

WESTERN CENTRAL ATLANTIC FISHERY COMMISSION (WECAFC)

FIFTEENTH SESSION

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Review of the State of Fisheries in the WECAFC region

INTRODUCTION

1. The WECAFC area includes FAO Statistical Area 31 and a portion of Area 41 occurring offshore of northern Brazil. This document deals only with Area 31 (Figure 1 and Table 1) and provides a brief update of the information presented at the last Commission meeting (Panamá, 06-09 February 2012, document WECAFC/XIV/2012/2¹).

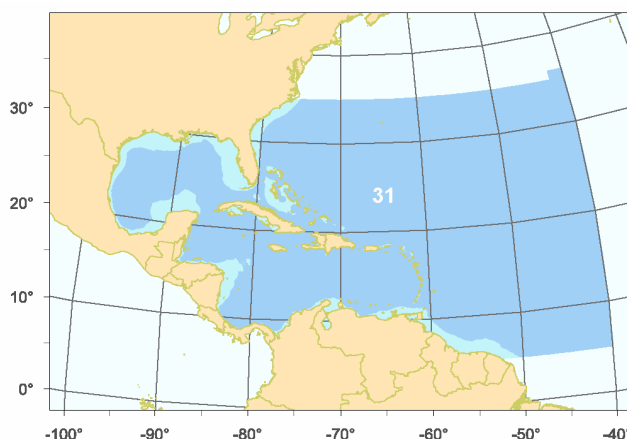


Figure 1 – The Western Central Atlantic (area 31)

2. The WECAFC area includes the Caribbean Sea, known to be the highest level of species diversity in the tropical Atlantic and considered a global hot spot of marine biodiversity. Species of interest to fisheries include molluscs, crustaceans (lobster, penaeid shrimps, crabs), coastal fishes occupying various substrata (soft bottom or reefs), large migratory fish species and deep slope fish species.

¹ <ftp://ftp.fao.org/FI/DOCUMENT/wecafc/14thsess/default.htm>

Table 1. Locality and area of the major coastal shelf zones in the WECAF area (Stevenson, 1981).

LOCATION	AREA ('000 km ²)	FAO Area
Continental Shelf		
U.S. east coast	110	31
Gulf of Mexico	600	31
Yucatan – Eastern Venezuela	250	31
Guyana, Surinam, French Guiana	200	31
Northern Brazil	360	41
TOTAL Continental shelf	1520	
Islands		
Islands and offshore banks	380	31
GRAND TOTAL	1900	

PROFILE OF CATCHES

- The total landings in Area 31 increased steadily from about 0.5 million tonnes in 1950 to a peak of near 2.5 million tonnes in 1984, followed by a rapid decline between 1984 and 1992, and stabilized at around 1.5 million tonnes until 2003 (Fig. 2). They further declined over the last few years to 1.3 million tonnes in 2009. This decrease is mainly due to the diminished catches of ISSCAAP Groups 33 (misc. coastal fishes that include groupers, snappers, mugilidae) and 35 (small pelagic fish, herrings, sardines and anchovies). However, in the last years, the Group 35 landings show an increase, which is the only significant change in the landing trends.

