

SHARK BAY

Seaweeek 2005
March 6 to 13



Australian shark attacks

By John West



Blue shark (*Prionace glauca*) bites Valerie Taylor (© Ron and Valerie Taylor)

AUSTRALIAN SHARK ATTACKS

By John West

Zoological Parks Board of New South Wales, Taronga Zoo,
 PO Box 20 Mosman, New South Wales, 2088 Australia

Introduction

Sharks occur in all the coastal waters and estuarine habitats around the 27 000 km of Australia's coast. As the population of the country increases (3 765 300 in 1900; 8 307 500 in 1950; 17 046 700 in 1990; 20 204 789 in 2004) many more people are entering coastal waters for recreational and commercial reasons throughout the year.

Although Australia continues to have a bad reputation concerning the threat of shark attacks to swimmers, the statistics do not support these contentions. In the last 50 years, there have been only 61 human fatalities (an average of 1.22 per year) in Australian waters from shark attack. Some years there are none, other years there have been up to three in a year, but the average remains around one per year. Yet each year hundred thousands of swimmer-days take place on our beaches, harbours and rivers and the number is increasing with both increasing population and tourism.

The Australian shark attack file

In 1984, the Australian Shark Attack File (ASAF) database was established to ascertain the actual number of shark attacks in Australian waters, and to help researchers understand and document the behaviours of sharks where close contact with humans occurs. As part of a world-wide study into shark behaviour, data from the ASAF may eventually help identify common factors relating to the cause of attacks on humans.

The ASAF database is held at Taronga Zoo and is associated with the International Shark Attack File that is coordinated by the American Elasmobranch Society. Information on shark attacks can be accessed at <http://www.zoo.nsw.gov.au/content/view.asp?id=126>.

A case is included in the ASAF when there is a human/shark interaction where injury occurs to a human (being alive at the time of the incident), or where there is a determined attempt made by the shark to bite a person but imminent contact was averted by diversionary action by the victim or others (no injury to the human occurred). Cases are also recorded where the equipment worn or being used by a person is damaged by the shark (such as a bite to a surfboards, surf skis, kayaks, small dinghy or similar equipment operated by a person). The file does not record attacks on large fishing boats.

Shark attacks on humans—the statistics

According to the ASAF, there have been 61 recorded human fatalities due to shark attack in the last 50 years (as for Dec 2004). Of these, 22 have occurred in Queensland, 16 in South Australia, nine in New South Wales, 7 in Western Australia, 4 in Tasmania, and 3 in Victoria (Table one). No fatal attacks have been recorded in the Northern Territory in that time period.

Table one. Information from the Australian Shark Attack File¹ records of reported shark/human interactions since 1791 (i.e., records over a 213 year period).

State	Total attacks	Fatal attacks	Last Fatal attack
NSW	238	72	1993 Byron Bay
QLD	221	71	2004 Opal Reef
WA	70	12	2004 Gracetown
SA	46	20	2004 West Beach
VIC	32	7	1977 Mornington Peninsula
TAS	21	5	1993 Tenth Island, Georgetown
NT	11	3	1938 Bathurst Island
All states	639	190	

¹The ASAF represents only known instances of interactions as per the Criteria for Inclusion (Data in this table is current up until December 2004).

Which sharks are potentially dangerous to humans?

There are over 370 shark species world wide with at least 166 species inhabiting Australian waters. Of those only a very small proportion are known to be dangerous to humans. Analysis of the ASAF data indicates that the majority of shark attacks that were fatal or severely injured humans come from three main groups of sharks—the white shark (*Carcharodon carcharias*), tiger shark (*Galeocerdo cuvier*) and the family of whalers (*Carcharhinidae* which contain the bull shark *Carcharias leucas*) (figure 1).

Other large sharks can also be considered potentially dangerous, mostly because of their size. They include the wobbegong (*Orectolobus* spp.), hammerhead (*Sphyrna* spp.) (figure 2), blue shark (*Prionace glauca*), mako (*Isurus* spp.), and grey nurse shark (*Carcharias taurus*) (figure 3). However, it must be remembered that any large animal can be considered potentially dangerous to humans (on land or in the sea).



Figure 1. Ron Taylor diving with an oceanic whitetip shark (*Carcharhinus longimanus*) (© Ron and Valerie Taylor).



