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WESTERN CENTRAL ATLANTIC FISHERY COMMISSION (WECAFC)

SEVENTH SESSION OF THE SCIENTIFIC ADVISORY GROUP (SAG)

Panama City, Panama, 7-8 November 2015

Review of the State of Fisheries in the WECAFC region

INTRODUCTION

1. The intention of this document is to provide an update of the status of fisheries in the Western Central Atlantic Fisheries Commission (WECAFC) area adding current information to the document presented at the last Commission meeting (Port of Spain, Trinidad and Tobago, 26-28 March 2014; document WECAFC/XV/2014/2). Although WECAFC region includes FAO Statistical Area 31 and a portion of Area 41 (northern Brazil) (Table 1), this document interest only Area 31 (Figure 1).

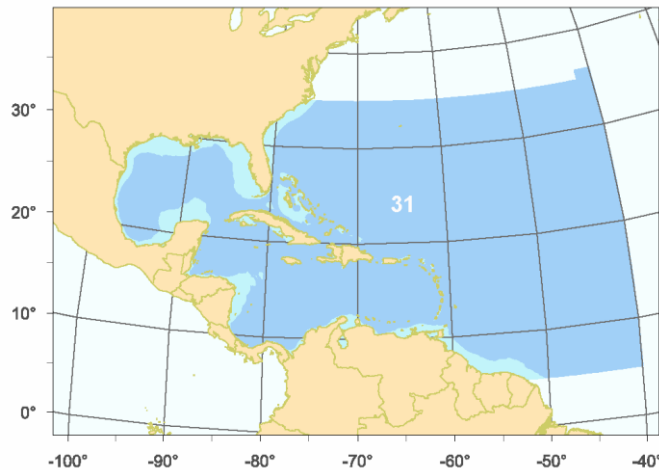


Figure 1 – The Western Central Atlantic (area 31)

2. WECAFC manages nearly 15 million km² of marine area that includes the south-east coast of the United States, the Gulf of Mexico, the Caribbean Sea and the north-east coast of South America (Stevenson, 1981). The Caribbean Sea supports the highest species diversity in the Atlantic Ocean and is a global-scale hot spot of marine biodiversity (Roberts *et al.*, 2002). Such biodiversity, shared with the other regions in the area, supports a varied fishery including molluscs, crustaceans, and fishes inhabiting from shallow coastal areas to deep abyssal slopes. However, the whole region is considered to have low productivity thus posing a considerable challenge to maintaining sustainable fisheries.

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

3. The analysis of landings in the Area is based on the information provided by the countries that, each year, submit official statistics to FAO. Annual variations in the catches can reflect either a change in the fishing patterns (increase/decrease of effort), in the level of fish biomass, or a change in the reporting system of the country. Therefore an increase or decrease in the catches does not necessarily indicate an increase or a decrease in fish biomass: it only indicates how much fish was caught and declared in the official statistics. Detailed interpretation on the state of the stock needs to be made with additional information on available stock assessments carried out, information on fishing effort, management measures that were put in place and/or expert knowledge or empirical knowledge on the state of the fisheries in the Region.
4. From 1950 to 1984, the total landings in FAO Statistical Area 31 showed a constant increase from 0.5 million of tonnes to a peak of 2.5 million tonnes (Fig. 2). From 1984 to 1992, a rapid decline in the catch occurred and stabilized at around 1.7 million tonnes by 2003. The landings further declined to 1.3 million by 2009, performed a temporary increase in 2011 and 2012 with near 1.5 million tonnes, and decreased again to 1.3 million in 2013. The decline after 2009 was attributed to a reduction in the catches of ISSCAAP Groups 33 (miscellaneous coastal fishes including groupers, snappers, etc...) and 35 (small pelagic fish, herrings, sardines and anchovies). Increased catches of group 35 provided a change in landings trend during 2011 and 2012 but was reduced again in 2013 to a level similar to 2009.