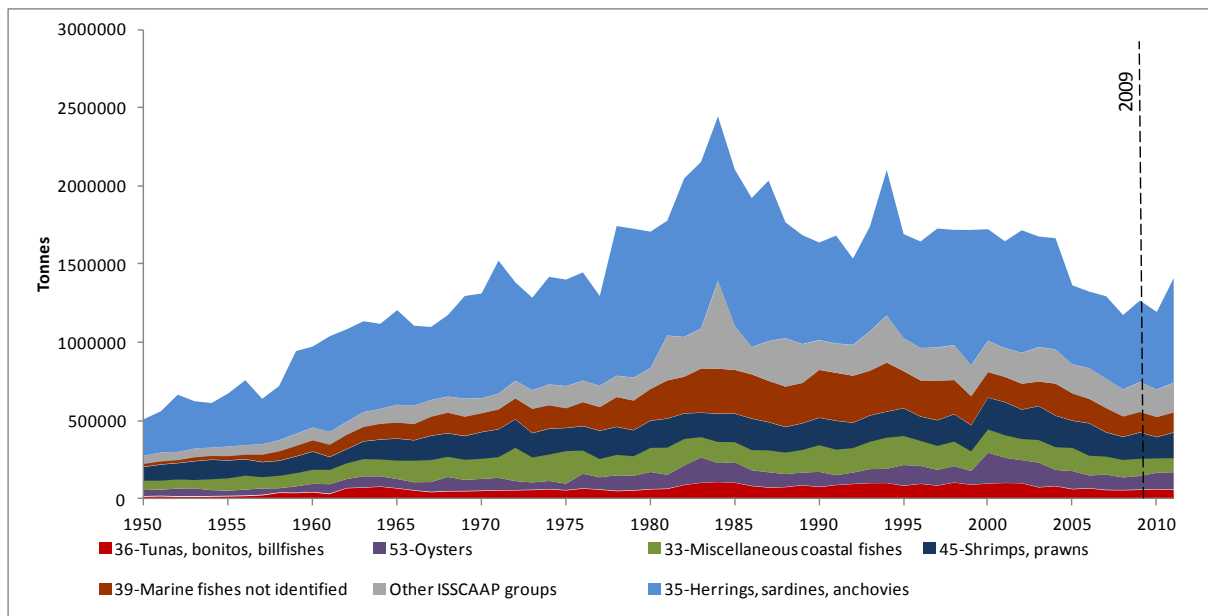


Figure 2 – Annual nominal catches ('000t) by ISSCAAP species groups in the Western Central Atlantic (Area 31)

- The increase in the ISSCAAP Group 35 - herrings, sardines, anchovies – landings is due to the Gulf menhaden (*Brevoortia patronus*) caught mainly by the United States of America (USA), with landings that reached 600,000 tonnes in 2011 (Figure 3a).
- Compared to 2009, the other groups do not show any major change in landings. The decreasing trend is confirmed for Round sardinella (Figure 3b), as well as for the soft-bottom species, most grouper and snapper species, King mackerel, Serra Spanish mackerel and Requiem sharks (Fig. 3c, 3d, 3f and 3g). Increasing trends were recorded for Gulf menhaden (Fig. 3a), skipjack tuna

(Fig. 3e), unidentified sharks, rays and chimaeras (Fig. 3g) and common octopus (Fig. 3i). the trend is difficult to analyse for shrimps over the last 2 years because of the wide fluctuations that characterize these species (Fig. 3h).

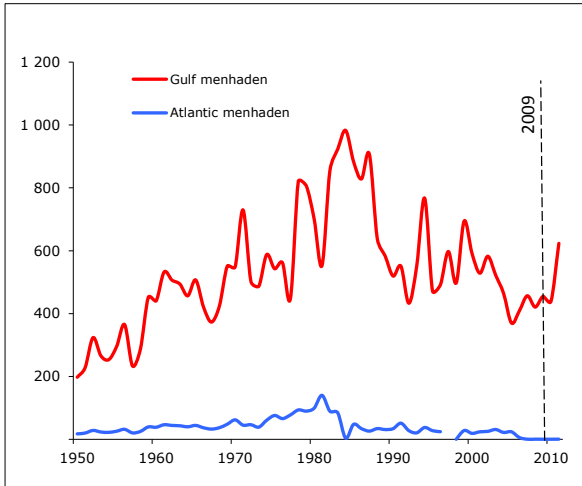


Figure 3a – Selected species in ISCAAP Group 35 (herrings, sardines, anchovies)

