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Title: A review of Iran's Mangement Measures to Improve Fisheries Data Collection System & Statistics in 2014-2015

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Contents

Abstract

This document presents summary information about fisheries statistical data in Iran, according to IOTC resolutions and recommendations concerning mandatory minimum data submit to IOTC and basic actions to improving Data collection system with approvals and recommendations of the Scientific Committee and WPDCS11.

In 2015 total fish production in Iran was 983,898 tonnes, including 401,548 tonnes, aquaculture and 582,350 tonnes, catch which comprised 549,732 tonnes (94%) from southern waters, and 32,618 tonnes (6%) from northern waters. Total catch in southern waters, which can be distribute as 427,033 tonnes (78%) attributed to Persian Gulf and Oman Sea as coastal fisheries, 122,700 tonnes (22%) from Overseas (western Indian Ocean). More than 10000 artisanal fishing vessels are active.

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For better collaboration with IOTC, much effort has been carried out to extract all necessary outputs required to meet the concerned IOTC, Resolutions. Developing our data collection system and software is in progress to meet mandatory minimum statistics requirements. We have taken various actions to implement the Scientific Committee and IOTC Resolutions and recommendations. In this respect, after 2012, we proceeded with some actions and now we provide reporting for five species of Billfish, Big eye tuna, 8 species of shark and some other groups of species. It is noteworthy to say that since 2012, we could identify and include swordfish, different species of marlines and other by-catch for gillnet and purse seine in our Database. We have implemented logbook system for gillnetter (fishing Dhows), particularly to determine geographical distribution of their fishing operation in IOTC area of competence. In addition, we have carried out many actions for reporting of gillnet fishery by-catch and discard species such as sharks, dolphins, sea turtles, etc.

1-Background/General Fishery Information

Fishery for tuna and tuna-like species is a major component in large pelagic fisheries in Iran and one of the most important activities in the Persian Gulf & Oman Sea. There are 4 coastal provinces in that areas about 11 thousand vessels consist of fishing boat, dhows and vessel which are engaged in fishing in the coastal and offshore waters. Gillnet and purse seine are two main fishing methods used by Iranian vessels to target large pelagic species (especially tuna and tuna-like) in the IOTC area competency and some of small boats used trolling in coastal fisheries. Iran has taken various actions to implement the Scientific Committee recommendations and IOTC Resolutions.

One of them is national actions to improve data collection system for Tuna fishery since 2012 until now. We have implemented for Iranian industrial purse seiners and artisanal gillnets modification of logbook template to meet mandatory minimum statistic requirement, particularly concerning data recording of vessel position in IOTC area for target species, By-catch including 9 species of sharks and 5 species of billfish, non-targeted, associated and dependent species and discard.

In 2015 total fish catch & aquaculture production in Iran was 983,898 t, which has distributed as 56% from Persian Gulf, Oman Sea and overseas, 3% from Caspian Sea and 41% through Aquaculture. The total catch in 2015 was t; out of which about 236,266t, was of Tuna &Tuna like Species; however, in the year 2006, the tuna and tuna-like species catch was 207,000t, that around 50 percent belonged to skipjack. Resultantly After this year due to Tsunami and phenomenon of piracy in the IOTC region, the vessels changed the fishing grounds and operated in coastal areas. This caused extreme decrease of skipjack catch at the ratio of 103,000t, in 2006 and 38,720t, in 2015 and inverse increase of long tail catch at the ratio of 25,000t in 2006 and 67,000 t, in 2015 and . The effort in coastal areas increased; as a result, an increase of longtail tuna in 2015, as compared with the data of 2006. As I mentioned before Tuna and tuna-like species fisheries is one of the most important activities in the Persian Gulf & Oman Sea. Those catch consist of Yellowfin tuna 42,599t, Skipjack tuna 38,720t, Bigeye tuna 2,444t, Longtail tuna 59,647t, Kawakawa 28,392t, Frigate tuna 10,655t, Billfish(contain 4 species)19,531t, Indo-pacific king mackerel 7,242t, Narrow-barred Spanish mackerel 22,798t, Sharks 7,135t, and other species 12,388t.

Figure1.1. Annual total production from 1993 to 2015 *(metric tonnes)*

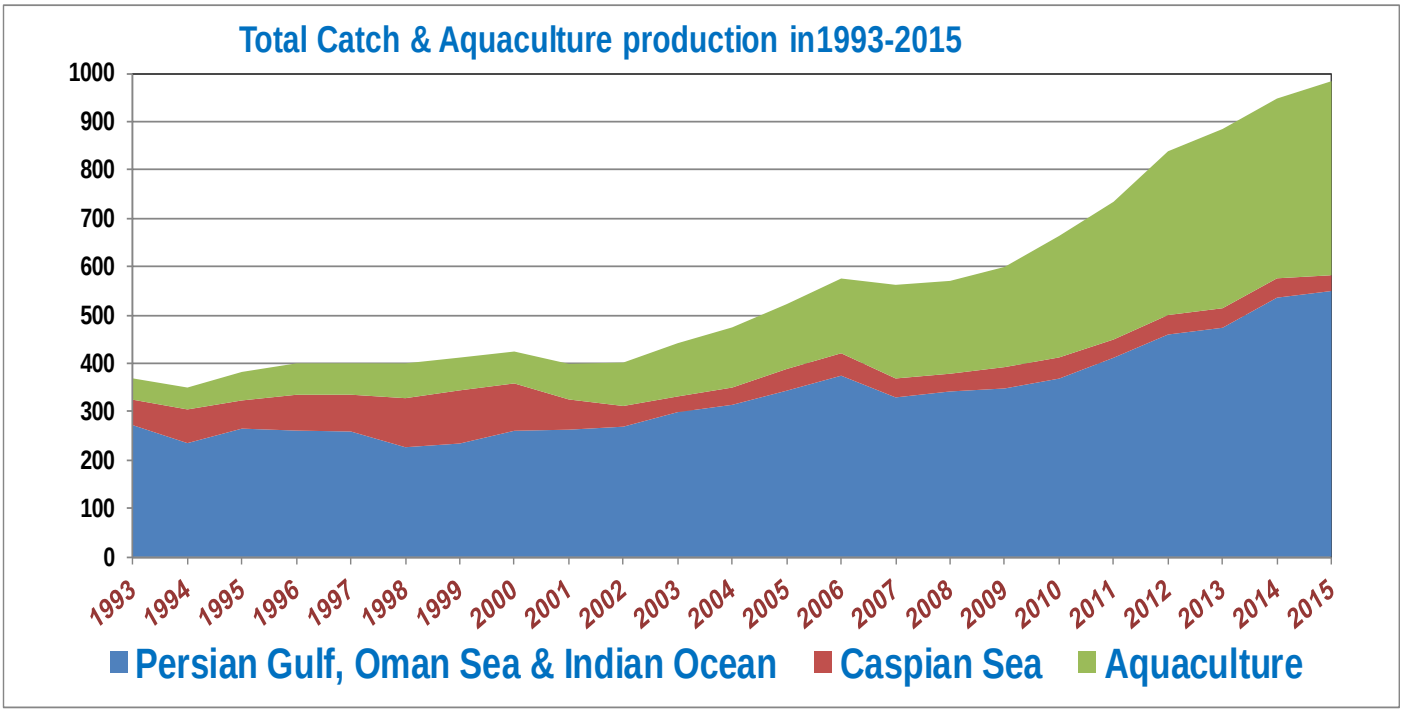


Figure1.2. a Comparison of total production between 1993 and 2015*(metric tonnes)*

