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# Fishery in Iran with particular reference to Billfish

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## *Abstract*

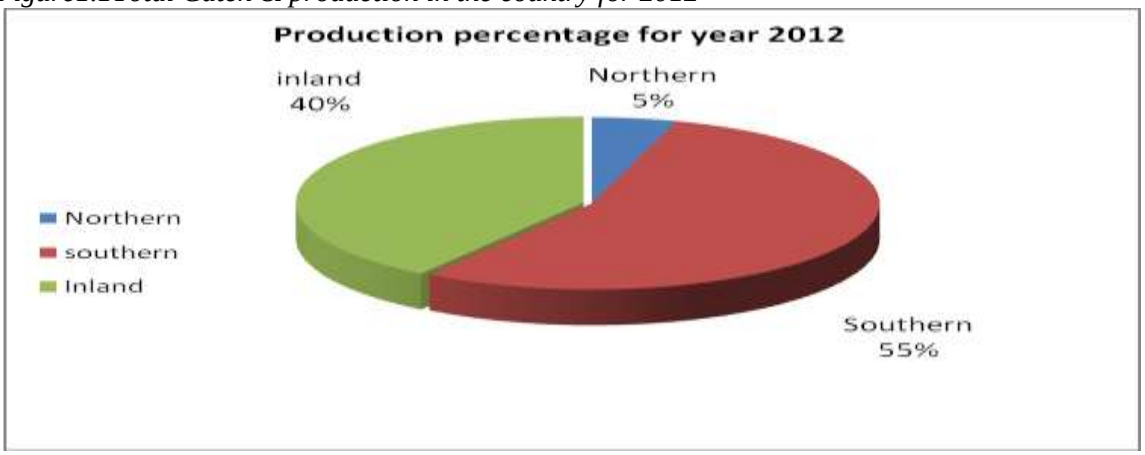
Fishery for tuna and tuna-like species is a major component in large pelagic fisheries in Iran and one of the most important activities in the Persian Gulf and Oman Sea. There are 4 coastal provinces in that areas about 6500 out of 12000 vessels consist of fishing boat, dhows and vessel which are engaged in tuna and tuna-like species fishing activities in the coastal and offshore waters. Gillnet and purse seine are two main fishing gear for catching large pelagic species in the IOTC area competency and also some of small boats used trolling in coastal fisheries. The annual production of large pelagic in Iran was 236,000 t in 2012 and 208,000 t belongs to tuna and tuna-like fishes in the Indian Ocean areas. Those catch consist of Yellowfin tuna35110 t, Skipjack 27051 t, Big eye tuna 1644 t, Longtail tuna 76297 t, Kawakawa26249 t, Frigate tuna 8219 t, Billfish11297 t, Indo-pacific king mackerel 5537 t, Narrow- barred Spanish mackerel16510 t. Although billfish are not normally targeted species, they are very common in offshore gillnet catches and are considered as by-catch species. Total billfish production in Iran in 2012 was 11315t and this is around 5.4% of the total tuna and tuna like fish production. The Sailfish dominated the billfish catch with 6365 t, followed by marlins 4364 t, and Swordfish 586 t.

Iran has taken various actions to implement the Scientific Committee and WPB10 recommendations. One of actions taken by Iran is improving data collection system for billfish fishery during 2012 .It is noteworthy to say that for 2012 we could identify and include swordfish and marlines catch in our data base. we have implemented artisanal gillnets modification of logbook template to meet mandatory minimum statistic requirement, particularly with regards to data recording of vessel position in IOTC area for target species, By-catch and discard.

