



**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 IN
KOH KONG PROVINCE**

**KOH KONG, CAMBODIA
14-16 JANUARY 2019**

Prepared by
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TRAINING DEPARTMENT



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1. Field Trip Objective

- 1) To monitor mackerel gonad development in Koh Kong province from 14 to 16 January 2019 under the support of SEAFDEC/UNEP/GEF.

2. Involved Person

- 2) There are four leaders and officers from Department of Fisheries Conservation, two officers from Fisheries Administration Cantonment in Koh Kong, and other four members of community fisheries, participating in doing a research of mackerel gonad development in Koh Kong province (see Annex 1, 2 & 5), naming as following:
 - Mr. Leng Sy Vann, Deputy Director of the Department of Fisheries Conservation and NSTFP
 - Mr. Ly Kuntty, Vice chief of Socioeconomic Division, Marine Fisheries Research and Development Institute(MFReDI)
 - Mr. Rous Saret, Officer of Department of Fisheries Conservation
 - Mr. Prak Tith Officer of Department of Fisheries Conservation

3. Field Trip Activities

3.1 Collection of fish samples at landing sites and markets

- 3) Teamwork led by **Mr. Leng Sy Vann** collected the samples of 5kg mackerel at Dorng Tung market, 1kg mackerel at Bak klorng market, and other 2kg mackerel at Village 4 market on 14 January 2019 in order to operate and monitor fish gonad growth (see annex 2).

3.2 Operating fish to monitor mackerel gonad growth

- 4) 90 fish samples are operated to monitor its gonad development, including 27 fish are females and 63 are males (see annex 2 & 3).
- 5) According to data analysis of female mackerel, its average total body weight is 73.96g and average total body length is 16.37cm. For its gonad stage, it varies from 1st stage to fourth stage, including 10 fish in fourth stage, 7 fish in 1st and 3rd stage, and 3 fish in 2nd stage.
- 6) But, for the male, its average total body weight is 54.77g, and average total body length is 14.88cm. As for its gonad stage, it varies from 1st stage to fifth stage, including 7 fish in 1st stage, 23 fish in 2nd stage, 20 fish in 3rd stage, 10 fish in fourth stage, and 3 fish in fifth stage.
- 7) Generally, its average total body weight is 63.04 g and average total length is 15.53cm. For its gonad stage, it varies from 1st stage to 5th stage, including 14fish in 1st stage, 26 fish in 2nd stage, 27 fish in 3rd stage, 19 fish in 4th stage, and 3 fish in 5th stage.

3.3 Discussion with mackerel fishers in Peam Krasob community fisheries

- 8) According to fisher from Village 4, they always go fishing at Koh Yor, Koh Code, and Peam Krasob from October to April. They go fishing starting early morning around 4:00 am to 7:00am or 8:00am and can catch fish from 20kg to 40 kg/day by using mackerel gillnet with net size of 3.5cm, depending on fishing months.
- 9) Fish caught is transported to sell at Dorng Tung market and Village 4 market in Koh Kong province and the fish price is flexible upon fishing season. Today short mackerel is sold in the cost of 12000 Riel/kg (\$US 3) at Dorng Tung market.

