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OVERVIEW OF CECAF CATCH STATISTICS AND REPORTS ON STATISTICAL PROJECTS WITH COREP AND FCWC

SUMMARY

At present, the CECAF capture database includes data by statistical divisions for 47 years, from 1970 to 2016. Total catches in 2016 reached 4.8 million tonnes, an increase by almost 10 percent in comparison to the previous year. Share of total catch by Distant Waters Fishing Nations has been decreasing from 53 percent in 1980 to 17 percent in recent years, making available more fish for local populations. The big increase of 2016 catches was mostly due to small pelagics, which on average constitute between 50 and 70 percent of total catches. Over half of catches in the CECAF area comes from the two statistical divisions in the northern part. The CECAF capture database includes catch statistics for 325 species items, with 64.1 percent of the 2013-2016 total catches reported at the species level.

The increase of catches registered in recent years was also partially a consequence of two FAO's Technical Cooperation Programme projects that, in collaboration with COREP and FCWC, aimed at strengthening national fishery data collection systems. In some of the participating countries, better coverage of small-scale fisheries and/or identification of large fishery segments previously not covered led to an increase of registered and reported catches. The second part of this document includes highlights of these projects.

THE CATCH TRENDS

1. The FAO Fisheries and Aquaculture Statistics and Information Branch (FIAS) manages the CECAF capture database on behalf of the Committee. The database is updated annually and presently includes data for 47 years, from 1970 to 2016. Data are disseminated through the software FishStatJ[1] and are also available on line at the FAO web site[2]. Catch statistics should be reported to FAO by all countries fishing in the CECAF area (corresponding to the FAO Fishing Area "34–Eastern Central Atlantic"), whether they are bordering the region or if they are Distant Water Fishing Nations (DWFNs).

2. In 2010, total capture production in the CECAF had reached 4.5 million tonnes. After two years of decreasing catches in 2011 and 2012, capture production resumed growing in 2013 and 2014, dropped by 2 percent in 2015 and then increased again by almost 10 percent in 2016. On the forty-seven year period between 1970 and 2016, a general upward trend is clearly visible (Figure 1).

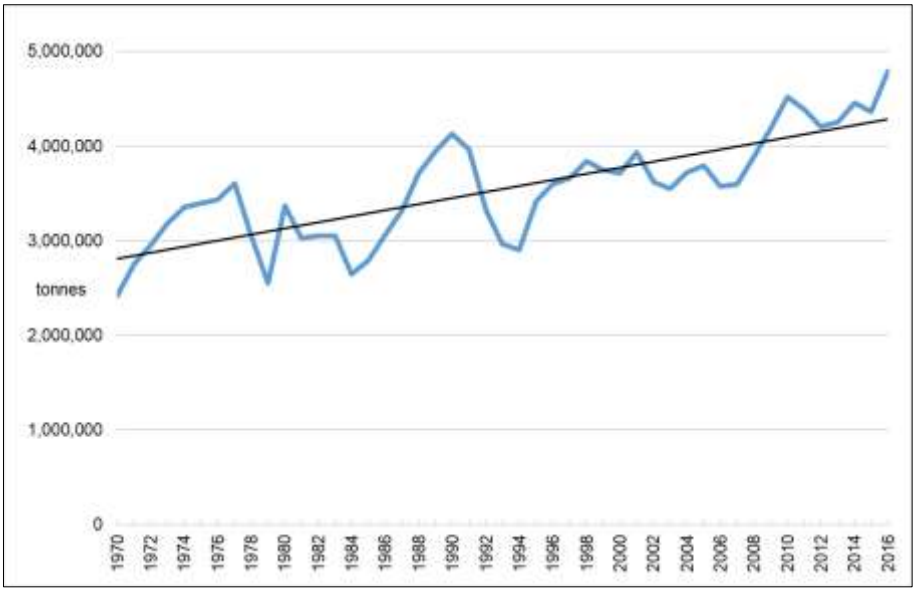


Figure 1. Total capture production in the CECAF area between 1970 and 2016

Capture production by country

3. Table 1 lists total catch by country, separated by those bordering[3] the CECAF area and the DWFNs, in the last four years (2013-2016) for which data are available. The great increase of 2016 catches was almost equally shared by bordering countries (+9.6 percent) and DWFNs (+11.7 percent).

4. Morocco consolidated its top position in the region fishing over 1.4 million tonnes in 2016. Since several years, its catches have constituted over one third of the total by all bordering countries.

