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Enhanced Coastal Fisheries in Bangladesh II (ECOFISH II) Activity

Quarterly Report

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ACRONYMS

AIGA	Alternative Income Generating Activities
ALDFG	Abandoned, lost, or discarded fishing gear
BCG	Bangladesh Coast Guard
BHH	Beneficiary Household
BFDC	Bangladesh Fisheries Development Coorporation
BFRI	Bangladesh Fisheries Research Institute
BLS	Business Literacy School
BSCMFP	Bangladesh Sustainable Coastal and Marine Fisheries Project
BSMRAU	Bangabandhu Sheikh Mujibur Rahman Agricultural University
CDCS	Country Development Cooperation Strategy
CFG	Community Fish Guard
CMO	Co-management Organizations
CSG	Community Savings Group
CPUE	Catch Per Unit Effort
CRP	CGIAR Research Program
CVASU	Chattogram Veterinary and Animal Sciences University
DoF	Department of Fisheries
EAFM	Ecosystem Approach to Fisheries Management
ECOFISH	Enhanced Coastal Fisheries in Bangladesh
FMC	Fisheries Management Committee
FCG	Fisheries Conservation Group
EMMP	Environmental Mitigation and Monitoring Plan
HCDF	Hilsa Conservation and Development Fund
HFMAP	Hilsa Fisheries Management Action Plan
IRs	Intermediate Results
IUCN	International Union for the Conservation of Nature
IUU	Illegal, Unreported and Unregulated
LFCC	Landing Center-based Fisheries Co-management Committee
MEL	Monitoring, Evaluation and Learning
MoFL	Ministry of Fisheries and Livestock
MPA	Marine Protected Area
MRE	Meghna River Ecosystem
MSY	Maximum Sustainable Yield
RDF	Recycling and Dumping Facilitator
NSTU	Noakhali Science and Technology University
PES	Payment for Ecosystem Services
PMP	Performance Management Plan
PSTU	Patuakhali Science and Technology University
SAU	Sher-e-Bangla Agricultural University
SDF	Social Development Fund
SUST	Shahjalal University of Science & Technology
ToO	Theatre of Operation
ToT	Training of Trainers
USAID	United States Agency for International Development
USG	United States Government
VFCG	Village Fisheries Conservation Group
WING	Women Income and Nutrition Group
ZOR	Zone of Resilience (Cox's Bazar)

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1 PROGRAM OVERVIEW/SUMMARY

1.1 Program Description/Introduction

Introduction

ECOFISH II Activity is a five-year long transformative project of ECOFISH^{BD} that is solely funded by the United States Agency for International Development (USAID) and implemented by WorldFish in collaboration with the Department of Fisheries (DoF), Bangladesh. Aside from the DoF, the project includes collaborations with the Bangladesh Fisheries Development Corporation (BFDC), universities, conservation organizations, and non-governmental organizations (NGOs). ECOFISH II is assisting the DoF and local fishing communities in establishing adaptive collaborative management (co-management) in accordance with the Ecosystem Approach to Fisheries Management (EAFM) framework, with a focus on Hilsa, riverine native catfish (Pangas), and other major coastal and marine fisheries resources. Project also assists the host-fishing communities in the USAID's Zone of Resilience (ZOR), Cox's Bazar district (Teknaf including Saint Martin's Island, Ukhiya, Cox's Bazar sadar, Ramu, Moheshkhali and Kutubdia upazila) and coastal fishing communities in Bhola, Patuakhali and Barguna district of the Meghna River Ecosystem (MRE), and the Nijhum Dwip Marine Protected Area (MPA).

ECOFISH II aiming at enhancing **ecosystem** resilience through establishing effective co-management of coastal fisheries resources in those areas focusing on Hilsa shad, riverine local catfish (Pangas) and other commercially important coastal and marine fish species for the communities reliant on it, and conserving biodiversity including megafaunas. Following the pathway of ECOFISH^{BD}, ECOFISH II has been enhancing artisanal **fishing communities** resilience by improving the food, nutrition, livelihood and coping strategies of marginalized and poor host fishing communities in Cox's Bazar and in the MRE and MPA. The project emphasizes the sustainability of the ECOFISH^{BD} interventions and adopts its best practices in six Upazilas in Cox's Bazar and six upazilas of MRE region including MPA under the ECOFISH II Activity.

Project objective and intermediate results

The overarching goal of ECOFISH II is improved social and ecological resilience of coastal fisheries securing equitable food, nutrition and livelihood benefits for artisanal fishing communities. The project would maintain or increase the productivity of fisheries, conserve biological diversity, and enhance ecosystem productivity and economic wellbeing of fishers in the ZOR and MRE. The project focuses on improved management of natural resources targeting biodiversity conservation leading to indirect adaptation benefits and enhanced adaptation capacity and resilience to shocks and stresses of the reliant communities. To achieve the goal, the project would achieve two Intermediate Results (IRs) and four Sub-IRs, which are as follows:

IR1: Improved management and governance of natural resources that form the foundation of fisheries

- Sub-IR1.1: Improved science outputs for decision-making (ecosystem health assessed and improved; biodiversity assessed and conserved; fisheries dynamics monitored).
- Sub IR1.2: Improved adaptive co-management and fisheries governance (co-management institutions strengthened; EAFM mainstreamed and strengthened; fisheries governance improved).
- Sub IR1.3: Improved policy support (HFMAP implementation ensured; MPA legal framework formulated; Hilsa Conservation & Development Fund and Payment for Ecosystem Services introduced, and transboundary legal framework formulated).

IR2: Improved equity and resilience of food, nutrition and livelihood benefits

- Sub-IR 2.1 Improved livelihood resilience of coastal fishing communities (Livelihood capacity and options diversified; women's access to finance improved; access to improved technologies and market linkages strengthened, adaptive capacities to climate change and resilience improved).

ECOFISH II working areas

The Theater of Operation (ToO) for ECOFISH II mainly focused on the Zone of Resilience (ZOR), Meghna River Ecosystem (MRE), and the Nijum Dwip MPA areas (Figure 1). The ZOR encompases the Cox's Bazar-Teknaf coasts, the Naf River/Estuary Ecosystem and the St. Martin's Island, covering Teknaf, Ukhiya, Cox's Bazar, Ramu, Moheskhali and Kutubdia Upazilas. The MRE includes the Tentulia River in Patuakhali and the Bishkhali, Baleswar and Payra rivers in Barguna districts (Figure 1). The Nijhum Dwip MPA area specifically includes the declared 3,188 sq. km at the mouth of Meghna and Tentulia Rivers toward the Bay of Bengal around the Nijhum Dwip island areas (Figure 1). The Nijhum Dwip MPA has direct impact on the lives and livelihoods of the people living in 28 unions geographically covering 5 Upazilas (Hatiya, Manpura, Charfasson, Galachipa and Rangabali) designated as Direct Impact Area (DIA). The project continued several interventions in the Direct Impact Area (DIA) of the Nijhum Dwip MPA. The project continued its efforts in Alipur-Mohipur and the Kuakata sea beach, along with the surrounding fishing communities in Kalapara Upazila of Patuakhali District, and in the fishing communities around the Pyra River in Barguna District.

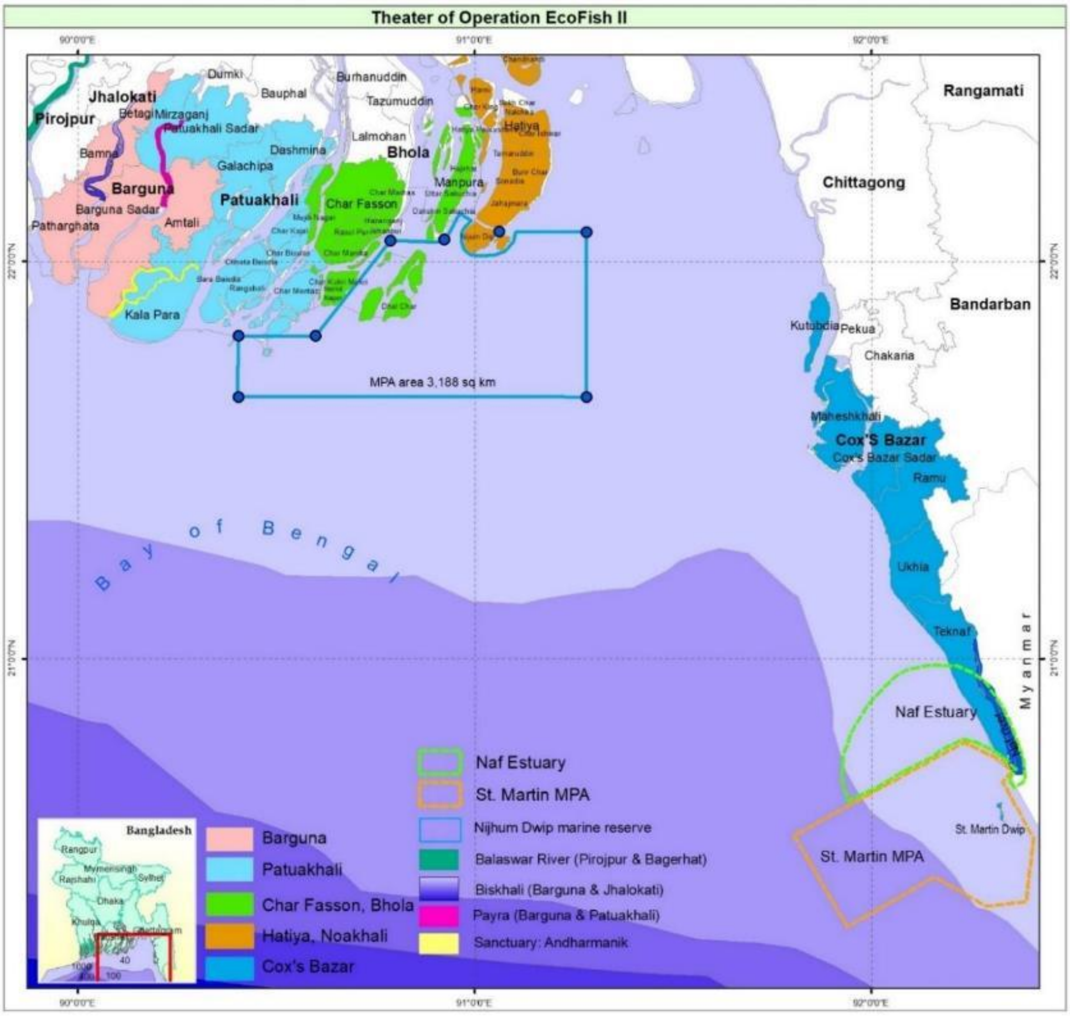


Figure 1. ECOFISH II Theater of Operations (ToO) Year 5.

1.2 Summary of Quarterly Achievements (April-June 2024)

All the ECOFISH II interventions with targets to achieve the USAID standard indicators and custom indicators in improving biodiversity, ecosystem and livelihoods under all the IRs and Sub-IRs in MRE, MPA and ZOR have been summarized in numerical terms and presented in Table 1.

Table 1. Summary of ECOFISH II results to date with performance monitoring indicators

Indicators (Year-5)	Annual Target	Q1 2024	Q2 2024	Q3 2024	Q4 2024	Achievement (% of target)	Reporting
Standard Indicators							
EG.10.2.1: Number of hectares of biologically significant areas showing improved biophysical conditions as a result of USG assistance	62,890						Yearly
EG.10.2-2: Number of hectares of biologically significant areas under improved natural resource management as a result of USG assistance"	237,190						Yearly
EG.10.2-3 Number of people with improved economic benefits derived from sustainable natural resource management and/or biodiversity conservation as a result of USG assistance	15,000						Yearly
EG.10.2-4 Number of people trained in sustainable NRM and/or biodiversity conservation by USG assistance	2,000						Yearly
EG.10.2-5 Number of laws, policies, strategies, plans, or regulations addressing climate change (mitigation or adaptation) and/or biodiversity conservation officially proposed, or adopted as a result of USG assistance	2						Yearly
CBLD-9: Percentage of USG-assisted organizations with improved performance	85%						Yearly
Custom Indicators							
Number of species newly appeared or reappeared or improved in fishers catch on the Cox's Bazar coast as a result of USG assistance	5						Yearly
Percentage increase in hilsa and other important marine species (CPUE) on Cox's Bazar coast as a result of USG assistance	5%						Yearly
Number of fishing household practiced better fisheries management	3,000						Yearly
Number of households with food and nutrition security (Household Dietary Diversity and Food Consumption Score) increased as a result of USG assistance	3,000						Yearly
Number of households with improved well-being and diversified sources of income as a result of USG assistance	3,000						Yearly
Number of people gaining employment from sustainable fisheries management	50						Yearly
Number of youth with access to improved technologies and market linkages in ZOR sites as a result of USG assistance.	65						Yearly

2 ACTIVITY IMPLEMENTATION PROGRESS

2.1 Progress Narrative

The 2nd quarterly progress report of Year 5 describes the accomplishments and achievements of ECOFISH II Activity during April -June 2024 in all the intervened areas, focusing on the Zone of Resilience (ZOR), Meghna River Ecosystem (MRE), and the Nijhum Dwip Marine Protected Area (MPA).

Activities on ecosystem health improvement, coastal biodiversity conservation, and monitoring of coastal fisheries dynamics were accomplished under sub-IR1.1 (Improved science outputs for decision-making) and achieved satisfactory progress. ECOFISH II Teknaf, Moheshkhali, and Kutubdia teams monitored five climate changes indicators related to water quality parameters (Temperature, salinity, pH, dissolved oxygen, and alkalinity) in their respective coasts.

To improve ecosystem health, awareness campaigns, collection and safe disposal of plastic pollutants and discarded net materials from the Teknaf, Ukhiya, Cox's Bazar Sadar, Moheshkhali, Kutubdia, Charfasson and Kalapara coasts have been continued. During this quarter, about 2,412 kg of such materials were removed by engaging 140 Blue Guards, who have been trained on ecosystem health, biodiversity conservation, and gender sensitization.

The scientific article "Integration of socio-ecological data to prioritize biodiversity hot-spots for Marine Protected Area (MPA) delineation in the south-west coastal zone of Bangladesh" based on the assessments to explore new MPAs in Kuakata, Patuakhali, and Salimpur, Chattogram published in the Regional Marine Studies journal.

In ZOR, fish landing records of 11 LCFs (Landing Center Facilitators) indicated landings of 67 species with 56 predominant species/groups in the commercial marine fishery that contributed 1,225 tons (t) of fish landing in Cox's Bazar Sadar, Kutubdia, Ukhiya, Teknaf, St. Martin, Charfasson and Kalapara areas. Other than Hilsa, croakers, anchovy, ribbonfish, Bombay duck and shrimps were the major contributors to the landings.

The project engaged 50 Citizen Scientists (CSs) covering Cox's Bazar Sadar, Moheshkhali, Kutubdia, Ukhiya, Teknaf, St. Martin and the Nijhum Dwip MPA. Based on the CS's data, catch per unit efforts (CPUEs) of Hilsa and other species/groups in major intervened areas were estimated. The highest CPUE for all species/groups together was found in Cox'sBazar (1585 kg/boat/day), followed by Moheskhali (1424 kg/boat/day), MPA (498 kg/boat/day) and Kutubdia (344 kg/boat/day), and, while the overall average value was 684 kg/boat/day (Table 5).

For stock assessment of five important species (Talang queenfish, Indian mackerel, Fringescale sardine, Big-eye Ilish, and Sona sea catfish), fish size monitoring activities have been continued. The size distribution of Talang queenfish was assessed and graphically presented (Figure 4).

ECOFISH II, in collaboration with Shahjalal University of Science and Technology (SUST) and DoF, proposed a new Marine Protected Area (MPA) in the Naf River estuary, leading to the Ministry of Fisheries and Livestock declaring a 734.17 km² area as the Naf MPA under the Marine Fisheries Act 2020. This support has helped Bangladesh in achieving 6.82% of its marine area designated as MPAs, working towards the goal of designating 10% of its Exclusive Economic Zone (EEZ) in line with the Sustainable Development Goals (SDGs). Now, effective management plans and their implementation are essential to fully achieve the MPA objectives for both conservation and the livelihoods of those who depend on it. At the Department of Fisheries' (DoF) request, USAID/ECOFISH II and SUST are assessing the feasibility of two additional MPAs in Kuakata of Patuakhali district, and Salimpur of Chattogram district to help Bangladesh achieve 10% EEZ coverage by 2030. This assessment includes a citizen science-based app for biodiversity monitoring, promising effective fisheries management.

During the second quarter of Year 5, ECOFISH II Activity formed 22 Fisheries Conservation Groups (FCGs). In addition, the team members finalized the 09 Village-based Fisheries Conservation Group (VFCG) with 132 fisher leaders across all stations. The project worked closely with fishers, boat owners, and other stakeholders to promote marine and coastal biodiversity conservation, and safety at sea through a co-management approach.

In this tenure, ECOFISH II continued efforts toward the landing center-based fisheries co-management model. The ECOFISH II team organized 04 capacity building trainings for landing center-based co-management committees (LFCC) in various regions, including ZOR (Cox's Bazar Sadar and Kutubdia), MRE (Patherghata) and MPA (Charfasson). Thirteen (13) group consultations on organizational development and coordination meetings were conducted with 272 co-management committee members across all 07 stations. These sessions aimed to inform and strenthen EC members about the formation, strengthening, and operation of LFCCs as co-management organizations.

