or Commonwealth legislation.

Common Name	Scientific Name
Speartooth Shark*	<i>Glyphis sp. A</i>
Northern River Shark*	<i>Glyphis sp. C</i>
Loggerhead Turtle*	<i>Caretta caretta</i>
Green Turtle*	<i>Chelonia mydas</i>
Leatherback Turtle*	<i>Dermochelys coriacea</i>
Hawksbill Turtle*	<i>Eretmochelys imbricata</i>
Flatback Turtle*	<i>Natator depressus</i>
All cetaceans (whales & dolphins)	<i>Cetacea</i>
Freshwater Sawfish*	<i>Pristis microdon</i>
Dwarf Sawfish	<i>Pristis clavata</i>
Green Sawfish	<i>Pristis zijsron</i>
Narrow Sawfish	<i>Anoxypristis cuspidata</i>

*Interaction should be reported to DEH within 7 days

To report an interaction or 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

Australian Maritime Safety Authority (AMSA)

Queries regarding Commonwealth environmental laws.

Tel: 02 6279 5015 | Fax: 02 6279 5966

CSIRO

Enquiries and reporting of tagged fish.

Tel: 1300 363 400

Bureau of Meteorology

Forecasts and warnings Tel: 08 8920 3826

General Enquires Tel: 08 8920 3800

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

Timor Reef Licensee Committee

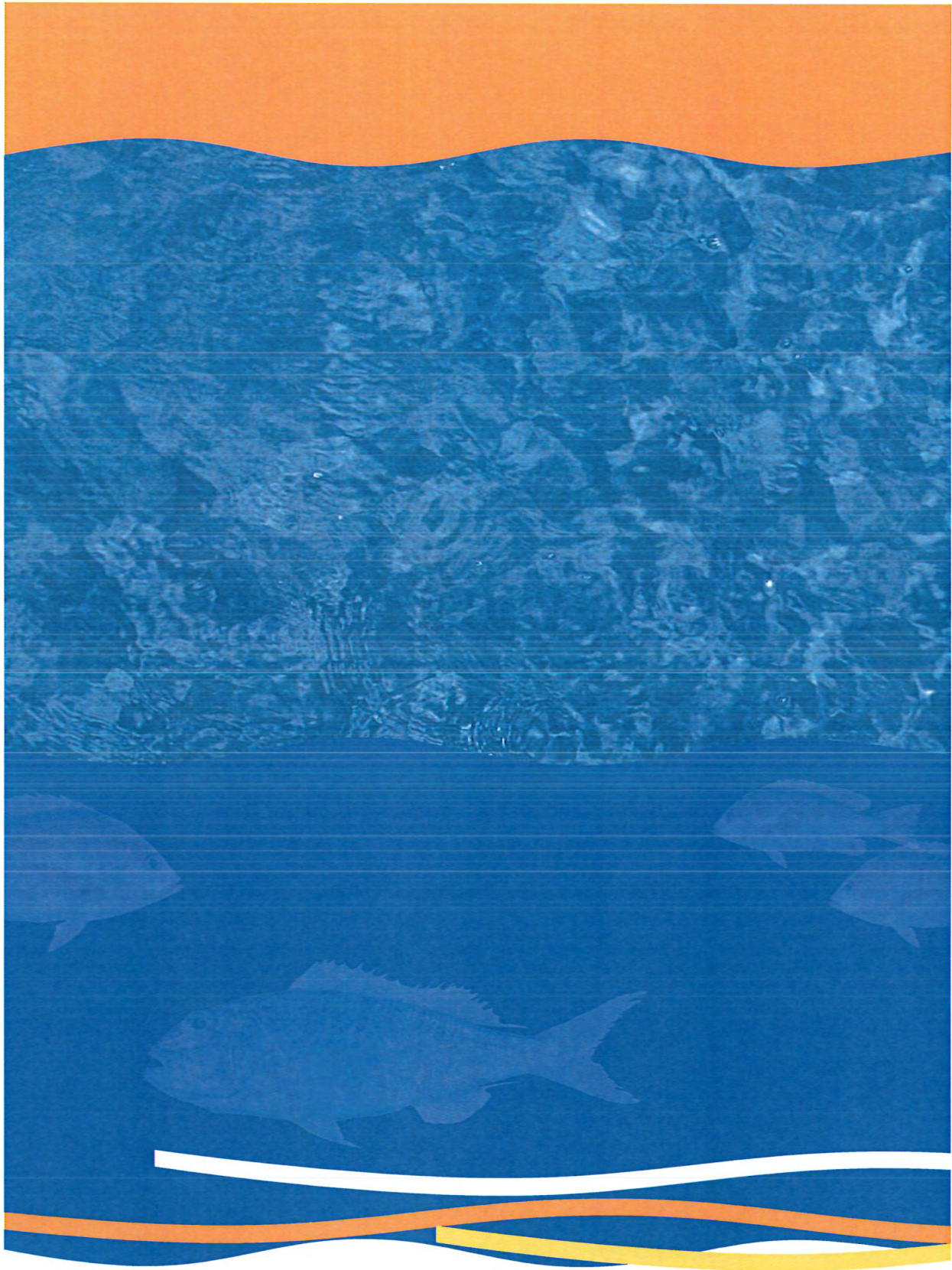
Industry representative

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:
Northern Territory Seafood Council
Timor Reef Licensee Committee
Tel 08 8981 5194
www.ntsc.com.au | ntsc@ntsc.com.au
GPO Box 618 Darwin NT 0801

RISK ANALYSIS

The following rankings have been used in the risk analysis.

LIKELIHOOD RANKING

Rare	May occur in exceptional circumstances
Possible	Evidence to suggest this may occur
Likely	It is expected to occur

CONSEQUENCE RANKING

Minor	Possibly detectable but minimal impact on structure/function
Moderate	A level of impact where recovery can take months or even years
Major	Very serious impacts with a relatively long time frame likely to be needed to restore to an acceptable level - recovery measured in years to decades

RISK RANKING

Low	Insignificant risk to the environment due to a combination of minor consequence and unlikely to occur
Medium	Increased likelihood of occurring with undesirable consequences
High	Likely to occur with significant consequences

LEGISLATION

Non compliance with fisheries legislation

RISK CATEGORY: LOW

Occurrence Likelihood: Possible

Occurrence Consequence: Minor

Justification

Timor Reef Licensee Committee members are familiar with and understand the legislative requirements imposed on them. The penalties for non compliance are high. The co-management structure which NT Fisheries and the Committee have established, should ensure that many discussions and communications are undertaken prior to potential changes to regulations. Licensees are also encouraged to report any non compliance to the relevant authorities.

