

# Grey Nurse Shark (Eastern Australia subpopulation), *Carcharias taurus*

Report Card assessment	<b>Depleted</b>		
IUCN Red List Australian Assessment	Refer to Eastern Australian subpopulation Assessment- Critically Endangered	IUCN Red List Global Assessment	Vulnerable
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Report Card Remarks	Significant declines with slow recovery		

## Summary

The Grey Nurse Shark (Eastern Australia subpopulation) is a large bodied species that inhabits coastal and continental shelf waters of eastern Australia. Significant declines in population size occurred in the 1960s and 1970s from targeted and incidental capture in commercial and recreational fisheries and shark control programs. The population has declined by 94-99% in less than three generations (40 years). It has been protected in New South Wales since 1984 and nationally since 1999. However, due to its slow life history characteristics and poor rebound potential its recovery is slow with numbers still likely below 1700. Therefore, the Grey Nurse Shark (Eastern Australia subpopulation) is assessed as Critically Endangered (IUCN) and Overfished (SAFS). The global population is assessed as Vulnerable (IUCN).



## Distribution

Grey Nurse Sharks (Eastern Australia subpopulation) are distributed throughout Queensland and New South Wales. It is a migratory species and is known to aggregate in gutters and caves near rocky reefs and islands. Overfishing has led to localised depletion of Grey Nurse Sharks at many former aggregation sites (Last and Stevens 2009). A separate subpopulation of Grey Nurse Sharks occurs off Western Australia.

## Stock structure and status

This subpopulation was estimated to consist of as few as 500 individuals (Otway and Parker 2000). Recent analyses estimate a population size of 1146-1662 (Cardno Ecology Lab 2010). Both estimates suggest that this subpopulation of Grey Nurse Sharks has declined by more than 90%. The Eastern Australia subpopulation is genetically distinct from the Western Australia subpopulation (Stow et al. 2006).

## Fisheries

The primary threat to Grey Nurse Sharks (Eastern Australia subpopulation) was current and historic fishing. Currently, it is taken as bycatch in commercial and recreational fisheries as well as shark control programs. It is no longer present at a number of sites where aggregations of 40 or more individuals were common. In the 1950s and 1960s, 36 Grey Nurse Sharks were captured annually on average in New South Wales shark control programs. By the 1980s only three were caught per year and in the 1990s only three were caught in total. A similar declining trend was apparent in Queensland shark control programs. Although protected since 1986, it is still taken as bycatch in the New South Wales Trap and Line Fishery (Fletcher and McVea 2000). From 1998-2001 a diver survey showed that 5-7% of Grey Nurse Sharks had fishing gear embedded in their jaws from wobbegong set lines (Otway and Parker 2000).

## Habitat and biology

The Grey Nurse Shark is found in coastal and continental shelf waters, often associated with rocky reefs and gutters. It occurs from the surface to depths of 200 m. It migrates in association with seasonal and reproductive events (Otway and Ellis 2011, Bansemer and Bennett 2011). There are no life history data specific to the Eastern Australia subpopulation, so data is inferred from other populations. Maximum age for another subpopulation was recorded to be at least 40 years (Passerotti et al. 2014).

Longevity and maximum size	Longevity: ~40 years Max size: 320 cm TL
Age and/or size at maturity (50%)	Males: 190 cm TL Females: 220 cm TL

**Link to IUCN Page:** <http://www.iucnredlist.org/details/3854/0>

**Link to page at Shark References:** <http://shark-references.com/species/view/Carcharias-taurus>

## References

- Bansemer, C. S., and Bennett, M. B. 2011. Sex- and maturity-based differences in movement and migration patterns of grey nurse shark, *Carcharias taurus*, along the eastern coast of Australia. *Marine and Freshwater Research* 62(6): 596-606.
- Cardno Ecology Lab. 2010. Estimate of east coast population numbers for grey nurse sharks (*Carcharias taurus*). Reports to the Commonwealths Department of Environment, Water, Heritage and the Arts, Canberra.
- Fletcher, W. and McVea, T. (eds) 2000. Status of Fisheries Resources 1998/99. NSW Fisheries Research Institute, Cronulla.
- Last, P.R. and Stevens, J.D. 2009. Sharks and Rays of Australia. Second Edition. CSIRO Publishing, Collingwood, Australia.
- Otway, N. M., and Ellis, M. T. 2011. Pop-up archival satellite tagging of *Carcharias taurus*: movements and depth/temperature-related use of south-eastern Australian waters. *Marine and Freshwater Research* 62(6): 607-620.
- Otway, N.M. and Parker P.C. 2000. The biology, ecology, distribution, abundance and identification of marine protected areas for the conservation of threatened grey nurse sharks in south east Australian waters. NSW Fisheries Final Report Series 19. Office of Conservation, New South Wales, Australia.
- Passerotti, M. S., Andrews, A. H., Carlson, J. K., Wintner, S. P., Goldman, K. J., and Natanson, L. J. 2014. Maximum age and missing time in the vertebrae of sand tiger shark (*Carcharias taurus*): validated lifespan from bomb radiocarbon dating in the western North Atlantic and southwestern Indian Oceans. *Marine and Freshwater Research* 65(8): 674-687.
- Stow, A., Zenger, K., Briscoe, D., Gillings, M., Peddemors, V., Otway, N. and Harcourt R. 2006. Isolation and genetic diversity of endangered grey nurse shark (*Carcharias taurus*) populations. *Biology Letters* 2: 308-311.