

Fishery Action Plan

The Small Pelagic Purse Seine Fishery Improvement Project (FIP) in Karnataka, India

This workplan has been developed based on an assessment of the fishery against the MarinTrust Standard Version 3.0. The actions outlined aim to address areas where the fishery does not yet meet the required performance level for specific indicators, and are intended to support continuous improvement toward full compliance with the standard.

Action Plan Version	Version 3.0, April 2025
Name of the Fishery	Small Pelagic Purse Seine Fisheries, Karnataka State, Republic of India
Main Species	<p>Bigeye scad (<i>Selar crumenophthalmus</i>), Blackfin scad (<i>Alepes melanoptera</i>), Blackflash ribbonfish (<i>Trachipterus jacksonensis</i>), Bullet tuna (<i>Auxis rochei</i>), Crested hairtail (<i>Tentoriceps cristatus</i>), Fringescale sardinella (<i>Sardinella fimbriata</i>), Goldstripe sardinella (<i>Sardinella gibbosa</i>), Herring scad (<i>Alepes vari</i>), Horse mackerel (<i>Megalaspis cordyla</i>), Indian mackerel (<i>Rastrelliger kanagurta</i>), Indian oil sardine (<i>Sardinella longiceps</i>), Indian scad (<i>Decapterus russelli</i>), Largehead hairtail (<i>Trichiurus lepturus</i>), Longnose trevally (<i>Platycaranx chrysophrys</i>), Mackerel scad (<i>Decapterus macarellus</i>), Narrow-based Spanish mackerel (<i>Scomberomorus commerson</i>)</p>

	Shortfin scad (<i>Decapterus macrosoma</i>), Shrimp scad (<i>Alepes djedaba</i>), Smallhead hairtail (<i>Eupleurogrammus muticus</i>), White sardinella (<i>Sardinella albella</i>), Yellowspotted trevally (<i>Turram fulvoguttatum</i>), Yellowtail scad (<i>Atule mate</i>)
Management Authority (Country/State)	India (Karnataka State)
Fishery Location	Karnataka - State waters and adjacent national waters
Gear Type	Purse Seine
FAO Major Fishing Areas	FAO Area 51
Start Date	May 2025
End Date	April 2029
FIP Leads	Yashaswi Fish Meal and Oil Company Yashaswi Fish Meal and Oil Company - Branch 2
FIP Stakeholders	Yashaswi Fish Meal and Oil Company Yashaswi Fish Meal and Oil Company - Branch 2 The Malpe Fishermen's Primary Co-Op. Society Ltd. Purse Seine Boat Association, Malpe The Kumta Fisheries Co-Op. Society Ltd Honnavara Talluk Purse Seine Union, Honnavara The Fisheries & Fish Products Manufacturing Co-operative Society Ltd Devi Seafoods Ltd Avanti Feeds Sandhya Marines Pvt. Ltd Purse Seine Boat Association, Mangalore Purse Seine Boat Association, Karwar

	Purse Seine Boat Association, Belekere Purse Seine Boat Association, Mudga Purse Seine Boat Association, Bhatkala Purse Seine Boat Association, Tenginagundi Purse Seine Boat Association, Alvekodi Purse Seine Boat Association, Gangolli Purse Seine Boat Association, Tadadi
FIP Partners	ICAR-Central Marine Fisheries Research Institute (ICAR-CMFRI) Department of Fisheries – Government of Karnataka College of Fisheries, Mangalore – Academic EURASIA Silk Road Company Limited
FIP Coordinator	EURASIA Silk Road Company Limited by Dr. Nimnual Piewthongngam
Workplan developed by	Ms. Pakawan Talawat
Clauses Failed	M2.1.2, M2.1.3, M2.2.1, M2.2.2, M 2.3.2, M2.3.3, B1 - Indian Mackerel (<i>Rastrelliger kanagurta</i>) B1 - Indian oil sardine (<i>Sardinella longiceps</i>), B1 - Yellowtail scad (<i>Atule mate</i>) B1 - Mackerel scad (<i>Decapterus macarellus</i>), B1 - Bigeye Scad (<i>Selar crumenophthalmus</i>), B1 - Shortfin Scad (<i>Decapterus macrosoma</i>), B1 - Herring Scad (<i>Alepes vari</i>), B1 - Blackfin Scad (<i>Alepes melanoptera</i>), B1 - Shrimp Scad (<i>Alepes djedaba</i>), B1 - Indian Scad (<i>Decapterus russelli</i>) B1 - Bullet Tuna (<i>Auxis rochei</i>) B1 - Fringescale Sardinella (<i>Sardinella fimbriata</i>),

