

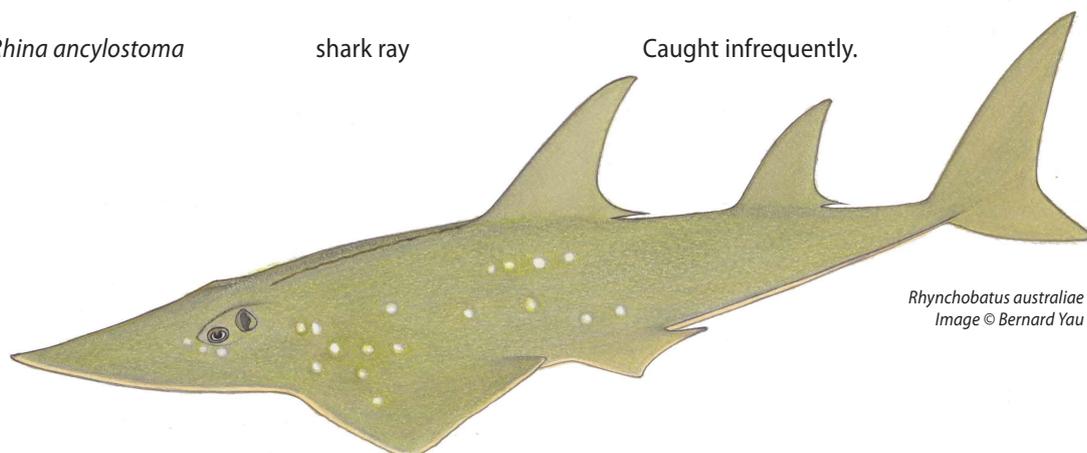
Shovelnose Rays

(Rajiformes)

EXPLOITATION STATUS UNDEFINED

Eastern shovelnose ray is by far the most significant species in the catch of this group – research underway should improve biological knowledge for this species.

SCIENTIFIC NAME	STANDARD NAME	COMMENT
<i>Aptychotrema rostrata</i>	eastern shovelnose ray	Constitutes the majority of the catch of this group.
<i>Rhynchobatus australiae</i>	whitespotted guitarfish	There are minor landings of this species from northern NSW.
<i>Trygonorrhina fasciata</i>	eastern fiddler ray	The small catches of this species are often discarded.
<i>Glaucostegus typus</i>	giant shovelnose ray	Caught infrequently.
<i>Rhina ancylostoma</i>	shark ray	Caught infrequently.



Rhynchobatus australiae
Image © Bernard Yau

Background

Between 100 and 150 t of 'fiddler' rays are landed annually in NSW. The bulk of the catch (estimated 75%) consists of the eastern shovelnose ray (*Aptychotrema rostrata*), with smaller quantities (~ 20%) of the eastern fiddler ray (*Trygonorrhina fasciata*) and occasional landings of the large whitespotted guitarfish (*Rhynchobatus australiae*), the giant shovelnose ray (*Glaucostegus typus*) and the shark ray (*Rhina ancylostoma*).

The shovelnose and fiddler rays are endemic to the southern Queensland and NSW coasts (between latitudes 27° and 36° S) while the guitarfish ranges from northern NSW through the tropics to southern Japan. All species mainly inhabit inshore smooth sandy substrates in depths less than 100 m and almost all the catch is taken by trawlers.

Eastern shovelnose rays grow to a maximum length of about 100 cm and weight of about 4 kg while fiddler rays reach 120 cm and about 10 kg. The whitespotted guitarfish can attain 300 cm in length and weigh more than 200 kg.

The biology of the eastern shovelnose ray in Moreton Bay has been studied. Both sexes matured at around 60 cm in length, and the females were found to breed annually with large specimens giving birth in the summer to as many as 18 young. New-born young are about 20 cm long. There is little biological information available for the fiddler ray (likely to have a similar reproductive cycle to the shovelnose ray) or the whitespotted guitarfish.

The commercial catch is taken almost totally by the Ocean Trawl Fishery. Significant numbers of shovel-nosed rays are also taken by recreational anglers. The commercial landings have been relatively stable at around 100 to 150 t since the mid 1990s when 'fiddler/banjo shark' and 'shovel-nose/sand shark' were first given separate species categories on commercial catch recording forms.

The stock status of all species is uncertain and the species composition of the catch needs to be more accurately determined. New catch reporting forms introduced in July 2009 require catches of all species to be separately recorded. No stock assessment is available for shovel-nosed or fiddler rays in NSW waters. Length frequency data are available for the common species from Fisheries Research Vessel *Kapala* trawl surveys of inshore grounds in the 1990s.

Additional Notes

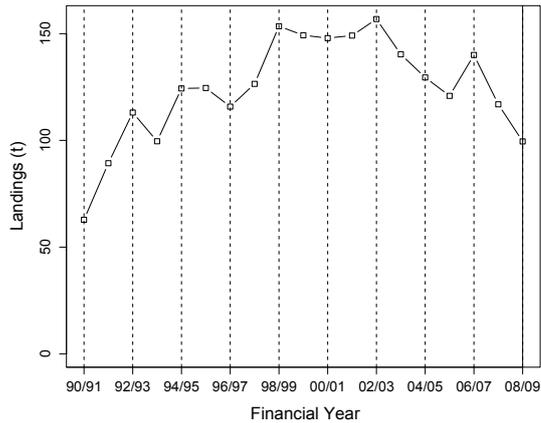
- The majority of the commercial catch is eastern shovel-nose ray mainly from ocean prawn trawling and ocean fish trawling. Shovel-nose rays are also taken in significant quantities by recreational fishers.
- Preliminary indications are that the stock of eastern shovel-nose rays is more or less stable, but mortality rates are yet to be estimated.
- Female shovel-nose rays have up to 18 embryos and move into shallower waters over the summer months to give birth (they are not susceptible to the trawl fishery during this stage but are taken by recreational fishers).
- These species are difficult to monitor after landing because fishers head and fin them. Onboard identification of the different species is straightforward because they have distinct morphologies.