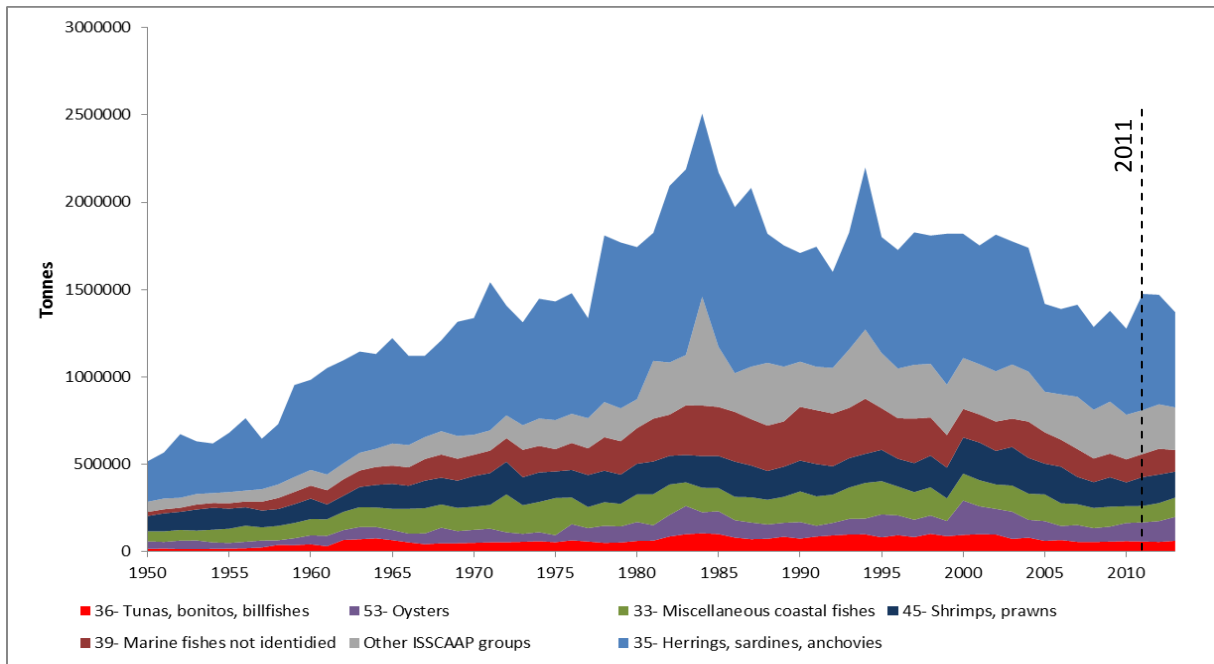


Figure 2 – Annual nominal catches ('000t) by ISSCAAP species groups in the Western Central Atlantic (Area 31)

5. The trend observed in the ISSCAAP Group 35 (herrings, sardines, anchovies) landings was mainly influenced by the United States of America (USA) fishery of Gulf menhaden (*Brevoortia patronus*), with landings that reached 600,000 tonnes in 2011 and 2012, and fell in 2013 to 400,000 tonnes (Figure 3a). No major change in landings was evidenced in other species of the group.

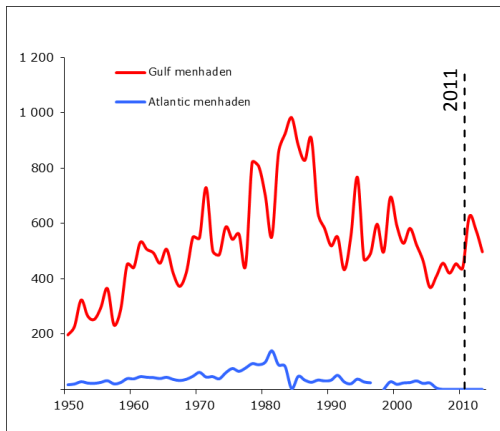


Figure 3a – Selected species in ISCAAP Group 35 (herrings, sardines, anchovies)

