Fishery Action Plan (FAP)

The Gulf of Thailand mixed-trawl Fishery Improvement Project (FIP)

Workplan Version and Date	**Version 1**
Start date (expected)	**End date** (anticipated month/year)
January 2022	**December 2028**
FIP Lead (organization/individual responsible for Action Plan)	**FIP partners**
Thai Sustainable Fisheries Roundtable (TSFR)	1.Department of Fisheries 2. Department of Marine and Coastal Resources
FIP Coordinator(Organization/Individual)	**Work Plan developed by (consultant or person)**
Thai Feed Mill Association	1. Assoc.Prof.JirapornTrisak 2. Prof.Dr. TuanthongJutagate 3. Assoc.Prof.Dr. KungwanJuntarashote 4. Assoc.Prof.Dr. Charoen Nitithamyong 5. Mr. RangsanChayakul

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Part 1:GAP Description

Section 1 – Management/governance framework

M1 -Legislation, policy and plans: PASS

M2 -Institutions and stakeholders engagement: PASS

M3 -Monitoring, control and surveillance: GAP

M3.5 - Stakeholders in the fishery are aware of, and understand, the laws and regulations: No clear evidence was made available to the assessment team to suggest that awareness rising activities to stakeholder have been conducted

Section 2 - Fishery: Catch, ETPs, Habitats and Ecosystem

Section 2A: Catch

Part A - Total aggregate catch

A1 - Management objectives and references points: PASS

A2 - Data and information: PASS

A3 - Fishery resource assessment: PASS

A4 -Status of fishery resources:All information need to be updated.

(The assessment prior to 2019 was based on the trend of CPUE. However, Thailand has been updated her resource assessment system after 2019. MSYs for many species were quantitatively estimated. Data collection and new guideline for management plan have been improved--more systematically organized and more comprehensive.)

A5- Management measures and their compliance: Ineffective management measures.

A6 -Management performance:Ongoing process of filling the gap.

Part B - High-risk species/Species groups

B1 -Management objectives and references points:The identification of high-risk species/species groups has not formally and systematically organized. More attention has been pressed only on economic species. Rather, more attention needed to be put on the high-risk spp., such as rays and sharks, including long-lived spp. like groupers and snappers.

B2 -Data and information: The identification of high-risk species/species groups has neither formally nor well organized, with many species have been left out. Including, No biological data to support the assessment of the status of high-risk species/groups)

B3- Assessment of high-risk species/species groups: Stock assessment was selectively done only on those economic species instead of level of risk.Specifically, the status of high-risk specie has not been assessed.

B4- Status of high-risk species/species groups: High-risk species have not been identified formally and systematically. Status of high-risk species has not been assessed with respect to the LRP. In addition, the LRP have not been clearly identified and was not strongly imposed.

B5 - Management measures, and their compliance: No management measure to serve the objectives relating to high-risk species.

B6 - Management performance: No management objective for protecting the high -risk species.

Part C -Reduction component

C1 - Management objectives and references points (MMSY): No explicit objectives/TRPs specifically for reduction component ensuring sustainability and production for the TRP of the multi-species assemblage.

C2 - Management objectives and references points (juvenile catch: The adoption of objectives and TRPs have not yet been formal. Additionally, there is uncertainty in the target due to the shifting baseline.

C3 - Data and information: No reliable system of monitoring and data collection. Consequently, indicators relating to the catch of reduction component were produced with low degree of certainty. The assessments of status of the reduction component and the impact of juvenile commercial species were not scientifically sound because of insufficient data and information.

C4 - Fishery resource assessment: No scientifically defensible assessment procedure of the status, catch, and MMSY of the reduction component, including the impact of the juveniles commercial fish. In sum, the problem is mainly lack of reliable and sufficient data and information.

C5 -Status of fishery resource: The information about the status of the resources, including the juvenile are known with low level of uncertainty.

C6 - Management measures and their compliance: Management measures are ineffective.

C7 - **Management performance**: The fishery have made progress, but has not met the objectives in relation to the reduction components. The evidence suggests the problem of insufficient data and information on the reduction component.

Section 2B – Endangered, threatened and protected species (ETPs)

T1 - **Interactions with ETPs are known**: There are observations and records of interactions with ETPs, but they are not formal routine.

T2 - **Interaction effects**:No concrete scientific investigation on the impact of the fisheries on ETPs.

T3 - **Management measures and their compliance**:There are only some strategies and measures protecting ETP species. An example is The Wildlife Reservation and Protection Act, which specifically protects dugongs. However, there is no assessment on the impact of the fisheries on the ETP and alternative mechanisms to protect other ETP rather than dugongs.

Section 2C-Habitats

H1- **Habitat consideration**: The issue of habitat is mostly focused on restoration rather thanthe impact of the fishing. Consequently, there is very limited information and study to suggest the potential impact of the fishery on the habitat.

H2- **Impacts of the fishery on critical habitats**: Limited data and information of the impact of the fisheries on critical habitat. Most data and information are centered to impact if fisheries on bycatch rather than on critical habitats.

