FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Terms of Reference for Consultant

Name: STEFANO PIREDDA		
Job Title: CONSULTANT		
Division/Department: FIPI		
Programme/Project Number: MTF/INT/661/MUL		
Location: At home, with electronic communication		
Expected Start Date of Assignment: 17 October 2014	**Duration:** 30 DAYS	
Reports to: ***Name:*** *RONDOLPH PAYET*	***Title:*** EXECUTIVE SECRETARY	

GENERAL DESCRIPTION OF TASK(S) AND OBJECTIVES TO BE ACHIEVED

Design and deploy of procedures in the IOTC website to query and deploy catch and effort data from the IOTC Database

Profile: Web designer and UI/UX expert with a strong and demonstrated experience with the DRUPAL content management system, and design and integration of other web content into a Drupal Web environment.

Under the supervision of the IOTC Secretariat, the consultant will:

Create a dedicated Module to host the IOTC Nominal Catch and Fishing Craft Statistics Tables, including design of a search engine to allow user querying, downloading and graphical representation of Nominal Catch and Fishing Craft data, and integration of this Module within the IOTC Drupal Web Site environment. This work shall include:

1. Build a dedicated Module to host IOTC databases and design and integrate a data search, query, export, and display engine in the IOTC Web Page; export of search results will include MS-Excel or text (csv) format, and graphical display of those results using MS-Word or Adobe Acrobat Reader, including Tables and different types of charts, as per the specifications provided in Annex.
2. Full documentation of procedures professionally prepared and presented for use by IOTC staff and consultants. Create reproducible and unambiguous procedures that are suitable for training. Create a document structure and formatting using Word. List all the ingredients and any special tools, software, permissions, licenses or URLs for name authority services as well as where to find them. Document the steps by using imperative statements formatted as numbered lists and write for your identified audience.
3. Prepare help files to assist users in the use of this tool, by creating an organized file and documentation so that it is easy to view, edit and understand. Group, label and organize common elements so that users are able to easily edit the file. Ensure validation of code, and code in a style that represents the latest and best practices in the industry.

Before starting on the work, the IOTC Secretariat will provide the Consultant with tables containing the available Nominal Catch and Fishing Craft datasets to be used for this assignment.

Initially fishing craft data will be displayed only for the major fleets, according to availability.

KEY PERFORMANCE INDICATORS

Expected Outputs:	Required Completion Date:
Querying of Nominal Catch and Fishing Craft Data in the IOTC Web Page, download of results, and graphical display of the query output in tables and charts, as specified in Annex.	30th November 2014

Documentation of procedures and help files	30th November 2014

Annex: Instructions for the display and online querying of the IOTC Nominal Catches, Fishing Craft, and Catch-and-Effort[1] Tables in the IOTC Web Site

Nominal Catch Table

The Table NCTable (MySQL Database in the IOTC Web Page Server) contains the nominal catch data available at the IOTC, and will be updated at regular intervals by the IOTC Secretariat. The Table was created using the below Script (details on the type of information including in each column is presented on the right):

CREATE TABLE IF NOT EXISTS NCTABLE	***DESCRIPTION***
(FlSort int(11) NOT NULL,	Fleet Sort code (used to sort fleets on output)
FlCde char(7) NOT NULL,	Fleet 3-alpha code
Fleet varchar(100) NOT NULL,	Fleet English name
Flotte varchar(100) NOT NULL,	Flotte nom Française
ArCde varchar(10) NOT NULL,	Zone IOTC 3-alpha code
AreaIOTC varchar(50) NOT NULL,	Zone IOTC English name
ZoneCTOI varchar(50) NOT NULL,	Zone CTOI nom Française
Year_An int(11) NOT NULL,	Year_An
TFCde varchar(4) NOT NULL,	Type of operation 3-alpha code
TypeFishery varchar(100) NOT NULL,	Type of operation English name
TypePêcherie varchar(100) NOT NULL,	Type d'opération nom Française
GrSort int(11) NOT NULL,	Gear Sort code (used to sort gears on output)
GrCde varchar(10) NOT NULL,	Gear n-alpha code
Gear varchar(50) NOT NULL,	Gear English name
Engin varchar(50) NOT NULL,	Engin nom Française
GrGroup varchar(25) NOT NULL,	Gear group English name
GrGroupe varchar(25) NOT NULL,	Engin groupe nom Française
GrMult binary(1) NOT NULL,	Gears multiple (aggregate of 2 or more gears)
SpSort int(11) NOT NULL,	Species Sort code (used to sort species on output)
SpCde varchar(10) NOT NULL,	Species 3/4-alpha code
Species varchar(100) NOT NULL,	Species English name
Espèce varchar(100) NOT NULL,	Espèce nom Française
SpLat varchar(100) NOT NULL,	Species scientific name (latin)
SpGroup varchar(10) NOT NULL,	Species group English name
SpGroupe varchar(10) NOT NULL,	Espèce groupe nom Française
SpWP_SpGT varchar(4) NOT NULL,	Species Working Party/Espèce groupe de travail
SpIOTC binary(1) NOT NULL,	Species is IOTC (16 species in IOTC Agreement)
SpMult binary(1) NOT NULL,	Species multiple (aggregate of 2 or more species)
Catch_Capture_t float NULL)	Catch in metric tons/Capture in tons

