Project Proposal

On

Assessment of Interactions between ETP Species and Purse-Seine Fisheries Targeting Small Pelagic Resources along the Maharashtra Coast

Submitted By

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To

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1. Introduction

Purse-seine fishing is one of the most efficient and widely practiced fishing methods for harvesting small pelagic fish resources along the Maharashtra coast. The method involves encircling pelagic fish shoals using large nets, which results in high catch efficiency but also increases the likelihood of interactions with non-target pelagic fauna. Marine mammals, sea turtles, and elasmobranchs frequently occur in the same pelagic habitats and fishing grounds targeted by purse-seine operations, thereby elevating the risk of incidental capture, entanglement, and operational interactions.

In recent years, the rapid expansion of mechanized purse-seine fleets along the Maharashtra coast has intensified concerns regarding unintended ecological impacts on Endangered, Threatened, and Protected (ETP) species. Although several of these species are afforded legal protection under national legislation, limited awareness among fishers and the absence of systematic field-based documentation have constrained effective mitigation. Strengthening fisher awareness alongside scientific assessment is therefore essential to promote responsible fishing practices and ensure compliance with conservation and fisheries management policies.

M/s. Omega Fishmeal & Oil Private Limited, a leading fishmeal producer and exporter, has initiated a Fishery Improvement Project (FIP) addressing interactions between ETP species and purse-seine fisheries targeting small pelagic fishes. The FIP aims not only to support alignment with the MarinTrust certification standard but also to build stakeholder capacity through training and awareness initiatives that encourage voluntary adoption of conservation-friendly practices.

2. Background

Under *The Wildlife (Protection) Act, 1972* and the *Wildlife (Protection) Amendment Act, 2022*, several marine species occurring in Indian waters receive the highest level of legal protection. These include all marine mammals listed under Schedule I, five species of marine turtles nesting along the Indian coast, and several threatened elasmobranchs such as whale sharks, sawfishes, and select shark species. Many of these protected taxa inhabit pelagic and semi-pelagic zones that overlap spatially and temporally with purse-seine fishing operations.

The encircling nature of purse-seine fishing increases the probability of interactions with pelagic ETP species during net setting, pursing, and hauling. While fishers often attempt to release incidentally captured fauna, inadequate species identification skills and limited awareness of best handling practices can affect post-release survival. Integrating awareness and training with systematic monitoring is therefore critical for improving interaction outcomes and enhancing conservation effectiveness.

3. Rationale

The absence of reliable, field-based data on ETP species interactions in purse-seine fisheries poses a major challenge to fisheries management, conservation planning, and sustainability certification initiatives. In parallel, gaps in awareness regarding the ecological role and legal status of ETP species can hinder compliance and adoption of mitigation measures. Generating scientific evidence on interaction patterns, while simultaneously strengthening fisher capacity through targeted training and awareness programmes, will enable identification of high-risk conditions and support the development of practical, science-based mitigation strategies. The study will also reinforce industry-led Fishery Improvement Projects and assist stakeholders in meeting national legal obligations and international certification requirements.

4. Study Area and Technical Feasibility

The Mirkarwada fish landing centre in Ratnagiri district occupies a pivotal position in the purse-seine fisheries of Maharashtra. The centre supports a large mechanized purse-seine fleet and contributes substantially to the state's marine fish landings, particularly of small pelagic and mid-level carnivorous species. Fishing practices, fleet composition, gear characteristics, and seasonal patterns observed at Mirkarwada closely resemble those at other major purse-seine centres along the Maharashtra coast.

Owing to its high fishing intensity, operational representativeness, and logistical accessibility, Mirkarwada serves as a reliable proxy for the state-level purse-seine fishery. Accordingly, it has been selected as the primary sampling station, with additional coverage of other key landing centres to capture spatial variability. Awareness activities and training programmes will also be strategically conducted at Mirkarwada and other selected centres to ensure maximum outreach and impact.

Fig. 1 Study area depicting selected sampling station (Mirkarwada)

5. Objectives

- To document the frequency and types of ETP species interactions with purse-seine fisheries along the Konkan coast.
- To analyse spatial and temporal patterns of ETP interactions across fishing grounds, seasons, and operational timings.
- To record species-specific behavioural responses of ETP fauna during purse-seine operations.
- To document mitigation and handling measures employed by fishers during ETP interactions.
- To evaluate the effectiveness of existing mitigation practices in reducing ETP interactions and post-release mortality.

