Annual Report

on SDG14 Life Below Water

## 14.5 Maintaining a local ecosystem

### 14.5.5 - Does your university as a body have implemented a watershed management strategy based on location specific diversity of aquatic species?

**Watershed Management Based on Location-Specific Aquatic Species Diversity**

**Connecting Local Habitat Management with the Wider Songkhla Lagoon Basin**

Thaksin University's watershed management approach connects the protection of individual aquatic habitats with the wider waterways of the Songkhla Lagoon basin. The University recognises that canals, wetlands and lagoon waters form a connected environment, while each location supports aquatic communities shaped by its salinity, depth, substrate, vegetation and seasonal water conditions. Management must therefore respond to local species and habitats while considering the movement of water and environmental pressures between places.

In 2025, the University implemented this approach through continuing community partnerships, locally adapted fish houses and conservation areas, water quality and fish monitoring, and coordination with local authorities and environmental agencies. The **Academic Service Unit for Natural Resource Management in the Songkhla Lagoon Area** provides a continuing connection between academic expertise and the communities participating in this work.

The strategic direction is to protect aquatic habitats, support responsible resource use, maintain information on ecosystem conditions and coordinate responses to environmental concerns. These components are implemented through community activities and partnership arrangements documented.







Meeting to establish a fishing network in SongkhlaLagoon, 2nd meeting.

**Public evidence:**
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**Using Local Ecological Knowledge to Guide Management**

Songkhla Lagoon includes interconnected freshwater, brackish-water and saline environments. Differences among these environments influence the species present, the habitats

they use and the ways communities depend on aquatic resources. The University works with residents to bring these ecological differences into conservation decisions.

Fishers contribute observations of species occurrence, fishing grounds, seasonal changes and local water conditions. University staff contribute survey design, species identification and technical interpretation. Together, these sources of knowledge help identify where habitat protection is needed and what forms of intervention are appropriate.

The relationship between species and site conditions is central to the approach. Fish-house design is considered alongside the aquatic organisms expected to use the structure and the physical characteristics of the location. Community agreements then connect habitat protection with the activities permitted in the surrounding area.

This provides a practical link between local aquatic diversity and management: information about organisms and their environment informs the selection and care of conservation sites, while subsequent observations provide a basis for reviewing those decisions.

**Adapting Habitat Interventions to Different Locations**

The University's fish-house work demonstrates how this approach is applied. Fish houses are developed as shelter and nursery habitats, with designs selected in relation to water depth, bottom conditions, currents and existing vegetation. These factors are considered with community knowledge of the fish using each area.

In 2025, the University and community partners used a **cage-type design for Fish House No. 10 at Moo 8, Meau District, Songkhla Province**, reflecting the site's shallow water and soft substrate. University staff provided technical information, explained construction methods and participated alongside community members. Partner organisations contributed financial support.

The intervention forms part of continuing habitat conservation rather than an isolated construction activity. Community responsibilities include observing site conditions, caring for structures and participating in assessment. These arrangements connect the choice of design with the longer-term management of the habitat.

The wider programme also draws on experience with different fish-house forms across lagoon environments. These examples show how management responds to ecological variation within the connected basin.




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**Maintaining Local Evidence through Water Quality and Fish Surveys**

Monitoring at Ban Mai provides continuing information about a community-managed part of the lagoon. During 2025, surveys were undertaken **every three months**, building on collaboration established in earlier years.

The University contributed survey design, training in monitoring equipment, verification of fish identification and data analysis. Community members participated in sample collection, field measurements, recording and observation. Water quality measurements included **temperature, salinity, dissolved oxygen and pH**, using test kits, a refractometer and a pH meter.

Fish surveys using traditional fishing gear recorded species, numbers, sizes and weights. The surveys documented **32 fish species in 2025**, establishing a reporting-year record of observed diversity at Ban Mai. This information provides a basis for comparison with earlier surveys and for discussing the organisms using the monitored area.

The species record is interpreted within its local context. It describes observations at Ban Mai rather than the total diversity of Songkhla Lagoon. Comparisons over time consider survey timing, gear and sampling effort, allowing ecological information to be used with appropriate attention to how it was collected.

Results are brought together through the Academic Service Unit and discussed with communities and relevant organisations. They support the care of fish houses and conservation areas and provide information for investigating problems when water conditions raise concerns.