	<p>B1 - Goldstripe Sardinella (<i>Sardinella gibbosa</i>), B1 - White Sardinella (<i>Sardinella albella</i>) D1 - Longnose trevally (<i>Platycaranx chrysophrys</i>) D1 - Yellowspotted trevally (<i>Turram fulvoguttatum</i>) D1 - Narrow-based Spanish mackerel (<i>Scomberomorus commerson</i>) D1 - Blackflash ribbonfish (<i>Trachipterus jacksonensis</i>) D1 - Crested hairtail (<i>Tentoriceps cristatus</i>) D1 - Smallhead hairtail (<i>Eupleurogrammus muticus</i>) D2 - Longnose trevally (<i>Platycaranx chrysophrys</i>) D2 - Yellowspotted trevally (<i>Turram fulvoguttatum</i>) D2 - Narrow-based Spanish mackerel (<i>Scomberomorus commerson</i>) E1.1.2, E1.1.3, E1.2.1, E2.1.3, E2.2.1, E2.3.1, E2.3.2, E3.2.1, E3.3.2</p>
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Part 1: Identified Gaps and Recommended Improvements

MANAGEMENT REQUIREMENTS

General Clause	Criteria	Outcome (Pass/Fail)
M1: Management Framework	M1.1 There is an organisation responsible for managing the fishery.	Pass
	M1.2 Fishery management organisations are legally empowered to take management actions	Pass
	M1.3 There is an organisation responsible for collecting data and (scientifically) assessing the fishery.	Pass
	M1.4 The fishery management system is based on the principles of sustainable fishing and a precautionary approach.	Pass

General Clause	Criteria	Outcome (Pass/Fail)
M1: Management Framework	M1.5 There is a clearly defined decision-making process which is transparent, with processes and results made publicly available	Pass
M2: Surveillance, Control, and Enforcement	M2.1 There is an organisation responsible for monitoring compliance with fishery laws and regulations.	Fail
	M2.2 There is a framework of sanctions which are applied when infringements against laws and regulations are discovered.	Fail
	M2.3 There is substantial evidence of widespread compliance in the fishery, and no substantial evidence of IUU fishing.	Fail

Improvement Recommendations:

While the fishery has an established management framework, gaps in surveillance, control, and enforcement require attention. Strengthening vessel tracking, improving patrol frequency, publishing enforcement reports, and enhancing compliance documentation will help address deficiencies. Increasing sanctions and fostering fisher cooperation through voluntary compliance programs are also recommended.

SPECIES REQUIREMENTS

The target species in this fishery account for over 95% of total landings but are not classified under Category A due to the absence of species-specific management frameworks. Therefore, these species have been assessed under Category B, with outcomes summarized in the table below.

Category	Clause	Species	How Assessed	Outcome (Pass/Fail)
B	B1	Indian Mackerel (<i>Rastrelliger kanagurta</i>)	Formal Stock Review	Fail
B	B1	Indian oil sardine (<i>Sardinella longiceps</i>)	Formal Stock Review	Fail

