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Iran's National Fishery Data Collection and Reporting System in the context of the IOTC

by
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ISLAMIC REPUBLIC OF IRAN-2011
Iran Fisheries Organization (IFO)
Deputy for Fishing and Fishery Harbors

Iran's National Fishery Data Collection Unit
Seychelles, (8-10 Dec 2011)

Iran's National Fishery Data Collection and Reporting Systems (INFDCRS)

Data Collection and Statistics System

- There are 4 coastal provinces in Iranian southern waters with about 11000 vessels which are engaged in fishing in the coastal and non-coastal waters. All of which require fish license (permit) when they are going to sea for fishing operation. There are 63 basic landing centers in the Southern Coast. All of which, issue fishing permit for all fishing vessels.

Fishing Fleet

Iranian Fishing fleet in South Coast consists of :

- **7,855 fishing boats**
- **3,087 Artisanal fishing vessels (Dhows)**
- **51 tuna purse seiners and trawlers**

Fishing Fleet operating in IOTC area of competence

- Artisanal fishing vessels : 1320
- Tuna purse seiners : 8
- Long liners : 1 (*not active yet*)
- Trawlers : 2
- Cargo freezer: 2
- Total: 1333

Sampling Method – First Stage

sampling method fulfilled in two stages:

First stage:

Classification of landing centers and picking up sample landing sites

Critaria for selecting landing Centers

- Diversification of fishing methods
- High quantity of landings
- Vessels with different capacities
- Diversification of catch composition
- Locating at main and common fishing grounds region

Critaria for selecting landing Centers

Based on these criteria 42 landing sites were selected from 63 as a sample landing sites and data collection is performed in them.

- *Note*: *In each landing center there is one enumerator (port sampler).*

Sampling Method – 2nd Stage

Second Stage:

Classification of fishing vessels according to their capacity

Classification of artisanal vessels

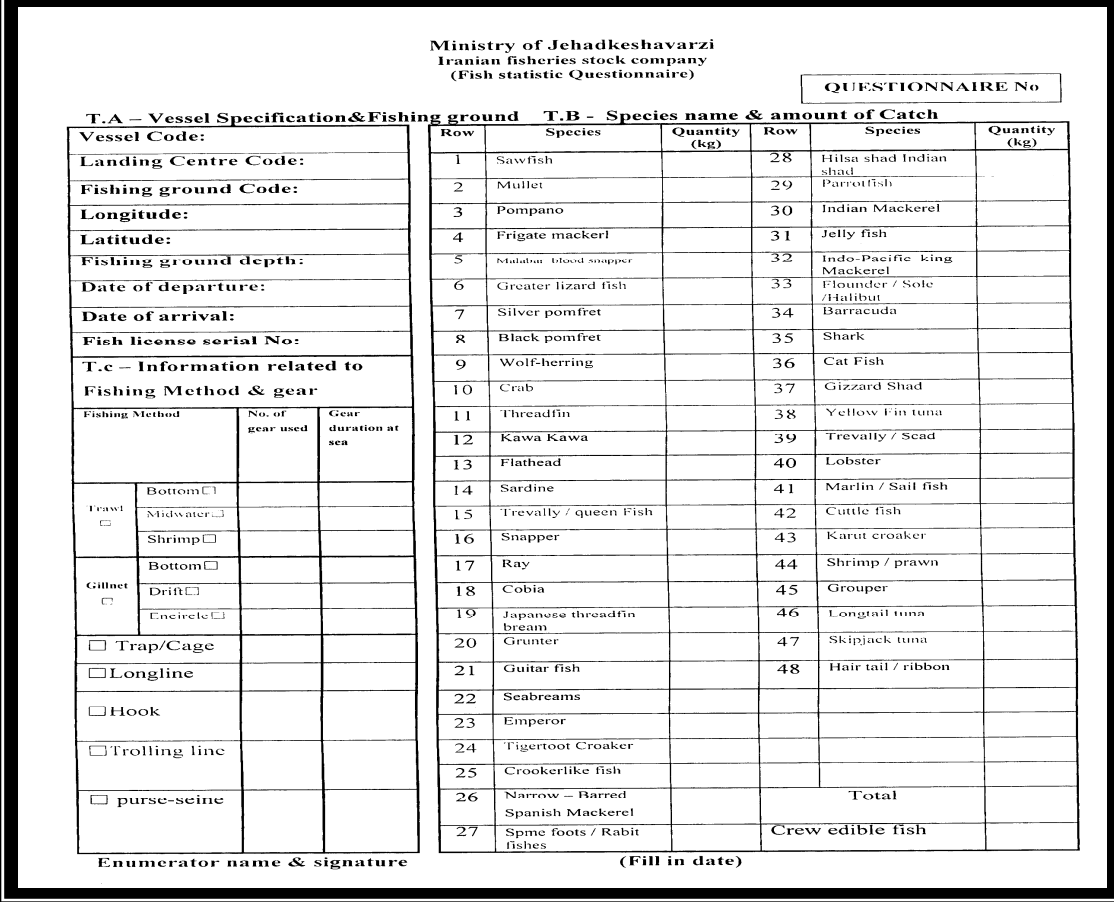
Classified in four categories for sampling purposes

- **1-vessels < 3 tonnes (Boats)**
- **2-vessels between 3-20 tonnes**
- **3-vessels between 21-50 tonnes**
- **4-vessels >50 tonnes**

Forms for data collection

- *Fishing permit*
- *Questionnaire form*

A typical Questionnaire



Ministry of Jehadkeshavarzi
Iranian fisheries stock company
(Fish statistic Questionnaire)

QUESTIONNAIRE No

T.A – Vessel Specification&Fishing ground

Vessel Code:	
Landing Centre Code:	
Fishing ground Code:	
Longitude:	
Latitude:	
Fishing ground depth:	
Date of departure:	
Date of arrival:	
Fish license serial No:	

T.c – Information related to Fishing Method & gear

Fishing Method		No. of gear used	Gear duration at sea
Trawl ☐	Bottom☐		
	Midwater☐		
	Shrimp☐		
Gillnet ☐	Bottom☐		
	Drift☐		
	Encirele☐		
☐ Trap/Cage			
☐Longline			
☐Hook			
☐Trolling line			
☐ purse-seine			

Enumerator name & signature

T.B - Species name & amount of Catch

Row	Species	Quantity (kg)	Row	Species	Quantity (kg)
1	Sawfish		28	Hilsa shad Indian shad	
2	Mullet		29	Parrotfish	
3	Pompano		30	Indian Mackerel	
4	Frigate mackerl		31	Jelly fish	
5	Malabar blood snapper		32	Indo-Pacific king Mackerel	
6	Greater lizard fish		33	Flounder / Sole /Halibut	
7	Silver pomfret		34	Barracuda	
8	Black pomfret		35	Shark	
9	Wolf-herring		36	Cat Fish	
10	Crab		37	Gizzard Shad	
11	Threadfin		38	Yellow Fin tuna	
12	Kawa Kawa		39	Trevally / Scad	
13	Flathead		40	Lobster	
14	Sardine		41	Marlin / Sail fish	
15	Trevally / queen Fish		42	Cuttle fish	
16	Snapper		43	Karut croaker	
17	Ray		44	Shrimp / prawn	
18	Cobia		45	Grouper	
19	Japanese threadfin bream		46	Longtail tuna	
20	Grunter		47	Skipjack tuna	
21	Guitar fish		48	Hair tail / ribbon	
22	Seabreams				
23	Emperor				
24	Tigertoot Croaker				
25	Crookerlike fish				
26	Narrow – Barred Spanish Mackerel			Total	
27	Spme foots / Rabit fishes			Crew edible fish	

(Fill in date)

42 port samplers (enumerators) permanently stayed on landing sites for filling the questionnaires.

They are also involved in activities related to licensing, control and monitoring (including size frequency data).

