Status of shark (elasmobranch) fishery in India

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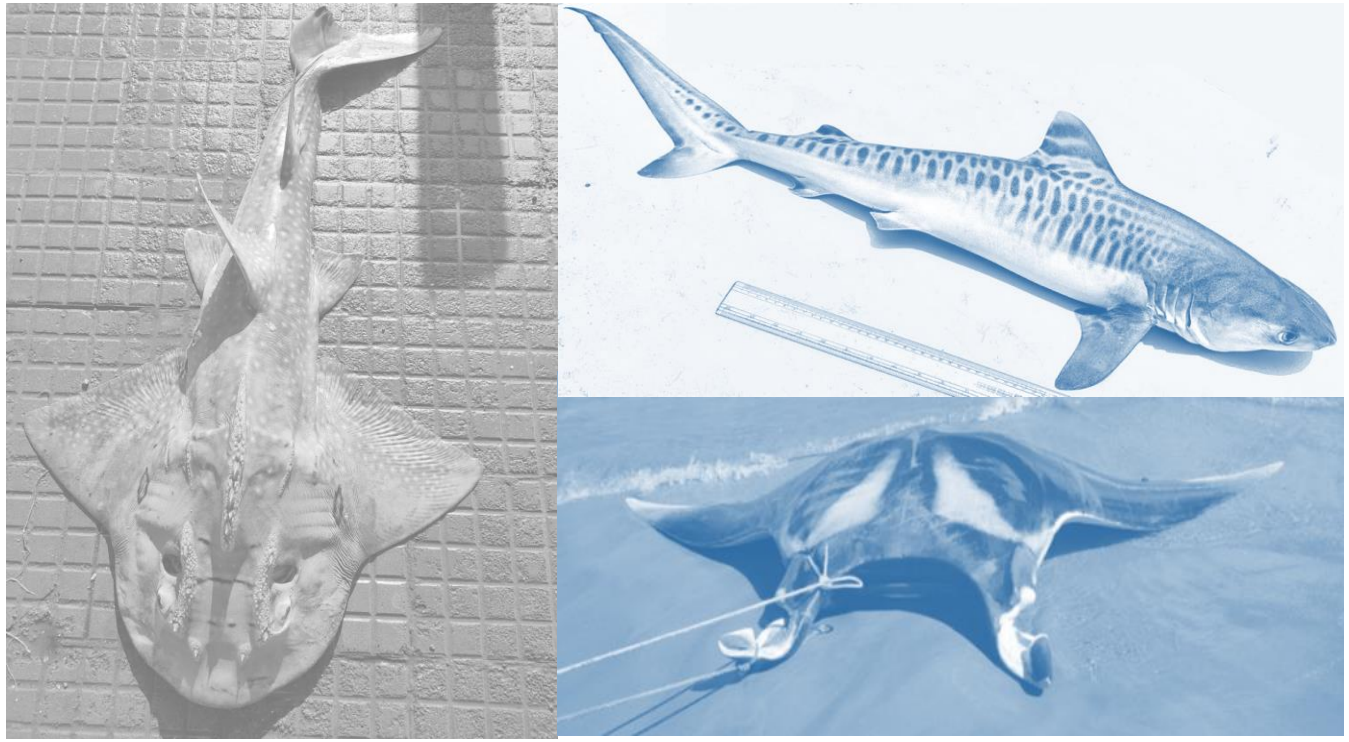
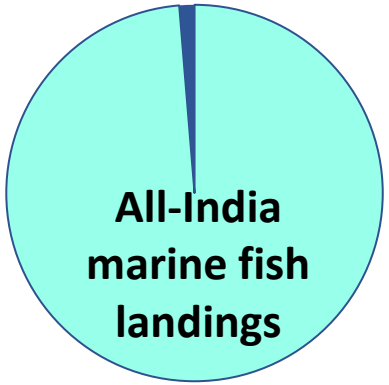