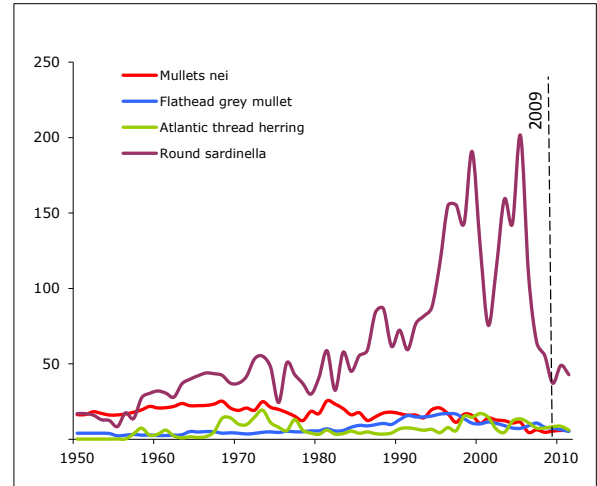


Figure 3b - Selected species in ISCAAP Groups 33, 35, 37

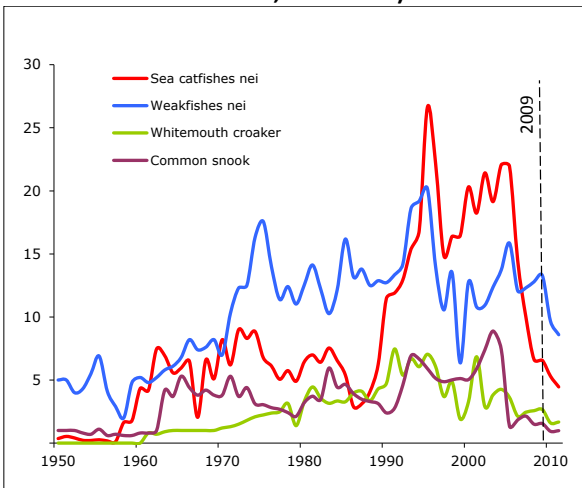


Figure 3c - Selected soft-bottom species

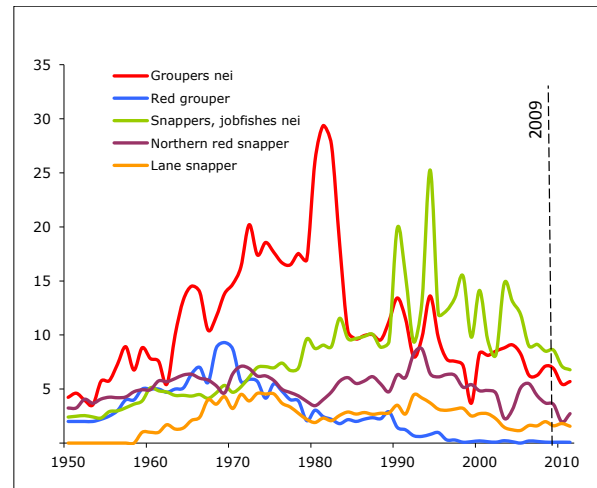


Figure 3d - Selected reef species

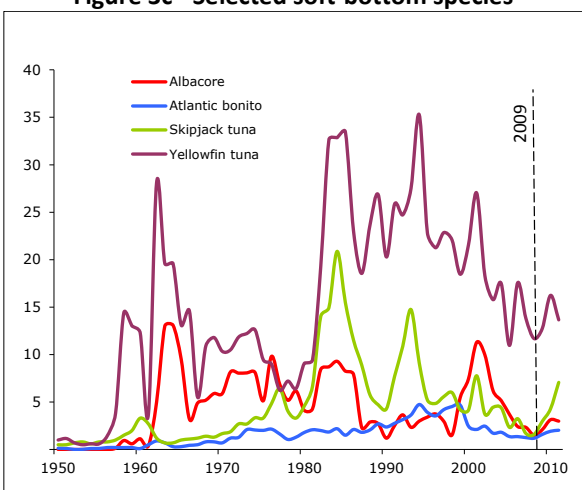


Figure 3e - Selected species in ISCAAP Group 36

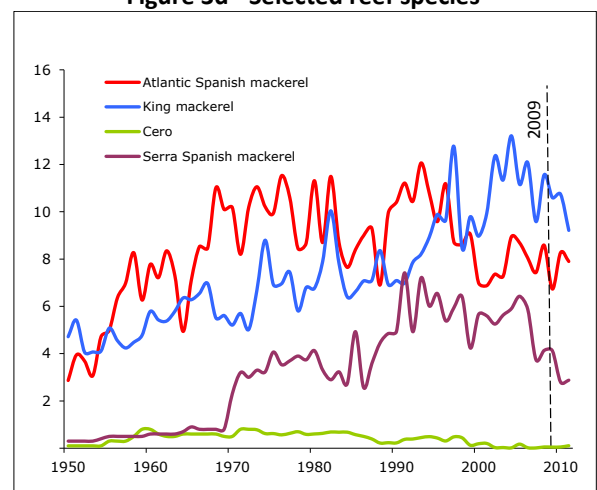


Figure 3f - Selected species in ISCAAP Group 36

Figure 3. Annual nominal catches ('000t) for the main species or ISSCAAP groups of species.

