



**Establishment and Operation of a Regional System of
Fisheries *Refugia* in the South China Sea and Gulf of Thailand**

REPORT

**THE BASELINE SURVEY OF SHORT MACKEREL
AND FISH LARVAE COLLECTION**

**KOH KONG, CAMBODIA
07-12 MAY 2019**

Prepared by
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SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER
TRAINING DEPARTMENT



First published in Phrasamutchedi, Samut Prakan, Thailand in May 2019 by the SEAFDEC-UNEP-GEF Fisheries Refugia Project, Training Department of the Southeast Asian Fisheries Development Center

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For citation purposes this document may be cited as:

FIA/Cambodia, 2019. Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand, Report of the Baseline Survey Short Mackerel and Fish Larvae Collection. Southeast Asian Fisheries Development Center, Training Department, Samut Prakan, Thailand; FR/REP/CAM38, 9 p.

1. Field Trip Objective

- 1) To monitor mackerel gonad development and collect sampling fish larvae in Koh Kong province from 07 to 12 May 2019 under the support of SEAFDEC/UNEP/GEF.

2. Involved Person

- 2) There are four leaders and officers from Department of Fisheries Conservation and two officers from Fisheries Administration Cantonment in Koh Kong, participating in doing a research of baseline survey short mackerel (or Indo-Pacific mackerel) in Koh Kong province naming as following (see Annex 1, 2 & 5):
 - Mr. Leng Sy Vann, Deputy Director of the Department of Fisheries Conservation and NSTFP
 - Mr. Prak Tith, Vice chief of Socioeconomic Division, Marine Fisheries Research and Development Institute (MFRDI)
 - Mr. Rous Saret, Officer of Department of Fisheries Conservation
 - Mr. Lieng Saroeun, Vice chief of Crocodile Industrial development and conservation, Department of Fisheries Conservation
 - Miss Map Chanda, 3rd year-student from RUA in the Faculty of Fisheries Science
 - Mr. Nou Ngoy, Vice Chief of Fisheries Administration Division, Koh Kong FiAC
 - Mr. Seng Bunna, Vice Chief of Fisheries Administration Division, Koh Kong FiAC

3. Field Trip Activities

A. Collection of fish samples at landing sites and markets

- 3) Teamwork from FiA and FiAC went down to collect the sampling short mackerel of 10 kg at Dornng Tung market and LYP landing site on 08 May 2019 in order to operate and monitor fish gonad growth, prepare and store its DNA. Those fish is caught at Koh Yor and Koh Code according to fishermen and sellers (see annex 2).

B. Operating fish to monitor mackerel gonad growth

- 4) 63 fish are operated to monitor its gonad development, including 40 females and 23 males (see annex 2 & 4).
- 5) According to data analysis of female mackerel, its average total body weight is 58.10g, average total body length is 15.74 cm, and average gonad weight is 2.97. For its gonad stage, it varies from 4st stage to 5th stage, including 37 fish in fifth stage and 3 fish in fourth stage.
- 6) For the male, its average total body weight is 50.42g, average total body length is 14.95cm, and average gonad weight is 2.30g. As for its gonad stage, it varies from 3rd stage to 5th stage, including one fish in 3rd stage, 16 fish in fourth stage, and six fish in fifth stage.

C. Preparing and storing DNA

- 7) Teamwork prepared and cut the part of 30 fish bodies and tails that are stored in small plastic tubes to check its DNA (see annex 3).

D. Sample larvae collection

- 8) Teamwork from FiA and FiAC went down to collect sampling fish larvae at Koh Yor, Chroy Pros, and Peam Krasob sites that are 8 stations. The bongo net with the size of 0.45 cm diameter and 1.5 meters length was applied to collect sampling fish larvae and two times/station was conducted to collect fish larvae. All sampling fish larvae were stored and kept in plastic tube with ethanol of 99.7%.