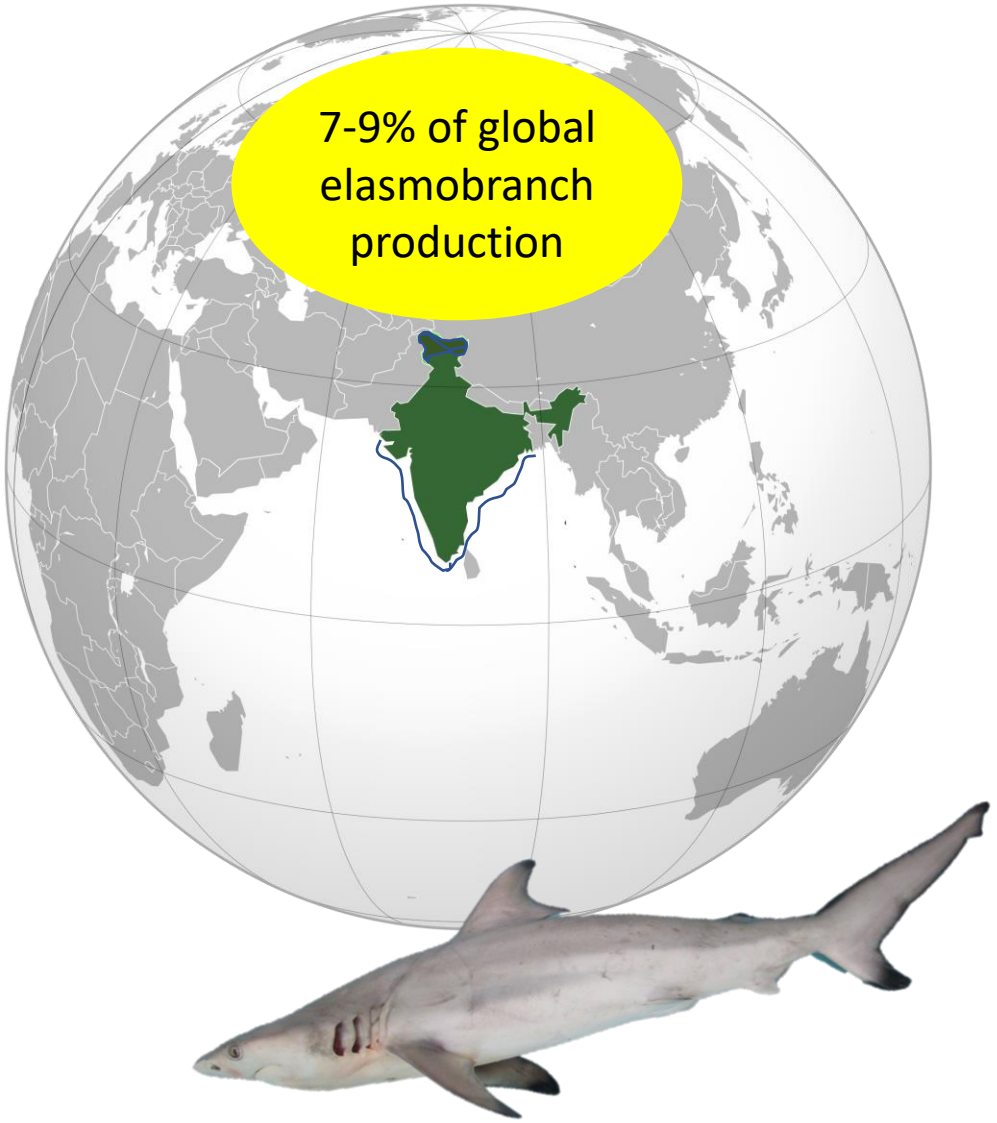
Elasmobranchs

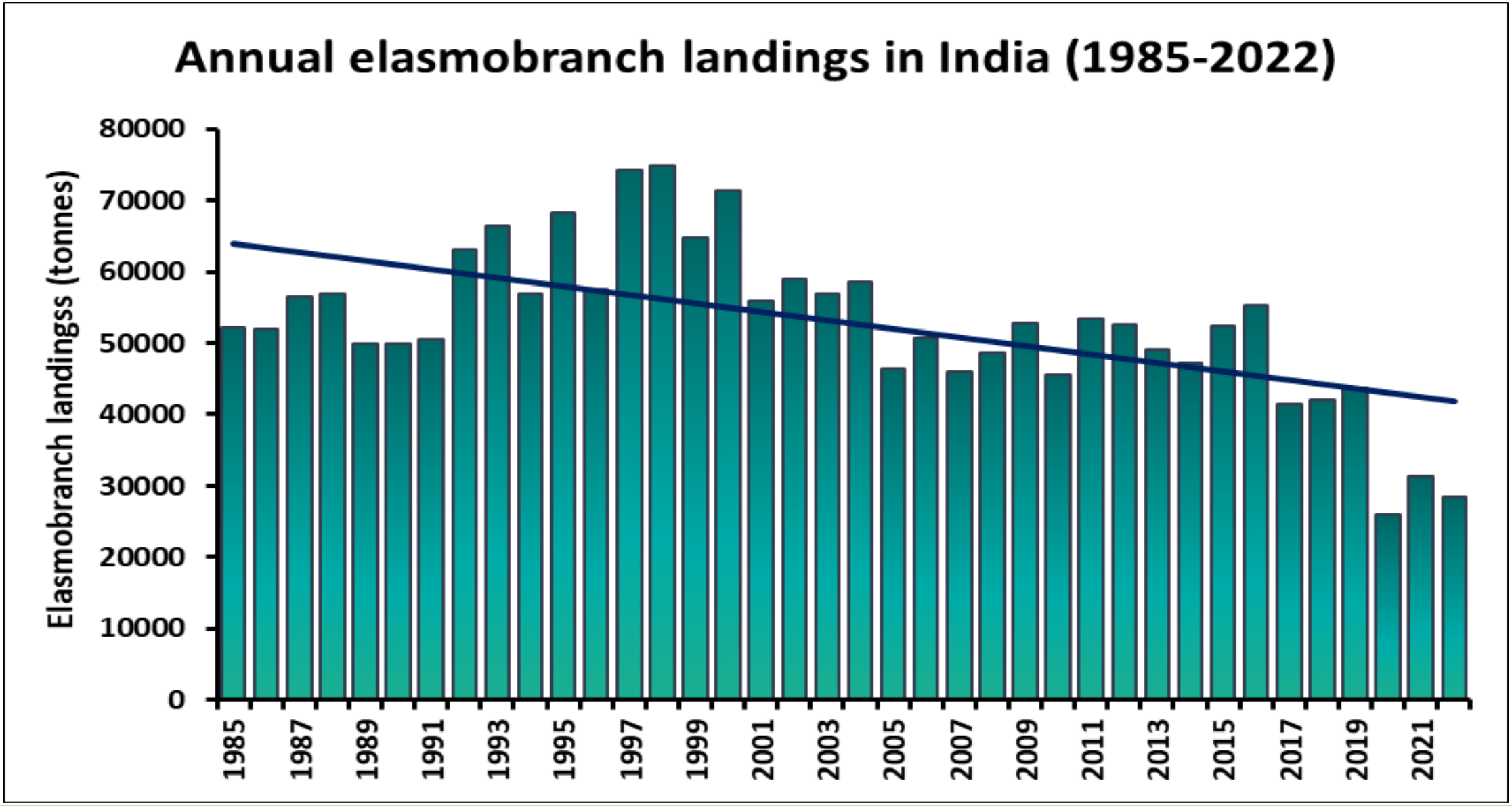
Sharks

Rays

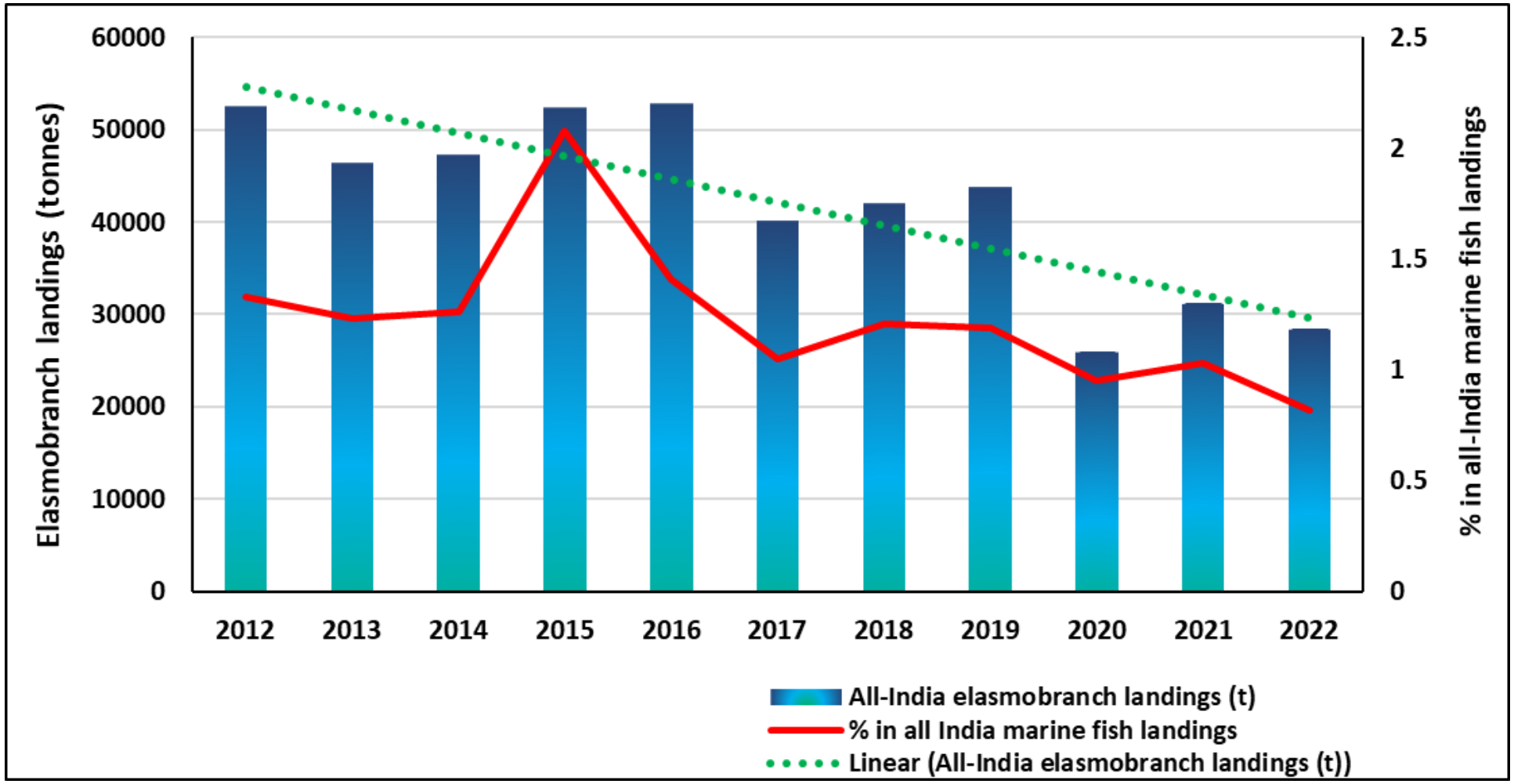
Guitarfishes





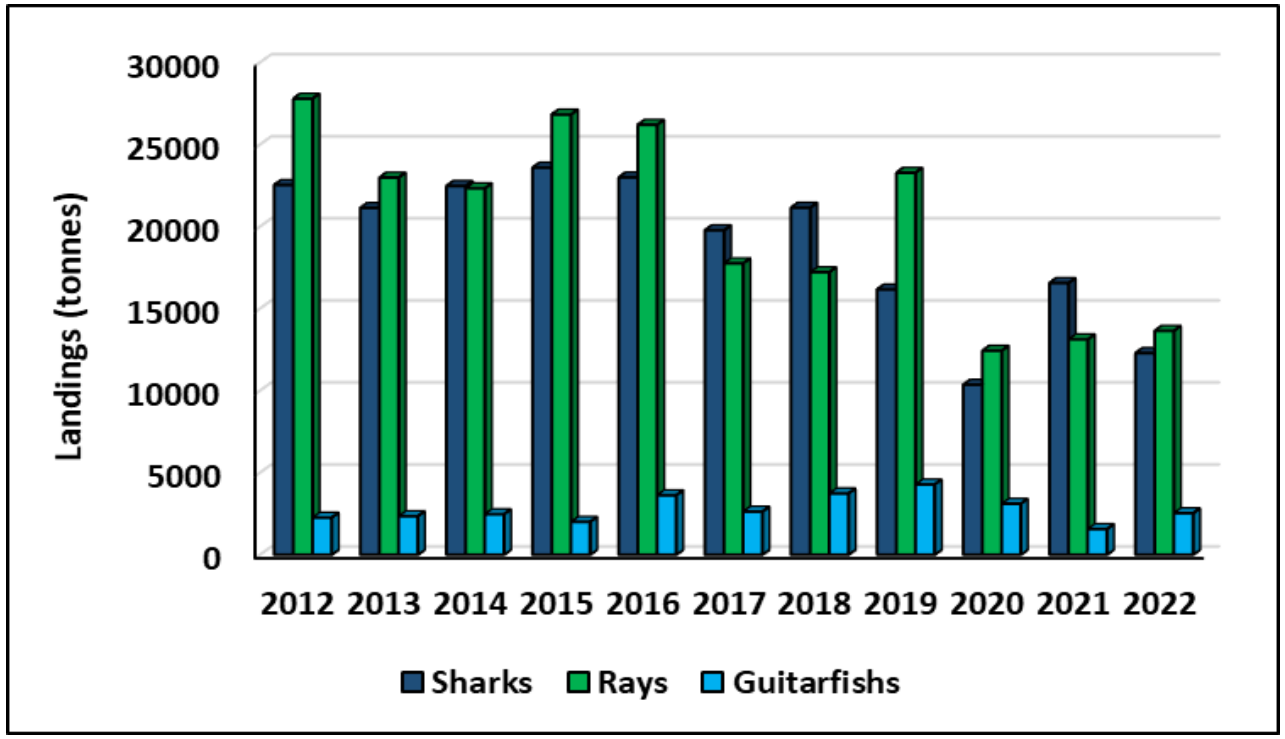


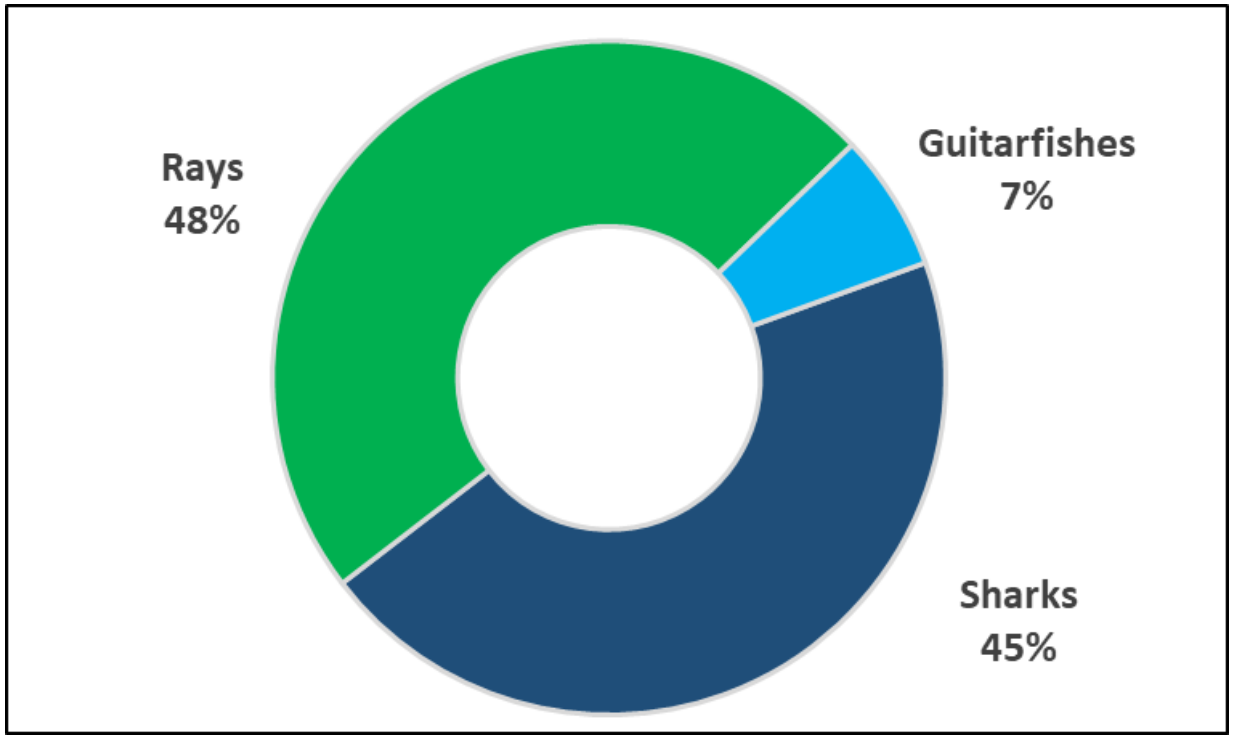
Elasmobranch landings in India fluctuated between 25000 t and 75000 t during the period 1985-2022. The landings have shown a declining trend from 1985 to 2022.



- 2012-2022: 25-55 thousand tonnes
- Average: 42.7 thousand tonnes
- Maximum of 55.2 thousand tonnes (2016)
- % in all-India marine fish landings: 0.8 (2022) to 2.1 (2015)

