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A guide to releasing sawfish

Gulf of Carpentaria inshore and offshore set net fishery

Queensland Government
Department of Primary Industries and Fisheries

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The Department of Primary Industries and Fisheries (DPI&F) seeks to maximise the economic potential of Queensland's primary industries on a sustainable basis.

This publication provides guidelines for rescuing and releasing sawfish caught in commercial set fishing nets in the Gulf of Carpentaria. The information in this guide was compiled by Stirling Peverell of the Northern Fisheries Centre, DPI&F, in collaboration with the Gulf of Carpentaria Commercial Fishermen's Association (GoCCFA).

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Fishing one of the last remaining waters known to support sawfish, the Gulf of Carpentaria's commercial fishers have a vital role to play in protecting the world's dwindling sawfish populations.

Protecting sawfish

Sawfish (family Pristidae) are part of the sharks and rays group. They have a cartilaginous (consisting mainly of cartilage) skeleton and are characterised by gill openings on the underside of their head, large dorsal fins and an extended toothed rostrum or — as it is more commonly known — the 'saw'.

Sawfish inhabit freshwater, estuarine and marine waters, with a preference for coastal bays and foreshores. Unfortunately, this preference, in combination with their toothed rostrum, makes them vulnerable to capture in all forms of fishing nets in the Gulf of Carpentaria.

There are four species of sawfish inhabiting Gulf of Carpentaria waters, and there is grave concern over their sustainability amongst the region's scientists, resource managers, fishermen and other stakeholders.

This concern is echoed worldwide as global sawfish populations reach endangered status on the world's conservation list. The World Conservation Union identifies freshwater sawfish as critically endangered. It is thought that the Gulf of Carpentaria may be one of the last remaining regions supporting sawfish.

The Gulf of Carpentaria gill net fishermen have developed a code of fishing practice, supported by an environmental management system that ensures the industry's ecologically sustainable fishing practices. The following guidelines form the basis of the code's recommendations regarding the sustainable management of sawfish.

Responsible fishing

Responsibility: **Refrain from setting nets in areas where sawfish abound**

Benefit: Minimise the incidental catch and death of sawfish

Responsibility: **Apply release procedures (attached) or acquired knowledge (where appropriate) when dealing with captured sawfish**

Benefit: Minimise the trauma and injury to sawfish caused by incidental catch

Responsibility: **Participate in research programs that monitor the incidental capture of sawfish in gill nets**

Benefit: Further demonstrate the commitment of the region's set net fishermen to the principles of ecological sustainability and advance knowledge of sawfish history and biology

Responsibility: **Forward information on tagged or marked sawfish to the Northern Fisheries Centre in Cairns**

Benefit: Help researchers establish and understand the life, history and populations of the swordfish to identify equitable and sustainable management policies

Release procedures

Sawfish, like most marine animals caught in a gill net, will be highly stressed and most often lively. When approaching a captured sawfish, it is vital to assess the situation critically before attempting any handling procedures. Remember, your goal is to minimise the stress inflicted on the animal while releasing it alive and unharmed.

Limiting the risk of injury to the handler is also of paramount importance. If guided by the following procedures, the risk of handling injuries will be minimised.

When applying these release procedures, bear in mind the position and sideways action of the sawfish's rostrum. When handling sawfish, keep your body either in front of or behind the rostrum. Under no circumstances should the handler stand to the side of the rostrum, even if the animal is thought to be securely restrained by the net. If the sawfish is out of the water for any length of time, ensure it is kept wet to reduce unnecessary stress and discomfort. If possible, place a deck wash hose on its head to allow water to flow freely over the gills. Where possible, sawfish should be released away from set nets. Avoid placing nets in the vicinity of the release site for as long as possible.

The release procedures proposed in this guide have been formulated for different size and class ranges. Some sawfish species can grow up to seven metres in length, and would therefore require different handling approaches to those of juveniles.

A mature green sawfish is towed to a more suitable location for release procedures. Note the rostrum is not only secured to the gunnels by the net but by rope as well.