[1] http://www.fao.org/fishery/statistics/software/fishstatj/en
[2] http://www.fao.org/fishery/topic/16140/en
[3] Portugal and Spain, which have a fraction of their territory in the CECAF area, have been considered as bordering countries as well.

5. Mauritania ranked as second fishing countries in the region for the first time, as in 2016 its catches overcame those of Senegal. The boost of Mauritanian catches (+206,000 tonnes) was also due to a decrease of catches by DWFNs in the Mauritanian Exclusive Economic Zone (EEZ) (see Figure 2 for both trends since 2000, as recorded by the *Institut Mauritanien de Recherches Océanographiques et des Pêches* (IMROP)) and probably by an increased number of vessels flagged by Mauritania.

Table 1. Total capture production by country in the CECAF area in the last four years available ("F" is FAO estimate)

Country	2013 (t)	2014 (t)	2015 (t)	2016 (t)	Average 2013-2016 (t)
Bordering countries					
Benin	16,256	14,581	15,707	20,791	16,834
Cabo Verde	35,984	35,677	37,742	19,900	32,326
Cameroon	160,000 F	175,000 F	190,000 F	205,190	182,548
Congo, Dem. Rep. of the	3,818	4,004	3,026	8,072	4,730
Congo, Republic of	37,127	35,348	31,922	46,760	37,789
Côte d'Ivoire	68,232	67,024	56,000 F	59,700 F	62,739
Equatorial Guinea	7,500 F	6,600 F	6,923 F	7,000 F	7,006
Gabon	25,300 F	25,103	22,000 F	20,000 F	23,101
Gambia	39,155	47,546	52,718	55,686	48,776
Ghana	210,717	197,801	256,175	237,457	225,538
Guinea	133,961	105,000 F	100,000 F	100,000 F	109,740
Guinea-Bissau	6,557 F	6,550 F	6,550 F	6,550 F	6,552
Liberia	12,500 F	12,500 F	12,500 F	12,500 F	12,500
Mauritania	372,833	363,339	388,776	594,754	429,926
Morocco	1,203,426	1,318,386	1,323,032	1,407,807	1,313,163
Nigeria	381,856	405,362	372,457	357,099	379,194
Portugal	6,027	15,682	7,818	10,793	10,080
Sao Tome and Principe	8,700 F	10,000 F	11,448	11,750	10,475
Senegal	436,313	428,668	395,434	442,910	425,831
Sierra Leone	202,000 F	204,358	200,000 F	200,000 F	201,590
Spain	145,668	131,439	129,754	134,339	135,300
Togo	15,015	14,849	16,497	25,848	18,052
Sub-total bordering countries	3,528,945	3,624,817	3,636,479	3,984,906	3,693,787
DWFNs					
Belize	27,386	70,909	93,727	83,897	68,980
China	23,478	9,285	11,481	5,715	12,490
Comoros	34,232	...	18	...	8,563
Curaçao	25,037	27,988	29,653	35,028	29,427
Denmark	-	-	-	3,164	791
El Salvador	-	-	10,981	27,387	9,592
France	41,969	43,477	44,031	42,455	42,983
Georgia	-	-	-	18,008	4,502
Germany	-	8,282	18,285	20,690	11,814
Greece	905	729	687	687	752
Guatemala	9,385	10,838	12,619	11,386	11,057
Italy	-	-	570	371	235
Japan	11,982	12,962	11,161	11,631	11,934
Korea, Republic of	36,502	25,967	19,688	7,794	22,488
Latvia	52,820	57,561	14,303	47,742	43,107
Lithuania	61,880	102,129	24,937	71,561	65,127
Netherlands	13,806	75,434	20,225	39,264	37,182
Other nei	14,427	275	35,783	417	12,726
Panama	23,248	22,579	13,264	19,200	19,573
Poland	54,138	23,270	4,497	30,490	28,099
Russian Federation	213,821	180,539	228,357	238,354	215,268
Saint Kitts and Nevis	15,900	65,401	99,506	64,756	61,391
Saint Vincent/Grenadines	37,784	79,224	24,106	20,427	40,385
Taiwan Province of China	5,063	6,038	7,816	7,298	6,554
Ukraine	22,562	5,883	...	2,543	7,747
United Kingdom	1	6	6	-	3
Vanuatu	108	2	-	-	28
Sub-total DWFNs	726,434	828,778	725,701	810,265	772,795
Total CECAF area	**4,255,379**	**4,453,595**	**4,362,180**	**4,795,171**	**4,466,581**

