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**Report of Chinese Observer Program in the Tropical Eastern Pacific Ocean in 2006**

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**1. Introduction**

Longline fishing gear is the only fishing method that China used operating in the Eastern Pacific Ocean(EPO). China longline fishery targeted on bigeye tuna in the high seas of tropical EPO. Although limited bigeye tuna are caught by Chinese tuna fleet, detailed fishery information and biological information from the catch should be investigated. The information will facilitate the pelagic fish stock assessment in the EPO. Based on the idea, China conducted observer program in the 2006.

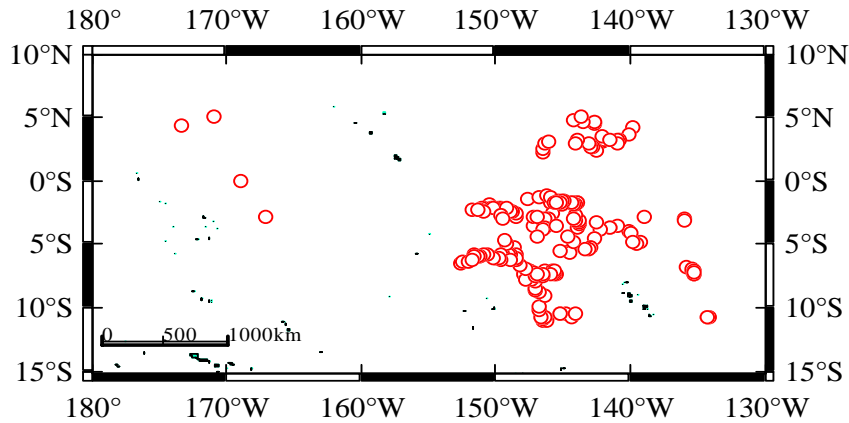
**2. Survey Date and Areas**

Chinese observer began to conduct survey in Feb 11, 2006 and finished in December 12, 2006. Surveyed longline fishing vessel operated total 223 sets(fishing days) in the Eastern Pacific Ocean(EPO) and total hooks amounted to 588250. Average hook per set(day) is 2638(Tab. 1)

**Tab. 1 Monthly hooks and average hooks per set in the 2006**

<b>Month</b>	<b>Fishing Areas</b>	<b>Fishing days</b>	<b>Total hooks cast</b>	<b>Hooks per set</b>
Feb	N04° ~ S7° W173° ~ W 147°	10	23760	2376
Mar.	S1° ~ S7°,W143° ~ W 151°	25	62930	2517
Apr.	N3° ~ S3°,W145° ~ W 151°	27	64960	2406
May	S2° ~ S7°,W135° ~ W 144°	24	66410	2767
Jun.	S7° ~ S10°,W134° ~ W 146°	15	43000	2867
Jul.	S7° ~ S10°, W144° ~ W 146	29	79850	2753
Aug.	N5° ~ S7°,W139° ~ W 145°	27	73130	2709
Sep.	N3° ~ S7°,W143° ~ W 148°	27	69300	2567
Oct.	S2° ~ S7°,W146° ~ W 150°	29	75950	2619
Nov.	S5° ~ N5°,W150° ~ W 170°	10	28960	2896
<b>Total</b>		<b>223</b>	<b>588250</b>	<b>2638</b>

Surveyed areas covered high seas of tropical EPO (N05~S07 °, W 134°~W173°) (Fig. 1).