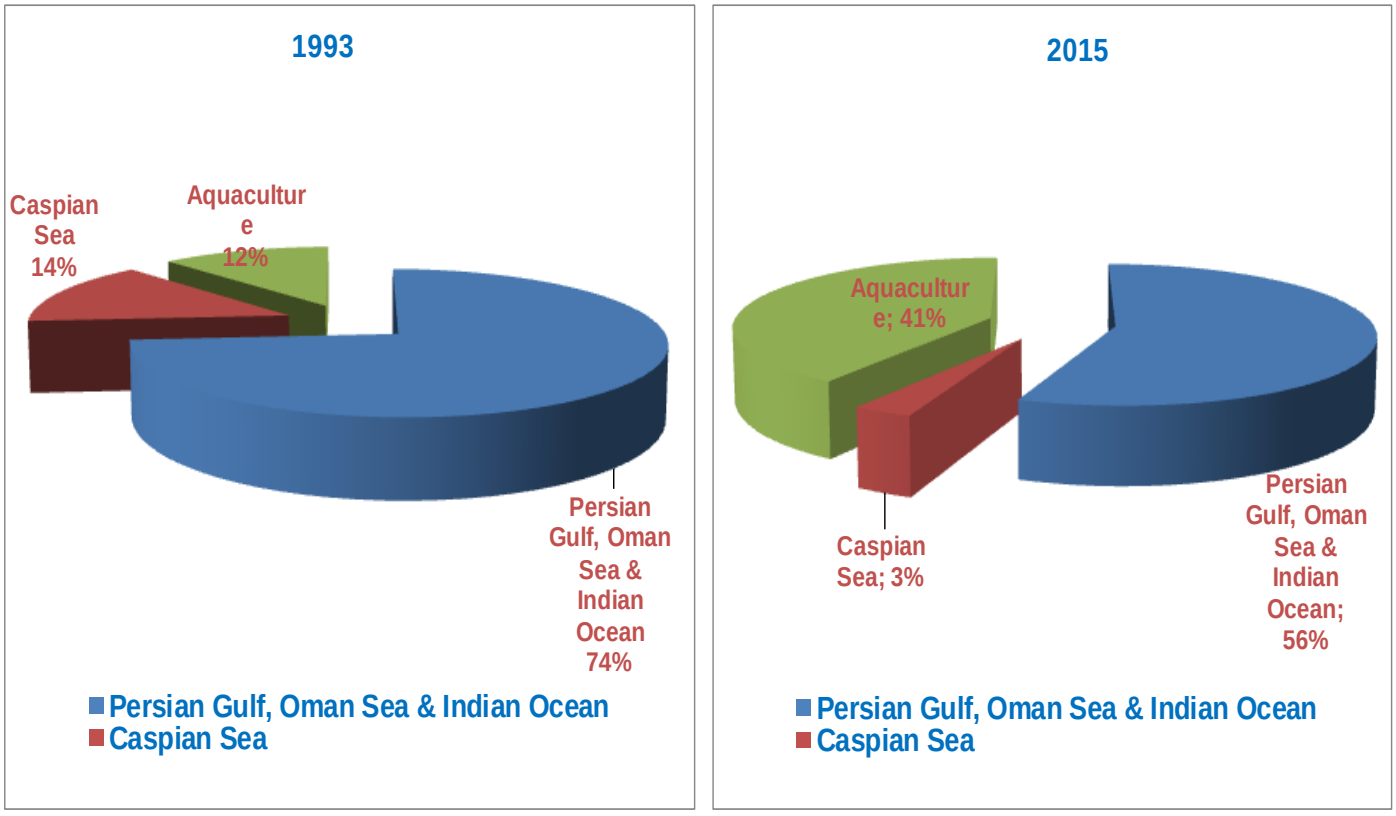
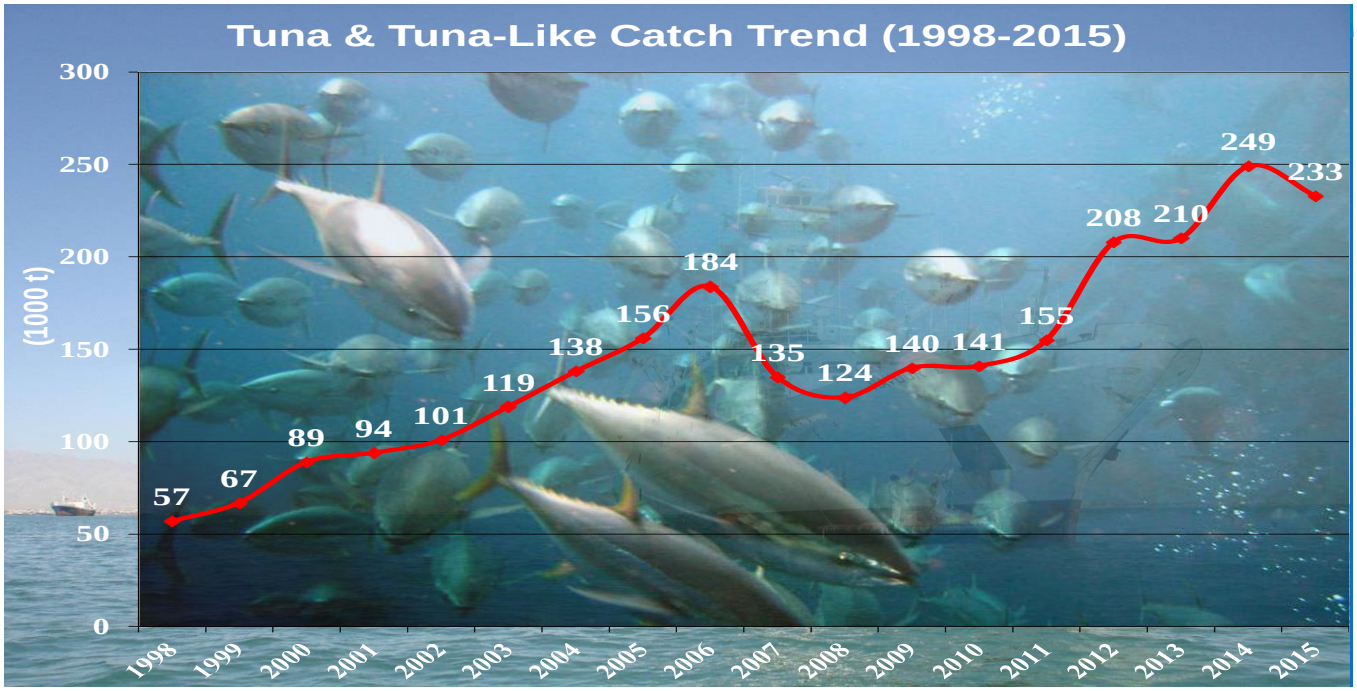


Figure1.3. Annual total Tuna & Tuna-like catch from 1998 to 2015(metric tons)



2-Fleet Structure

Fisheries activities in the southern waters of Iran by 10,446, vessels are ongoing. Around 7,185 vessels of this fleet are engaged in large pelagic species fishing in 2015, which 7 of them are industrial purse seiners, 3,126 Artisanal vessels (dhows) and 3,313 fishing boats. Around 1200 vessels are active in tuna and tuna like fishing in the Oman Sea, and offshore waters. This means more than 80 percent of crafts operate in the coastal areas and about 20% of the fishing vessels operating in distant waters. Those fishing crafts and GT of purse seiners is up to1000 t and GT of Gillnetters ranges from less than 3 t to more than 100 t. Gillnet and purse seine are two main fishing gears for catching tuna and tuna-like species in the IOTC area and also some of small boats used trolling method in coastal fisheries. Table 2.1 shows the fishing fleet disaggregated into the following (GT) categories during 2009 to 2015.

Table 2.1: Number of vessels operating in the IOTC area of competence, by gear type and size (2006-2015)

GEAR GROUP	Capacity GT	No. Crafts by year									
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Purse seine	500 - 1000	2	2	2	2	3	2	3	3	2	2
	1000 - 2000	7	7	7	6	5	5	4	4	5	5
Total Purse seine fishing Craft		9	9	9	8	8	7	7	7	7	7
Longline		1	1	1	1	1	1	1	1	1	1
Total Longline fishing Craft		1	1	1	1	1	1	1	1	1	1
Gillnet	< 3	4,125	3,966	3,974	3,828	3,444	3,340	3,784	3,741	3,155	3,630
	3 - 20	733	731	761	753	702	586	282	270	271	266
	21 - 50	715	725	730	667	911	941	1,021	1,060	825	364
	51 - 100	805	794	669	534	580	479	527	534	480	181
	101 - up	130	147	208	278	283	260	329	338	275	293
Total Gillnet fishing Craft		6,508	6,363	6,342	6,060	5,920	5,606	5,943	5,943	5,006	4,735
Trolling	< 3	214	397	417	426	634	854	810	805	1,914	2,019
Total Trolling fishing Craft		214	397	417	426	634	854	810	805	1,914	2,019
Total all Gear fishing Craft		6,732	6,770	6,769	6,495	6,563	6,468	6,761	6,756	6,928	6,762

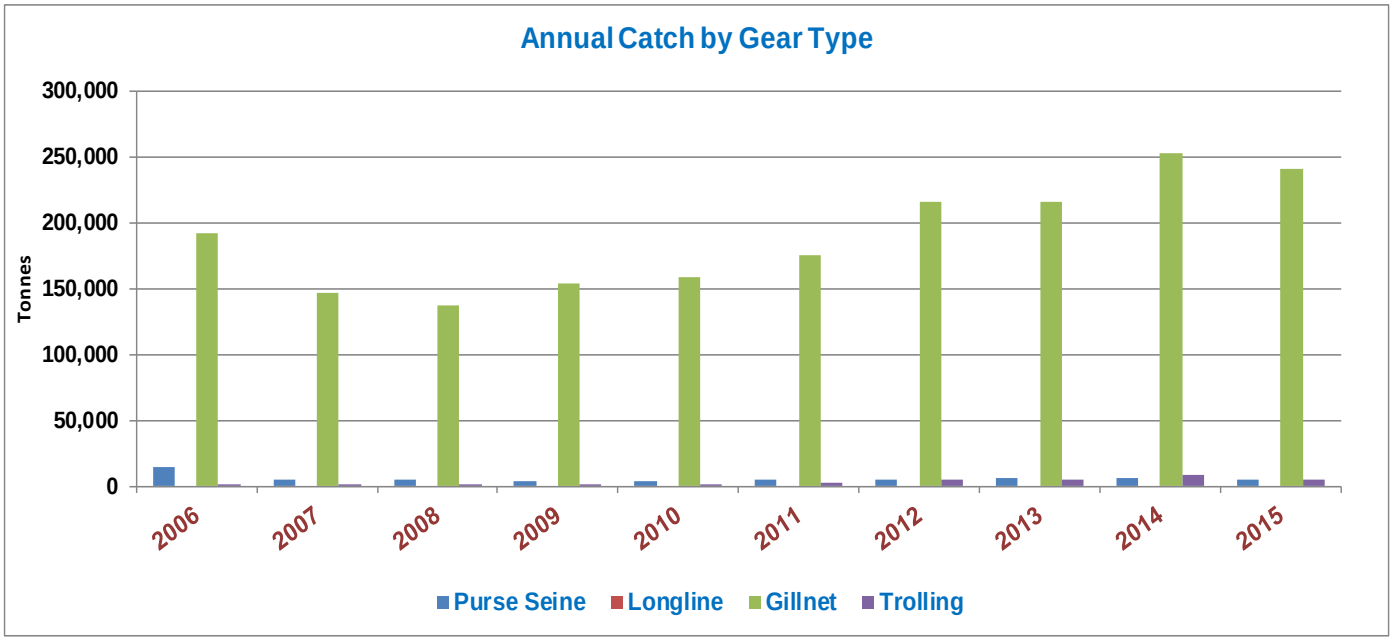
3- Catch and Effort (By Species and Gear)