6. For some bordering countries, the increase of catches registered in the CECAF database in recent years was also partially a consequence of two FAO's Technical Cooperation Programme (TCP) projects (summarized in the second section of this document) that, in collaboration with COREP and FCWC, aimed at strengthening national fishery data collection systems. Better coverage of small-scale fisheries (e.g. in the Democratic Republic of Congo, Sao Tome and Principe, and Togo) and/or identification of large fishery segments previously not covered (e.g. in Cameroon and Liberia) led to an increase of registered and reported catches or provided the basis for re-estimating the national production, including backward revisions for some years.

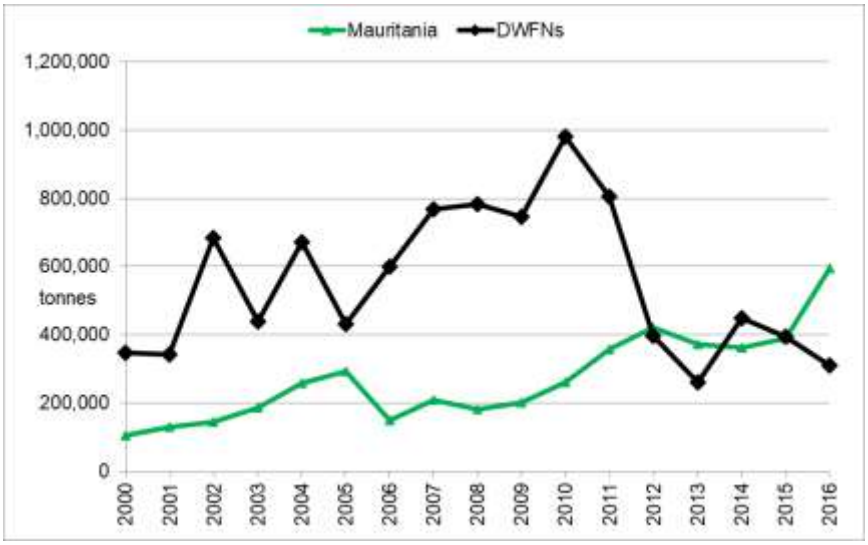


Figure 2. Catches by Mauritanian and DWFNs vessels in the Mauritanian EZZ

7. In comparison to the same table prepared three years ago for CECAF-SSC VII, Table 1 lists two new DWFNs (i.e. Denmark and El Salvador), whereas Ireland and the Philippines ceased to fish in area 34. The Russian Federation is the main DWFN in the CECAF area, with an average share of 28 percent on total DWFNs' catches.

8. The share of catches by DWFNs on total capture production has been significantly decreasing since 1980, when still amounted to over half of total catch in the CECAF area (Figure 3), as coastal countries have been progressively exploiting themselves the fishery resources in their EEZ rather than selling licenses through fisheries agreements with DWFNs. After a big drop in 2012, DWFNs' share remained stable around 17 percent of total catch.

Figure 3. Share by DWFNs on total capture production in the CECAF area

Capture production by species

9. Figures by the International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) species groups show that growth in 2016 was mostly due to increased catches of small pelagics in the ISSCAAP groups "35-Herrings, sardines, anchovies" and "37-Miscellaneous pelagic fishes" (Table 2). Major changes in catches of these groups (Figure 4, left) have always strongly affected the trend in the whole area, as on average they constituted between 50 and 70 percent of the total catches. Increases of small pelagic catches in 2016 were mostly reported by Morocco and Mauritania, with the main species (i.e. *Sardina pilchardus*, *Sardinella* spp, *Trachurus* spp and *Scomber colias*[4]) growing respectively by 10.1, 14.7, 32.5 and 21.2 percent.