## *1. Introduction:*

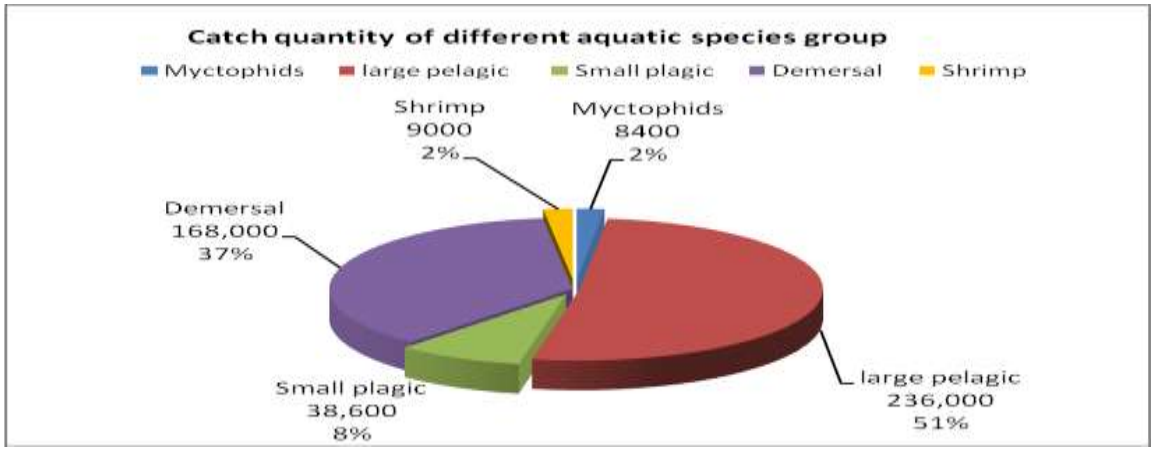
The total catch and production in the country during the year 2012 about 840000 t, which can be distributed as 55% of the total catch and production contributed to the country fishing activities in the Persian Gulf, Oman Sea and offshore waters, about 5% of production from northern water (Caspian Sea) and 40% through inland water.

*Figure1.1Total Catch & production in the country for 2012*




The main fishing grounds for tuna and tuna-like species in southern of the country are located in the coastal sectors of Persian Gulf and Oman Sea and total volume of production in the coastal and offshore waters in 2012 around 460,000 t, which consist of large pelagic 236,000 t, Small Pelagic 38,600 t, Demersal species 168,000 t, Shrimp 9000 t and Myctophids 8400 t. Figure1.2 Shows catch quantity of different aquatic species groups.

*Figure1.2Total catches quantity of different aquatic species group in the southern waters of Iran in 2012*



***2. Fishing gear and fleet structure**:*

Total numbers of fishing fleet are approximately about 12000 of which about 6900 fishing crafts are engaged in tuna and tuna- like species activities in 2012. Those fishing craft consist of 7 industrial purse- seiners and 4794 fishing boats and 2160 Artisanal vessels (Dhows) and GRT of purse seiners is up to1000 t and GRT of Gillnetters ranges from less than 3 t to more than 100 t. Gillnet and purse seine are two main fishing gear for catching tuna and tuna-like Species in the IOTC area competency and also some of small boats used trolling in coastal fisheries. But, gillnet is the most popular gear used for catching tuna and tuna-like species. The Numbers of fishermen are 142000 individuals which are directly engaged in fishing activities and 62000 fishers working on fishing crafts. There size ranges and fishing craft descriptions are given in figure2.1.

*Figure 2.1: Iranian fishing active vessels in Southern waters by gear type and size in 2012*

