The Gulf of Thailand mixed-trawl Fishery Improvement Project (FIP)
Fishery Action Plan (FAP) update Jan 2024

Section 2A Catch
Part A - Total Aggregate Catch

Action Criteria	A1-6		Due Date	Status	Remark
Objective	To improve the stock assessment and improve the management.				
Action Description and tasks (with timeframes) and expected output	**Action**				
	1. Update assessment report on stock, (MMSY) and indicators species and publicly available.		**Aug 23**		Submitted to peer review
	2. Fishermen Meeting report and provincial fisheries committee meeting report to be made publicly available.		**Dec 22**		Submitted to peer review
	3. FMP 2020-2022 evaluation report.		**Jan 23**		Submitted to peer review
	Output:				
	1. Annual report year (2022-2025) on stock assessment, (MMSY) and indicators species.		**Aug 23**		Submitted to peer review
	2. Fishermen Meeting report and provincial fisheries committee meeting report to publicly available.		**Dec 22**		Submitted to peer review
	3. Report on FMP evaluation.		**Jan 23**		Submitted to peer review
Priority	Medium Priority				
Estimated Cost	TBC				
Responsible Parties with	1. Department of Fisheries, Marine Fisheries Research & Development Division and Fishery provincial office.				

lead agency	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		Due Date	Status	Remark
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 analysing productivity and sensitivity (PSA) to estimate vulnerability.		**Dec 22**		Submitted to peer review
	2. Conduct and analysis of changes in catch composition of trawl fishery, classified by vulnerability groups.		**Dec 22**		Submitted to peer review
	3. Assess the stock status of high-risk species.		**Dec 23**		The summary report in the annex 1, Page 11
	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.		**Dec 22**		Submitted to peer review
	2. The report on data/information of changes in the catch composition of each type of trawl fishing.		**Dec 22**		Submitted to peer review
	3. The report of stock assessment for high-risk species.		**Dec 23**		The summary report in the annex 1, Page 11

	4. Guidelines/Data/Information for input into the next FMP.	**Dec 28**		On process
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. Thai Sustainable Fisheries Roundtable (TSFR)			
Gaps addressed by the Action	B1-4			

Part C -Reduction component

Action Criteria	C1-7: Reduction component	**Due Date**	**Status**	**Remark**
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.	**Dec 23**		On process. Following up with Department of Fisheries
	2. Set up data collection program for trawl fisheries monitoring and research vessel.	**Dec 22**		Submitted to peer review
	3. Conduct the data collection program, especially the composition of the trash fish.	**Start Jan 23**		The summary report in the annex 1, Page 21
	4. Analyze data and publish annual report on trawl fisheries and research vessel.	**Dec 25**		On process
	5. Set proposed objectives and TRP for reduction component and juvenile commercial fish.	**Dec 25**		On process
	6. Conduct workshop with stakeholders to discuss recommendations for input into the next FMP.	**Dec 26**		On process

	Output:			
	1. Report on catch composition, especially for trash fish including juvenile commercial fish from each type of trawl fisheries and stock assessment.	**Jul 24**		On process
	2. Data collection program	**Dec 22**		Submitted to peer review
	3. Annual report on trawl fisheries and research vessel.	**Jul 24**		On process
	4. Workshop report recommendation for input into the next FMP.	**Dec 26**		On process
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	Due Date	Status	Remark
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.	**Mar 23**	🟩	Submitted to peer review
	2. Workshop to reviews and planning for ETP species recording and trawl interaction.	**Aug 23**	🟩	The summary report in the annex 1, Page 25
	3. Collect Historical data from fisherman at sea observation by DoF.	**Dec 23**	🟩	The summary report in the annex 1, Page 37
	4. Monitor population of marine endangered animal by DMCR.	**Dec 23**	🟩	The summary report in the annex 1, Page 44
	5. Risk Assessment on trawl fishery and ETP interaction. T2 (As soon as the data available within 5 years)	**Dec 26**	🟨	On process
	6. Consultation with stakeholder to improve current fisheries practice. - 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.	**Mar 24**	🟨	On process
	Output:			
	1. Effective ETP interaction record approach.	**Dec 25**	🟨	On process

	2. Report on
	  - Updated ETPs of Thailand**.**
	  - Risk assessment of trawl interaction to ETP species**.**
		Dec 24
		Dec 26
				On process

	3. Best practice on ETP protection on community area management.	**Dec 25**		On process
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)			
Gap addressed by the Action	T1-3			

Section 2C – Habitats

Action Criteria	H1-3		Due Date	Status	Remark
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)				
	1.1 Inner Gulf of Thailand.		**Dec 22**	🟩	Submitted to peer review
	1.2 Eastern Gulf of Thailand.		**Dec 23**	🟩	The summary report in the annex 1, Page 63 and 73
	1.3 Southern(Lower) Gulf of Thailand.		**Dec 24**	🟨	The funnidng support has been approved. The research will start Jan 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).				
	2.1 Inner Gulf of Thailand.		**Dec 22**	🟩	Submitted to peer review
	2.2 Eastern Gulf of Thailand.		**Dec 23**	🟩	The summary report in the annex 1, Page 63 and 73
	2.3 Southern (Lower) Gulf of Thailand.		**Dec 24**	🟨	The funnidng support has been approved. The research will start Jan 24
	3. Identify and assess the critical habitat effected by trawl fishery. (Apr-May)				
	3.1 Inner Gulf of Thailand.		**Dec 22**	🟩	Submitted to peer review
	3.2 Eastern Gulf of Thailand.		**Dec 23**	🟩	The summary report in the annex 1, Page 63 and 73
	3.3 Southern (Lower) Gulf of Thailand.		**Dec 24**	🟨	The funnidng support has been approved. The research will