NOTE: An NCID may be added to the table at a later time, to link NC and CE data for display of maps. The NC Table is updated using a script. An example of part of the script is presented below (just one line of the Insert procedure is shown):

```
DELETE FROM `NCTABLE`;
INSERT INTO `NCTABLE` (`FlSort`, `FlCde`, `Fleet`, `Flotte`, `ArCde`, `AreaIOTC`, `ZoneCTOI`,
`Year_An`, `TFCde`, `TypeFishery`, `TypePêcherie`, `GrSort`, `GrCde`, `Gear`, `Engin`, `GrGroup`,
`GrGroupe`, `GrMult`, `SpSort`,  `SpCde`, `Species`, `Espèce`, `SpLat`, `SpGroup`, `SpGroupe`,
`SpWP_SpGT`, `SpIOTC`, `SpMult`, `Catch_Capture_t` )  VALUES ( 1, 'AUS', 'AUSTRALIA', 'AUSTRALIE',
'F57', 'Eastern Indian Ocean',  'Océan Indien Est',  1950, 'ART', 'Artisanal Fishing',  'Pêcheries
artisanales',  9, 'UNCL', 'Unclassified',  'Non classé', 'Other', 'Autres', 0x54,  16, 'KGX', 'Seerfishes
nei', 'Thazards nca',  'Scomberomorus spp.', 'SEERFISH', 'THAZARDS', 'NERI',  0x54, 0x54, '100' );
```

[1] Note that the preparation of online querying and data display procedures for catch-and-effort data will be part of a separate contract, to be initiated at the end of development of this one.

Fishing Craft Table

The Table FCTable (MySQL Database in the IOTC Web Page Server) contains the fishing craft statistics data available at the IOTC, and will be updated at regular intervals by the IOTC Secretariat. The Table was created using the below Script (details on the type of information including in each column is presented on the right):

CREATE TABLE IF NOT EXISTS FCTABLE	***DESCRIPTION***
(FlSort int(11) NOT NULL,	Fleet Sort code (used to sort fleets on output)
FlCde char(7) NOT NULL,	Fleet 3-alpha code
Fleet varchar(100) NOT NULL,	Fleet English name
Flotte varchar(100) NOT NULL,	Flotte nom Française
Year_An int(11) NOT NULL,	Year of activity
TFCde varchar(4) NOT NULL,	Type of operation 3-alpha code
TypeFishery varchar(100) NOT NULL,	Type of operation English name
TypePêcherie varchar(100) NOT NULL,	Type d'opération nom Française
GrSort int(11) NOT NULL,	Gear Sort code (used to sort gears on output)
GrCde varchar(10) NOT NULL,	Gear n-alpha code
Gear varchar(50) NOT NULL,	Gear English name
Engin varchar(50) NOT NULL,	Engin nom Française
GrGroup varchar(25) NOT NULL,	Gear group English name
GrGroupe varchar(25) NOT NULL,	Engin groupe nom Française
GrMult binary(1) NOT NULL,	Gears multiple (aggregate of 2 or more gears)
LOA_LHT varchar(50) NOT NULL,	Boat length overall class, in meters
noBoats_nBateaux int(11) NOT NULL)	Number of boats fishing

NOTE: An NCID may be added to the table at a later time, to link FC with NC for display of numbers of vessels for the selected strata.