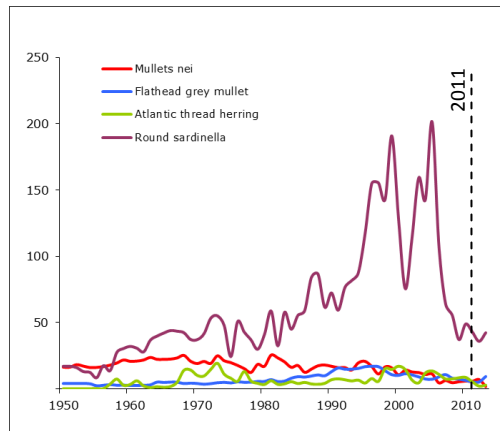


Figure 3b – Selected species in ISCAAP Groups 33, 35, 37

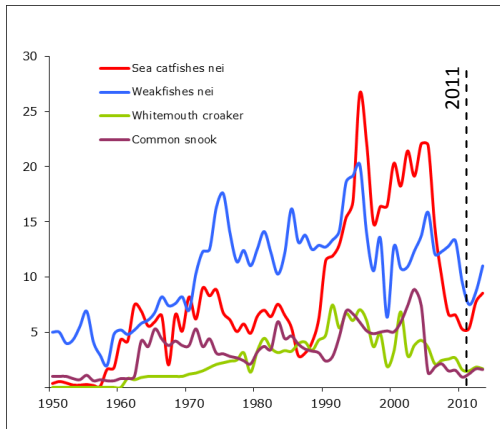


Figure 3c – Selected soft bottom species

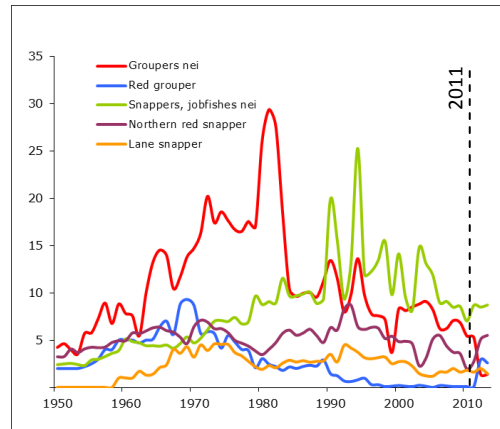


Figure 3d – Selected reef species

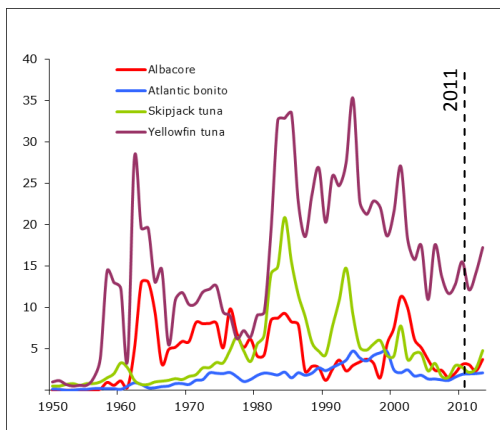


Figure 3e – Selected species in ISCAAP Group 36

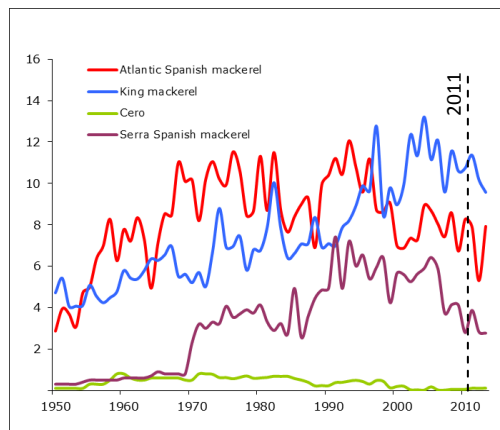


Figure 3f – Selected species in ISCAAP Group 36

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

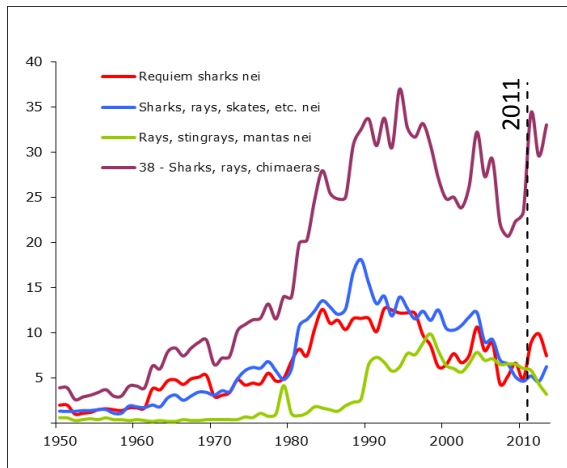


Figure 3g – Selected species in ISCAAP Group 38

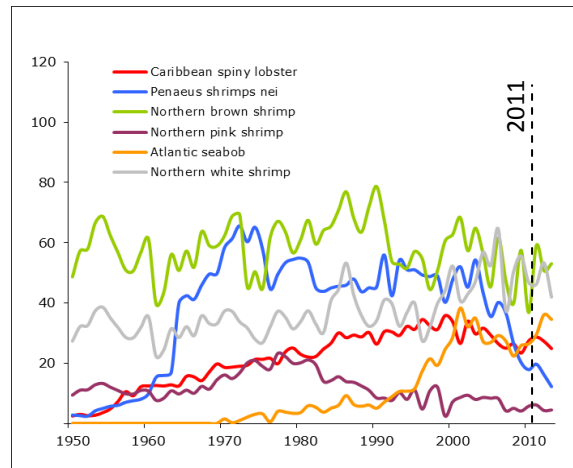


Figure 3h – Selected species in ISCAAP Group 43,

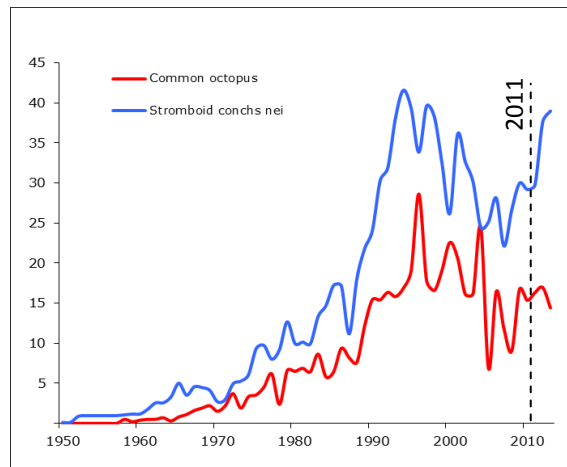


Figure 3i – Common octopus and Stromboid conchs

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

6. In the last six years landings of round sardinella have remained around the levels reported in 2008, which were a quarter of the peak landings observed in the previous decade (figure 3b). No change in trend can be detected for the landings of other coastal pelagics like mullets and thread herrings (figure 3b).
7. Landings of demersal soft bottom fish have rebounded somewhat in the last few years (figure 3c). As has been described before in this report the ISSCAAP Group 33 contribute significantly to the total landings of the area (Fig. 2). Differently to the decreasing trend shown from 2005 to 2011, the last two years analysed (2012 and 2013) have shown a positive trend ending with