Category	Clause	Species	How Assessed	Outcome (Pass/Fail)
B	B1	Yellowtail scad (<i>Atule mate</i>) Mackerel scad (<i>Decapterus macarellus</i>) Bigeye Scad (<i>Selar crumenophthalmus</i>) Shortfin Scad (<i>Decapterus macrosoma</i>) Herring Scad (<i>Alepes vari</i>) Blackfin Scad (<i>Alepes melanoptera</i>) Shrimp Scad (<i>Alepes djedaba</i>) Indian Scad (<i>Decapterus russelli</i>)	Formal Stock Review	Fail
B	B1	Bullet Tuna (<i>Auxis rochei</i>)	Formal Stock Review	Fail
B	B1	Fringescale Sardinella (<i>Sardinella fimbriata</i>), Goldstripe Sardinella (<i>Sardinella gibbosa</i>), White Sardinella (<i>Sardinella albella</i>)	Formal Stock Review	Fail
D	D1	Longnose trevally (<i>Platycaranx chrysophrys</i>)	PSA + Monitoring Review	Fail
D	D2	Longnose trevally (<i>Platycaranx chrysophrys</i>)	PSA + Trend Data	Fail
D	D1	Yellowspotted trevally (<i>Turram fulvoguttatum</i>)	PSA + Monitoring Review	Fail
D	D2	Yellowspotted trevally (<i>Turram fulvoguttatum</i>)	PSA + Trend Data	Fail
D	D1	Narrow-based Spanish Mackerel (<i>Scomberomorus commerson</i>)	PSA + Monitoring Review	Fail
D	D2	Narrow-based Spanish Mackerel (<i>Scomberomorus commerson</i>)	PSA + Trend Data	Fail
D	D1/D2	Horse mackerel (<i>Megalaspis cordyla</i>)	PSA	Pass

Improvement Recommendations:

The fishery's **target species** are managed under general measures but lack formal stock-specific management. Conducting stock assessments, developing Harvest Control Rules (HCRs), and implementing species-specific catch limits and Minimum Legal Size (MLS) regulations are necessary to ensure long-term stock sustainability. Improved data collection at landing sites will also support more responsive management decisions. Several **non-target species** currently lack specific management or monitoring, increasing the risk of unnoticed stock declines. Expanding species coverage in landing monitoring, conducting periodic biological sampling, and applying risk-based screening methods such as Productivity-Susceptibility Analysis (PSA) will facilitate early identification of conservation concerns and the timely development of precautionary measures where needed.

ECOSYSTEM REQUIREMENTS

General Clause	Criteria	Outcome (Pass/Fail)
E1: Impact on ETP Species	E1.1 Information on interactions between the fishery and ETP species is collected.	Fail
	E1.2 The fishery has no significant negative impact on ETP species.	Fail
	E1.3 There is an ETP management strategy in place for the fishery.	Pass
E2: Impact on the habitat	E2.1 Information on interactions between the fishery and marine habitats is collected.	Fail
	E2.2 The fishery has no significant impact on marine habitats.	Fail
	E2.3 There is a habitat management strategy in place for the fishery.	Fail
E1: Impact on Ecosystem	E3.1 Information on the potential impacts of the fishery on marine ecosystems is collected.	Fail
	E3.2 There is no substantial evidence that the fishery has a significant negative impact on the marine ecosystem.	Fail
	E3.3 There is an ecosystem management strategy in place for the fishery	Fail

Improvement Recommendations:

Endangered, Threatened, and Protected (ETP) Species - The fishery has limited information on interactions with ETP species, and structured monitoring is not yet in place. Developing a logbook-based reporting system for ETP interactions, training vessel crews on species identification and safe handling practices, and analyzing interaction records annually are recommended to better understand and manage potential risks."

Habitats - The potential impacts of purse seine gear on benthic habitats have not been formally assessed. It is recommended to conduct a risk assessment based on gear profile, fishing depth, and seafloor characteristics. If significant habitat interaction risks are identified, spatial or depth-based fishing restrictions should be considered to mitigate impacts."

Ecosystem - Current management measures do not fully address broader ecosystem interactions, such as trophic impacts or multispecies dynamics. Conducting an ecosystem risk assessment using existing catch data, trophic role analysis, and available modeling tools is recommended. Where substantial ecosystem risks are identified, the development of additional ecosystem-based management measures should be considered as a precautionary approach.

Part 2: FIP Action Plan

FIP Action Objectives

The following objectives have been established to guide the implementation of improvement actions within the Karnataka Small Pelagics Purse Seine Fishery Improvement Project (FIP):

1. **Strengthen data collection systems** to improve the accuracy and consistency of species composition, catch and effort data, and biomass estimates for small pelagic species caught in Karnataka's purse seine fisheries.