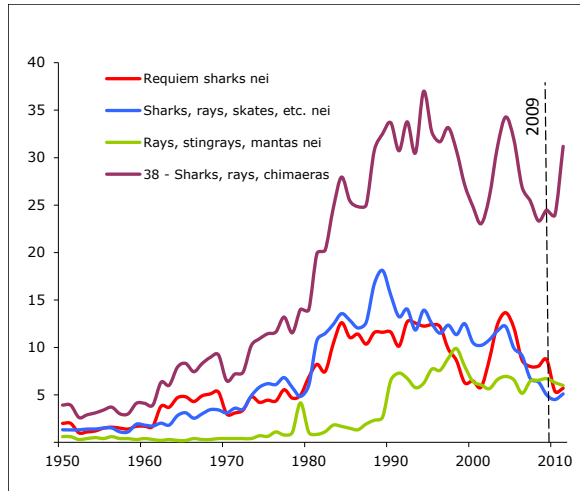


Figure 3g - Selected species in ISCAAP Group 38

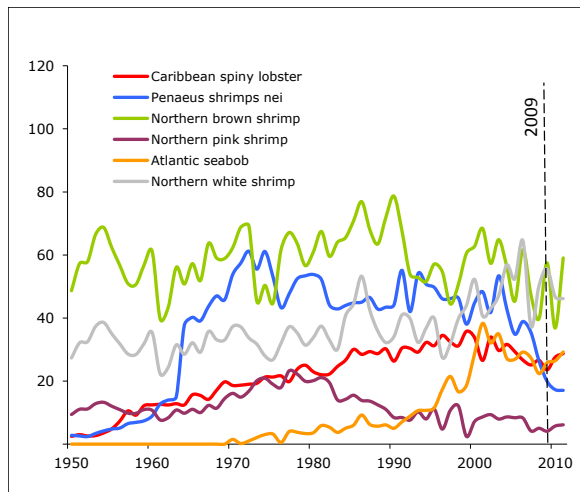


Figure 3h - Selected species in ISCAAP Groups 43, 45

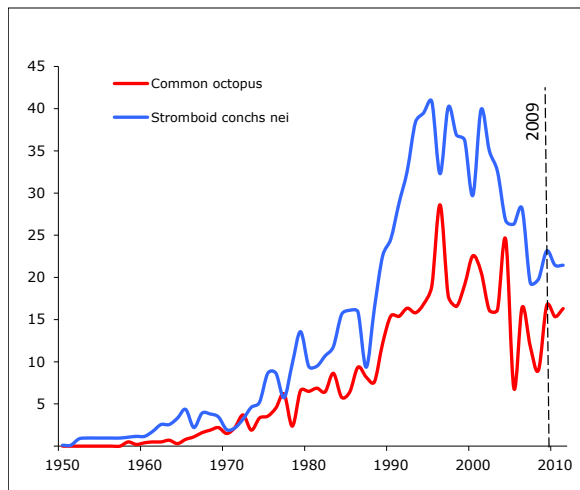


Figure 3i - Common octopus and Stromboid conchs

Figure 3 (continued). Annual nominal catches ('000t) for the main species or ISCAAP groups of species.

6. The four-winged flyingfish (*Hirundichthys affinis*) is known to support important local fisheries in the Eastern Caribbean as bait fish and for human consumption. In the last report the correction of statistics for Barbados, Tobago, Grenada, Saint-Lucia, Saint Vincent and Grenadines, Martinique and Dominica was mentioned. Since then it seems that the figures

submitted by the countries were adjusted (landings for 2009 were changed). Over the last 2 years, there was a drop of the landings by half, from 2 600t to 1 000t, mainly reported by Barbados. As for the common dolphinfish (*Coryphaena hippurus*), there was a slight increase in the landings over the last 2 years (from 3 600t to 4 300t). In both cases, the variation in landings seem to be linked to the sargassum outbreak that prevented fishing of flyingfish and increased the catchability of dolphin fish. The countries reporting the highest catches in the last period are Venezuela, Barbados, France (Guadeloupe), Saint-Lucia, USA and the Dominican Republic.