landings around 110,000 tonnes in 2013. This shift in total trend was a result of an increase in the landings of Sea Catfish mainly by Mexico fisheries (from 2,400 tonnes in 2011 to 5,300 tonnes in 2013), and non-identified Weakfishes also by Mexico (from 1,400 tonnes in 2011 to 4,100 tonnes in 2013).
8. Recent reported changes in landings of reef fish are likely to be the result of changes in the accuracy of the reporting by species (figure 3d). Landings of unidentified groupers continued decreasing, from 6,000t in 2011 to 1,400 tonnes in 2013, mainly because United States reported no landings since 2011. Since 2012, United States is reporting grouper landings as Red Grouper (*Epinephelus morio*) which accounted for an important change in landings of this species. Landings from Dominican Republic increased to 99 tonnes in

2013 after reported catches for this species reached an historic minimum in 2011. Landings of unidentified snappers and jobfishes showed a slight recovery stabilizing around 2009 amounts for 2012 and 2013. No changes in trend are evident for the Lane snapper (*Lutjanus synagris*) continuing with a fairly stable landing rate. However, the Northern red snapper (*L. campechanus*) showed an increasing trend reaching values similar of those in 2006 (Fig. 3d). Landings of Nassau grouper (*Epinephelus striatus*) continue to be declared only by The Bahamas and Cuba. The decreasing trend continues to be evident with a total catch of 105 tonnes in 2013. This species is fully protected in the US.