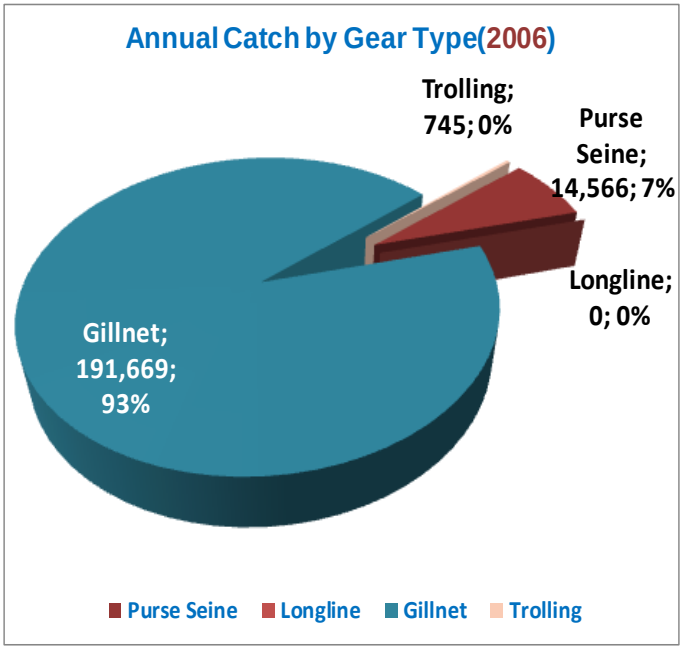
Table 2.1 and figure 3.1 to figure 3.4 shows the total annual catch and effort by gear type and species reported for the all fleet. The Catch quantity of tuna and tuna-like species in 2015 was equal to 232,577 t, of which 116,000 t, belongs to coastal waters and the rest (117,000 t,) belongs to offshore fishery. In 2005 and 2006, the amount of catch from offshore fishery were exceeded the coastal waters catch, but in recent years due to the piracy and insecurity related to this issue, the trend has completely reversed and Since 2007, the tropical tuna catch declined and the neritic tuna catch has increased. This decline of tropical tuna catch which has caused by the phenomenon of piracy; fishermen relocate their fishing grounds from offshore to coastal areas in Persian Gulf and Oman Sea and concentrate on traditional coastal fishing grounds. This shift of fishing grounds caused fishing effort increasing in coastal areas, as a result increasing in longtail catch from 25,000 t, in 2006, to 59,647 t, in 2015 (140%). Figure3.1. shows the amount of catch for different fishing methods of purse seine, Gillnet and trolling was estimated 5,308 t, 241,121 t and 5,122 t, respectively.

The total catch recorded by the purse seine fleet during 2015, estimated at 5,735t, the amount of catch for purse-seiners showed an ascending trend in 2015, comparing to recent 10 years.

Figure3.1. Annual Catch by Gear Type

GEAR GROUP	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Purse Seine	14,566	5,156	4,858	3,846	3,377	4,621	5,154	5,735	5,794	5,308
Longline	0	0	0	0	0	0	0	0	0	0
Gillnet	191,669	146,736	137,920	153,837	159,286	175,318	215,551	215,795	252,729	241,121
Trolling	745	1,283	854	1,005	1,328	2,902	5,169	4,879	8,002	5,122
TOTAL	206,980	153,175	143,632	158,688	163,991	182,842	225,874	226,410	266,524	251,551





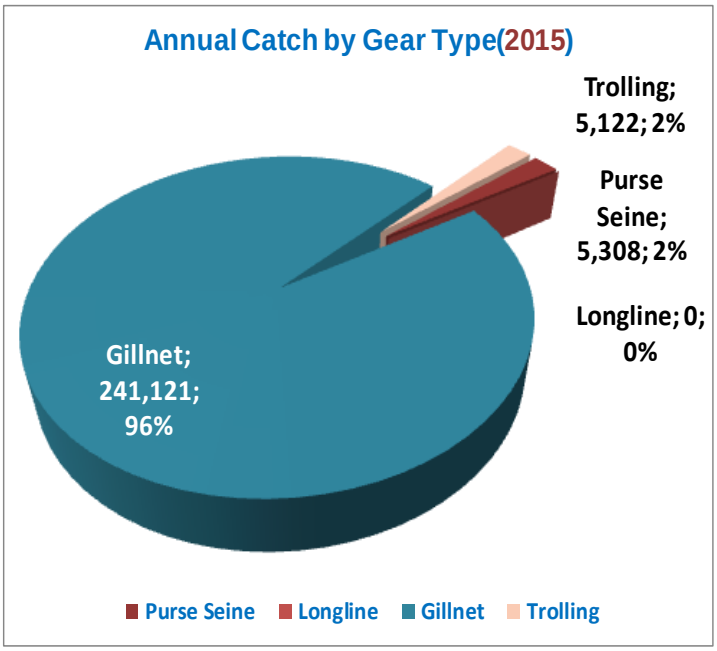
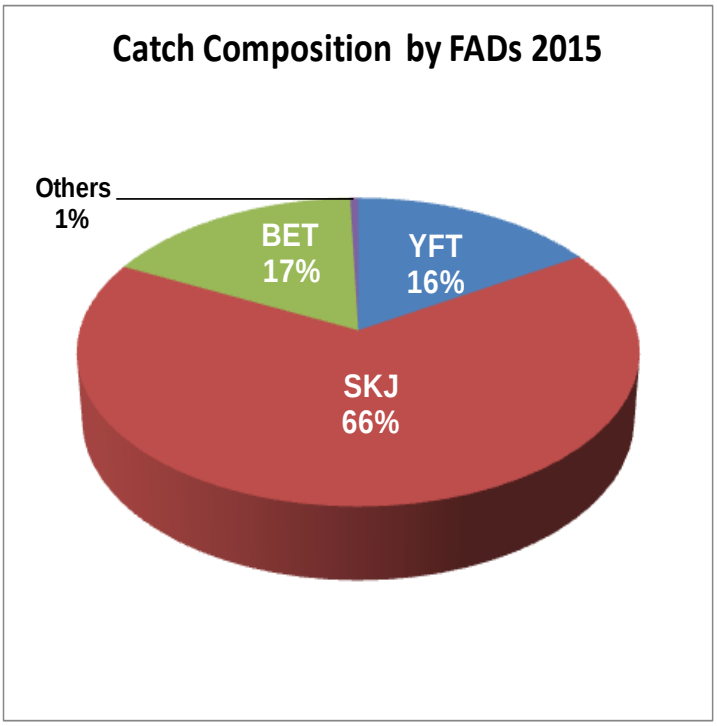
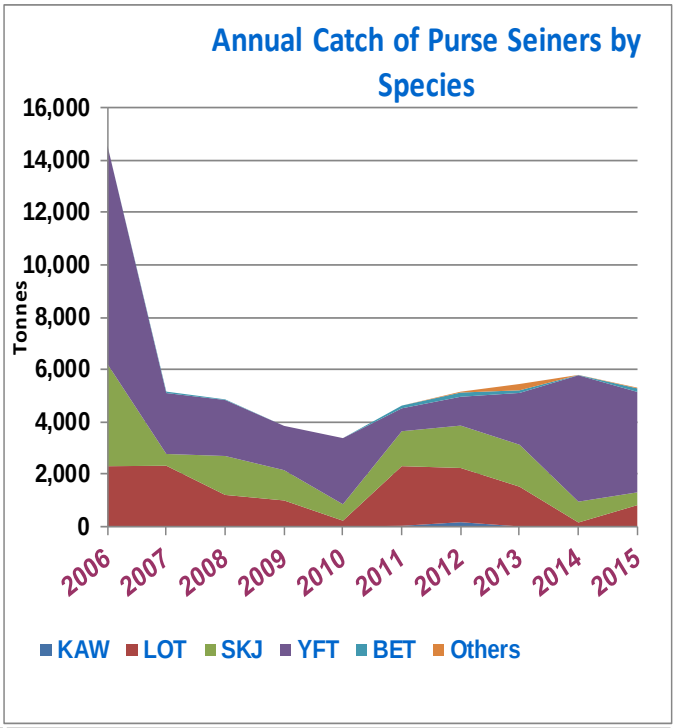
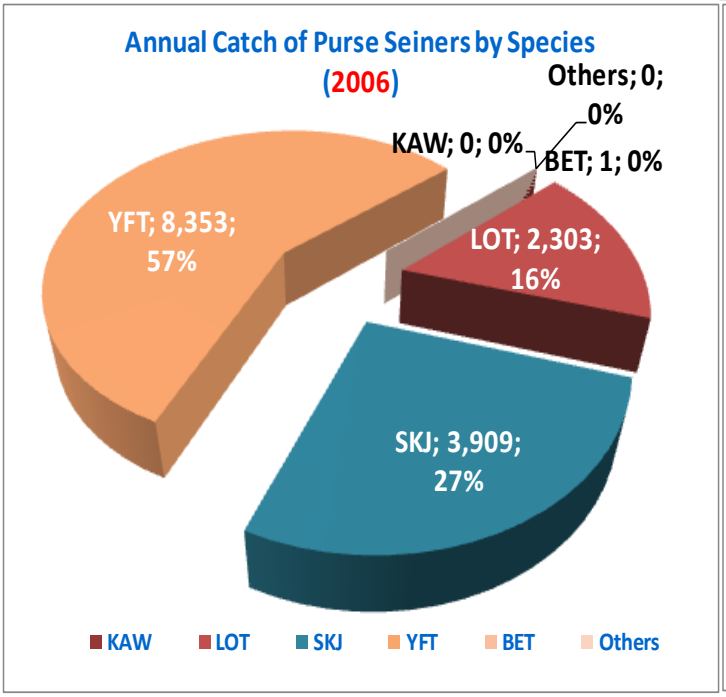