Content of questionnaire form

- **Vessel Code, vessel Capacity**
- **Landing Centre Code**
- **Fishing ground code (26 fishing grounds)**
- **Date of departure**
- **Date of arrival**
- **Fish permit serial No**
- **Information related to Fishing method and gear (*number & duration of the gear set in water*)**
- **Name of 51 Species and amount of catch**

Species categories in the questionaire

- 51 categories of species/families

- 9 species of Tuna, Tuna-like & Billfish species

Tuna and tuna-like species collected

Yellowfin tuna (*Thunnus albacores*)
Skipjack tuna (*Katsuwonus pelamis*)
Longtail tuna (*Thunnus tonggol*)
Kawakawa (*Euthynnus affinis*)
Frigate tuna (Auxis thazard)
Narrow-barred Spanish mackerel (*Scomberomorus Commerson*)
Indo-pacific king mackerel (Scomberomorus guttatus)
Billfishes

Other species collected

Tigertooth croaker (*Otolithes ruber*)	Barracuda(Sphyraenidae), Flatheads (Platycephalidae)
Silver pomfret (*Pampus argenteus*)	Emperors (Lethrinidae), Greater lizardfish (Synodontidae)
Black pomfret (*Parastromateus niger*) Javelin grunter (*Pomadasys kaakan*)	Flounders/Soles/Halibuts (Psettodidae, Soleidae, Bothidae) Trevallies /Scads (Carangidae)
Fourfinger threadfin (*Eleutheronema tetradactylum*)	Grouper(Serranidae), grunt/grunter(Haemulidae)
Japanese threadfin bream (Nemipteridae) Southern meagre (Scianidae)	Pompano (Carangidae), Seabreams (Sparidae) Sicklefish (Drepanidae), Parrotfish (Scaridae)
Shrimps/Prawns (Penaeidae), Cuttlefishs (Sepiidae), lobster	Sharks (Carcharhinidae), Crabs, Rays (Dasyatidae) Bigeye croaker (Pennahia anea)
Lantern fishes (Mictophidae), Hairtail/Ribbon (Trichiuridae) Sardines / Sardinellas (Clupeidae), Sawfishs (Pristidae) Indian mackerel, Gizzard shad (Clupeidae) Spinefoots/Rabbitfishes (Siganidae)	Snappers (Lutjanidae), Catfish (Ariidae) Common dolphinfish (Coryphaenidae) Guitarfishes (Rhinobatidae) Malabar blood snapper (Lutjanidae)
Cobia (Rachycentridae) Wolf-herring (Chirocentridae)	Common dolphinfish (Coryphaenidae) Trevally/Queenfish (Carangidae)

Fishing Permit form

Ministry of Jihad Agriculture
Iran Fisheries Organization
General Department of …(Name of Province) Fisheries

Date:……..
No.:……

Vessel code:……
Vessel capacity:……
Fishing permit no.:……
IOTC code:……
Vessel class: Boat ☐ Dhow ☐

Fishing ground code:……
Fishing method:……fishing method code:……
Catch type……catch type code……
Consumed quantity of fishing gear……
Validation date from……to……

Deputy for fishing & fishing harbors

Fishing port:……

Fishing effort (per day)……

Note:
- Violation of any points cited in the fishing license will lead to severe fine and penalty.
- Coast guard need to cooperate with fishery staffs in the port about the related issues.

Captain code:……
Captain name:……
Crew name:……
1-……
2.-……
3-……
4-……
5-……
6-……
7-……
8-……
9-……
10-……
11-……
12-……
13-……
14-……
15-……
16-……
17-……
18-……
19-……
20-……
21-……
22-……

Content of Fishing permit

fishing ground code	**landing center code**	**vessel code**	**captain code**
IOTC Code	**vessel capacity**	**permit serial no.**	**date of issue for permit validation date from/to…**
Fishing effort	**fishing method**	**number of fishing gears**	**fishing gears period at sea (per hours)**

- Also at the back of license the precise date for vessel departure and entrance will be endorsed. All of these information will be computerized by 42 operators in above mentioned provinces.
- However the *fishing effort* information is available by total enumeration.

Sampling coverage

- 10 % of the vessels are picked up as a representative sample of various categories and consistently sampled after each fishing trip.

Procedures for total catch estimation

Based on the:

1- Questionnaire sampling form (10% of the catch)

&

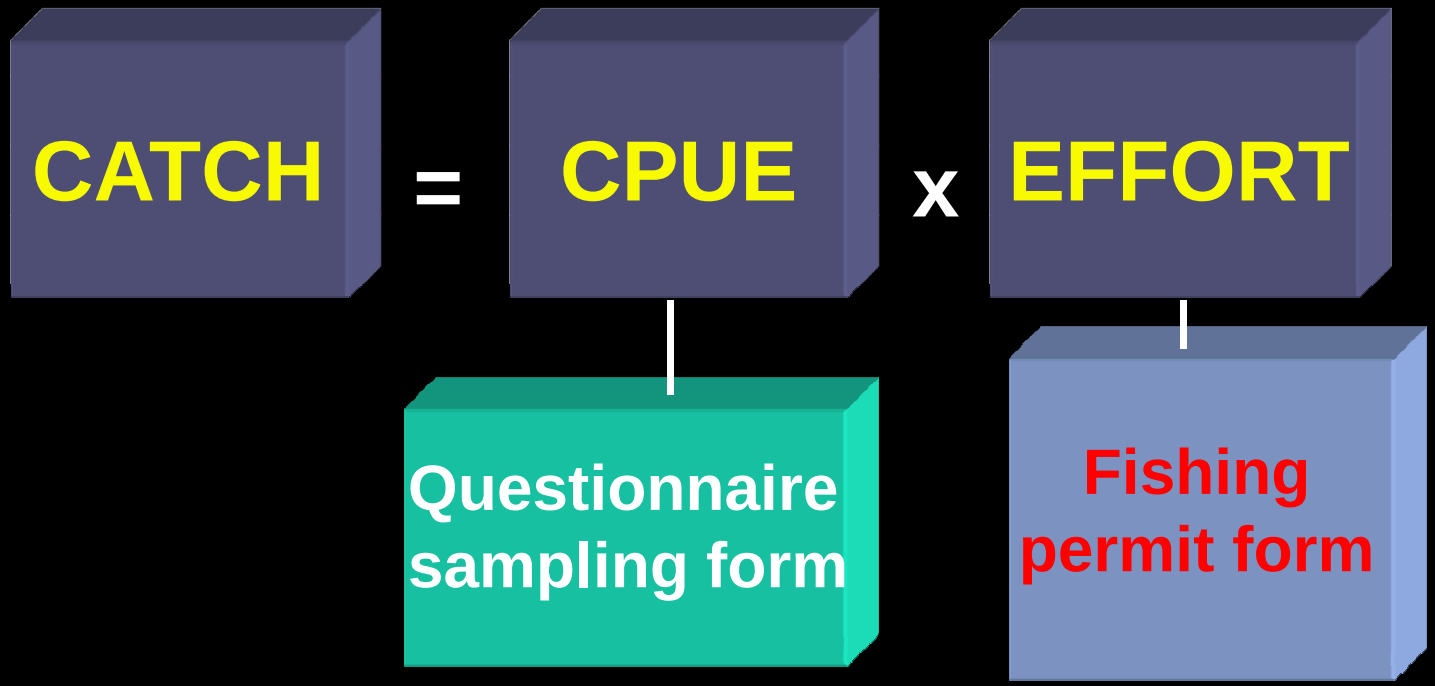
2- Permit form (100% of the effort)

the catches will be raised.

Calculating Total Catch

To increase the accuracy, raising will be carry out on the basis of the estimation of catch per unit of effort by strata (***month, landing site, vessel class and gear***) and then extrapolating these estimates to the whole population (fleet) using the known effort.

Sampling for estimating the amount of catches




Data Collection
Headquarter in
Tehran
Khozestan
Province
Bushehr
Province
Hormozgan
Province
Sistan-
Bluchistan
Province

industrial vessels

- **Total enumeration** procedure was adopted for industrial vessels and information on catch and effort are obtained from fishing logbooks, observer programmes and landing inspections

- These vessels comprised of :Trawlers and Purse seiners and they are required to submit their catch and effort **logbooks**

Data Validation

- Control of Permit form and Questionnaires by a person who is incharge of Statistical Unit in relevant landing center
- The 2nd round of control done at provincial level by the Head of the Statistical Unit and the process is repeated in Tehran
- There is crosschecking by total census in one or two landing sites in each province from time to time

Final control of catch data and statistics

Final controls are performed in Scientific Committees (SCs) which will be held in each Coastal provinces and after that in Iran Fisheries Headquarter with the following members:

- ***DG of Fishing affairs***
- ***Head of fishery data collection & statistics Unit***
- ***Head of Stock Assessment & management division (IFRO)***
- ***Representative of Fisheries Administrative & Planning Dept.***

According to the related issues, Catch Statistics Supervisors from Coastal provinces, Fishing Affaires Experts from Headquarter, and fishermen representatives are invited.