ANNEX 1**List of participants attending the baseline survey of short mackerel gonad development from 09 to 13 March 2019 in Koh Kong province**

Name	Sex	Title	Organization	Telephone
1. Leng Sy Vann	M	Deputy Director	DFC/FiA	017446373
2. Prak Tith	M	Officer	DFC/FiA	077926646
3. Lieng Saroeun	M	Vice chief of Crocodile industrial and conservation division	DFC/FiA	092660267
4. Rous Saret	M	Officer	DFC/FiA	011664696
5. Seng Bunna	M	Vice chief of Fisheries Administration Division	Koh Kong FiAC	016885709
6. Nou Ngoy	M	Vice chief of Fisheries Administration Division	Koh Kong FiAC	016933192
7. Map Chanda	F	Student	Faculty of Fisheries Science /RUA	077511674

ANNEX 2**Schedule for baseline survey of short mackerel gonad development from 07 to 12 May 2019 in Koh Kong province**

Date/Time	Description	Responsible person
07 May 2019		
9:00am-4:00pm	Leaving Phnom Penh for Koh Kong	<ul style="list-style-type: none"> • Mr. Lieng Saroeun, • Mr. Leng Sy Vann, • Mr. Prak Tith, and • Mr. Rous Sareth • Miss Map Chanda
08 May 2019		
9:00am- 12:00pm	Collection of fish sample at fishing ground at Village 4 and Dornng Tung market	All
12:00pm-2:00pm	Lunch break	All
2:00pm-5:00pm	Fish operation to monitor fish gonad and DNA	All
09 May 2019		
8:00am-1:00pm	Sample fish larvae collection at station 2, 4, 1 and 7	All
1:00pm -3:00pm	Lunch break	All
3:00pm -5:00pm	Fish operation to monitor fish gonad and DNA	All
10 May 2019		
8:00-1:00pm	Sample fish larvae collection at station 6 and 8	All

1:00pm-3:00pm	Lunch break	All
3:00pm -5:00pm	Fish operation to monitor fish gonad and DNA	All
11 May 2019		
8:00-12:00pm	Sample fish larvae collection at station 3 and 5	All
12:00pm-2:00pm	Lunch break	All
2:00pm-4:00pm	Fish operation to monitor fish gonad and DNA	All
12 May 2019		
9:00am-4:00pm	Leaving Phnom Penh for Koh Kong	All

ANNEX 3

Participants' Photos attending the baseline survey of short mackerel gonad development from 07 to 12 May 2019 in Koh Kong province





ANNEX 4
Data of baseline survey of short mackerel in Koh Kong on 07 to 12 May 2019

No.	TL	FL(cm)	BD(cm)	BW(g)	Sex	Stage	GW(g)	GSI	Area	Species	Date	
KKDT0001	18.3	16.2	4.0	63.7	F	4	2.5	4.08	DT Market	SM	8/5/2019	4.05
KKDT0002	18.6	16.5	4	73.6	M	5	1.8	2.51	DT Market	SM	8/5/2019	4.13
KKDT0003	17.5	15.6	3.9	58.3	F	4	2.9	5.23	DT Market	SM	8/5/2019	4.00
KKDT0004	18	15.7	3.7	55.3	F	4	2.5	4.73	DT Market	SM	8/5/2019	4.24
KKDT0005	18	15.7	3.8	58.8	F	4	2.1	3.70	DT Market	SM	8/5/2019	4.13
KKDT0006	17.6	16	3.7	55.4	F	5	1.9	3.55	DT Market	SM	8/5/2019	4.32
KKDT0007	18	16.1	3.8	60.8	F	4	3.4	5.92	DT Market	SM	8/5/2019	4.24
KKDT0008	17.9	16	3.8	61.8	F	4	3	5.10	DT Market	SM	8/5/2019	4.21
KKDT0009	17.5	15.9	3.7	57.4	F	4	2.7	4.94	DT Market	SM	8/5/2019	4.30
KKDT0010	18.5	16.6	4.9	61.4	F	4	2.4	4.07	DT Market	SM	8/5/2019	3.39
KKDT0011	16.5	15	3.6	55	M	4	4.2	8.27	DT Market	SM	8/5/2019	4.17
KKDT0012	17.1	15.2	3.6	48.7	F	5	1.7	3.62	DT Market	SM	8/5/2019	4.22
KKDT0013	16.8	15.1	3.6	52.4	M	4	3	6.07	DT Market	SM	8/5/2019	4.19
KKDT0014	17.4	15.7	3.7	56.6	M	4	3.2	5.99	DT Market	SM	8/5/2019	4.24
KKDT0015	17.1	15.4	3.6	54.1	F	4	2.3	4.44	DT Market	SM	8/5/2019	4.28
KKDT0016	16.5	14.9	3.6	47.9	M	4	2.7	5.97	DT Market	SM	8/5/2019	4.14
KKDT0017	18.3	16.6	4.1	64.5	F	4	3.5	5.74	DT Market	SM	8/5/2019	4.05
KKDT0018	17.1	15.4	3.6	51.2	M	5	1.6	3.23	DT Market	SM	8/5/2019	4.28
KKDT0019	17.5	15.7	3.6	53.9	F	4	2.1	4.05	DT Market	LM	8/5/2019	4.36
KKDT0020	17.1	15.3	3.5	50.8	F	5	1.1	2.21	DT Market	LM	8/5/2019	4.37
KKDT0021	17.2	15.5	3.7	58.3	M	4	3.1	5.62	DT Market	SM	8/5/2019	4.19
KKDT0022	17.2	15.6	3.7	55.8	M	4	4.75	9.30	DT Market	SM	8/5/2019	4.22
KKDT0023	18.9	17	4	72.7	F	4	2.9	4.15	DT Market	SM	8/5/2019	4.25
KKDT0024	17.9	16	3.7	56.9	F	5	1.3	2.34	DT Market	LM	8/5/2019	4.32