During this quarter, three training on biodiversity conservation, safety at sea, and co-management for LFCC leaders were organized at Cox's Bazar Sadar, Kutubdia, and Kalapara, with a total of 36 executive committee (EC) members participated. These training aimed to raise awareness among stakeholders and improve understanding of the EAFM plan for artisanal marine fisheries management in the Bay of Bengal. Additionally, ECOFISH II organized 08 trainings on First Aid and distributed kits to boat skippers, with 164 skippers attended. As a result of enhanced the biodiversity conservation activities, all seven stations reported that trained fishermen released 43 entangled megafaunas (turtles, sharks, and rays) during fishing activities.

Kutubdia station continued to operate a turtle hatchery with the objective of conserving the endangered Olive Ridley sea turtle species. The hatchery protects their eggs from natural predators, human interference, and environmental hazards. During the season, the Kutubdia Station collected 467 eggs of olive ridley sea turtle, resulting in 149 hatchlings that were successfully released into the Bay of Bengal.

ECOFISH II adopts a comprehensive livelihood approach aimed at enhancing resilience among vulnerable fishing households, aligning closely with the Ecosystem Approach to Fisheries Management (EAFM). This approach emphasizes capacity building, income diversification, technological innovation, value chain improvement, and nutrition development, with a special focus on empowering women. In 2023, the project refined its strategy to engage women from all the targeted fishing households through the Women Income and Nutrition Group (WING) and trained local youth women as Community Volunteers (CVs), alongside the Fisheries Conservation Group (FCG) for men. This inclusive approach has led to increased community participation and ownership of initiatives, as indicated by anecdotal evidence. Therefore, ECOFISH II continues to the same approach in 2024.

Following the capacity-building training in the last quarter, ECOFISH II distributed conditional cash transfers of BDT 5,500 per beneficiary to 1,942 women (99.6% of the target) of the beneficiary fishing households through a digital system. Out of the recipients, 1,929 households (99.3%) have purchased critical inputs to either initiate or enhance their existing income-generating activities. The ECOFISH II team continues to follow up with these households to ensure they receive the necessary services for their small businesses. One key service is animal vaccination. ECOFISH II is closely collaborating with the Department of Livestock Services (DLS) to make animal vaccines accessible to fishing households. In the reporting quarter, the teams in Ukhiya and Kalapara facilitated six vaccination campaigns where 1,185 goats and 3,460 poultry were vaccinated. In addition to that, ECOFISH II printed and distributed 8,000 booklets on homestead small livestock and poultry rearing among ECOFISH II beneficiary households. As part of the exit strategy, the purpose of these booklets is to reinforce the training messages received by beneficiaries to effectively engage in alternative income-generating activities.

CVASU submitted all the deliverables including the final report. CVASU is compiling all the lessons that have been learned over the previous four years. CVASU is co-developing a strategy for the next 10 years for the mariculture (seaweed and green mussel) development in Bangladesh. Following the organization of a nationwide workshop involving the relevant stakeholders, the strategy will be submitted to the Department of Fisheries (DoF). The partnership is going to close during the next quarter.

NSTU has developed a composite nutrient-rich ready-to-use (RTU) dried fish and seaweed powder using seven indigenous small marine fish species from the Bay of Bengal. ECOFISH II and NSTU assessed the impact of market orientation on Ready-to-Use (RTU) Marine Small Pelagic Fish and Seaweed Powders. The primary aim of this study was to measure how market orientation influences the performance of RTU marine small pelagic fish and seaweed powders throughout the value chain. The study of willingness to pay (WTP), as well as the economics and commercial feasibility of the product, indicated that fish powder-based recipes received the highest ratings, followed by seaweed, and mixed powder (seaweed and fish). Consumers' familiarity with dried fish and the accessibility of well-established recipes may account for this. About 95% of retailers believed it would be a profitable addition to their business. About two-thirds of customers (60.71%) agreed to purchase the study products over the year. The research indicates noteworthy prospects for enhancing public health via the distribution of dietary data and efficient promotional initiatives. Considering Bangladesh's pervasive malnutrition problems, encouraging RTU seafood powders may be essential to improving dietary diversification and nutrition security. With strategic marketing and consumer education, these products have the potential to make a meaningful impact on public health and nutrition. Future research should focus on long-term consumer behavior and the scalability of production to meet growing demand.

ECOFISH II continues its support for the institutional development of 169 WINGs formed in year 4 and year 5, focusing on regular meetings, Business Literacy School (BLS), savings collection, and leadership development. During this quarter, year-4 members attended sessions 19-24 and year-5 members engaged in sessions 3-8 of the BLS. The attendance rate for WING members in these sessions was above 85%.

Both year-4 and year-5 WING members have continued savings activity by updating their passbooks, savings, and bank registers. 4543 members from 155 WINGs have collectively saved BDT 1,322,555 during 2*nd* quarter and their cumulative savings BDT 3,622,155 as of June 2024. On the other hand, 18 CSGs saved BDT 170,465 during 2*nd* quarter and 624 members of 20 CSGs have cumulative savings BDT 1,605,980 up to June 2024. It is mentioned here, that 33 CSGs were gradually phased out from the ECOFISH II interventions.

The field team facilitated the final evaluation of BLS with 2774 WING members to understand the knowledge status of WING members after completing 24 sessions of BLS. The results indicated that 75% of WING member’s scores were satisfactory which represents that the knowledge of basic literacy of WING members has improved after attending BLS sessions.

ECOFISH II facilitated WING to celebrate “National Nutrition Week 2024” to sensitize the mass population on different aspects of nutrition by the theme “স্মার্ট বাংলাদেশ বিনির্মাণে, খাবার খাবো পুষ্টিগুণে” meaning “eat nutritious food to build smart Bangladesh”. A total of 7 events were organized in 7 villages where 363 participants (90% women and 10% men) were attended. On the eve of the event, ECOFISH II printed 8,000 pieces of healthy food plates to distribute among its beneficiaries.

During this reporting period, ECOFISH II has provided vegetable seed packages and organic fertilizers followed by an orientation on homestead horticulture for 3,000 WING members of year 4, and 2,733 CSG and dry fish women beneficiaries of years 1-3. Beneficiaries were provided with vegetable seed packages (6-9 types: Spinach, Water spinach, Okra, Bottle gourd, Cucumber, Snake gourd, Bitter gourd, Ridge gourd) and organic fertilizers (4 kg of vermicompost/BHH) to encourage year-round production and consumption of a diverse, nutrient-rich diet. In addition, a user-friendly booklet on nutrition-sensitive homestead vegetable gardening has been distributed to 4,733 beneficiaries of year 5 and selected beneficiaries of years 1-3.

Overall, the ECOFISH II initiatives undertaken contribute to enhance the economic resilience of fishing households and promote inclusive development in coastal communities, anticipating that these households will actively contribute to biodiversity conservation. Achieving this goal comprises effectively involving fishing households in local conservation initiatives, enhancing their institutional capacities making them more responsive in conservation activities along with improving livelihood resilience, and providing ongoing support to empower them.

Twenty thousand (20,000) posters were printed for the 65-day marine fishing ban period in collaboration with the Department of Fisheries. During National Nutrition Week, eight thousand (8,000) food plates and eight thousand (8,000) booklets on nutrition awareness were printed and distributed. One thousand seven hundred fifty (1,750) mementos (mugs with biodiversity conservation message) were produced and distributed to seven Upazila school students. One billboard, one hundred eleven banners, and one hundred twenty-seven festoons were designed and printed. The production of three hundred branded caps for ECOFISH II staff and government officials is underway. One blog, forty-seven media coverages, and eleven social media posts ensured the project's visibility. USAID's ECOFISH II celebrated National Nutrition Week, World Ocean Day, and International Day for the Fight against Illegal, Unreported, and Unregulated (IUU) Fishing and a football match on 65 days marine fishing ban period.

2.2 Implementation Status

IR1: Improved Management and Governance of Natural Resources

To achieve the IR1 component, science outputs for decision-making (Sub IR1.1) opportunities were created through coastal ecosystem health improvement, biodiversity conservation, and fisheries population dynamics monitoring. For improved adaptive co-management and fisheries governance (Sub IR1.2) in the MPA and ZOR, the building blocks formation, capacity building of stakeholders and EAFM activities have been continued. The progress on different IR1 activities during April-June 2024 are summarized in Table 2.

Table 2. Summary of progress under IR1 (completed in progress yet to start)

Activities	Progress made	Status
Sub-IR1.1: Improved science outputs for decision-making		
Ecosystem health assessment and improvement	• In the St. Martin, Moheshkhali and Kutubdia coasts climate change indicating five water quality parameters (Temperature, DO, pH, salinity & alkalinity) were monitored. • For ecosystem health improvement, awareness campaign, collection and safe disposal of plastic pollutants and net materials were continued, and 2,412 kg of such materials were removed from Teknaf, Ukhiya, Cox's Bazar Sadar, Moheshkhali, Kutubdia, Charfasson and Kalapara coasts by engaging 140 local youths as Blue Guards.	
Biodiversity assessment & conservation	• SUST continued the activities of data collection on biodiversity and ecological habitats from both Salimpur, Chattogram and Kuakata, Patuakhali coasts in June to support DoF for MPA declaration,. • A scientific article "Integration of socio-ecological data to prioritize biodiversity hot-spots for Marine Protected Area (MPA) delineation in the south-west coastal zone of Bangladesh" based on the assessments to explore new MPAs in Kuakata, Patuakhali and Salimpur, Chattogram has been published in the Regional Marine Studies journal.	
Fisheries dynamics monitoring	• Fish landing records of 11 LCFs revealed 67 species were landed of which 56 species/groups were predominants in the commercial marine fishery that contributed 1,225 tons of fish landing in Cox's Bazar Sadar, Kutubdia, Ukhiya, Teknaf, St. Martin, Charfasson and Kalapara areas. • On-board real-time fish catch was monitored engaging 50 Citizen Scientists (CSs) covering Cox's Bazar Sadar, Kutubdia, Ukhiya, Moheshkhali, Teknaf, and the Nijhum Dwip MPA. The highest CPUE for all species/group together was found in Cox'sBazar (1585 kg/boat/day), followed by Moheskhali (1424 kg/boat/day), MPA (498 kg/boat/day) and Kutubdia (344 kg/boat/day), and, while the overall average value was 684 kg/boat/day	

Activities	Progress made	Status
	• As a part of stock assessment, fish size monitoring of five important species (Talang queenfish, Indian mackerel, Fringescale sardine, Big-eye Ilish and Sona sea catfish) have been continued. The size distribution of Talang queenfish was assessed and graphically presented (Figure 4).	
Sub-IR1.2 Improved adaptive co-management and fisheries governance		
Formation and strengthen co-management institutions	• All stations formed 22 FCGs at Y-5 villages involving 540 fisher members. • Finalized 09 Village based Fisheries Conservation Group (VFCG) with 132 fisher leaders at all stations. • Thirteen (13) organizational development and coordination meetings were held for the LFCCs with the participation of 272 LFCC EC members at all stations. • Trainings on capacity building for LFCC EC members were organized at Charfasson, Pathorghata, Cox's Bazar Sadar and Kutubdia with the presence of 47 members.	
Strengthen Ecosystem Approach to Fisheries Management (EAFM)	• Conducted 02 days long EAFM training for the executive members of newly formed St. Martin LFCC at Teknaf. • Trainings on biodiversity conservation, safety at sea, co-management focused on EAFM for LFCC leaders were organized at Cox's Bazar Sadar, Kutubdia and Kalapara and a total of 36 executive members joined the event.	
Improved fisheries governance	• Training on First Aid and Kits distribution for boat skippers were organized at Cox's Bazar Sadar, Kutubdia, Moheshkhali, Teknaf, Hatya and Patuakhali. A total of 164 boat skippers attended the training. • Seven (07) batches of training on biodiversity conservation, co-management and responsible fishing for boat owners were organized with the presence of 229 participants. • Awareness raising activities on 65 Day Marine Fishing Ban were organized in all 07 stations with the participation of 422 stakeholders from all levels. • Trained fishermen released 43 entangled megafaunas (turtles, sharks and rays) during fishing activities. • Total 149 hatchlings were collected out of 467 olive ridley turtle eggs and safely released to the Bay of Bengal from the hatchery.	
Sub-IR1.3: Improved policy support		
New MPA exploration and delineation	• ECOFISH II partner SUST reviewed the draft Gazette of declaring the Naf MPA and submitted to DoF which was declared by the Ministry of Fisheries and Livestock (MoFL) on 28th May 2024. • SUST continued to collect socio-ecological data from Kuakata (Patuakhali) and Salimpur (Chattogram) areas to explore the possibility of declaring more MPAs by the DoF and MoFL in those areas.	

Sub IR1.1: Improved science outputs for decision-making

To generate scientific information, for supporting decision-making for sustainable fisheries management, ecosystem health improvement, biodiversity conservation, and fisheries dynamics monitoring activities have been continued. The progress of different activities are briefly described below:

Ecosystem health assessment and improvement

For ecosystem health assessment, five water quality parameters such as temperature, salinity, pH, dissolved oxygen (DO), and alkalinity were monitored in every month using digital equipment at 03 sites. The Kutubdia and Moheshkhali team also collected those water quality parameters from three spots in their respective areas. However, the St. Martin's Island coast data collection was incomplete in May due to rough weather. All the parameters were found well within the acceptable limits indicating healthy habitats for aquatic fauna and flora in the surrounding waters (Table 3).

Table 3. Climate change indicating water quality parameters (April - June 2024) in three sites

Parameter / Statistic	Temperature (°C)	Dissolved Oxygen (ppm)	Salinity (ppt)	pH	Alkalinity (ppm)
Maximum	32.1	7.5	33.6	8.61	180
Minimum	27.8	3.9	17.7	7.3	78
Average	29.91	4.8	27.17	8.16	136.65

For ecosystem health improvement, the campaign for reducing plastic pollutants and net materials was conducted twice a month in each area and safely disposed 2,412 kg of such wastes from Cox's Bazar Sadar, Moheshkhali, Kutubdia, Ukhiya, Teknaf, Kalapara and Charfasson areas during April-June 2024 (Table 4). A total of 140 local youth volunteers were motivated, organized, and engaged as ECOFISH II Blue Guards in these activities. Blue Guards from all the areas were trained on ecosystem health, biodiversity conservation, and gender sensitization issues and motivated to work closely with ECOFISH II in combating plastic pollution, Ghost fishing by discarded nets, and campaigning to create people's awareness about those issues.

In this quarter, the collected 2,412 kg of waste includes 436 kg of polythene & soft plastics, 296 kg of plastic bottles and hard plastics, 1,046 kg of net materials, and 633 kg of non-decomsable other wastes (Table 4). Out of the collected waste, 453 kg of plastic bottles were connected to the local recycler for recycling or reusing the materials, and the remaining wastes were dumped at a nearby safer place from where local municipalities take care of the waste. The efforts will help in reducing the global problems of plastic and net materials, which will improve ecosystem health for sustainable biodiversity conservation.

Table 4. Quantities of different types of pollutants collected during April- June 2024 from different coastal areas and disposed of the safer areas to improve the coastal ecosystem health

Station	Type of Pollutants with Quantity (kg)					
	Polythene	Plastic bottles	Net materials	Other waste	Total	Connected for recycling/reuse
Cox's Bazar Sadar	167	43	204	235	649	42
Charfasson	13	26	22	40	100	22
Kalapara	53	70	72	56	251	70
Kutubdia	71	57	67	12	207	0
Moheshkhali	51	22	95	144	312	7
Teknaf	38	46	490	86	659	311
Ukhiya	44	33	97	61	235	1
Total	436	296	1046	633	2412	453

In this quarter, USAID's ECOFISH II arranged a school-based awareness-raising campaign on "biodiversity conservation and ecosystem health improvement" in the intervention areas of Cox's Bazar Sadar, Ukhia, Kutubdia, Moheshkhali, Teknaf, Charfasson and Patuakhali. A total of 1591 students from classes IX and X participated in the events. Representatives from the Secondary Education Department, Department of Fisheries, Journalists, Blue Guards, and Teachers were present as guests at the program (Figure 2).

ECOFISH II organized a quarterly coordination meeting with Blue guard and Citizen Scientist at Moheskhali where 16 participants attended (15 male and 1 female) for a discussion of their progress and plan for the 3rd quarter. Kalapara station also organized quarterly coordination meetings with Blue guard and Landing Center Facilitator where 22 participants attended (16 male and 6 female). A total of 22 participants attended the Refresher training for citizen scientists and landing center facilitators conducted by Kutubdia stations.

