

**SHARK BAY**

**Seaweek 2005**  
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SAVE OUR SHARKS

## **Release of sharks in recreational fisheries**

By Julian Pepperell



Tagged bull shark (*Carcharhinus leucas*) (© Neil Schultz)

## RELEASE OF SHARKS IN RECREATIONAL FISHERIES

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### Background

Recreational fishers catch a lot of sharks and rays, but they let a lot of them go too. A recent national survey on recreational fishing showed that about 1.2 million sharks and rays are caught by recreational fishers every year around Australia. Even more importantly though, it showed that over 80 percent of these sharks and rays—about one million in total—are released; and compared with other fish species such as snapper, flathead and bream, that is a very high rate of release indeed. The reasons for this tendency to let sharks and rays go are not known. However, because there are few size and bag limits which apply to sharks and rays, it is likely that the main reason is that most are caught while fishing for other species of fish (called ‘bycatch’) and are often not considered desirable to keep and eat. Ensuring the survival of this substantial released component of the catch of sharks and rays is obviously important, and can be enhanced by the use of simple techniques.

### Tag and release of sharks

As well as incidental catches and releases, sharks are also intentionally caught and released. In a national co-ordinated gamefish tagging program, operated by New South Wales Fisheries continuously since 1973, gamefish anglers are provided with plastic dart tags for use on recognised species of gamefish. A number of shark species are in this category, including the large offshore pelagic species such as mako (*Isurus* species), blue (*Prionace glauca*), tiger (*Galeocerdo cuvier*) and whaler sharks (Carcharhinidae family).

When undertaking tagging on this program, sharks are baited and caught by rod and reel in the standard way. Usually this involves burleying (also called chumming) with minced fish together with fish oil (mammal products have been banned for many years) and setting baits in the burley trail. When a shark is hooked, it is brought to the boat and if large, is tagged without removing it from the water. The trace (usually wire) is grasped and the shark is led to a position where the tagger can place the tag in the shoulder of the shark by means of a tag pole. Poles may be up to 4 metres in length. Tags for use on sharks consist of a yellow plastic streamer and a stainless steel anchor head. Tags have a simple printed message, a return

address and phone number, and a unique serial number at either end. The tag is jabbed into the shoulder muscle near the base of the dorsal fin, to a depth of about 5 cm, and the shark is then released as quickly as possible, by either removing the hook or cutting the line. Smaller sharks, less than about 20 kg, are often brought on board and tagged using a shorter tag pole. After a fish has been released, a prepaid postal tag card is filled out with details of species, location, estimated size and condition of the fish and mailed back to New South Wales Fisheries to be entered onto the large and ever-growing data base (Examples of fishers tagging and releasing whaler sharks are depicted in figures 1 to 7).

The survival of sharks tagged and released on tagging programs such as this is not easy to determine. However, it is known that recapture rates of tagged sharks are often higher than those of bony fishes such as tuna. Also, numbers of blue, mako and tiger sharks have been tagged with electronic tags after being caught on either rod and reel or baited lines and in all cases, survival after release has been very high.

One interesting aspect of shark physiology is that they appear to recover much faster than other fishes from the physiological stress of being hooked. The blood chemistry of blue sharks hooked and fought on the line for up to one hour was shown to return to normal within 90 minutes after release. Thus, the available evidence suggests that sharks may be quite robust. Nevertheless, because poor handling techniques can lead to higher than necessary mortality rates, it is worthwhile to be aware of the best methods for releasing sharks and rays to maximise survival.

### Techniques for release

Methods and techniques which should be used for releasing sharks are basically the same whether the fish is to be tagged or not. Always have good gloves and a wet towel handy and if possible, a soft, shady surface on which to place the shark. When a shark is brought to the boat, either net it, or swing it on board and quickly lay it horizontally, preferably on a soft carpet or piece of sponge. Always avoid placing fish on hot surfaces since their skin may be quite prone to burning. Hold the shark firmly behind the head, and around the tail wrist, using gloves and/or a wet towel, and try to remove the hook if possible. If the hook cannot be easily removed, the line or trace should be cut as close to the mouth as possible. More often than not, hooks will eventually fall out, or pass through the digestive tract whereas attempting to remove a deeply lodged hook could damage internal organs or blood vessels.

The internal organs of many species of shark tend to be rather loosely held in place by connective tissue. In the water, these organs are supported by the surrounding medium, but if the shark is lifted vertically, especially by the tail, connective



Figure 1.



Figure 4.



Figure 2.



Figure 5.

Figures 4–5. Tagged bull shark (*Carcharhinus leucas*)  
(© Neil Schultz).



Figure 3.