- Sharks, rays and guitarfishes formed 45, 48 and 7% respectively of the total elasmobranch landings during 2012-2022.
- Shark landings declined from 22537 t in 2012 to 12296 t in 2019, with a peak landing of 23595 t in 2015.
- The landings of rays declined from a maximum of 27802 t in 2012 to 13646 t in 2022.
- The landings of guitarfishes increased from 2263 t in 2012 to 4281 t in 2019 and then declined to 2532 t in 2022.





Mechanized sector → **77.9%**

Motorized sector → **21.8%**

Non-motorized sector → **0.3%**

Within the mechanized sector, trawl nets accounted for 62.3%, gillnets 20.7%, line gear 2.1% and combination gears (trawl and line/gill net and line gears) 4.1%.

- Gujarat (with Daman & Diu) on the west coast and Tamil Nadu (with Puducherry) on the east coast together accounted for >50% of the elasmobranch landings in the country.
- Sharks are predominantly more in the landings along the west coast, while rays are more dominant in the landings long the east coast, particularly the south-east coast.

Characteristics of India's shark (elasmobranch) fishery

Many of the elasmobranchs landed are bycatch of other fisheries.

Targeted and seasonal fishing exists in some pockets along the coast.

Elasmobranchs are constituents of a multi-gear, multi-species fishery.