Juveniles (60 cm to 150 cm)

- Juveniles are generally lightweight (1 to 20 kg) and easy to handle. These animals can be restrained as you would any other fish of the same size and weight.
- A net hook, cement trail or the back of a knife can be used to aid in untangling meshes from the rostrum. Avoid scraping the applied tool along the rostrum as this will dislodge the fragile teeth in newborn sawfish.
- Avoid the numerous needle-like teeth on the rostrum and, if practical, place a wet bag over the animal's eyes.
- Upon release, if the sawfish is exhausted, make a conscious effort to swim the fish through the water and revive it. A deck hose is an effective tool for reviving sawfish, as demonstrated in Figure 1.
- Release the sawfish at a suitable site, taking into consideration the animal's release condition.

Hosing water over the head is an effective way to revive a juvenile freshwater sawfish.

Adolescent (150 cm to 300 cm) and adult sawfish (300 cm to 700 cm)

- Sawfish of both size classes are powerful and heavy to handle (adolescents ranging from 20 kg to 120 kg, and adults weighing more than 120 kg). Assess the situation critically, and plan the release procedure carefully, taking into consideration your personal safety, the condition of the animal and the environment you will be working in.

Jeff Oke, Special Projects Manager at the Cairns Marine Aquarium, and DPI&F fisheries observer Stirling Peverell untangle net mesh from the rostrum of a 5.4 metre green sawfish.

- It is advisable to keep the sawfish out of your dinghy and, where practical, beach the sawfish in a safe location before attempting handling.
- When towing a sawfish to a more practical release site, ensure you secure it by the rostrum to avoid head shaking and tail slapping. The animal can be towed either alongside or behind the dinghy – ensuring it is clear of the motor. Under no circumstances should the animal be towed backwards.
- Once the sawfish is beached, untangle the tail and mid-section of the animal from the mesh before tackling the rostrum. Place a wet bag over the animal's eyes to minimise stress.

- Always stand in front of or behind the rostrum when attempting to free the sawfish from the mesh.
- When dealing with large sawfish, it is advisable to have a second person present. Another pair of hands makes for easier work and provides a higher degree of personal safety.
- Placing downward pressure on the first or second dorsal fin subdues a sawfish, as does placing body weight on the anterior mid-section of the animal. This means that release procedures require two people.
- Using a slipknot around the rostrum, drag the sawfish back into the water, bearing in mind the animal's release condition.
- If beaching the net is not possible, as in the case of a creek set net, use a sharp knife which has been attached to a long handle (broom handle or stick) to cut the mesh.
- In adolescent sawfish, it is possible to lever the rostrum over the gunnel of the dinghy and, by applying downward pressure and with the help of a second person, the mesh can be untangled using the aforementioned tools or cut using a sharp knife.

Post sawfish release

- Keep nets in the immediate area out of the water for as long as possible.
- Take note of the location and environmental conditions in which the sawfish was caught and, if possible, avoid placing nets in similar habitats under the same fishing conditions.
- Make a record of the sawfish capture in the species of conservation interest (SOCI) logbook or report it to the DPI&F Northern Fisheries Centre in Cairns.

Commercial fisherman Hilton Fisher untangles mesh from the rostrum of a juvenile freshwater sawfish in a Gulf net fishery tag and release program.

Additional information

The severe threat of population depletion and the lack of information on sawfish make records on their life history and biology particularly important.

Critical information required from commercial fishers includes:

- species identification
- location of capture
- tag number (located beside the first dorsal fin)
- sawfish length (either from the lower jaw to the tip of the tail or total length).

Length can be measured with a tape or, as commonly practiced now, with a length of net-mending cord cut to the length of the animal. This information is then forwarded to DPI&F's Northern Fisheries Centre in Cairns.

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This document is a guide to the safe handling and release of sawfish in the net fisheries of the Gulf of Carpentaria. It is a guide only, and common sense should be applied to its use at all times.