9. Landings of large and small tunas continue to fluctuate somewhat, however, many of these species have stocks that extend either the entire Atlantic or the whole northern basin, so regional catch trends are not good indicators of sustainable exploitation and provide only a partial view of the fishery (figure 3e). The catches of the ISSCAAP Group 36 tunas, bonitos, and billfishes continue to show inter-annual fluctuations. The total landings increased for the whole group from 54,000 tonnes in 2011 to near 60,000 tonnes in 2013 mainly because landings are dominated by Yellowfin tuna (*Thunnus albacares*) (primarily reported by Belize, Mexico and St Vincent and Grenadines) which showed an increase of more than 5,000t in 2013 landings respect to 2011. Catches of the Skipjack tuna (*Katsuwonus pelamis*) appear to be increasing also, which is evidenced by a reported landing of more than 4,000 t in 2013 respect to around 2,000t in 2011 (fished mainly by Belize and Venezuela). The albacore (*Thunnus alalunga*) landings in 2013 were very similar to those in 2011. The Atlantic bonito (*Sarda sarda*) landings have been around 2000t since 2010 with no significant variations (declared mainly by Mexico and Curaçao).
10. Like the case of tunas, landings of shark and rays, correspond to species groups that include many highly migratory species, therefore regional landing trends are not a good indicator of sustainable exploitation (figure 3g).
11. Landings of mackerel do not show a recent change in the fluctuations that have characterised these stocks. Landings of king mackerel remain relatively high compared to the historical maximum, whereas those for Atlantic Spanish mackerel have remained at around 50% of such maximum (figure 3f). The group landings continue to be dominated by the same species as in the previous years: king mackerel (*Scomberomorus cavalla*) declared mainly by Mexico, the USA and Venezuela. Over the last years, there seems to be an overall decreasing trend for the Atlantic Spanish mackerel (*Scomberomorus maculatus*) landings in Mexico and the United States. Landings for 2012 and 2013 continue to evidence this trend reaching in 2013 values slightly under those on 2011 in spite of the recovery from very low values in 2012. Serra Spanish mackerel (*Scomberomorus brasiliensis*) in Venezuela and Trinidad and Tobago also show fluctuations with a decreasing trend; catch in 2013 reached 2,700 t similar to 2010. For Cero (*Scomberomorus regalis*) caught mainly in the Dominican Republic, catches still show very low values remaining almost the same for the last four years.
12. Flyingfishes are known to support important local fisheries in the Eastern Caribbean. In the 2014 report a drop in total landings of more than a half was reported. Over the last 2 years, most countries involved in this fishery have reported a constant drop in catches. However, for 2013, Barbados and Saint Lucia reported landings similar to 2010 (e.g. Barbados increased the landings from 350 tonnes in 2012 to 1900 tonnes in 2013). As for the common dolphinfish (*Coryphaena hippurus*), the increasing trend reported in the 2014 report continues. The countries reporting the highest catches in the last period are Venezuela, France (Guadeloupe), Barbados and Suriname (reported 500 tonnes in 2013). Another species strongly influencing ISSCAAP group 37 total catches is the Blue runner (*Caranx crysos*). This resource has shown an increasing trend during the last period with an increase of Mexico landings.
13. Landings of crustaceans continue to fluctuate without much of a trend, although some of the fluctuations may be due to changes in the reporting practices of countries that continue to report unclassified shrimp (figure 3h). The Caribbean spiny lobster (*Panulirus argus*) catches have decreased in the 2000s, increased

over 2010 and 2011 (28,700t), but dropped again through the next years to less than 25,000 in 2013 (Fig.3h). Atlantic seabob (*Xiphopenaeus kroyeri*) catches continue to increase and in 2013 were at around 35,000 tonnes. 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, an overall increasing trend can be evidenced for the white shrimp catches (Fig. 3h).

14. Remarkably, landings of Stromboid conch have continued to increase and are back at the level of the mid 1990s (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 2010-2012 around 16,000t, but were reduced to 14,500 t in 2013. Landing of Mexican four-eyed octopus (*Octopus maya*) were previously described in this series. Until 2012 the landings of this species continue to increase reaching more than 12,000t, however, in 2013 the landings dropped to less than 9,000 t. American cupped oyster (*Crassostrea virginica*) landings, reported by Mexico and the US, continue to show an increase mainly in the US landings. The total landing went from 110,000t in 2011 to 137,000t in 2013.

RESOURCES STATUS AND FISHERY MANAGEMENT

15. The institutional structure managing the fisheries and other aquatic resources in the Region has remained unchanged since the last report; 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).
16. Information on the status of the stocks was collated from all the institutional sources referred in the previous paragraph and by searching the ASFA scientific database of aquatic publications. The resulting information was used to update the stock status of the species for which new information was found. Like in previous versions of this document, Table 2 is used to synthesize the evolution of the status of stocks in area 31. It includes 33 species/stocks that are allocated both a stock status and a level of uncertainty which expresses the level of confidence in the assessment of stock status. In subsequent paragraphs of this section details are provided of stock status determinations for these stocks and other selected ones that do not appear in the table but for which new information has come about recently.
17. A new assessment was performed on the status of flathead grey mullet (*Mugil cephalus*) in Florida waters (Chagaris *et al.*, 2014) indicating that the stock was not overfished and that no overfishing was occurring, a similar result to the one obtained in the previous assessment (Mahmoudi, 2008).
18. Five of the ten species of groupers with formal assessments performed by United States were cataloged as overexploited. The Red grouper (*Epinephelus morio*) was reported as fully exploited for the US Gulf of Mexico (NMFS, 2015), but generally reported as overexploited in Mexico fisheries (Arreguin-Sanchez & Arcos-Huitron, 2011). Since 2003 the fishery closures in the Mexican side of the Gulf of Mexico were extended for the Campeche region. Although some areas in Mexico show stable trends, Veracruz and Tamaulipas show important reductions in capture (SAGARPA, 2013).