				start Jan 24
4. Risk Assessment on trawl fishery and habitat interaction.	**Dec 25**			On process
5. Workshop to discuss recommendation on mitigation measure for the input into the next FMP.	**Dec 26**			On process
<u>**Output:**</u>				
1. Report on; Comprehensive environmental data and trawl fishing behaviours (H1).				
1.1 Inner Gulf of Thailand.	**Dec 22**			Submitted to peer review
1.2 Eastern Gulf of Thailand.	**Dec 23**			The summary report in the annex 1, Page 63 and 73
1.3 Southern (Lower) Gulf of Thailand	**Dec 24**			The funnidng support has been approved. The research will start Jan 24
2. The result of impacts on main habitat and critical habitat effected by trawl fishery (H2).				
2.1 Inner Gulf of Thailand.	**Dec 22**			Submitted to peer review
2.2 Eastern Gulf of Thailand.	**Dec 23**			The summary report in the annex 1, Page 63 and 73
2.3 Southern (Lower) Gulf of Thailand.	**Dec 24**			The funnidng support has been approved. The research will start Jan 24
3. Workshop report recommendation on mitigation measure for the input into the next FMP.	**Dec 28**			On process
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)
Gap addressed by the Action	H1-3

Section D-Ecosystems

Action Criteria	E1 – 4		Due Date	Status	Remark
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.		**Jun 23**		Submitted to peer review
	2. Find an expert on Ecopath model.		**Dec 23**		Done
	3. Update Ecopath model by using recent data.		**Dec 25**		On process
	4. Find key ecological species from Ecopath.		**Dec 25**		On process
	5. Simulate the model with different scenario [fishing gear/fishing effort].		**Dec 25**		On process
	6. Workshop to discuss recommendation for input into the next FMP.		**Dec 26**		On process

	Output:			
	1. Summary historical changes of the impacts from fisheries on the ecosystem.	**Jun 23**	🟩	The summary research in the annex 1 (Page 71)
	2. Reports on; E2 (Dec 25). - Updated Ecopath model. - Key ecological species identified - Simulation result from different scenario and implication for management	**Dec 25**	🟨	On process
	3. Workshop report recommendation for input into the next FMP.	**Dec 26**	🟨	On process
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)			
Gap addressed by the Action	E1-3			

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🟩 **Completed**

🟨 **On process**

ANNEX 1:

Section 2A Catch (Part B): High-Risk Species/Species groups:

- **The report of stock assessment for high-risk species.**

Summary

The assessment of the stock statuses between 2016 and 2020 of the interested species, i.e. the species with high risks from the trawl fisheries according the productivity sensibility analysis, was further conducted by using 3 models as yield per recruits' model, spawning potential ratio model and Thompson and Bell's analysis model. All the 3 models are length-based analyses. There were 5 fish species (*Saurida elongate, Nemipterus hexodon, Priacanthus tayenus, Sphyraena jello,* and *Scomberomerus commerson*) had been analyzed and the results are presented below. The results showed that there were trends of overfishing to individual stock, except *P. tayenus*, during the 5 years of monitoring from the yield per recruits' model and consequently lowered the spawning potential ratio to less than 20%, i.e., below the general limited reference of reproductive ability of the population that guarantee the suitable recruitment. Lastly, the results from Thompson and Bell's analysis model indicated the overfishing situation of the fishing efforts and overfished of the stock, when relating to the level of maximum sustained yield.

List of symbols and abbreviations in the Tables

Symbol and Abbreviation	
L_∞	asymptotic length (cm TL)
K	growth parameter (per year)
R_n	goodness of fit test, i.e. how the estimated growth fit to the length frequency distribution
$\emptyset'$	phi-prime value
Z	Total morality coefficients
M	Natural morality coefficients
F	Fishing morality coefficients
a	Annual mortality
L_{50}	Size selectivity at 50% to the fisheries
E_{max}	Exploitation rate which produces maximum yield
$E_{0.1}$	Exploitation rate at which the marginal increase of relative yield-per-recruit is 1/10th of its value at E=0

- *Saurida elongate*

Table 1 Growth parameters of *S. elongata* in the Gulf of Thailand as estimated from the length frequency data between 2016 and 2020

Year	Number of samples	Length (cm TL)	L_∞ (cm TL)	K (per year)	R_n	$\emptyset'$
2016	5,056,290	4-39	40.95	0.32	0.175	2.73
2017	2,344,984	3-36	37.80	0.24	0.179	2.54
2018	2,420,019	2-36	37.80	0.32	0.177	2.66
2019	1,701,662	3-41	43.05	0.59	0.166	3.04
2020	1,912,702	3-30	42.5	0.58	0.135	3.02

Table 2 Mortality parameters of *S. elongata* in the Gulf of Thailand between 2016 and 2020

Year	Z (per year)	a (%)	M (per year)	F (per year)	L_{50} (cm TL)
2016	2.51	92%	0.80	1.71	9.41
2017	1.63	80%	0.68	0.95	11.70
2018	1.88	85%	0.82	1.06	7.67
2019	2.73	92%	1.81	0.92	5.90
2020	2.99	95%	1.17	1.82	6.71