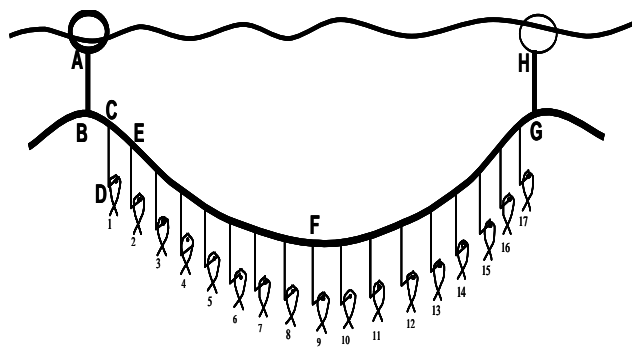


**Fig. 1** Position for Chinese observer survey in 2006

### 3. Fishing gear

Main line is consisted of nylon monofilaments. Branch lines per basket is between 17-18. The length of float line is between 40m to 50m. The length of branch line is 46m and interval length between branch line is 45m

There are four baits used in the longline fishing: Jack mackerel, Japanese Pilchard ,Mackerel Scad, ,Argentina Shortfin Squid



**Fig. 2** Longline fishing gear with 17 branche lines

## 4. Results

### 4.1 Catch species

**Tab.2 List of fish species caught by longline fishery in the Eastern Pacific Ocean**

No.	English name	Scientific name	Frequency
1	Short fin mako	<i>Isurus oxyrinchus</i>	C
2	Long fin-mako	<i>Isurus paucus</i>	O
3	Crocodile shark	<i>Pseudocarcharias kamoharai</i>	C
4	Bigeye thresher	<i>Alopias superciliosus</i>	C
5	Scalloped hammerhead	<i>Sphyrna lewini</i>	O
6	Oceanic white tip shark	<i>Carcharhinus longimanus</i>	C
7	Silky shark	<i>Carcharhinus falciform</i>	C
8	Blue shark	<i>Prionace glauca</i>	C
9	Velvet dogfish	<i>Zameus squamulosus</i>	O
10	Pelagic ray	<i>Dasyatis violacea</i>	C
11	Mantas	<i>Mobulidae</i>	I
12	Longnose lancet fish	<i>Alepisaurus ferox</i>	C
13	Great barracuda	<i>Sphyrna barracuda</i>	O
14	Opah	<i>Lampris guttatus</i>	I
15	Dolphinfish	<i>Coryphaena hippurus</i>	C
16	Bigscale pomfret	<i>Taractichthys longipinnus</i>	C
17	Sickle pomfret	<i>Taractichthys steindachneri</i>	C
18	Escolar	<i>Lepidocybium flavobrunneum</i>	C
19	Oilfish	<i>Ruvettus pretiosus</i>	O
20	Black gemfish	<i>Nesiarchus nasutus</i>	O
21	Wahoo	<i>Acanthocybiu, solandri</i>	C
22	Skipjack	<i>Katsuwonus pelamis</i>	I
23	Albacore	<i>Thunnus alalunga</i>	C
24	Yellowfin tuna	<i>Thunnus albacares</i>	C
25	Bigeye tuna	<i>Thunnus obesus</i>	C
26	Swordfish	<i>Xiphias gladius</i>	C
27	Blue marlin	<i>Makaira mazara</i>	C
28	Black marlin	<i>Makaira indica</i>	O
29	Striped marlin	<i>Tetrapturus audax</i>	C
30	Shortbill spearfish	<i>Tetrapturus angustirostris</i>	C
31	Sailfish	<i>Istiophorus platypterus</i>	O
32	Remoras	<i>Echeneis spp.</i>	C
33	Dealfish	<i>Desmodema polystictum</i>	O
34	Truncated sunfish	<i>Ranzania laevis</i>	O
35	Sunfish	<i>Mola mola</i>	I
36	Sharptail sunfish	<i>Mola lanceolatus</i>	O

Note : C- Species commonly caught; I- Infrequently species; O- Occasional species

There are 36 species of fish in the observer survey(Tab.2). These species can be classified

three types of catch: first type of catch is high economic value species such as bigeye tuna, yellowfin tuna, swordfish and striped marlin, which are sold to Japan market for sashimi. Second type of catch is low economic value species such as albacore, wahoo, blue marlin, black marlin, sailfish, shortbill spearfish shortfin mako etc., which are sold Fiji etc. for canned products. The third type of catch is discards species such as most of sharks, rays, mantas, snake mackerels, sunfish etc.