Table 2. Total capture production by ISSCAAP species group in the last four years available

ISSCAAP code	ISSCAAP name	2013 (t)	2014 (t)	2015 (t)	2016 (t)	Average 2013-16 (t)
12	Tilapias and other cichlids	2,039	2,137	1,775	1,664	1,904
22	River eels	-	1	-	-	0
24	Shads	16,181	13,968	22,884	14,240	16,818
31	Flounders, halibuts, soles	48,160	49,789	53,239	49,977	50,291
32	Cods, hakes, haddocks	15,105	26,477	31,222	30,487	25,823
33	Miscellaneous coastal fishes	419,547	434,894	436,056	473,255	440,938
34	Miscellaneous demersal fishes	74,777	80,675	69,039	76,707	75,300
35	Herrings, sardines, anchovies	2,000,876	2,150,325	1,976,919	2,195,482	2,080,901
36	Tunas, bonitos, billfishes	398,572	389,771	417,654	421,444	406,860
37	Miscellaneous pelagic fishes	702,492	782,751	791,321	967,646	811,053
38	Sharks, rays, chimaeras	93,597	79,964	74,036	69,256	79,213
39	Marine fishes not identified	234,391	215,605	218,308	230,477	224,695
42	Crabs, sea-spiders	12,001	12,876	12,749	13,605	12,808
43	Lobsters, spiny-rock lobsters	5,780	6,425	6,546	6,338	6,272
45	Shrimps, prawns	72,813	73,238	70,340	71,150	71,885
47	Miscellaneous marine crustaceans	387	1,027	2,597	1,082	1,273
52	Abalones, winkles, conchs	15,935	17,059	16,442	17,387	16,706
53	Oysters	2,990	591	374	81	1,009
54	Mussels	-	-	-	10	3
56	Clams, cockles, arkshells	155	1	5	349	128
57	Squids, cuttlefishes, octopuses	138,579	115,019	157,488	153,009	141,024
58	Miscellaneous marine molluscs	1,002	1,002	3,186	1,525	1,679
72	Turtles	-	-	-	-	-
76	Sea-urchins and other echinoderms	-	-	-	-	-
77	Miscellaneous aquatic invertebrates	0	0	-	-	-
	Total CECAF area	**4,255,379**	**4,453,595**	**4,362,180**	**4,795,171**	**4,466,581**

10. After an overall decreasing trend that lasted from 1991 to 2007 reducing total capture production from 415,000 to 275,000 tonnes (Figure 4, right), catches of the tuna group have been almost constantly growing until they reached a new maximum for the area at 421,000 tonnes in 2016.

[4] Following a taxonomic split that has become widely adopted in the scientific literature, catches in Atlantic areas previously classified as "*Scomber japonicus*-Pacific chub mackerel" have been re-classified as "*Scomber colias*-Atlantic chub mackerel.

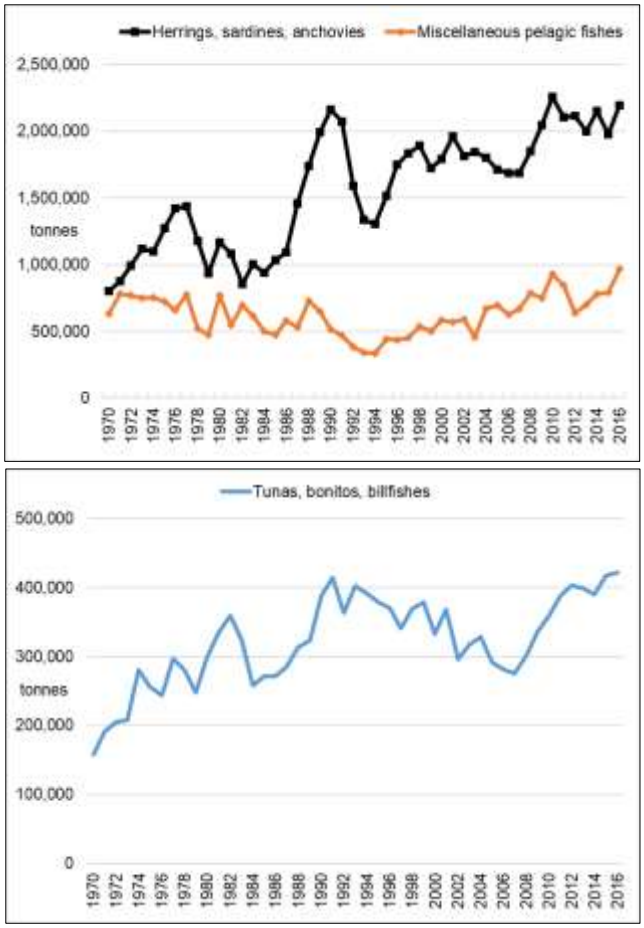


Figure 4. Catch trends of "Herrings, sardines, anchovies" and "Miscellaneous pelagic fishes" species groups (left) and of "Tunas, bonitos, billfishes" species group (right)

11. Shares of small pelagic and tuna catches by DWFNs are compared in Figure 5. Tuna catches (right) by DWFNs amounted to 78 percent of total tuna catches in the area in 1970 but decreased down to 30 percent in mid-1980s, recovered in the following years and have been quite stable between 34 and 45 percent since 2001. On the other hand, share of small pelagic catches by DWFNs was progressively decreasing from 68 percent in 1977 to 19 percent in 2016 as bordering countries increased their catches of small pelagics.