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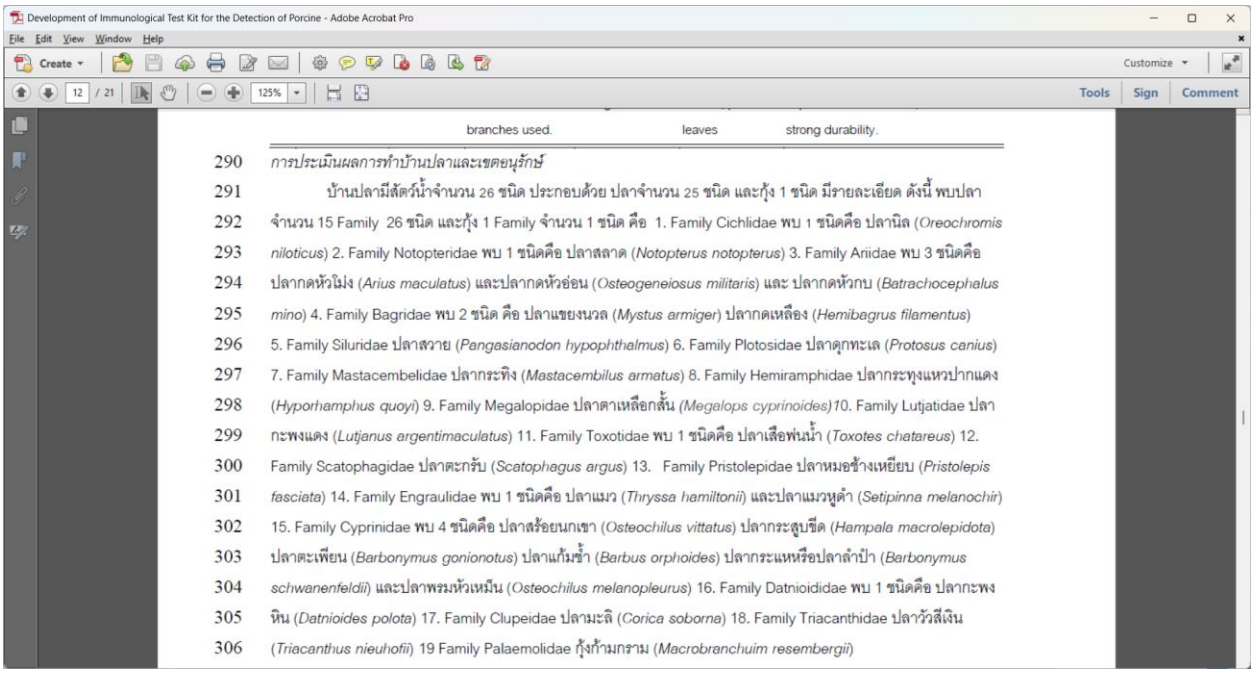


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**Connecting Community Surveillance with Agency Responses**

Local monitoring is complemented by observations made during fishing and other community activities. This extends attention to aquatic conditions beyond scheduled surveys and provides a route for concerns to reach organisations able to investigate. In 2025, communities around Pak Pra and Thale Noi reported fish suspected to be blackchin tilapia to the University's Academic Service Unit. The University coordinated with the **Phatthalung Provincial Fisheries Office** and contributed identification support, field engagement and knowledge sharing.

Three suspected reports were investigated, and the fish concerned were not identified as blackchin tilapia. Awareness activities addressed species identification, potential impacts and reporting channels. The cases demonstrate the practical connection between local observation and technical verification.

This coordination is relevant to watershed management because aquatic organisms and environmental concerns do not follow community boundaries. Maintaining communication among residents, the University and responsible agencies supports a response that can extend beyond an individual conservation site.





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**Linking Community Action with Provincial Planning**

The University's partnerships connect local habitat management with planning and resources at a wider administrative scale. In Phatthalung, collaboration with the **Provincial Administrative Organization** supported the inclusion of natural resource management in its environmental and natural resource planning, together with support for **six communities** to develop fish houses and conservation areas.

The University contributed academic information, activity design, development of community rules and follow-up. Communities participated in planning and implementation, contributing their knowledge and practical work. Budget, materials and equipment from partner organisations helped turn agreed activities into action.

The participating communities were Ban Pak Pra, Ban Chai Klong, Ku Kut, and Bang Kaew. During 2025, the communities carried out their planned activities, comprising Aquatic life Shelter and conservation areas. Cooperation also involved fisheries and environmental organisations, representatives of the Department of Marine and Coastal Resources, Thale Noi non-hunting area, Thai Sea Watch Association. This arrangement supports several sites within the lagoon basin while retaining local participation in decisions. It connects community conservation needs with technical support, institutional responsibilities and resources.



Signing Ceremony for a Memorandum of Understanding (MOU) between Thaksin University's Academic Service Unit for Natural Resource Management in the Songkhla Lagoon Area and Partner Organisations on Natural Resource Conservation and Management.

Public evidence:
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**Contributing to Pak Phanang Basin Management Discussions**

Alongside its work in Songkhla Lagoon, the University contributed academic support to discussions on the Pak Phanang basin. On **14 October 2025**, it participated in discussions under the initiative **"Developing Participatory Water Management Mechanisms to Enhance Agricultural Value and Promote Tourism in Response to Extreme Weather for Sustainability."** The discussions addressed the need for updated information to support basin management. The proposed collaboration involved communities across **eight districts**, the **Nakhon Si Thammarat Provincial Administrative Organization, Walailak University, Nakhon Si Thammarat Rajabhat University, Thaksin University**, and other relevant organisations. Thaksin University contributed knowledge of **aquatic ecosystems and water management**, supporting consideration of ecological conditions in participatory basin planning.





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**Building Understanding of Connected Aquatic Environments**

The University's **Water Detectives (นักสืบสายน้ำ)** activities complement field management by introducing children and young people to water quality observation. Activities in locations including **Mueang Phatthalung District** and **Khlong San Daeng, Tamot District**, connect learning with local aquatic environments. Participants learn about aquatic organisms as biological indicators and undertake water quality learning activities. These experiences help connect the condition of a local waterbody with the organisms living in it and the human activities around it. They provide an educational foundation for future community participation in caring for connected waterways.





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**Water Detectives** activities during 10-11 Jyly.

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**Summary**

In 2025, Thaksin University implemented interconnected elements of watershed management in the Songkhla Lagoon basin through locally adapted fish houses and conservation areas, community agreements, monitoring and agency coordination. Quarterly surveys at Ban Mai recorded **32 fish species**, while community surveillance around Pak Pra and Thale Noi connected local observations with technical investigation. Provincial cooperation supported conservation activities in **six communities**. Academic participation in Pak Phanang basin discussions complemented this implemented local work. Together, these contributions connect site-specific aquatic diversity and community needs with the management of a wider, shared water system.