2. **Enhance understanding of stock status** by supporting formalized reporting procedures and contributing to regular stock assessments for small pelagic species in Karnataka.
3. **Support the development of a Small Pelagics Purse Seine Fisheries Management Plan**, including:
 - Clear management objectives,
 - Procedures for setting and adjusting catch levels through Harvest Control Rules (HCRs),
 - Stakeholder engagement mechanisms,
 - Integration of ecosystem considerations, and
 - Strengthened Monitoring, Control, and Surveillance (MCS) systems.
4. **Clarify and document compliance mechanisms** to ensure that fishing operations align with applicable fisheries laws and regulations.
5. **Improve knowledge of ecosystem interactions**, including the fishery’s impacts on dependent species, bycatch, and species of conservation concern.
6. **Promote responsible social practices** by ensuring that vessels participating in the fishery follow internationally recognized human rights standards and demonstrate a commitment to eliminating child labour, forced labour, and unpaid labour.

M2 SURVEILLANCE, CONTROL AND ENFORCEMENT

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
M2(1)	Conduct gap analysis of enforcement tools (VMS, AIS, patrols, sanction system). <ul style="list-style-type: none"> • Review existing enforcement coverage and sanctions effectiveness, using Action 3.1 report from FAP v2 as baseline input. 	(1) Gap Analysis Report with recommendations; (2) Meeting minutes with DoF on discussion outcomes; (3) Agreed list of prioritized improvements.	Oct 2025 Jun 2026	8,000

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
	<ul style="list-style-type: none"> Identify key gaps and propose improvement recommendations. Convene meeting with Karnataka DoF to present findings and validate recommendations. <p>Lead: FIP consultant Supporting Partners: Karnataka DoF and Coast Guard</p>			
M2(2)	<p>Implement priority enforcement improvements based on gap analysis.</p> <ul style="list-style-type: none"> Pilot improvement to enforcement tools (e.g., expanded VMS coverage, patrol schedule improvements, sanctions review). Agree on specific actions with DoF (only those feasible). <p>Lead: Karnataka DoF Supporting Partners: Coast Guard, FIP Consultant</p>	<p>(1) Pilot project reports; (2) List of actual measures implemented; (3) Updated enforcement system documentation.</p>	<p>Jul 2026 Jun 2027</p>	<p>10,000 (initial)</p>
M2(3)	<p>Expand voluntary vessel tracking system coverage.</p> <ul style="list-style-type: none"> Extend VMS/AIS installation to cover additional purse seiners. Monitor data collection and system performance. Plan full-scale adoption if pilot success confirmed. <p>Lead: Karnataka DoF Supporting Partners: Technology providers, Boat owners</p>	<p>(1) Installation logs; (2) Coverage maps; (3) Pilot review report.</p>	<p>May 2025 Jun 2027</p>	<p>25,000</p>
M2(4)	<p>Develop and publish Sanctions and Enforcement Summary Report.</p> <ul style="list-style-type: none"> Compile record of violations, enforcement actions, and penalties imposed. 	<p>(1) Sanctions Summary Report; (2) Meeting minutes on sanction system review.</p>	<p>Jan 2026 Dec 2026</p>	<p>5,000</p>