Figure 2: School-based awareness-raising campaign on "biodiversity conservation and ecosystem health improvement"

Biodiversity assessment and conservation

SUST submitted a scientific article "Integration of socio-ecological data to prioritize biodiversity hot-spots for Marine Protected Area (MPA) delineation in the south-west coastal zone of Bangladesh" based on the assessments to explore new MPAs in Kuakata, Patuakhali and Salimpur, Chattogram which is published in the Regional Marine Studies journal. https://doi.org/10.1016/j.rsma.2024.103622

Fisheries dynamics monitoring

Species compositions of harvested fish covering bony fishes, cartilaginous fishes and shellfishes were monitored in the major landing centers in Cox's Bazar, Charfasson and Kalapara areas. The dynamics of the status of the fisheries were monitored basically in three ways, firstly- through fish landing monitoring in the major fish landing stations, secondly- through on-board real-time catch monitoring using the Citizen Science approach, and thirdly- through monitoring the sizes (length & weight) of important species. Details of those approaches are described in the following sub-sections:

Fish landing and price monitoring

In Cox's Bazar Sadar, Kutubdia, Ukhiya, Teknaf, St. Martin, Charfasson and Kalapara areas, 11 trained Landing Center Facilitators (LCFs) have been engaged to monitor fish landings in 11 major fish landing centers using smartphone with Bangla apps. LCFs from all the areas were trained on catch monitoring, ecosystem health, biodiversity conservation and gender sensitization issues. They recorded species-wise landing and approximate wholesale prices of those species. The fish landing records revealed 67 fish predominant species/groups in the commercial marine fishery that contributed 1225 tons (t) of fish landing in the major fish landing center in Cox's Bazar Sadar, Kutubdia, Ukhiya, Teknaf, St. Martin, Charfasson, and Kalapara areas during the reporting quarter. Out of the landed species, landings of 56 major contributors are graphically presented in Figure 3. Other than Hilsa, croakers, anchovy, ribbonfish and Bombay duck were the dominant contributors. Within Hilsa landings, the medium size Hilsa (500g size, 76 t) was the highest contributor, followed by the premium size Hilsa (1kg size, 66 t) and small Hilsa

(250g, 45 t). Sardine, pomfret, herring, sea catfish, red seabream, little tuna, mackerels, rays and shrimps were the other important contributors in the fish production (Figure 3).

Citizen Science approach for CPUE monitoring

Catch per unit effort (CPUE) is an important indicator for fish abundance monitoring. ECOFISH II introduced real-time catch monitoring system using Citizen Science approach, and engaged 50 trained Citizen Scientists (experienced and trained boat skippers). Citizen Scientists (CSs) from all the areas were trained to improve their skill on digital catch monitoring and improve their understanding on ecosystem health, biodiversity conservation and gender sensitization issues, and equipped with smartphones and KoBo Toolbox Mobile Apps in Bangla to provide the real-time catch data. In this quarter, six major intervened areas, based in Cox's Bazar Sadar, Moheshkhali, Kutubdia, Ukhiya, Teknaf and Charfasson, the CSs are operating their fishing boats and providing the data helping in fisheries management decision making. In this quarter, ECOFISH II conducted a refresher training for the 09 CS in the Charfasson area to improve their skill on digital catch monitoring and improve their understanding on ecosystem health, biodiversity conservation and gender sensitization issues

Analysis of the data reveals the catch per unit effort (CPUE) for Hilsa and all other important species/groups harvested and contributed significantly. Based on the CS's data stored in the database in this quarter, CPUEs of Hilsa and other species/groups in major intervened areas were estimated. The highest CPUE for all species/groups together was found in Cox'sBazar (1585 kg/boat/day), followed by Moheskhali (1424 kg/boat/day), MPA (498 kg/boat/day) and Kutubdia (344 kg/boat/day), and, while the overall average value was 684 kg/boat/day (Table 5). The CPUE indicated a good daily catch of the major species as this quarter partly covered the second peak harvesting season of marine fish.

Table 5. Average catch per unit effort (CPUE, kg/boat/day) in different intervened areas of ECOFISH II as recorded by CSs during April-June 2024

Station	Boat size and engine power			CPUE (kg/boat/day)		
	Boat length (m)	**Boat width (m)**	**Boat power (hp)**	**Hilsa**	**Other Fish**	**Total**
Cox's Bazar	10.5	3.5	44	180	1405	1585
Moheshkhali	23.8	14.1	64	344	1080	1424
Kutubdia	11.8	4	32	53	291	344
Ukhiya	7.2	2.4	23	2	96	98
Teknaf	9.5	3.4	22	2	152	153
MPA	13.8	5	133	308	190	498
Average	***12.7***	***5.4***	***53***	***148***	***536***	***684***

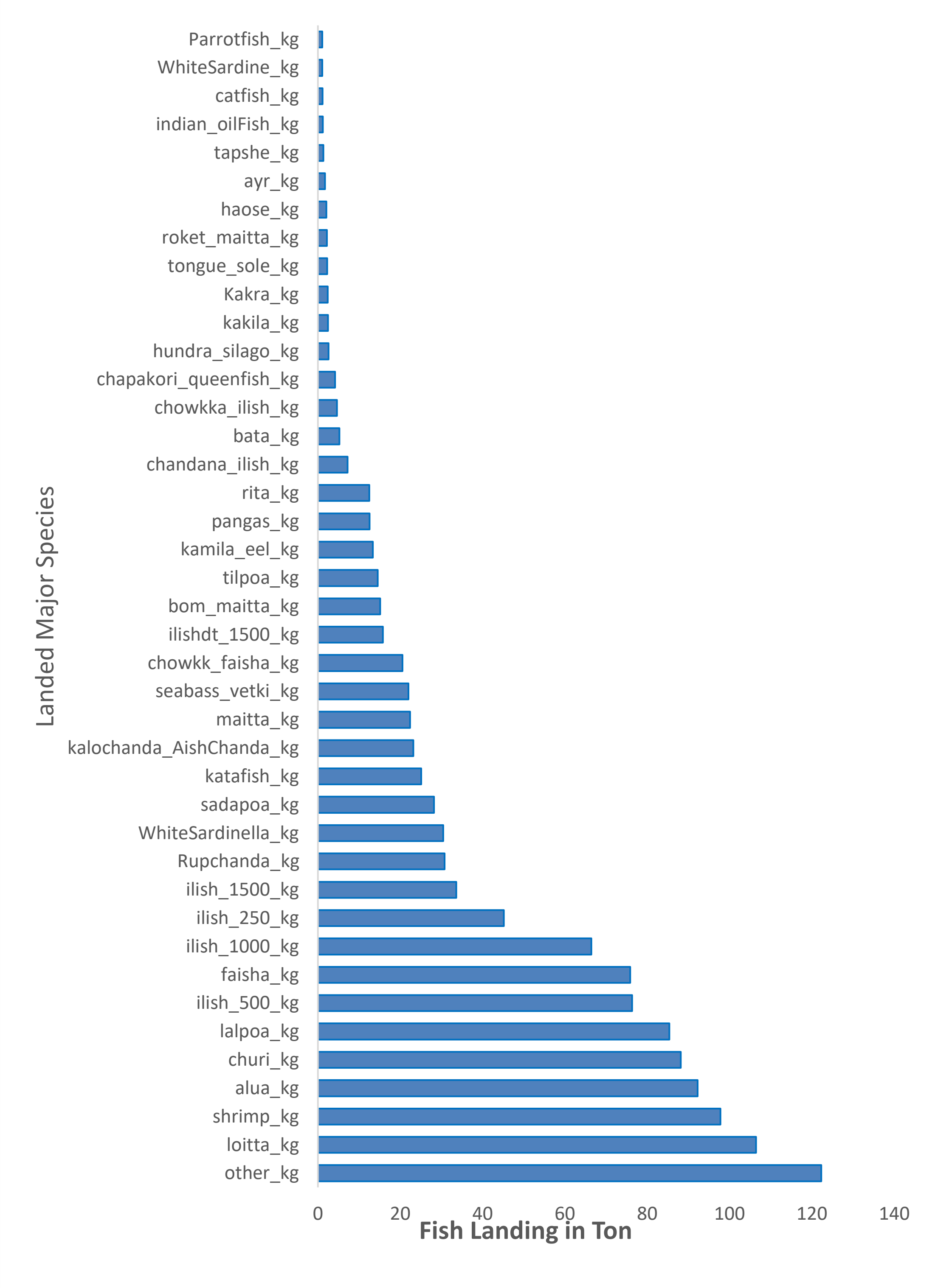


Figure 3. Quantities of 56 major fish landed in the ZOR and MRE during April-June 2024.

Fish size monitoring for stock assessment

ECOFISH II continued stock assessment activities of five important marine fish species other than Hilsa. The selected species were Talang queenfish, Indian mackerel, Fringescale sardine, Big-eye Ilish and Sona sea catfish. As a part of stock assessment activities, ECOFISH II field teams have been collecting morphometric data such as total length (TL), standard length (SL), fork Length (FL) and weight (W) of the species. During April-June 2024 period, total 1,807 specimens of the selected five species were measured covering Cox's Bazar Sadar, Moheshkhali, Kutubdia, Ukhiya, Teknaf, Charfasson and Kalapara areas. In addition, 242 specimens of Hilsa, Pangas, Croaker and Silver whiting were also measured to monitor the average length and weight of those species during the period.

As a representative, the size compositions of Talang queenfish (*Scomberoides commersonnianus*) are graphically shown (Figure 4). The dominant size group was found between 30 cm and 34 cm TL, which consists of 38% of the population. Based on the collected year-round size data along with catch data, the stocks of the five species will be estimated and the MSY (maximum sustainable yield) will be predicted, which will lead to formulate sustainable management measures of those species.

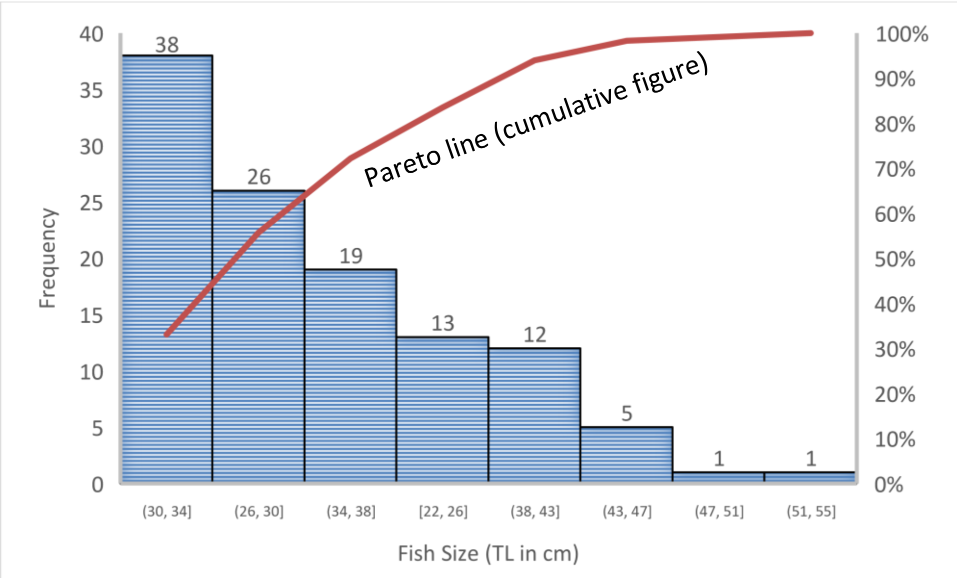


Figure 4. Graph showing size compositions of Talang queenfish (*Scomberoides commersonnianus*) during April-June 2024.

Phase-out and exit strategy

As part of the exit strategy, all fisheries-related data and reports will be submitted to the Department of Fisheries (DoF). Additionally, a comprehensive list of Citizen Scientists, Fish Landing Center Facilitators (LSFs), and Blue Guards will be handed over to the DoF. It is anticipated that these trained volunteers, having gained valuable experience and skills through the project, will be effectively utilized by the department to continue promoting sustainable fisheries management and conservation efforts. This handover ensures that the knowledge and resources developed during the project will be maintained and leveraged by the DoF to support ongoing and future initiatives.

Sub-IR1.2: Improved adaptive co-management and fisheries governance

Adaptive Fisheries co-management is a critical component of effective governance for the enhancement and conservation of the Bay of Bengal. As part of its final-year strategy, ECOFISH II initiated process to establish and make operational of landing center-based co-management committee (LFCC) to promote adaptive co-management in the artisanal and marine fisheries sector in the coastal region of Bangladesh. Remarkable accomplishments of Sub-IR1.2 include the following activities:

Formation and strengthening of co-management organizations

In this quarter, ECOFISH II Activity team has completed formation of fisheries conservation groups (FCGs) by engaging fishermen of the selected beneficiary fishing households of Year-5, which serve as the building blocks of the fisheries co-management organization. During this tenure all 07 Field Teams formed 22 FCGs at Year-5 villages involving 540 fishermen (Figure 5) and finalized the formation of 09 Village-based Fisheries Conservation Group (VFCG) with 132 fisher leaders (Figure 6).

Figure 5: FCG formation at Mostakpara, Cox's Bazar Sadar

Figure 6: VFCG Formation at Moheshkhali

ECOFISH II continued its efforts towards the landing center-based co-management model emphasizing organizational development and strengthening the capacities of the exisiting LFCCs. This included enhancing the skills of executive committee members to better manage and sustain co-management practices, ensuring the long-term success and resilience of fisheries conservation initiatives. Within the landing center-based co-management approach, emphasis is placed on raising awareness and building the capacity of a diverse range of landing center-based stakeholders. This includes not only fishers but also *Arotders*, boat owners, and others involved in the trading of fish and fishery products. However, capacity building trainings for LFCC committee members were organized at Pathorghata, Charfasson, Cox's Bazar Sadar and Kutubdia with the presence of 47 members (Figure 7).

The Gorakghata Landing Center-based fisheries Co-Management Committee (LFCC), Moheshkhali, organized a football tournament for the unemployed fishermen affected by the 65-Day Marine fishing ban in the Bay of Bengal. This event marked the first time any fishing committee in the area was recognized as an institution and received widespread acceptance. This initiative, aimed at fostering community engagement and providing recreational relief during the fishing ban. DoF, Upazila Administration, local elites, blue guards, citizen scientists, media and participants from the fishing community were present at the event. Following the tournament the champion and runner-up teams were awared trophies and other attractive prizes (Figure 8).

Figure 7: LFCC's capacity building training at Nazirartek, Sadar Cox's Bazar

Figure 8: Football Tournament organized by Gorakghata LFCC, Moheshkhali

Strengthen Ecosystem Approach to Fisheries Management (EAFM)

Ecosystem Approach to Fisheries Management (EAFM) approach is for the understanding of the need and concept of natural resource management of capture fisheries in developing, implementing, and monitoring plans, and identify the potential benefits and application in decision-making processes related to coastal and marine fisheries in Bangladesh. To strengthen the capacity of the LFCC executive committee members, three trainings on biodiversity conservation, safety at sea, co-management were organized at Cox's Bazar Sadar, Kutubdia and Kalapara with a total participation of 36 members (Figure 9). These capacity building activities enabled the LFCC members to draft annual work plans for the Year 2024. Additionally, a two (02) days long EAFM training was organized for the 12 EC members of the newly formed St. Martin LFCC at Jetty Ghat Fish Landing Center in St. Martin Island, Teknaf.

Figure 9: Training on Biodiversity conservation and capacity development at Kalapara LFCC

Figure 10: EAFM Training for newly form St. Martin LFCC

Improved fisheries governance

One of the ECOFISH II's key initiatives is to train boat skippers on biodiversity conservation and responsible fishing practices, aiming to improve fisheries governance. These programs enhance the knowledge and awareness of boat skippers, who play a critical role in guiding their crews to comply with regulations and maintain responsible fishing practices for improved biodiversity. During this quarter, 08 boat skipper training programs were conducted, with 164 boat skippers attending the course and recieveing first aid box and kits (Figure 11). In addition, 07 (Seven) batches of training on biodiversity conservation, co-management and responsible fishing were organized for boat owners across all 07 stations, with 229 participants (Figure 12). These sessions aimed to enhance their understanding of natural resource management and sustainable practices.

Figure 11: Boat Skipper training at Kutubdia

Figure 12: Boat owner training at Cox's Bazar Sadar

Effective fisheries governance relies on robust legal, social, economic, and political arrangements to manage fisheries. ECOFISH II emphasizes resource conservation through awareness building programs, which include educating and training fishers on responsible fishing practices and compliance to various spatio-temporal bans. In collaboration with the Department of Fisheries (DoF), LFCC organized awareness programs focusing on 65-day marine fishing ban at all 07 stations. These events engaged with a total of 422 stakeholders from different levels, enhancing their understanding and compliance with sustainable fishing regulations (Figure 13).

Kutubdia station continued support local volunteers to operate a turtle hatchery with the objective of conserving the endangered Olive Ridley sea turtle species. The hatchery protects their eggs from natural predators, human interference, and environmental hazards. During the season, the Kutubdia Station collected 467 eggs of olive ridley sea turtle, resulting in 149 hatchlings that were successfully released into the Bay of Bengal.

Figure 13: Awareness program on 65 Day Marine Ban at Teknaf

Figure 14: Newborn Sea Turtle hatchling crawling towards sea at Kutubdia.

Developing organizational modalities for Landing Centre-based Fisheries Co-management Committee (LFCC)

ECOFISH II engaged a consultant to delve into the adaptive co-management and fisheries governance aspects of USAID’s ECOFISH II Activity. The consultant's tasks included conducting a comprehensive review of existing Fish Landing Centre management systems, identifying strengths, weaknesses, opportunities, and threats. Additionally, the consultant engaged with relevant stakeholders, such as government bodies, local communities, fishery management organizations and forest co-management organziation, to gather insights and feedback. The consultant also developed detailed institutional frameworks outlining roles, responsibilities, decision-making processes, and mechanisms for stakeholder collaboration. The result of this effort was a comprehensive guideline on the organizational modalities of landing centre-based fisheries co-management initiatives, aimed at achieving sustainable coastal and marine fisheries management. However, the consultant visited various sites, conducted focus group discussions (FGDs), and engaged in discussions with targeted stakeholders. The consultant is currently working on producing a comprehensive report based on these interactions and findings.