Size Data Collection

Biometry collection procedure

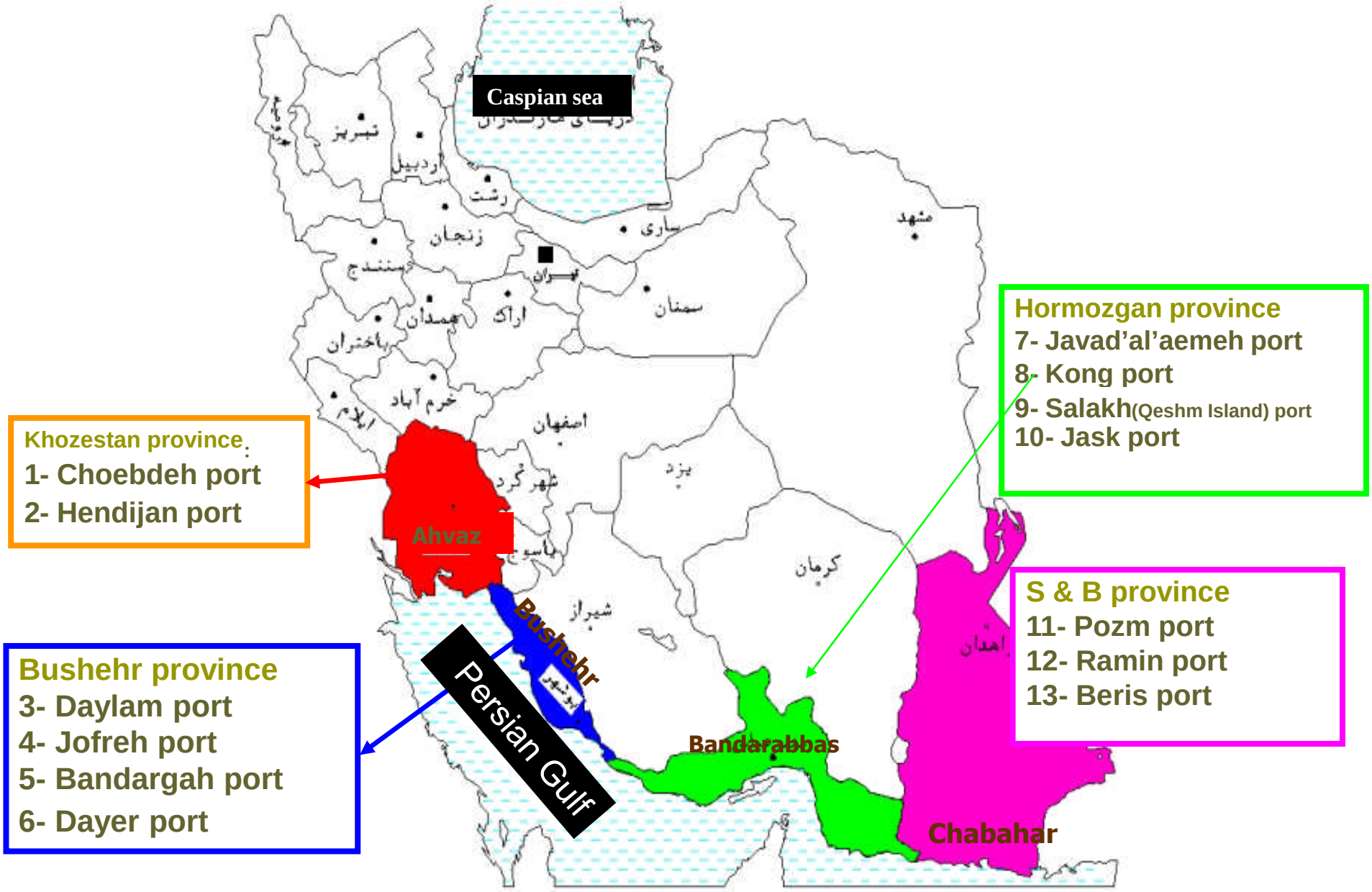
Ways of collecting biometry data

- landing places biometry
- At-sea Biometry

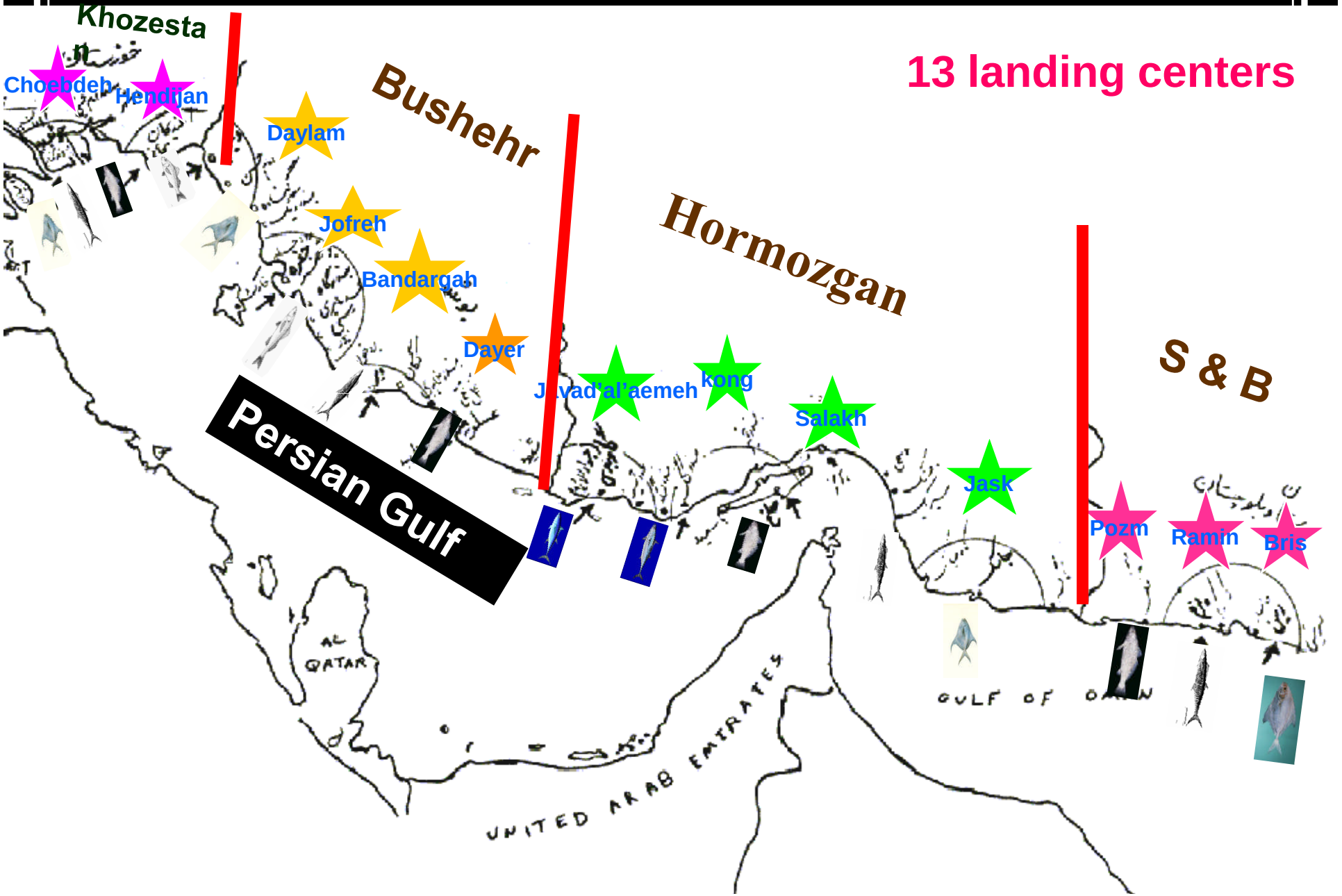
Data Collection includes:

- Length frequency (measuring Fork length)
- Weight frequency

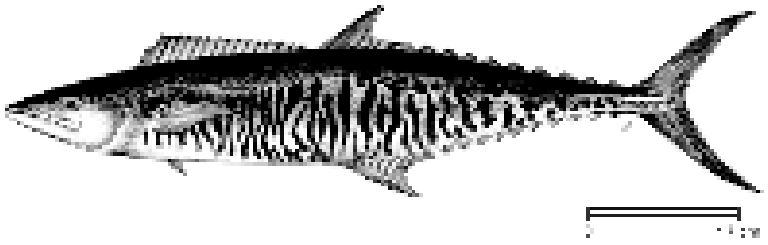
Sample Landing centers in each Coastal Provinces



Distribution of sample landing centers along 2000 km coastline

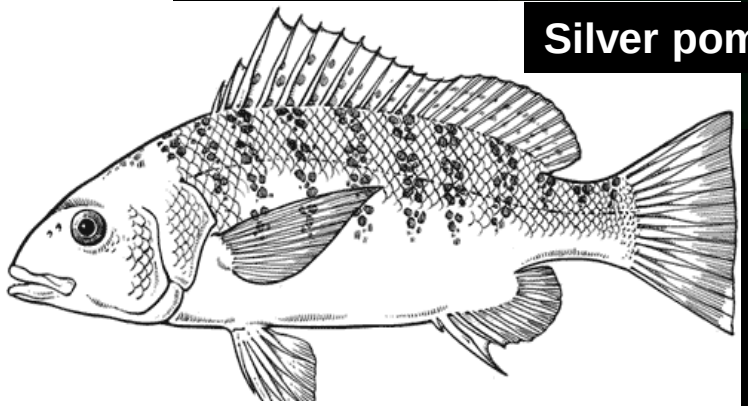


Measured species

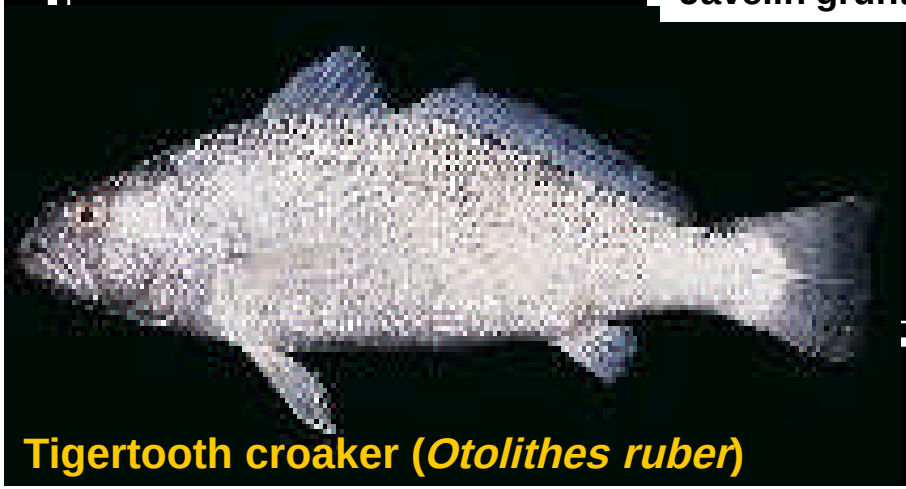


Narrow-barred spanish mackerel (*Scomberomorus Commerson*)