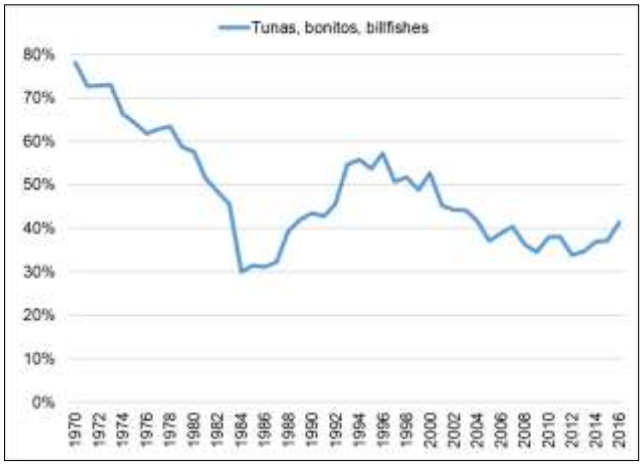
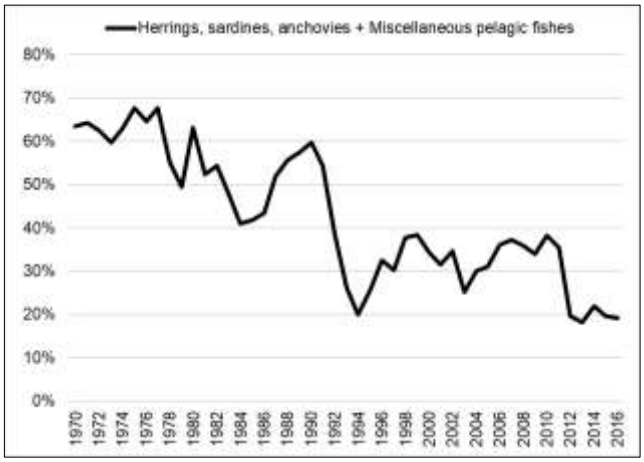


Figure 5. Share by DWFNs on total catches of small pelagics ("Herrings, sardines, anchovies" and "Miscellaneous pelagic fishes") (left) and of "Tunas, bonitos, billfishes" (right)

Capture production by statistical divisions

12. Differently from the FAO global capture production database, the CECAF database includes also data disaggregated by statistical divisions. Standards of data reporting for the CECAF area were established in the 1970s and, for statistical purposes, the CECAF area was split into four subareas, further sub-divided into twelve divisions (Figure 6 and Table 3). Tuna catches are not allocated according to CECAF statistical divisions and are grouped together into a division named "0.0-Tunas". Two other divisions, namely "1.9-Northern coastal, not known" and "9.0-Not known", contain catches for which the exact statistical division is not known.