Figure 2. Ron Taylor diving with great hammerhead sharks (*Sphyrna mokarran*) (© Ron and Valerie Taylor).



Figure 3. Valerie Taylor diving with a grey nurse shark (*Carcharias taurus*) (© Ron and Valerie Taylor).



Figure 4. Sharks view of a board rider (© Ron and Valerie Taylor).

Why do sharks attack humans?

There are several theories as to why sharks ‘attack’ humans. Some ‘attacks’ on humans may be purely an inquisitive testing of an object; some may be territorial; others may be related to the invasion of the shark’s personal space by the human (figure 4). Other theories include mistaken identity, or the shark may have been disrupted during its breeding behaviour. It has been demonstrated that the majority of encounters with sharks, where injuries occur, usually results in single racking wounds that may indicate a defensive behaviour rather than a hunger related attack. The majority of people that are bitten receive a single bite and are released which indicates the shark is not just biting to procure food in these cases.

Prevention of shark attacks

Shark attacks remain a genuine but unlikely danger for humans entering the water. However, this does not mean that people should disregard the likelihood of an attack by swimming outside the protection of the patrolled beaches, or where protected swimming areas are installed. It must be remembered that there is a much higher risk of drowning while swimming than from being killed in an encounter with a shark. As more knowledge is acquired about the shark's normal behaviour and the circumstances surrounding attacks, it may be possible in the future to develop an effective repellent (some electric impulse devices are currently on the market).

The best prevention is to use common sense related to where a person swims and what activities they undertake whilst in the water. Awareness of what may invite or provoke an attack will assist in deciding where to go and what to do in the water. The following points highlight some of these considerations:

- Do not swim, dive or surf where dangerous sharks are known to congregate, such as canal developments in Southern Queensland.
- Always swim, dive or surf with other people preferably at patrolled beaches.
- Do not swim while bleeding.
- Do not swim in dirty or turbid water.
- Avoid swimming well offshore, near deep channels, at river mouths or along drop-offs to deeper water.
- If schooling fish start to behave erratically or congregate in large numbers, leave the water.
- Do not swim with pets and domestic animals.
- Look carefully before jumping into the water from a boat or wharf.
- If possible do not swim at dusk, dawn or at night when some sharks may be more active.
- Do not swim near people fishing or spearfishing.
- If a shark is sighted in the area leave the water as quickly and calmly as possible.
- Do not wear jewellery or shiny objects as the reflections could be mistaken for those from fish scales.
- Do not swim near fur seal colonies especially during the pupping season.

If you are in the water and you see a shark, **stay calm!** It must be remembered that some stated methods of repelling sharks could, given different conditions and different sized animals,

result in an altering of the shark's initial response and may unintentionally provoke an attack response in the very animal that it was meant to deter. **Leave the area as quickly and as quietly as possible.** However, if an attack is imminent try to keep the shark in sight and if it gets close then any action you take may disrupt the attack pattern, such as hitting the shark's nose, gouging at its eyes, making sudden body movements, blowing bubbles, etc.

What to do if someone is bitten by a shark

Once the patient is removed from the water, the following procedure should be followed:

- Treat the patient immediately on site.
- Stop the bleeding immediately by applying direct pressure above or on the wound, a tourniquet may be used if bleeding cannot be controlled by a pressure bandage.
- Reassure the patient at all times.
- Send for an ambulance and medical personnel.
- If possible do not move the patient if badly injured.
- Cover the patient lightly with clothing or a towel.
- Give nothing by mouth.

For further information

Visit the Australian Shark Attack File at:
<http://www.zoo.nsw.gov.au/content/view.asp?id=126>

Acknowledgements

The following organisations/individuals are acknowledged for their contributions: **Funding:** Natural Heritage Trust and the Fisheries Resources Research Fund (Australian Government Department of Agriculture, Fisheries and Forestry). **Coordination of project:** Marine Industries Environment Branch and the Bureau of Rural Sciences (Australian Government Department of Agriculture, Fisheries and Forestry). **Artwork:** Brett Cullen and Trish Hart. **Reviewers:** John Stevens, Geoff McPherson, Dennis Reid, Carolyn Stewardson, Albert Caton and John Ackerman.

© John West (jwest@zoo.nsw.gov.au).

This information sheet may be copied for educational purposes.
 For any other purpose please contact the author.