Silver pomfret (*Pampus argenteus*)



Javelin grunter (*Pomadasys kaakan*)

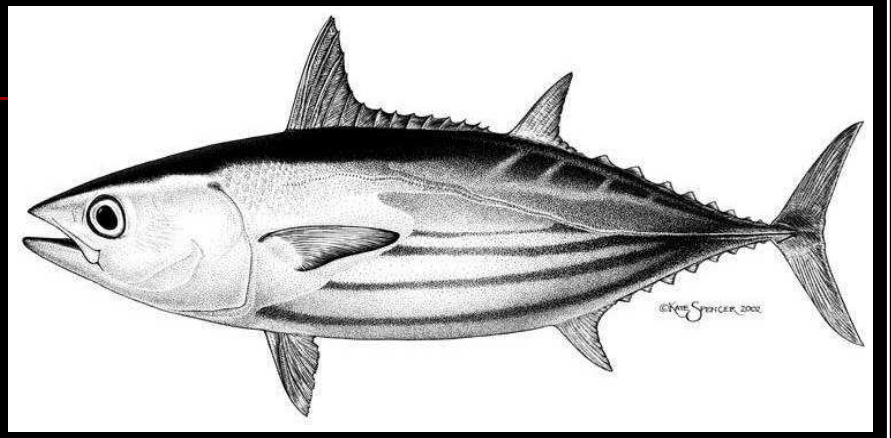


Tigertooth croaker (*Otolithes ruber*)

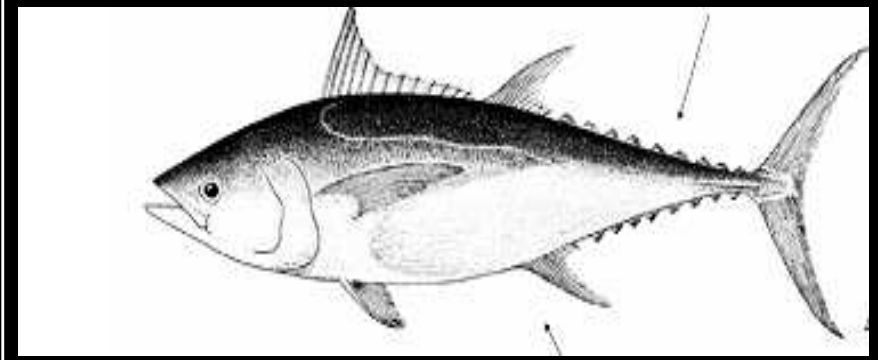
Black pomfret (*Parastromateus niger*)

Tuna species

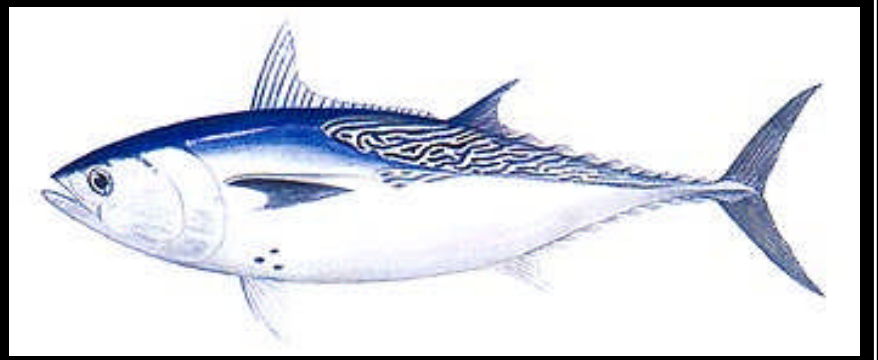
Yellowfin tuna (Thunnus albacares)



Skipjack(Katsuwonus pelamis)



Longtail tuna (Thunnus tonggol)



Kawakawa(Euthynnus affinis)

Sampling on the basis of fishing methods

- Gillnet
- Trap (wire trap)
- Trawl
- Hook
- Purse seine

Note:

- For each fishing method, 500 fish per month will be measured and 200 fish weighed.
- For tuna fishes, 1 fish per one tonne catch shall be measured.

Data Processing & Reporting

Input data into some Statistical Softwares like:

SPSS, Excel, Fisat & Minitab

These data will be processed & analyzed and the output will be used for conservation & management decisions.

Objectives of size data collection

- Obtaining the average length of a fish over a period of time by using length composition data to determine the overall state of species size exploitation.
- To calculate number of cohorts for each species.
- Determining the length-at-age of each species to show the rate of exploitation in accordance with the age of each species.
- Estimation of growth parameters and mortality rates of species and use them for Virtual Population Analysis (VPA) .
- To calculate the present exploitation pattern for each fish according to length maturity (*LM50*).
- obtaining length-weight relationship for each species annually.

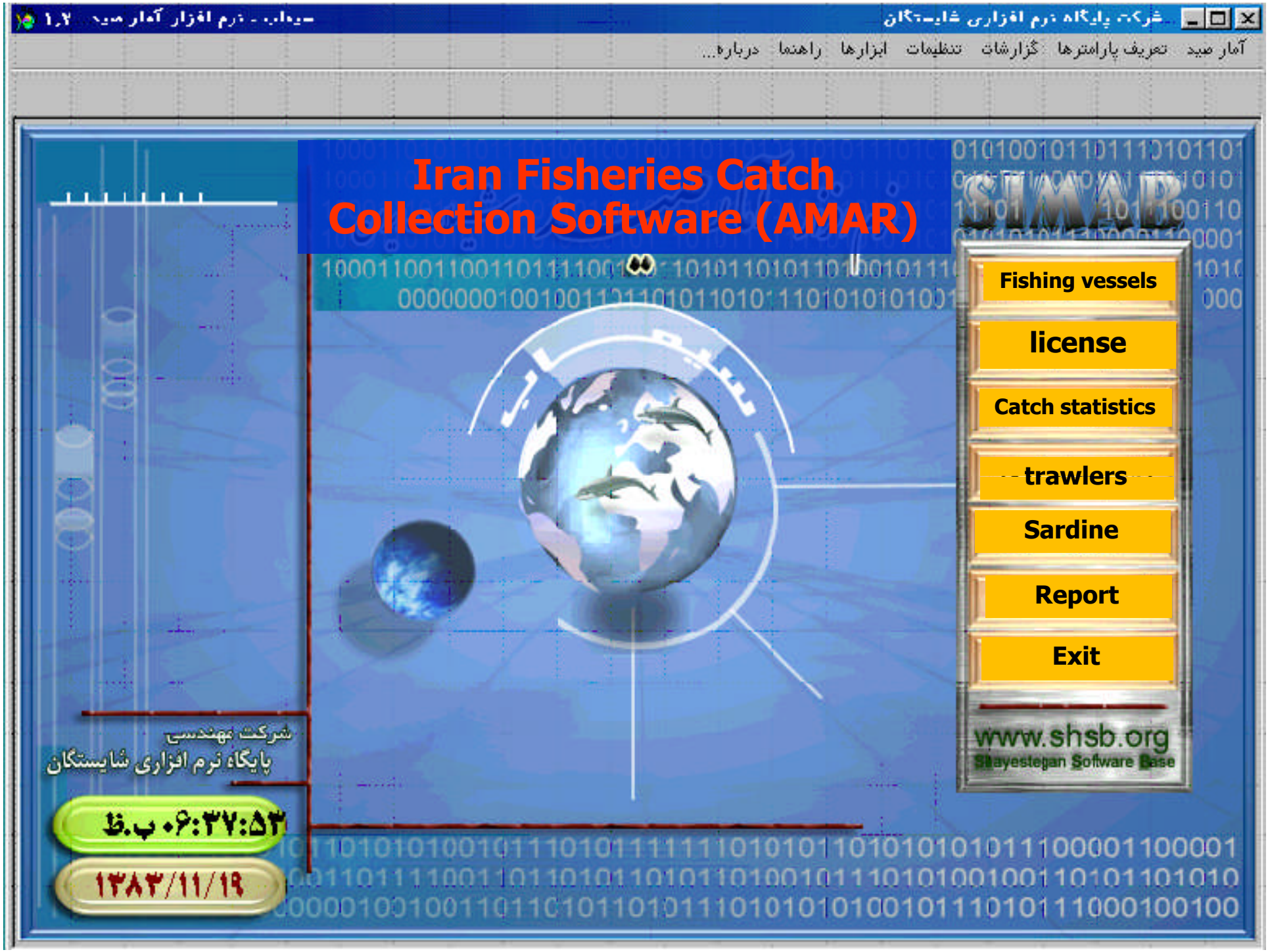
AMAR Software

AMAR software

The Data Collection Software is called AMAR, Which is developed for the compilation, processing and reporting of statistics.