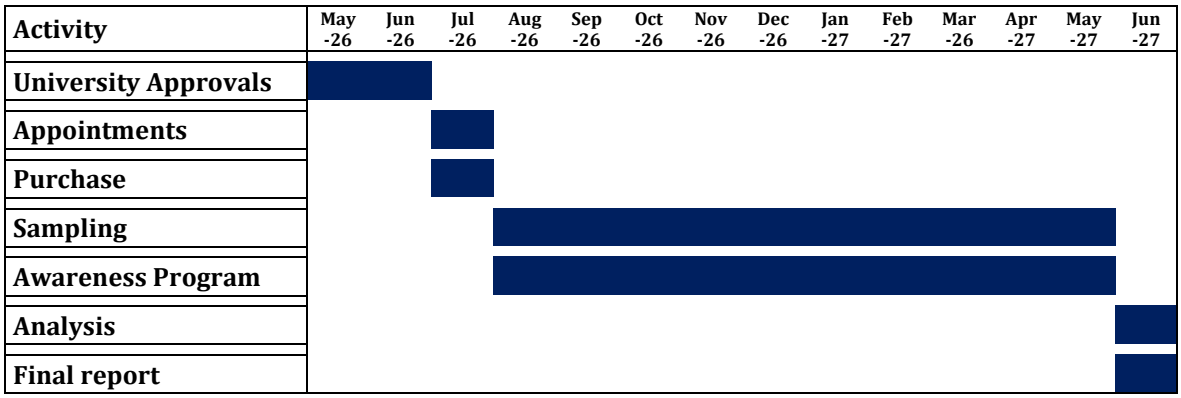
6. Methodology and Plan of Work

The study will adopt a field-based observational approach integrated with training and awareness components.

- **Field Monitoring:** Weekly visit will be conducted at selected purse-seine landing centre, with Mirkarwada serving as the primary sampling station.
- **Data Collection:** Information on ETP interactions will be collected through landing-site observations, structured interviews with fishers, and standardized incident reporting formats.

- **Key Informant Network:** Skippers, crew leaders, and net operators will be identified as key informants to provide timely updates on ETP encounters and facilitate continuous monitoring.
- **Onboard Observations:** Wherever feasible, onboard participation in purse-seine fishing operations will be undertaken to directly document interaction events, handling practices, and release outcomes.
- **Training and Awareness:** Periodic awareness and training programmes will be organized at major landing centres to improve species identification skills, understanding of legal protection status, and adoption of best handling and release practices. Educational materials, including posters and banners illustrating commonly encountered ETP species in Indian waters, will be developed and displayed prominently at landing centres to serve as continuous visual reference points.
- **Data Analysis:** Collected data will be analysed to identify trends in interaction frequency, species composition, operational risk factors, and the influence of awareness interventions on mitigation effectiveness.

SPECIFIC WORK ELEMENTS AND THEIR TIME SCHEDULES



7. Expected Outcomes

- A comprehensive baseline dataset on ETP species interactions in purse-seine fisheries along the Maharashtra coast.
- Identification of spatial and temporal hotspots and high-risk operational conditions for ETP interactions.
- Assessment of current mitigation measures and recommendations for improving bycatch reduction practices.

- Scientific support for FIP implementation and compliance with MarinTrust certification requirements.
- Inputs for fisheries management, conservation planning, and policy formulation.

8. Conclusion

The proposed study integrates scientific assessment with targeted training and awareness initiatives to address interactions between purse-seine fisheries and ETP species along the Maharashtra coast. By combining field observations, fisher knowledge, onboard monitoring, and capacity-building efforts, the study aims to reduce unintended ecological impacts while maintaining the socioeconomic viability of purse-seine fisheries. The outcomes will directly support sustainable fisheries management, conservation objectives, and industry-driven improvement initiatives.

9. Budget

The budget will include provisions for field visits, travel and logistics, onboard observations, training and awareness programmes, educational materials, stakeholder consultations, data analysis, and report preparation. A detailed budget breakdown will be prepared in accordance with the study duration and scope.

Particulars	Details	Amount (Rupees)
Manpower	Technical Assistant @ Rs. 40,000/- per month (consolidated pay)	4,80,000/-
Material and services	Tablet	1,20,000/-
Vehicle	Electric Two-wheeler vehicle	1,50,000/-
Travel / DA, POL and Hiring of Vehicle	Approx. 8,000/- per month for 10 months	80,000/-
Training/Awareness Programs	Organizing programs	2,00,000/-
Contingencies	Display Boards, Stationery, advertisement charges and miscellaneous contingent expenditures	2,50,000/-
Total		**12,80,000/-**
Institutional Charges @ 10% of Total		1,28,000/-
Grand total		**14,08,000/-**

Justification for the proposed budget:

Particular	Justification
Manpower (Technical Assistant)	A Technical Assistant is required for regular field monitoring, data collection, onboard observations, and coordination with fishers. The position will assist in documenting ETP species interactions, species identification, data management, and support training and awareness activities, ensuring reliable data and effective project implementation.
Tablet	A tablet is essential for efficient digital field data collection, photographic documentation, GPS-based location recording, and real-time data storage. It will also support training and awareness activities through visual ETP identification materials, improving data accuracy and outreach effectiveness.
Vehicle (Electric Two-wheeler)	A two-wheeler is necessary for frequent and time-sensitive visits to fish landing centers and nearby fishing villages. It ensures cost-effective, flexible, and rapid mobility for regular monitoring, stakeholder interaction, and timely data collection.
Travel / DA, POL and Hiring of Vehicle	Provisions under this head are required to cover travel by public transport or hired vehicles for longer distances for transport of training and awareness materials, and visits to multiple or distant landing centers in a single day. Hiring of vehicles will also be required when team travel, equipment transport, or time-bound field activities in case any reported incident or landing of ETP species along the coast.
Training/Awareness Programs	Training and awareness programs are vital to improve fishers' knowledge of ETP species, their legal status, and safe handling practices. Posters and banners at landing centers will reinforce awareness and promote responsible fishing behavior.
Contingencies	Contingency funds are required for display boards, stationery, advertisement, and miscellaneous field expenses. These support awareness dissemination, documentation, communication of training activities, and smooth execution of project fieldwork.

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