H3 -**Management measures**: There are measures in place to minimise and mitigate negative impacts, but they are not comprehensive. The present measures are not specifically and clearly designed to minimize the impact on the critical habitat. Rather, they centre to protecting and conserving commercial spp., e.g. Indo-Pacific mackerel. An example is the closed season and area measure.

Section D-Ecosystems

E1 - **Ecosystem consideration**: The present management plan does not thoroughly consider the impact of the fishery on the ecosystem. The Department of Fisheries has used ecosystem information in the management process, leading to a commitment of implementation of ecosystem-based fisheries management. However, the detailed practice is unclear.

E2 - **Impacts on the ecosystem**:There is an extensive evidence of the impacts of commercial trawl fishery on population structure. However, the evidence of applying ecological concepts to deal with the impacts on ecosystem, particularly to key ecological species is unclear.

E3 - **Management measures and strategies**:The focus and concern of the management are mostly on ecosystem structure, not on function/or other aspects.

E4 - **Impacts on key ecological elements**:There is no protective fishing measure to deal with the key ecological species impacted by the fishery.

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Part2: FIP Actions

Section 2A: Catch

Part A - Total aggregate catch

Action Criteria	A1-6
Objective	To improve the stock assessment and improve the management.
Action Description and tasks (with timeframes) and expected output	**Action:** 1. Update assessment report and publicly available. (A4), Jan 22-Aug 23, Jan 23-Aug 24, Jan 24-Aug 25. 2. Fishermen Meeting report and provincial fisheries committee meeting report to be made publicly available. (A5) (M3.5) 3. FMP 2020-2022 evaluation report. (A6) **Output:** 1. Annual report year (2022-2025) on stock assessment, (MMSY) and indicators species (Provide on Aug every year) (A4) 2. Fishermen Meeting report and provincial fisheries committee meeting report to publicly available. (A5) (M3.5) 3. Report on FMP evaluation. (A6)
Priority	Medium Priority
Estimated Cost	TBC
Responsible Parties with lead agency	1. Department of Fisheries, Marine Fisheries Research and Development Division and Fishery provincial office. 2. Thai Sustainable Fisheries Roundtable (TSFR)
Gaps addressed by the Action	A4-6 and M 3.5

Part B - High-risk species/Species groups

Action Criteria	B1 – 6
Objective	To identify, monitor and assess the high-risk species.
Action Description and tasks (with timeframes) and expected output	**Action:** 1. Identify species and species groups of fish, caught in trawl fishing in the Gulf of Thailand and analyzing productivity and sensitivity (PSA) to estimate vulnerability. (1st May21-30thApr22) 2. Conductand analysis of changes in catch composition of trawl fishery, classified by vulnerability groups. (1st May21-30thApr22) 3. Assess the stock status of high-risk species (1st Aug22-30thJul 23) **Output:** 1. The report of analysis for the vulnerability of species/ species groups in catch composition, classified by type of trawl fishing in the Gulf of Thailand. B1(Dec 22). 2. The report on data/information of changes in the catch composition of each type of trawl fishing B2, B3, B4 (Dec 22). 3. The report of stock assessment for high-risk species. (Dec 23) 4. Guidelines/Data/Information for input into the next FMP (28).
Priority	High Priority
Estimated Cost	1 million Baht
Responsible Parties with lead agency	1. Prof. TuantongJutagate, UbonRatchathani University 2. Department of Fisheries, Marine Fisheries Research and Development Division. 3. Thai Sustainable Fisheries Roundtable (TSFR)
Gaps addressed by the Action	B1-4

Part C -Reduction component

Action Criteria	C1-7: Reduction component
Objective	To assess reduction component, juvenile commercial fish from trawl fishery and establish TRP.
Action Description and tasks (with timeframes) and expected output	**Action:** 1. Review existing research related to trawl catch composition and stock assessment to set TRP. C1, C2 (Jan -Dec 23) 2. Set up data collection program for trawl fisheries monitoring and research vessel. C3(Oct - Dec 22) 3. Conduct the data collection program, especially the composition of the trash fish.C3, C4, C5 (Start Jan 2023). 4. Analyze data and publish annual report on trawl fisheries and research vessel C3, C4, C5(Jan 24 - Dec 25). 5. Set proposed objectives and TRP for reduction component and juvenile commercial fish. C1, C2(Jan 24 - Dec 25). 6.Conduct workshop with stakeholders to discuss recommendations for input into the next FMP.C6,C7(Jan - Dec 26). **Output:** 1. Report on catch composition, especially for trash fish including juvenile commercial fish from each type of trawl fisheries and stock assessment. 2. Data collection program. 3. Annual report on trawl fisheries and researchvessel. 4.Workshop report recommendation for input into the next FMP.
Priority	High Priority
Estimated Cost	TBC
Responsible Parties with lead agency	1. Marine Department of Fisheries, Marine Fisheries Research and Development Division. 2. Thai Sustainable Fisheries Roundtable (TSFR)

Gaps addressed by the Action	C1-7

Section 2B – Endangered, threatened and protected species (ETPs)