Now The AMAR software works on SQL 2000 and in near future it will be upgraded to SQL 2008 and under web.

For the Security measure all databanks are password protected to prevent any unauthorized accession.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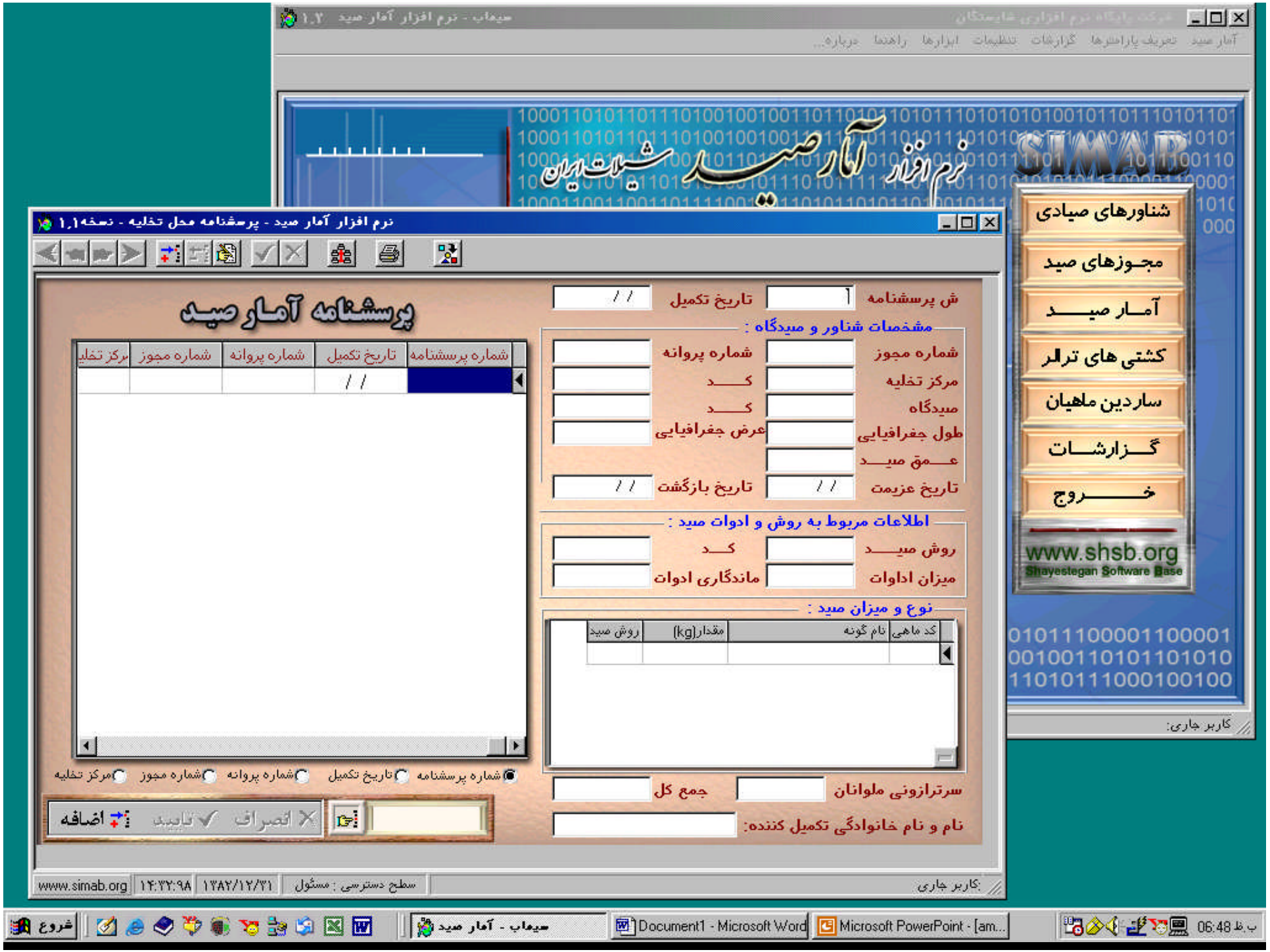
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سیماب - آمار صید
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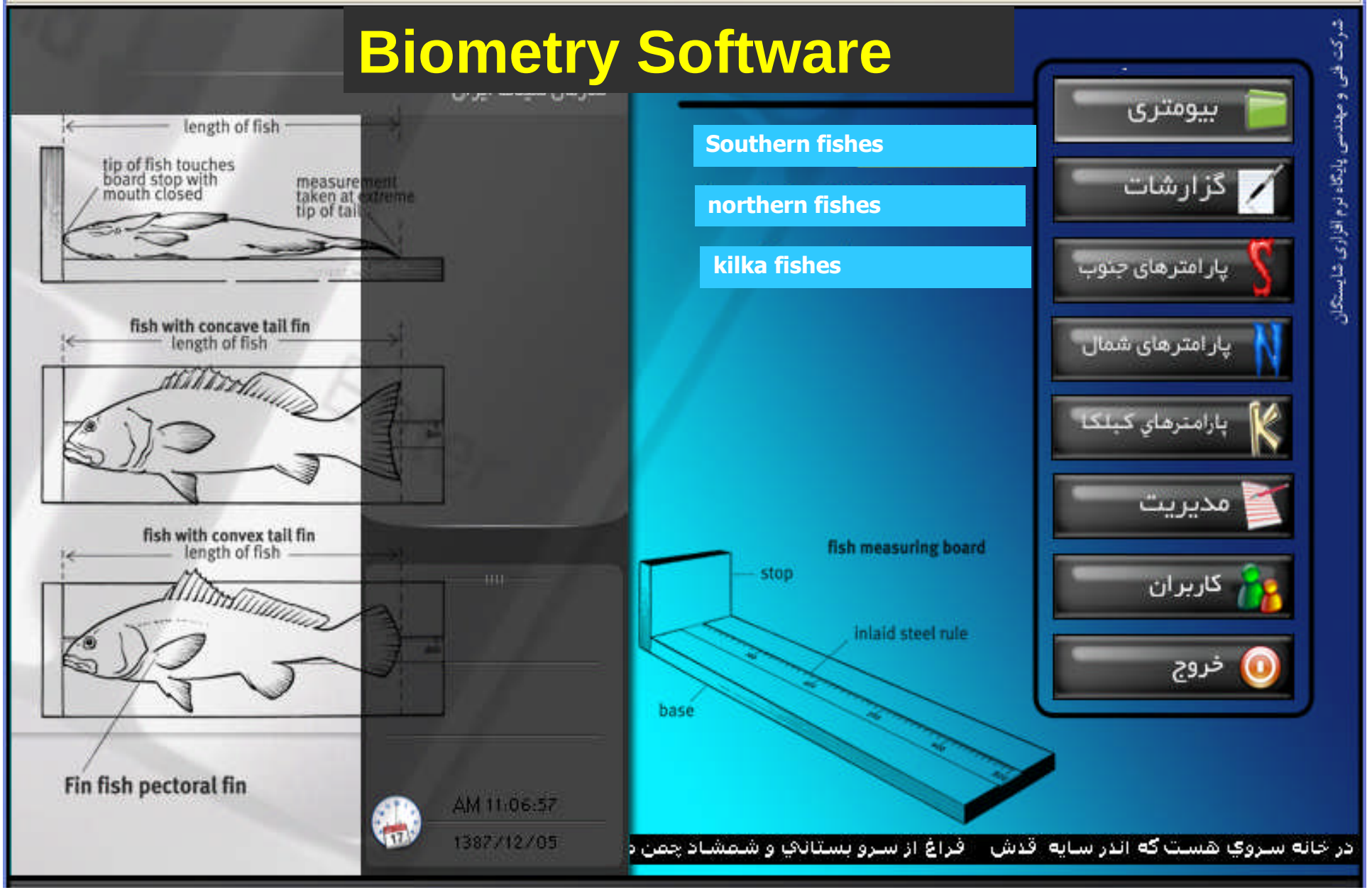
The type of report

Normaly, possibility of 50 kind of routine report, for example: Catch amount, based on landing site, province, fishing ground, vessel class, different duration, fishing methods, species, CPUE (catch per day), CPUE (catch per gear days), CPUE (catch per vessel) and many othe reports in the context of Tuna fishes.

Biometry software

This software is used for data entry and results will be processed by other statistical softwares.