Figure3.2. Annual Catch of Purse Seiners by Species

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
KAW	0	0	0	0	0	24	162	0	11	0
LOT	2,303	2,321	1,205	994	220	2,280	2,074	1,520	140	814
SKJ	3,909	450	1,489	1,159	628	1,336	1,621	1,605	798	489
YFT	8,353	2,330	2,141	1,693	2,529	876	1,103	1,980	4,832	3,842
BET	1	55	23	0	0	105	161	100	10	135
Others	0	0	0	0	0	0	34	242	3	29
TOTAL	14,566	5,156	4,858	3,846	3,377	4,621	5,154	5,447	5,794	5,308







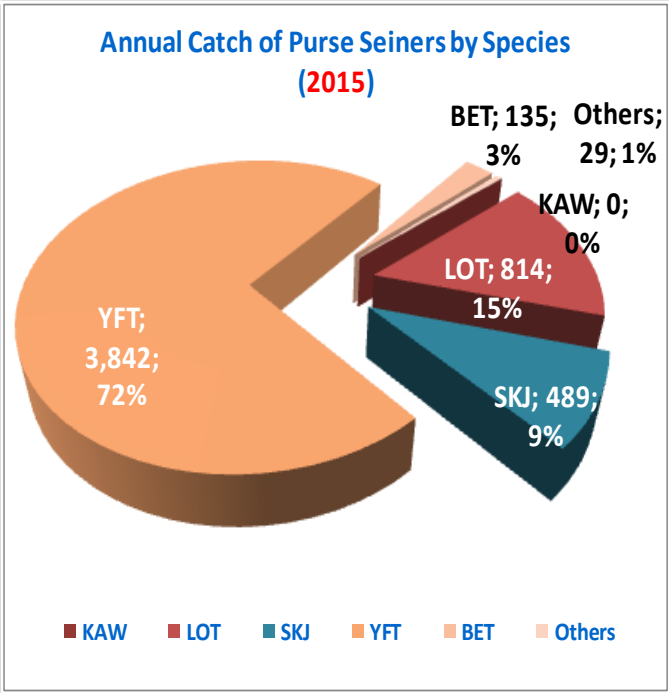
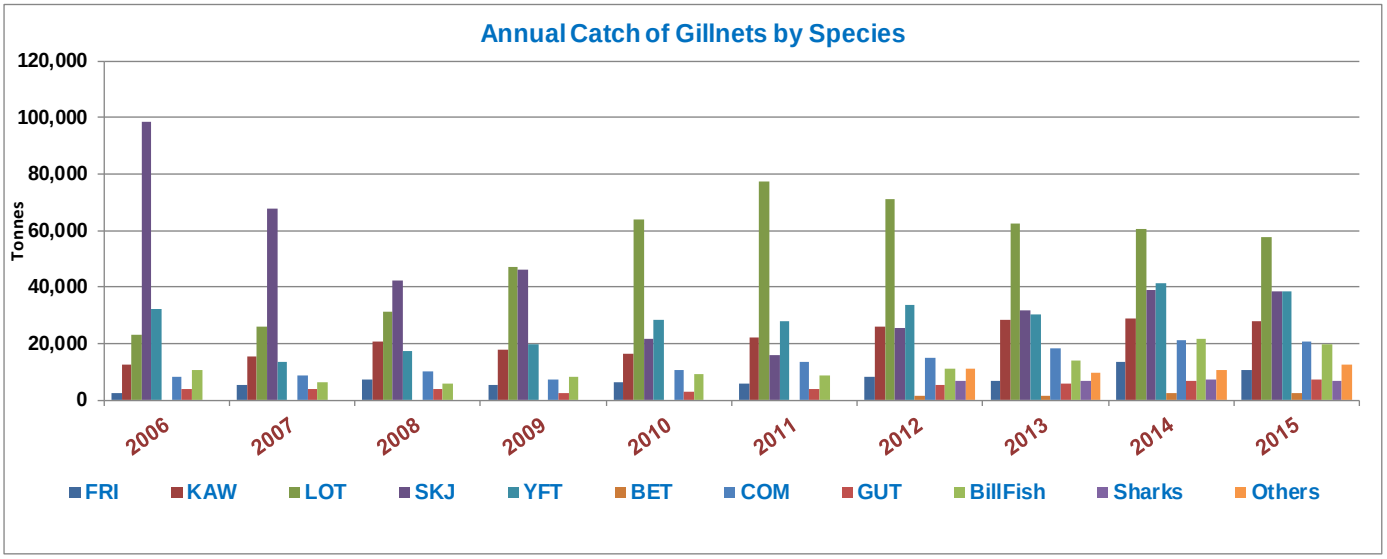
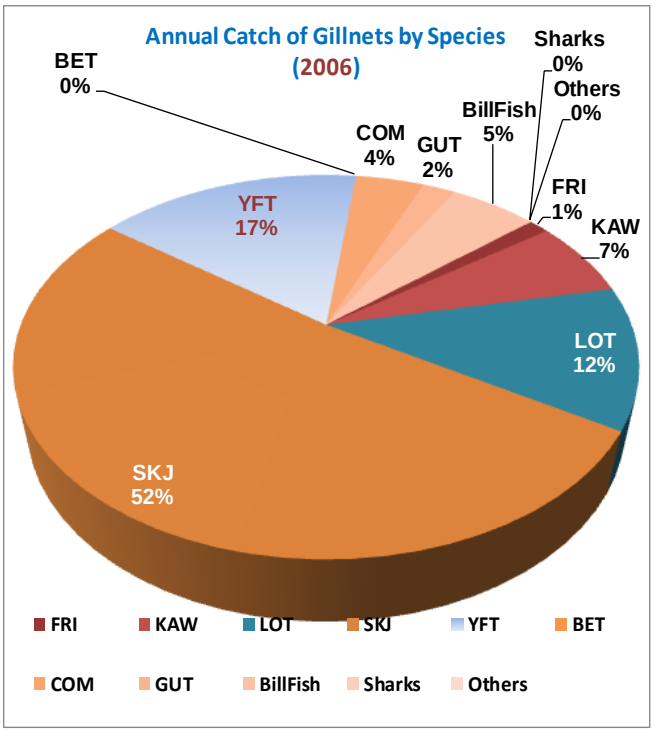


Figure3.3. Annual Catch of Gillnet by Species

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FRI	2,444	5,197	7,164	5,178	6,172	5,876	8,175	6,848	13,265	10,422
KAW	12,596	15,556	20,439	17,827	16,336	22,091	25,984	28,377	28,936	27,877
LOT	22,840	25,900	31,186	47,260	63,761	77,408	71,242	62,704	60,771	57,555
SKJ	98,759	67,618	42,411	45,935	21,657	16,028	25,430	31,722	38,931	38,232
YFT	32,064	13,615	17,085	19,749	28,522	27,924	33,834	30,421	41,326	38,412
BET	0	0	0	0	0	0	1,483	1,549	2,259	2,309
COM	8,339	8,860	9,975	7,279	10,523	13,375	14,980	18,324	21,218	20,617
GUT	4,049	3,747	4,026	2,633	3,106	3,750	5,127	5,638	6,705	6,997
BillFish	10,578	6,243	5,634	7,976	9,209	8,866	11,297	14,056	21,455	19,479
Sharks	0	0	0	0	0	0	6,736	6,624	7,132	6,930
Others	0	0	0	0	0	0	11,262	9,533	10,731	12,292
TOTAL	191,669	146,736	137,920	153,837	159,286	175,318	215,551	215,795	252,729	241,121