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
	<ul style="list-style-type: none"> Identify gaps in current sanction frameworks. Discuss findings with DoF. <p>Lead: FIP consultant Supporting Partners: Karnataka DoF and Coast Guard</p>			
M2(5)	<p>Support skill enhancement of DoF personnel through training sessions on compliance-related topics.</p> <ul style="list-style-type: none"> Train DoF officers, landing center staff, and Coastal Police. Post-training evaluation <p>Lead: Karnataka DoF Supporting Partners: Coast Guard</p>	<p>(1) Training curriculum; (2) Trainee attendance lists; (3) Post-training evaluation reports.</p>	<p>Jul 2025 Jun 2026</p>	6,000
M2(6)	<p>Establish voluntary fisher compliance program.</p> <ul style="list-style-type: none"> Organize workshops with purse seiner associations. Promote understanding of compliance rules and recording requirements. Launch signed voluntary compliance declarations. Introduce concept of participatory MCS <p>Lead: FIP consultants and Karnataka DoF Supporting Partners: Purse Seine Associations</p>	<p>(1) Workshop reports; (2) Signed voluntary compliance agreements; (3) Awareness materials.</p>	<p>Jan 2026 Jun 2026</p>	10,000
M2(7)	<p>Develop and implement fishing recording system for purse seiners.</p> <ul style="list-style-type: none"> Design Fishing Activity Recording System Train vessel operators. Phase roll-out starting with willing ports, then expand to all ports. 	<p>(1) Recording System guideline (2) Training records; (3) Quarterly fishing activity recording submission.</p>	<p>Oct 2025 Dec 2027</p>	30,000

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
	<ul style="list-style-type: none"> • Monitor compliance quarterly. • Link to ETP recording system (E1(1)). <p>Lead: Karnataka DoF, CMFRI, and FIP consultants Supporting Partners: Boat owners, Fishmeal factories</p>			
M2(8)	<p>Establish Stakeholder Monitoring Group for MCS Review.</p> <ul style="list-style-type: none"> • Form multi-stakeholder committee (DoF, CMFRI, boat owners associations, FIP partners). • Review enforcement effectiveness, fishing activity recording compliance, and fisher participation every 6 months. • Recommend adaptive improvements. <p>Lead: Karnataka DoF, CMFRI, and FIP consultants Supporting Partners: CMFRI, Boat owners associations, Fishmeal factories</p>	<p>(1) Group ToR and member list; (2) Biannual meeting minutes; (3) Monitoring review reports</p>	<p>Jan 2026 Dec 2028</p>	10,000

The fishery successfully met all requirements under M1: Management Framework during the Version 3 assessment. As a result, the current Fishery Action Plan begins directly with actions under M2: Surveillance, Control, and Enforcement.

Work completed under FAP Version 2 (specifically Task 3.1) — including consultations with enforcement agencies and initial documentation of MCS arrangements — has been adopted as a baseline input for new tasks under M2(1) and M2(4). While the Version 2 report provided a strong foundation, further elaboration is being continued under Version 3, particularly through tasks M2(1) and M2(4). This includes compiling detailed quantitative data (such as the number of violations, types of offences, penalties imposed), analyzing surveillance coverage gaps (e.g., patrol frequency and VMS coverage), and developing a consolidated gap analysis report with prioritized recommendations for upgrades.

Additionally, recognizing the practical constraints faced by vessel operators — many of whom have limited literacy — the fishery has opted to develop a **Fishing Activity Recording System** rather than a traditional written logbook. This system will utilize photo and video-based evidence (e.g. catch recording, fishing locations, and ETP species handling) to ensure that operational data collection is both practical and accessible to all purse seine operators.

SPECIES REQUIREMENT

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
B1(1)	<p>Establish landing monitoring system for target species.</p> <ul style="list-style-type: none"> Recruit and train enumerators at key landing sites. Develop data sheets and protocols (species-specific catch, effort, location). Pilot system, then expand to full operation <p>Lead: CMFRI Supporting Partners: DoF, College of Fisheries Mangalore, FIP Consultant</p>	<p>(1) Monitoring protocol and datasheets. (2) Enumerator training records; (3) Quarterly landing data reports.</p>	<p>Aug 2025 Dec 2026</p>	15,000
B1(2)	<p>Conduct biological sampling of key target species.</p> <ul style="list-style-type: none"> Collect length-frequency, sex ratio, and maturity stage data. Focus on Indian mackerel, oil sardine, scads, bullet tuna, Sardinella. Analyze seasonal variation. <p>Lead: CMFRI Supporting Partners: College of Fisheries Mangalore, FIP Consultant</p>	<p>(1) Biological sampling database; (2) Annual summary reports.</p>	<p>Sept 2025 Dec 2026</p>	10,000