Landed catch is fully utilized.

- While elasmobranchs have survived mass extinction events, sharks have not evolved to withstand overexploitation.
- Most elasmobranch species mature at sizes that are roughly 50% or more of their maximum size.
- They cannot reproduce fast enough to make up for the increasing number of deaths every year
- India’s shark (elasmobranch fishery is dominated by individuals under or near the maturity size – many of them would not have bred even once

Landing of juveniles is a problem encountered along the coast.

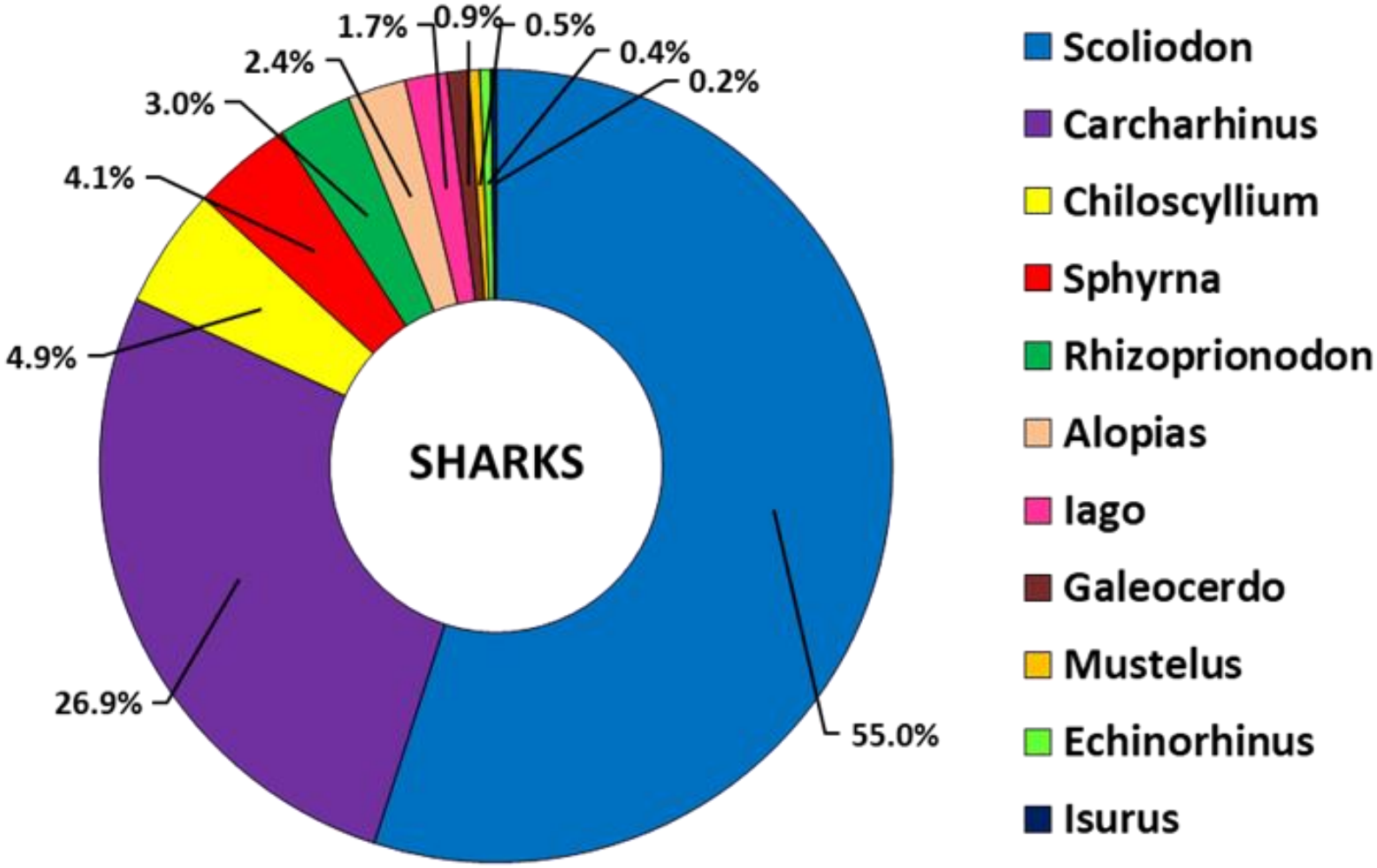
Carcharhinus amblyrhyncoides pups - Cochin