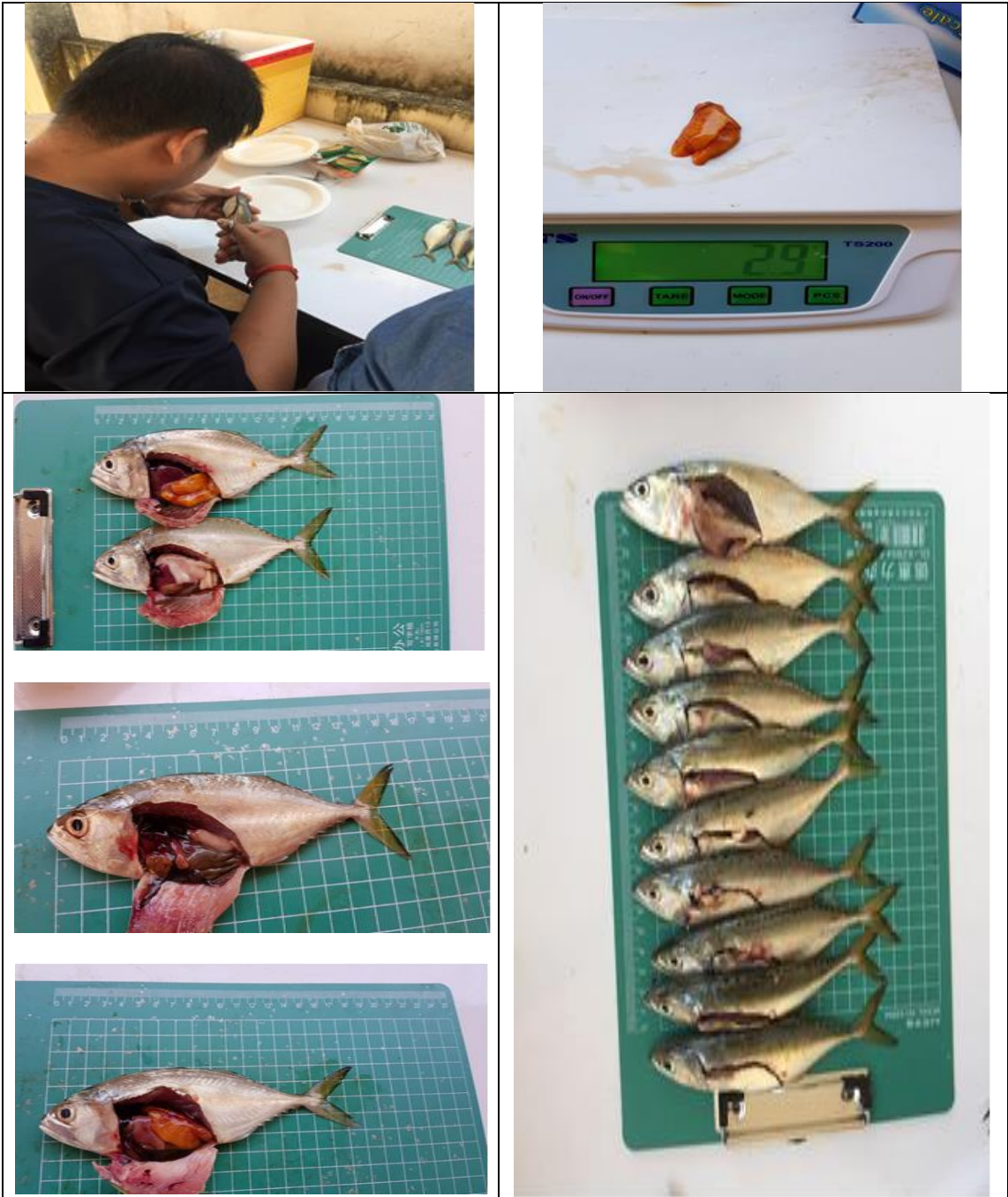
4. Conclusion

- 10) Fishermen start fishing mackerel from October to April at Koh Yor, Koh Code, and Peam Krasob, because it is spawning time of mackerel. Therefore, it is needed to take properly management measures to ensure fish stock in the nature, especially during its spawning starting in December to March.

ANNEX 1**List of Participants attending the baseline survey of short mackerel gonad development from 14 to 16 January 2019 in Koh Kong province**

Name	Sex	Title	Organization	Telephone
1. Leng Sy Vann	M	Deputy Director	DFC/FiA	017446373
2. Tep Savoeun	M	Fisher	Village 4	0966457199
3. Les Rosman	M	Fisher	Village 4	0974388991
4. San Dok	M	Fisher	Village 4	0977257745
5. Prak Tith	M	Officer	DFC/FiA	077926646
6. Long Manh	M	1 st Vice Chief	Village 4	016327095
7. Ly Kuntty	M	Vice chief of Division	MFRoDI/FiA	081811644
8. Rous Saret	M	Officer	DFC/FiA	011664696
9. Seng Bunna	M	Vice Chief of Fisheries Administration Division	Fisheries Administration Cantonment in Koh Kong	016885709
10. Nou Ngov	M	Chief of Fisheries Administration Division	Fisheries Administration Cantonment in Koh Kong	0978520520

ANNEX 2**Participants' Photos attending the baseline survey of short mackerel gonad development from 14 to 16 January 2019 in Koh Kong province**



ANNEX3**Schedule for baseline survey of short mackerel gonad development from 14 to 16 January 2019 in Koh Kong province**

