# SPECIAL REPORT

## SEAFish Project: SEAFDEC and USAID partnership for improved fishery resource management and sustainable biodiversity in the Southeast Asian region

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Southeast Asia is a major contributor to global fisheries production, both from capture fisheries and aquaculture. The region's significant and diverse fishery production is driven by its extensive coastline and rich biodiversity in inland, coastal, and marine ecosystems. In 2021, the region contributed about 21 % (45.8 million t) to the world fishery production (Southeast Asian Fisheries Development Center or SEAFDEC, 2024) while the average per capita fish consumption was about 40 kg/person which was double that of the world's average per capita fish consumption in 2017 (SEAFDEC, 2022). It is crucial to ensure the sustainable development of the fisheries and aquaculture sector in the region because of its important role in people's nutrition, food security, livelihood, and economies.

However, several prevalent and emerging issues and challenges threaten the fisheries and aquaculture sector in Southeast Asia. These issues and challenges include illegal, unreported and unregulated (IUU) fishing; destructive fishing gear and practices; abandoned, lost or otherwise discarded fishing gear (ALDFG); management of transboundary fish species; management and insufficient information on inland capture fisheries; socioeconomic and ecological impacts of aquaculture practices; and alternative feed ingredients, among others. Efforts to promote sustainable management and responsible practices are crucial for ensuring the long-term viability of fishery resources to benefit the communities that depend on them.

To address the abovementioned issues and challenges, the Southeast Asian Fisheries Development Center (SEAFDEC) and the United States Agency for International Development (USAID) established the five-year project "USAID Southeast Asia Fisheries Partnership (SEAFish)" with the duration from October 2023 to September 2028 (United States Agency for International Development, 2024). SEAFish aims to improve the management of fishery resources as well as inland and marine biodiversity in the Indo-Pacific region. The Project envisions empowering and supporting a wide range of stakeholders, including local and national government officers, research institutions, and local fishing communities to enhance fisheries and aquaculture management practices and contribute to the efforts in addressing the issues and challenges.

***Destructive fishing practices***

The misapplication of advanced fishing techniques and the use of non-selective fishing gear such as trammel nets, trawlers, and longlines has led to the overexploitation of fishery resources (Cañete, *et al*., 2022). Moreover, ALDFG contributed to marine pollution and continued to capture marine life which is known as ghost fishing. These destructive fishing practices deplete fish stocks and increase microplastic contamination which adversely affect the livelihoods of fishers (Lyons *et al*., 2019).

To mitigate the impact of capture fisheries operations on coastal and marine ecosystems, SEAFish will focus on developing environment-friendly fishing gear. In addition, SEAFish will promote the best practices of fishing gear marking and support the development of an action plan to address ALDFG.

***Management of transboundary fish species***

Migratory fish species, especially tuna, are under threat from various factors including overexploitation. Hence, the management of transboundary fish species is necessary to sustain these resources (SEAFDEC, 2017). In particular, the Sulu-Sulawesi Seas have abundant and diverse resources including tuna species, which provide food and livelihood for around 40 million people (Heileman, 2020; Huffard, *et al*., 2012). In this regard, it is necessary to enhance the national capacity in compliance with regional conservation and management measures, data collection, and international cooperation for sustainable tuna fisheries development (Sunoko & Huang, 2014).

To enhance the regional data and forecast fish stock status and related trends, SEAFish will conduct a series of technical consultations with key stakeholders including governments, experts, and research institutes. SEAFish will compile scientific information on fish stock status and develop a forecast model aimed at biodiversity conservation and mitigating the impacts of climate change on fisheries. Subsequently, SEAFish plans to develop technical guidelines for tuna stock assessment and forecasting models specific to the Sulu-Sulawesi Seas.

### *Management of inland capture fisheries*

The Mekong River and its tributaries sustain one of the world's most productive inland fisheries which are crucial for local livelihoods, nutrition, and cultural practices. For about 60 million people or 60 % of the total residents in the Lower Mekong Basin, fish represent the most easily accessible source of protein (Vu *et al*., 2021). However, fish stocks and aquatic ecosystems are declining due to overfishing, habitat degradation, climate change, pollution, and hydropower development. These pressures, along with land reclamation and shifting climate patterns, are severely impacting the aquatic resources.

Efforts to address these challenges and support the sustainability of inland fisheries are ongoing. SEAFish is actively contributing to these efforts by promoting sustainable fishing practices, establishing management areas, involving local communities, conducting research, and fostering international cooperation. These strategies are essential for preserving fish stocks, habitats, and biodiversity. Applying the ecosystem approach to fisheries management, SEAFish intends to balance ecological health with human needs to ensure the continued rich biodiversity and economic benefits of inland fisheries of the Mekong Basin.

### *Socioeconomic and ecological impacts of aquaculture practices*

Aquaculture is a rapidly growing industry in Southeast Asia contributing significantly to the region's fishery production. It accounts for more than 50 % of the total fish and fishery products in the region, including seaweed (*Eucheuma* spp., *Gracilaria* spp.), fish (tilapia, catfish, and carp), shrimp (*Penaeus vannamei*, *P. monodon*), and mollusk (oysters and mussels) (SEAFDEC, 2024). With the increasing demand for farmed fish, promoting responsible aquaculture practices would reduce pressure on marine fish resources (SEAFDEC, 2022).

While focusing on responsible aquaculture practices that minimize negative environmental impact and enhance the socioeconomic benefits for small-scale fish farmers, SEAFish supports integrated multi-trophic aquaculture systems. These systems utilize various aquaculture commodities, including seaweed, mollusks, finfish, and crustaceans. SEAFish will develop a comprehensive set of guidelines and recommendations for implementing seaweed-based integrated multi-trophic aquaculture systems in Southeast Asia.

### *Alternative feed ingredients in aquaculture*

Feeds represent the largest expense in aquaculture production, and the increasing costs of fish meal and oil highlight the need for alternative feed ingredients (Aquaculture Department, Southeast Asian Fisheries Development Center, 2021). The region's diverse and abundant resources offer potential replacements that can lower costs and reduce reliance on fish meal as well as imports through locally sourced ingredients.

To address high aquafeed costs, SEAFish is exploring alternative and cost-efficient feeds for milkfish and tilapia by utilizing locally available alternative protein sources instead of fish meals. SEAFish will involve fish farmers, local governments, fisheries agencies, and other stakeholders to demonstrate the benefits of these alternative sources of protein and reduce dependence on fish meals in aquaculture.

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