The FC Table is updated using a script. An example of part of the script is presented below (just one line of the Insert procedure is shown):

```
DELETE FROM `FCTABLE`;
INSERT INTO `FCTABLE` (`FlSort`, `FlCde`, `Fleet`, `Flotte`, `Year_An`, `TFCde`, `TypeFishery`,
`TypePêcherie`, `GrSort`, `GrCde`, `Gear`, `Engin`, `GrGroup`, `GrGroupe`, `GrMult`, `LOA_LHT`,
`noBoats_nBateaux` ) VALUES ( 1, 'AUS', 'AUSTRALIA', 'AUSTRALIE', 1982, 'ART', 'Artisanal
Fishing', 'Pêcheries artisanales', 1, 'PS', 'Purse seine', 'Senne tournante aux thons', 'Purse
Seine', 'Senne tournante', 0x46, '10m-50m', '50' );
```

Filtering data from NC, FC and CE Tables

The following criteria are proposed to filter data from NC, CE, and FC Tables:

Option 1: Use all Data: No filter criteria used; goes straight to output and allows downloads of ***NCTable***, and ***FCTable*** in Excel (template prepared by the IOTC Secretariat) or csv (just the data, also prepared by the IOTC Secretariat in advance). For CE data, a hyperlink redirects the user to the ***CETables*** in the IOTC Data Page.

Option 2: Select specific data: Filter according to the below criteria:

Filter criteria 1: Fleet (FlSort, FlCde, Fleet, Flotte)

- Applies to all Tables
- One cell for the search in each case, with a combo displaying two columns that include the English name and fleet code (English Web Page); and French name and fleet code (French Web Page)
- Countries in drop down to be sorted ascending using FlSort (not shown in drop down)
- Should allow selection of one or more countries
- Set a Yes/No check box for All Fleets (Yes is all fleets selected)
- The areas shown for selection shall correspond to those for which data are available in NCTable (kind of a dynamic combo based on the selection criteria and available data in NCTable), as per the selection from other filtering criteria.

Filter criteria 2: IOTC Area (ArCde, AreaIOTC, ZoneCTOI)

- Applies to ***NCTable*** and ***CETable*** only
- One cell for the search in each case, with a combo displaying two columns that include the English name and area code (English Web Page); and French name and area code (French Web Page)
- Areas in drop down to be sorted ascending using ArCde (not shown in drop down)
- Only selection of 1 area allowed
- Set a Yes/No check box for All Areas (Yes is all Areas selected)
- The areas shown for selection shall correspond to those for which data are available in NCTable, as per the selection from other filtering criteria.

Filter criteria 3: Time-period (Year_An)

- Applies to all Tables
- One cell for Year From (pick up First Year for which there is data as default, according to the selection criteria)
- One cell for Year To (pick up Last Year for which there is data as default, according to the selection criteria; set constraint Year From selected as minimum value)

Filter criteria 4: Type of operation (TFCde, TypeFishery, TypePêcherie)

- Applies to all Tables
- One cell for the search in each case, with a combo displaying two columns that include the English name and type of operation code (English Web Page); and French name and type of operation code (French Web Page)
- Types of operation in drop down to be sorted ascending using TFCde (not shown in drop down)
- Only selection of 1 type of operation allowed
- Set a Yes/No check box for All types of operation (Yes is all types of operation selected)
- The types of operation shown for selection shall correspond to those for which data are available in NCTable, as per the selection from other filtering criteria.

Filter criteria 5: Gear Group (GrGroup, GrGroupe)

- Applies to all Tables

- One cell for the search in each case, with a combo displaying one column that include the English name (English Web Page); and French name (French Web Page)
- Gear groups in drop down to be sorted ascending using GrGroup (English) or GrGroupe (French)
- Should allow selection of one or more Gear groups
- Set a Yes/No check box for All gear groups (Yes is all gear groups selected)
- The gear groups shown for selection shall correspond to those for which data are available in NCTable, as per the selection from other filtering criteria.

Filter criteria 6: Gear type (GrSort, GrCde, Gear, Engin)

- Applies to all Tables
- One cell for the search in each case, with a combo displaying two columns that include the English name and gear code (English Web Page); and French name and gear code (French Web Page)
- Gear types in drop down to be sorted ascending using GrSort (not shown in drop down)
- Should allow selection of one or more gear types
- Set a Yes/No check box for All gear types (Yes is all gear types selected)
- The gear types shown for selection shall correspond to those for which data are available in NCTable, as per the selection from other filtering criteria.

Filter criteria 7: Species Group (SpGroup, SpGroupe)

- Applies to ***NCTable*** and ***CETable*** only
- One cell for the search in each case, with a combo displaying one column that include the English name (English Web Page); and French name (French Web Page)
- Species groups in drop down to be sorted ascending using SpGroup (English) or SpGroupe (French)
- Should allow selection of one or more Species groups
- Set a Yes/No check box for All Species groups (Yes is all Species groups selected)
- The species groups shown for selection shall correspond to those for which data are available in NCTable, as per the selection from other filtering criteria.