Phase-out and exit strategy

This component has begun working on an effective phase-out and exit strategy for the interventions, ensuring a smooth transition and sustainability of the initiatives. The focus is on handing over responsibilities, training local stakeholders, and providing necessary resources and guidelines to maintain the progress achieved. The goal is to empower local communities and co-management organizations to continue the efforts independently, ensuring the long-term impact and success of the interventions.

ECOFISH II is collaborating with the Department of Fisheries (DoF) to sustain the co-management initiatives started in 10 fish landing centers. As the continuation of these initiatives ideally requires a legal framework, which takes time, ECOFISH II is advocating for at least a written endorsement from DoF. This endorsement would allow the co-management committees to continue their work under the DoF's umbrella. Concurrently, ECOFISH II is facilitating the election of executive members by co-management committee members through a democratic process.

Additionally, ECOFISH II is helping develop an annual work plan for the next 12 months (July 2024 – June 2025) and strengthening the capacities of these committees in managing their funds.

Moreover, ECOFISH II plans to organize a Fishers Congress to celebrate the success of their initiatives, such as the release of megafauna and compliance with fishing bans, and to reinforce the knowledge and skills gained from the project.

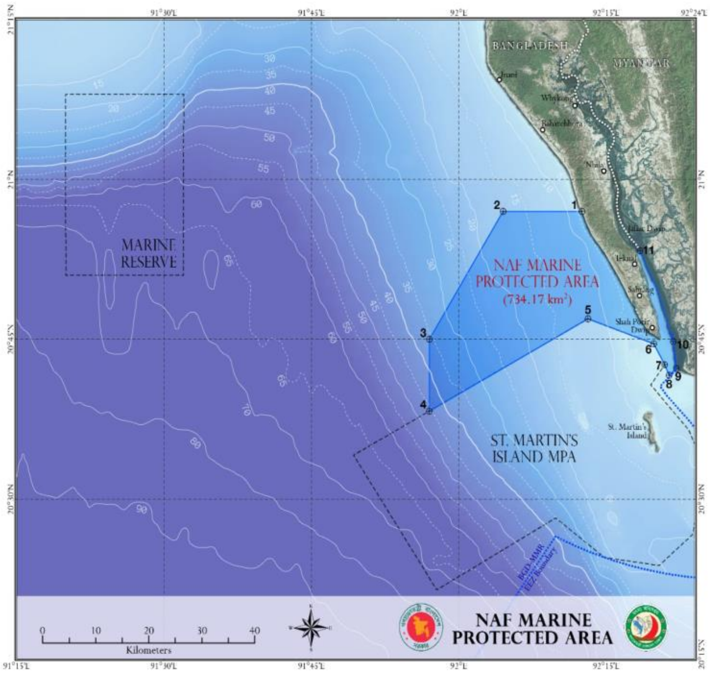
Recognizing the importance of ongoing initiatives, ECOFISH II is motivating the Kutubdia LFCC supporting local volunteers to continue the turtle hatchery in the next winter season.

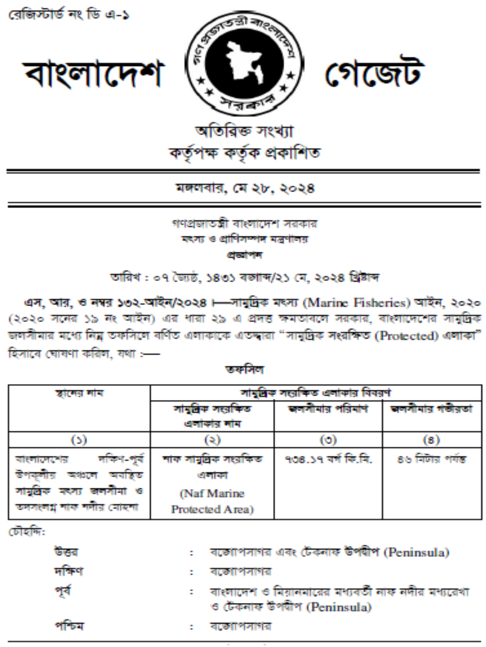
Sub-IR1.3: Improved policy support

ECOFISH II generates relevant information and formulates policy support documents for DoF for approval and implementation. ECOFISH II partner Shahjalal University of Science & Technology (SUST) played very important role in achieving the policy support activities related to Sub-IR1.3. ECOFISH II has implemented the following policy support activities for DoF:

Marine Protected Area (MPA) assessment and management

ECOFISH II, in collaboration with SUST investigated the possibility of declaring a new Marine Protected Area (MPA) in the Naf River estuary and adjacent areas. ECOFISH II then submitted the proposal to the DoF to initiate the necessary steps for the declaration of the proposed MPA under the Marine Fisheries Act 2020. Finally, the Ministry of Fisheries and Livestock officially declared a 734.17 km² area as the Naf Marine Protected Area (MPA) through a gazette notification[1]. In recognition, the Director General of DoF sent an official appreciation letter to WorldFish (Record Number: 33.02.0000.109.11.059.18.366 Date: 27/06/2024), acknowledging and expressing gratitude for the support provided by USAID/ECOFISH II in assessing and delineating MPAs in Bangladesh.





রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ গেজেট

অতিরিক্ত সংখ্যা

কর্তৃপক্ষ কর্তৃক প্রকাশিত

মঙ্গলবার, মে ২৮, ২০২৪

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

মৎস্য ও প্রাণিসম্পদ মন্ত্রণালয়

প্রজ্ঞাপন

তারিখ : ০৭ জ্যৈষ্ঠ, ১৪৩১ বঙ্গাব্দ/২১ মে, ২০২৪ খ্রিষ্টাব্দ

এস, আর, ও নম্বর ১৩২-আইন/২০২৪।—সামুদ্রিক মৎস্য (Marine Fisheries) আইন, ২০২০ (২০২০ সনের ১৯ নং আইন) এর ধারা ২৯ এ প্রদত্ত ক্ষমতাবলে সরকার, বাংলাদেশের সামুদ্রিক জলসীমার মধ্যে নিম্ন তফসিলে বর্ণিত এলাকাকে এতদ্বারা "সামুদ্রিক সংরক্ষিত (Protected) এলাকা" হিসাবে ঘোষণা করিল, যথা :—

তফসিল

স্থানের নাম	সামুদ্রিক সংরক্ষিত এলাকার বিবরণ		
	সামুদ্রিক সংরক্ষিত এলাকার নাম	জলসীমার পরিমাণ	জলসীমার গভীরতা
(১)	(২)	(৩)	(৪)
বাংলাদেশের দক্ষিণ-পূর্ব উপকূলীয় অঞ্চলে অবস্থিত সামুদ্রিক মৎস্য জলসীমা ও তৎসংলগ্ন নাফ নদীর মোহনা	নাফ সামুদ্রিক সংরক্ষিত এলাকা (Naf Marine Protected Area)	৭৩৪.১৭ বর্গ কি.মি.	৪৬ মিটার পর্যন্ত

চৌহদ্দি:

উত্তর : বঙ্গোপসাগর এবং টেকনাফ উপদ্বীপ (Peninsula)

দক্ষিণ : বঙ্গোপসাগর

পূর্ব : বাংলাদেশ ও মিয়ানমারের মধ্যবর্তী নাফ নদীর মধ্যরেখা ও টেকনাফ উপদ্বীপ (Peninsula)

পশ্চিম : বঙ্গোপসাগর

Figure 15. The map illustrates the designated area for the Naf MPA, the fifth MPA in Bangladesh (left) alongside the corresponding government gazette publication (right).

The declaration of the proposed Naf MPA would be very important as the Exclusive Economic Zone (EEZ) of Bangladesh covers 118,813-km² area and the Government has a plan to declare 10% of its EEZ as MPA to achieve the SDG target. After the declaration of the Naf MPA as the fifth MPA in the country, Bangladesh now has a total of 8101.17 km², covering 6.82% of Bangladesh's total marine area, designated as MPAs. Now, it is crucial to develop and implement an effective management plan for the Naf MPA to

[1] এস, আর, ও নম্বর ১৩২-আইন/২০২৪। Ministry of Fisheries and Livestock; Page: 18231-18232

safeguard marine biodiversity, encompassing coral reef fishes, turtles, algae, and seagrass beds. This plan must strike a balance between conservation efforts and supporting the livelihoods of coastal communities dependent on fisheries. This will involve implementing management measures that include adequate compensation and participation of fishing communities affected by conservation initiatives.

At the request of the DoF, USAID/ECOFISH II continues collaborating with SUST to assess the feasibility of establishing two additional MPAs in the South-Eastern coastal region of Bangladesh, specifically focusing on Kuakata (Patuakhali) and Salimpur (Chattogram). This initiative is aimed at supporting Bangladesh in achieving its target of designating 10% of its Exclusive Economic Zone (EEZ) as MPAs, aligning with the broader goal of reaching 30% by 2030. In this assessment, SUST piloted a citizen science-based digital app designed to collect relevant information (Figure. 16). This digital app, aimed at biodiversity monitoring, holds potential value for fisheries management.

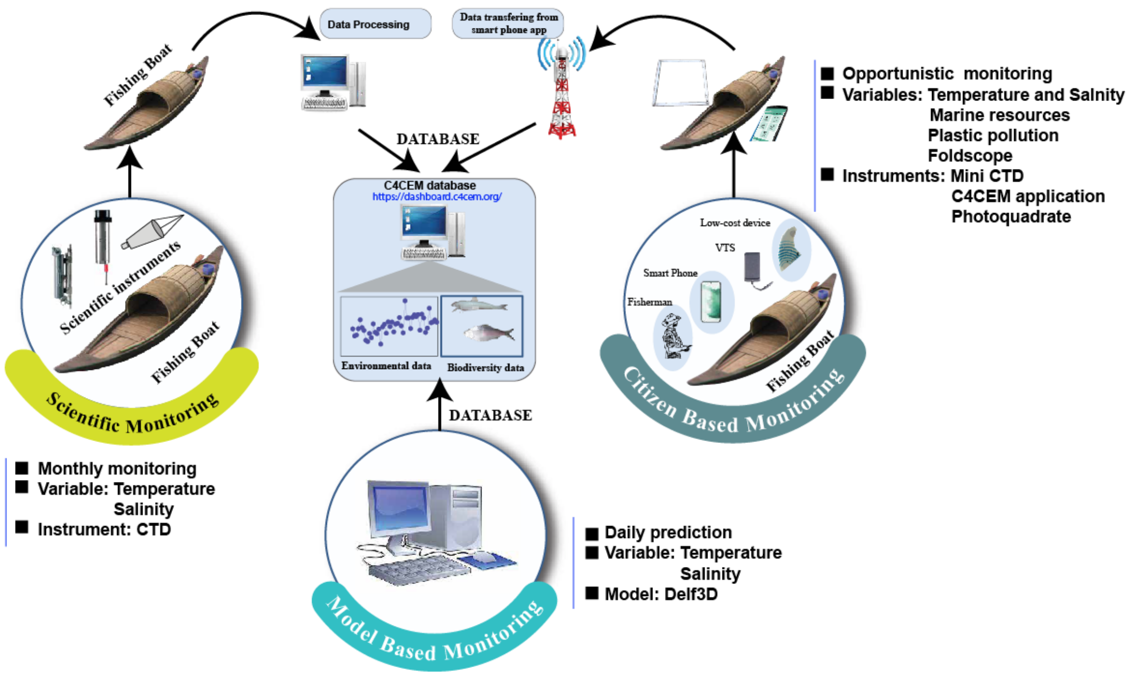


Figure 16. Citizen Science and model-based approach for scientific monitoring

The present study identified a diverse array of species across the Kuakata and Salimpur coasts, ranging from primary producers to tertiary consumers. Specifically, a total of 480 species were identified from the Kuakata coast and 382 species from the Salimpur coast. At Kuakata, the species diversity included 125 phytoplankton, 102 zooplankton, 132 finfish, 58 mollusks, 5 ray fish, 21 birds, 7 sharks, 2 dolphins, 9 crabs, 7 shrimp, and 3 turtles. In comparison, the Salimpur coast hosted 103 phytoplankton, 30 zooplankton, 118 finfish, 20 mollusks, 4 ray fish, 20 birds, 4 sharks, 1 dolphin, 5 crabs, 4 shrimp, and 1 turtle species. Additionally, the study identified various vulnerable, endangered, and near-threatened species in both locations, underscoring the rich biodiversity and the critical need for conservation efforts. The coastal ecosystem of Kuakata supports a large number of species, including both commercially and non-commercially important fish and birds. Equally, Salimpur and its surrounding coastal areas were identified as unique habitats for saltmarshes, mangroves, various crab species (including horseshoe crabs), benthic communities, and diverse fish species.

The analysis of this scientific data is ongoing. Based on the information gathered, ECOFISH II plans to submit a proposal to DoF for the possible declaration of two new MPAs in the country, aiming to further enhance the conservation of these vital ecosystems.

Fisheries Blue Economy (FBE) Concept Note and Guideline Formulation

Professor Dr Harunur Rashid has been assigned as consultant to achieve Fisheries Blue Economy (FBE) related tasks under Intermediate Result-1 (IR1) related to Policy Support components of USAID's ECOFISH II Activity. The specific tasks of the consultancy services is to formulate a Concept Note and a comprehensive Guideline, including potential areas, Action Plans and challenges to enhance FBE in Bangladesh. The developed concept note and guideline will support Blue Economy initiatives of DoF and will also be submitted to WorldFish and USAID to explore future investment opportunities in this sector. Professor Dr Rashid has started to achieve his assignment through reviewing the existing information, FGD, PRA and KII on FBE and finding out the information gaps. After stakeholders' analysis with highlights of their contributions in FBE, a short-term, medium-term and long-term Action Plans for each of the potential areas, including possible activities/interventions, resource necessary, timeline and required partnerships will be formulated and present the concept note and guideline in a national level stakeholders' consultation workshop and incorporate the feedback to finalize the outputs.

Non-Conventional Fishery Products to Support Blue Economy

Dr. Md. Enamul Hoq has been assigned as consultant to accomplish the tasks related to non-conventional fishery products under the Science for Decision Making component of USAID's ECOFISH II Activity. The specific tasks of the consultancy services would be the generation of key biological and nutritional information and exploration of market potentials of commercially important non-conventional fisheries products to enhance Blue Economy in Bangladesh.

Dr Hoq has been started on reviewing the existing information on the non-conventional fishery products available in Bangladesh to support FBE and finding-out the information gaps through stakeholder consultations and explore the potentials of non-conventional marine fishery products for domestic and export market. Dr Haq will also analyze the market potential for domestic and export markets for the key non-conventional products. Finally, he will produce a catalogue to disseminate the information and popularize the products.

IR2: Improved Equity and Resilience of Food, Nutrition and Livelihood Benefits

Sub-IR2.1: Improved livelihood resilience of coastal fishing communities

Strengthening livelihood resilience is the core emphasis of ECOFISH II, which combines the EAFM (Ecosystem Approach to Fisheries Management) concept in reaching well-being outcomes. This component prioritizes empowering the women of the fishing households through creating and diversifying productive assets, access to innovative technologies, services, improve existing value chains, and enhance life skill capacities focusing on gender, nutrition, and income to improve the livelihood resilience. This component also focuses on mobilizing partnerships with public and private sector agencies that could contribute to the sustainability of livelihood interventions. The assumption is that the alternative income of the fishers will help reduce IUU fishing, contributing to the Blue Economy in Bangladesh and mitigating the carbon emissions. Altogether, the development of adaptive capacities equips them to withstand various shocks and stressors, making them more responsible in conserving aquatic biodiversity.

Under this component, ECOFISH II implemented four interconnected activities through the WorldFish team, a partner organization TMSS[2] to carry out the livelihood related activities. Additionally, Chattogram Veterinary and Animal Science University (CVASU) contributed to research on green mussel and seaweed farming initiatives, while Noakhali Science and Technology University (NSTU) assisted in exploring the market orientation of nutritionally sensitive fish and seaweed-based products.

The progress of various IR2 activities to ensure equitable livelihood benefits for both men and women are shown in Table 6. The following sections provide a synopsis of these accomplishments from April to June 2024.

[2] A leading female headed non-government organization (NGO) in Bangladesh and South Asia.