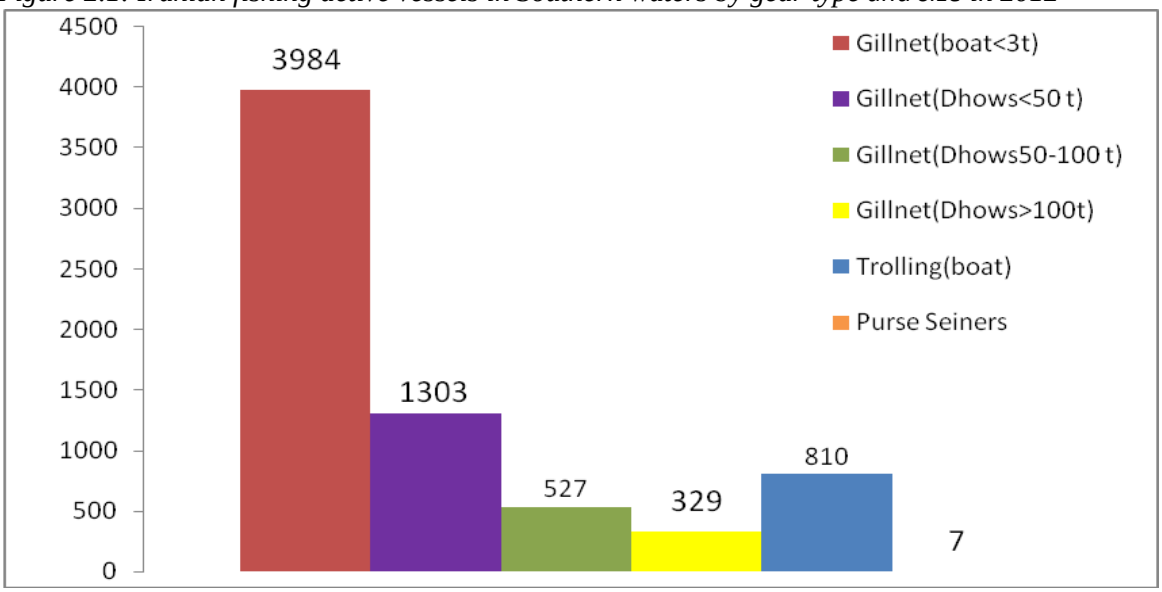


Figure 2.2 shows types of fishing vessels in Iran operate for tuna and tuna like Species: (a) Purse seiners, (b) Dhows and (c) boat

***(a)****Purse seiners*

***(b)*** *Artisanal vessel (Dhow)*

*(C) Boat*

***3. Catch Quantity***

Fish landed were sampled at 43 basic landing centers scattered along the coast in different areas. Catch and Effort data were collected in all the above centers by multi-stage random sampling by the samplers, in this way, 10% of fishing vessels are randomly selected and the sample data are raised to all active fishing vessels and finally the annual production was estimated for different species, craft type by Iran Fisheries Organization (IFO) fish statistic software. Tuna catch is mainly comprised of 13species which are identified in the large pelagic category. Landing surveys are undertaken to obtain data on catches in the artisanal fisheries.

Table3.1 and Figure 3.1 shows the total yearly catch by species reported for the all fleet.The Catch quantity of tuna and tuna-like species in the Indian Ocean areas was 208,000 t in 2012, of which 144000 t from coastal waters and the rest (64000 t) belongs to offshore fishery. During 2005 and 2006 the amount of catch from offshore fishery were exceeded the coastal waters catch (Figure3.3). But in recent years due to the piracy and insecurity related to this issue, the trend has completely reversed. For example, from 2001 onwards but during recent years the volume of catch quantity for tuna and tuna-like species has increased in the coastal area fishing grounds ,which was caused by the phenomenon of piracy; fishermen relocate their fishing grounds from offshore to near shore and concentrate on traditional coastal fishing grounds. This shifting of fishing grounds caused sharp decline of skipjack from 103000 t in 2006 to 27000 t in 2012 instead increase in longtail catch from 25000 t in 2006 to 76000 t in 2012.

*Table.3.1. Annual catch of Iranian fishing craft by species (Tonnes)*

| Species \ Years | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|
| Bigeye tuna | 0 | 1 | 55 | 23 | 0 | 0 | 105 | 1644 |
| Yellowfin tuna | 43572 | 40722 | 16283 | 19482 | 21760 | 31485 | 28800 | 34965 |
| Longtail tuna | 18527 | 25143 | 28596 | 32620 | 48493 | 64450 | 80883 | 76201 |
| Skipjack tuna | 80650 | 102668 | 68068 | 43900 | 47094 | 22285 | 17473 | 27051 |
| Frigate tuna | 1616 | 2444 | 5197 | 7164 | 5178 | 6172 | 6013 | 8210 |
| Kawakawa | 11803 | 12596 | 15556 | 20439 | 17827 | 16336 | 22266 | 26222 |
| I.P.king mackerel | 6164 | 8779 | 9395 | 10292 | 7691 | 10884 | 14794 | 16442 |
| N.B.Spanish mackerel | 3088 | 4049 | 3782 | 4078 | 2669 | 3170 | 3900 | 5497 |
| Billfish | 43572 | 10578 | 6243 | 5634 | 7976 | 9209 | 8866 | 11315 |
| Total | 178007 | 206980 | 153175 | 143632 | 158219 | 163991 | 183100 | 208547 |