19. Since no new assessment or other updated information was available, no change in the status of grunts stock was detected. Analysis of capture data showed stability in the capture for the most important countries, providing indication of fully exploitation. Similar situation was found for the Sciaenidae group, mainly reported by the USA, Mexico and French Guiana. No new information is available so the status was not changed. It has to be noted that this group includes a large number of stocks and some of them are reported as likely to be overexploited (NOAA, 2014). For instance red Drum stocks in the US are classified as fully exploited (SEDAR 2009) except those in the Gulf coast of Florida which are considered over-exploited (Murphy and Munyandorero, 2008).
20. Landings of snappers have been sustained or increasing across the region in the last two years with an important increase in Northern red snapper (*Lutjanus campechanus*). The Northern red snapper stocks in the US side of the Gulf of Mexico and the US Atlantic coast continue to be considered overfished. The US Atlantic coast red snapper stock is continuing to suffer overfishing. Mexico reports several species of snappers, including *Lutjanus campechanus* as overexploited (Arreguin-Sanchez & Arcos-Huitron, 2011). The stocks of other snappers, in the US, such as vermillion snapper, yellowtail snapper, mutton snapper are not considered to be overfished or suffering overfishing (NMFS, 2015), No new information is available about Caribbean snapper stocks and the status of snapper stocks in the US Caribbean remains unknown.
21. A US stocks assessment for Atlantic menhaden (SEDAR, 2015a) confirmed the previous status of fully exploited for the species and the overall stable trend in landings through the last years. In contrast, for Atlantic thread herring no assessment was made available and therefore stock status remains unknown. The same approach was assumed for Round sardinella, since no new information was available.
22. In the large pelagic fish group some changes in status occurred since last report. The Albacore (*Thunnus alalunga*) stocks were assessed by ICCAT in 2013 and concluded that the North Atlantic stock is subject to overfishing. The status of Skipjack tuna was also updated to fully-exploited by an assessment performed by ICCAT, reporting capture at 56% MSY (ICCAT, 2014). Stock status of Atlantic bonito remains unknown, as neither new data nor information is available. The only change in status we consider for Yellowfin tuna was increasing the level of uncertainty to medium since the last assessment was performed in 2011 and the total landings have been declining in recent years.
23. Recent assessments of Spanish mackerel and King Mackerel in US waters determined that were not overexploited in 2013 (SEDAR, 2013a; 2013b) and 2014 (SEDAR, 2014a; 2014b) respectively, but both species were reported as overfished for the Mexican fisheries in Campeche (Arreguin-Sanchez & Arcos-Huitron, 2011) and Venezuela respectively. The status for Serra Spanish and cero mackerel were also maintained with little modification since no new data was provided. However, landings data are showing a negative trend in catch (ICCAT, 2015b).
24. Like in previous reports, determination of sharks' status is not performed since only limited and scattered information is available. However, four assessments were performed recently on shark species' stocks in the South Atlantic and Gulf of Mexico (SEDAR 2015b; 2015c; 2013c; 2013d). The Gulf Smoothhound (*Mustelus sinuomexicanus*) shark assessment was performed with data through 2012 and concluded on a not overfished/no overfishing status (SEDAR, 2015b). Also in 2015, the assessment of Atlantic Smooth Dogfish Shark (*Mustelus canis*) was performed with 2012 data as well and it seems that the specie was not overfished but it is uncertain if overfishing is or isn't occurring. The Atlantic Sharpnose (*Rhizoprionodon terraenovae*) and Bonnethead (*Sphyrna tiburo*) sharks' stock assessments were performed in 2013 with data through 2011 (SEDAR 2013c; 2013d, respectively). In both cases the result was that the stocks are neither overfished nor subject to overfishing. The level of uncertainty in all this assessments was increased by the

fact that most of the catch for these species is shrimp bycatch. ICCAT is also due to complete an Atlantic-wide assessment of blue shark at the end of 2015.