Table 6. Summary of progress under IR2. (completed in progress yet to start)

Activities	Progress made	Status
Sub-IR2.1: Improved livelihood resilience of coastal fishing communities		
Diversify and improve livelihood capacity and options	• ECOFISH II provided critical input support (BDT. 5500/beneficiary) to 1,942 women of the beneficiary fishing households, achieving 99.6% of the target to acquire startup inputs. • 1,929 (99.3% among 1942) beneficiary households who received cash support in year 5, have already purchased the critical inputs. • Ukhiya and Kalapara team has facilitated six vaccination campaigns. During these campaigns, 1,185 goat and 3,460 poultry has been vaccinated. • Printed 8,000 booklets on homestead small livestock and poultry rearing to distribute among the ECOFISH II beneficiary households.	in progress
Access to innovative and climate resilient technology and market	• ECOFISH II and NSTU continued data collection to assess how market orientation influences the performance of Ready-to-Use (RTU) marine small pelagic fish and seaweed powders throughout the entire value chain. • NSTU conducted 4 FGDs with dried fish producers (women artisans) and 10 KIIs with private sector representatives and businesspersons to capture lessons on the dried fish intervention.	in progress
Facilitate women's empowerment, income and nutrition improvement	• WING members of year 4 and 5 have participated in total 12 sessions of the BLS where 15,896 and 10913 women participated respectively2774 members (92%) of year-4 WINGs participated in final evaluation of BLS • 155 WINGs have saved BDT 1,322,555 during 2*nd* quarter and their cumulative savings is BDT 3,622,155. On the other hand, 18 CSGs saved BDT 170,465 during 2*nd* quarter and 20 CSGs have cumulative savings of BDT 1,605,980 up to June 2024 16 CSGs have been phased out following the guideline "CSG exit strategy" • Printed 8,000 pieces of healthy food plate with message on dietary diversity, to distribute among the ECOFISH II beneficiary households across year 1 to 5 • WING celebrated "National Nutrition Week 2024" in 7 villages where 363 participants (90% female and 10% male) were attended different events	in progress
Accelerate nutrition sensitive homestead horticulture	• Provided vegetable seed packages and organic fertilizers followed by an orientation on homestead horticulture for 3,000 WING members of year 4, and 2,733 CSG and dry fish women beneficiary of year 1-3. • Distributed a user-friendly booklet on nutrition-sensitive homestead vegetables gardening to 4,733 beneficiaries of year 5 and selected beneficiaries of year 1-3.	in progress

Diversify and improve livelihood capacity and options

In the previous quarter, ECOFISH II successfully completed all capacity-building training for selected year-5 beneficiary fishing households. Following this, in the reporting quarter, ECOFISH II distributed conditional cash transfers of BDT 5,500 per beneficiary to 1,942 women from fishing households through a digital system, achieving 99.6% of the target. This support enabled the women to acquire crucial inputs for their household-based micro-enterprises. However, the remaining eight women did not receive the cash transfer due to migration, a common coping strategy among coastal fishing communities. Out of the recipients, 1,929 households (99.3%) have already purchased critical inputs to either initiate or enhance their existing income-generating activities. WING members procured these inputs through a Local Procurement Committee (LPC), which included the WING president, secretary, cashier, FCG president, and a community volunteer. The ECOFISH II team continues to follow up with these households to ensure they receive the necessary services for their small businesses. One key service is animal vaccination. ECOFISH II is closely collaborating with the Department of Livestock Services (DLS) to make animal vaccines accessible to fishing households. In the reporting quarter, the team in Ukhiya and Kalapara facilitated six vaccination campaigns in collaboration with the DLS. During these campaigns, 1,185 goats and 3,460 poultry were vaccinated, with participation from ECOFISH II beneficiaries as well as other community members(Figure 17).

Figure 17: Vaccinator from Department of Livestock Service (DLS) providing vaccine to goat and poultry at vaccination campaigns facilitated by ECOFISH II at Ukhiya (left) and Kalapara (right)

The ECOFISH II work plan for year 5 has been strategically designed to focus on phase-out and exit activities. In line with this approach, ECOFISH II printed 8,000 booklets on homestead small livestock and poultry rearing[3] during the reporting quarter. These booklets have been continuously distributed among ECOFISH II beneficiary households. Each booklet provides detailed information on the selection, housing, feeding, vaccination schedules, cost-benefit analysis, and other essential aspects of small livestock and poultry rearing. The purpose of these booklets is to reinforce the training messages received by the beneficiaries and to equip them with the knowledge needed to effectively engage in alternative income beneficiaries and to equip them with the knowledge needed to effectively engage in alternative income-generating activities.

[3] Islam and Zahura. 2024. Homestead small livestock and poultry rearing. Printed in *Bengali*.

Box 1: Cultivating goat and homestead horticulture as resilient responses to 65 days marine fishing ban

Nurunnahar stands as a beacon of hope and resilience in the serene village of Choankhali, under Ukhiya. The journey towards a better life took a significant turn when she got involved with USAID's ECOFISH II. She purchased two goats with the ECOFISH II support, and diligently reared them with the skills developed from the training. Her hard work paid off, and she now proudly owns five goats. The true test of her resilience came during the 65-days marine fishing ban when her husband's income ceased. She stepped up and sold one of her goats for BDT 5,500 which meet up crucial financial support for the family. However, Nurunnahar's efforts didn't stop there. She cultivated a thriving vegetable garden in her yard utilizing the training and support she received from ECOFISH II. This garden became a source of both nutrition and income, as she earned BDT 4,600 from selling vegetables while also contributing to her family's nutritional needs.

"*The household economic activity of my wife is supporting me a lot as we have to face financial crisis during the 65-days marine fishing ban*" said her husband, Burhan Uddin, a dedicated fisher and he acknowledges the profound impact of her initiatives.

Looking ahead, Nurunnahar plans to expand her goat-rearing activities, aiming to provide even more support during the lean fishing seasons. Through her dedication, she is not only enhancing her family's living standards but also contributing to biodiversity conservation and livelihood resilience.

Access to improved technology and market linkages

Seaweed and Green Mussels farming

CVASU submitted all the deliverables including the final report. CVASU is compiling all the lessons that have been learnt over the previous four years. CVASU is co-developing a strategy for next 10 years for the mariculture (seaweed and green mussel) development in Bangladesh. Following the organization of a nationwide workshop involving the relevant stakeholders, the strategy will be submitted to the Department of Fisheries (DoF). The partnership is going to close during the next quarter.

Fish-based items production and marketing

NSTU has developed a composite nutrient-rich ready-to-use (RTU) dried fish powder using seven indigenous small marine fish species from the Bay of Bengal. Based on the research outcomes, Samiul Islam, Senior Nutrition Specialist has articulated the nutritional importance of the developed powder in a recently published blog titled "Combating Malnutrition with Small Pelagic Marine Fish in Bangladesh." Additionally, another blog titled "New Study Highlights Nutritional Benefits of Dried Small Fish in Bangladesh" was published online by Dried Fish Matters, emphasizing the findings.

ECOFISH II and NSTU assessed the impact of market orientation on Ready-to-Use (RTU) Marine Small Pelagic Fish and Seaweed Powders. The primary aim of this study was to measure how market orientation influences the performance of RTU marine small pelagic fish and seaweed powders throughout the entire value chain. The study of willingness to pay (WTP), as well as the economics and commercial feasibility of the product indicated that fish powder-based recipes received the highest ratings, followed by seaweed, and mixed powder (seaweed and fish). Consumers' familiarity with dried fish and the accessibility of well-established recipes may account for this. About 95% of retailers believed it would be a profitable addition to their business. About two-thirds of customers (60.71%) agreed to purchase the study products over the course of the year. The research indicates noteworthy prospects for enhancing public health via the distribution of nutritional data and effective promotional initiatives. Considering Bangladesh's pervasive malnutrition problems, encouraging RTU seafood powders may be essential to improving dietary diversification and nutrition security. With strategic marketing and consumer education, these products have the potential to make a meaningful impact on public health and nutrition. Future research should focus on long-term consumer behavior and the scalability of production to meet growing demand.

Facilitate women's empowerment, income and nutrition improvement

Operationalization of WING

ECOFISH II continues its support for the institutional development of 169 WINGs formed in year-4 and year-5, focusing on regular meetings, Business Literacy School (BLS), savings collection, and leadership development. During this quarter, both year-4 and year-5 WING members participated in scheduled sessions of BLS. Specifically, year-4 members attended sessions 19-24 and year-5 members engaged in sessions 3-8 of the BLS. The attendance rate for WING members in these sessions was above 85%. Through the BLS, WING members are gaining knowledge in Bengali alphabets, basic calculations, and raising awareness on topics such as nutrition, gender issues, and aquatic biodiversity conservation.

Both year-4 and year-5 WING members have continued savings activity by updating their passbooks, savings, and bank registers. The field team has confirmed that up to this quarter out of 169 WINGs, 155 WINGs have continued their savings activity. During 2*nd* quarter 155 WINGs saved BDT 1,322,555. As of June 2024, 4,543 WING members from 155 groups have collectively saved BDT 3,622,155. It was reported that remaining 14 WINGs are not continuing the savings due to the geographically challenged area as no designated banks are available in operation. Additionally, team is assisting the WING executives in maintaining financial documentation.

Apart from these, the field team have facilitated final evaluation of BLS with 2,774 WING members which is 92% of total members. The aim of this evaluation was to understand the knowledge status of WING members after completing 24 sessions of BLS. The evaluated subject was basic literacy part that includes Bengali alphabet writing, number writing, general calculations etc. The evaluation result shows that out of 100, the average mark was 76 since 37 (1.3%) beneficiaries can sign only. It should be mentioned that 75% WING member's score was satisfactory which represents that the knowledge on basic literacy of WING members has improved after attending BLS sessions.

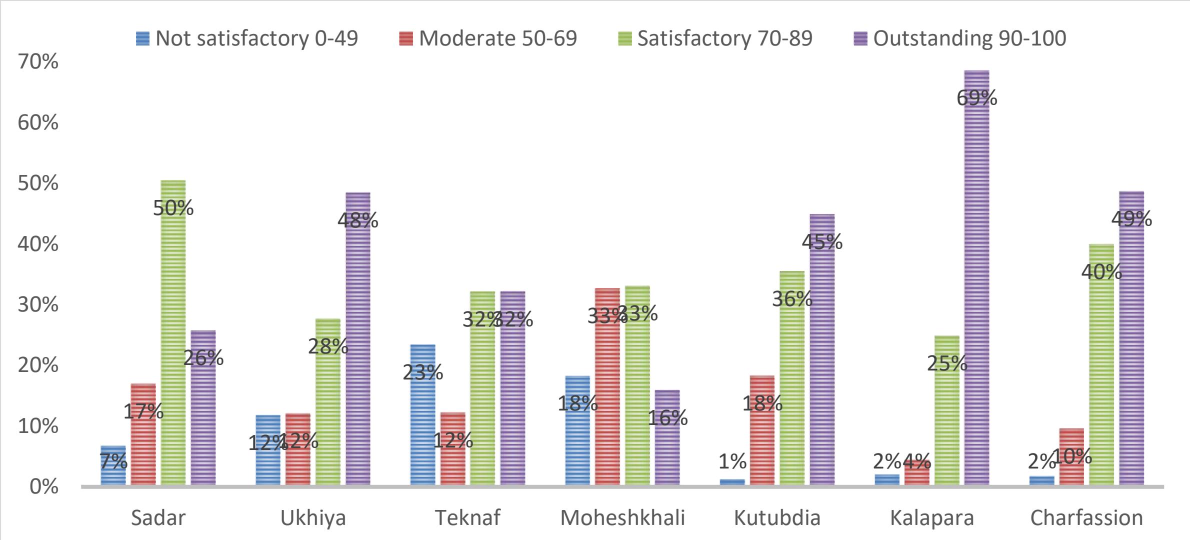


Fig. 18: Final evaluation of BLS of year-4 WING members

Community Savings Group (CSG)

ECOFISH II has formed 53 women led Community Savings Groups (CSG) during 2020-2022 and continued its support to run their group activities up to date. As ECOFISH II is in its fifth year, it has initiated the gradual phasing out of the CSGs following the "CSG Exit Strategy" guideline, aiming to empower CSG members to independently manage group operations, leading to the conclusion of associated activities. During 2nd quarter, team organized 16 CSGs phased out meeting where 427 members participated, and these groups have cumulative savings of BDT 973,078. So far 33 CSGs of years 1 and 2 have been successfully phased out. Simultaneously, ECOFISH II is offering continuous assistance to 20 Community Savings Groups (CSGs) established during the 2nd and 3rd years of the project. During the 2nd quarter, the field team facilitated a total of 29 meetings with 652 CSG members and 18 CSGs saved BDT 170,465. 624 members of 20 CSGs. These groups have collectively saved BDT 1,605,980 up to June 2024. Due to 65 days marine fishing ban period most of the groups did not participate in savings.

WING celebrates National Nutrition Week 2024

ECOFISH II facilitated WING to celebrate "National Nutrition Week 2024" through rallies, awareness meetings, nutritious food demonstrations and quiz competitions in the community to sensitize mass population on different aspects of nutrition. Total 7 events were organized in 7 villages where 363 participants (90% women and 10% men) were attended. WING leaders from nearby WINGs and other members of WING, and FCG, Community Volunteers of respective stations actively participated in the events. The theme of this year was, "*স্মার্ট বাংলাদেশ বিনির্মাণে, খাবার খাবো পুষ্টিগুণে*" meaning "eat nutritious food to build smart Bangladesh".

Figure 19: Celebration of National Nutrition Week 2024 with fishing community in Cox's Bazar and distribution of healthy food plate.

Women from the fishing community including Pregnant and Lactating Mothers, and Fishermen received a set of nutrition messages comprising dietary diversity, maternal and child nutrition for 1000 days window of opportunity, and hygiene, etc. Women from different WING prepared nutritious food and willingly participated in the competition of nutritious food demonstration. Champions from nutritious food demonstrations and quiz competitions were awarded with some prizes like hand wash kit/soap. Healthy food plates with messages on dietary diversity have been distributed among the participants. Colorful festoons (5 for each station) were prepared for the event. Senior Upazila Fisheries Officer (SUFO) and Upazila Fisheries Officer (UFO) from Department of Fisheries (DoF), local government body (female member of Union Parishad), and Senior Nutrition Specialist attended the events. The events attract the national and local media attention and have been covered by 8 online, print, and electronic media.

On the eve of the event, ECOFISH II printed 8,000 pieces of healthy food plates to distribute among its beneficiaries. This plate is a colorful presentation on the dietary diversity and the key nutrition messages particularly for women. The beneficiaries were orientated on the key messages and use of this plate before each distribution so that they can change their habit to consume a more nutritious and diversified diet.

Accelerate nutrition-sensitive homestead horticulture

ECOFISH II has a special focus on improving the nutrition situation of the poor fishing HHs considering their nutrition vulnerabilities. A combination of factors, including lower income levels, limited technical knowledge, and constraints in homestead space, all of which may lead to reduced consumption. On the other hand, the villages are relatively vulnerable to natural disasters. Tidal surge is a common phenomenon in this area during the rainy season, and limited embankment to protect from cyclones or high tides which causes water logging in household areas and homestead lands (Figure 20). Some beneficiaries showed resilience by adopting and adapting a few climate resilient techniques like rooftop gardening, sac bag and tower garden, etc. based on their local knowledge. Since most of the beneficiaries do not have enough land in their yard and even having some, they applied these techniques due to the infertility of the land because of salinity and sandy soil intrusion during high tidal surges. They use trays, sacks, baskets and cork sheets to grow vegetables.

Figure 20: Homestead horticulture with climate resilient technique at Hazampara, Teknaf (left) and a beneficiary harvesting summer vegetables at Cox’s Bazar Sadar (right).

ECOFISH II is working to encourage fishing households for vegetable cultivation and promoting a shift in their dietary patterns. These efforts involve introducing best practices that enable year-round access to a diverse range of nutritious foods, as well as providing extension services. Beneficiaries are now much more confident, especially the female members of the household; they can support their families by earning and contributing household food security and reducing malnutrition.

During this reporting period, ECOFISH II has provided vegetable seed packages and organic fertilizers followed by an orientation on homestead horticulture for 3,000 WING members of year 4, and 2,733 CSG and dry fish women beneficiary of year 1-3. Beneficiaries were provided with vegetable seed packages (6-9 types: Spinach, Water spinach, Okra, Bottle gourd, Cucumber, Snake gourd, Bitter gourd, Ridge gourd) and organic fertilizers (4 kg of vermicompost/BHH) to encourage year-round production and consumption of a diverse, nutrient-rich diet. In addition, a user-friendly booklet[4] on nutrition-sensitive homestead vegetables gardening has been distributed to 4,733 beneficiaries of year 5 and selected beneficiaries of year 1-3.

Phase-out and exit strategy

ECOFISH II designs livelihood interventions to recognize and address the intricate connections between the well-being of coastal communities and the health of aquatic ecosystems. However, following Work Plan 5, ECOFISH II has initiated the phase-out and exit strategy, as some activities were specifically designed with this transition in mind. This includes is capturing lessons on how these interventions help artisanal fishing households build livelihood resilience, validating the assumption that supporting fishers in generating income from alternative sources aids biodiversity conservation. These lessons may provide empirical evidence, refine existing livelihood strategies for SSF, and inform investors and development practitioners on designing future livelihood interventions that contribute to sustainable artisanal fisheries management. Additionally, ECOFISH II is capturing the changes in gender dynamics resulting from its interventions, which will also provide valuable insights.

ECOFISH II is also documenting insights from its "research and development" initiatives on mariculture (seaweed and green mussel). Based on these lessons, the project plans to formulate future research and development strategies for Bangladesh in mariculture. A national-level workshop will then be organized to present project results and the mariculture strategy, which will be submitted to the Department of Fisheries. Similarly, the project is capturing experiences in research and development related to safe and hygienic dried fish production, as well as the production and marketing of dried fish and seaweed powder.