Filter criteria 8: Species (SpSort, SpCde, Species, Espèce, SpLat)

- Applies to ***NCTable*** and ***CETable*** only
- One cell for the search in each case, with a combo displaying three columns that include the English name, scientific name and species code (English Web Page); and French name, scientific name and species code (French Web Page)
- Species types in drop down to be sorted ascending using SpSort (not shown in drop down)
- Should allow selection of one or more species
- Set a Yes/No check box for All species (Yes is all species selected)
- The species shown for selection shall correspond to those for which data are available in NCTable, as per the selection from other filtering criteria.

Display of filtered data

Once that the selection has been made the user will need to decide the type of output(s) envisaged, among the following:

- **Export Results**: Data exported to excel or csv, as per the choice made by the user. The file exported shall contain all columns, including English and French description, so as the same files apply to the English and French sections of the Web Page.
- **Table display**: Data to be displayed in a table, with records displayed in cross table format, according to the selection and type of output specified. The user will need to define which data items shall be displayed in rows (to a maximum of 2) and in columns (just one).
  An additional column will be added to the table to display total catches/number of boats for each row and an additional row at the bottom of the table to display total catches/number of boats for each column.

- Data items that can be selected for display as rows (up to a maximum of 2):
    - NC Table: Fleet, year, **IOTC Area**, **Type of operation**, gear type, species
    - FC Table: Fleet, year, **Type of operation**, gear type
- Data items that can be selected for display as columns (just one):
    - NC Table: **IOTC Area**, **Type of Operation** (if not chosen above), Gear Group, Species Group, Working Party Group, IOTC species (Yes=IOTC species; No=Non-IOTC)
    - FC Table: **Type of Operation** (if not chosen above), Gear Group, LOA class

- **Pie chart display**: Catches/number of boats to be displayed in one or more pie charts, according to the selection and type of output specified.
    - Generate each pie using (one pie for each): Select one:
        - NC Table: Fleet; Year ; IOTC Area; Type of Operation; Gear type; species
        - FC Table: Fleet; Year ; Type of Operation; Gear type; LOA class
    - Break catches on the pie by (select one, excluding the one selected above):
        - NC Table: IOTC Area, Type of Operation, Gear Group, Gear type (to a maximum of 5 gear types and the rest aggregated or not shown), Species Group, Working Party Group, Species (to a maximum of 5 species and the rest aggregated or not shown), IOTC species
        - FC Table: LOA class; Type of operation; Gear group; gear type (to a maximum of 5 gear types and the rest aggregated or not shown)
- **Column/bar chart display**: Catches/number of boats to be displayed in a bar/column chart, according to the selection and type of output specified.
    - X (column)/ Y (Bar) Axis: Select one:
        - NC Table: Fleet, Year, IOTC Area, Type of operation, Gear type, Species
        - FC Table: Fleet, Year, Type of operation, Gear type, LOA class
    - Columns/Bars broken by:
        - NC Table: IOTC Area, Type of Operation, Gear Group, Gear type (to a maximum of 5 gear types and the rest aggregated or not shown), Species Group, Working Party Group, Species (to a maximum of 5 species and the rest aggregated or not shown), IOTC species
        - FC Table: LOA class; Type of operation; Gear group; Gear type (to a maximum of 5 gear types and the rest aggregated or not shown)
- **Line chart display**: Catches/number of boats to be displayed in a line chart, according to the selection and type of output specified. X axis will show the years selected; Select the criteria to break catches in the line chart:
    - NC Table: IOTC Area; Type of operation; Gear group; species group
    - FC Table: LOA class; Type of operation; Gear group
- **Display time-area catches/effort (maps)**[2]: If catch and effort are available for the NC strata selected, the user will choose the type of data that wants displayed on the maps:
    - Display Effort, broken by quarter in the pies: Effort shall be displayed for all 5 degree square grids, whether there is catches of the species selected for display or not.
    - Display Catch (in number or weight, as selected by the user), broken by quarter in the pies
    - Display Nominal CPUE (using number or weight): displays (Sum of Catch (number of weight) / (Sum of Effort) for each 5 degree square area)

  Maps will be displayed as per the selection; if the user wants catches of just one species to be displayed he/she will need to select that species on Filter Criteria 8.

[2] Does not apply to this assignment; refer to footnote 1.