KKDT0025	16.5	15	3.6	48	M	4	2.4	5.26	DT Market	SM	8/5/2019	4.17
KKDT0026	17.5	15.9	3.8	63.5	M	4	5.1	8.73	DT Market	SM	8/5/2019	4.18
KKDT0027	16.6	15	3.5	48.6	M	4	2.2	4.74	DT Market	SM	8/5/2019	4.29
KKDT0028	15.9	14	3.4	40.6	F	4	1.5	3.84	DT Market	SM	8/5/2019	4.12
KKDT0029	17.2	15.5	3.7	51.2	F	4	2.1	4.28	DT Market	SM	8/5/2019	4.19
KKDT0030	16	14.3	3.5	44.4	M	4	1.8	4.23	DT Market	SM	8/5/2019	4.09
KKDT0031	15.7	14	3.3	39.1	M	5	N/A	#VALUE!	DT Market	SM	8/5/2019	4.24
KKDT0032	16.5	14.9	3.5	49.1	F	4	2	4.25	DT Market	SM	8/5/2019	4.26
KKDT0033	17	15.1	3.5	48.1	F	4	1.4	3.00	DT Market	SM	8/5/2019	4.31
KKDT0034	17	15	3.5	45.1	F	5	1.1	2.50	DT Market	SM	8/5/2019	4.29
KKDT0035	18	16.1	3.8	57.7	F	4	2.2	3.96	DT Market	SM	8/5/2019	4.24
KKDT0036	17	15.2	3.5	47.8	M	4	0.8	1.70	DT Market	LM	8/5/2019	4.34
KKDT0037	17	15.1	3.7	53.4	M	4	3	5.95	DT Market	SM	8/5/2019	4.08
KKDT0038	17.4	15.7	3.7	55.2	F	4	1.6	2.99	DT Market	SM	8/5/2019	4.24
KKDT0039	16.1	14.2	3.4	41.6	M	5	1.2	2.97	DT Market	SM	8/5/2019	4.18
KKDT0040	18	16	4	57.8	F	4	2	3.58	DT Market	SM	8/5/2019	4.00
KKDT0041	17.3	15.5	3.6	51.4	M	4	2.8	5.76	DT Market	SM	8/5/2019	4.31
KKDT0042	17	15.2	3.6	52	F	4	1.7	3.38	DT Market	SM	8/5/2019	4.22
KKDT0043	16.4	14.6	3.4	45.9	M	4	2.1	4.79	DT Market	SM	8/5/2019	4.29
KKDT0044	16.2	14.6	3.4	44.4	F	4	2.3	5.46	DT Market	SM	8/5/2019	4.29
KKDT0045	18	16	3.9	59.2	F	4	2.3	4.04	DT Market	SM	8/5/2019	4.10
KKDT0046	18.1	16.3	3.8	52.3	F	4	1.7	3.36	DT Market	SM	8/5/2019	4.29
KKLYP01	19.1	17.2	4	76	F	4	5.9	8.42	LYP Landing site	SM	8/5/2019	4.30
KKLYP02	18	16	3.9	65.3	F	4	4.8	7.93	LYP Landing site	SM	8/5/2019	4.10
KKLYP03	17.4	15.6	3.9	59.4	F	4	3.3	5.88	LYP Landing site	SM	8/5/2019	4.00
KKLYP04	17	15.2	3.6	50	F	4	2.6	5.49	LYP Landing site	SM	8/5/2019	4.22
KKLYP05	17.3	15.5	3.7	62.6	F	4	3.6	6.10	LYP Landing site	SM	8/5/2019	4.19
KKLYP06	16	14.4	3.4	45.7	M	5	0.3	0.66	LYP Landing site	SM	8/5/2019	4.24