Table 3 Current exploitation rate of *S. elongata* in the Gulf of Thailand between 2016 and 2020 and the results from yield per recruits' model showing E_{max} and $E_{0.10}$ and %SPR from the length-based spawning potential model

| Year	$E_{current}$	E_{max}	$E_{0.10}$	%SPR
2016	0.68	0.48	0.35	10%
2017	0.58	0.58	0.46	16%
2018	0.56	0.46	0.37	18%
2019	0.34	0.40	0.32	42%
2020	0.60	0.42	0.30	15%
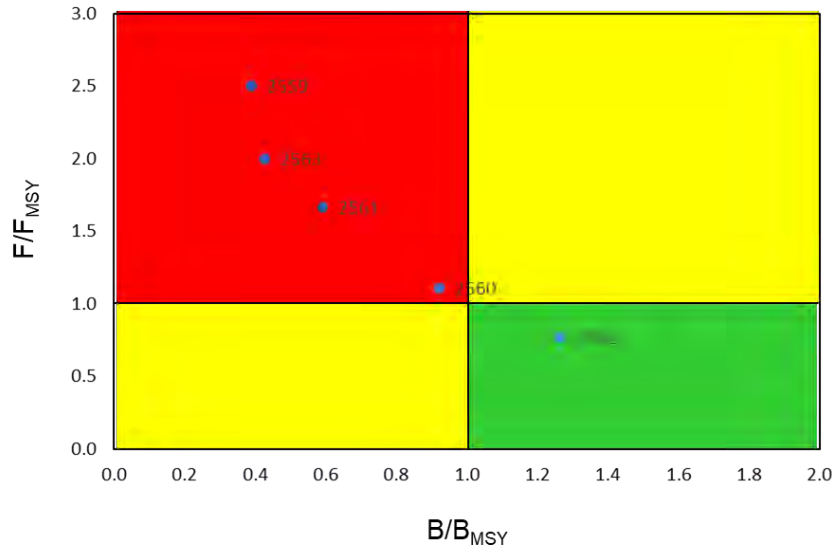
Figure 1 The result from Thompson and Bell Yield Analysis of *S. elongata* in the Gulf of Thailand between 2016 and 2020, as presented in Kobe plot

- *Nemipterus hexodon*

Table 4 Growth parameters of *N. hexodon* in the Gulf of Thailand as estimated from the length frequency data between 2016 and 2020

Year	Number of samples	Length (cm TL)	L_∞ (cm TL)	K (per year)	R_n	$\emptyset'$
2016	765,818	3-29	30.45	0.82	0.140	2.88
2017	963,083	3-32	33.60	0.68	0.149	2.89
2018	769,753	4-29	30.45	0.61	0.135	2.75
2019	1,068,681	3-28	29.50	0.58	0.101	2.70
2020	652,298	4-29	30.50	0.58	0.101	2.73

Table 5 Mortality parameters of *N. hexodon* in the Gulf of Thailand between 2016 and 2020

Year	Z (per year)	a (%)	M (per year)	F (per year)	L_{50} (cm TL)
2016	2.81	92%	1.61	1.20	9.27
2017	3.27	97%	1.38	1.89	6.24
2018	2.33	88%	1.32	1.01	8.85
2019	2.27	88%	1.29	0.98	10.00
2020	2.08	87%	1.28	0.80	6.46

Table 6 Current exploitation rate of *N. hexodon* in the Gulf of Thailand between 2016 and 2020 and the results from yield per recruits' model showing E_{max} and $E_{0.10}$ and %SPR from the length-based spawning potential model

Year	$E_{current}$	E_{max}	$E_{0.10}$	%SPR
2016	0.43	0.53	0.45	29%
2017	0.57	0.44	0.36	12%
2018	0.43	0.52	0.40	27%
2019	0.43	0.58	0.45	29%
2020	0.38	0.46	0.37	32%
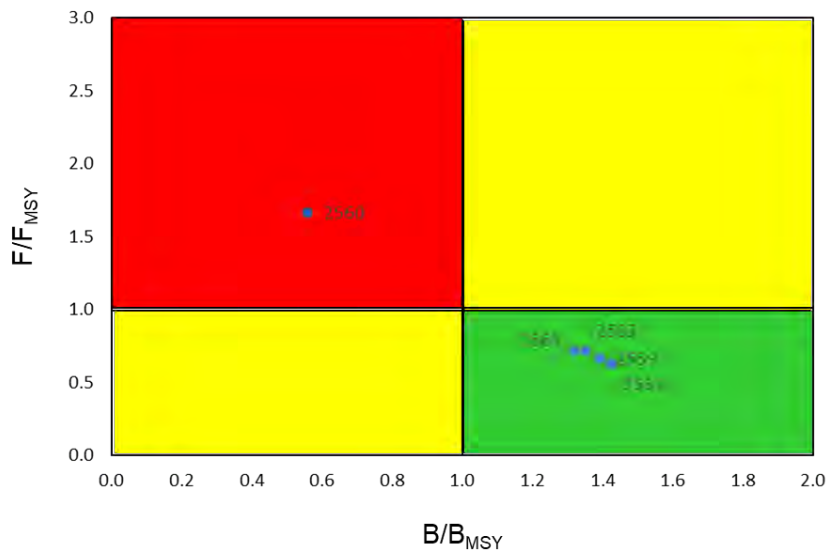
Figure 2 The result from Thompson and Bell Yield Analysis of *N. hexodon* in the Gulf of Thailand between 2016 and 2020, as presented in Kobe plot

- *Priacanthus tayenus*

Table 7 Growth parameters of *P. tayenus* in the Gulf of Thailand as estimated from the length frequency data between 2016 and 2020