Example of selection, export and display using data on *NCTable*:

Only top of the NCTable shown and those fields used to filter data in the English IOTC Web Page (excel File contains the table highlighting the selection as per the below criteria)

FlSort	FlCde	Fleet	ArCde	AreaIOTC	Year/ An	TFCde	TypeFishery	GrSort	GrCde	Gear	GrGroup	SpSort	SpCde	Species	SpLat	SpGroup	Catch/ Capture(t)
1	AUS	AUSTRALIA	F57	Eastern Indian Ocean	1950	ART	Artisanal Fishing	9	UNCL	Unclassified	Other	16	KGX	Seerfishes nei	Scomberomorus spp.	SEERFISH	100
1	AUS	AUSTRALIA	F57	Eastern Indian Ocean	1951	ART	Artisanal Fishing	9	UNCL	Unclassified	Other	16	KGX	Seerfishes nei	Scomberomorus spp.	SEERFISH	100
1	AUS	AUSTRALIA	F57	Eastern Indian Ocean	1952	ART	Artisanal Fishing	9	UNCL	Unclassified	Other	5	SBF	Southern bluefin tuna	Thunnus maccoyii	TUNAS	100
1	AUS	AUSTRALIA	F57	Eastern Indian Ocean	1952	ART	Artisanal Fishing	9	UNCL	Unclassified	Other	16	KGX	Seerfishes nei	Scomberomorus spp.	SEERFISH	100
1	AUS	AUSTRALIA	F57	Eastern Indian Ocean	1953	ART	Artisanal Fishing	9	UNCL	Unclassified	Other	5	SBF	Southern bluefin tuna	Thunnus maccoyii	TUNAS	300
1	AUS	AUSTRALIA	F57	Eastern Indian Ocean	1953	ART	Artisanal Fishing	9	UNCL	Unclassified	Other	16	KGX	Seerfishes nei	Scomberomorus spp.	SEERFISH	200
:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Filter Criteria 1:
Group by Fleet on NCTable for display on drop down, as below:
Select All Fleets □ (default is Yes)
If changed to No activates the Fleet selection drop-down , as below:

Fleet	*Select*	*FlCde*
Australia	▪	AUS
Bahrein	□	BHR
:	:	:

Australia selected

Filter Criteria 2:
Group by Area on NCTable for display on drop down, as below:
Select All Areas □ (default is Yes)
If changed to No activates the Area selection drop-down , as below:

Area	*ArCde*
East….	F57

Only Areas for Australia displayed on drop down (i.e. only F57 will show)

Filter Criteria 3:
Groups by year for Year from and Year To:
Select All Years □ (default is Yes)
If changed to No activates the Year Boxes, as below:

Year From	*Year To*
1950	2010
1951	2011
:	:

2010 selected as year from; 2012 as year To

Filter Criteria 4:
Groups by Type of operation:
Select All TOp □ (default is Yes)
If changed to No activates Type oper. Select. drop-down

Operation TFCde	
Artisanal	ART
Industrial	IND

Industrial selected

Filter Criteria 6:
Group by Gear Type on NCTable for display on drop down, as below:
Select All Gears □ (default is Yes)
If changed to No activates the Gear Type selection drop-down , as below:

Gear	*Select*	*GrCde*
Lon..	▪	ELL

Longline (targeting swordfish) is the only choice considering the previous filters)

Filter Criteria 5:
Same behaviour as type of operation
Select All GGrp □ (default is Yes)
If changed to No activates the Gear group selection drop-down

Gear Grp	*Select*
Longline	▪
Purse seine	□

Longline selected (only 2 gears available)

Filter Criteria 8:
Group by Species on NCTable for display on drop down, as below:
Select All Species □ (default is Yes)
If changed to No activates the Species selection drop-down , as below:

Species	*Select*	*SpCde*	*SpLat*
Yellowf…	▪	YFT	*Thunnus albacares*
Bigeye..	▪	BET	*Thunnus obesus*
Skipjack..	□	SKJ	*Katsuwonus pelamis*
Albacore	▪	ALB	*Thunnus alalunga*

Yellowfin tuna, bigeye tuna, and skipjack tuna selected

Filter Criteria 7:
Groups by Species Group:
Select All SpsGrp □ (default is Yes)
If changed to No activates Species Group Select. drop-down, as below:

Sps Grp	*Select*
BILLFISH	□
SEERFISH	□
SHARKS	□
TUNAS	▪

Tunas selected

Output Table considering the above selection (refer to Excel File for more details):