KKLYP07	16.3	14.5	3.5	48.3	M	4	3	6.62	LYP Landing site	SM	8/5/2019	4.14
KKLYP08	17	15.2	3.9	57.9	F	4	5.4	10.29	LYP Landing site	SM	8/5/2019	3.90
KKLYP09	16.4	15	3.5	47.2	M	5	1.1	2.39	LYP Landing site	SM	8/5/2019	4.29
KKLYP10	16	14.3	3.3	45.4	M	5	N/A	#VALUE!	LYP Landing site	LM	8/5/2019	4.33
KKLYP11	17	15.2	3.6	55.6	F	4	2	3.73	LYP Landing site	SM	8/5/2019	4.22
KKLYP12	19.7	17.5	4.3	88.3	F	4	5.9	7.16	LYP Landing site	SM	8/5/2019	4.07
KKLYP13	19	17	4.1	79.3	F	4	5.7	7.74	LYP Landing site	SM	8/5/2019	4.15
KKLYP14	17	15.2	3.6	50.2	F	5	2.2	4.58	LYP Landing site	SM	8/5/2019	4.22
KKLYP15	19	17	4.1	69.3	F	4	4.15	6.37	LYP Landing site	SM	8/5/2019	4.15
KKLYP16	16.9	15.1	3.6	52.2	F	4	4	8.30	LYP Landing site	SM	8/5/2019	4.19
KKLYP17	16.5	15	3.5	48.2	F	4	2.5	5.47	LYP Landing site	SM	8/5/2019	4.29
KKLYP18	16.4	14.5	3.5	48.9	M	4	2.8	6.07	LYP Landing site	SM	8/5/2019	4.14
KKLYP19	16.2	14.4	3.4	45.5	M	3	0.9	2.02	LYP Landing site	SM	8/5/2019	4.24
KKLYP20	18.1	16.2	3.9	65.7	F	4	4	6.48	LYP Landing site	SM	8/5/2019	4.15
KKLYP21	17	15.1	3.7	57.7	F	4	3.4	6.26	LYP Landing site	SM	8/5/2019	4.08
KKLYP22	17.5	15.6	3.6	58.6	F	4	3	5.40	LYP Landing site	LM	8/5/2019	4.33
KKLYP23	15.6	14.1	3.4	40.9	M	4	1.9	4.87	LYP Landing site	SM	8/5/2019	4.15
KKLYP24	17	15.1	3.6	52.9	F	4	3.6	7.30	LYP Landing site	SM	8/5/2019	4.19
KKLYP25	16.9	15	3.5	51.4	F	4	3.5	7.31	LYP Landing site	SM	8/5/2019	4.29
KKLYP26	17	15.3	3.5	52.4	F	4	2.9	5.86	LYP Landing site	LM	8/5/2019	4.37