Published Date: 1 March 2019

Giant Shovelnose Ray, *Glaucostegus typus*

Report Card assessment	**Sustainable**		
IUCN Red List Australian Assessment	Least Concern	IUCN Red List Global Assessment	Vulnerable
Assessors	White, W.T., Gutteridge, A.N. & McAuley, R.B.		
Report Card Remarks	Declines inferred globally, in Australia management measures likely reduced captures		

Summary

The Giant Shovelnose Ray is a common large inshore species widespread in the Indo-Pacific. It is taken by multiple artisanal and commercial fisheries throughout its range and the fins are highly valuable. The species is long lived and local population depletion can be inferred from declining catch rates in the Indonesian target gillnet fishery for shovelnose rays. Furthermore, destruction of mangrove habitat and ongoing high levels of fishing pressure in areas such as the Papua area in Indonesia (e.g Merauke) may be having a deleterious effect on all age classes. Therefore, globally the species is assessed as Vulnerable (IUCN). In Australia, there are no target fisheries for the species but it is a known bycatch of trawl and gillnet fisheries. The introduction of turtle exclusion devices in trawl fisheries in the early 2000s and the implementation of shark finning bans, gear restrictions and trip limits in Queensland have probably led to a recent reduction in captures. It also has refuge in some marine protected areas, including the Great Barrier Reef Marine Park. Therefore, in Australia the species is assessed as Least Concern (IUCN) and Sustainable (SAFS).

Distribution

The Giant Shovelnose Ray is widely distributed from India to Australia, Papua New Guinea and the Solomon Islands. In Australia, it is found from Foster (New South Wales) around northern Australia to Shark Bay (Western Australia) (Last and Stevens 2009).

Stock structure and status

There is no species-specific information on population trends or structure of the Giant Shovelnose Ray. Estimates of fishing mortality in the Northern Prawn Fishery indicate that this species is caught within levels (Zhou and Griffiths 2008) and the Australian population is assessed as Least Concern (IUCN) and Sustainable (SAFS)

Fisheries

The Giant Shovelnose Ray is commonly landed as valued bycatch in fisheries in Indonesia and other parts of its global range. In Australia there are no target fisheries for the species but it is a reported bycatch of the Queensland East Coast Inshore Fin Fish Fishery (Harry et al. 2011) and the New South Wales Ocean Trap and Line Fishery (Rowling et al. 2010). Historically, the species formed a component of the bycatch from demersal trawl fisheries, including the Northern Prawn Fishery where it was identified as 'high-risk' (Stobutzki et al. 2002). However, the introduction of turtle exclusion devices in all Australian trawl fisheries has reduced the capture of larger ray species which presumably includes the Giant Shovelnose Ray (Brewer et al. 2006). In 2009 Queensland introduced a trip limit for this species as a precautionary measure against overfishing.

Habitat and ecology

The Giant Shovelnose Ray occurs on the continental shelf from close inshore to about 100 m depth (Last and Stevens 2009). Maximum size is approximately 280 cm total length (TL) and maximum age estimated at 17 years for males and 19 years for females (White et al. 2014). Both sexes mature at approximately 150-180 cm TL and between 6 to 8 years (White 2014).

Longevity and maximum size	Longevity: estimated males 17 years, females 19 years Max size: 280 cm TL
Age and/or size at maturity (50%)	Both sexes: 6-8 years, 150-180 cm TL

Link to IUCN Page: http://www.iucnredlist.org/details/41849/0

Link to page at Shark References: http://www.shark-references.com/species/view/Glaucostegus-typus

References

Blaber, S., Dichmont, C.M., White, W.T., Buckworth, R.C., Sadiyah, L., Iskandar, B., Nurhakim, S., Pillans, R.D., Andamari, R., Dharmadi and Fahmi. 2009. Elasmobranchs in southern Indonesian fisheries: the fisheries, the status of the stocks and management options. *Reviews in Fish Biology and Fisheries* 19: 367–391.

Brewer, D., Heales, D., Milton, D., Dell, Q., Fry, G., Venables, B. and Jones, P. 2006. The impact of turtle excluder devices and bycatch reduction devices on diverse tropical marine communities in Australia's northern prawn trawl fishery. *Fisheries Research* 81: 176-188.

Dulvy, N.K., Fowler, S.L., Musick, J.A., Cavanagh, R.D., Kyne, P.M., Harrison, L.R., Carlson, J.K., Davidson, L.N.K., Fordham, S.V., Francis, M.P., Pollock, C.M., Simpfendorfer, C.A., Burgess, G.H., Carpenter, K.E., Compagno, L.J.V., Ebert, D.A., Gibson, C., Heupel, M.R., Livingstone, S.R., Sanciangco, J.C., Stevens, J.D., Valenti, S. and White, W.T. 2014. Extinction risk and conservation of the world's sharks and rays. *eLife* 3: e00590.

Harry, A.V., Tobin, A.J., Simpfendorfer, C.A., Welch, D.J., Mapleston, A., White, J., Williams, A.J., and Stapley, J. 2011. Evaluating catch and mitigating risk in a multispecies, tropical, inshore shark fishery within the Great Barrier Reef World Heritage Area. *Marine and Freshwater Research* 62: 710-721.

Last, P.R. and Stevens, J.D. 2009. Sharks and Rays of Australia. Second Edition. CSIRO Publishing, Collingwood, Australia.

Last, P.R., White, W.T., Caira, J.N., Dharmadi, Fahmi, Jensen, K., Lim, A.P.K., Manjaji-Matsumoto, B.M., Naylor, G.J.P., Pogonoski, J.J., Stevens, J.D., Yearsley, G.K. 2010. Sharks and Rays of Borneo. CSIRO Marine and Atmospheric Research, Collingwood.

Polidoro, B.A., Carpenter, K.E., Collins, L., Duke, N.C., Ellison, A.M., Ellison, J.C., Farnsworth, E.J., Fernando, E.S., Kathiresan, K., Koedam, N.E., Livingstone, S.R., Miyago, T., Moore, G.E., Ngoc Nam, V., Eong Ong, J., Primavera, J.H., Salmo, S.G., Sanciangco, J.C., Sukardjo, S., Wang, Y. and Hong Yong, J.W. 2010. The Loss of Species: Mangrove Extinction Risk and Geographic Areas of Global Concern. *PLoS One* 5(4): 10.

Rowling, K., Hegarty, A. and Ives, M. 2010. Status of Fisheries Resources NSW 2008/09. Industry and Investment NSW, Cronulla.

Stobutzki, I.C., Miller, M.J., Heales, D.S. and Brewer, D.T. 2002. Sustainability of elasmobranches caught as bycatch in a tropical prawn (shrimp) trawl fishery. *Fishery Bulletin* 100: 800-821.

White, J. 2014. The ecology of shark-like batoids: Implications for management in the Great Barrier Reef region. PhD. Centre for Marine and Environmental Sciences, James Cook University.

White, J., Simpfendorfer, C.A., Tobin, A.J. and Heupel, M.R. 2014. Age and growth parameters of shark-like batoids. *Journal of Fish Biology* 84: 1340-1353.

White, W.T. and Dharmadi. 2007. Species and size compositions and reproductive biology of rays (Chondrichthyes, Batoidea) caught in target and non-target fisheries in eastern Indonesia. *Journal of Fish Biology* 70: 1809-1837.

Zhou, S. J., and Griffiths, S. P. (2008). Sustainability Assessment for Fishing Effects (SAFE): A new quantitative ecological risk assessment method and its application to elasmobranch bycatch in an Australian trawl fishery. Fisheries Research 91(1), 56-68.