*Figure3.1 catch quantity of Tuna&Tunalike Species in the IOTC Area (2005-2012)*

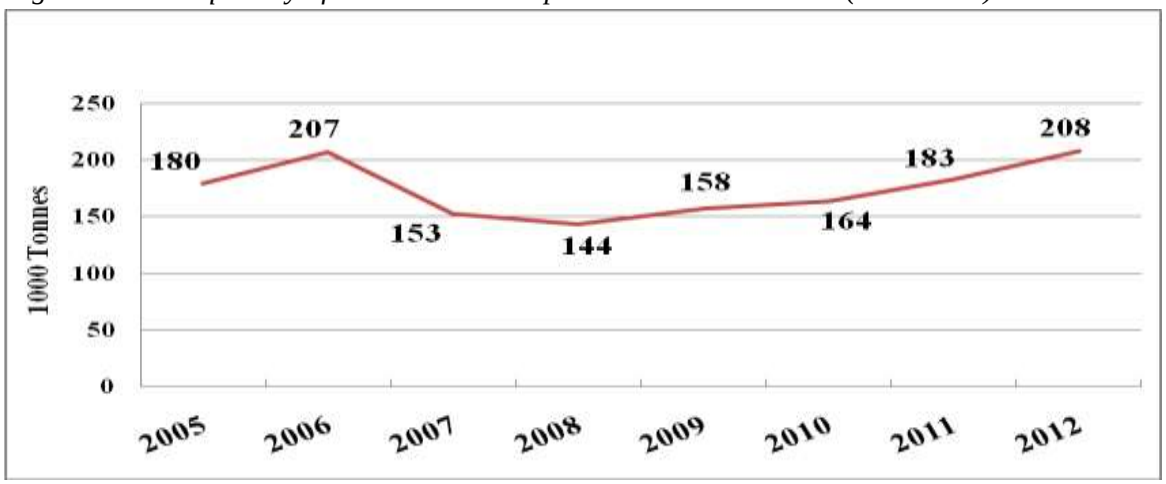
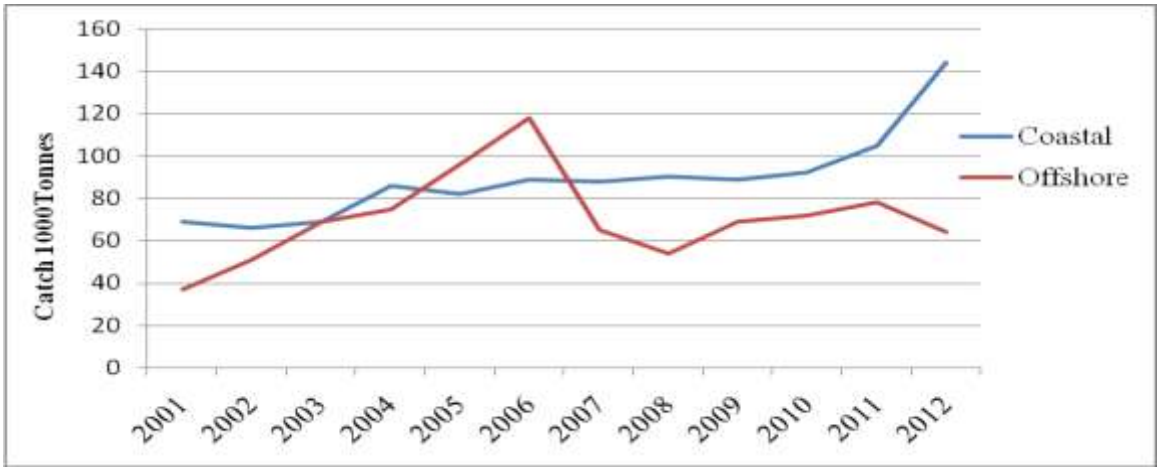



*Figure3.2 catch quantity of coastal and offshore waters (2001-2012)*



### *4. Fishing effort by gear*

Table 4.1 shows the fishing effort by different vessel categories (fishing days) for the all fleet consist of purse seine, gillnetter and trolling. The annual trend in nominal effort shows an increasing trend from 2006 and 2007 for all fleet, but decreasing 2008 resulting from a phenomenon of piracy. In 2012, fishing efforts for tuna and tuna-like Species was 1,161,000 days (figure.4.1). (1,030,000 days belongs to gillnet, 980 days purse seine and also fishing efforts for those fishing boats engaged in trolling activities was around 130 thousand days)