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
B1(3)	<p>Organize workshop to evaluate stock assessment methods and approaches.</p> <ul style="list-style-type: none"> Review single-species and multispecies assessment options. Discuss data adequacy and management application <p>Lead: CMFRI Supporting Partners: DoF, College of Fisheries Mangalore, FIP Consultants</p>	<p>(1) Workshop agenda and materials; (2) Participant lists; (3) Workshop proceedings report.</p>	<p>Jul 2026 Sep 2026</p>	5,000
B1(4)	<p>Conduct stock assessments for priority target species, based on technical recommendations from B1(3).</p> <ul style="list-style-type: none"> Analyze landing monitoring and biological sampling data. Apply either formal stock assessment models or alternative methods, as agreed during the technical workshop (B1(3)). Cover the following groups: Indian mackerel, Indian oil sardine, Lesser sardines (<i>Sardinella</i> spp.), Mixed scads (<i>Decapterus</i> spp., <i>Alepes</i> spp.) and Bullet tuna. <p>Lead: CMFRI Supporting Partners: College of Fisheries Mangalore, FIP Consultants</p>	<p>(1) 5 Stock assessment reports; (2) Management recommendations for each group</p>	<p>Jan 2027 Dec 2027</p>	30,000
B1(5)	<p>Submit assessments for peer review and revise.</p> <ul style="list-style-type: none"> Submit stock assessments to external experts. Incorporate feedback to finalize assessments. Document responses to peer review comments. 	<p>(1) Peer review summaries; (2) Revised stock assessment reports.</p>	<p>Jan 2028 Jun 2028</p>	5,000

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
	<p>Lead: FIP Consultants Supporting Partners: Independent Experts</p>			
B1(6)	<p>Develop and formalize a Fisheries Management Plan (FMP) for target species.</p> <ul style="list-style-type: none"> • Draft FMP structure based on preliminary data and precautionary approach. • Organize a stakeholder consultation workshop to present and review draft FMP structure and objectives. • Revise and finalize FMP incorporating early stakeholder input. • Later update the FMP after stock assessment results are available <p>Lead: CMFRI, Karnataka DoF Supporting Partners: College of Fisheries Mangalore, FIP Consultants, Fisheries Associations</p>	<p>(1) Draft FMP; (2) FMP Consultation Workshop report; (3) Final FMP document incorporating updated stock assessments.</p>	<p>Oct 2026 Dec 2027</p>	35,000
B1(7)	<p>Develop precautionary Harvest Control Rules (HCRs) linked to stock status.</p> <ul style="list-style-type: none"> • Draft HCR frameworks setting target, threshold, and limit reference points. • Organize a stakeholder consultation workshop to present and review proposed HCRs. • Finalize HCR matrix based on stock assessment outputs and stakeholder inputs. <p>Lead: CMFRI, Karnataka DoF Supporting Partners: College of Fisheries Mangalore, FIP Consultants, Fisheries Associations</p>	<p>(1) Draft HCR document; (2) HCR Consultation Workshop report; (3) Final HCR matrix integrated into FMP.</p>	<p>Mar 2027 Dec 2027</p>	25,000

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
B1(8)	<p>Conduct pilot testing of agreed management measures (e.g., seasonal closures, effort limits).</p> <ul style="list-style-type: none"> • Implement selected measures on a trial basis. • Monitor compliance and biological outcomes. • Collect feedback for scaling up <p>Lead: Karnataka DoF Supporting Partners: CMFRI, FIP Consultants, Fisheries Associations</p>	<p>(1) Pilot implementation report; (2) Monitoring results (compliance and catch impacts); (3) Stakeholder feedback summary.</p>	<p>Jan 2028 Dec 2028</p>	<p>10,000</p>
B1(9)	<p>Evaluate fisheries improvement progress relative to FMP targets and stock status.</p> <ul style="list-style-type: none"> • Analyze updated biological indicators (B/Bmsy, F/Fmsy, or length-based metrics). • Document compliance with new management measures. • Recommend necessary adjustments to FMP or enforcement measures <p>Lead: CMFRI Supporting Partners: FIP Consultants</p>	<p>(1) Stock status memo; (2) Management evaluation report with adjustment recommendations.</p>	<p>Oct 2028 Mar 2029</p>	<p>8,000</p>
D1(1)	<p>Conduct risk-based screening for secondary species (Productivity-Susceptibility Analysis - PSA).</p> <ul style="list-style-type: none"> • Focus on species with moderate catches but ecological importance (e.g., trevallies, ribbonfish). • Identify high-risk species requiring monitoring <p>Lead: CMFRI Supporting Partners: College of Fisheries Mangalore, Academic Experts</p>	<p>(1) PSA matrix; (2) Risk categorization summary report.</p>	<p>Apr 2026 Jun 2026</p>	<p>5,000</p>