7. The ISSCAAP Group 33 –miscellaneous coastal fishes continues to contribute a significant fraction of the landings (Fig. 2). Overall, the catches of this group are lower than in the previous decade, despite a peak over 2003-2005; the current catches are around 95 000t.
8. The subdivision of the miscellaneous coastal fish (soft substrata and reef fishes) of the previous review was kept in this analysis of the landings. Over the last 2 years the landings of all species of this group decreased: from 12 000t to 8 600t for weakfish landings; from 6 600t to 4 400t for sea catfish mainly landed by Mexico and Venezuela; from 1 600t to less than 1 000t for common snook landed mainly by Venezuela; and the whitemouth croaker landings continued decreasing from 2 700t to 1 700t landed by Venezuela as well (Fig. 3c). Because of the recent changes in the reporting system of the main fishing countries, a more detailed analysis should be carried out to check whether these decreases are due to less fishing or to differences in reporting by countries.
9. The landings of unidentified groupers continued decreasing over the last 2 years, from 6 900t in 2009 to 6 000t in 2011. Red grouper (*Epinephelus morio*) landings reached a minimum since 1950, with 75t in 2011, declared by the Dominican Republic, whereas it seems that Mexico and the USA do fish on this species. Landings of unidentified snappers and jobfishes show a decreasing trend since the 1990s; the last value of the series is 6 800t (Venezuela, Mexico and the Dominican Republic are the main fishing countries). The northern red snapper (*Lutjanus campechanus*) and the lane snapper (*L. synagris*) landings were fairly stable over the last 2 years (Fig. 3d).
10. Landings of Nassau grouper (*Epinephelus striatus*) were declared only by The Bahamas and Cuba in 2011, for a total of 154t, probably as a result of the protection of the spawning aggregations. In 2009, 246t were declared; this confirms the decreasing trend of the catches.
11. The catches of the ISSCAAP Group 36 tunas, bonitos, and billfishes show great inter-year fluctuations. The most recent landing level increased between 2009 and 2011 for three of the four species considered (Fig. 3e). Yellowfin tuna (*Thunnus albacares*) remains the most landed species (mainly declared by Belize, Mexico and St Vincent and Grenadines). The albacore (*Thunnus alalunga*) catches increased from 2 000t to 3 000t (main fishing countries are Taiwan Province of China and St Vincent and Grenadines). Skipjack tuna (*Katsuwonus pelamis*) landings increased from 3 000t to 7 100t (fished mainly by Belize and Venezuela). The Atlantic bonito (*Sarda sarda*) landings increased from 1 600t to 2 000t (declared mainly by Mexico and Curaçao).
12. The coastal large pelagic catches are dominated by the same species as in the previous years: king mackerel (*Scomberomorus cavalla*) declared mainly by Mexico, the USA and Venezuela; Atlantic Spanish mackerel (*Scomberomorus maculatus*) in Mexico and the USA; Serra Spanish mackerel (*Scomberomorus brasiliensis*) in Venezuela and Trinidad and Tobago; and cero (*Scomberomorus regalis*) in the Dominican Republic. The catches of all four species are characterised by wide fluctuations. Over the last years, there seems to be an overall decreasing trend for the Atlantic Spanish mackerel, but with an increase over the last 2 years between 6 700t in 2009 and 7 900t in 2011. The landings of king mackerel and Serra Spanish mackerel decreased from 10 600t to 9 200t and from 4 100t to 2 900t respectively. The recorded cero

catches still show very low values, even if they doubled over the last 2 years, reaching 106t in 2011.