Requiem sharks - Mumbai

Hammerhead shark - Calicut

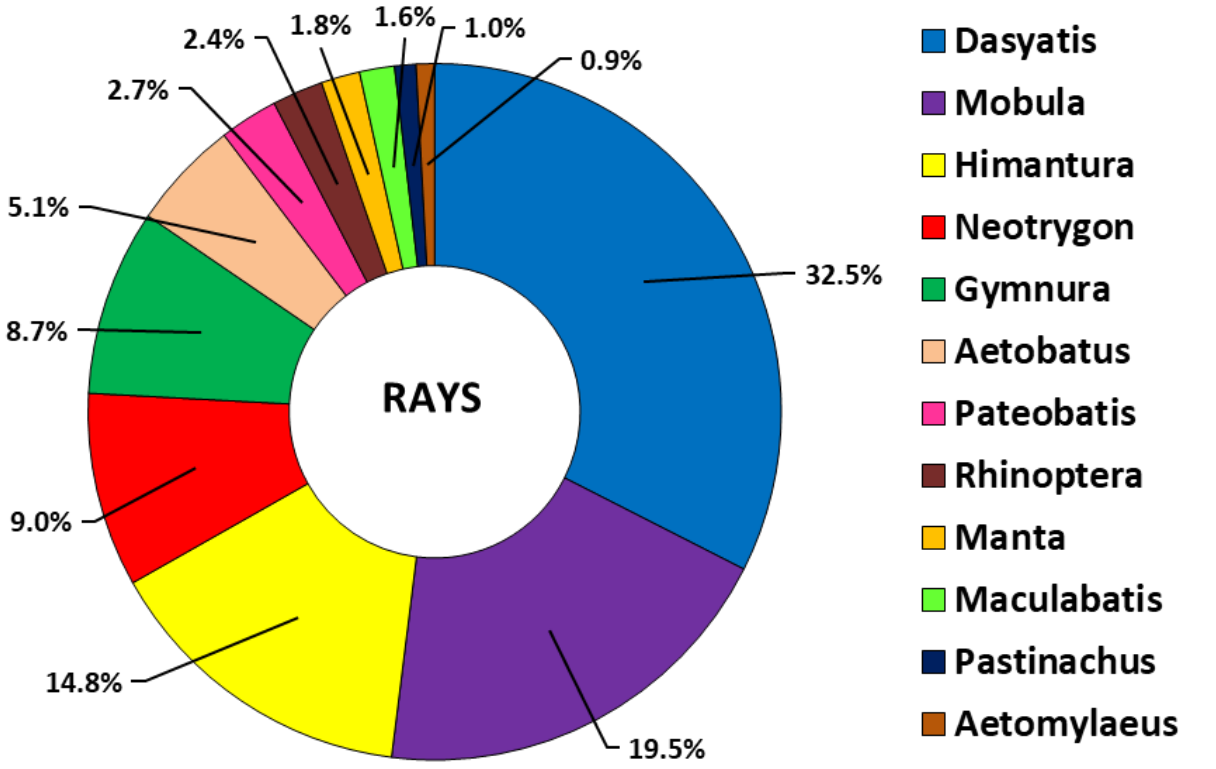
Tiger shark - Mumbai

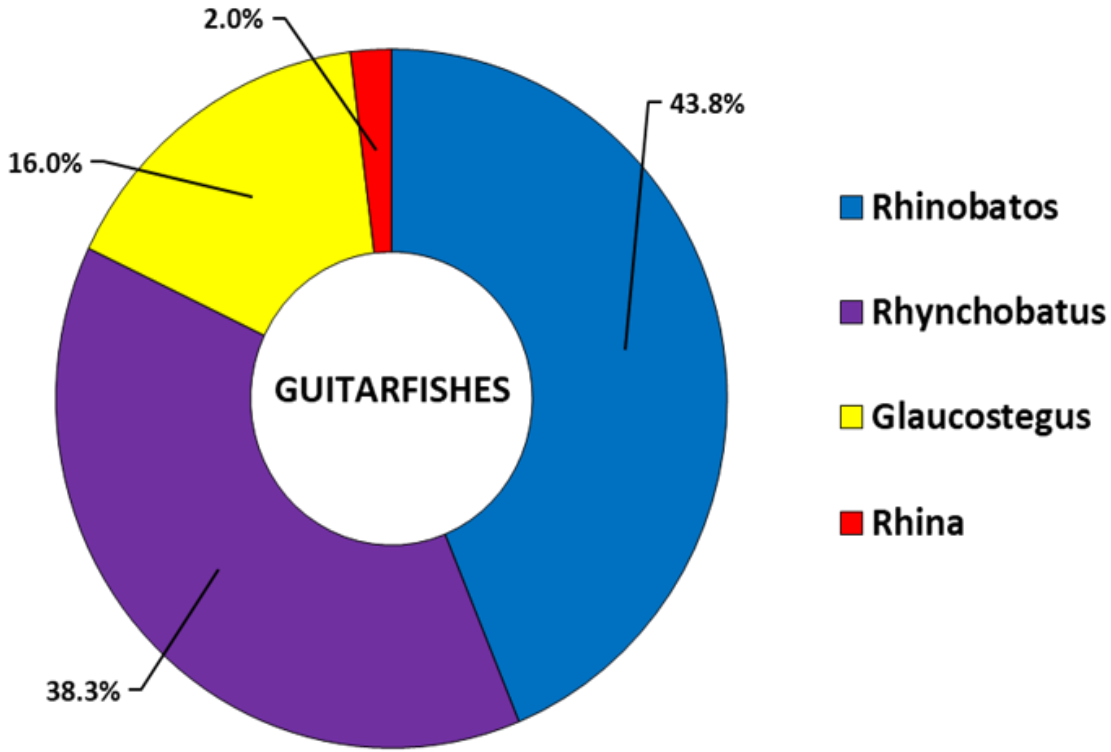
Twelve families contribute significantly to the shark landings – Carcharhinidae, Sphyrnidae, Triakidae, Hemiscylliidae, Alopiidae, Lamnidae, Echinorhinidae, Centrophoridae, Squalidae, Pseudocarcharhiidae and Stegostomatidae, of which Carcharhinidae contributed to >80% of the landings.

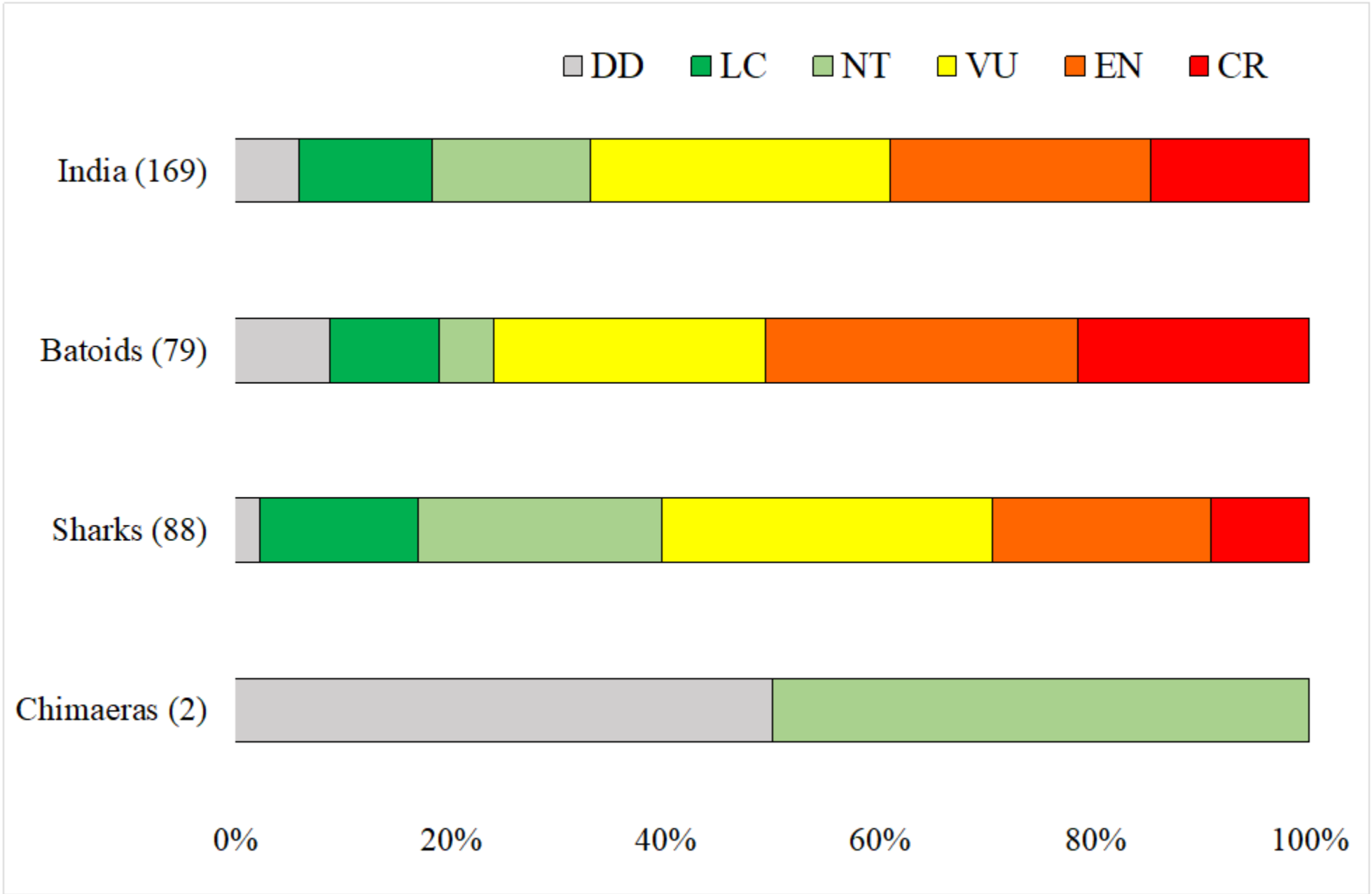


Ray fishery is dominated by five families – Dasyatidae, Mobulidae, Myliobatidae, Gymnuridae and Rhinopteridae.