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
D1(2)	Review PSA findings with stakeholders. <ul style="list-style-type: none"> • Conduct technical review meeting. • Prioritize species for enhanced data collection or precautionary measures Lead: CMFRI Supporting Partners: Karnataka DoF, FIP Consultants	(1) Meeting minutes; (2) Prioritized list of secondary species.	Jul 2026 Sep 2026	3,000
D1(3)	Integrate high-risk secondary species into FMP framework. <ul style="list-style-type: none"> • Develop basic management measures if needed (e.g., monitoring protocols, precautionary limits). Lead: Karnataka DoF Supporting Partners: CMFRI, FIP Consultants	(1) Updated FMP section on secondary species; (2) Monitoring plan or precautionary measures defined.	Oct 2026 Mar2027	5,000

Target species grouping under the B1 modules has been structured based on the outputs from Version 2 activities. The Project Annual Report (Annex 2) compiled by CMFRI provided group-level species composition data for purse seine landings, identifying major groups such as Indian mackerel, oil sardines, scads, and tunas. Species-specific information within these groups was subsequently cross-referenced by MRAG using reliable secondary sources on species distribution in Indian waters to ensure scientific accuracy. As a result, for assessment efficiency and ecological relevance, species have been consolidated into five key groups: (1) Indian mackerel, (2) Indian oil sardine, (3) Lesser sardines (*Sardinella* spp.), (4) Mixed scads (*Decapterus* and *Alepes* spp.), and (5) Bullet tuna. This approach ensures that the species prioritization in Version 3 builds on the available baseline while allowing more structured and efficient management planning.

ECOSYSTEM IMPACTS

E1: Impact on Endangered, Threatened or Protected species (ETP species)

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
E1(1)	<p>Develop and implement Fishing Activity Recording System to record ETP interactions.</p> <ul style="list-style-type: none"> • Integrate ETP fields into M2 recording system design. • Train fishers on ETP data recording. • Submit quarterly summaries to DoF. • Link to ETP recording system (M2(7)). <p>Lead: CMFRI Supporting Partners: Karnataka DoF, FIP Consultants, Fisher Associations</p>	<p>(1) Updated Fishing Activity Recording System template. (2) Training reports. (3) Quarterly ETP interaction summaries.</p>	<p>Oct 2025 Dec 2027</p>	10,000
E1(2)	<p>Conduct ETP identification and safe handling training for vessel crews.</p> <ul style="list-style-type: none"> • Prepare simple field guides. • Organize landing-site workshops. • Evaluate knowledge retention post-training. <p>Lead: CMFRI Supporting Partners: Karnataka DoF, FIP Consultants</p>	<p>(1) Training materials; (2) Attendance records; (3) Post-training evaluation results.</p>	<p>July 2025 Mar 2026</p>	10,000
E1(3)	<p>Install ETP awareness posters and hotline numbers at landing centers.</p> <ul style="list-style-type: none"> • Focus on major ports initially. • Publicize ETP reporting mechanism. <p>Lead: Karnataka DoF, CMFRI Supporting Partners: FIP Members</p>	<p>(1) Posters installed; (2) Hotline activation report.</p>	<p>Oct 2025 Dec 2025</p>	5,000