ECOFISH II is guiding the field team through the gradual phase-out of its interventions, ensuring a smooth close-out of administrative, logistic, and financial processes for the involved partners. A key task is organizing phase-out meetings with 169 WINGs to bid farewell and encourage them to continue their best practices. To support this, ECOFISH II will provide a matching fund or financial incentive to these WINGs. Additionally, the project will organize ”Fisherwomen Congress” in seven Field Office to celebrate the achievements of women in income generation, nutrition, literacy, gender equality, and their indirect contributions to biodiversity conservation alongside their male counterparts.

ECOFISH II is providing knowledge materials to its beneficiaries to help them recall and reinforce their learning. These materials include booklets on improved methods of poultry and small livestock rearing, homestead horticulture, and gender and nutrition.

Finally, ECOFISH II will provide the Department of Fisheries with comprehensive lists of beneficiaries and local women community volunteers. This ensures that the Department can continue to connect and support these fishing households, individuals and leverage their involvement in ongoing and future initiatives.

[4] Islam et al., 2024. Booklet on nutrition sensitive homestead horticulture for marine and coastal fishing communities. https://hdl.handle.net/20.500.12348/5964

3 CYCLONE REMAL

Severe Cyclonic Storm Remal[a] was a moderately strong but extremely devastating and deadly tropical cyclone that affected West Bengal and Bangladesh, also became the costliest known tropical cyclone of Bangladesh in May 2024. The severe cyclonic storm struck Cox'sbazar, Patuakhali and Barguna sites dated 26 May after 7pm and continued 27 May, bringing continuous strong winds and thunderous rain. The powerful winds and flooding caused widespread uprooting of trees and damage to houses, cattle, crop and infrastructure. A shanpshot of damage/loss of ECOFISH II BHH due to cyclone Remel are given bellow:

Table 8: Damage or loss by Remal Cyclone for project beneficiaries

District	Upazila	Impacted villages on cyclone (no.)	Beneficiaries affected for ECOFISH II	Dwelling house		Vegetable		Chicken & duck (no.)	Goat (no.)	Others AIGA (Partially)	Fishing Boat & net		Billboard	Pond flooded
				Fully	Partially	Fully	Partially				Fully	Partially		
Cox's Bazar	Cox'sbazar Sadar	2	250				250							
	Moheskhali	8	600		256		593	72						
	Teknaf	6	300		120	40	280					80		
	Ukhiya	4	200		200		200	50	2	5				
	Kutubdia	9	250		40		250							10
Bhola	Charfasson	10	300	7	30	200	150							5
Noakhali	Hatia	9	600	65	200	300	300							5
Patuakhali	Charmantaz (Rangabali)	7	500	30	150	300	380	100						3
	Kalapara	4	200		1	109	203	57					3	
Barguna	Amtoli	1	60	2	1	54	8	320						3
	Borguna Sadar	1	100	2	4	82		586			1	1	1	67
	Pathorghata	1	100	1	16	35					1	1		2
		56	3060	107	898	1080	2334	1185	2	5	2	82	**4**	**95**

- Dwelling House: Fully damage or loss means house flashed out/broken by heavy storm and wave
  Partly damage or loss means the house flashed out/not broken but weaken by heavy storm and wave
- Vegetable: Fully damage means fully flashed out seed bed and seedling both homestead and crop field by heavy storm and wave
  Partially damage means partly flashed out seed bed and seedling in homestead or crop field by heavy storm and wave
- Fishing boat & net: Fully damage means fully broken by heavy storm and wave
  Partially damage means partly broken by heavy storm and wave

4 COMMUNICATIONS

As communication outcomes, 20,000 posters were printed for public awareness raising on the 65-days of marine fishing ban period and were distributed to the Department of Fisheries in Dhaka, Bangladesh Coast Guard, Headquarters, Bangladesh Navy Headquarters, as well as the District Fisheries Offices in Chattogram, Bhola, Cox's Bazar, Lakshmipur, Chandpur, Shariatpur, Barguna, Jhalokati, Barishal, Pirojpur, and Patuakhali and in ECOFISH II intervention areas.

8,000 food plates during the National Nutrition Week were distributed. 8,000 booklets on nutrition awareness were printed and distributed. 1750 mementos were produced for school campaign on biodiversity conservation and ecosystem health improvement. The production of 300 caps is currently underway for ECOFISH II staff and government officials.

In all ECOFISH II intervention areas, 65 days of marine fishing ban period and concerning awareness raising programs took place. A school-based awareness-raising campaign was organized on "biodiversity conservation and ecosystem health improvement of the ocean," in which 1074 students from classes nine and ten participated. National Nutrition Week was observed under the theme of "Building a Smart Bangladesh with Nutritious Food," with the Bangladesh Department of Fisheries, with the presence of approximately 350 female participants from the fishing community. In collaboration with the Department of Fisheries, USAID's ECOFISH II celebrated World Ocean Day with 347 participants, and International Day for the Fight against Illegal, Unreported, and Unregulated (IUU) Fishing was also observed with 387 participants.

In addition, USAID's ECOFISH II WorldFish Bangladesh organized a workshop with the officials of the Department of Fisheries to discuss the project's fifth-year work plan and share experiences. A total of 26 officials from the Department of Fisheries, including the Director General, Chief Scientific Officer, Director of the Marine Fisheries Department, and officers from various Zilla and Upazila, participated in the workshop.

A blog posted on WorldFish's website on Combating Malnutrition with Small Pelagic Marine Fish in Bangladesh. Forty-seven media coverages and eleven social media posts were ensured through ECOFISH II's comprehensive activities to improve fishers' livelihood resilience, conserve biodiversity, and enhance ecosystem resilience.

ECOFISH II intends to produce a brief documentary summarizing the outcomes of the interventions and significant activities. A script has been prepared and finalized for this purpose. The vendor selection process is already ongoing, and WorldFish Bangladesh's communication team will actively participate in video filming, editing, and other associated responsibilities.

Table 9: Media coverage of ECOFISH II during the April- June 2024 period:

S.N.	News Title/ Event Name	Name of the Media	Links
1.	World Ocean Day celebration	Daily Bangladesh Pratidin, Daily Jugantor, Daily Jaijaidin, Ekattor TV, Daily Sokaler Somoy, Jagonews24.com, Tritiyamatra.com, Rupantor News.tv, Daily Sangu, Dhakatimes24.com, Amadersomoy.com, Naf Radio	Daily Banlgadesh Pratidin, Daily Jugantor, Daily Jaijaidin, Ekattor TV, Daily Sokaler Somoy, Jagonews24.com, Tritiyamatra.com, Rupantar News.tv, Daily Sangu, Dhakatimes24.com, amadersomoy.com, Naf Radio.
2.	IUU fishing Day	Daily Bangladesh Pratidin, Amadersomoy.com, Amader Cox's Bazar	Daily Bangladesh Pratidin, Amadersomoy.com, Amader Cox's Bazar,
3.	65 days marine fishing ban period	Daily Shokaler Somoy, Rupantor News	Daily Shokaler Somoy, Rupantor News
4.	Training on biodiversity conservation	Daily Kaler Kantho, Daily Nayadiganta, Muktinews24.com, Ruantor news, Amader cox's Bazar, 71 news ctg,	Daily Kaler Kantho, Daily Nayadiganta, Muktinews24.com, Ruantor news, Amader cox's Bazar, 71 news ctg,
5.	Annual workplan and experience sharing workshop with the Department of Fisheries	BTV, My TV, Cox's Bazar Betar Barta, Daily Cox's Bazar,	BTV, My TV, Cox's Bazar Betar Barta, Daily Cox's Bazar, Dainik Cox's Bazar, Ajker Cox's Bazar Barta and

		Dainik Cox's Bazar, Ajker Cox's Bazar Barta, Dainik Ruposhi Gram	Dainik Ruposhi Gram
6.	National Nutrition Week	Bangladesh Pratidin, Fns.com, Daily Tritiyamatra, csb24.com, 71newsctg.com	Bangladesh Pratidin, Fns.com, Daily Tritiyamatra, csb24.com, 71newsctg.com,
7.	Turtle hatchery; egg collection and releasing baby turtle	Daily Shokaler Somoy, Bangladesh Today	Daily Shokaler Somoy, Bangladesh Today
8.	Training for Citizen Scientists and boat skippers	Daily Observer, Daily Tritiyamatra , Rupantor News	Daily Observer, Daily Tritiyamatra , Rupantor News
9.	School based campaign on biodiversity conservation	71newsctg.com, cbnbd.com, Amader Cox's Bazar, Daily Ajker Moheshkhali	71newsctg.com, cbnbd.com, Amader Cox's Bazar, Daily Ajker Moheshkhali
10.	Fisher's football match	71news.com	71news.com
11.	Blue Guards activity on beach cleaning	Cox'sbazartimes24.com, Amader cox's Bazar, 71news ctg	Cox'sbazartimes24.com, Amader cox's Bazar, 71news ctg

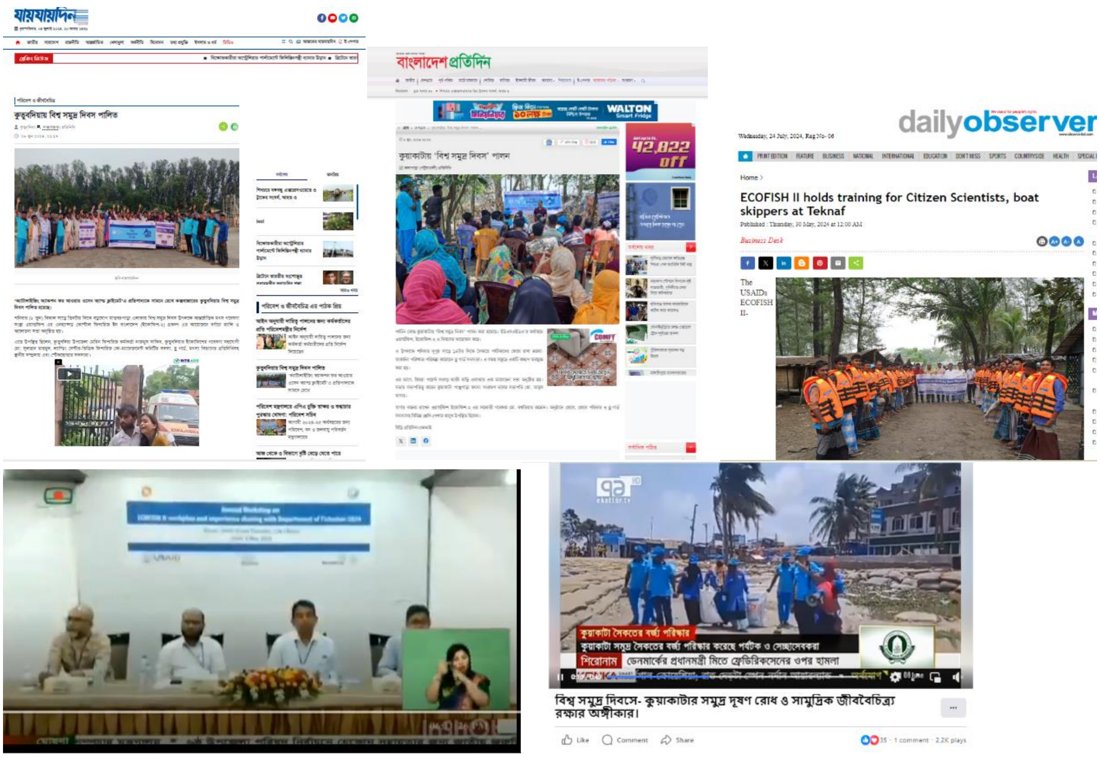


Figure 21: Media engagement

5 ENVIRONMENT

The Environmental Monitoring and Mitigation Plan (EMMP) provides a basis for systematic implementation of Initial Environmental Examination (IEE) and Environmental Assessment (EA) conditions. Its purpose is to determine whether the proposed project interventions have any potential adverse impacts on the environment as well as to suggest a mitigation plan to reduce environmental consequences. The ECOFISH II Activity strengthens the ability of fishing communities to extract maximum benefit from coastal environments using sustainable practices and to mitigate the adverse effects of climate change. Like throughout the project implementation period, in second quarter of Year-5 (April-June, 2024), the project carefully followed the EMMP guidelines.

- ECOFISH II ensured to meet EMMP requirement or exceed the requirements complying with the approved EMMP guideline.
- Activities that are Categorically Excluded like training, community mobilization, other capacity building activities, workshops or meetings and information transfers are those for which no environmental impact is expected.
- The EMMP establishes a Negative Determination with Conditions for activities that have the potential for negative impact on the environment but where the inclusion of mitigation measures can prevent significant impacts.
- The EMMP does not identify any proposed activities that have the potential for a significant effect on the environment (Positive Determination), requiring an Environmental Assessment.

6 MONITORING EVALUATION & LEARNING (MEL)

Monitoring, Evaluation and Learning (MEL) activities are the key to project management and performance management and project learning and accountability. The summary of the progress of MEL activities of ECOFISH II during this quarter is given in Table 10.

Table 10. Progress summary of MEL activities (completed in progress yet to start)

Activities	Progress made	Status
Basic HHs Information of Year-5 BHH	Collected basic household information from 2,000 artisanal fishing households in 20 fishing villages using ODK based application.	
Baseline and End-line/post-intervention assessment of non-formal organizations (120 organizations)	Baseline assessment of 120 non-formal organizations completed in 4th quarter of Year 4 (2023). We will conduct post-intervention assessment in the 3rd quarter (Jul-Sep) of Year-5 (2024).	
Assessment of Economic Benefit of Target ECOFISH households (400 HHs)	The tools, protocol and questionnaire for the assessment have been drafted and data collection will be completed in the 3rd quarter of Year-5 (2024)	
Endline Survey	The tools, protocol and questionnaire for the endline survey have been drafted and data collection will be completed in the 3rd quarter of Year-5 (2024) by hiring a firm.	
Database development and activity monitoring system	Data synchronization and uploading into the database is continuing. Orientation on MEL activities for Year-5 activities were completed and data collection template has been prepared.	

Basic HHs information

A GIS-based approach utilizing Google Earth was employed to finalize around 20 villages for Year-5 intervention. The Basic Household Information (BHHI) survey served to understand the socio-economic status of the fishers and their willingness to participate in the ECOFISH-II project. During this quarter, cross checked and finalization of beneficiaries with database for 2,000 beneficiary households were selected for Year 5. MEL regularly supported the program team in updating beneficiary information, including corrections to WING member names and FCG member names. Additionally, this quarter we prepared a list of non-intervention village fishermen for the annual survey.

Baseline and End line/post-intervention assessment of non-formal organization

Organizations with improved capacity to address climate change issues have increased the ability to adapt adverse situations resulting from climate change. The MEL team gathered baseline data from 120 non-formal organizations during the fourth quarter of Year 4 (2023) and plans to carry out a post-intervention assessment in the third quarter (July-September) of Year 5 (2024) to evaluate changes in institutional indicators.

Database development and activity monitoring system

During this quarter, efforts have been focused on operating a centralized online system for data collection, storage, and dissemination of information. This initiative encompasses both hardware and software components aimed at enhancing monitoring systems. Additionally, staff members have oriented to proper utilization and access to the offline-online database. The database tracks ECOFISH II activities and various other features, including the locations of villages, which can be visualized through Google Earth. Furthermore, all necessary tools for monitoring activities for Year-5 (2024) and compiling information from previous years have been finalized. These efforts provide the project management body with valuable insights into the key features of specific ECOFISH II interventions, facilitating further planning and decision-making processes. In the 2nd quarter, we rechecked our online and offline databases as well as our hard copy formation records of all informal institutions of ECOFISH-II.

Internal Data Quality Assessment

During this quarter, the Monitoring, Evaluation, and Learning (MEL) team conducted an Internal Data Quality Assessment (DQA) across the remaining four intervention areas—Kutubdia, Charfasson, Kalapara, and Cox's Bazar Sadar. The DQA, conducted from April 20th to April 30th, 2024, aimed to ensure data robustness by evaluating Validity, Precision, Reliability, Integrity, and Timeliness. Supervised by the Project MEL Manager and Monitoring Officer, the assessment involved reviewing station-level documents for Year 3 and Year 4, as well as previous years' records. The team also visited three randomly selected communities per station, interviewing group members about training, support, and satisfaction. Findings were then shared with technical staff, PNGO members, and community volunteers in collaboration with TMSS and WorldFish.

Gender Formative Research Survey

In this quarter MEL team supported the Endline gender study by developing the questionnaire, designing the sample, hiring the survey team, and and transferred the detail survey questionnaire (English & Bengali version) to Kobo form for smooth completion of Gender Formative Research study survey. Training of data enumerators, collection of data as per timeframe and sending it to the server after checking by the checker, etc. are imparted by the MEL.

Endline Survey for Final Evaluation

During this quarter, the MEL team planned to conduct an Endline survey as part of the project cycle. We advertised on bdjobs, and the procurement team assessed and evaluated 13 firms, ultimately finalizing one firm based on its capacity to meet ECOFISH-II's requirements. The firm will start the survey actvitives first week of August, 2024.

