United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

OCT 4 - 2017

MEMORANDUM

To: Chief, Division of Management Authority

From: Chief, Branch of Consultation and Monitoring Eleanora Babij

Subject: General advice for the export of common thresher (*Alopias vulpinus*) harvested in the commercial fishery by U.S. fisherman in the Atlantic Ocean, the Gulf of Mexico and the Caribbean Sea in both the 2017 and 2018 harvest seasons.

Advice: *The Division of Scientific Authority (DSA) finds that the export of common thresher (Alopias vulpinus) harvested by U.S. fisherman in the 2017 and 2018 harvest seasons in the Atlantic Ocean, the Gulf of Mexico and the Caribbean is not detrimental to the survival of the species, provided that the harvest is in compliance with the U.S. management plan in place for the species.*

All harvest and export of bigeye thresher (Alopias superciliosus) is prohibited, as per National Marine Fisheries Service regulations.

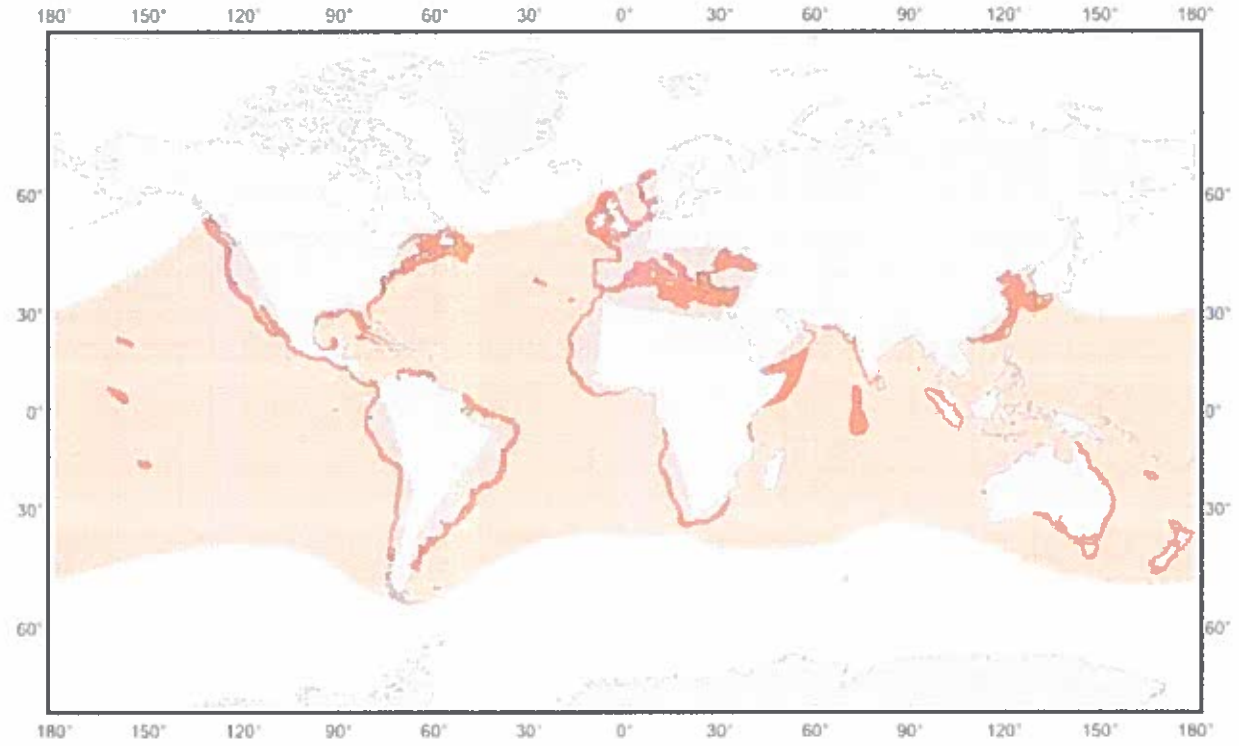
We will review and re-issue a general advice for these thresher sharks annually, beginning with the 2019 harvest season, in an effort to be responsive to new data and information that may become available. This finding only pertains to common thresher sharks caught in the Atlantic Ocean, the Gulf of Mexico and the Caribbean and applications for the export of common and bigeye thresher sharks caught in U.S. waters other than the Atlantic Ocean, the Gulf of Mexico and the Caribbean will be reviewed separately.

Basis for advice:

Species Distribution/Range in the United States

The common thresher (*Alopias vulpinus*) is a highly migratory, circumglobal species which moves regionally but is not known to move between areas such as the Pacific and northwest Atlantic (Moreno et al., 1989; Bedford, 1992; Trejo, 2005). This species is found primarily in warm temperate and tropical waters worldwide at depths shallower than 335 meters; however, the species is most often associated with continental shelf habitat. While this species is known to occur in the open oceans far from land, it is most common within approximately 40-50 nautical miles from shore (Bedford, 1992). In the whole of the North Atlantic, the common thresher is found in the northeast from Norway and the British Isles south to the African coast and in the Western Atlantic it is found from Newfoundland, Canada to southern Argentina, including Gulf of Mexico and the Caribbean (Moreno et al., 1989; Goldman, 2009; Gervelis and Natanson, 2013). In the Pacific they are known to occur in association with several Pacific Islands

including Hawaii and American Samoa. In the Northeast Pacific they occur in the north from British Colombia, Canada south to the coast of Chile in waters from near coastal to 200 miles offshore (Goldman, 2009; Compagno, 1984; Ebert et al., 2014).