25. Spiny lobster stock status was not updated because of lack of new information. It is believed that the spiny lobster is overexploited throughout the region based on catch trends. Some regions report their stocks as fully exploited (Bahamas: NOAA, 2012). However, the last formal assessment performed by the US was unable to provide an update of stock status due to problems to describe recruitment, but provided some evidence that support the idea that the stock was overexploited in the 90s but is currently recovering (GMFMC/SAFMC/SEDAR, 2010).
26. Recent assessment updated the status of several shrimp species (Hart, 2015 a, b and c). These studies reduced the uncertainty in a very complex group for management where some species are confused and are commonly caught as bycatch. The Brown Shrimp US stock was assessed, reporting that the Gulf of Mexico stock is not overfished or not suffering overfishing (Hart, 2015a). Same final conclusion was obtained during similar assessments for Northern white shrimp and Northern pink shrimp US stocks (Hart, 2015b and c). Adding additional information for the determination of the status following FAO classification, the species where indicated in different status: fully exploited for Brown shrimp was maintained with a low level of uncertainty; a fully exploited status for Northern pink shrimp with the annotation that overfishing could be occurring in other stocks which is evidenced by showing not recovery in the catch trend. Northern white shrimp is considered non-fully exploited; in 2015 it was reported as being exploited below its maximum potential with $B/B_{msy} = 6.54$ in the Gulf of Mexico and $B/B_{msy} = 2.86$ in the Atlantic (NMFS, 2015)
27. The Atlantic seabob, Redspotted shrimp, Royal red shrimp, Rock shrimp and unidentified *Penaeus* shrimps maintained their status since no new information was available. Their uncertainty level however, was increased because of the increase in the time that has elapsed since the last stock status evaluation.
28. Queen conch status was maintained as fully exploited to overexploited, depending on the area of the population. In the best cases stocks seem to be fully exploited, but local overexploitation is likely to be occurring. The CFMC/OSPESCA/WECAFC/CRFM Working Group on Queen Conch will hopefully continue its contribution to improving both knowledge and management practices (FAO, 2013). In recent times landings are increasing for the region, however, there is no strong evidence of an overall increased in the health of stocks.

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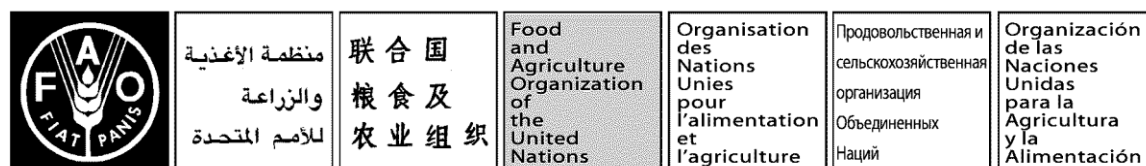


Table 2. Stock status based on FAO classification. (F: fully exploited; O: overexploited; U: non-fully exploited)

ISSCAAP Group	Stock or species groups	Scientific Name	Main fishing countries in 2011	State 2011	Uncertainty 2011	State 2013	Uncertainty 2013	Source
33	Flathead grey mullet	<i>Mugil cephalus</i>	Venezuela, Boliv Rep of, United States of America, Mexico	F/O	M	F/O	M	FAO, Mahmoudi (2008),
33	Groupers	<i>Epinephelus morio</i>	Venezuela, Boliv Rep of, United States of America, Mexico, Dominican Republic	F/O	M	O	M	CRFM, NOAA (2012), FAO, GMFMC (2015), Arreguin-Sanchez & Arcos-Huitron (2011)
33	Grunts	Haemulidae (=Pomadasyidae)	Venezuela, Boliv Rep of, Mexico, Dominican Republic, Cuba	F/O	M	F/O	M	FAO, Silva and Murphy (2001), Sanchez & Arcos-Huitron (2011)
33	Mullets nei	Mugilidae	United States of America, Mexico, Cuba, Colombia	?/O	H	?		
33	Sciaenides	<i>Sciaenops ocellatus</i>	Venezuela, Boliv Rep of, United States of America, Mexico, French Guiana	F/O	M/H	F/O	M	SEDAR 18 (2009), CRFM / FAO / NOAA(2012)
33	Snappers	<i>Ocyurus chrysurus</i>	Venezuela, Boliv Rep of, United States of America, Mexico, Cuba	F/O	M	O	M	CRFM (2006), NOAA (2012) IFREMER (2011), Arreguin-Sanchez & Arcos-Huitron (2011), SEDAR 31 (2013) SEDAR (2015)
35	Atlantic menhaden	<i>Brevoortia tyrannus</i>	United States of America	F	L	F	L	SEDAR 40 (2015)
35	Atlantic thread herring	<i>Opisthonema oglinum</i>	Venezuela, Boliv Rep of, United States of America, Dominican Republic, Cuba	?		?		FAO
35	Gulf menhaden	<i>Brevoortia patronus</i>	United States of America	F	M	F	L	SEDAR 32A (2013)
35	Round sardinella	<i>Sardinella aurita</i>	Venezuela, Boliv Rep of, United States of America	O	L	O	L	FAO/WECAFC
36	Albacore	<i>Thunnus alalunga</i>	Taiwan Province of China, Japan, Dominican Republic, Belize	F	L	O	L	ICCAT (2015)
36	Atlantic bonito	<i>Sarda sarda</i>	Venezuela, Boliv Rep of, Trinidad and Tobago, Netherlands Antilles, Mexico	?				ICCAT (2015)
36	Atlantic Spanish mackerel	<i>Scomberomorus maculatus</i>	United States of America, Mexico	?/F	H	F/O	M	ICCAT (2015) SEDAR 28 (2013)

