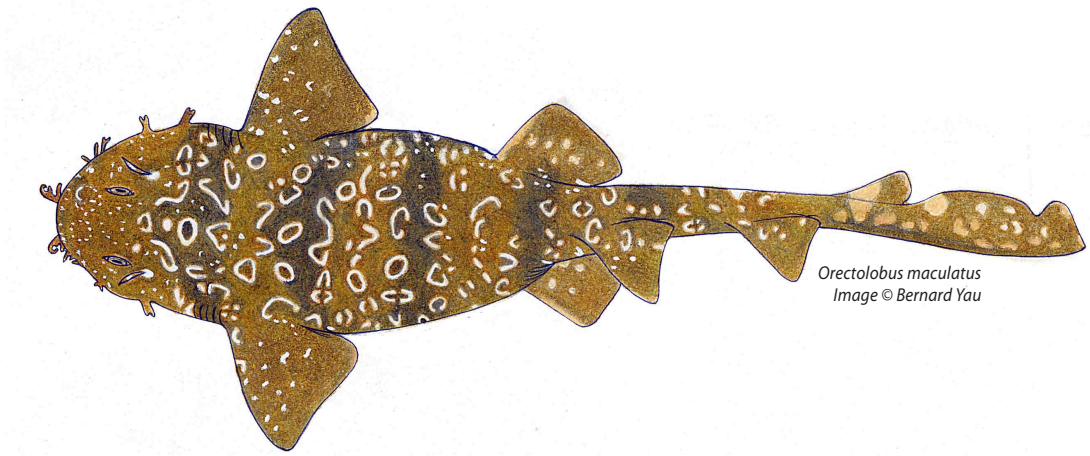
Wobbegong Sharks (*Orectolobus* spp.)

EXPLOITATION STATUS	UNDEFINED

The available catch data are not sufficiently accurate to use for determining stock status for any of the three species which occur off NSW. From July 2009 more detailed reporting is required on commercial catch return forms.

SCIENTIFIC NAME	STANDARD NAME	COMMENT
Orectolobus ornatus	ornate wobbegong	
Orectolobus maculatus	spotted wobbegong	
Orectolobus halei	gulf wobbegong	



Orectolobus maculatus
Image © Bernard Yau

Background

At least ten species of wobbegongs are known from Australian waters with three species occurring along the NSW coast. The ornate wobbegong (*Orectolobus ornatus*) is distributed from Port Douglas in North Queensland to Sydney in the south. The spotted wobbegong (*O. maculatus*) is found from about Gladstone in central Queensland to Lakes Entrance in Victoria, and may also occur west of Bass Strait, but these records are uncertain. The third species is the gulf wobbegong (*O. halei*), which ranges around the south of the continent from southern Queensland to southern WA.

The three species are typically found in shallow inshore waters on coral and rocky reefs along the coast and around offshore islands. They usually inhabit depths less than 50 m although have been recorded to 220 m. Occasional captures, mainly of spotted wobbegongs, are made on sandy trawl grounds to depths of 100 m. The diet of wobbegongs comprises various fishes including small sharks and rays, octopus and occasionally invertebrates.

The ornate wobbegong is a small species, maturing at about 80 cm and attaining a maximum length of about 110 cm. The spotted wobbegong is reported to reach about 300 cm in length, but seldom exceeds 160 cm in NSW with a size at maturity of around 115-120 cm. Gulf wobbegong reaches at least 210 cm in NSW, and reportedly grows to almost 300 cm. The size at maturity for gulf wobbegong is between 161 and 187 cm. Wobbegongs are lecithotrophic viviparous, where the young develop in the uterus from eggs before being born at about 20 cm in length. The number of young varies with the size of the sharks with ornate wobbegongs having up to 18 pups, (averaging 9), spotted wobbegongs up to

37 pups, and gulf wobbegong as many as 53 pups. Although gestation for all species is 10 - 11 months, they breed only once every three years making their apparent high fecundity (for sharks) much lower in practice.

The Ocean Trap and Line Fishery accounts for 80% of the commercial harvest of wobbegong sharks in NSW with most caught by various line-fishing methods. In the 15 years after 1990, annual NSW wobbegong landings declined from about 120 t to about 60 t. Recent management in the form of trip limits has seen a further decline in commercial landings.

Additional Notes

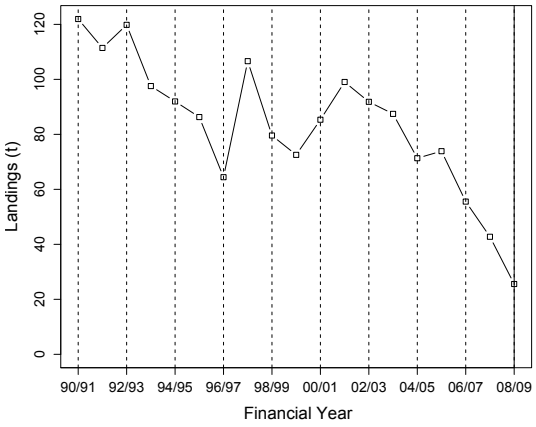
- Three species of wobbegong now recognised in the NSW catch but better information is required on the proportion of the three species in catches.
- There are important biodiversity and conservation issues associated with this group of species.
- Biological information for all three species is available from Huveneers (2007).
- Additional management measures have been introduced for wobbegong sharks taken in the Ocean Trap and Line Fishery - a trip limit of 6 carcases and a minimum length of 130cm now apply.
- Wobbegong sharks are no longer permitted to be retained by recreational fishers.
- Changes to the structure of the industry are probably responsible for some of the patterns in the catches (decreasing) and catch rates (increasing).