*Table 4.1: Fishing effort by different vessel categories (days)*

| Gear | Capacity GRT | Fishing effort by gear(days) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Purse seine | 1000-2000 | | | 728 | 675 | 880 | 450 | 981 |
| Gillnet | <3 | 482625 | 563172 | 520594 | 486156 | 501402 | 515372 | 635454 |
| | 3-20 | 96023 | 103071 | 115672 | 118974 | 113740 | 100809 | 49751 |
| | 21-50 | 115115 | 115275 | 118990 | 116058 | 165640 | 176132 | 195643 |
| | 51-100 | 134435 | 106396 | 90984 | 81168 | 83754 | 82637 | 91293 |
| | >101 | 19630 | 17346 | 34528 | 50040 | 38810 | 45020 | 57662 |
| Total fishing effort (Gillnet) | | 847828 | 905260 | 880768 | 852396 | 903346 | 919970 | 1029803 |
| Trolling | Non-mechanised | 25038 | 56374 | 54627 | 54102 | 96822 | 139161 | 130432 |
| **Total** | | **872866** | **961634** | **936123** | **907173** | **1001048** | **1059581** | **1,161,216** |

*Figure4.1. Fishing effort per days for Tuna & Tuna-like Species by different vessel categories in 2012*

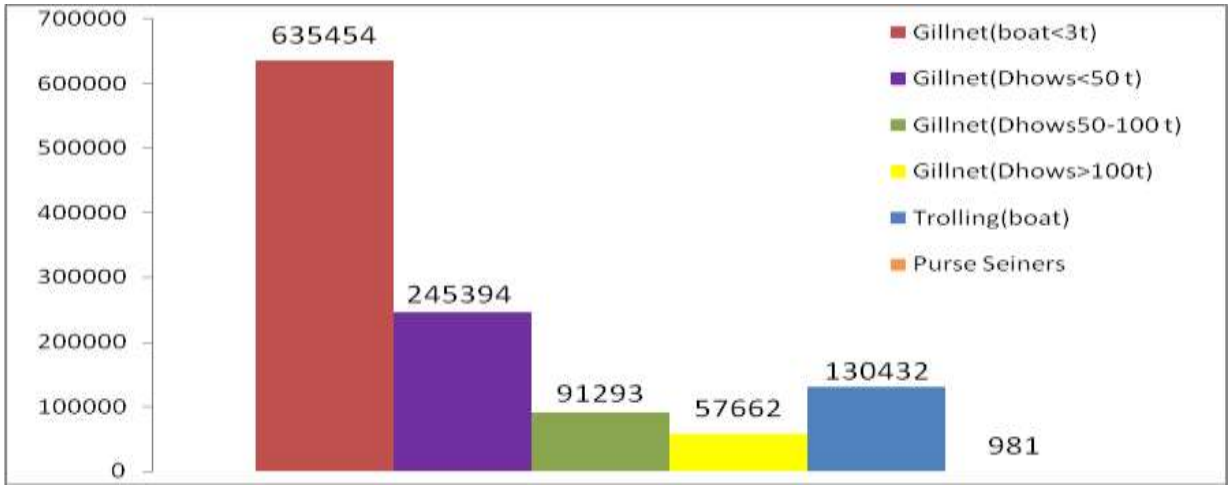
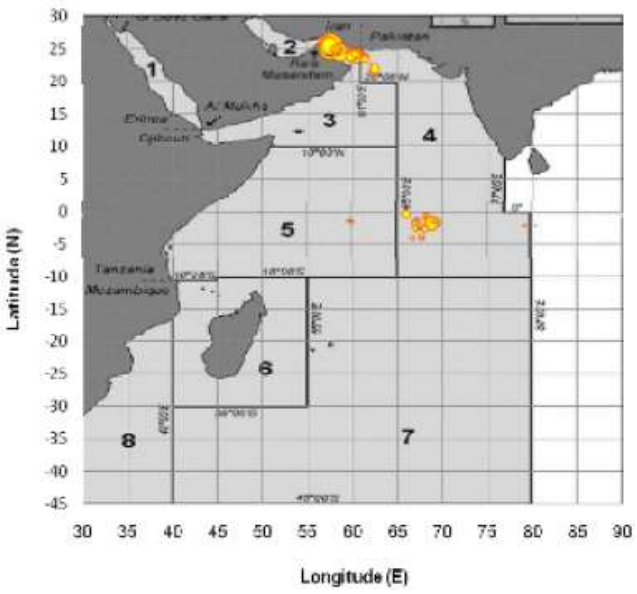
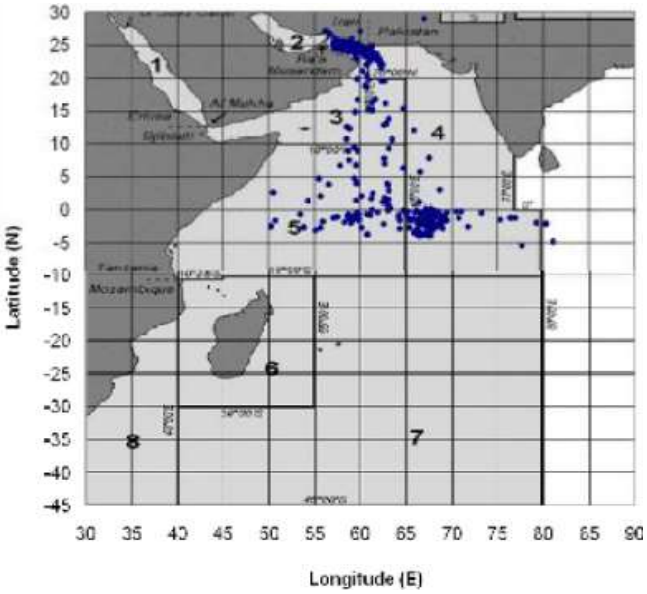