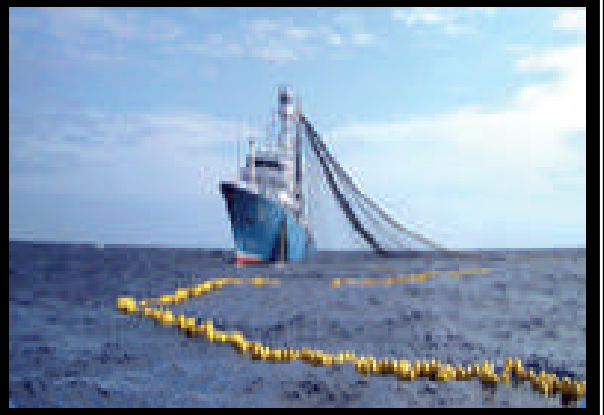
Biometry Software

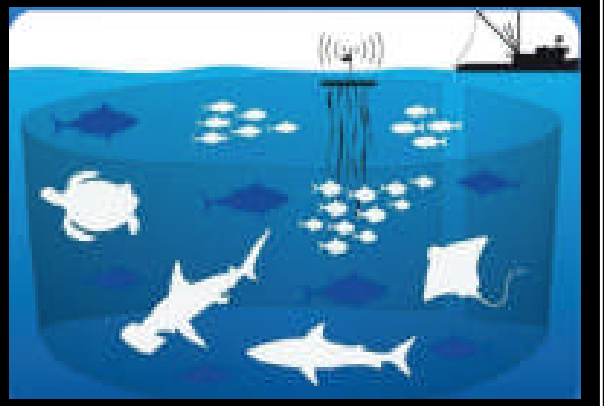


National actions to improve data collection system for Tuna fishery during 2011

Action taken or is going to be taken to strengthen Data Collection and Reporting System

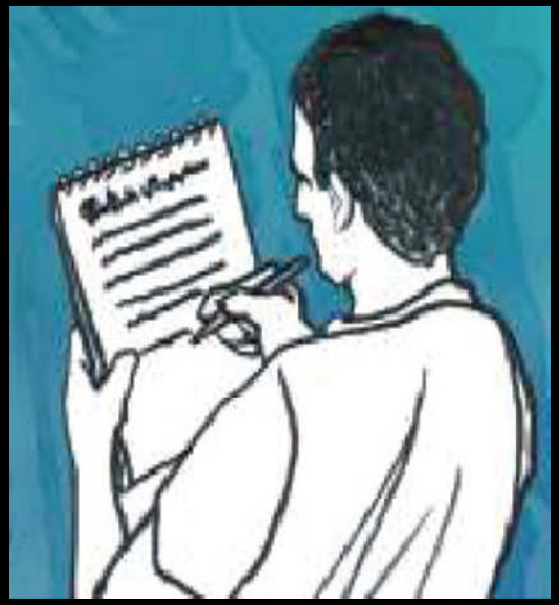
- Implementing logbook program on purse seine and gillnet fisheries
- Report of catch by geographic area
- report separate catches for surface (industrial) and Artisanal fleets
- Increasing data resolution for Catch-and-Effort and Size data *by 1° and 5° grid area and month strata*
- Improving Size frequency data on purse seine and gillnet fisheries
- Report of Purse seine fishery data by fishing mode (free swimming schools or other associations) for 2011.





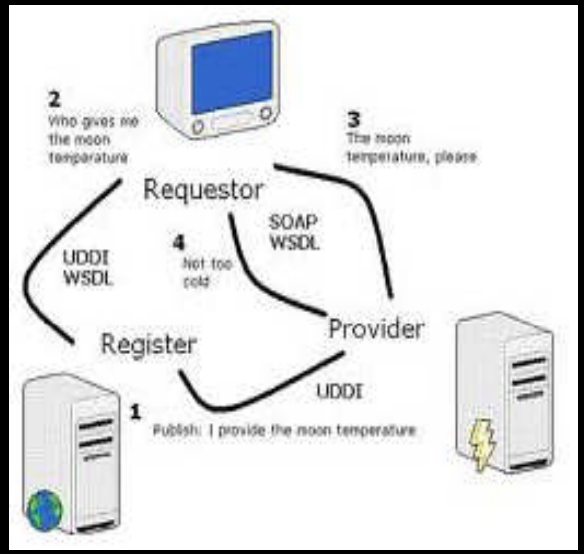
Action taken or is going to be taken to strengthen Data Collection and Reporting System

- *Improving species identification: Bigeye, sharks, marlins,…*
- Monitor Bycatch & discards (observers (2012) & logbooks)
- Incorporate logbooks in database (future work)
- Amending Database to generate reports for the IOTC
- Amending database to provide required reports for SHILAT and other national and international entities.
- Extending database capabilities for better Data Processing and Reporting (required funds)



Action taken or is going to be taken to strengthen Data Collection and Reporting System

- *Providing web services for data collection system.*



Implementation of logbook program for Oceanic Gillnet fishery in 2011

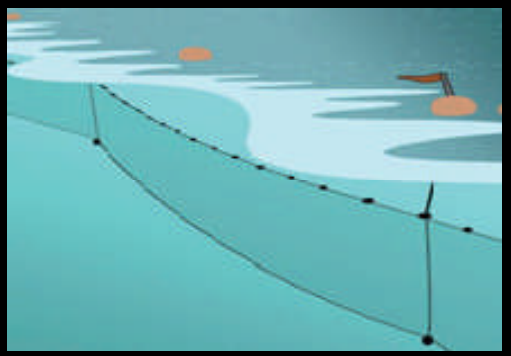
Iran implemented new Gillnet logbook template in 2011.

IOTC-2010-WPDCS

Logbook template for gillnet fishery

Logbook program for Oceanic Gillnet fishery initiated

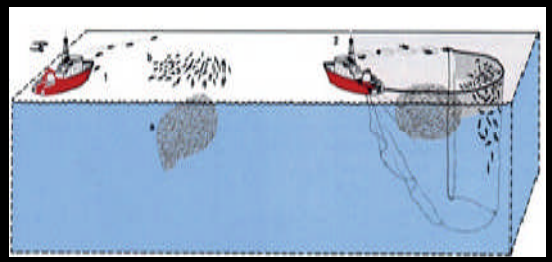
*We have implemented logbook program for gillnet fishery and designed a template. We distributed the logbook among **50 fishing Dhows** on Aug 2011 as a pilot plan and received some completed logbooks from fishermen. There are some mistakes during filling the forms we are going to modify them. For the second phase we planed to add some more items like **mesh size**, **net material, total length of net set** and also modify some species names to comply with the IOTC proposed Template for gillnet fishery. In future we can collect and report artisanal fishery catch according to vessel position in IOTC area for **target species, Bycatch, and discard**.*



Logbook program for purse seiners

Iran implemented new purse seine logbook template in 2011.

Resolutions 10/03, IOTC

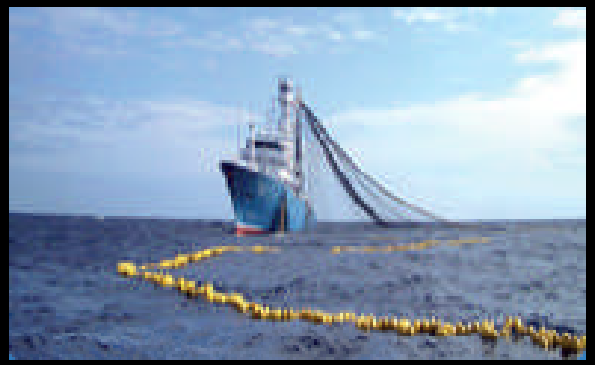


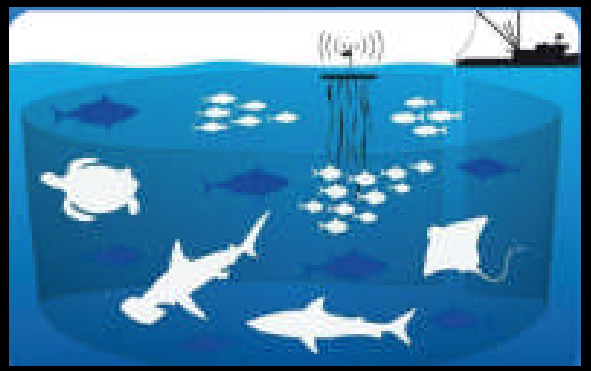
Logbook template for Purse seine vessels

Logbook programme for Purse seiners

- *We have implemented logbook program for Industrial purse seine fishery and designed a new template. All purse seiners filled the forms for 2011. the template is similar to that of IOTC proposed template. The data for purse seiners from 2011 onward will be according to fishing mode (logs/FADs or free school association).*