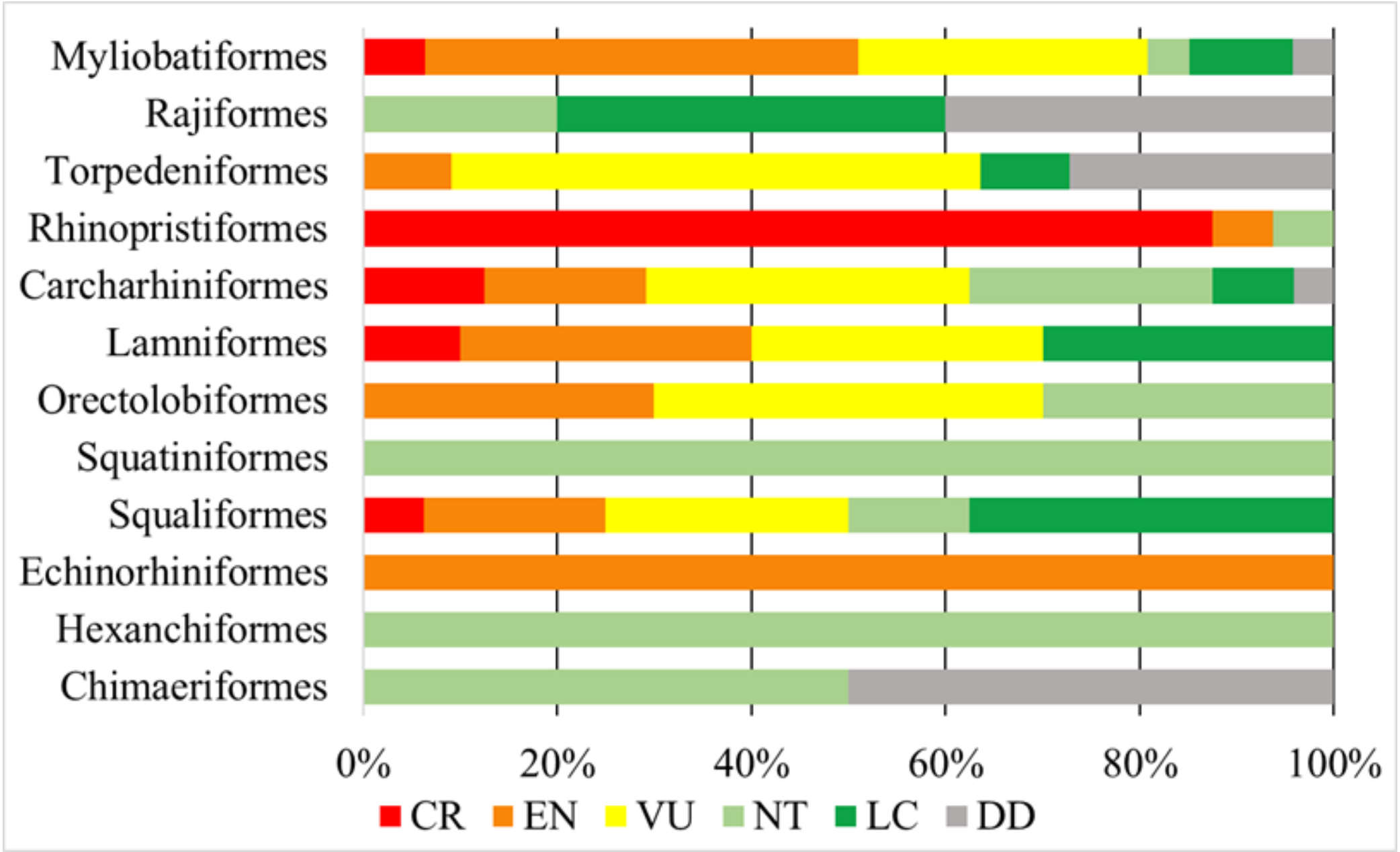
Guitarfishes are represented by two families – Rhinidae and Rhinobatidae.







Akhilesh et al. 2023; Curr. Sci., 124(3)



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MAJOR LEGISLATIONS FOR ELASMOBRANCH CONSERVATION AND REGULATION OF FISHING & TRADE IN INDIA

Indian Wildlife (Protection) Act, 1972 and Amendment, 2022

In August 2013, the Ministry of Environment and Forests (Wildlife Division) prohibited the removal of shark fins on board a vessel in the sea, and advocates landing of the whole shark (*vide F. No4-36/2013WL, 21 August 2013*).

In February 2015, the Department of Commerce of the Ministry of Commerce and Industry, Govt of India, through Notification No.110/(RE-2013)/2009-2014 and Notification No.111/(RE-2013)/2009-2014 prohibited the export of shark fins of all species of sharks.

India is also a signatory to IOTC Resolution 13/06/ 2013 which states that Oceanic whitetips are not to be retained and are to be released unharmed, to the extent practicable, when caught in association to IOTC regulated fisheries.

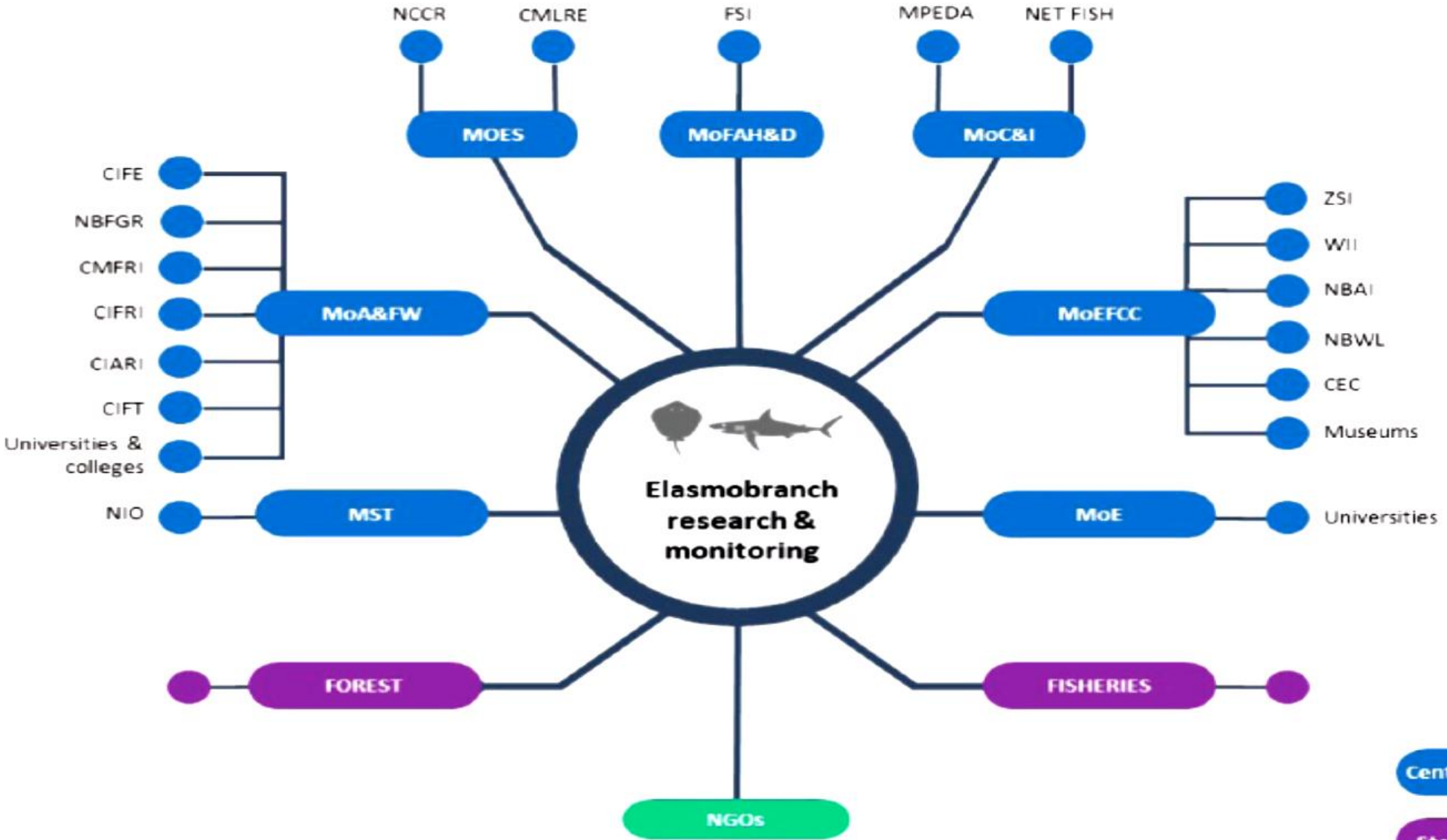
The inclusion of several species of sharks and rays in Appendix II of CITES since 2014 have helped to tighten the reins on undue exploitation for sharks through targeted fishing.