Date/Time	Description	Responsible person
14 January 2019		
9:00am-4:00pm	Leaving Phnom Penh for Koh Kong	<ul style="list-style-type: none"> • Mr. Prak Tith, • Mr. Leng Sy Vann, • Mr. Ly Kunthy, and • Mr. Rous Sareth
15 January 2019		
9:00am- 12:00pm	Collection of fish sample at fishing ground at Peam Krasob	<ul style="list-style-type: none"> • All
12:00pm-2:00pm	Lunch break	<ul style="list-style-type: none"> • All
2:00pm-3:30pm	Collection of fish sample at Village 4 market	<ul style="list-style-type: none"> • All
3:30pm-5:00pm	Collection of fish sample at Dong Tung market	<ul style="list-style-type: none"> • All
16 January 2019		
9:00am-12:00pm	Collection of fish sample at Bak Khlorng market and Landing site	<ul style="list-style-type: none"> • All
12:00pm -2:00pm	Lunch break	<ul style="list-style-type: none"> • All
2:00pm -5:30pm	Fish operation to monitor its gonad growth	<ul style="list-style-type: none"> • All
17 January 2019		
9:00am-4:00pm	Leaving Koh Kong for Phnom Penh	<ul style="list-style-type: none"> • All

ANNEX 4

Table: data set of monitoring mackerel gonad growth on 11 December 2018 in Koh Kong province

No.	Date	Fish species	Location	Type of fishing gear	Sex	Total Body Weight (g)	Total Length (cm)	Gonad stage	Gonad weight (g)	Fishing ground
1	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	48	14.4	2	0.7	Peam Krasob and Koh Kapi
2	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	51.3	14.1	3	1.3	Peam Krasob and Koh Kapi
3	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	50.3	14.3	1	0.01	Peam Krasob and Koh Kapi
4	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	48.9	14.2	1	0.5	Peam Krasob and Koh Kapi
5	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	43.4	14	2	0.7	Peam Krasob and Koh Kapi
6	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	F	48.2	14.3	2	0.5	Peam Krasob and Koh Kapi
7	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	44.4	14.1	3	0.8	Peam Krasob and Koh Kapi
8	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	48.2	14.5	3	0.8	Peam Krasob and Koh Kapi
9	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	49.4	14.2	2	0.6	Peam Krasob and Koh Kapi
10	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	46.9	14	2	0.6	Peam Krasob and Koh Kapi
11	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	52.6	14.9	3	1	Peam Krasob and Koh Kapi
12	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	56.1	15	3	1	Peam Krasob and Koh Kapi
13	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	51.2	14.3	2	0.7	Peam Krasob and Koh Kapi

14	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	56	15	3	1.4	Peam Krasob and Koh Kapi
15	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	51.4	14.2	5	1.1	Peam Krasob and Koh Kapi
16	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	52.9	14.5	4	1.2	Peam Krasob and Koh Kapi
17	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	56.6	14.9	4	1.3	Peam Krasob and Koh Kapi
18	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	59.3	15	4	1.6	Peam Krasob and Koh Kapi
19	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	60.5	15	3	1.5	Peam Krasob and Koh Kapi
20	15/01/2019	Short mackerel	Village 4 Market	Mackerel Gill net with the net size of 4cm	M	51	14.3	3	1	Peam Krasob and Koh Kapi
21	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	F	68.3	16	3	1.1	Peam Krasob
22	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	64.7	15.4	4	2.8	Peam Krasob
23	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	71.7	16.1	3	2.4	Peam Krasob
24	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	64.1	15.9	2	0.8	Peam Krasob
25	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	F	58.9	15.3	1	0.1	Peam Krasob
26	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	F	65.9	15.8	3	2.8	Peam Krasob
27	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	F	67.1	15.9	3	2.7	Peam Krasob
28	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	58.2	15.2	2	1	Peam Krasob

29	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	62.6	15.8	2	1	Peam Krasob
30	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	57	15.1	2	1	Peam Krasob
31	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	F	50.4	14.8	1	0.1	Peam Krasob
32	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	50.2	14.7	3	1.7	Peam Krasob
33	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	50.2	14.9	1	0.3	Peam Krasob
34	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	53	14.8	4	2	Peam Krasob
35	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	51.6	14.9	2	1.1	Peam Krasob
36	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	F	50.8	14.9	2	0.1	Peam Krasob
37	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	51.6	14.9	4	2.3	Peam Krasob
38	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	47.1	14.3	1	0.1	Peam Krasob
39	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	47.3	14.3	3	1	Peam Krasob
40	15/01/2019	Short mackerel	Fishing ground	Mackerel Gill net with the net size of 4cm	M	51.5	14.8	2	0.6	Peam Krasob
41	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	42.2	14	3	0.6	Peam Krasob and Koh Kapi
42	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	44.5	14.1	1	0.1	Peam Krasob and Koh Kapi