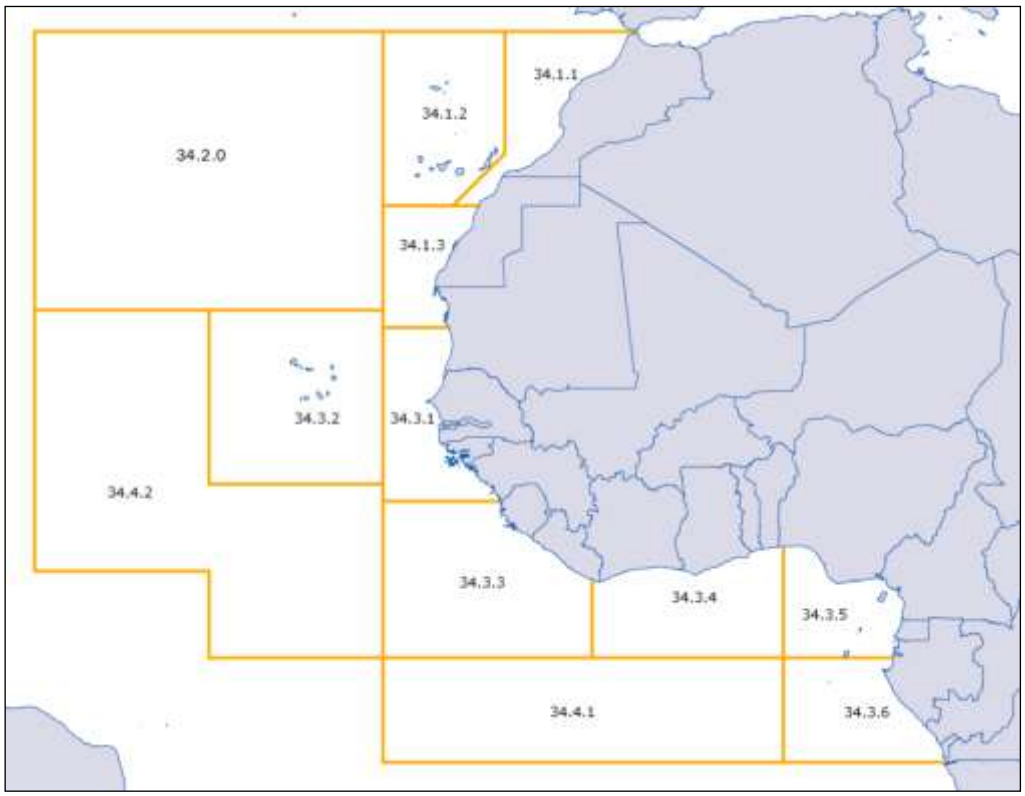


Figure 6. The CECAF area and its statistical divisions

Table 3. Total capture production by CECAF statistical division in the last four years available

Division code	Division name	2013 (t)	2014 (t)	2015 (t)	2016 (t)	Average share on total CECAF
34.1.1	Morocco coastal	1,219,035	1,322,944	1,356,589	1,403,241	29.7%
34.1.2	Canaries/Madeira insular	8,840	8,196	7,471	7,375	0.2%
34.1.3	Sahara coastal	684,284	695,015	627,639	889,935	16.2%
34.1.9	Northern coastal, not known	905	729	-	-	0.0%
34.2.0	Northern oceanic	14,710	6,632	6,976	6,794	0.2%
34.3.1	Cape Verde coastal	838,559	905,412	820,805	926,552	19.5%
34.3.2	Cape Verde insular	16,095	11,623	14,248	8,728	0.3%
34.3.3	Sherbro	219,899	218,870	210,599	211,805	4.8%
34.3.4	Western Gulf of Guinea	219,861	209,278	246,939	257,345	5.2%
34.3.5	Central Gulf of Guinea	553,059	591,726	574,989	574,200	12.8%
34.3.6	Southern Gulf of Guinea	70,083	65,861	57,430	75,240	1.5%
34.4.1	Southwest Gulf of Guinea	1,297	1,014	713	565	0.0%
34.4.2	Southwest oceanic	6,688	7,959	3,847	5,012	0.1%
34.9.0	Not known (CECAF area)	3,492	18,565	16,281	6,935	0.3%
34.0.0	Tunas (CECAF area)	398,572	389,771	417,654	421,444	9.1%
	Total CECAF area	**4,255,379**	**4,453,595**	**4,362,180**	**4,795,171**	

13. Boundaries of CECAF divisions were mainly set according to geographical coordinates rather than matching national borders between coastal countries. The most relevant case is that of Mauritania where the boundary between the divisions 1.3 and 3.1 is approximately in the middle of the Mauritanian coastline, with the consequence that catch collection and reporting according to the present statistical divisions is cumbersome for both Mauritania and the DWFNs fishing in its EEZ.

14. Excluding tunas, over half of catches in the CECAF area comes from the two divisions in the northern part, i.e. “1.1-Morocco coastal” and “1.3-Sahara coastal” (Table 3). Division

1.1 is fished almost exclusively by Morocco and in 2016 a new maximum ever was registered in that area at 1.4 million tonnes. Total catches in division "1.3-Sahara coastal" markedly increased as well in 2016 to about 0.9 million tonnes, which is however considerably lower than previous peaks at 1.6 million tonnes in 1976 and 1989-1990 and at about one million tonnes in 1998 and 2011 (Figure 7).