FlCde	Fleet	ArCde	AreaIOTC	Year/ An	TFCde	TypeFishery	GrCde	Gear	GrGroup	GrMult	SpCde	Species	SpLat	SpGroup	SpWP/ SpGT	SpIOTC	SpMult	Catch/ Capture(t)
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2010	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	YFT	Yellowfin tuna	Thunnus albacares	TUNAS	TROP	Y	F	21.9
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2010	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	BET	Bigeye tuna	Thunnus obesus	TUNAS	TROP	Y	F	65.3
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2010	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	ALB	Albacore	Thunnus alalunga	TUNAS	TEMP	Y	F	18.7
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2011	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	YFT	Yellowfin tuna	Thunnus albacares	TUNAS	TROP	Y	F	14.1
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2011	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	BET	Bigeye tuna	Thunnus obesus	TUNAS	TROP	Y	F	50.0
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2011	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	ALB	Albacore	Thunnus alalunga	TUNAS	TEMP	Y	F	5.8
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2012	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	YFT	Yellowfin tuna	Thunnus albacares	TUNAS	TROP	Y	F	23.0
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2012	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	BET	Bigeye tuna	Thunnus obesus	TUNAS	TROP	Y	F	167.4
AUS	AUSTRALIA	F57	Eastern Indian Ocean	2012	IND	Industrial Fishing	ELL	Longline (targeting swordfish)	Longline	F	ALB	Albacore	Thunnus alalunga	TUNAS	TEMP	Y	F	14.0

Displaying records in a Table, charts (or maps):

At the top of the page (word or pdf file), a summary of the filtering criteria used will be displayed, as below:

- Name of the Person making the request, position, and Institution
- Date and Time of request: DD/MM/YYYY HH:MM:SS
- Fleet: Australia (AUS)
- IOTC Area: Eastern Indian Ocean (F57)
- Time-period: 2010-2012
- Type of Operation: Industrial Fishing (IND)
- Gear Group: Longline
- Gear Type: Longline (targeting swordfish) (ELL)
- Species Group: TUNAS
- Species: Yellowfin tuna (YFT); Bigeye tuna (BET); Albacore (ALB)
- Total Catch (sum of all catches from output table): 380.1 t

The above information will be stored in a separate table in the MySQL database (NCTableReqLog; not included) so as we can keep track of data users, number of requests, and type of data querying.

Table Display:

- Data items to be displayed in rows: Option Group (or drop-down) from which a maximum of 2 data items can be selected:

  Fleet □, **Year ▪,** IOTC Area □, Type of operation □, Gear type □, **Species ▪**

- Data items to be displayed in columns: Option group (or drop-down) from which only 1 data item can be selected:

  IOTC Area □, Type of Operation □, Gear Group □, Species Group □, Working Party Group ▪, IOTC species □

Example of output table, as per the above criteria:

Year	Species	Total(t)	TEMP	TROP
2010	Yellowfin tuna	21.9		21.9
2010	Bigeye tuna	65.3		65.3
2010	Albacore	18.7	18.7	
2011	Yellowfin tuna	14.1		14.1
2011	Bigeye tuna	50.0		50.0
2011	Albacore	5.8	5.8	
2012	Yellowfin tuna	23.0		23.0
2012	Bigeye tuna	167.4		167.4
2012	Albacore	14.0	14.0	
	Total (t)	380.1	38.5	341.6

Pie Chart Display:

- One pie chart to be built per data items (multiple pie charts): Option Group (or drop-down) from which only 1 data item can be selected; if left blank only one pie chart will be generated, as per the selection in the below bullet:

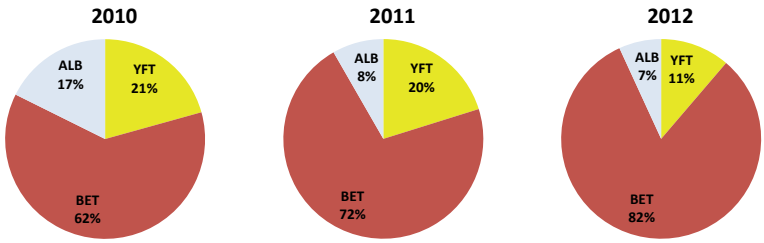
  Fleet □, **Year ▪**, IOTC Area □, Type of operation □, Gear type □, Species □

- Catch in pie charts to be broken according to the following data items: Option Group (or drop-down) from which only 1 data item can be selected:

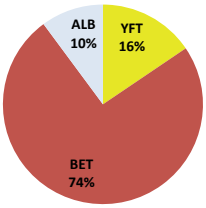
  IOTC Area □, Type of Operation □, Gear Group □, Gear type □ (to a maximum of 5 gear types and the rest aggregated or not shown), Species Group □, Working Party Group □, **Species ▪** (to a maximum of 5 species and the rest aggregated or not shown), IOTC species □

  On selection species or gear type a drop-down will open showing the available species from which a maximum of 5 can be chosen; all catches under other gears/species are aggregated as other gears/other species for the pie (maximum of 6 categories in each pie then). In the current example the user selects all species as there are just 3.