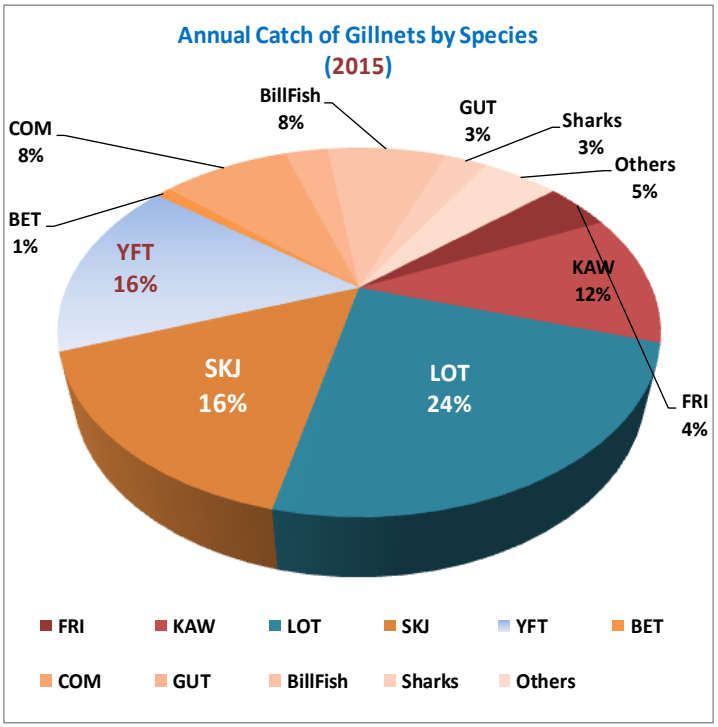
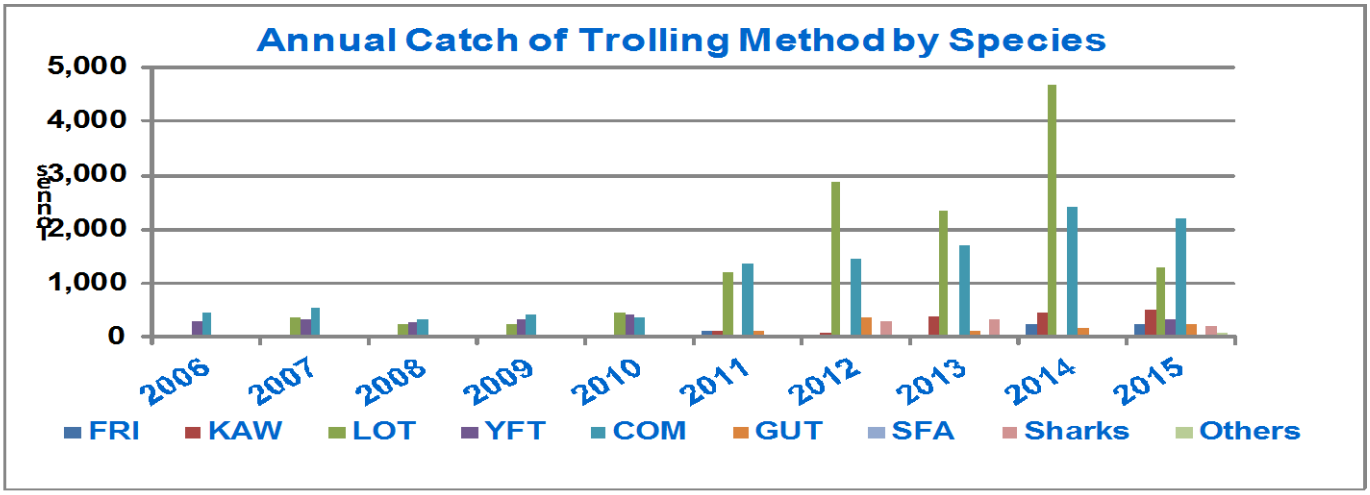


Figure3.4. Annual Catch of Trolling Method by Species

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FRI	0	0	0	0	0	119	35	25	228	233
KAW	0	0	0	0	0	109	76	387	452	516
LOT	0	375	229	239	469	1,189	2,884	2,348	4,672	1,278
YFT	305	338	256	318	434	0	28	2	57	345
COM	440	535	317	412	361	1,368	1,461	1,687	2,420	2,181
GUT	0	35	52	36	64	117	371	114	162	245
SFA	0	0	0	0	0	0	18	0	3	53
Sharks	0	0	0	0	0	0	295	317	0	205
Others	0	0	0	0	0	0	0	0	7	68
TOTAL	745	1,283	854	1,005	1,328	2,902	5,169	4,879	8,002	5,122



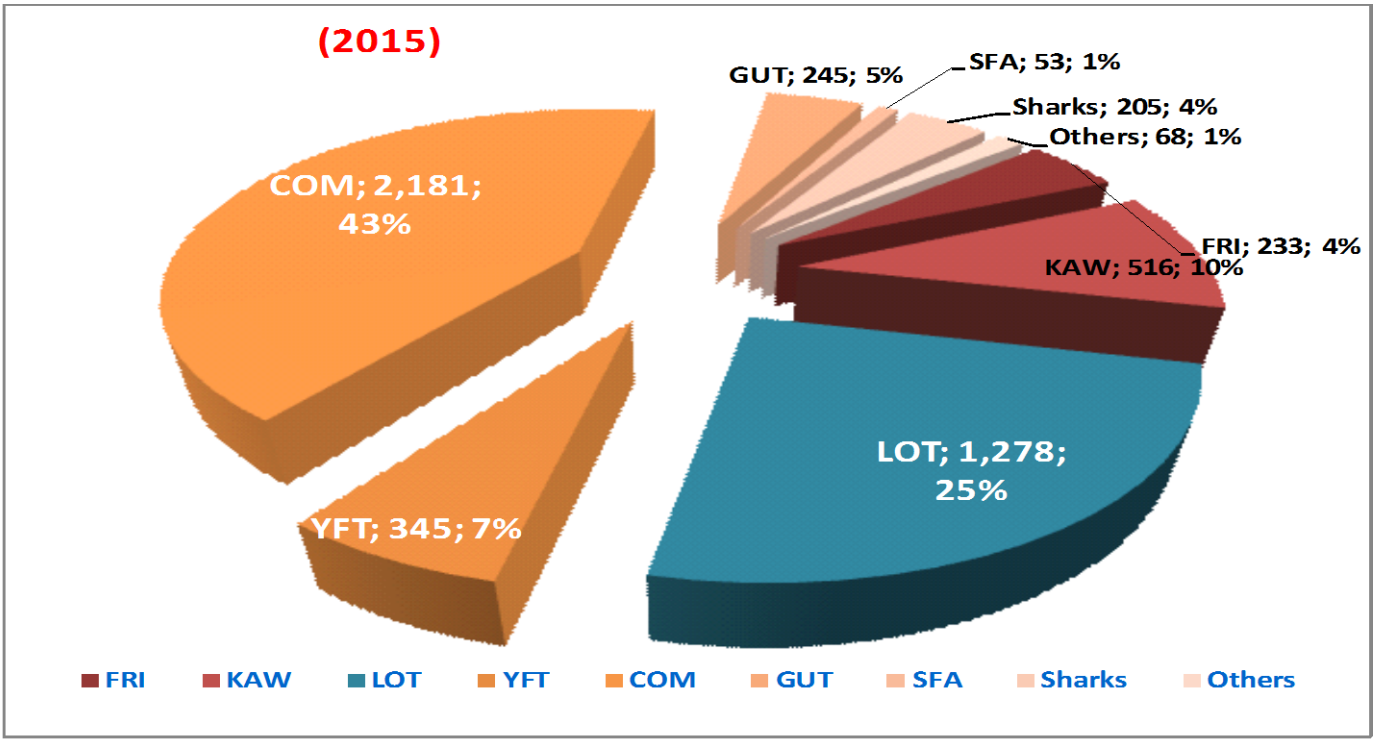


Table.3.5.Annual fishing effort by different vessel categories (days)

GEAR GROUP	Capacity GT	Fishing effort by gear(days)									
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Purse seine	500 - 1000				0	0	0	0	0	0	0
	1000 - 2000	0	0	728	675	880	450	981	727	1,080	1,005
otal Purse seine fishing effort		0	0	728	675	880	450	981	727	1,080	1,005
Gillnet	< 3	482,625	563,172	520,594	486,156	501,402	515,372	557,434	538,550	476,632	552,367
	3 - 20	96,023	103,071	115,672	118,974	113,740	100,809	43,303	40,985	44,679	44,374
	21 - 50	115,115	115,275	118,990	116,058	165,640	176,132	195,643	184,070	137,860	72,121
	51 - 100	134,435	106,396	90,984	81,168	83,754	82,637	91,293	91,790	84,658	33,749
	101 - up	19,630	17,346	34,528	50,040	38,810	45,020	57,662	60,400	53,020	51,260
Total Gillnet fishing effort		847,828	905,260	880,768	852,396	903,346	919,970	945,335	915,795	796,849	753,871
Trolling	< 3	25,038	56,374	54,627	54,102	96,822	139,161	125,446	123,450	226,770	254,934
Total Trolling fishing effort		25,038	56,374	54,627	54,102	96,822	139,161	125,446	123,450	226,770	254,934
Total all Gear fishing effort		872,866	961,634	936,123	907,173	1,001,048	1,059,581	1,071,762	1,039,972	1,024,699	1,009,810

4. National Data Collection and Processing System

Iran's fisheries activities consists two parts that their fishing methods and fishing geographical features are quite distinct from each other:

1-Northern coastal provinces (Caspian Sea)

2- Southern coastal provinces (Persian Gulf & Oman Sea & Overseas)

4.1. Caspian Sea

There are three coastal provinces in northern waters, which are fishing in their territorial waters with around 32,618 tonnes and 923 vessels and with three different fishing methods (Figure 4.1.1, 4.1.2.):

4.1.1. Sturgeon Fishing

Around 813 fishermen with 179 fishing boats in 33 fishing ground by gill net method are engaged in sturgeon fishing (five major species) and total enumeration carried out by field sampler (observers)

Note: Iran voluntarily has banned commercial fishing of sturgeon species since March 2012.