Non compliance with conservation legislation

RISK CATEGORY: LOW

Occurrence Likelihood: Rare

Occurrence Consequence: Minor

Justification

Committee members are familiar with and aware of other legislative requirements through various conservation regulations which affect fishing activities. The Northern Territory Seafood Council has active participation in issues surrounding sacred sites, marine protected areas and land conservation and this information is passed on to all licensees.

RETAINED SPECIES

Loss of fish due to rapid deterioration of fishing conditions

RISK CATEGORY: LOW

Occurrence Likelihood:	Rare
Occurrence Consequence:	Minor

Justification

It is rare that catch is lost due to rapid deterioration of fishing conditions. Measures such as checking weather conditions, maintaining fishing equipment and formal training undertaken by skipper's and crew ensure a high degree of professionalism and understanding of their working environment. All preparations are undertaken to ensure the vessel and gear is maintained in top condition to reduce any potential loss in both fishing time and catch.

Loss of fish due to exceptionally large catches

RISK CATEGORY: LOW

Occurrence Likelihood:	Rare
Occurrence Consequence:	Minor

Justification

It is virtually impossible for commercial Timor Reef fishers to waste a large quantity of fish due to unmanageable catches. Continuing to fish for target species when storing capacity has been reached wastes not only product but also operators time and effort and bait.

Unsustainable depletion of target species stocks as a result of commercial fishing

RISK CATEGORY: LOW

Occurrence Likelihood:	Rare
Occurrence Consequence:	Moderate

Justification

Commercial Timor Reef fishers accurately complete log returns which are provided to Fisheries on a monthly basis to assist in assessments on target species. Fisheries regularly review log return data and use this information to assist in stock assessments and reviews of the fishery. Target species for the Timor Reef fishery include Goldband snapper, Red snappers, Red emperor and Cods.

Unsustainable depletion of by-product species resulting from commercial fishing

RISK CATEGORY: LOW

Occurrence Likelihood: Rare
Occurrence Consequence: Minor

Justification

Commercial fishing gear is selective and by-product species account for only some 1% of the total catch. Commercial Timor Reef operators complete log returns which are provided to Fisheries on a monthly basis to assist in assessments of by-product catch. Annual reviews of the fishery are undertaken by Fisheries. By-product species typically include small snappers.