Year	Number of samples	Length (cm TL)	L_∞ (cm TL)	K (per year)	R_n	$\emptyset'$
2016	5,812,356	2-30	31.50	0.68	0.152	2.829
2017	8,729,326	2-29	30.50	0.77	0.123	2.885
2018	5,759,924	2-29	30.50	0.67	0.103	2.795
2019	7,707,585	2-29	30.45	0.62	0.147	2.760
2020	4,050,259	2-31	32.50	0.48	0.130	2.705

Table 8 Mortality parameters of *P. tayenus* in the Gulf of Thailand between 2016 and 2020

Year	Z (per year)	a (%)	M (per year)	F (per year)	L_{50} (cm TL)
2016	3.29	97%	1.41	1.88	4.33
2017	3.59	97%	1.54	2.05	4.35
2018	2.74	93%	1.41	1.33	5.73
2019	2.54	92%	1.34	1.20	4.21
2020	2.23	87%	1.11	1.12	8.75

Table 9 Current exploitation rate of *P. tayenus* in the Gulf of Thailand between 2016 and 2020 and the results from yield per recruits' model showing **E_{max}** and **$E_{0.10}$** and %SPR from the length-based spawning potential model

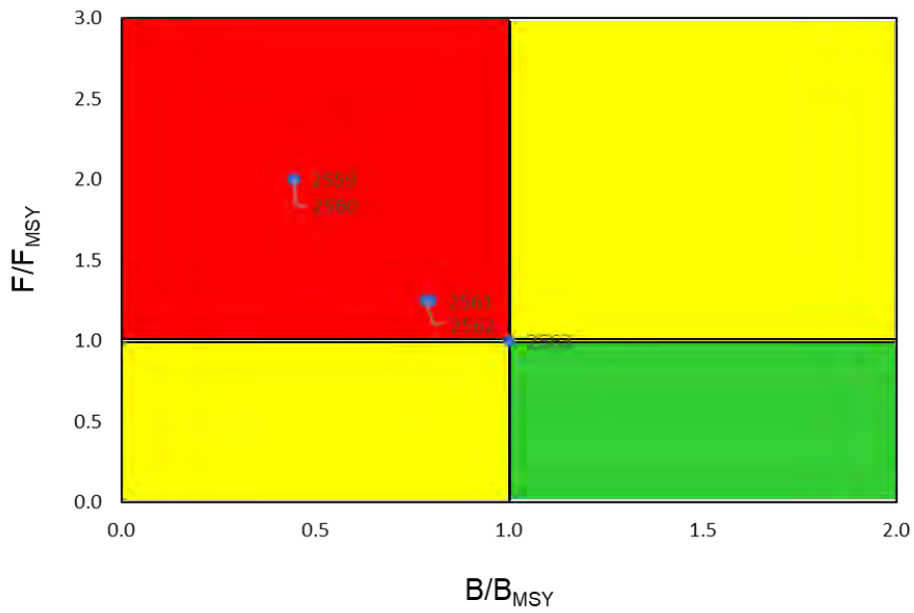| Year	$E_{current}$	E_{max}	$E_{0.10}$	%SPR
2016	0.57	0.41	0.31	15%
2017	0.57	0.42	0.35	17%
2018	0.48	0.44	0.36	23%
2019	0.47	0.41	031	25%
2020	0.50	0.51	0.42	21%

Figure 3 The result from Thompson and Bell Yield Analysis of *P. tayenus* in the Gulf of Thailand between 2016 and 2020, as presented in Kobe plot

- *Sphyraena jello*

Table 10 Growth parameters of *S. jello* in the Gulf of Thailand as estimated from the length frequency data between 2016 and 2020

Year	Number of samples	Length (cm TL)	L_∞ (cm TL)	K (per year)	R_n	$\emptyset'$
2016	345,448	6 - 66	66.75	0.33	0.134	3.075
2017	398,204	4 - 71	68.10	0.24	0.175	3.047
2018	210.726	5 - 68	65.00	0.33	0.207	3.144
2019	354,561	3 - 86	86.70	0.19	0.141	3.155
2020	466,829	4 - 77	75.00	0.28	0.179	3.197

Table 11 Mortality parameters of *S. jello* in the Gulf of Thailand between 2016 and 2020

Year	Z (per year)	a (%)	M (per year)	F (per year)	L_{50} (cm TL)
2016	1.58	79%	0.71	0.87	3.2*
2017	1.37	75%	0.58	0.79	3.5*
2018	1.21	70%	0.72	0.49	3.4*
2019	1.40	75%	0.46	0.94	1.4*
2020	1.36	74%	0.49	0.87	3.4*

Table 12 Current exploitation rate of *S. jello* in the Gulf of Thailand between 2016 and 2020 and the results from yield per recruits' model showing E_{max} and $E_{0.10}$ and %SPR from the length-based spawning potential model