In addition to these specific measures, India has also regulated fishing practices through –

- demarcation of Marine Protected Areas
- fixing Minimum Legal Size (MLS) for capture of common species
- gear-specific mesh size regulations
- restrictions on operation of certain gears like ring seines, purse seines and pair trawling
- introduction of by-catch reduction devices
- seasonal ban on fishing

Managing India's shark (elasmobranch) fisheries

- Continuous monitoring and assessment of stock status.
- Stakeholder awareness and participation.
- Monitoring status of elasmobranchs protected under the WPA and periodic scientific assessments to update the list.
- Demarcation of "shark hotspots" to prevent directed fishing of endangered species, juveniles and breeding adults.
- Adopting and implementing NPOA-Sharks and strengthening commitments to global conservation and management actions – CITES, IOTC, CMS, CBD.
- Regulation and transparency of trade (export).
- **Integration of research with management and enforcement**.



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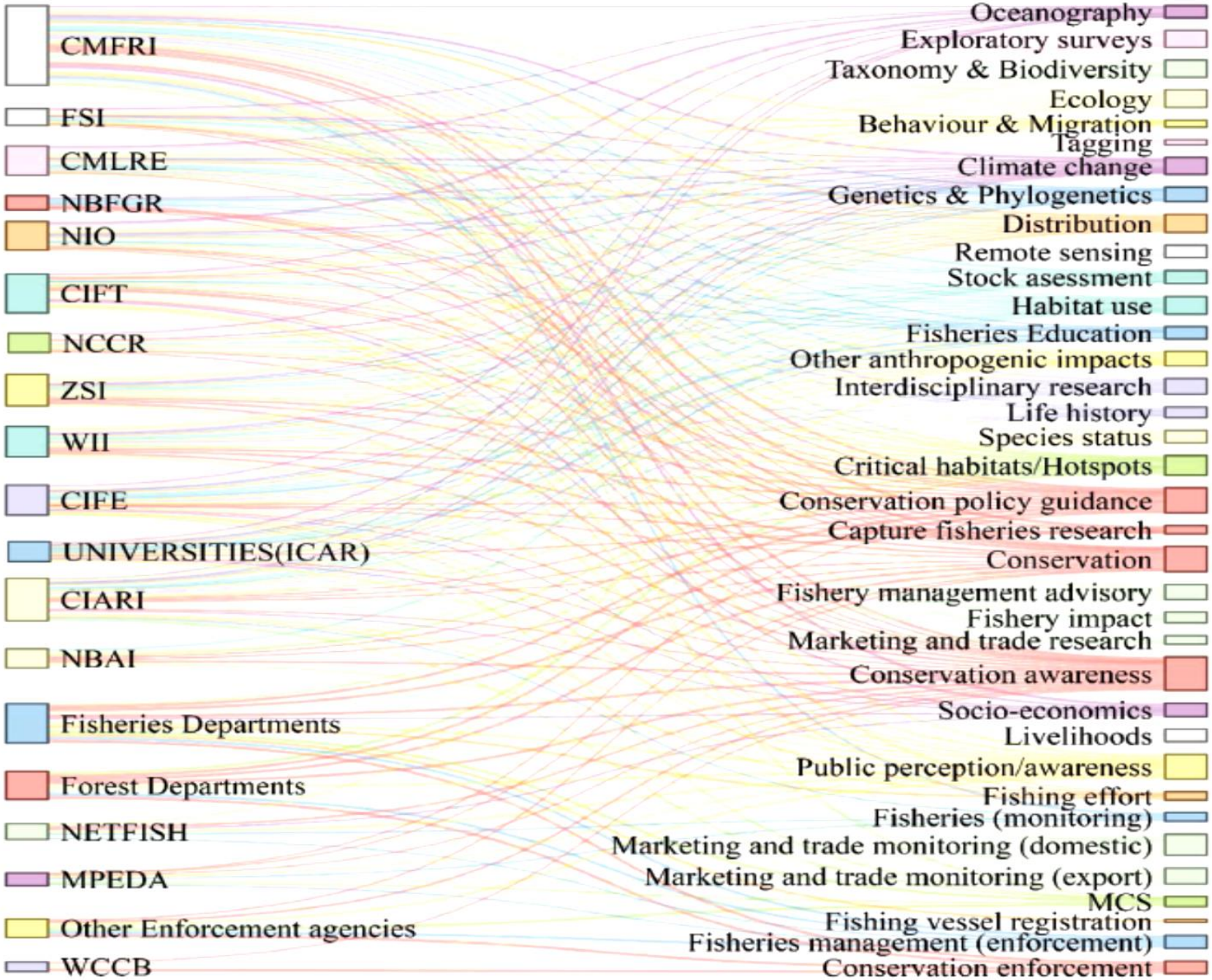

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Thank you for your attention