NON-RETAINED SPECIES

Death of fish by-catch before release from traps or lines

RISK CATEGORY: MEDIUM

Occurrence Likelihood: Likely
Occurrence Consequence: Minor

Justification

Due to that nature of deep sea fishing, hauling fish through deep waters too quickly may result in the death of the catch due to barometric trauma. The main by-catch species are starry triggerfish, Red bass, Amberjack and Trevally. Fish are taken in traps at depths of 80 to 120 m and the survival of by-catch suffering from barometric trauma is likely to be small.

Death of fish by-catch after release from traps or lines

RISK CATEGORY: LOW

Occurrence Likelihood: Possible
Occurrence Consequence: Minor

Justification

The chances of survival from fish caught in traps are remote because of barometric trauma. This is due to the pressure differences experienced when hauling.

INTERACTIONS WITH WILDLIFE

Interactions with protected species

RISK CATEGORY: LOW

Occurrence Likelihood: Rare

Occurrence Consequence: Minor

Justification

There are no records to date of any interactions with protected species. There is minimal risk of the Timor Reef fishery impacting on protected species, given the types of fishing gear used.

IMPACTS ON THE BIOLOGICAL COMMUNITY

Lost or discarded fishing equipment

RISK CATEGORY: LOW

Occurrence Likelihood: Rare

Occurrence Consequence: Minor

Justification

It is rare for Timor Reef operators to lose fishing equipment and no gear is intentionally discarded at sea. All efforts are made to recover any lost fishing gear, as well as retrieving any other derelict gear found, as it presents possible hazards to marine life and fishing operations. There is a possibility in the event of a trap being lost during operation of ghost fishing to occur. The Timor Reef Licensee Committee is currently undertaking a review with Fisheries to look at ways to minimise the risk of ghost fishing.

Spread of marine pests within Territorial waters

RISK CATEGORY: LOW

Occurrence Likelihood: Rare

Occurrence Consequence: Moderate

Justification

There are currently no known marine pests of concern within the area in which the Timor Reef fishery operates. Timor Reef operators do not transfer any biological material between sites other than their catch, which is processed as quickly as possible after capture.

WATER QUALITY

Chemical spill

RISK CATEGORY: LOW

Occurrence Likelihood: Rare

Occurrence Consequence: Minor

Justification

The Code of Practice covers safe and appropriate storage of chemicals and fuel aboard a vessel. Other than biodegradable cleaning detergents, few if any chemicals are carried aboard vessels.

Pollution from fuel spill

RISK CATEGORY: LOW

Occurrence Likelihood: Rare

Occurrence Consequence: Minor

Justification

The relatively small fleet of well maintained vessels ensures that pollution by fuel is minimal. Fuel tanks and connector hoses are maintained in good working order as fishing operations are conducted in remote areas.

AIR QUALITY

Greenhouse gas emissions

RISK CATEGORY: LOW

Occurrence Likelihood: Likely

Occurrence Consequence: Minor

Justification

Due to the small number of vessels in the commercial Timor Reef fishing fleet and the relatively low fuel consumption, the amount of greenhouse gas emissions is very low. In addition, all motors are maintained at a high standard as the majority of fishing operations are conducted in remote areas.

SUBSTRATE QUALITY

Damage to seabed during fishing operations

RISK CATEGORY: LOW

Occurrence Likelihood: Possible

Occurrence Consequence: Minor

Justification

While there are impacts on the seabed when traps and dropline weights settle, the limited amount of gear used and the areas in which it is used means that such impacts are not significant. If there is a change in areas of deployment of traps, potential seabed damage would be evaluated.

EXTERNAL RISKS TO THE FISHERY

Illegal fishing

RISK CATEGORY: MEDIUM

Occurrence Likelihood: Likely

Occurrence Consequence: Moderate

Justification

Illegal fishing in the Northern Territory waters does occur but the quantities of fish illegally taken are unknown. Since 2003 there has been an increase in sightings of illegal foreign vessels in the fishery, but because of its remoteness, there are very few apprehensions as the vessels can quickly move out of Australian waters. Timor Reef fishery operators continue to liaise with the appropriate government authorities in regard to this illegal activity.