| Year	$E_{current}$	E_{max}	$E_{0.10}$	%SPR
2016	0.47	0.38	0.31	11%
2017	0.45	0.36	0.26	8%
2018	0.51	0.37	0.31	24%
2019	0.57	0.35	0.27	3%
2020	0.62	0.35	0.26	6%
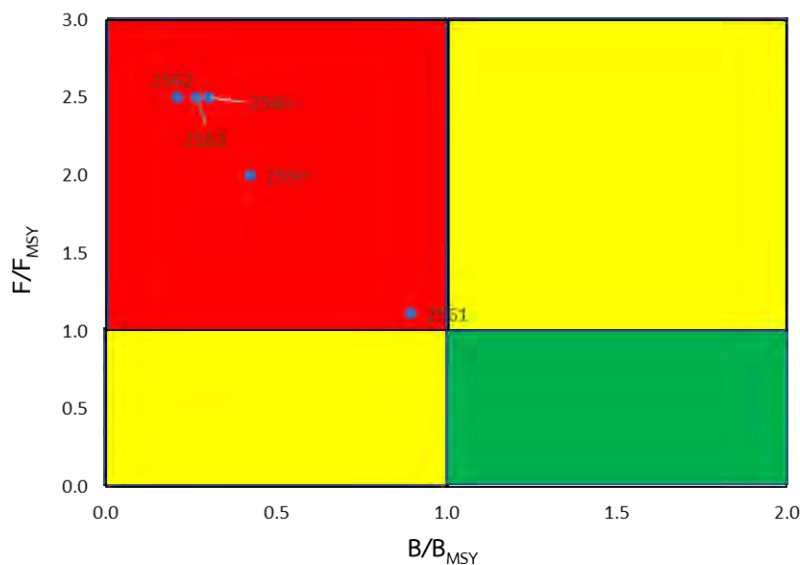
Figure 4 The result from Thompson and Bell Yield Analysis of *S. jello* in the Gulf of Thailand between 2016 and 2020, as presented in Kobe plot

- *Scomberomorus commerson*

Table 13 Growth parameters of *S. commerson* in the Gulf of Thailand as estimated from the length frequency data between 2016 and 2020

Year	Number of samples	Length (cm TL)	L_∞ (cm TL)	K (per year)	R_n	$\emptyset'$
2016	259,162	5 - 92	93.0	0.42	0.111	3.560
2017	359,447	2 - 85	86.5	0.55	0.118	3.641
2018	304,601	4 - 95	96.5	0.46	0.116	3.632
2019	390,317	3 - 94	95.0	0.42	0.119	3.583
2020	330,678	3 - 87	91.50	0.51	0.106	3.630

Table 14 Mortality parameters of *S. commerson* in the Gulf of Thailand between 2016 and 2020

Year	Z (per year)	a (%)	M (per year)	F (per year)	L_{50} (cm TL)
2016	1.88	85%	0.76	1.12	5.49
2017	1.64	81%	0.93	0.71	2.23
2018	2.14	88%	0.80	1.34	3.40*
2019	2.09	88%	0.76	1.33	3.39
2020	3.54	97%	0.87	2.67	1.67*

Table 15 Current exploitation rate of *S. commerson* in the Gulf of Thailand between 2016 and 2020 and the results from yield per recruits' model showing E_{max} and $E_{0.10}$ and %SPR from the length-based spawning potential model

Year	$E_{current}$	E_{max}	$E_{0.10}$	%SPR
2016	0.60	0.38	0.31	4%
2017	0.44	0.37	0.31	16%
2018	0.63	0.37	0.31	3%
2019	0.64	0.37	0.30	2%
2020	0.75	0.37	0.31	1%
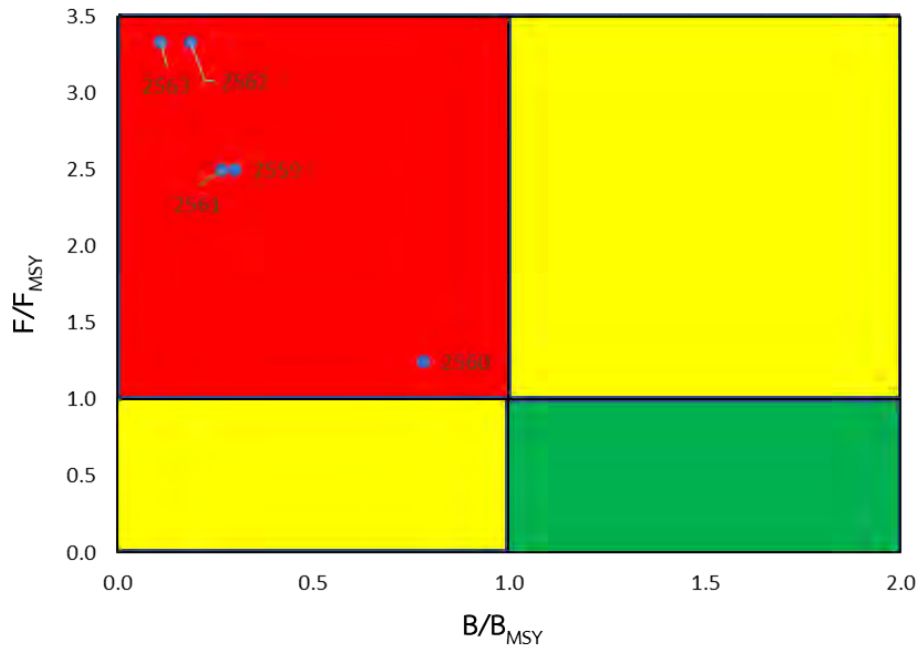
Figure 5 The result from Thompson and Bell Yield Analysis of *S. commerson* in the Gulf of Thailand between 2016 and 2020, as presented in Kobe plot

Section 2A Catch (Part C): Reduction component

Data collection program for trawl fisheries monitoring and research vessel

In 2023, the Department of Fisheries has been actively collecting data from three types of trawl fishing gears: Otter board trawls, Beam trawls, and Pair trawls on a monthly basis. This data collection effort is carried out by eight Marine Fisheries Research and Development Centers located as follows:

1. Marine Fisheries Research and Development Center in Rayong province.
2. Marine Fisheries Research and Development Center in Samut Prakan province.
3. Marine Fisheries Research and Development Center in Chumphon province.
4. Marine Fisheries Research and Development Center in Songkhla province.
5. Marine Fisheries Research and Development Center in Narathiwat province.
6. Marine Fisheries Research and Development Center in Ranong province.
7. Marine Fisheries Research and Development Center in Phuket province.
8. Marine Fisheries Research and Development Center in Satun province.