Catch

Recreational Catch of Wobbegong Sharks

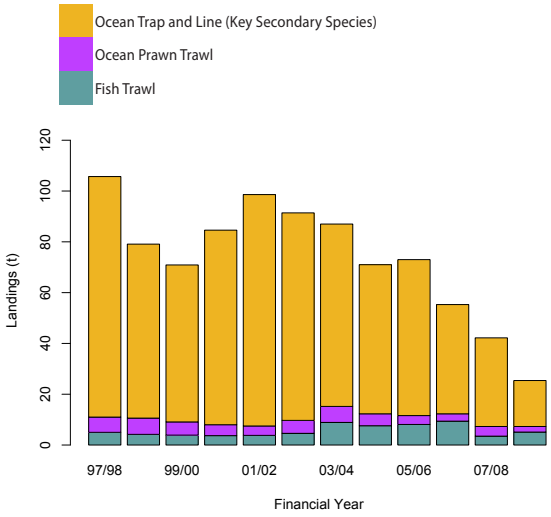
Prior to 2007, the annual recreational harvest of wobbegong sharks in NSW was likely to lie between 10 and 50 t. This estimate was based upon the results of the offsite National Recreational and Indigenous Fishing Survey (Henry and Lyle, 2003) and onsite surveys undertaken by I & I NSW. Note that a recreational bag limit of zero was introduced for wobbegong sharks in September 2007 and they are no longer permitted to be retained by recreational fishers.

Historical Landings of Wobbegong Sharks



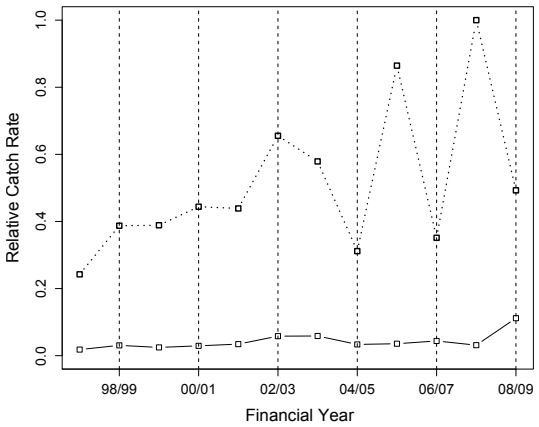
Commercial landings (including available historical records) of wobbegong sharks for NSW from 1990/91 to 2008/09 for all fishing methods.

Landings by Commercial Fishery of Wobbegong Sharks



Reported landings of wobbegong sharks by NSW commercial fisheries from 1997/98. Fisheries which contribute less than 2.5% of the landings are excluded for clarity and privacy.

Catch Per Unit Effort Information of Wobbegong Sharks Harvested by All Line Fishing Methods in NSW



Catch rates of wobbegong sharks harvested using all line fishing methods for NSW. Two indicators are provided: (1) median catch rate (lower solid line); and (2) 90th percentile of the catch rate (upper dashed line). Note that catch rates are not a robust indicator of abundance in many cases. Caution should be applied when interpreting these results.

Further Reading

Carraro, R. and W. Gladstone (2006). Habitat preferences and site fidelity of the ornate wobbegong shark (*Orectolobus ornatus*) on rocky reefs of New South Wales. *Pacific Science* **60** (2): 207-223.

Henry, G.W. and J.M. Lyle (2003). The National Recreational and Indigenous Fishing Survey. Final Report to the Fisheries Research & Development Corporation and the Fisheries Action Program Project FRDC 1999/158. NSW Fisheries Final Report Series No. 48. 188 pp. Cronulla, NSW Fisheries.

Huveneers, C. (2006). Redescription of two species of wobbegongs (Chondrichthyes: Orectolobidae) with elevation of *Orectolobus halei* Whitley 1940 to species level. *Zootaxa* **1284**: 29-51.

Huveneers, C. (2007). The ecology and biology of wobbegong sharks (genus *Orectolobus*) in relation to the commercial fishery in New South Wales, Australia. Sydney, Macquarie University. **PhD Thesis**.

Huveneers, C., N.M. Otway and R.G. Harcourt (2007). Morphometric relationships and catch composition of wobbegong sharks (Chondrichthyes: *Orectolobus*) commercially fished in New South Wales, Australia. *Proceedings of the Linnean Society of New South Wales* **128**: 243-249.

Huveneers, C., T.I. Walker, N.M. Otway and R.G. Harcourt (2007). Reproductive synchrony of three sympatric species of wobbegong shark (genus *Orectolobus*) in New South Wales, Australia: reproductive parameter estimates necessary for population modelling. *Marine and Freshwater Research* **58**: 765–777.

Krogh, M. (1994). Spatial, seasonal and biological analysis of sharks caught in the New South Wales protective beach meshing program. *Australian Journal of Marine and Freshwater Research* **45** (7): 1087-1106.

Last, P.R. and J.D. Stevens (2009). Sharks and Rays of Australia 2nd Edition. Melbourne, CSIRO.

Walker, T.I. (1998). Can shark resources be harvested sustainably? A question revisited with a review, of shark fisheries. *Marine and Freshwater Research* **49** (7): 553-572.

Please visit the CSIRO website, http://www.marine.csiro.au/caab/ and search for the species code (CAAB) 37 013001, 37 013003 and 37 013020 , common name or scientific name to find further information.