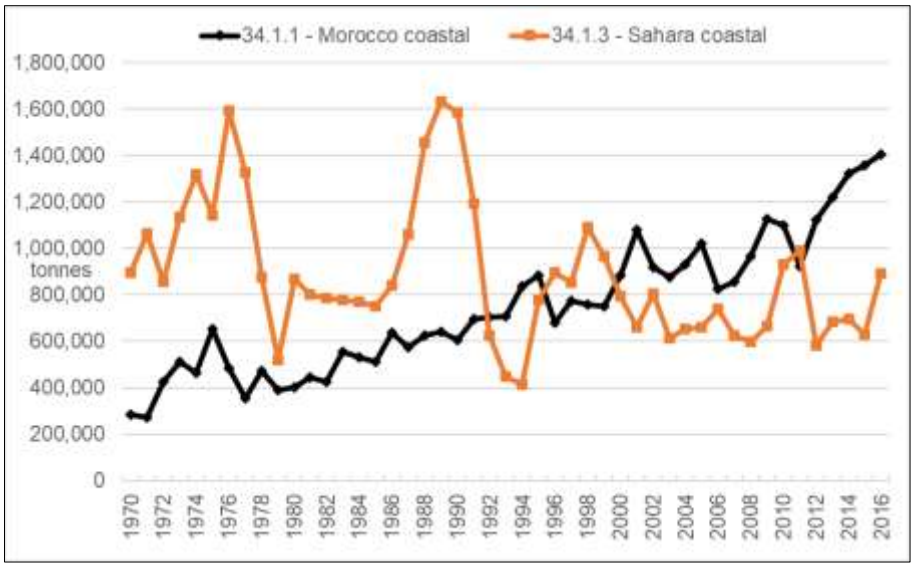


Figure 7. Catch trends in statistical divisions "1.1-Morocco coastal" and "1.3-Sahara coastal"

15. Statistical division "3.1-Cape Verde coastal" sustained high catches between 2007 and 2012 with an annual average of 1.04 million tonnes but in the last four years the average decreased to 0.87 million tonnes.

16. Moving southwards towards the Gulf of Guinea, the most productive divisions are "3.5-Central Gulf of Guinea", "3.4-Western Gulf of Guinea", and "3.3-Sherbro", which all together constituted almost one fourth of total catches in CECAF area excluding tunas. In these divisions, activities of DWFNs are much lower than in the northern part.

Data reporting by countries

17. The cycle for updating the FAO fishery statistics databases used to follow these steps every year:

- June-July: dispatch of the electronic questionnaires to national correspondents;
- 31st August: deadline to return data to FAO;
- Reminders and contacts with countries which have not submitted their data (in collaboration with FAO Representatives and Regional Offices);
- March: updated global capture and aquaculture databases are made available on the web through FishStatJ and the online query panel;
- May-June: regional capture databases (e.g. CECAF) released on the web.

18. Besides the National Summary (NS1) questionnaire, for the CECAF area FAO-FIAS requests national correspondents to fill in also the STATLANT 34A questionnaire to assign the capture production by CECAF statistical divisions.

19. Trend of capture production is the minimum information required when fishery management measures are considered at a national or regional level. However, there is still a good number of bordering countries and DWFNs that do not regularly submit their catch statistics. For countries that fail to report data, notwithstanding several reminders, FAO estimates the missing data and marks them in the database with an "F" (see Table 1).

20. Sometimes information provided by countries is incomplete, scattered or with scarce species breakdown and, in some cases, data for the last year are completed and reported after a longer time lag. FAO does a major effort to keep up with institutional arrangements at the national level but there are cases in which, although the statistics are available, they are not transmitted to FAO due to officers' turnover or changes in responsibilities between offices.

21. Several DWFNs regularly report catches from the CECAF area. In addition, FAO cross checks and complements data received with those made available by other sources, i.e. the tuna and shark catch data available from the ICCAT database, and national statistical bulletins and databases that report foreign fleets' catches by EEZ. In recent years, catch data for DWFNs that fished in statistical divisions 1.3 and 3.1 and that did not report their catches to FAO have been derived from issues of the "*Estatistícas de Pesca Industrial*" yearbook published by the Centro de Investigação Pesqueira Aplicada (CIPA), Guinea-Bissau, and from the database on catches by foreign fleets in the Mauritanian EEZ managed by the IMROP.

22. At present, the CECAF capture database includes catch statistics for 325 species items, an increase of 9 percent in comparison to the previous version of this report that was prepared for the 7th Scientific Sub-Committee. For the CECAF area as a whole, 64.1 percent of the 2013-2016 total catches were at the species level, an improvement in comparison to the previous four years when it was 62.5 percent. At the same time, the share of those lumped together under "Marine fishes nei[5]" continued to reduce and in 2013-2016 represented only 5 percent of the total catches.

