

WALAILAK UNIVERSITY



SDG

REPORT 2023-2024



SUSTAINABLE DEVELOPMENT GOALS



# LIFE BELOW WATER

# 14

-  Sustaining Blue Crab Fishery through Educational & Outreach Programs
-  Collaboration on Shared Aquatic Ecosystem Management in Pak Phanang District
-  Protecting the Complexity of Coastal Resources through Artificial Fish Habitat Construction
-  Blue Crab Restoration Program: The Best Aquatic Stewardship Practice





## Sustaining Blue Crab Fishery through Educational & Outreach Programs



Economically, blue swimming crab fishery is a significant source of livelihood providing jobs and income for the local fishermen in the south of Thailand as a valuable export product, contributing to Thailand's seafood industry in global markets. However, the blue crab population in the Gulf of Thailand gradually decreased due to unsustainable fishing practices. Walailak University (WU) realizes that this problem must be tackled to enhance environmental sustainability and demonstrate its commitment to sustainable development for local communities.

Thus, the Blue Swimming Crab Bank Establishment Project, a WU project by Asst. Prof. Dr. Amonsak Sawusdee, has been working to provide educational outreach to local fishermen on sustainable fishing practices. The project has been implemented for over 5 years, contributing to various economically and environmentally sustainable impacts. It has fostered a collaborative approach with local communities, enhancing their capacity to manage marine resources effectively. The project meaningfully increases the number of blue crab populations, especially in the Gulf of Thailand. This momentous project has provided educational programs for local fishermen on blue crab breeding, aquaculture, and management to increase its population in the gulf, sustainable fishing practices, blue swimming crab-based local cuisine development, and more.

The project succeeds in multiplying blue crab resources, 10–15 kilograms caught in one day, in the addressed maritime zones in Nakhon Si Thammarat and Surat Thani. In addition, in 2023, the Banhaadsomboon Blue Swimming Crab Bank, established by WU in Wang Subdistrict, Tha Chana District, Surat Thani, received an award as one of the best five SDG Model Communities for the First Generation in Thailand. The Bank has been implementing sustainable operations on the recovery of the blue swimming crab population, rehabilitation, prevention of illegal fishing, designation of marine protected areas, and others relating to tackling SDG 14: Life Below Water. Furthermore, the success of this project has inspired similar initiatives in other regions, amplifying the impact on regional marine conservation. Moreover, the bank has become an ecotourism destination where visitors can engage in eco-friendly activities such as the release of baby blue crabs, further promoting environmental awareness and community involvement.





## Collaboration on Shared Aquatic Ecosystem Management in Pak Phanang District

The Pak Phanang River Basin in Pak Phanang District has long served as a vital foundation for local livelihoods, supporting farming, fishing, and tourism for decades. However, the basin has faced challenges in recent years, with deterioration and sediment build-up affecting both the livelihoods of local residents and the health of aquatic ecosystems. The water level has been decreasing steadily over the past three years, leading to a scarcity of water resources for agriculturists in some areas, which threatens the district's economy and food security.

In response, Walailak University (WU), in collaboration with local authorities and community members, organized a strategic meeting in 2023 to tackle these issues through comprehensive river basin management. The meeting focused on shared water resource management, erosion control, biodiversity enhancement, and promoting sustainable agricultural practices. Experts from various fields worked with local stakeholders to develop actionable strategies to restore the river basin's health and sustainability.

A significant outcome was the agreement on fair water distribution among farmers and the introduction of regulations to reduce chemical use in farming. These measures aimed to resolve local conflicts over water resources and address broader environmental concerns. As a result, there has been a noticeable increase in biodiversity, with a growing population of Nile tilapia, indicating improved ecological health. The reduction in chemical inputs has led to cleaner water and a more balanced ecosystem, benefiting both aquatic life and surrounding wildlife. Furthermore, these efforts have strengthened community bonds and fostered a sense of shared responsibility for the river basin's future. Local farmers have adopted sustainable practices, and eco-tourism has begun to flourish, attracting visitors interested in the area's natural beauty and successful conservation efforts.