Between January and November, a total of 494 samples were collected from the Gulf of Thailand. These samples were divided into three categories: Pair trawl (106 samples), Otter board trawl (304 samples), and Beam trawl (84 samples) (Table 1). The CPUE were 123.30, 23.18 and 16.55 for Pair trawl, Otter board trawl, and Beam trawl respectively (Table1).

This comprehensive data collection initiative holds great significance for enhancing fisheries monitoring and supporting scientific research. The Department of Fisheries underscores the importance of accurate data collection for the sustainable management of trawl fisheries.

The Department of Fisheries conducts comprehensive fisheries resource surveys employing five dedicated marine fisheries research survey vessels: namely, Pramong 1, Pramong 2, Pramong 9, and Pramong 16, all under the Marine Fisheries Research and Development Division. These surveys are conducted using the otter board trawl method, utilizing a cod end net size of 4.0 cm, across a total of 64 survey stations in the Gulf of Thailand (Figure 1). From January to November, the Department of Fisheries successfully executed a total of 237 hauls through 15 survey trips (Table 2).

The data collection will continue until the end of 2023. Subsequently, the analysis of the data and the writing of the report will proceed. The report is expected to be completed by mid-2024.

Table 1 Sampling number of trawl fishing vessels from January to November 2023

Month	Pair Trawl		Otter Board Trawl		Beam Trawl	
	sampling Number	CPUE (kg./hr.)	sampling Number	CPUE (kg./hr.)	sampling Number	CPUE (kg./hr.)
1	13	106.59	39	13.36	7	15.61
2	5	130.84	30	23.26	8	19.88
3	9	92.74	43	21.55	9	13.54
4	6	146.47	24	29.29	8	15.80
5	7	121.84	26	20.09	11	13.92
6	11	139.27	31	26.11	13	15.86
7	15	113.82	25	25.82	11	13.04
8	9	131.56	28	23.06	3	12.74
9	8	121.61	25	21.18	7	19.34
10	9	136.99	14	31.00	4	32.22
11	14	131.02	19	32.22	3	22.87
sum	106	123.30	304	23.18	84	16.55

Table 2 Number of fisheries resources survey stations from January to November 2023 in the Gulf of Thailand

Center	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
EMDEC	9		9		9						9	
UMDEC	11		11		11		11					
CMDEC		22	22			22		22				
SMDEC			23					23	23			
total	**20**	**22**	**65**		**20**	**22**	**11**	**45**	**23**		**9**	
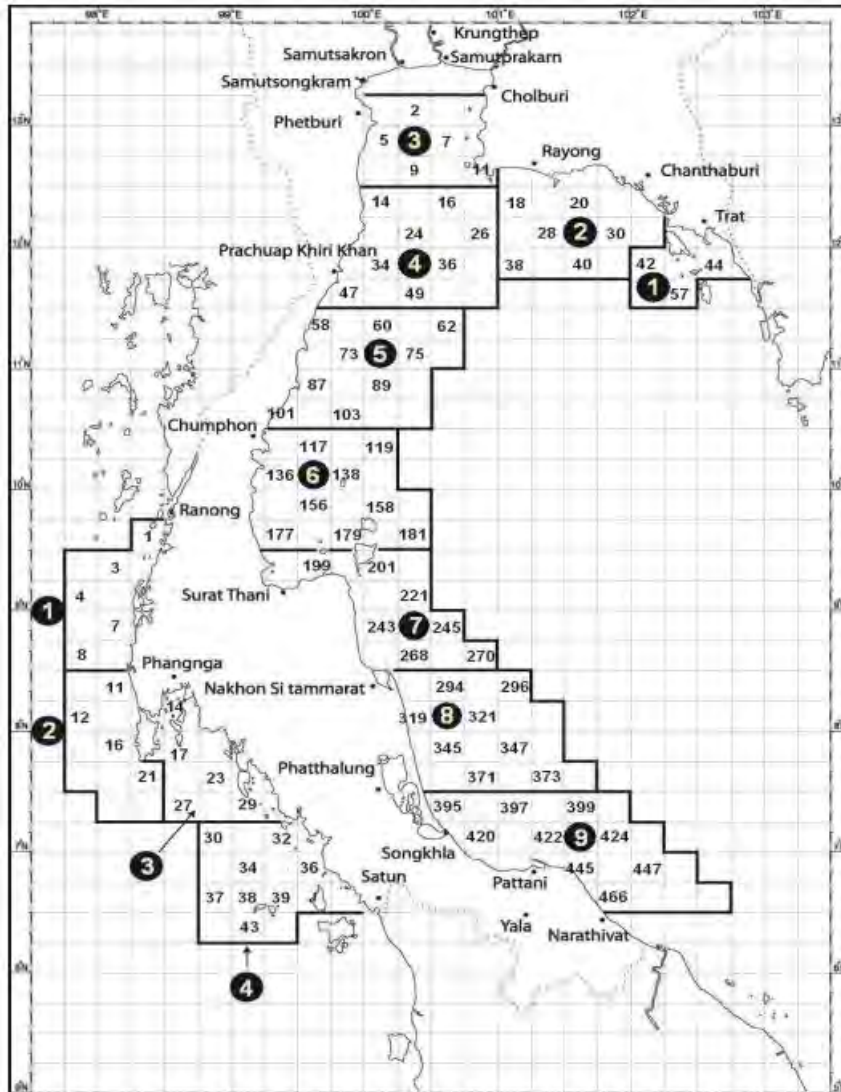
Figure 1 Marine fisheries research survey stations