REGISTER OF RELEVANT LEGISLATIVE REQUIREMENTS

Legislation	Summary of Purpose	Relevance	Agency
<i>Aboriginal Land Act</i> (Northern Territory)	An Act to provide access to Aboriginal land, certain roads bordered by Aboriginal land and the provision to apply for closure of seas adjacent to Aboriginal land.	Entry onto Aboriginal land and seas adjoining.	Department of Planning and Infrastructure
<i>Animal Welfare Act</i> (Northern Territory)	An Act to provide for the welfare of animals, prevent cruelty to animals and for related purposes.	Animal welfare obligations and offences.	Local Government, Housing and Sport
<i>Darwin Port Corporation Act</i> (Northern Territory)	An Act to provide for the establishment of the Darwin Port Corporation for the control and management of the Port of Darwin, and for related purposes.	Prevention of pollution from oil within the port and management of fishing industry related facilities in the Port.	Darwin Port Corporation
<i>Environment Protection Biodiversity Conservation Act 1999</i> (Commonwealth)	An Act relating to the protection of the environment and the conservation of biodiversity, and for related purposes.	Protection of threatened species, marine debris, export and import controls.	Department of the Environment and Heritage
<i>Fisheries Act</i> (Northern Territory)	An Act to provide for the regulation, conservation and management of fisheries and fishery resources so as to maintain their sustainable utilisation, to regulate the sale and processing of fish and aquatic life, and for related purposes.	Administration of licences, registration of fishing vessels, recording requirements.	Department of Primary Industry, Fisheries and Mines
<i>Fisheries Regulations</i> (Northern Territory)	Regulations under the <i>Fisheries Act</i> .	Protected species, possession of gear, fish safety and quality, processing and sale of fish, gear requirements, aquatic pests.	Department of Primary Industry, Fisheries and Mines

Legislation	Summary of Purpose	Relevance	Agency
<i>Heritage Conservation Act</i> (Northern Territory)	An Act relating to the natural and cultural heritage of the Northern Territory.	Declaration and protection of heritage places and objects.	Department of Natural Resources, Environment and the Arts
<i>Historic Shipwreck Act 1976</i> (Commonwealth)	An Act to protect historically significant shipwrecks.	Protection of historically significant shipwrecks.	Department of the Environment and Heritage
<i>Marine Act</i> (Northern Territory)	An Act to regulate shipping within the Territory and to provide for the application to the Territory of the Uniform Shipping Laws Code and for related matters.	Safety of ship, closure of waters, collisions, casualties.	Department of Planning and Infrastructure
<i>Marine Pollution Act</i> (Northern Territory)	An Act to protect the marine and coastal environment by minimising intentional and negligent discharges of ship-sourced pollutants into coastal waters, and for related purposes.	Control and prohibition of discharges of oil, noxious substances, garbage and pollutants in coastal waters to 3 nm.	Department of Planning and Infrastructure
<i>Marine Pollution Regulations</i> (Northern Territory)	Regulations under the <i>Marine Pollution Act</i> .	Disposal of food wastes, garbage and reporting incidents.	Department of Planning and Infrastructure
<i>Northern Territory Aboriginal Sacred Sites Act</i> (Northern Territory)	An Act to effect a practical balance between the recognised need to preserve and enhance Aboriginal cultural tradition in relation to certain land in the Territory and the aspirations of the Aboriginal and all other peoples of the Territory.	Access, entry and permission to enter sacred sites. Offences in relation to sacred sites.	Minister assisting the Chief Minister on Indigenous Affairs
<i>Protection from the Sea (Prevention of pollution from ships) 1983</i> (Commonwealth)	An Act relating to the protection of the sea from pollution by oil and other harmful substances discharged from ships.	Discharge of oil, noxious substances, sewage, garbage and pollutants in Commonwealth waters.	Australian Government

Legislation	Summary of Purpose	Relevance	Agency
<i>Territory Parks and Wildlife Conservation Act</i> (Northern Territory)	Establishment of Parks and Reserves and the study, protection, conservation and sustainable utilisation of wildlife.	Protection of wildlife and conservation of natural resources.	Department of Natural Resources, Environment and the Arts
<i>Territory Wildlife Regulations</i> (Northern Territory)	Regulations under the <i>Territory Parks and Wildlife Conservation Act</i> .	Specific measures for protection and conservation.	Department of Natural Resources, Environment and the Arts
<i>Waste Management and Pollution Control Act</i> (Northern Territory)	An Act to provide for the protection of the environment through encouragement of effective waste management and pollution prevention and control practices and for related purposes.	General environmental duty, notification of pollution incidents.	Department of Natural Resources, Environment and the Arts
<i>Water Act</i> (Northern Territory)	An Act to provide for the investigation, allocation, use, control, protection, management and administration of water resources, and for related purposes.	Prohibits the pollution of water.	Department of Natural Resources, Environment and the Arts
<i>Work Health Act</i> (Northern Territory)	An Act to promote occupational health and safety in the Territory to prevent workplace injuries and diseases, to protect the health and safety of the public in relation to work activities.	Take reasonable care of health and safety at work.	Department of Employment, Education and Training