4.1.2. Kilka (anchovy) Fishing

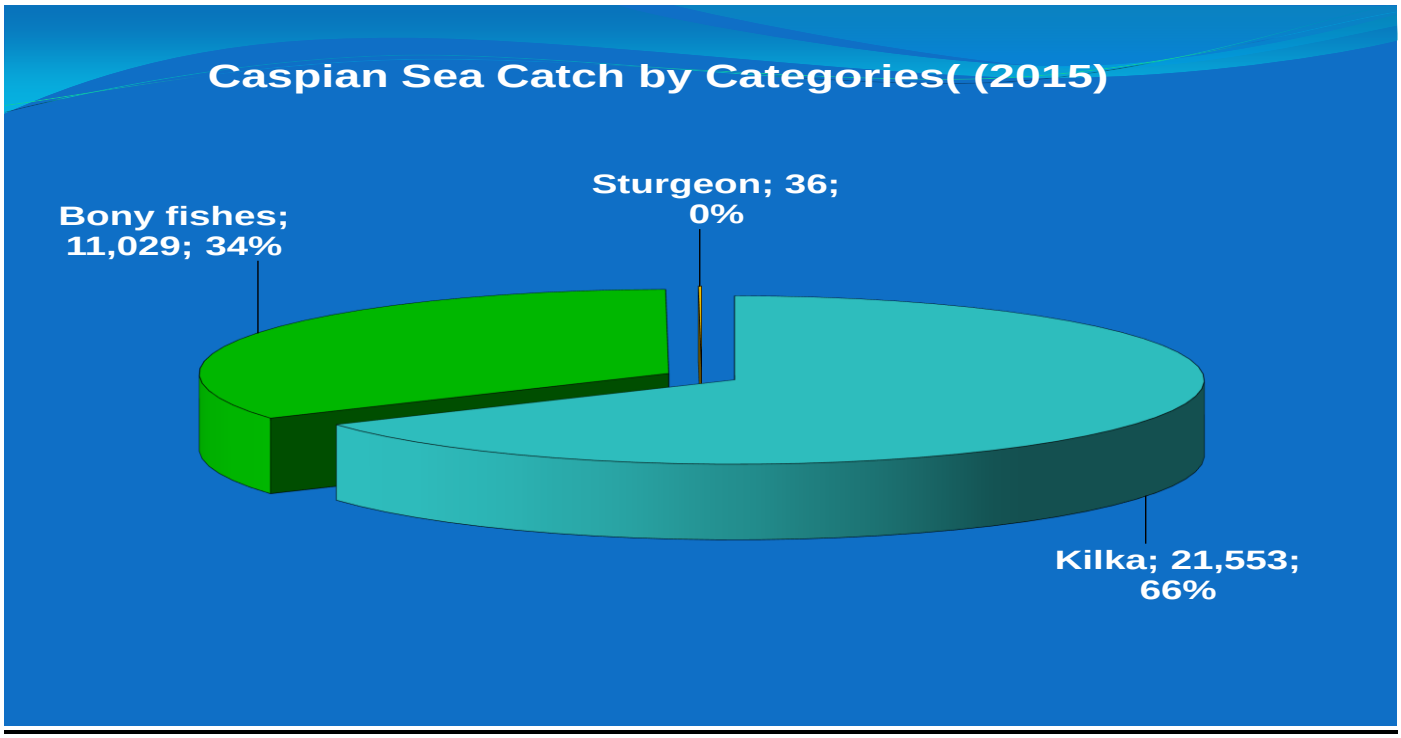
Around 709 fishermen with 72 fishing vessels in 4 fishing ground by Light-Conical Nets(funnel-shaped net) are engaged in anchovy fishing(3 major species) and total enumeration carried out by field sampler(observers)

4.1.3. Bony Fishing

Around 10,369 fishermen within 123 fishing cooperatives in 123 sites by beach seine method are engaged in 15 bony species fishing (three major species) and total enumeration carried out by field samplers (observers) per each shot.

Figure4.1.1.Caspian Sea Fishing Method & Active Fleet (2015)

Figure4.1.1.Caspian Sea Catch by Categories (2015)



4.2. Persian Gulf & Oman Sea & Overseas

— There are four coastal provinces in southern waters, which are fishing in their territorial waters with about 10,446 vessels.

- **Gillnet fishing** method is used by fishing Boats and Dhows for Large Pelagic

- **Ships use bottom trawl fishing method** for Cuttlefish, lantern fish (mictophids) and Hair tail (Ribbon) in time-area closure.
- **Artisanal boats, dhows, and industrial vessels use shrimp trawl fishing method** for Shrimp in time-area closure.
- **Trap** (Gargoor) **fishing** method is used by boats and Dhows for Grouper, Cuttlefish and other Demersal species
- **Trolling, pole & line fishing** method is used by boats for Tuna species, Mackerel, Long tail Tuna,yellowfin Tuna and some Demersal species.
- **Purse-seine(pair-boats) fishing** method by boats for Sardine and Industrial vessels Tuna

All of them needs fish license (permit) when they are going to sea for fishing operation. There are 67 basic landing centers in southern coastal waters. All of 67 basic landing, issue, fishing permit for vessels. Fishing permits form, also used for total enumeration in all landing sites for statistics on total effort of active fleet.

— And also following fishing methods and total enumeration carried out by fishermen fishing cooperatives :

- **Beach-seine fishing** method is used by fishermen in limited area of Hormozgan province for Sardine
- **Set net** fishing method is used In tidal regions of Hormozgan province for shrimp, crap, …

4.3. Logbook program has implemented for Iranian artisanal gillnets and industrial purse seiners as follows:

In 2011, we have implemented logbook program for Industrial purse seine fishery and designed a new logbook template according to IOTC Resolutions and Four Iranian purse seiners were active in 2015, and their fishing operations reported in logbook format.

In 2011 for the first time, a number of 50 logbooks distributed among gillnet fishing vessels as a pilot plan in the Sistan-Bluchestan province and received some completed logbooks from fishermen. There are some mistakes during filling the forms by captain of vessels. For this problem Iran fisheries organization reviewed the logbook in 2012, and designed a new Logbook template in 2015 according to IOTC format for 400 active Gillnetters engaged in tuna and tuna like species in offshore fisheries. In accordance with the resolutions and recommendations of IOTC implemented the training courses for gillnet fishery to train fishermen on how to collect and fill out the logbooks, identify and report by-catch and discards species specifically for those fishermen operating in IOTC area of competence. *(Figure 4.1*)

Figure4.1. Logbook template for Gill net vessels (active in overseas for tuna and tuna-like species)

LOGBOOK TEMPLATE FOR GILLNET VESSELS لاگ بوک شناورهای گوشگیر

.No. trip شماره سفر	(Port Arrival)بندر ورود	(Port Departure)بندر خروج	۱۳۹۹۵	شماره سریال(Serial No):
Capt. Name نام و نام خانوادگی ناخدا	(Date Arrival)تاریخ ورود	(Date Deprture)تاریخ خروج		شماره ثبت (Reg No):
Name&Sign نام و امضای تکمیل کننده فرم		طول تور به آب انداخته شده - متر(Length net set):		کد IOTC(IOTC No):