13. The Caribbean spiny lobster (*Panulirus argus*) catches have decreased in the 2000s, but increased over the last 2 years, 24 000t in 2009 to 28 700t in 2011(Fig.3h). Caribbean spiny lobster landings are declared by 25 countries, but Nicaragua, Honduras, Cuba, The Bahamas, the USA and the Dominican Republic altogether accounted for 90 per cent of the catches in the Region in 2011.
14. In the last years, landings of unidentified penaeid shrimps continued decreasing, whereas those of Atlantic seabob (*Xiphopenaeus kroyeri*) increased over the last two years. The northern brown shrimp (*Farfantepenaeus aztecus*) and the northern white shrimp (*Litopenaeus setiferus*) are the two most productive shrimp species; however the landings show wide fluctuations (Fig. 3h).
15. Landings of stromboid conchs (*Strombus* spp.) continued to decline, from 23 000t in 2009 to 21 000t in 2011 (Fig. 3i). The countries declaring the highest landings are Jamaica, Turks and Caicos, Belize, Dominican Republic, Honduras and Nicaragua, but conchs are declared by a number of other countries. Landings of common octopus (*Octopus vulgaris*), mainly caught in Mexico, were fairly stable over the last 2 years, varying only from 17 000t in 2009 to 16 000t in 2011. Landing of Mexican four-eyed octopus (*Octopus maya*) are reported since 2005, with landings that increase regularly. In 2011, over 9 000t were reported.
16. An interesting feature is the confirmed increasing trend of unidentified sea cucumbers (*Holothurioidea*) in the landings, mainly reported by Nicaragua, 5t in 2006, 720t in 2009 and over 2 000t in 2011.

RESOURCES STATUS AND FISHERY MANAGEMENT

17. Over the last 2 years, there were no major changes in the institutional arrangements promoting and facilitating the responsible utilization of the fisheries and other aquatic resources in the Region; the main institutions are still the Western Central Atlantic Fisheries Commission (WECAFC) of the FAO, the International Commission for the Conservation of Atlantic Tuna (ICCAT), the Caribbean Regional Fisheries Mechanism (CRFM), the Caribbean Fisheries Management Council (CFMC), the Latin American Organization for Fishery Development (OLDEPESCA), the Central American Organization for the Fisheries and Aquaculture Sector (OSPESCA), the Association of Caribbean States (ACS), the Organization of Eastern Caribbean States (OECS), and the National Oceanic and Atmospheric Administration (NOAA). The second phase of the GEF-funded Caribbean Large Marine Ecosystem Project (CLME+) is also expected to provide valuable assistance to the Caribbean countries to improve the knowledge on and the management of their shared fisheries resources in a near future.
18. Information on the status of the stocks was updated and is summarized in Table 2. A standard table used to monitor periodically the evolution of the status of stocks was considered. It includes 33 species/stocks that are allocated both a status and a level of uncertainty which expresses the level of confidence in the assessment.
19. No updated information was collected on the status of flathead grey mullet. The most recent assessment of flathead grey mullet in Florida waters indicates that the stock was not overfished nor overfishing was occurring (Mahmoudi, 2008), whereas elsewhere (Venezuela) indicators suggest overexploitation. FAO landings of Mulletts suggest an increase in the exploitation of this group; however communications with local scientists suggest that there are signs of improvement in the status of stocks in the USA, but no data was provided to support this information.