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
E1(4)	<p>Analyze ETP interaction data to assess risk.</p> <ul style="list-style-type: none"> • Conduct annual analysis based on recording data. • Map hotspots if sufficient records. • Provide risk mitigation recommendations. <p>Lead: FIP Consultants Supporting Partners: CMFRI, College of Fisheries Mangalore</p>	<p>(1) Annual ETP risk analysis report;</p> <p>(2) Risk hotspot maps.</p>	<p>Jan 2027 Jun 2027</p>	6,000
E1(5)	<p>Develop bycatch mitigation pilots if significant ETP risk is confirmed.</p> <ul style="list-style-type: none"> • Trial gear modifications or best-practice handling methods. • Compare before/after data. <p>Lead: FIP Consultants Supporting Partners: CMFRI, Karnataka DoF, Gear Experts</p>	<p>(1) Pilot report;</p> <p>(2) Mitigation technique specifications;</p> <p>(3) Comparative catch data.</p>	<p>July 2027 Dec 2027</p>	15,000

E2: Impact on Habitats

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
E2(1)	<p>Compile and review seafloor data for Karnataka purse seine fishing grounds.</p> <ul style="list-style-type: none"> • Gather bathymetric maps and sediment profiles. • Assess vertical overlap between gear and seafloor. 	<p>(1) Bathymetric maps;</p> <p>(2) Vertical overlap report.</p>	<p>July 2025 Dec 2025</p>	10,000

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
	<p>Lead: CMFRI or College of Fisheries Mangalore</p> <p>Supporting Partners: Karnataka DoF, FIP Consultant</p>			
E2(2)	<p>Analyze likelihood of significant gear-seafloor interactions.</p> <ul style="list-style-type: none"> • Assess risk based on fishing depth, substrate type. • Determine if significant habitat impacts are likely. <p>Lead: Academic Researchers</p> <p>Supporting Partners: FIP Consultant, CMFRI</p>	(1) Habitat risk assessment report.	Jan 2026 Mar 2026	5,000
E2(3)	<p>Propose mitigation measures if significant habitat risks are found.</p> <ul style="list-style-type: none"> • Identify spatial or temporal restrictions. • Consult stakeholders before adoption <p>Lead: Karnataka DpF</p> <p>Supporting Partners: CMFRI, FIP Consultant</p>	(1) Mitigation recommendations document; (2) Consultation report.	April 2026 Sept 2026	5,000

E3: Impact on Ecosystem

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
E3(1)	<p>Review ecosystem interactions and trophic structure.</p> <ul style="list-style-type: none"> • Compile known species' trophic roles. • Assess potential impacts on food web dynamics. <p>Lead: CMFRI or College of Fisheries Mangalore</p> <p>Supporting Partners: FIP Consultant</p>	(1) Ecosystem baseline report; (2) Trophic role summaries.	July 2025 Dec 2025	6,000

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
E3(2)	<p>Conduct Ecosystem Risk Assessment (ERA) using available tools.</p> <ul style="list-style-type: none"> • Apply expert opinion or Ecopath modeling. • Identify risks to food web stability. <p>Lead: Academic Researchers Supporting Partners: FIP Consultant, CMFRI</p>	<p>(1) ERA report (e.g., EwE summary); (2) Risk ranking matrix.</p>	<p>Jan 2026 Jun 2026</p>	8,000
E3(3)	<p>Propose precautionary management measures if risks are identified.</p> <ul style="list-style-type: none"> • Recommend multispecies harvest limits, predator monitoring, or other options. • Integrate into management planning if feasible. <p>Lead: Karnataka DoF Supporting Partners: FIP Consultant, CMFRI</p>	<p>(1) Mitigation options paper; (2) Management recommendations for FMP update.</p>	<p>Jul 2026 Dec 2026</p>	4,000

SOCIAL RESPONSIBILITY REQUIREMENT

Action Code	Task	Evidence of Completion / Output	Starting - Expected Completion Dates	Budget (USD)
S1(1)	<p>Strengthen social responsibility practices in the fishery.</p> <ul style="list-style-type: none"> • Collect written commitments on human rights, no child/forced/unpaid labor from vessel owners and fishmeal factory members. • Establish a simple grievance mechanism for fishers (e.g., 	<p>(1) Signed commitments from participants. (2) Grievance system documentation. (3) Awareness session report</p>	<p>Jan 2026 Dec 2026</p>	6,000