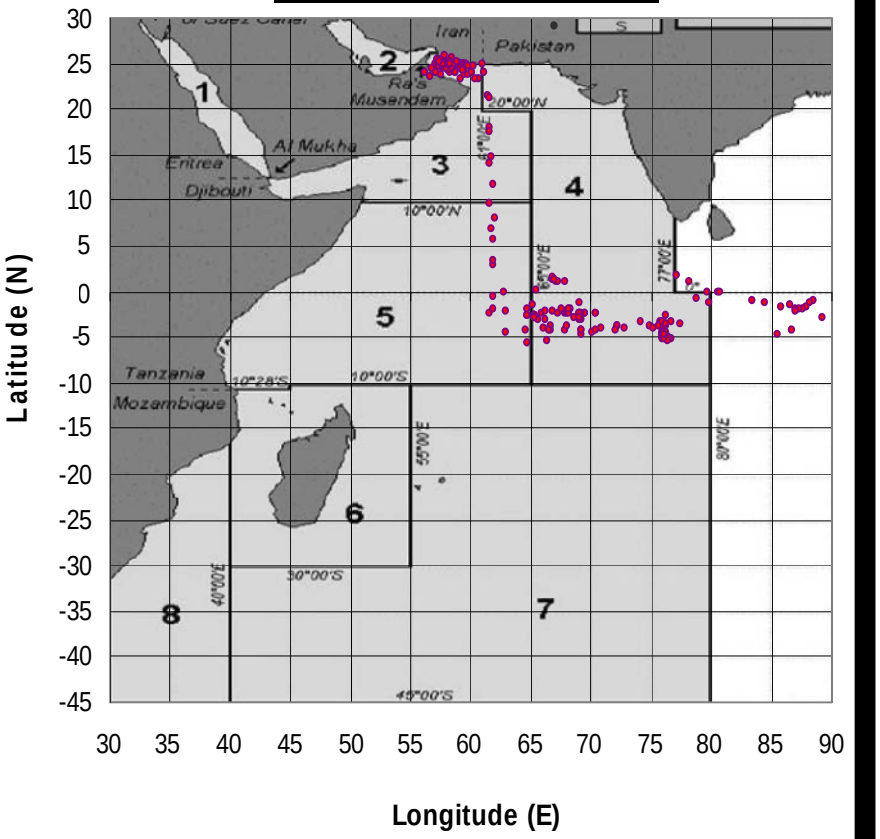
- *We amended our data collection system for purse seine fishery and now can give the catch & effort and biometry data according to 1° and 5° grid area. (see next slides)*