7 IMPLEMENTATION CHALLENGES

- Management of decelerated Marine protected area is a crucial that is very much needed to protect, effectively utilizes of marine resources, its conservation biodiversity.
- Cyclonic Storm, Remal was a tropical cyclone that moderately affected fisher's livelihood that tends to economic crisis of fishers' communities. Moderately damaged beneficiaries HHs & crops, increased saltwater intrusion, soil salinity which hampered agricultural productivity of HHs. In every year, moderate to strong cyclones severely affecting fisher's livelihood and economic losses.
- Market and business model as well as climate-smart technology development for dried fish, fish powder, seaweed and green mussel takes time and needs to identify business stakeholders.
- Strengthening or institutionalizing co-management committee/groups (FCG, VFCC, LFCC) at village or in fish landing centers is crucial which takes longer time.
- Capacity building or awareness raising events for artisanal fishers is a challenge during the normal fishing days.

- Ghost fishing, IUU fishing and non-conventional fishing awareness is a prime need to establishing sustainable coastal and marine fisheries resource management which take longer time for policy development with multisectoral departments of Bangladesh Government.
- Engagement of stakeholders (public, private) in Blue Economy initiatives is a big challenge, which will take longer time for mainstreaming.
- The conservation and protection of riverine catfish juveniles' habitat necessitates the development of a strategic management plan by the relevant stakeholders.
- Ensuring safety and security measures of boat skippers and fishermen at the sea.
- Activities in Saint Martin Island, Nijhum Dwip MPA are difficult to follow due to its remote location, difficult to move in bad weather conditions and poor accessibility.
- In this quarter excessive high temperature (hot) hampered activities implementation in the field, and beneficiaries livelihood activities.

8 INTEGRATION OF CROSSCUTTING ISSUES AND USAID FORWARD PRIORITIES

8.1 Gender Equality and Women Empowerment

ECOFISH II aims at achieving gender equality and women empowerment in fishing communities through reducing gender barriers and improving women's knowledge and skill. It is providing AIGA training, business literacy, savings, and sessions on income, nutrition, biodiversity conservation, and adaptation to climate change impacts to women through Women Income and Nutrition Groups (WINGs) whereas men are receiving gender sensitization sessions to change attitudes and behaviors towards women empowerment. It has formed 169 WINGs with 5007 women from artisanal fishing households that are serving as a platform to improve women's wisdom. During this quarter, ECOFISH II has provided critical inputs support to 1,942 women's of the fishing households to support women's participation in IGAs. WING members of year 4 and year 5 have participated in total 12 sessions of the Business Literacy School (BLS) respectively, with plans to complete 24 sessions over the course of a year. Besides, ECOFISH II has provided vegetable seed packages and organic fertilizers followed by an orientation on homestead horticulture for 3,000 WING members of year 4, and 2,733 CSG and dry fish women beneficiary of year 1-3 to encourage year-round production and consumption of a diverse, nutrient-rich diet.

WING members are continuing savings activity by updating their passbooks, savings, and bank registers. As of June 2024, out of 169 WINGs, 155 WINGs have collectively saved BDT 3,622,155. Additionally, ECOFISH II has provided continued support to 20 women-led Community Savings groups (CSGs) established in the years 2 and 3. During this quarter quarter, the field team facilitated 29 meetings with 652 CSG members. These groups have collectively saved BDT 1,605,980 up to June 2024. WING and CSGs are playing a pivotal role in improving the savings behavior of women in fishing households.

During this quarter, ECOFISH II has facilitated gender sensitization sessions in 92 events covering 2082 participants from VFCG, FCG, LFCC, boat owners, and boat skippers. Those sessions aimed to work towards the modification of behavior by raising awareness of gender equality concerns. However, in this reporting period, women's participation in ocean day celebration, school campaign, nutrition week celebration and ecosystem health improvement was 32%, 44%, 95% and 28% respectively.

8.2 Sustainability Mechanisms

The following steps have been taken to ensure the sustainability of the project:

- For mainstreaming the co-management committees with other activities of the Department of Fisheries, ECOFISH II has secured letter of cooperation issued by the Director General of DoF and Chairman of BFDC to the different level officers of the department, will be helpful in implementing the project activities in collaboration with DoF and BFDC that will ultimately improve the sustainability of ECOFISH II outcomes.
- Formation of Fisheries Conservation Groups (FCG) and Village-based Fisheries Conservation Groups (VFCG) in all intervened fishing villages.
- Strengthening the capacity of formal and informal organizations (i.e. CSG and WING) for women empowerment and linking with DoF or Govt. Cooperative activities and public-private sector services.
- Promotion of AIGAs, community savings and technical supports for women in fishing villages will be continued.
- Nurturing of well trained and motivated local youth volunteers especially women volunteers (Blue Guard, Community Volunteer).
- Revised version of the Hilsa Fisheries Management Action Plan (HFMAP) will serve as guidelines for Hilsa fishery and biodiversity conservation until 2030.
- Management of the MPA in the Nijhum Dwip and Naf MPA that would sustain the benefits of the biodiversity conservation approach.
- Policy support in selecting the most effective Brood Hilsa Ban period and continued support in implementing the allowable mesh size regulation (6.5 cm) for Hilsa gillnetters will ensure sustainable Hilsa management.

8.3 Global Climate Change

As continued supports, ECOFISH II strengthens the resilience and adaptive capacity to climate change by supporting sustainable and climate resilient fisheries, AIGAs, gender equality and increasing social capital of the fishing communities. ECOFISH II in partnership with CVASU monitored water quality parameters, the impact of salinity intrusion, water level rise, temperature rise and increased frequency and magnitudes of cyclonic storms would be considered with greater importance to cope with the obvious climate change related issues. ECOFISH II started intervention in the most climate vulnerable area, the St. Martin, Moheshkhali and Kutubdia Island to generate scientific information and management to combat climate change. The project continued efforts on developing the adaptive capacities of the targeted fishing households to cope with climate-induced events like cyclones, heavy rainfall, and other calamities.

8.4 Policy and Governance Support

ECOFISH II project has been implementing in close collaboration with different departments of the Government of Bangladesh, DoF, BFDC, BFRI, universities, national and international NGOs, private organizations to carry out the program sustainable manner. Policy support in selecting the most effective Brood Hilsa Ban period and continued support in implementing the allowable mesh size regulation (6.5 cm) for Hilsa gillnetters will ensure sustainable Hilsa management. These policy supports will remain to be enormously useful in biodiversity conservation year after year. ECOFISH II prepared the Nijhum Dwip Management plan and submitted it to the Ministry of Fisheries & Livestock (MoFL) through the Department of Fisheries. The government has approved the management plan and ECOFISH II started implementation in the Nijhum Dwip MPA. In addition, ECOFISH II in partnership with SUST assessed the Naf River estuarine area and proposed a new MPA covering 860 km^2 area, arranged stakeholder discussion, updated the proposal and submitted to DoF. Finally, the Ministry of Fisheries and Livestock officially declared a 734.17 km^2 area as the Naf Marine Protected Area (MPA) through a gazette notification under Marine Fisheries Act 2020.. In response to request of DG-DoF, ECOFISH II partner SUST continuing assessment activities to delineate new MPAs in Kuakata, Patuakhali and Salimpur, Chottagram.

8.5 Local Capacity Development

Capacity building of project staffs, local volunteers and target beneficiaries is a continuous effort in ECOFISH II project to achieve the project objectives. Major achievements on capacity building activities/trainings, meetings, awareness programs, workshops conducted during April – June 2024 summarized in the following Table 11:

Table 11. Different capacity building trainings during April-June 2024

Activities	Objectives	Achievements
Training of Trainers (ToT) course on Ecosystem Approach to Fisheries Management (EAFM) Resource person: International Consultant	The objectives of this training is to aware the participants about the necessity , importance and the necessary technical knowledge to implement EAFM in Bangladesh	A total of 24 participants from the DoF, BFRI, BFDC, BORI, BG, Universities, and WorldFish attended the course.
A day-long workshop on project's year-5 work plan and achievement	To share the ECOFISH II year-5 work plan and achievements	A total of 26 officials from the Department of Fisheries, including the Director General, Chief Scientific Officer, Director of the Marine Fisheries Department, and officers from various Zilla and Upazila participated in the workshop.
Celebration of "National Nutrition Week 2024"	To aware about the household nutrition and its importance	Total 7 events were organized in 7 villages of the field offices where 363 participants (90% female and 10% male) were attended. WING leaders from the nearby WINGs and other members of WING, FCG and Community Volunteers of the respective stations actively participated in the events.
USAID team visit	intended to visit USAID's ECOFISH II intervention areas in Cox's Bazar and Teknaf on May 26 and 27, 2024, respectively.	Despite their arrival in Cox's Bazar, all outdoor activities had to be completely cancelled due to Tropical Cyclone Remal. But a detailed discussion on ECOFISH II's achievements, lessons, challenges, and future areas of intervention towards realizing the Blue Economy potential around marine and coastal fisheries resources took place.
FGDs with different stakeholders at Nazirartek, Shaplapur and BFDC fish landing centers	to strengthen the modality of LFCC and to identify the sustainable utilization of the non-conventional fishery products.	FGD Findings will be incorporated in the guideline to be developed by the consultants.
FGDs with the dry fish	To assess ECOFISH II supported	FGD Findings will be incorporated

Activities	Objectives	Achievements
producers at Kutubdiapara and Mostakpara of Cox's Bazar sadar and with the BFDC officials.	dry fish production status.	in the guideline to be developed by the consultants.
Day-long training on biodiversity conservation, co-management and responsible fishing	To orient about the biodiversity conservation, co-management and responsible fishing	165 Boat Owners participated in the training program from Charfasson, Tenkaf, Moheshkhali and Kalapara
Training on Marine Biodiversity Conservation and Responsible Fishing	To aware about the importance of Marine Biodiversity Conservation and Responsible Fishing	219 Boat Skippers attended the course from Cox's Bazar Sadar, Moheshkhali, Kutubdia, Teknaf, Charfasson and Kalapara. After the completion of the training program Life Jackets were distributed to all participants.
Training on First Aid	To provide the participants with the idea of primary treatment in accidental case and mitigate other shocks during fishing.	A total of 30 participants attended the training. After a demonstration each participant was provided with a First Aid Box for using in their fishing boats.
ECOFISH II Activity Management Team Meeting (AMT) and	To share the Activity plan with the AMT members to guide the field team smoothly	3 AMT meetings (01 AMT meetings arranged in each month) in each month
ECOFISH II Team (All Staff) Meeting	To discussed progress, challenges and future activities.	A total no of 3 team meetings (01 ECOFISH II Team meeting held in each month) held

Figure 21. Closing ceremony of EAFM training.

Figure 22: Workshop with the officials of the Department of Fisheries to discuss the project's fifth-year work plan and share experiences

Exit strategy Activties

Following Training Materials has been developed Under **Improved Adaptive Co-management and Fisheries governance** and **Improved Livelihood resilience, Gender, and Nutrition** and distributed to relevant stakeholders during ECOFISH II Activities in Y5:

1. **Improved Adaptive Co-management and Fisheries governance**
    - i) Training module on Biodiversity conservation, management and responsible fishing for boat owners
    - ii) Training module on Conservation of Marine Biodiversity, Safety at sea and Responsible Fishing for FCG
    - iii) Training module on Conservation of Marine Biodiversity, Co-Management and Responsible Fishing for VFCG
    - iv) Training module on Leadership skill and Organizational development for LFCC
    - v) Training module on Ecosystem Approach to Fisheries Management (EAFM) for LFCC
2. **Improved Livelihood resilience, Gender, and Nutrition**
    - i) Booklet on improved methods of poultry and livestock rearing at coastal house hold as income generation activities,
    - ii) Booklet on Homestead Horticulture,
    - iii) Booklet on Gender and nutrition
    - iv) Business literacy book (Reprint)

- Flip chart on nutrition awareness program
- Festoons for AIGA training sessions

Soft copies of all the e-modules along with the hard copies will be shared with DoF and other relevant stakeholders with proper documentation.

8.6 Public Private Partnership (PPP) and Global Development Alliance (GDA) Impacts

From the beginning of the ECOFISH II implementation, several consultations meeting were convened with private entrepreneurs, DoF, Universities, fishers' associations to explore the potential of private public partnerships (PPP) that create favorable business opportunities along the fish value chain and for high-potential AIGAs. In partnership with CVASU and DoF, the project is developing appropriate technologies along the value chain in seaweed and green mussel farming and conducting field trial with the fishing communities in ZOR for seaweed and green mussel farming as AIGA. These types of partnership initiatives have been continuing in seaweed and green mussel value chain for farming and food safety with CVASU and small-scale private sector actors, composite nutrient-rich ready to use dried fish and seaweed power production and marketing with NSTU and private sector (for example-CoxBazarShop.com). Ecosystem health improvement through local youth volunteers (Blue Guard) and co-management organizations, fish catch monitoring at both public and private fish landing centers including BFDC Ghats, Cox's Bazar Alipur, Patuakhali engaging trained and equipped boat skippers (Citizen Scientist) and local volunteers like Landing Center Facilitators. ECOFISH II working with public departments like DAE and DLS, private sector and "Community Volunteers" (motivated and trained local women) to support fishers women empowerment through capacity building, linking with services, raising awareness, generating income etc.

8.7 Science, Technology, and Innovations

To generate high quality scientific information to support decision making for sustainable fisheries management, the project integrated 'improved science outputs for decision-making' component through assessing and improving ecosystem health, assessing and conserving biodiversity, and fisheries dynamics monitoring activities. Scientific assessment of biophysical as well as socioeconomic aspects have been continued to delineate new MPAs inn the Kuakata, Patuakhali and Salimpur, Chattogram as requested by DG, DoF. These activities are implemented in partnership with CVASU and SUST. Furthermore, the project continued its partnership with CVASU and NSTU to facilitate "research in development" within the "Access to Technology and Market" activity. The insights gained from the partnership can help the fishing and coastal communities in improving the resilience. Key achievements in science and innovation as the continued effort of the project are summarized below:

- The qualitative and quantitative information generated on coastal fish diversity targeting vulnerable fish and megafauna' species will get management priority.
- Juveniles' information will guide in determining the breeding season of the important commercial fish species to help the government in fine-tuning the marine fishing ban.
- The innovation in seaweed farming technology disseminated to coastal communities that might be generating employment and income, and supporting the families to build resilience. This would help reducing the fishing pressure on coastal marine fisheries.
- Through biophysical and socio-economic information around the Naf River estuary areas, a new MPA could be declared and a sustainable management plan would be formulated to help manage the biodiversity hotspots covering both the Naf estuary and adjacent coasts.
- The new MPA assessment activities will help in declaring and managing the MPA for the improved management of biodiversity and habitats.
- Developed depuration protocol of wild farmed green mussel for food safety. Tissue culture protocol developed for indoor seaweed farming for year round seaweed seed supply
- Developed in-situ captive breeding based green mussel farming technology
- Finally, the continued efforts on the innovative digital approach "Citizen Science" in catch monitoring would generate new tools for sustainable resource management involving the fishers.
- Three scientific articles published in the reputed academic journals

9. STAKEHOLDER PARTICIPATION AND INVOLVEMENT

The Activity continued in partnership with the Department of Fisheries, four Universities and NGO (TMSS). ECOFISH II expanded collaboration with public departments like BFDC, BFRI, DAE, DLS and private sectors actor to strengthen effective activities implementation. In all cases, relevant officials, fishers and other local stakeholders are played the key roles in planning and implementing the activities.

The following important stakeholders' consultation meetings, visits (DoF, USAID's and WorldFish's team) and other discussions were convened during the reporting quarter:

- USAID's ECOFISH II WorldFish Bangladesh organized a day-long workshop on 09 May 2024 at Cox's Bazar with the officials of the Department of Fisheries to discuss the project's year-5 work plan and share experiences. A total of 26 officials from the Department of Fisheries, including the Director General, Chief Scientific Officer, Director of the Marine Fisheries Department, and officers from various Zilla and Upazila participated in the workshop. Dr. Mohammad Mokarrom Hossain, Chief of the Party of ECOFISH II project, along with scientists, specialists, research associates, and research assistants, were also present at the workshop.
- A team of experts from Kenya, supported by the Asia-Africa BlueTech Superhighway project of WorldFish, funded by the Blue Planet Fund of the Foreign, Commonwealth, and Development Office, conducted a visit to the seaweed and green mussel trial sites of USAID/ECOFISH II. This exchange of insights holds great promise for significant advancements in promoting sustainable aquatic food systems in regions across the global south.
- ECOFISH II celebrated "National Nutrition Week 2024" through rallies, awareness meetings, nutritious food demonstrations and quiz competitions in the community to sensitize mass population on different aspects of nutrition. Total 7 events were organized in 7 villages of the field offices where 363 participants (90% female and 10% male) were attended. WING leaders from the nearby WINGs and other members of WING, FCG and Community Volunteers of the respective stations actively participated in the events. Senior Upazila Fisheries Officer (SUFO) and Upazila Fisheries Officer (UFO) from Department of Fisheries (DoF), local government body (female member of Union Parishad), and Senior Nutrition Specialist participated the events.
- Dr. Muhammad Khan, Director, Office of Economic Growth, Mr. Ashraful Haque, Project Management Specialist, and Mr. Abid Azad, Development and Communication Specialist of USAID Bangladesh, intended to visit USAID's ECOFISH II intervention areas in Cox's Bazar and Teknaf on May 26 and 27, 2024, respectively. Despite their arrival in Cox's Bazar, all outdoor activities had to be completely cancelled due to Tropical Cyclone Remal. But a detailed discussion on ECOFISH II's achievements, lessons, challenges, and future areas of intervention towards realizing the Blue Economy potential around marine and coastal fisheries resources took place.
- ECOFISH II co-management scientist along with Md. Masud Rana, Co-management consultant and Dr. Enamul Hoq, Consultant for non-conventional fishery products visited ZOR- Cox's Bazar during 25-27 June'24 and conducted FGDs with different stakeholders at Nazirartek, Shaplapur and BFDC fish landing centers to strengthen the modality of LFCC and to identify the sustainable utilization of the non-conventional fishery products.
- Senior Nutrition Specialist along with Prof. Dr. Mamun, NSTU visited ZoR during 29-30 June and conducted FGDs with the dry fish producers at Kutubdiapara and Mostakpara of Cox's Bazar sadar to assess ECOFISH II supported dry fish production status. The team also assisted the consultant in conducting FGD with the BFDC officials
- Contribution of WorldFish for assessing and delineating Marine Protected Areas (MPAs) in Bangladesh, DoF issued an appreciation letter on 27th June'24 (Record: 33.03.000.109.11.059.18.366). The DoF also acknowledged WorldFish as a steadfast partner over the years, playing a significant role in enhancing the country's aquatic food systems. This partnership has been instrumental in promoting sustainable fisheries management and aquaculture development through the implementation of innovative practices and technologies and advocating for policy formulation that promotes responsible fishing, biodiversity conservation, and the improvement of livelihoods dependent on coastal fisheries—a contribution also recognized by the DoF.