Date تاریخ	شروع توررizi Start set			خاتمه تورکشی End set			وزن و تعداد(Weight&quantity	Tuna & Tuna Like fishes تون و شبه تون ماهیان							منقار/ نیزه ماهیان Billfishes			Sharks کوسه ماهیان					سایر گونه ها Other Species			صید دورریز از قبیل لاک پشت ، دلفین و.... Discards		
	Lat عرض جغرافیایی	Long طول جغرافیایی	Time زمان	Lat عرض جغرافیایی	Long طول جغرافیایی	Time زمان		Bigeye tuna تون چشم درشت	Yellowfin tuna گیدر	Skipjack tuna هوور مسقطی	Longtail tuna هوور دم دراز	Kawakawa زرده	Frigate tuna تون منقوش	commerson Scomberomorous شیر	Sword fish شمشیر ماهی	marlin مارلین	Sailfish بادبان ماهی	Blue shark کوسه آبی	Mako shark کوسه ماکو	Porbeagle Shark کوسه پوربیگل	Thresher Shark کوسه دم دراز	Hammerhead shark کوسه سرچکشی	۱-	۲-	۳-	۱-	۲-	۳-
							No. تعداد																					
							kg- وزن																					
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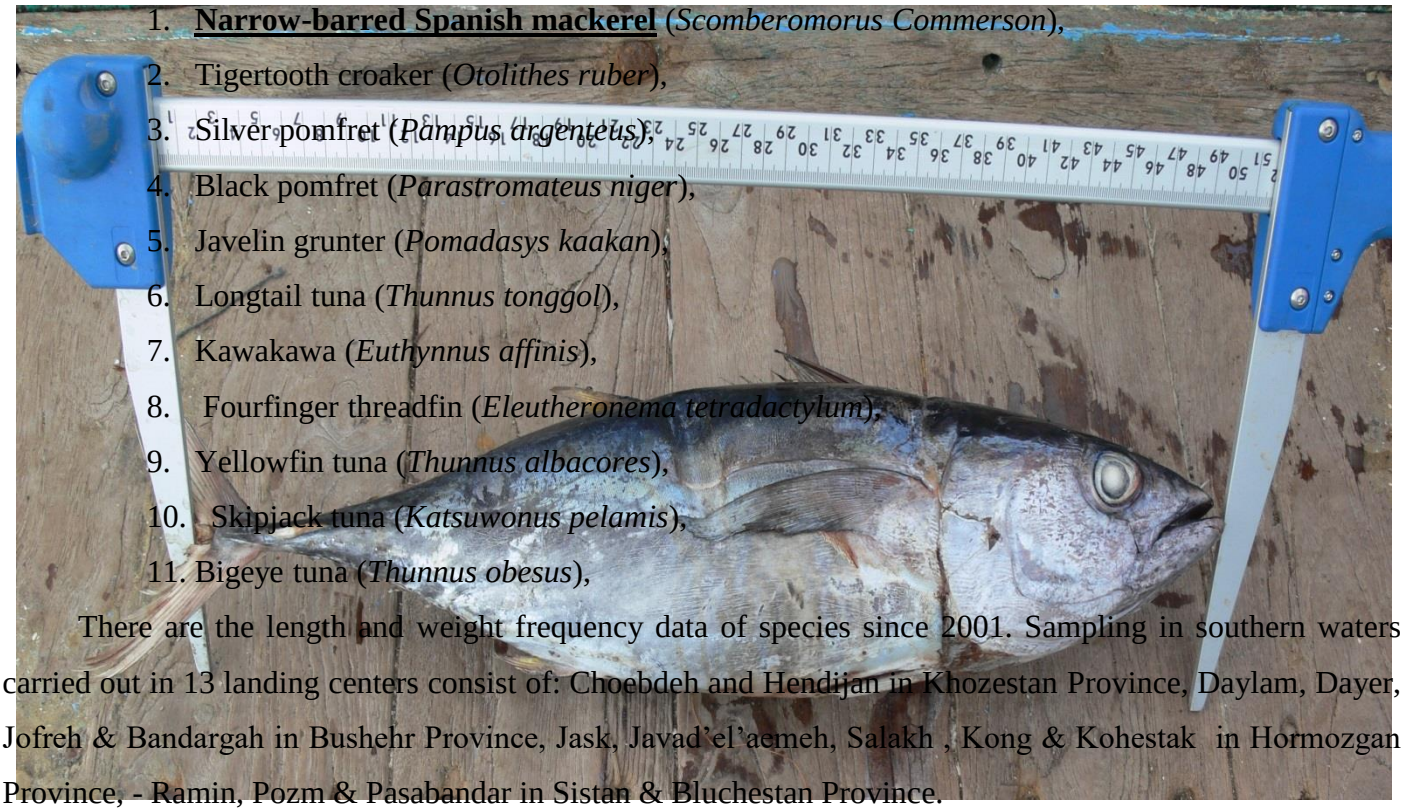
5- Size Data (By Species and Gear)

There are 11 important commercial species in Iranian southern waters, which their size frequency data compiled. The species comprised of,



1. **Narrow-barred Spanish mackerel** (*Scomberomorus Commerson*),
2. Tigertooth croaker (*Otolithes ruber*),
3. Silver pomfret (*Pampus argenteus*),
4. Black pomfret (*Parastromateus niger*),
5. Javelin grunter (*Pomadasys kaakan*),
6. Longtail tuna (*Thunnus tonggol*),
7. Kawakawa (*Euthynnus affinis*),
8. Fourfinger threadfin (*Eleutheronema tetradactylum*),
9. Yellowfin tuna (*Thunnus albacores*),
10. Skipjack tuna (*Katsuwonus pelamis*),
11. Bigeye tuna (*Thunnus obesus*),

There are the length and weight frequency data of species since 2001. Sampling in southern waters carried out in 13 landing centers consist of: Choebdeh and Hendijan in Khozestan Province, Daylam, Dayer, Jofreh & Bandargah in Bushehr Province, Jask, Javad'el'aemeh, Salakh , Kong & Kohestak in Hormozgan Province, - Ramin, Pozm & Pasabandar in Sistan & Bluchestan Province.

At each landing center, there are fish measuring board and precise Balance (scales). A number of biometry equipments have been provide by the IOTC-OFCF project and disseminated among the nominated landing centers and size data compilation is in progress.

All of Port samplers are training on how to measure different fishes. Fishing vessels catches were irregular for all species, but biometry carried out on-board from time to time to get precise data. The raw data will be process with some statistical Software like SPSS, Excel, MiniTab and FiSat. The output results are in the form of some indicators, which show the present status of fish exploitation.

Figure 5.1 to figure 5.3 shows the total yearly size data by gear type and species reported for the all fleet including length frequencies, Mean for Tuna and Tuna-like species from 2006 until 2015. These figures show an increase in the collection of size data, and developing data collection system for coverage another gear type like trolling.

Figure5.1.Length Frequency of Tuna species by Gillnet fishery

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FRI	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
KAW	9,177	10,574	5,237	10,944	8,255	7,553	20,299	15,467	6,036	13,765
LOT	17,470	13,743	9,779	14,576	12,802	12,232	25,481	24,680	11,174	18,116
SKJ	4,754	2,687	Nil	Nil	97	5,156	3,761	13,212	10,857	19,574
YFT	2,289	683	Nil	Nil	Nil	1,215	4,070	11,146	11,261	22,161
BET	Nil	Nil	Nil	Nil	Nil	Nil	655	435	630	724
COM	16,052	14,672	13,286	18,060	11,019	14,586	20,907	16,435	18,283	21,087
TOTAL	49,742	42,359	28,302	43,580	32,173	40,742	75,173	81,375	58,241	95,427

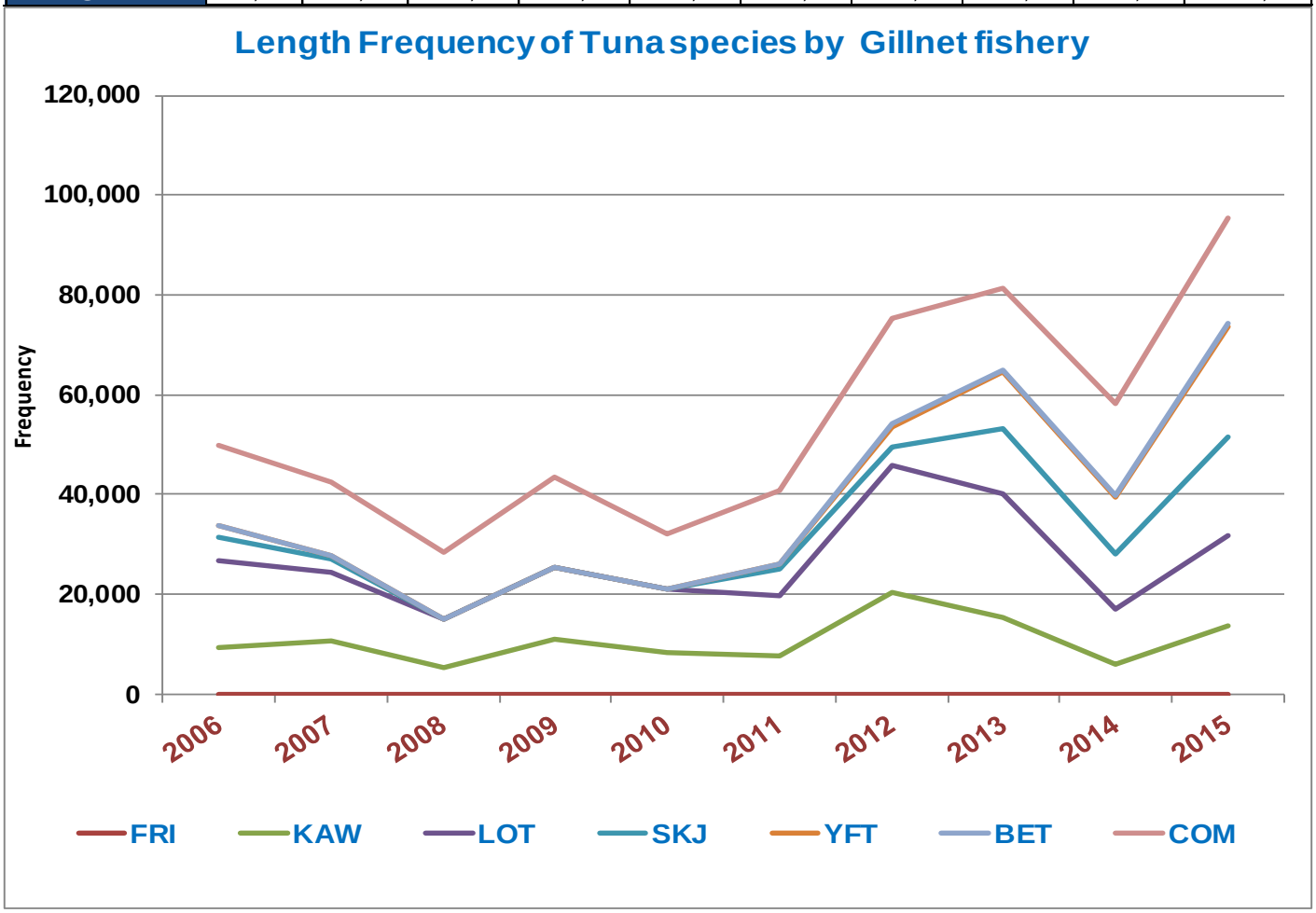


Figure5.2. Length Frequency of Tuna species by Purse seine fishery

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
KAW	Nil	122	Nil	Nil	Nil	420	416	0	0	0
LOT	998	3,675	3,686	2,315	Nil	2,358	2,822	433	0	1,158
SKJ	1,206	676	1,300	359	484	424	964	957	1,010	416
YFT	3,949	1,093	2,318	2,113	1,220	727	445	1,296	3,682	1,892
BET	Nil	Nil	Nil	Nil	Nil	442	424	777	523	629
TOTAL	6,153	5,566	7,304	4,787	1,704	4,371	5,071	3,463	5,215	4,095