Figure.4.2 and 4.2 shows the distribution of catch and effort reported by all purse-seine fleet for 2011. As it can be seen from the diagram, catch and effort distribution are mainly between latitude 25 North and 5 South. However in 2011 the reported catches were more widely distributed.

***Figure 4.2.Distribution pattern of reported catches for 2011(Purse seiners)*** ***Figure 4.2.Distribution pattern of reported efforts for 2011***




## *5. Billfish catches*

As mention before, Billfish are not normally targeted species, they are very common in offshore gillnet catches and are considered as by-catch species. Billfish catch comprises of Sailfish, Sword fish and marlins (Black, Blue and Striped Marlin).

Figure 5.1 shows the annual trend catch of Billfish in 2005-2012. In 2005 catch quantity for Billfish were in its maximum value about 12600 t, but in 2008 received minimum catch quantity about 5600 t. In fact, after the phenomenon of piracy, billfish catch decreasing.

Total catch quantity for Billfish in 2012 was 11315 t, and this is around 5.4% of the total tuna and tuna like species production. The Sailfish dominated the Billfish catch with 6365 t, followed by Black marlin304 t, Blue marlin904 t, Striped Marlin418 t and Swordfish 586 t.

*Figure5.1: Annual catches of Billfish in 2005-2012*

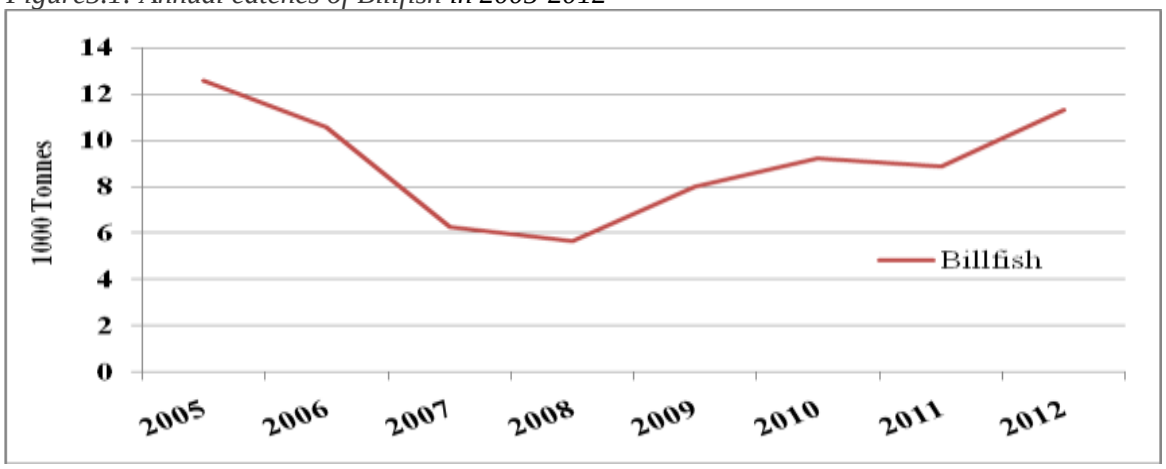
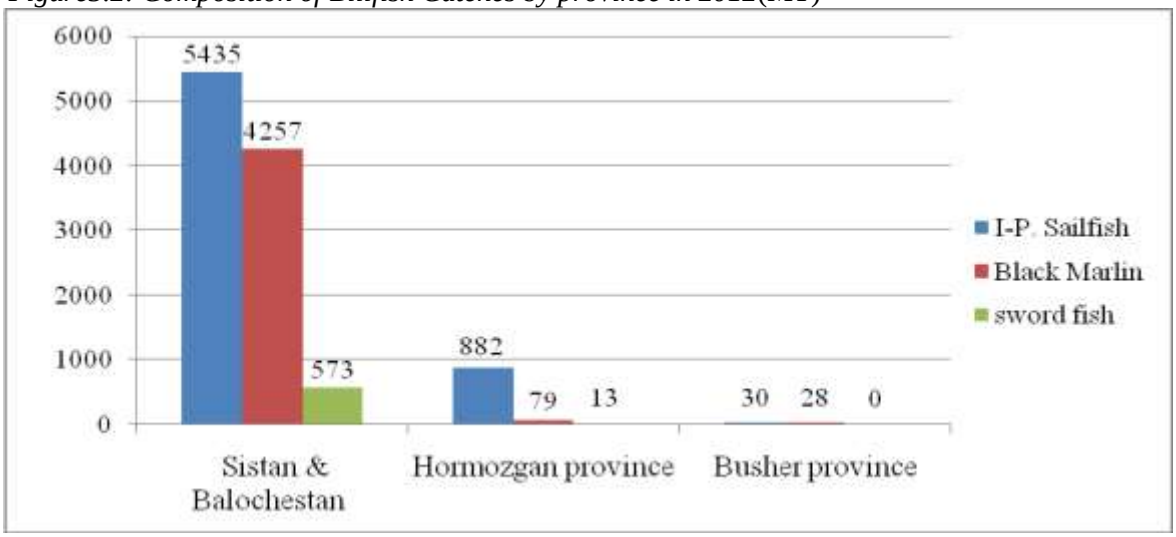



*Figure5.2: Composition of Billfish Catches by province in 2012*(MT)



## Actions taken for improvements of 10th working party for Billfish (WPB10):

Iran has taken various actions to implement the Scientific Committee and WPB10 recommendations. One of actions taken by Iran is improving data collection system for billfish fishery during 2012 .It is noteworthy to say that for 2012 we could identify and include swordfish and marlines catch in our data base. we have implemented artisanal gillnets modification of logbook template to meet mandatory minimum statistic requirement, particularly with regards to data recording of vessel position in IOTC area for target species, By-catch and discard.

Iran Fisheries Organization implemented the training courses for port samplers and provided guidelines for identification of Bigeye and yellowfin tuna, and Identification cards for Billfish has been translated and distributed among port samplers and fishing vessels Captains to enhance the validity of identifying the mentioned species.

In line with development of ID cards for identifying different by-catch species, Iran request financial support to develop ID cards for Billfish and shark.

During an extension services program, Iran Fisheries Organization (IFO) has prepared some training courses and extension brochures and posters regarding to by catch. Also we have tried to train some crews of fishing vessels to prepare our information requirements base on IOTC regulations via observer reports.