Government of the People's Republic of Bangladesh
Department of Fisheries

Matshya Bhaban, Ramna, Dhaka

Record Number: 33.02.0000.109.11.059.18.366 Date: 27/06/2024

Interim Country Representative, WorlfFish Bangladesh.

Subject: Appreciation for Assessing and Delineating Marine Protected Areas (MPAs) in Bangladesh

I am writing to express our heartfelt gratitude to WorldFish for your invaluable contributions to assessing and delineating Marine Protected Areas (MPAs) in Bangladesh. Over the years, WorldFish has been a steadfast partner of the DoF, has played a significant role in enhancing the aquatic food systems in our country. This partnership has been instrumental in promoting sustainable fisheries management and aquaculture development through the implementation of innovative practices and technologies. Beyond providing technical support, WorldFish has played a crucial role in advocating for policy formulation that promotes responsible fishing, biodiversity conservation, and the improvement of livelihoods dependent on coastal fisheries.

Between 2014 and 2019, the Bangladesh Department of Fisheries (DoF) and WorldFish jointly implemented the USAID-funded Enhancing Coastal Fisheries in Bangladesh (ECOFISH BD) project. During this period, WorldFish played a pivotal role in supporting the DoF in assessing and delineating the Nijhum Dwip Marine Protected Area (MPA), leading to the Government of Bangladesh declaring 3,188 sq km as an MPA in 2019. This milestone was a testament to the impact of our shared vision for sustainable fisheries management and biodiversity conservation. Building on this success, the USAID-funded Enhancing Coastal Fisheries in Bangladesh II (ECOFISH II) project (2019-2024) further supported the development of the Nijhum Dwip Marine Protected Area (MPA) Management Plan.

Similarly, this project also supported the assessment and delineation of the Naf MPA in collaboration with Shahjalal University of Science & Technology (SUST). As a result, the Government of Bangladesh declared 734.17 sq km as the fifth MPA in the country in May 2024. This declaration brings Bangladesh one step closer to the goal of protecting 10 percent of its marine waters, in alignment with the Convention on Biological Diversity and the Sustainable Development Goals (SDGs). The meticulous assessment and strategic delineation of MPAs undertaken by USAID/ECOFISH II of WorldFish have provided us with critical insights and data necessary for the effective management and protection of our marine ecosystems. We applaud the dedication, expertise, and collaborative spirit exhibited by the USAID/ECOFISH II team from WorldFish during the assessment, consultation, and declaration processes. We are confident that with continued collaboration, we can achieve even greater strides in conserving our marine resources and supporting the livelihoods of our coastal communities.

We look forward to our continued partnership and the successful implementation of further conservation initiatives in Bangladesh.

Your Faithfully,

27-06-2024
Syed Md. Alamgir
Director General (Current Charge)
01769459044
dg@fisheries.gov.bd

Record Number: 33.02.0000.109.11.059.18.366/1 (1) Date: 27/06/2024

A Copy for has been sent consideration and necessary (if applicable) action

1. Chief of Party, USAID funded Enhanced Coastal Fisheries in Bangladesh II (ECOFISH II) Activity, WorldFish, Dhaka, Bangladesh.

27-06-2024
Syed Md. Alamgir
Director General (Current Charge)

Figure 23: Appreciation letter for MPA delineation and partnership between WorldFish and the Department of Fisheries

Key implementing partners (Universities and NGO) and their sub-projects, activities and their progress made so far are shown in Table 12.

Table 12. Major partners, their objectives/activities and progress to implement ECOFISH II Activity

Sl #	Name of Partners	Name of Sub-project	Progress in brief
1	Chattogram Veterinary and Animal Sciences University (CVASU)	Blue Food Production through Seaweeds and Green Mussels Farming in the South-East Coastal Waters of Bangladesh	CVASU reported based on the achievement of milestones of this project on Blue Food Production through Seaweeds and Green mussel farming are ongoing. The contract extended for SUST upto July 2024 to perform the following activities/deliverables: a) Development of insight gained from the research and development initiative of ECOFISH-II on the mariculture (seaweed and green mussels) initiatives; b)Develop future research and development strategies for Bangladesh of the mariculture initiatives (seaweed and green mussel) involving key actors and c), conduct national-level workshops involving key stakeholders in mariculture to present the Bangladesh mariculture strategies and subsequently refine the strategy based on the feedback received during the workshop.
2	Noakhali Science and Technology University (NSTU)	Impact of market orientation on nutrient rich ready-to-use (RTU) fish and seaweed powder	NSTU reported based on the achievement of milestones of this project on the Impact of market orientation on nutrient-rich ready-to-use (RTU) fish and seaweed powder are ongoing. The contract extended for SUST upto July 2024 to perform the following activities/deliverables: a)Document the insights gained from the "research and development" initiatives of ECOFISH II on dried fish, preparation of fish powder and other products and c) Organize a national-level workshop with key stakeholders in the dried fish value chain, disseminating the outcomes and experiences emphasizing future initiatives. (Milestone – 5) (Milestones 1-4 will remain same).
4	Shahjalal University of Science and Technology (SUST)	Zoning of MPA for Saint Martin- Teknaf Peninsula through integration of stakeholder perceptions and Scientific information	SUST reported based on the achievement of milestones of this project on "Zoning of MPA for Saint Martin- Teknaf Peninsula" are ongoing. SUST proposed a new MPA in the Naf River estuary area and evaluated the geo-spatial suitability of the coastal ecosystem of Bangladesh for MPA delineation through integrating socio-economic and ecological information. SUST contract extended upto October 2024 to perform the following activities/deliverables for assessment to delineate new MPAs: i) Socio-economic

Sl #	Name of Partners	Name of Sub-project	Progress in brief
		Vis-a`-vis climate change	issues relevant to MPA and management priorities; ii) Ecological and biodiversity hotspot around Kuakata coast and Salimpur coast; iii) Land use patterns and current human activities at coastal ecosystem; iv) Spatial plan of potential MPA and v) Stakeholder consultation workshops.
5	TMSS	Improved livelihood resilience of coastal fishing communities (ECOFISH II)	TMSS reported based on the achievement of milestones of this project on "Improved livelihood resilience of coastal fishing communities (ECOFISH II)" are ongoing. • The selected 2,000 poor artisanal fishing households organized into groups (FCG and WING) and effectively functioning and livelihood knowledge and skills of the selected fishing household members enhanced and engaged in AIGA for better livelihood and better market linkages established. • Technical training and regular extension services, critical inputs for start-up provided to the selected artisanal fishing households for micro-enterprise development. • 70 Women Income and Nutrition Group (WING), Business Literacy School (BLS+) and 70 Fisheries and Conservation Group (FCG) established and operationalized, and improved their savings behavior. • Improved capacity build among 2,000 beneficiary households on nutrition-sensitive homestead horticulture for Year-round production and consumption of nutrient rich vegetables. • Improved knowledge on better fisheries resources conservation and biodiversity for future. • The project beneficiary households are well connected with technical and financial services and market.

10. LESSONS LEARNED

- NAF MPA declaration (with the help of ECOFISH II) and Gazette notification by MoFL (Department of Fisheries) will open the door for future management on declared MPAs.
- Research/study on "exploring fisheries blue economy opportunities and challenges', "LFCC-based co-management modalities and strategy development", "Ghost-gear fishing reduction & non-conventional fishery nutrition and economic value assessment", Livelihood intervention impact" and "Gender responsive study" will assist to develop future interventions for sustainable management of Bangladesh coastal and marine fisheries resources and strengthen Blue Economy outcomes in Bangladesh.
- Women Income and Nutrition Group (WING) playing encouraging role on women empowerment, strengthening learning process related with different kinds of social awareness initiatives (strengthen household bondage, importance of savings, nutrition sensitive childcare awareness sessions, household nutrition improvement sessions, savings, IGA trainings, and adult learnings etc.).
- Artisanal fishers can play an important role in establishing adaptive co-management system through LFCC in fish landing centers towards better marine/coastal biodiversity conservations and ecosystem health improvement.
- Involvement of youth volunteers (BG, CS, LCF and women CVs) in natural resource (coastal & marine) management can play important role to conserve biodiversity, reduce pollutions, help in real-time catch monitoring activities and women empowerment.
- Fishing ban (22-day brood Hilsa ban, 65-day marine ban, and 61-day sanctuary ban) temporally affecting the resilience of fishers' livelihoods led to higher catch in the coastal areas.
- Boat skippers as well as FCG and VFCG members training on biodiversity conservation was an

important and effective step to build awareness on marine biodiversity conservation and responsible fishing.

- Research on extensive outdoor seaweed culture, indoor seaweed culture for seed production and in-situ breeding based green mussel culture with standardized depuration protocol for food safety development created a new dimension in the project that helped to finding future way forward.
- Official ties of ECOFISH II with DoF through Letter from DG helped in building more collaborative implementations of the activities both in field offices and head office, which became supportive more policy level contribution of the Government and sustainability of the activities.

11. MANAGEMENT AND ADMINISTRATIVE ISSUES

Based in the WorldFish offices in Dhaka, the Activity Management Team (AMT) consists of the ECOFISH II Chief of Party/Team Leader, three IR Scientists, a MEL Manager, a Project Manager, a Senior Nutrition Specialist, a Training Specialist, a Gender Specialist (based in Cox's Bazar), a Communication Specialist, and a Senior Project Accountant responsible for decision making, planning and implementing the activities of the annual work plan, guiding field team, partners, and maintain relationship with Department of Fisheries, other public-private organizations, and ensuring USAID and WorldFish compliances. An Assistant Project Accountant is also deployed in Cox's Bazar to look after regional financial activities in Cox's Bazar. In the seven field offices, seven Research Associates and nine Research Assistants, and seven Office & Admin Assistants has been employed in implementing the project intervention sites. A Monitoring Officer (based in Cox's Bazar) and a GIS & Data Analyst (based in Dhaka) working with MEL team. The Field Offices are in Cox's Bazar Sadar, Ukhiya, Teknaf, Moheshkhali, and Kutubdia in the ZOR, Cox's Bazar district; and in Kalapara of Patuakhali, Charfasson of Bhola in the MPA and MRE. At each of the offices, normally a 3-member team with a Research Associate, Research Assistant, and an Office & Admin Assistant are deployed, however, two Research Assistants deployed in Cox's Bazar Sadar and Kalapara (including Patharghata of Barguna district), considering the workload.

12. PLANNED ACTIVITIES FOR NEXT QUARTER INCLUDING UPCOMING EVENTS

Table 12 Activities planned for the 3rd Quarter (July-Setember'2024)

Major Activities	Target
IR 1: IMPROVED MANAGEMENT & GOVERNANCE OF NATURAL RESOURCES	
IR 1.1 IMPROVED SCIENCE OUTPUTS FOR DECISION-MAKING	
Climate change indicating water quality parameters (DO, salinity, pH, alkalinity and temperature) monitoring in the St. Martin, Moheshkhali and Kutubdia coasts	monthly
Reduction of net & plastic pollutants from the beach and fish landing cenetrs by engaging Youths Blue Guards (140 BG)	Fortnightly
L-F & L-W data collection of 05 important artisanal species	monthly
Landing & price monitoring in eleven important landing centers by 11 Landing Center Facilitators (LCF)	10 days/month
Real-time on-board catch (CPUE) monitoring engaging 50 Citizen Scientists (CS)	3 days/month
IR 1.2 IMPROVED ADAPTIVE CO-MANAGEMENT AND FISHERIES GOVERNANCE	
Formation and strengthen co-management institutions	
Training on biodiversity conservation, Safety at sea, co-management for FCG Y-5 (2024)	70
Refreshers training on biodiversity conservation, Safety at Sea, Co-management for VFCG leaders Y-3 and Y-4 (2022 & 2023)	358
Refreshers training on biodiversity conservation, Safety at sea, co-management for FCG leaders, Y-1 and Y-2 (2020 & 2021)	440
LFCC development and coordination meeting (bimonthly), 2024	12
Capacity building events for LFCC leaders (technical and organization development)	01
Support to LFCC (management and development activities)	10

Major Activities	Target
Turtle conservation activities at Kutubdia (continue)	01
Turtle and other megafauna conservation (Incentive @300 BDT/Doc*200)	124
Strengthen Ecosystem Approach to Fisheries Management (EAFM)	
EAFM training for LFCC leaders (Sonarpara LFCC)	01
Training on biodiversity conservation, Safety at sea, co-management for LFCC leaders (Refresher-day long)	07
Improve Fisheries Governance	
Training on biodiversity conservation, fisheries co-management and safety for life at sea (SOLAS) for Boat skippers	03
Training on biodiversity conservation, co-management and responsible fishing for Boat owners	01
Orientation on First Aid and distribution of First Aid Kits	03
Workshops on IUU/destructive and Ghost fishing practice	02
Fishers Congress to share experience of Biodiversity conservation, Improved Ecosystem health and improved Fisheries governance through non-formal organization like FCG, VFCG and LFCC (Event- one per field office)	07
IR 1.3 IMPROVED POLICY SUPPORT	
Assessments activities for delineating new MPAs in the Kuakata, Patuakhali and Salimpur Chattogram in collaboration with SUST and DoF	Final report
Consultant's activities for Fisheries Blue Economy Concept Note and Guideline Formulation	Final Report
Consultant's activities for identifying the non-conventional fishery products in Bangladesh to enhance Fisheries Blue Economy	Final Report
Consultant's activities on developing a comprehensive guideline for organizational modalities on landing centre-based fisheries co-management initiatives for sustainable coastal and marine fisheries management	Fianl Report
IR 2 IMPROVED EQUITY AND RESILIENCE OF THE FOOD, NUTRITION AND LIVELIHOOD BENEFITS	
IR 2.1. IMPROVED LIVELIHOOD RESILIENCE OF COASTAL FISHING COMMUNITIES	
Organize vaccination campaign in collaboration with DLS (number of campaign)	14
Continue Business Literacy School (BLS) for new 68 WING of year 5 (number of session)	280
Final-term course evaluation of WING members (Number of WING members)	1,992
Provide booklet on gender and nutrition to all beneficiary of year 4 and 5 and selected beneficiary of Year 1-3 (Number of beneficiary)	7,750
Provide matching fund for savings activity to WING of 2023 and 2024 Number of WING)	
Phase out meeting /exit meeting of WING (Number of WING)	155
Conduct exit/phaseout meeting with Year -2 and Year-3 CSG members (Number of meeting)	21
Women Congress/ Upazila level exposure workshop for WING and FCG leaders (Number of event; one per field office)	7
Training on nutrition-sensitive homestead horticulture for year 5 beneficiaries (Number of beneficiary)	1,992
Provide winter vegetable seed pack to all beneficiary of year 5 (Number of beneficiary)	1,992
Conduct endline gender formative research	1
OTHERS ACTIVITIES	
Mid Year Progress review meeting	1
Workshop on 'Seaweed and Bivalve seafood Value Chain in Bangladesh: Research Outcomes and Future Directions"	1
Celebrate National Fish Week 2024 (Field and Dhaka Office	08
Distribute hard copy of the developed co-management training Modules among relevant stakeholders by August 2024	01
Preparatory activities to organize National level result sharing and phase out meeting of ECOFISH II in October 2024	Ongoing
Endline Survey for final evaluation	01

Major Activities	Target
Performance survey for indicators reporting	01
Endline Survey for Gender Transformative Study	01
Story Book and Documentary	02
Round table/ Talk show	01
Development of different types of Extension Materials eg. Module, Guidebook, Festoons, Flipchart etc.	01
Published op-ed	01
Organise ECOFISH II AMT and Monthly Team Meeting	03, 03

13. HOW ECOFISH II HAS ADDRESSED A/COR COMMENTS FROM THE LAST PROGRESS REPORT

There was no genuine concern that need to be addressed.

“Working together to conserve biodiversity, improve ecosystem health and fisher’s livelihood”

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