[5] nei = not elsewhere included.

REPORTS ON STATISTICAL PROJECTS WITH COREP AND FCWC

TCP/SFC/3501 – Strengthening fisheries data collection in Central Africa

Contribution: 456,000 USD

Duration: May 2014 –November 2016

Donor: FAO

Partners: The Regional Fishery Commission of Gulf of Guinea (COREP) and the statistical services of maritime fisheries in the COREP area (Congo, Cameroon, Gabon, Democratic Republic of Congo, Sao Tomé e Principe)

Beneficiaries: Head and enumerators of the statistical services of maritime fisheries in COREP's Member States, Ministerial Department in charge of fisheries, COREP.

What did the project do

The Project has trained at national and sub-regional level almost one hundred staffs from the statistical services in the field of data collection methodology. A training course on data collection was developed and introduced in the in-training curricula of the Sub Regional Institute of Statistics and Applied Economics (ISSEA). National data collection systems are currently operational in Congo, Cameroon, Gabon, Democratic Republic of Congo, and in São Tomé e Principe. An innovative application of data collection using and open source software has been developed and tested in a pilot phase in five Member countries of COREP. A sub regional database was developed as well as a protocol of exchange of information between the COREP and its Member countries.

Impact

Estimates of small-scale fisheries production at the end of the project have increased, due to the training of staffs of the statistical services and due to the improvement of data collection operations and of data processing.

A better knowledge of fisheries resources harvesting and livelihoods of fishing communities makes possible to better identify food security factors in order to alleviate poverty in Central Africa.

Finally, improvement of catches data and fishing effort in support of public policies, will have a the medium/long term effect to improve the sustainability of fisheries resources harvesting and management of costal and marine environment.

Activities

- Development and implementation of national data collection systems
- Development and test in five countries of an innovative data collection system based on a mobile phone application
- Development of a sub-regional data base as well as of a protocol of exchange of information between the COREP and its Member States
- Training of 91 agents from the statistical services on data collection methodologies based on sampling: 66 at national level (including using the pilot mobile application) and 25 staffs at sub-regional level
- Training of five heads of statistical services in the operation and basic maintenance of fisheries information systems
- Drafting, editing and integration into the curriculum of the Sub-Regional Institute of Statistics and Applied Economics (ISSEA) of a training course on the fisheries data collection in French version
- Conducting a study on the contribution of small-scale fisheries to gross domestic product (GDP) in the COREP Member State countries

TCP/RAF/3512 - Strengthening fisheries data collection in West Africa

Contribution:	393,000 USD
Duration:	December 2015 – December 2017
Donor:	FAO
Partners:	The Fishery Committee for the West Central Gulf of Guinea (FCWC) and its Member Countries (Benin, Côte d'Ivoire, Ghana, Liberia, Nigeria, Togo)
Beneficiaries:	FCWC Secretariat and staff from national statistical fishery monitoring services in the six FCWC member countries and, indirectly, fishing communities and the fish value chain operators

What did the project do

Data collection systems for small-scale fisheries have been implemented in all countries, and staff from statistical offices have been trained on their use. Data collection through mobile devices (smartphones or tablets) has been introduced into four countries, reducing the loss of data and increasing transmission and reception speeds. National databases were operational by the end of the project and were regionally aligned by the FCWC. Collaboration with the Fisheries and Resources Monitoring System (FIRMS) was strengthened. Finally, surveys were carried out to establish the contribution of small-scale fisheries to the Gross Domestic Product (GDP) of participating countries.

Impact

All FCWC member countries have significantly improved their operations on fisheries data collection. The ongoing data collection and input of this data into databases provided specific and reliable information used to make decisions on planning, development and management of fisheries and national policies to improve food security and reduce poverty.

Activities

- Creating a functional data collection system in six FCWC countries, with mobile application use in four countries.
- Training of 54 national officials on statistical sampling and 32 field workers on mobile application use for data collection.
- Implementing a national fisheries database (based mainly on the use of the Open ArtFish software) in all countries except Nigeria.

- Implementing a FCWC regional fisheries information system, and determining the key indicators used.
- Supplying computer and telephone equipment for the implementation of data collection systems.
- Working to update FIRMS inventories.
- Conducting surveys in the six countries to establish the contribution of small-scale fisheries to national GDP.