20. The groupers group includes many species and stocks, most if not all of which appear at least fully exploited or overexploited. A number of USA managed stocks were found to be overfished, but rebuilding; some of them like the Yellowedge grouper was fully exploited (NOAA, 2012).
21. No change in the status of grunts stock was detected, because of lack of updated information. Information available in Florida indicates that stocks are likely to be fully exploited. As for the Sciaenidae group, mainly reported by the USA, Mexico and French Guiana, it includes a large number of stocks, some of them are reported as likely to be overexploited (NOAA, 2012).
22. Landings of snappers have been sustained across the region in the last years. According to expert's knowledge, Brazil/Guianas snappers are probably over exploited and lane snapper is likely to be fully exploited in Trinidad and Tobago. In the USA, various snapper species were declared to be no longer subject to overfishing, but are probably at least fully exploited (NOAA, 2012). Information coming from French Guiana indicates that the level of population of red snapper seems to improve probably because of a higher rate of juveniles; however, large size classes still seem to undergo high fishing mortality (Ifremer, 2011a).
23. No recent information was available for Atlantic menhaden. Considering that the recorded landings did not vary drastically over the last years, the same exploitation status was allocated for this species. The same occurred for Atlantic thread herring for which no assessment was made available and therefore stock status remains unknown, with fluctuating landings. The most recent assessment was made available in 2011, based on data until 2009, therefore the stock status was left unchanged in the table, but with a higher level of uncertainty because of the recent trends in the catches described above. The same approach was adopted for *Sardinella aurita*, as no recent survey nor assessment was available.
24. Information available on most species of large pelagic fish indicate that the stocks are fully exploited (Albacore, King mackerel, Atlantic Spanish mackerel, Serra Spanish mackerel), even though there is a high level of uncertainty for King mackerel and Sera Spanish mackerel because the assessments available are either outdated, or not reliable (ICCAT, 2011; CRFM 2005; NOAA, 2012). There is no real updated stock assessment for Albacore Tuna. The most recent information is based on the assessment carried out in 2009 by ICCAT and complemented with catch data until 2011. The catches in the North Atlantic are at their lowest level since 1950, very likely because of a reduced fishing effort, whereas they increased in the South Atlantic. However, the latest estimates indicate a stock close to but probably above 20% B_0 and a fishing mortality around F_{MSY} . (ICCAT, 2011)
25. Stock status of Atlantic bonito and Cero remain unknown, as no data nor information is available.
26. Updated assessments of Yellowfin tuna stocks are available with data through 2011. The status is unchanged compared to 2009, with a stock considered to be fully exploited ($B/B_{MSY} = 85\%$ and $F/F_{MSY} = 87\%$). Growth model for this species is still uncertain despite tagging experiments that were carried out, and questions remain on the appropriateness of the models currently used and the implications for the accuracy of the stock assessments. A special mention of FADs was made by ICCAT to highlight the strong association of younger classes of yellowfin tuna with FADs (natural or artificial fish aggregating devices/floating objects) and the consequent vulnerability of small fish as well as the potential negative impact on the biology and ecology of yellowfin due to changes in feeding and migratory behaviours (ICCAT, 2011).
27. Determination of sharks status is not dealt with in a systematic way; only limited and scattered information is available, some of which was presented in the last review. However, a recent assessment of the Blacktip Shark was carried out in the Gulf of Mexico with data through 2010. Despite multiple sources of uncertainties in the assessment carried out, it seems that the Blacktip shark is neither overfished nor undergoing overfishing (SEDAR, 2012).

28. Spiny lobster stock status will be hopefully determined with a major accuracy during the forthcoming workshop of the WECAFC Lobster Working Group where an attempt will be made to compile data available in the region. It is believed that the spiny lobster is overexploited throughout the region, even though a recent assessment in the Bahamas suggests it is fully exploited (NOAA, 2012).
29. Shrimp species were indicated as being in different stock status: non fully exploited for Brown shrimp and Northern white shrimp; fully exploited for Atlantic seabob and Northern pink shrimp; fully to overexploited for Peaneus group and overexploited for Redspotted shrimp. However, except for particular cases such as the Atlantic seabob, the reliability of the information is rather low, some species being even confused (as in the case of the Redspotted shrimp which is widely caught as bycatch). Recent assessments of Atlantic seabob are available mainly for Suriname and Guyana (CRFM, 2012). Interestingly, the USA stock of Northern pink shrimp seems to have been rebuilt (NOAA, 2012), whereas that of Brown shrimp was declared to be highly variable, likewise the Northern white shrimp. In French Guiana, data on the Brown shrimp indicate a decrease in the landings, in the CPUE and in the level of the stock. It is thought that both the intensive fishing in Northern Brazil and the change in wind regimes contribute to the decreased supply of eggs/juveniles. A change of sex-ratio in favour of females was also detected, but no explanation was found to date (Ifremer, 2011b).
30. Overall assessments of *Penaeus* spp. (including *F. notialis*, *F. subtilis*) indicate over-exploitation. Trinidad and Tobago, and Venezuela shrimp have likely recovered due to reduced effort on this group of species, but no evidence can be presented.
31. Queen conch status is likely to be fully to overexploited, depending on the areas. Some stocks are considered to be in a healthy state while others seem to be fully exploited or overexploited. Local overexploitation probably occurs in some areas however major progress in management is being made and there is evidence of recovery in some areas. . Ongoing discussions in the Region deal with the application of the recommendations of the CITES Queen Conch Experts Workshop. The CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch will hopefully contribute to improving both knowledge and management practices (FAO, 2013).
32. Other factors affecting the species and level of the catches were not dealt with in this document; they include illegal fishing, habitat loss, unfavorable environmental conditions, as well as climate change which is likely to have an impact on fish species composition, spatial distribution and abundance of fisheries resources.

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