43	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	48.6	14.5	4	1.4	Peam Krasob and Koh Kapi
44	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	48.5	14.4	1	0.1	Peam Krasob and Koh Kapi
45	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	No	41.5	14	0	0	Peam Krasob and Koh Kapi
46	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	47.4	14.2	3	0.7	Peam Krasob and Koh Kapi
47	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	49.5	14.5	1	0.1	Peam Krasob and Koh Kapi
48	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	46.3	14.5	1	0.1	Peam Krasob and Koh Kapi
49	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	47	14.3	2	0.6	Peam Krasob and Koh Kapi
50	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	48.7	14.8	2	0.6	Peam Krasob and Koh Kapi
51	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	66	15.9	4	2.6	Peam Krasob and Koh Kapi
52	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	59.1	15.4	3	1.8	Peam Krasob and Koh Kapi
53	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	61	15.5	4	1.3	Peam Krasob and Koh Kapi
54	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	58.8	15.2	2	0.7	Peam Krasob and Koh Kapi
55	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	62.2	15.5	4	2.6	Peam Krasob and Koh Kapi
56	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	63.1	16	2	0.6	Peam Krasob and Koh Kapi
57	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	F	55.7	15	1	0.3	Peam Krasob and Koh Kapi

58	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	57	15	3	1.7	Peam Krasob and Koh Kapi
59	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	57	15.1	3	1.3	Peam Krasob and Koh Kapi
60	15/01/2019	Short mackerel	Dorng Tung Market	Mackerel Gill net with the net size of 4cm	M	56	15	4	2.4	Peam Krasob and Koh Kapi
61	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	46.2	14	2	0.7	Koh Moul, Koh Kapi and Koh Code
62	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	42.9	14.1	1	0.1	Koh Moul, Koh Kapi and Koh Code
63	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	44.1	14.2	2	0.5	Koh Moul, Koh Kapi and Koh Code
64	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	42.6	14	3	0.6	Koh Moul, Koh Kapi and Koh Code
65	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	44	14	2	0.1	Koh Moul, Koh Kapi and Koh Code
66	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	No	46.3	14.1	0	0	Koh Moul, Koh Kapi and Koh Code
67	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	F	47.5	14.5	1	0.1	Koh Moul, Koh Kapi and Koh Code
68	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	43.1	13.7	2	0.1	Koh Moul, Koh Kapi and Koh Code

69	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	43.8	14.3	2	0.8	Koh Moul, Koh Kapi and Koh Code
70	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	44.7	14.1	3	0.7	Koh Moul, Koh Kapi and Koh Code
71	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	53.1	15	3	1	Koh Moul, Koh Kapi and Koh Code
72	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	49.2	14.1	2	0.6	Koh Moul, Koh Kapi and Koh Code
73	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	51.4	15	2	1.2	Koh Moul, Koh Kapi and Koh Code
74	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	F	67.8	16.1	3	1.3	Koh Moul, Koh Kapi and Koh Code
75	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	52.7	14.8	3	1.6	Koh Moul, Koh Kapi and Koh Code
76	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	57.6	15.5	3	0.9	Koh Moul, Koh Kapi and Koh Code
77	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	56.6	15.2	2	1.3	Koh Moul, Koh Kapi and Koh Code
78	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	58.9	15.3	2	0.5	Koh Moul, Koh Kapi and Koh Code
79	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	56.1	15	4	2.2	Koh Moul, Koh Kapi and Koh Code

80	16/01/2019	Short mackerel	Bak Khlorng market	Mackerel Gill net with the net size of 4cm	M	48.6	14.5	1	0.1	Koh Moul, Koh Kapi and Koh Code
81	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	102.2	18.4	4	2.6	Deep water area
82	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	M	93.5	17.5	4	5.5	Deep water area
83	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	105.7	19	3	3.6	Deep water area
84	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	122.9	19.1	4	6.5	Deep water area
85	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	96.7	18.1	4	3.4	Deep water area
86	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	101.9	18.2	3	2.6	Deep water area
87	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	93.4	18	4	4	Deep water area
88	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	98	18.5	4	3.5	Deep water area
89	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	135.2	20	4	3.8	Deep water area
90	16/01/2019	Short mackerel	Bak Khlorng landing site	Trawlers	F	104.7	18.5	4	3.4	Deep water area