

## IOCEAN programme: Citizen Science

# Conservation of 'Critically Endangered' Hammerhead Sharks of India via Participatory Science



### Background

The project aimed at empowering fisheries and marine science students from coastal colleges in southern India to actively participate in monitoring shark landings (focal species being hammerhead sharks) at local fish landing sites via structured citizen science & internship programs.

### Activities conducted during the reporting period 1 April 2025 – 31 March 2026

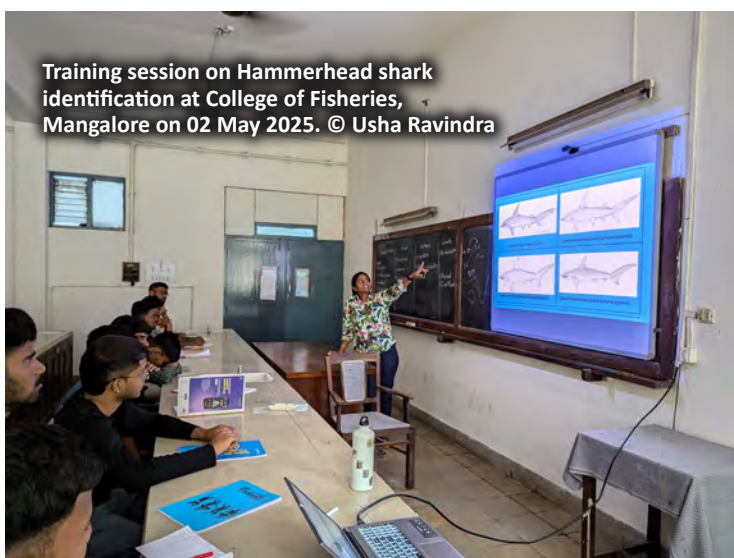
- 🐟 Conducted shark conservation training workshops across eight colleges in three states: Tamil Nadu (5), Kerala (1), and Karnataka (2). The workshops covered 11 fish landing sites in Tamil Nadu (8), Kerala (1), and Karnataka (1), covering diverse shark fisheries (target catch, bycatch, and occasional landings).
- 🐟 Students were introduced to: status of sharks in India and their identification; photographic guidelines to identify sharks for citizen science; identification of

hammerheads and data gaps to address their conservation; and how to use IOCEAN Citizen Science website to document fish landings.

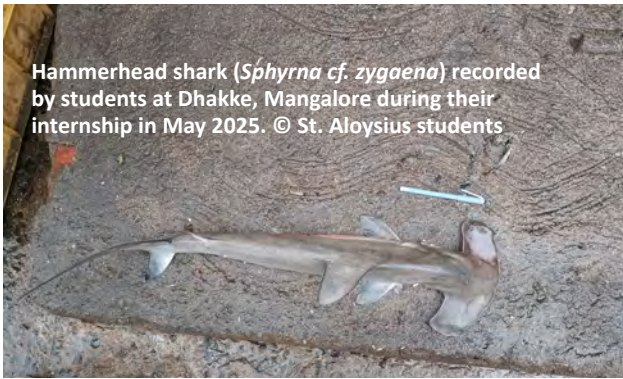
- 🐟 Implemented internship program with four partner colleges involving 51 students documenting shark trade, bycatch, landings, fisheries mapping, and artisanal catch monitoring across 17 fish landing sites.
- 🐟 Created 'IOCEAN Youth Network' for continued engagement in marine conservation discussions and activities.
- 🐟 Developed citizen science educational materials (poster, foldout, website). Materials include photographic guidelines for shark identification, hammerhead identification basics, shark vulnerability concepts, bycatch issues, and QR-linked web resources (expandable to broader marine conservation topics).

### Key achievements and outcomes

- 🐟 Hammerhead Watch: Internship survey reports recorded more than 80 juvenile hammerhead sharks landed at Dhakke market, Mangalore, during just six survey days in May.
- 🐟 The internship programme produced eight observational reports on shark/bycatch trade at regional level of which two are published in *Zoo's Print* and others are still under review.
- 🐟 Recorded ~1,700 observations on the IOCEAN Citizen Science Portal (1,300 internship entries;



Training session on Hammerhead shark identification at College of Fisheries, Mangalore on 02 May 2025. © Usha Ravindra



Hammerhead shark (*Sphyrna cf. zygaena*) recorded by students at Dhakke, Mangalore during their internship in May 2025. © St. Aloysius students



200 workshop training field visits; 200 literature-based; ~20 test entries).

- 🦈 Published three outreach articles covering workshop proceedings in regional media, including *The Hindu* and *Zoo's Print*.
- 🦈 Eight unchartered artisanal landings along Mangalore & Kapu coastline were mapped by interns. This information could help impede any developmental projects if proposed in these areas in future.

### Challenges faced

Although all participating colleges expressed interest in the internship program, they requested stipends to financially support their students. Due to funding constraints, internships could not be extended to all institutions. Based on priority and available resources, the Zoo Outreach Organisation could support six students to undertake internships near prime shark and/or bycatch landing sites.

### Participant numbers and locations

Total students trained: 307; Total internship students: 51; Total workshops conducted: 8; Total colleges covered for training workshops: 8; Total fish landing sites covered in shark/bycatch monitoring: 17.

### Measurable outcomes

- 🦈 307 students introduced to shark conservation & monitoring
- 🦈 Network of eight coastal colleges across three states (Karnataka, Tamil Nadu, Kerala)
- 🦈 17 fish landing sites identified & monitored during internship
- 🦈 Two observation reports published on shark/bycatch landings
- 🦈 1,500 observations inputted in Citizen Science website
- 🦈 Conducted 30+ mentorship meetings (April–July) guiding 22 interns across 4 colleges in report writing, data collection, Excel, Google Drive, mapping basics, literature review, and morphometric analysis using JMicrovision
- 🦈 Three media articles published in *The Hindu* & *Zoo's Print* on project activities

### Acknowledgments

We thank the WCT-BEES grant for funding the project; Dr. Biju Kumar from University of Kerala for guidance; father Churchill from South Asian Fishermen Fraternity for guiding students on fish & fisher welfare thinking;



Queen Mary college students documenting artisanal fish landings in citizen science website during their internship in May 2025. © Queen Mary college students

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12/05/2025 06:46 AM GMT +05:30



Field visit to Mudasalodai fishing harbor to train students on how to conduct community surveys with fishers, document landings, scientific photography, and data organisation on 04 April 2025.  
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### Future plans/next steps

The project results on hammerheads sharks will be used to kickstart the Hammerhead Watch project, where more students will be

trained & supported to continue document hammerhead landings at prime sites identified from this project. More colleges will be networked to establish internship tie-ups while engaging the current ones. Currently, the Cit-Sci portal is undergoing an upgrade to improve the user interface, improve existing elements, and include some additional features. Going forward, this initiative will be expanded across the entire Indian coastline by establishing credit-based collaborations with coastal universities/colleges while further growing the IOCEAN Youth Network, empowering students to take long-term stewardship of marine conservation.



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