Action Criteria	T1-3
Objective	To identify and assess ETP species impacted by trawl fishery.
Action Description and tasks (with timeframes) and expected output	**Action:** 1. Review ETP species from IUCN, CITES and National Regulations. T3 (Dec 22 -Mar 23) 2. Workshop to reviews and planning for ETP species recording and trawl interaction. T2 (Jun 23-Aug 23). 3. Collect Historical data from fisherman at sea observation by DoF.(Jan-Dec 23) 4. Monitor population of marine endangered animal by DMCR. (Jan-Dec 23) 5. Risk Assessment on trawl fishery and ETP interaction. T2(As soon as the data available within 5 years) 6. Consultation with stakeholder to improve current fisheries practice. (T1) (Mar 2023 – Mar 2024) - Mitigation protective measures. - Training program by DoF on logbook to record ETP during at sea operation. - Training program by DMCR on life saving, identification, stranded reporting ETPs. **Output:** 1. Effective ETP interaction record approach. (T1) 2. Report on (T2) - Updated ETPs of Thailand. - Risk assessment of trawl interaction to ETP species. 3. Best practice on ETP protection on community area management (T3).
Priority	High Priority

Estimated Cost	TBC
Responsible Parties with lead agency	1. Department of Fisheries, Fish Quarantine and fishing Vessels Inspection Division, Fishing and Fleet Management Division 2. Department of Marine and Coastal Resources. 3. Thai Sustainable Fisheries Roundtable (TSFR)
Gaps addressed by the Action	T1-3

Section 2C – Habitats

Action Criteria	H1-3
Objective	To identify and assess critical habitat impacted by trawl fishery
Action Description and tasks (with timeframes) and expected output	**Action:** 1. Collect environmental data of critical habitat (Seagrass, Coral reefs, mangrove and fisheries and marine protected area) and trawl fishing activities, using GIS and VMS (Jun-Dec) - Inner Gulf of Thailand (21-22) - Eastern Gulf of Thailand (22-23) - Southern (Lower) Gulf of Thailand (23-24) 2. Analyze and synthesize data to assess the impact of trawl fishing on critical habitat and marine environments in the Gulf of Thailand, including distribution changes as much as available (Jan-Mar). - Inner Gulf of Thailand (21-22) - Eastern Gulf of Thailand (22-23) - Southern (Lower) Gulf of Thailand (23-24) 3. Identify and assess the critical habitat effected by trawl fishery. (Apr-May) - Inner Gulf of Thailand (21-22) - Eastern Gulf of Thailand (22-23) - Southern (Lower) Gulf of Thailand (23-24) 4. Risk Assessment on trawl fishery and habitat interaction. 5. Workshop to discuss recommendation on

	mitigation measure for the input into the next FMP. **Output:** 1. Report on; Comprehensive environmental data and trawl fishing behaviours(H1). - Inner Gulf of Thailand (Dec 21-22) - Eastern Gulf of Thailand (Dec 22-23) - Southern (Lower) Gulf of Thailand (Dec 23-24) 2. The result of impacts on main habitat and critical habitat effected by trawl fishery (H2). - Inner Gulf of Thailand (Dec 21-22) - Eastern Gulf of Thailand (Dec 22-23) - Southern (Lower) Gulf of Thailand (Dec 23-24) 3. Workshop report recommendation on mitigation measure for the input into the next FMP H1, H3 (2028).
Priority	High Priority
Estimated Cost	15 million Baht
Responsible Parties with lead agency	1. Prof.ShettapongMeksumpun Department of marine sciences and Prof.SansaneeWangvoralak, Department of Fisheries Management, Faculty of Fisheries, Kasetsart University. 2. Department of Fisheries, Fish Quarantine and fishing Vessels Inspection Division, Fishing and Fleet Management Division. 3. Thai Sustainable Fisheries Roundtable (TSFR)
Gaps addressed by the Action	H1-3

Section D-Ecosystems

Action Criteria	E1 – 4
Objective	To identify and assess the impact of fishery to ecosystem
Action Description and tasks (with timeframes) and expected output	**Action:** 1. Review existing research related to the impacts from fisheries on the ecosystem. (Jan - Jun 23) 2. Find an expert on Ecopath model.(Jul - Dec 23) 3. UpdateEcopath model by using recent data. (Jan 24 - Dec 25) 4. Find key ecological species from Ecopath. (Jan 24 - Dec 25) 5. Simulate the model with different scenario [fishing gear/fishing effort] (Jan 24 - Dec 25) 6. Workshop to discuss recommendation for input into the next FMP (Jan - Dec 26) **Output:** 1. Summary historical changes of the impacts from fisheries on the ecosystem. E1 (Jun 23). 2. Reports on; E2 (Dec 25). - Updated Ecopath model. - Key ecological species identified - Simulation result from different scenario and implication for management 3. Workshop report recommendation for input into the next FMP. (2028). E3 (Dec 2026)
Priority	Low Priority
Estimated Cost	1 million Baht
Responsible Parties with lead agency	1. Department of Fisheries, Marine Fisheries Research and Development Division 2. Thai Sustainable Fisheries Roundtable (TSFR)
Gaps addressed by the Action	E1-3