

Rays and Skates (*Batoidea*) Conservation Profile Synopsis



Status of Ray and Skate Populations

IUCN Red List						
Total Species	CR	EN	VU	NT	LC	DD
539	14	28	65	62	114	256

CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient.

CITES

Appendix 1: 7 species

Appendix II: 1 species

AZA Subpopulation

Marine Fishes Taxon Advisory Group

Chair Beth Firchau

State of the Batoidea Superorder

Rays and skates belong to the Batoidea Superorder and consist of stingrays and related species (Order Myliobatiforme, 223 species), electric rays (Order Torpediniforme, 69 species), skates and related species (Order Rajiforme, 270 species), and sawfish (Order Pristiforme, 5-7 species). Most batoid species live on the sea floor and are found in a variety of ecosystems across the planet: coastal, deep water (3,000 m), tropical, subtropical, temperate, cold-water, estuarine, marine, freshwater, and open seas. As opportunistic foragers in complex trophic webs, batoids can impact and alter ecosystems if other top-predators are removed^{1,2}.

Several batoids are listed as endangered in US-waters for which smalltooth sawfish have a designated critical habitat and recovery plan as of 2009, however a similar global conservation action plan has yet to formalize. There is a high degree of uncertainty with respect to the status of ray and skate populations at the global level even though they are some of the world's most vulnerable marine fishes³. Many populations are extinct, and many more are critically endangered particularly in coastal ecosystems.

Primary Threats to the Species

Batoids face extinction risks due to a variety of threats that include capture in nets from targeted and accidental catch. Shark-like batoids (e.g. guitarfishes Rhinobatidae, sawfishes Pristidae) are caught for human consumption and are processed by salting, drying, or smoking⁴. Batoids such as skates (Rajidae) and stingrays (Myliobatiformes) are winged (i.e. removal of pectoral fins) and either discarded live or filleted further for human consumption and use⁴. Currently, a fishery exists in US-waters from Maine to North Carolina for seven skate species fished for the human consumption of wings and landed as bycatch during the lobster bait fishery. Species elsewhere are fished for their gill rakers which are used in Asian health tonics. There is no established fishery for rays; however, there have been controversial suggestions to establish them in areas where large aggregations of rays are reputed to damage shellfish and seagrass beds.

AZA Conservation Support

Between 2010 and 2014, nine AZA-accredited zoos and aquariums reported taking part in a variety of field conservation projects benefitting rays and skates. Over those five years, the AZA community invested over \$600,000 in ray and skate conservation. Most projects were associated with health assessments, conservation education, and research focused on empowering conservationists through knowledge of ray and skate biology. One study on southern stingrays involved collaboration with the South-East Zoo Alliance for Reproduction and Conservation (SEZARC), a nonprofit organization focused on bolstering in-situ populations of rare and endangered species through cutting-edge reproductive science. The study itself was aimed at finding treatment options for both wild and human-managed southern stingrays suffering from reproductive diseases. This is not an exhaustive list of organizations, but these efforts represent the significant ties that AZA-accredited institutions have with rays and skates-focused conservation organizations.



1. Hovel, K. A. & Lipcius, R. N. Habitat fragmentation in a seagrass landscape: patch size and complexity control blue crab survival. *Ecology* **82**, 1814–1829 (2001).
2. Collins, A. B., Heupel, M. R., Hueter, R. E. & Motta, P. J. Hard prey specialists or opportunistic generalists? An examination of the diet of the cownose ray, *Rhinoptera bonasus*. *Mar. Freshw. Res.* **58**, 135–144 (2007).
3. Dulvy, N. K. & Reynolds, J. D. Predicting Extinction Vulnerability in Skates. *Conserv. Biol.* **16**, 440–450 (2002).
4. FAO. *Review of the state of the world marine fishery resources 2005. Sharks - Global. FIRMS Reports. Fishery Resources Monitoring Systems.* (2009).