#### 4.2 Catch

The survey total catch of is 1968591kg, which included bigeye tuna 104015kg( No. of fish 2748), yellowfin tuna 36020kg(No. of fish 1223), swordfish 10266kg (No. of fish 277), other species 46558kg.

The average weight of bigeye tuna(dressed weight) is 37.85, which is slightly higher than that of 2003 observer survey(37.14 kg); and the average weight of yellowfin tuna(dressed weight) is 29.45, which is slightly higher than that of 2003 observer survey (28.02 kg), and the average weight of swordfish is 37.06kg, Nominal CPUE for bigeye tuna and yellowfin tuna are 4.671 per thousand hooks 2.079 per thousand hooks respectively.

**Tab. 3 Catch of pelagic species by month in the 2006 unit: kilogram**

Month	BET		YFT		SWO		OTH	No. of Sharks	Total
	W	No.	W	No.	W	No.			
Feb	2339	63	3032	99	203	7	2224	25	7799
Mar.	7185	158	1998	65	1244	35	2789	63	13216
Apr.	12865	306	4128	118	1591	44	1959	67	20541
May	7751	245	8710	383	485	19	3521	214	20467
Jun.	8971	290	3476	142	447	10	6264	53	19158
Jul.	14143	412	4453	136	1052	26	9247	87	28895
Aug.	12220	282	1766	51	1357	34	6339	137	21682
Sep.	16605	390	2928	82	2548	67	4236	66	26317
Oct.	15454	396	3967	107	619	18	6971	103	27011
Nov.	6536	206	1564	40	720	17	2954	26	11774
<b>Total</b>	<b>104015</b>	<b>2748</b>	<b>36020</b>	<b>1223</b>	<b>10266</b>	<b>277</b>	<b>46558</b>	<b>841</b>	<b>196859</b>

Note: all weight are processed weight.

#### 4.3 Billfish Catch

There are four billfish species including blue marlin, striped marlin, shortbill spearfish and sailfish. Catches are listed in the Tab 4.

**Tab. 4 Catch of Billfish in the 2006 unit: kilogram**

Billfish	Blue marlin	Striped marlin	Shortbill spearfish	Sailfish
Weight	9700	2800	800	100

**4.4 Shark Catch**

Shark catch by species is shown in the Tab 5 and Tab 6 respectively.

**Tab. 5 Economic shark catch during surveyed periods**

	Shortfin mako	Oceanic white tip shark	Silky shark	Scalloped hammerhead	Total
Dressed weight(kg)	343	3752	2515	643	7253

**Tab. 6 Discard shark catch during surveyed periods**

Species	Blue shark	Crocodile shark	Bigeye thresher	Velvet dogfish
Estimated total weight(kg)	6700	No data	No data	No data

**4.5 Other species catch**

Tab. 7 shows other species catch. Escolar, wahoo and albacore are dominant species in the catch.

**Tab. 7 Catch of other fish species in the 2006 unit: kilogram**

English nameae	Weight	No.
Pelagic ray	306	99
Mantas	160	/
Longnose lancet fish	374	11
Opah	700	/
Dolphinfish	300	/
Bigscale pomfret	1336	188
Sickle pomfret	345	62
Great barracuda	200	/
Escolar	3300	/
Oilfish	54	3
Black gemfish	16	3
Wahoo	2400	
Skipjack	900	
Albacore	12800	
Dealfish	5	1
Truncated sunfish	39	10
Sunfish	600	3

#### **4.6 Sea Turtles:**

There are four species sea turtle in the survey, observing 22 sea turtles appeared in the catch. Ratio of dead and alive approach 1:1. All the sea turtles are returned to sea no matter dead or alive.

#### **4.7 Marine Mammals**

A male pilot dolphin was caught at position of S03°41,W141°36, with the size 217cm in length, weight 200 kg. The dolphin was hooked in the dorsal fin and entanglement caused its death.