Example of output Pies, as per the above criteria: **Year-Species**



And for a selection as follows: **Blank** (nothing selected)-**Species**



Bar chart Display: Two Charts shown, one showing total catches and the other percentage (%)

- The Y Axis of the chart will be broken as per the data item selected by the user (only one choice allowed), among the following:

  Fleet □, Year ▪, IOTC Area □, Type of operation □, Gear type □, Species □

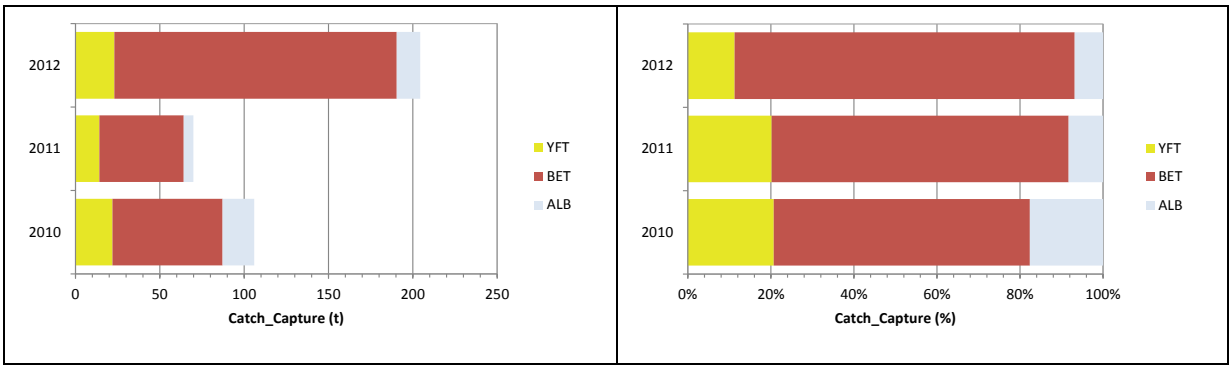
  A maximum of 19 fleets, gear types, or species can be selected for display; if there is more the user will need to choose up to 19; the rest of the catches will be displayed as Other nei.

  For years, a maximum of 20 will be allowed and the rest of the catches will not be displayed. In the example there are only 3 years and therefore all will be displayed.
- Catches displayed on X Axis, to be broken according to the following selection: Option Group (or drop-down) from which only 1 data item can be selected for display:

  IOTC Area □, Type of Operation □, Gear Group □, Gear type □ (to a maximum of 5 gear types and the rest aggregated or not shown), Species Group □, Working Party Group □, **Species ▪** (to a maximum of 5 species and the rest aggregated or not shown), IOTC species □

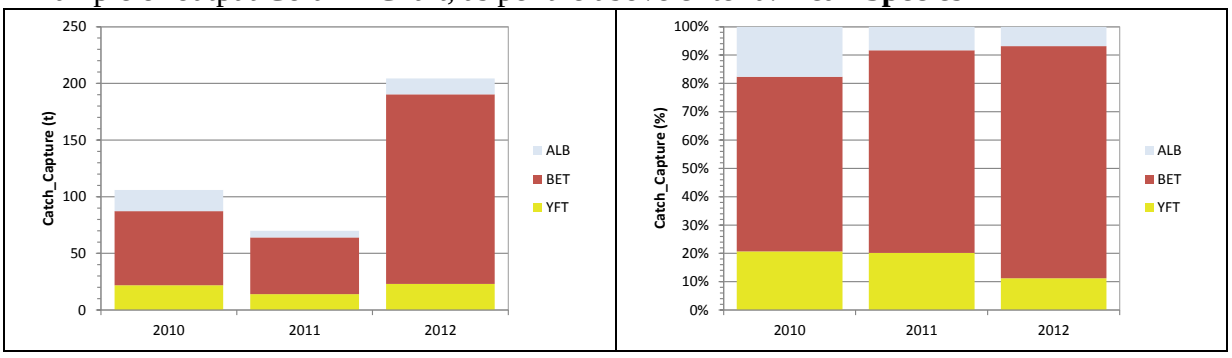
  On selection species or gear type a drop-down will open showing the available species from which a maximum of 5 can be chosen; all catches under other gears/species are aggregated as other gears/other species for the bar chart (maximum of 6 categories in each bar then). In the current example the user selects all species as there are just 3.