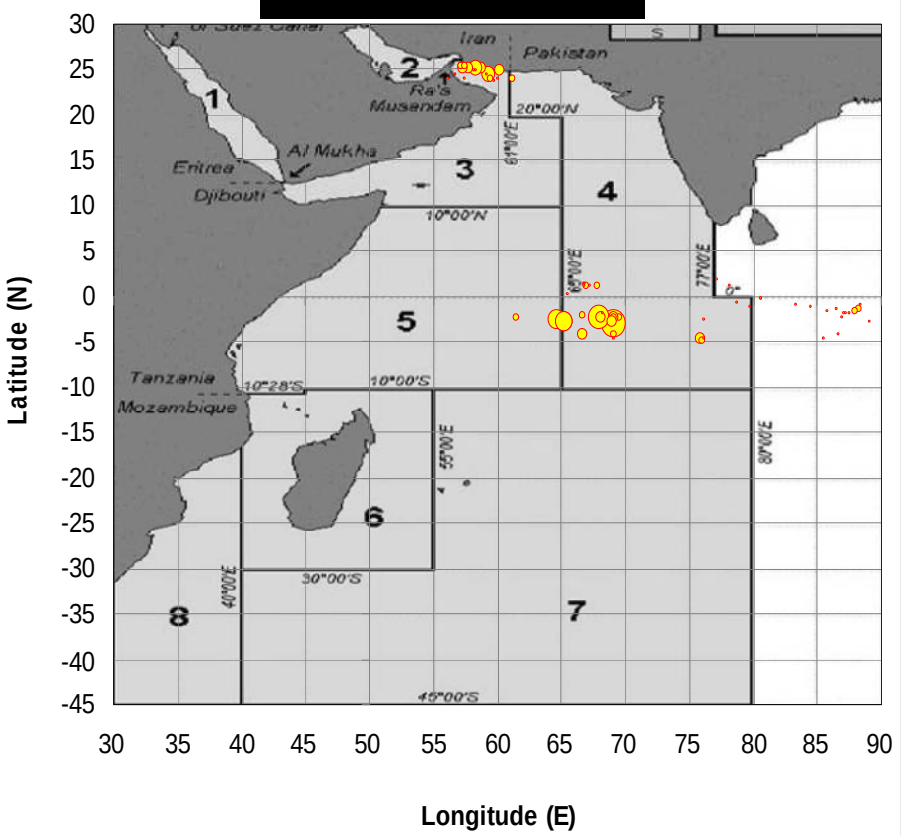


Distribution pattern of Purse seiners Catch & Efforts-2010

Total Effort

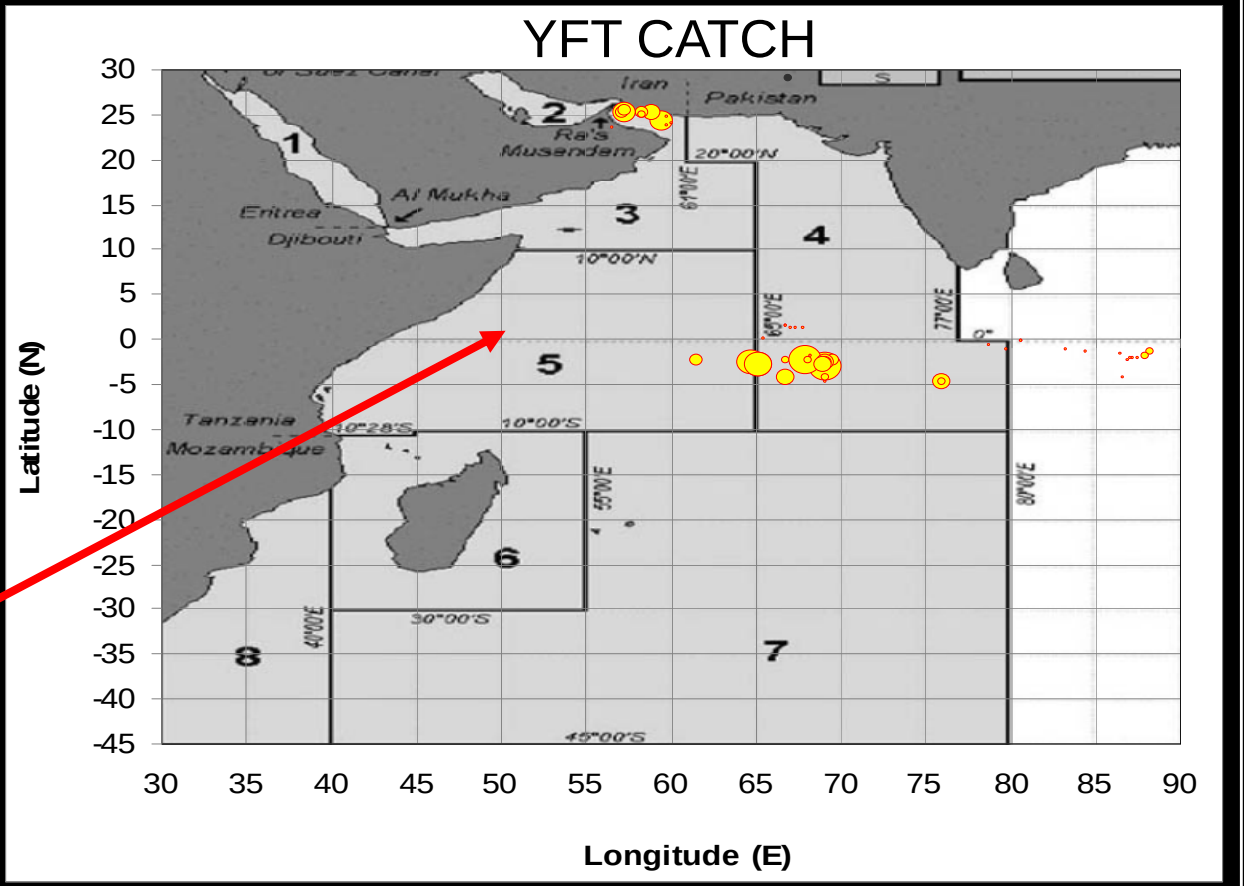


Total Catch

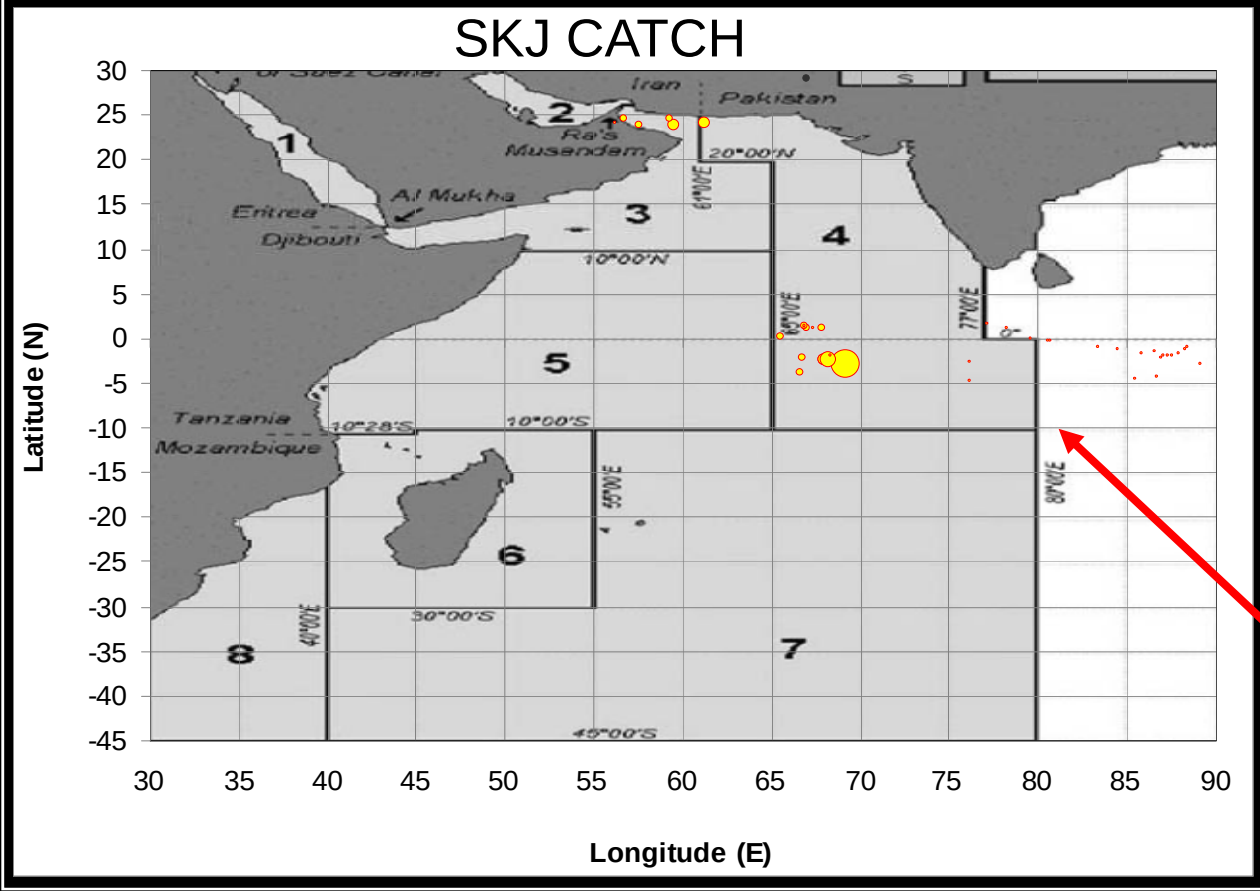


Distribution pattern of Purse seiners YFT Catch-2010

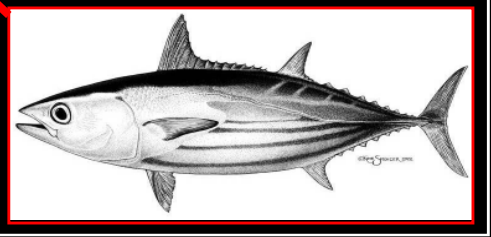
Yellowfin tuna (*Thunnus albacores*)



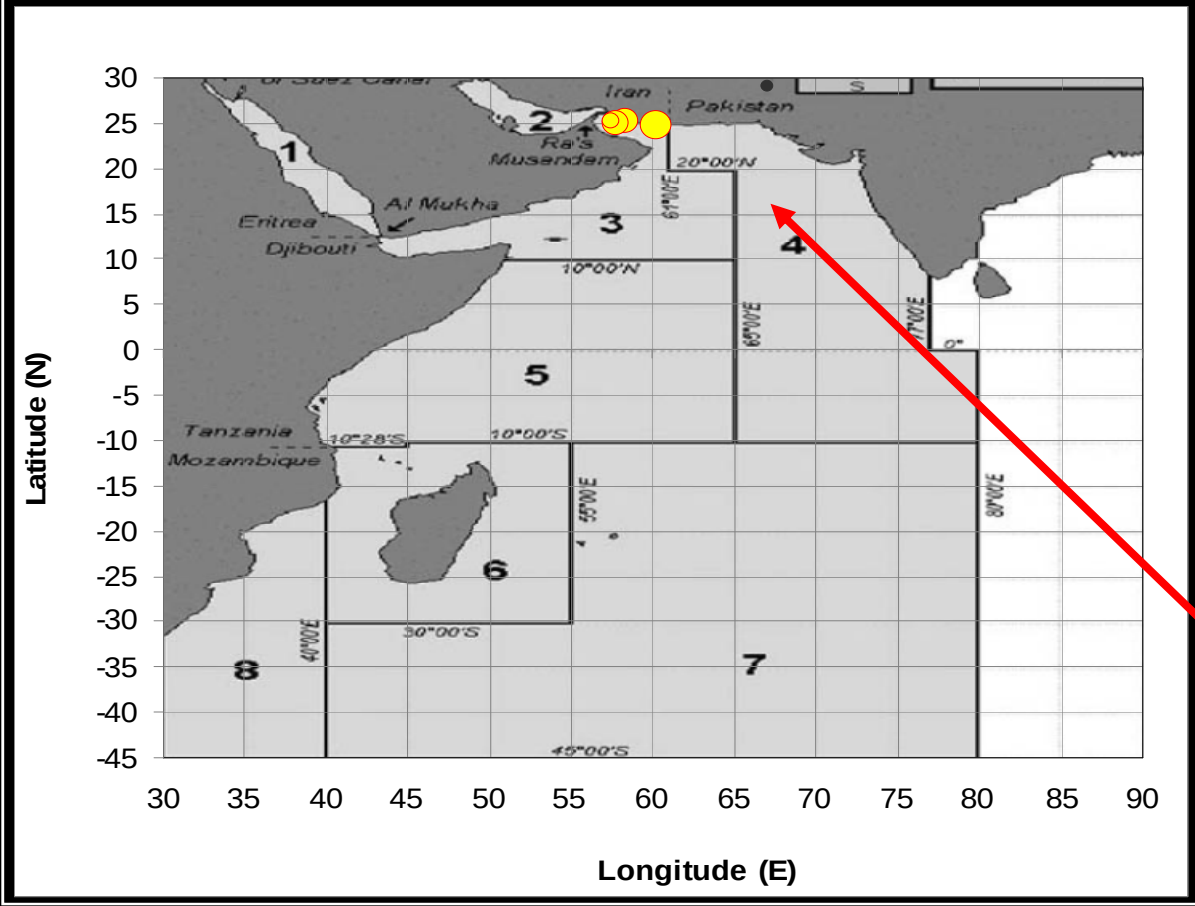
Distribution pattern of Purse seiners SKJ Catch-2010



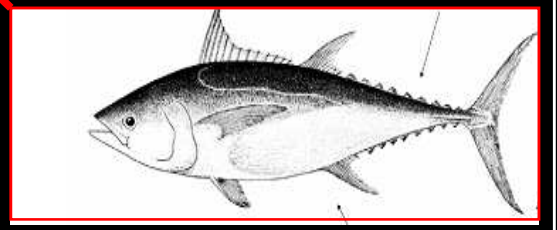
Skipjack tuna (*Katsuwonus pelamis*)



Distribution pattern of Purse seiners LOT Catch-2010



Longtail tuna (*Thunnus tonggol*)



Development of size sampling for industrial fisheries **in Southeast Coast**

We extended the data collection on size for purse seine fisheries and strengthened Size sampling by adding two more landing centers in Sistan-Bluchestan Province.

- Ramin port
- Pasabandar port

Ramin port

Pasabandar port

INFDCRS Software amendments

To separate coastal from surface (high seas) fleets:

We amended and Provided a new option in the reporting section of Iran fishery statistics software (AMAR) specifically for those active vessels who attend in offshore fishing grounds. Report for those vessels is now available per fishing effort, no. of vessels and level of catch per species and month strata.

Other modifications on AMAR Software

- On top of the existing reports, Raising data per each fishery, fishing boats, Dhows and per each landing center is now possible.

- Providing IOTC CODE in fishing license form for all fishing crafts sailing offshore.

Education and public relations activities

Education and public relations activities

In complying with the IOTC Resolutions, and with the cooperation of local fisheries organizations in Hormozgan & Sistan-Bluchestan provinces, Iran Fisheries Organization implemented the following training courses in relation to data collection system in 2010 & 2011:

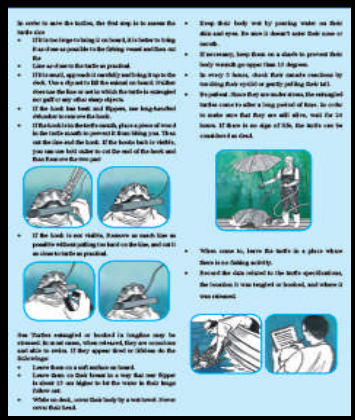
- *An educational seminar in Hormozgan to train port samplers across 900 km coast line in 2010.*
- *A training course for Head of Data Collection System in all 4 southern coastal provinces in Tehran during 2011.*

Education and public relations activities

- *An educational seminar on Tuna fishery during 2011 in Chabahar port (sistan-bluchestan province).*
- *We are planning to implement the 2nd round of artisanal fishery educational seminar specifically for gillnet fishery to train fishermen on how to collect and fill out the logbooks, identify and report bycatch and discards species specifically for those fishermen operating in IOTC area of competence.The aim of such events is to encourage fishers to become more proactive with these issues.*

Education and public relations activities

Iran fisheries organization introduced materials that are being used to educate fishermen, Field samplers and other relevant parties for identifying Tuna fishes, Marine Mammals, Turtles and in future for Sharks. These materials included many brochures and some posters that have been designed to explain the importance of avoiding incidental take of above-mentioned species. Some copies of materials were passed on to fishers and fishing community.



Thank you for your attention

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8th WPCD, 8-10 DEC 2011 SEYCHELLES