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

Summary workshop
"Good fishing practices to reduce the impact
on Endangered, Threatened and Protected species (ETPs) into
sustainable fishery standards"
Mae Klong Fishery Cooperative Limited, Mueang District, Samut
Songkhram Province
25th September 2023, 10.30-17.00 PM

List of stakeholders sending the representative participated in the workshop
1) Thai Feed Mill Association (5 People)
2) National Fisheries Association of Thailand (2 People)
3) Thai Frozen Foods Association (2 People)
4) Thai Fishmeal Producer Association (1 person)
5) Thai Shrimp Association (1 Person)
6) Department of Marine and Coastal Resources (2 People)
7) Department of Fisheries (12 People)
8) Presenter (6 People)
9) TSFR Consultant (1 Person)
10) TSFR Working team (2 People)
11) Fisherman, Trawl Gears (31 People)
12) Online (19 People)

Objective:
1. To exchange experiences encountering rare marine animals during fishing in fishing Vessels (Trawl Gear).
2. To introduce sustainable fishing standard requirements in terms of environmental impact reduction.
3. To prepare a manual on good fishing practices to reduce the impact on rare marine animals in the Gulf of Thailand.

Fishery Improvement Project (FIP) in the Gulf of Thailand is a private sector initiative to evaluate and create Fishery Action Plan (FAP) to manage the Gulf of Thailand trawl fishery to become certified to

Marintrust standards, an international organization for certifying the sustainability of marine raw materials, Fishmeal. The Fishery Action Plan (FAP), 2022 has already been approved by the main agency, the Department of Fisheries, Stakeholders throughout the supply chain of Thai fisheries products and MarinTrust. Currently, the FAP is on the process of implementing the work specified in the action plan.

This workshop is a part of the Gulf of Thailand Trawl fishery management Plan (Fishery Action Plan; FAP) in the activities regarding workshop to reviews and planning for Endangered, threatened and protected species (ETPs) recording and trawl interaction. The working team chose the area where trawl fishing is the main tool, mainly the inner Gulf of Thailand area and some southern parts, also selecting representatives of fishermen from Samut Sakhon Province, Samut Prakan Province, Prachuap Khiri Khan Province, Ban Laem District Fishermen's Association and Songkhla Province, etc. Various suggestions from the workshop will be used to prepare a report and to create a manual for trawl fishing.

Opening speech at the workshop

President of the Thai Feed Mill Association, Mr. Pornsil Patcharintanakul opened the meeting on behalf of Thai Feed Mill Association and the working group of 8 associations as business operators throughout the supply chain from participating in Fishery Improvement Project (FIP) in the Gulf of Thailand. The operation of the project linked with foreign countries, which has now been accepted very well. This success would be difficult to achieve without the cooperation of all sectors, such as the Department of Fisheries, the Department of Marine and Coastal Resources, and researchers, who have always cooperated well for more than 10 years. Collaboration throughout the supply chain is an important factor and we will continue to develop Thai fisheries for more complete and better fisheries system to meet international standards so that the children and grandchildren of fishermen can use resources sustainably

Managing Director of Thai Frozen Foods Association Mr. Anucha Techanitisawad added on the opening that carrying out activities under the FIP project will be beneficial in explaining to trading partners who are keeping an eye on sustainable fisheries that Thailand places great importance on this issue, management of ETP species, and the Thai Frozen Foods Association is pleased to continue supporting this FIP project together with the working group of 8 associations.

Professor Kungwan Juntarashote, TSFR Consultant and Department of Fisheries Expert added on the opening that carrying out the FIP project and organizing this workshop activities, every department is involved together throughout the supply chain, starting from the capture process (fisherman), using fish as raw material to produce feed for shrimp and brought for consumption. Therefore, if any part is damaged, the supply chain will also be damaged so a careful planning is necessary. At present, it can be seen that there are many regulations at the international level in the form of recommendations and agreements, most of which are designed to benefit from the resources from the sea. However, few mentioned the importance of equal access to marine resources and there is only one concern about marine life but there is no mention of survival from fishing, both matters should be considered together. Professor Kungwan suggests that every party involve including governments, academics and key stakeholders should change the perspective by allowing the government sector to manage aquatic animal resources in the way that the fishermen survive and everyone must find a way to adjust to the changing trend of the world that views aquatic animal as global resources. Therefore, resources must be used without affecting the ecosystem and the well-being of the next generation

Presenting by Department of Marine and Coastal Resources and Department of Fisheries

Presenting on Endangered, Threatened and Protected species (ETPs) and basic rescue when ETPs are found stranded or stuck in fishing gear by Marine and Coastal Resources Research Center of the Upper Gulf of Thailand, Department of Marine and Coastal Resources.

Presenting on recording sightings of Endangered, Threatened and Protected species (ETPs) by Fish Quarantine and Fishing Vessels Inspection Division, Department of Fisheries.

Brainstorming session.

President of National Fisheries Association of Thailand explained that the reason why trawler fishermen do not keep records when they find Endangered, Threatened and Protected species (ETPs) because it had previously been affected by an NGO complaining that ETPs such as dugongs had been found caught in fishing trawlers. However, the dugong's habitat depends on the coastline and trawl fishing boats which are commercial fishing cannot enter the coastline to fish. In addition, trawl fishermen know which marine animals need to be conserved and if it is accidentally caught, it will be immediately released into the sea. Because such sea creatures cannot be sold, fishermen definitely do not catch them.