Example of output Bar Chart, as per the above criteria: **Year-Species**



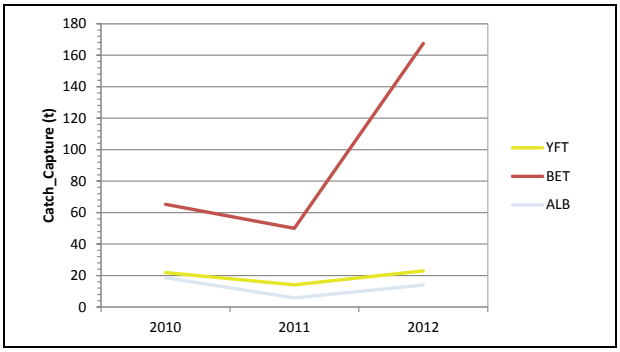
Column chart Display: Same as above but with Axis inverted, as in the below example

Example of output Column Chart, as per the above criteria: **Year-Species**



Line chart Display: Same as column chart but X axis shows always Years, as in the below example (just one chart displayed (catch in tons))

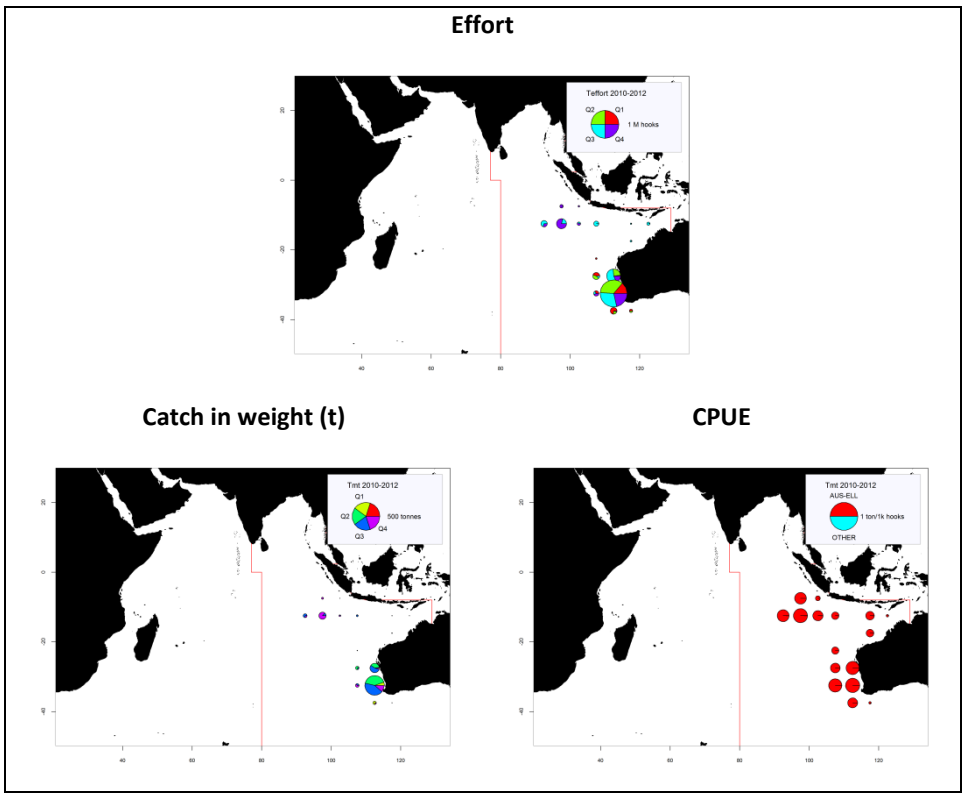
Example of output Line Chart, as per the above criteria: **Year-Species**



Map Display[3]: Mapping will only be available for some industrial purse seine and longline fleets. In both cases data will be available per 5 degree square grid and Quarter. If data are available for the selection criteria, the user will need to define the type of data to be displayed on the map, among:

- **Effort**: Effort units will be fishing days for purse seine and number of hooks for longline. Effort on each Pie will be broken by quarter. An example for the current selection is presented below (refer to the Excel file ***ExCETableOutput.xlsx*** for additional details; note that CE data will be exported as ***CETableOutput.csv,*** not Excel)
- **Catch in weight**: Catches on each Pie will be broken by quarter.
- **CPUE**: Will display the sum of catches in weight (kg) divided by the sum of effort for each 5 degree square grid and selection.

Or just indicate that he/she wants all Maps in output, as below:



[3] Does not apply to this assignment; refer to footnote 1.