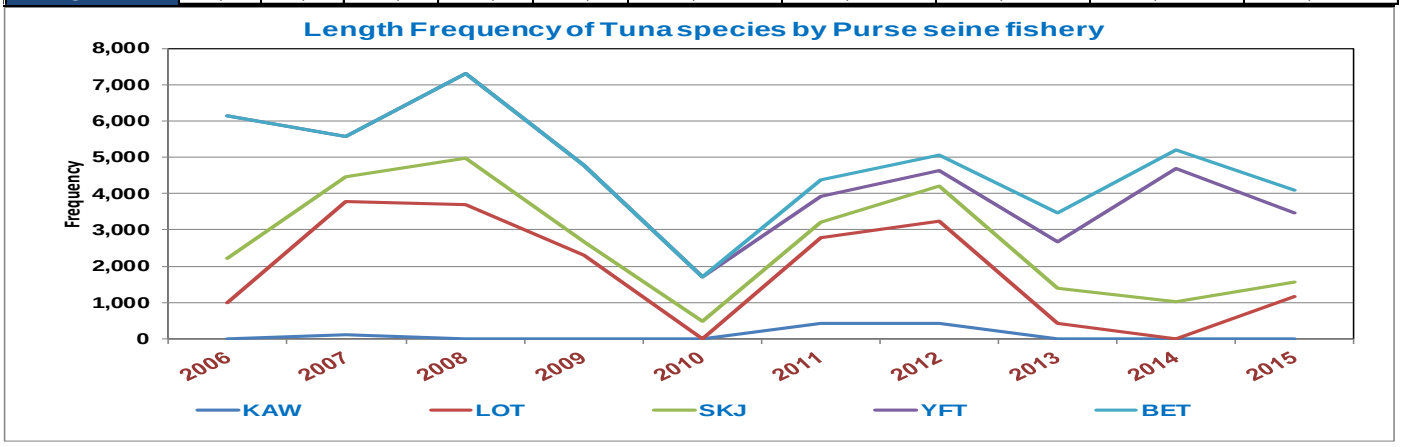
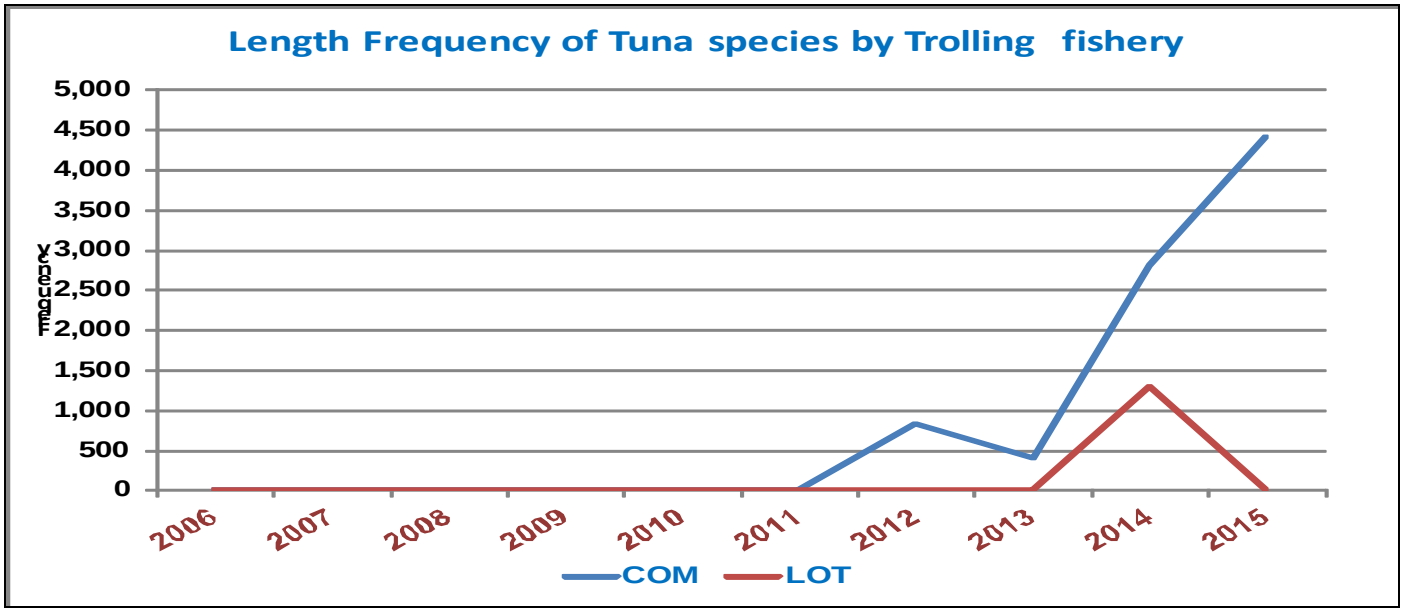


Figure5.3. Length Frequency of Tuna species by Trolling fishery

SPECIES	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
COM	Nil	Nil	Nil	Nil	Nil	Nil	821	407	2,808	4,416
LOT	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	1,289	0
TOTAL	0	0	0	0	0	0	821	407	2,808	4,416



6. Fishing Dhows Catch Composition

We have collected fishery data since 2012 for a few fishing dhows in sample fishing port by total enumeration to determine catch composition for tuna and tuna-like species and identify by-catch species. In the way we could identify bigeye tuna in yellowfin catch composition, of course, identification of small bigeye tunas (BET) of size below 50 cm was very difficult but we could enumerate a number of bigeye tuna (BET) in whole catch. In addition, we could differentiate between various species of sharks and billfishes in total catch.

The identified species are as follows:

Billfish species comprised of Swordfish (SWO), Black marlin (BLM), Indo-Pacific Sailfish (SFA), Striped marlin (MLS), Shortbill spearfish

Main shark species: Silky shark (FAL), Mako sharks, Oceanic whitetip shark (OCS), Hammerhead shark…

Discards information has been collected by self-declaration by interviewing the caption of fishing vessels.

Discard species: Manta ray, Stingray, Dolphins, Sea turtle (release to sea – some alive and some dead)

This pilot plan will be continued in future to improve and enhance the data collection on port by field samples.

7. Action taken by Iran in Data Collection System in complying with IOTC Recommendations, Resolutions

1. Data collection system including species identification for Bigeye tuna (BET), Sharks, Billfish has been carried out.
2. Various training courses for port samplers has been held.(in this way Identification cards for billfish, sharks and Bigeye tuna (BET) has been translated in Persian language and disseminated among port samplers and fishermen to identify different species).
3. Incorporate logbooks data in database (it's ongoing)
4. Database was upgraded encompass to generate reports according to IOTC standards (it's ongoing) Note; (the database include both fleet data and vessel permit data)
5. The database has been upgraded to provide required reports for Iran fisheries organization and other national and international entities as well.
6. Extending database capabilities to enhance reporting in varous area (partially done)
7. Improving Size frequency data for purse seine and gillnet fisheries including size data collection for big eye tuna (BET), long tail tuna(LOT) and data for Narrow-barred Spanish mackerel (COM) by trolling fisheries. We recommend IOTC to publish ID card for Billfish & Sharks in Persian language.
8. Training courses for many able fishermen on how to release marine mammals, sea turtles and other species has been carried out. In this regard, fishermen prepare photo & clip of species release opretion

to fisheries statistics headquarter and there is an online communication channel between them by software 24/7.

8. Major Challenges

1. Small scale fisheries
2. Multi-species fisheries in the region
3. Illegal Catch
4. Lack of trained personnel & budget deficit in data collection section such as port enumerators, field samplers, observers, etc.
5. Species identification for some oceanic species

9. Recomendations

1. To maintain a pilot project by each member country to determine offshore fishery by-catch species by identifying the billfishes, sharks, tuna and other species and percentage of discard.(It's going in Iran)
2. Coordinating to exchange necessary technical and expertise consultation among member countries by IOTC secretariat.
3. Preparing Workshops and Training Courses Regarding tuna & tuna-like for member countries for observers & field samplers on data collection and statistics based on IOTC relevant resolutions & recommendations
4. To conduct Research projects and studies related to the state of marine fish stocks and Conservation and management of tuna fishing in different countries.