President of the Samutsakhon Fisheries Association provided the information that as an operator of a Bryde's whale viewing tour boat, it gives him the experience of encountering a group of ETPs. For reporting the discovery of ETPs, Trawl fishermen can record truthfully but it must not affect the fishermen and should be encouraged to help inform and record information. This will support the Department of Marine and Coastal Resources to increase the accuracy of the data on ETPs found and death rate. As the result, the bio-abundance index will be more accurate. The president has encouraged the participant in the workshop that reporting the discovery of ETPs does not affect the trawl fishermen in any way. This will also create awareness and makes you know how many ETPs there are. The president also provides the information that most trawl fishing vessels use a speed of 2-3 knots, which ETPs swim faster and avoid them quickly. Therefore, the chance of accidentally getting caught in a fishing net may be influenced by other factors, such as sea animals being sick.

The Department of Fisheries working group has joined in exchanging information with trawl fishermen and inquire about the discovery and recording of ETPs during fishing as follows:

The project manager from Thai Frozen Foods Association has shared the information that in terms of assessment for international standard, the importance of ecological impacts is clearly stated in the ecological assessment criterial. The entrepreneurs or fisherman must be able to inform how many types of ETPs live in each fishing area. This information may be overlaid with the fishing area information to indicate how much the fishing area affects the habitat of ETPs.

Fishery experts from Fish Quarantine and Fishing Vessels Inspection Division, Department of Fisheries has clarified that the Department of Fisheries has publicized coordinate with the Port In Port Out (PIPO) center regarding requesting cooperation from fishermen to continuously record the sightings of ETPs in a logbook. However, it has not been as successful as it should be. This may come from fishermen fearing that if they report their records, they may face consequences or penalties which is not true. The objective of the Department of Fisheries is to record ETPs encounters without specifying the number of individuals while fishing, while the boat is running or the boat is moored. The Department of Fisheries will use this information to create maps to see the distribution and density of ETPs. If there is regular reporting of information on ETPs encounters, even if it is accidentally attached to fishing gear and/or death, but the amount is less than the data on ETPs found. It makes believe that those ETPs is still some density. Therefore, recording data from fishermen is very important for reporting the abundance and distribution of ETPs.

Comments from trawl fishermen
1. Finding ETPs
   - ETPs that are often encountered – Dolphins, risk of getting caught in nets – Low, Death rate from fishing – Low
   - ETPs that are rarely found - Sea turtles.
     Noted sea turtles: The risk of getting caught in nets - very low. There is no procedure to prevent getting caught. Survival rates are moderate if caught in nets. Turtles and whale sharks are also

sometimes found when fishing. However, fishermen try to avoid fishing in areas where ETP species are found.

2. Reporting sightings of ETPs:

Most fishermen know about ETPs and be aware of basic legal protection and had experience of seeing ETPs while going fishing over a period of 10 years, but did not report the sighting of ETPs in the fishing Logbook. This is because there is still not enough understanding of the benefits of data reporting and worried about asking for additional information from the officers as there may be a misunderstanding that a fisherman is the one causing injury or death to ETPs and may be punished. This also Includes report of ETPs stranded. Fishermen see that it was not clear how they should proceed or how they needed to provide evidence in their logbook. In order to be clear and not to create obligations or receive legal penalties. After receiving clarification from the responsible agencies, both the Department of Marine and Coastal Resources and the Department of Fisheries, fishermen consider that such information is important and necessary in order to create a database of ETPs in Thailand and also saw that organizing activities/workshop like this time is an important part that should be in place for creating mutual understanding between officials and those involved at all levels and creating confidence in reporting information for ETPs to fishermen more clearly.

3. Guidelines to prevent impacts on ETPs during fishing.

From the presenting session previously on ETPs by Department of Marine and Coastal Resources and Department of Fisheries, this makes fishermen interested in the conservation of ETPs for what are the long-term positive or negative effects which relates to the relationships of living systems. The TSFR project consultant provided a case study example of Cod fisheries in foreign countries that the government has established measures to reduce cod fishing but found that the resource status has not recovered as expected. This results from a ban on the capture of another aquatic animal that is a predator the cod fish. The example case shows that the increase or decrease in the quantity of

aquatic animals depends on the ecological chain. A representative from Department of Marine and Coastal Resources added information that some ETPs are important predators in the ecological food chain. Therefore, their numbers are small but necessary to maintain natural ecological balance. The reason why there are so few rare marine animals is because they have a low reproduction rate, that is, they can reproduce and give birth only once a year, 1-2 animal at a time. Therefore, it is necessary to create understanding among those who use marine resources in order to be aware. The importance of conserving ETPs for the sake of proper natural balance.

The member from Thai Fishmeal Producer Association added that he had previously proposed a method to prevent dolphins from getting caught in the nets. From experience, the behavior of dolphins often approaches group of fish, and this might cost the caught in the net. Therefore, it is proposed that the Department of Fisheries allow fishing vessels to use red netting to cover their nets to prevent dolphins from coming closer. This will reduce the chance of getting caught in the nets. However, it was found that this method is still not possible due to the interpretation of the Fisheries Act that the use of such nets may violate the law in terms of modifying fishing gear.

President of the Prachuap Khiri Khan Fisheries Association and advisor of the Department of Marine and Coastal Resources added that most fishermen concern about the impact of being prosecuted. This is because fishermen see that fishing laws have high penalties so that the penalties should be adjusted to suit each case of action. The fishermen would like the Department of Fisheries to coordinate with the Port In Port Out center in order to provide an understanding to the fishermen. In the case of reporting the discovery of ETPs, this does not mean a wrongdoing or has an impact on fishermen. This will help benefit the development of the country's fisheries system for the better mentoring ETPs.