ISSCAAP Group	Stock or species groups	Scientific Name	Main fishing countries in 2011	State 2011	Uncertainty 2011	State 2013	Uncertainty 2013	Source
36	Cero	<i>Scomberomorus regalis</i>	Puerto Rico, Dominican Republic	?		?		ICCAT (2015)
36	King mackerel	<i>Scomberomorus cavalla</i>	Venezuela, Boliv Rep of, United States of America, Trinidad and Tobago, Mexico	F	H	F/O	M	ICCAT (2015), SEDAR 38 (2014)
36	Serra Spanish mackerel	<i>Scomberomorus brasiliensis</i>	Venezuela, Boliv Rep of, Trinidad and Tobago, Guyana, Grenada	F	H	F/O?	H	ICCAT (2015)
36	Skipjack tuna	<i>Katsuwonus pelamis</i>	Venezuela, Boliv Rep of, Saint Lucia, Dominican Republic, Cuba	U	L	F	L	ICCAT (2014), ICCAT update (2015)
36	Yellowfin tuna	<i>Thunnus albacares</i>	Venezuela, Boliv Rep of, Panama, Mexico, Belize	F	L	F	M	ICCAT (2010), ICCAT update (2015)
36	Other Tunas, bonitos, billfishes			F	H	?		
38	Other Sharks, rays, chimaeras	Rajiformes	#N/A			?		NOAA(2012)
42	Crabs, sea-spiders	<i>Menippe mercenaria</i>	Venezuela, Boliv Rep of, United States of America, Mexico, Cuba			?		
43	Caribbean spiny lobster	<i>Panulirus argus</i>	Nicaragua, Honduras, Cuba, Bahamas	F/O	L	F/O	M	CRFM/FAO NOAA(2012)
45	Atlantic seabob	<i>Xiphopenaeus kroyeri</i>	United States of America, Suriname, Mexico, Guyana	F	L	F	L	CRFM (2012), SAFMC (USA), MSC
45	Northern brown shrimp	<i>Penaeus aztecus</i>	United States of America, Mexico	U	L	F	L	Hart (2015), Arreguin-Sanchez & Arcos-Huitron (2011).
45	Northern pink shrimp	<i>Penaeus duorarum</i>	United States of America, Mexico, Cuba	F	L	F, O	M	Hart (2015)
45	Northern white shrimp	<i>Penaeus setiferus</i>	United States of America, Mexico	U	L	U,?	M	Hart (2015)
45	Penaeus shrimps nei	<i>Penaeus spp</i>	Venezuela, Boliv Rep of, Nicaragua, Mexico, Honduras	F/O	H	F/O?	H	CRFM (2005-2011)
45	Redspotted shrimp	<i>Penaeus brasiliensis</i>	#N/A	O	H	O	H	FAO
45	Rock shrimp	<i>Sicyonia brevirostris</i>	United States of America	?/F	H	?		SAFMC / FAO
45	Royal red shrimp	<i>Pleoticus robustus</i>	United States of America	?/F	H	?		NOAA(2012) / SAFMC / FAO
52	Stromboid conchs nei	<i>Strombus spp</i>	Turks and Caicos Is., Nicaragua, Jamaica, Belize	F/O	M	F/O	M	CRFM / FAO /CFMC
53	American cupped oyster	<i>Crassostrea virginica</i>	Mexico	F	M	F/O	M	Arreguin-Sanchez & Arcos-Huitron (2011)
55	Calico scallop	<i>Argopecten gibbus</i>	#N/A	?		?		