Catch

Recreational Catch of Shovel-nose Rays

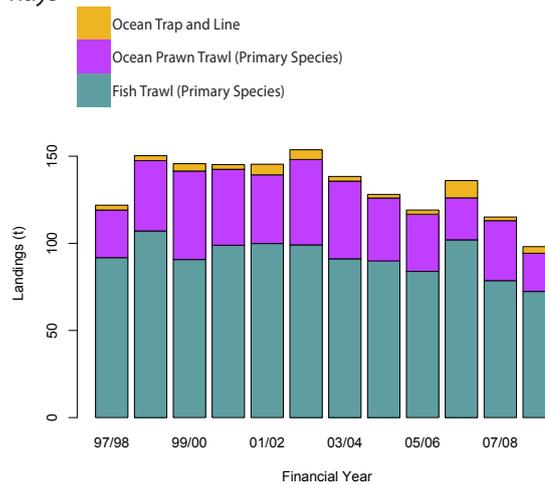
The annual recreational harvest of shovel-nose rays in NSW is likely to lie between 20 and 50 t. This estimate is based upon the results of the offsite National Recreational and Indigenous Fishing Survey (Henry and Lyle, 2003) and onsite surveys undertaken by I & I NSW.

Historical Landings of Shovel-nose Rays



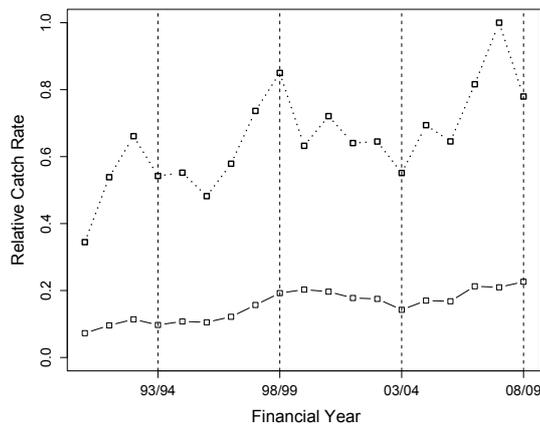
Commercial landings (including available historical records) of shovel-nose rays for NSW from 1990/91 to 2008/09 for all fishing methods.

Landings by Commercial Fishery of Shovel-nose Rays



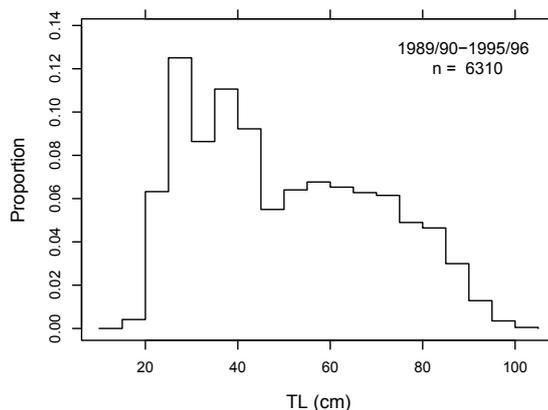
Reported landings of shovel-nose rays by NSW commercial fisheries from 1997/98. Fisheries which contribute less than 2.5% of the landings are excluded for clarity and privacy.

Catch Per Unit Effort Information of Shovelnose Rays Harvested by Fish Trawling in NSW



Catch rates of shovelnose rays harvested using fish trawling 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.

Length Frequency of Eastern Shovelnose Ray



The length distribution of eastern shovelnose ray caught during trawl surveys by the Fisheries Research Vessel *Kapala* was comprised mainly of rays between 20 and 100 cm total length (TL). There is no minimum legal length for shovelnose rays in NSW.

Further Reading

- Ferrell, D. (1993). Pilot study on the feasibility of ageing snapper, rubberlip morwong, red gurnard and banjo (fiddler) rays. Unpublished report. Cronulla, NSW Fisheries Research Institute: 22pp.
- 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.
- Kyne, P.M. and M.B. Bennett (2002). Diet of the eastern shovelnose ray, *Aptychotrema rostrata* (Shaw & Nodder, 1794), from Moreton Bay, Queensland, Australia. *Marine and Freshwater Research* **53** (3): 679-686.
- Kyne, P.M. and M.B. Bennett (2002). Reproductive biology of the eastern shovelnose ray, *Aptychotrema rostrata* (Shaw & Nodder, 1794), from Moreton Bay, Queensland, Australia. *Marine and Freshwater Research* **53** (2): 583-589.
- Last, P.R. and J.D. Stevens (2009). [Sharks and Rays of Australia 2nd Edition](#). Melbourne, CSIRO.
- Marshall, L.J., W.T. White and I.C. Potter (2007). Reproductive biology and diet of the southern fiddler ray, *Trygonorrhina fasciata* (Batoidea: Rhinobatidae), an important trawl bycatch species. *Marine and Freshwater Research* **58** (1): 104-115.
- Please visit the CSIRO website, <http://www.marine.csiro.au/caab/> and search for the species code (CAAB) 37 027009, 37 026001, 37 027006 and 37 026002, common name or scientific name to find further information. Please note that common names have been adopted from Last and Stevens (2010) and may differ to those contained on the CAAB website.