Figures 1–3. River whalers also known as bull sharks (*Carcharhinus leucas*) are caught, tagged and released in freshwater (© Neil Schultz).

tissue may tear internally. There is also the danger of straining or tearing tendons which hold the vertebrae in place. These problems are less likely to cause damage to small sharks, but in any case, the best rule of thumb is to always try and lift sharks in a horizontal position. This can be achieved by means of a large landing net or by grasping the shark by the tail wrist with one hand, and placing the other hand under the belly.

Sharks tend to twist and turn when captured, so care needs to be taken to protect both the angler and the shark or ray from injury (quite a few nasty injuries have been caused by a thrashing shark in the bottom of a small boat). Quite often however, if a shark is turned over onto its back, or simply held upside down, it will become quite docile, probably because it becomes completely disoriented in this position. Even large sharks may behave in this way. Scientists in Hawaii have found that after catching large tiger sharks on baited hooks, they will virtually go to sleep when gently rolled onto their backs while still in the water. They will stay in this position for many minutes, even allowing electronic tags to be surgically implanted into their body cavities. As well as laying sharks on their backs, placing a wet towel over their eyes will also often help to placate them.

In the case of sting rays, it is advisable to simply cut the line as close to the mouth as possible while the ray is still in the water. As most people know, many species of sting rays have very dangerous serrated barbs on their tails which can inflict serious and extremely painful injuries (if one does have the misfortune



Figure 6. Release of tagged bull shark (*Carcharhinus leucas*)  
 (© Neil Schultz).



Figure 7. Tagged whaler shark just prior to release  
 (© Julian Pepperell).

to be stung, a useful first aid method is to apply very hot water to the area of the wound. Heat denatures the toxin from the sting, although care should obviously be taken not to scald the patient). While it is true that not all rays are equipped with barbs in their tails, the best rule is to never handle any ray which possesses a whip-like tail.

## Shark-friendly equipment

A number of tagging and captive-fish experiments aimed at measuring fish survival after release have indicated that deeply hooked fish have a significantly reduced chance of survival compared with fish hooked around the mouth. Traditional hook shapes are fairly indiscriminate regarding hooking location, but one particular hook design, known as the circle hook, nearly always hooks fish in the corner of the mouth. For this reason, the use of circle hooks is highly recommended to assist in the release of fish, including sharks and rays.

Circle hooks are relatively new in Australia, but are rapidly being adopted as recreational anglers become better educated

and acquainted with them. Most reputable fishing tackle outlets now stock circle hooks of various shapes and sizes, and staff will advise which types are best to use for sharks and rays. Another handy device to have on board or to carry to fishing spots where sharks might be caught is a de-hooker. Designs vary somewhat, but the device consists simply of a metal rod with a handle at one end and several coils at the other. The coils are run down the line to the hook which is removed by pushing in the opposite direction to its entry path. Again, tackle-shop staff will gladly assist in selection and instructions for the use of these handy tools.

## Protected sharks

Of the five species of sharks which are protected in Australian waters (whale shark, great white shark, grey nurse, spartooth and northern river shark), only two, the grey nurse and the great white shark are likely to be hooked by recreational anglers, albeit quite rarely. However, if and when one of these species is accidentally hooked (it is illegal to purposely fish for them, by the way), following the guidelines above will help to ensure its survival after release. Some specific points about each species are worth noting in this regard. White sharks are slightly warm blooded and as such, some concerns have been expressed about long term effects of exhaustion on this species. However, this is largely unproven and some electronically tagged white sharks (and their more warm-blooded relatives, mako and porbeagle sharks) have been shown to survive relatively rough handling. Nevertheless, it is good practice to avoid stressing this species near the boat. If possible, the trace should be taken and the shark controlled by moving the boat slowly forward while the hook is either removed, using a de-hooker, or the trace cut as near to the mouth as is practicable and safe.

Grey nurse sharks are normally much more docile than great whites and can therefore be controlled and dehooked relatively easily. Again, if the hook is not visible around the mouth area, or if the hook cannot be removed, cut the line or trace as close to the mouth as possible.

In either case, if the shark is sighted at a distance from the boat and identified as a grey nurse or a great white, it is not advisable to cut the line at that stage since this would leave a long length of nylon line and trace material trailing behind the shark. Naturally, each situation will be different, but if it is possible to bring the shark alongside the boat without stressing it too much, it can be released with a minimum of fishing tackle still attached.

It's a great feeling when you release a fish of any kind, including a shark or a ray, and watch it swim away. But it's an even better feeling knowing that you have done everything possible to maximise its chances of survival.

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## For further information

National Strategy for the Survival of Released Line Caught Fish:

[www.info-fish.net/releasefish](http://www.info-fish.net/releasefish)

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