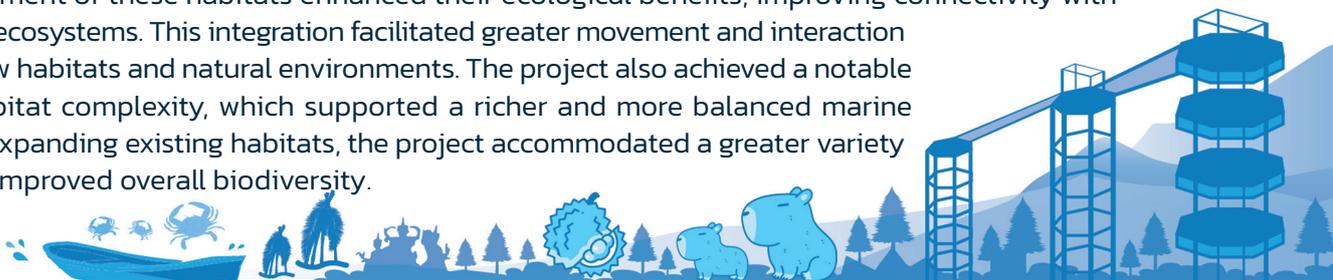
## Protecting the Complexity of Coastal Resources through Artificial Fish Habitat Construction

Some coastal areas of Nakhon Si Thammarat and Surat Thani provinces have been facing the deterioration of the complexity of marine ecosystems resulting in the loss of natural fish habitats and the decline in marine species. The complexity of marine ecosystems supports diverse fish populations and other marine resources. If this complexity is not maintained, fish populations could decline or collapse. The Artificial Fish Habitat Construction Project was launched by Walailak University and has been continually operating for over five years to tackle those problems.

In 2023, WU partnered with local governments, NGOs, private sectors, and communities in Hua Sai District, Tha Sala District of Nakhon Si Thammarat, and Tha Chana District of Surat Thani to organize the project. Key activities within the project included the design and construction of the habitats using eco-friendly materials that provide habitats for diverse marine life. The deployment of these habitats was strategically planned to maximize ecological benefits and connectivity with existing marine ecosystems, with efforts to expand existing habitats to accommodate more species and increase habitat complexity.



The project yielded significant positive outcomes for marine ecosystems in the target regions. The design and construction of eco-friendly habitats effectively supported a diverse range of marine species. The strategically planned deployment of these habitats enhanced their ecological benefits, improving connectivity with existing marine ecosystems. This integration facilitated greater movement and interaction between the new habitats and natural environments. The project also achieved a notable increase in habitat complexity, which supported a richer and more balanced marine ecosystem. By expanding existing habitats, the project accommodated a greater variety of species and improved overall biodiversity.





# Blue Crab Restoration Program: The Best Aquatic Stewardship Practice



In Surat Thani, the blue Swimming crab fishing industry is grappling with several critical issues, including the overexploitation of crab populations, and the unsustainable practice of harvesting undersized crabs and gravid females, resulting in the reduction of blue swimming crab stock in the sea. Additionally, there is a significant lack of effective management plans or harvest strategies, coupled with inadequate enforcement capacity to regulate fishing activities.



The Blue Crab Fishery Improvement Project (FIP) is a research collaboration that Walailak University has been working directly to extend the ecosystems of blue swimming crabs in the Gulf of Thailand under collaboration with NGOs, government organizations, and marine industries, such as the Department of Fisheries, the Department of Marine and Coastal Resources, the Thai Frozen Food Association, and the Thai Crab Product Group



In 2023, this research collaboration has been creating impacts on the conservation of blue swimming crab ecosystems and biodiversity.

**Conservation Efforts:** The collaboration with organizations such as the Department of Fisheries and the Department of Marine and Coastal Resources has led to improved conservation strategies. These efforts ensure that the crab population remains sustainable and healthy, reducing the risk of overfishing and ecological imbalance.



**Habitat Restoration:** This research focuses on restoring and preserving habitats vital to the life cycle of blue swimming crabs. This includes the local-preserved areas, 300-500 meters from the shore, serving as aquatic nurseries in protecting breeding grounds and nurturing juvenile crabs to maturity, further supporting population growth.

**Ecosystem Balance:** By fostering a healthy crab population, the project contributes to the overall balance of marine ecosystems. Blue swimming crabs play a crucial role in the food chain, and their increased numbers help maintain the ecological equilibrium.

The project has contributed to the increase in the catch rate of blue swimming crabs as it maintains and extends the biodiversity of the crabs. The increase has allowed local fishermen to catch blue swimming crabs at 15 – 20 kilograms per day, leading to increased income. This is particularly beneficial for those who rely on fishing as their primary source of livelihood. The increased catch rate also has created more job opportunities in local communities such as food processing.



The Best Research Award