Geographic distribution of *A. vulpinus* noting highest concentrations in coastal temperate waters (Source: Compagno 2001).

Biological characteristics

The common thresher shark is the fastest-growing, earliest-maturing and largest of the three *Alopias* species, with historical records indicating that this species can reach maximum lengths in the range of 690-760 cm total length (TL), but maximum size varies among geographic locations (Bigelow and Schroeder, 1948; Hart, 1973; Smith et al., 2008). A common thresher shark measuring 975 cm and weighing 567 kg was recorded in a 2007 commercial trawl harvest in Cornwall, UK (Cleland, 2007). United States West Coast populations of the common thresher shark are estimated to have a maximum size of 550 cm (Smith et al., 2008; Gervelis and Natanson, 2013), whereas studies by Calliet and Bedford (1983) and Bedford (1992) indicate that the largest specimens from the Northwest Atlantic and the California coast range from 487 cm to 573 cm total length (TL).

Maximum age of common thresher sharks has been estimated to be between 15 and 50 years, but additional work refined this estimate to between 22 and 38 years, at least in the Northwest Atlantic (Gervelis and Natanson, 2013). A maximum age estimate of 50 years was suggested by Calliet and Bedford (1983) for populations in the eastern North Pacific, with maturity being reached in this group at between 3 and 8 years of age. Common thresher sharks from the Northwest Atlantic are estimated to reach sexual maturity at 188 cm forked length (FL) and 8

years of age, and 216 cm FL and 12 years of age for males and females, respectively (Gervelis and Natanson, 2013).

Common thresher sharks exhibit aplacental ovoviviparity with oophagy, a reproductive system where eggs are deposited into one of two uterine horns and developing embryos are nourished by feeding on other eggs; gestation is believed to last approximately nine months (PFMC, 2003; Smith et al., 2008). Evidence from the Northeast Atlantic and Eastern Pacific indicate that breeding occurs every other year and that mating occurs in the summertime with pupping occurring the following spring. It is thought that young thresher sharks remain in near-shore nursery areas for the first few years before becoming less reliant on this relatively shallow habitat (PFMC, 2003; Smith et al., 2008; Goldman, 2009; Natanson and Gervelis, 2013). Litter sizes are typically small with 3-4 pups being most common in the Eastern Pacific, but occasionally as many as 6 pups are observed off California), while the average is 3.7 pups per litter in the Northwest Atlantic (Holts, 1988; Moreno et al., 1989; Bedford, 1992; Goldman, 2009; Gervelis and Natanson, 2013).

Population Status and Trends:

In 2009, the IUCN Redlist assessed the common thresher shark (*Alopias vulpinus*) as globally vulnerable and at this time the global population trend was declining. The 2009 assessment indicated the population in the Northwest and Western Central Atlantic was Vulnerable, considering there had been population declines prior to the assessment; the Eastern Central Pacific population was assessed as Near Threatened, given the major declines observed in the population between the late 1970's and the early 1990's (Goldman et al., 2009). Since these major declines additional harvest restrictions have been implemented along the U.S. West Coast and the population has rebounded.

The National Marine Fisheries Service (NMFS) conducted a comprehensive status review of the common thresher shark, along with the bigeye thresher shark, in response to the 2014 petition from the group Friends of Animals to list the common thresher shark as either "threatened" or "endangered" under the Endangered Species Act, and an April, 2015 petition by the Defenders of Wildlife to list the bigeye thresher shark as either "threatened" or "endangered" under the Act. The request to list the common thresher shark specifically asked that the NMFS list the species throughout its entire range, or alternatively, within one or more of six distinct population segments, including: the Eastern Central Pacific, Indo-West Pacific, Northwest and Western Central Atlantic, Southwest Atlantic, Mediterranean, and Northeast Atlantic. The bigeye thresher petition asked that the species either be listed throughout its entire range, or alternatively, listed within one or more distinct population segments, should they be found to exist. Positive 90-days findings indicating that the petitioned actions may be warranted were issued for the common thresher in March, 2015 (Federal Register 80 FR 11379), and then in August, 2015 for the bigeye thresher (Federal Register 80 FR 48061). In April, 2016 the NMFS published a combined 12 month finding, indicating that based on the best scientific and commercial information available, including the status review report (Young et al., 2016), and after taking into account efforts currently being made to protect these species, it was determined that the common thresher (*A. vulpinus*) and the bigeye thresher (*A. superciliosus*) did not warrant ESA listing at this time. It was concluded that neither species is currently in danger of extinction

throughout all or a significant portion of its range nor likely to become so within the foreseeable future (Federal Register 81 FR 18979).

Globally there is a general lack of quantitative abundance data for thresher sharks and therefore, there is a lack of population trend information throughout most of the species' ranges. The available information generally indicates stock declines in areas where the species are targeted and declines are also indicated in some areas where the species are taken primarily as bycatch in fisheries targeting tuna and swordfish. Another issue with most data is that harvest is often reported only to genus level (i.e., as the "thresher complex"), thus precluding the ability to accurately document abundance trends in individual species unless harvested from an area where only one species is encountered, or where there is a known ratio of abundance between the species harvested. Often however, harvest reporting may be totally absent. One notable exception to the general lack of consistent data however is for thresher populations that are encountered and harvested within the Exclusive Economic Zone (EEZ) of the continental United States. This data includes information on both directed harvest and incidental bycatch harvest in commercial fisheries within the EEZ, as well as commercial data on harvest from within state regulated waters inland of the EEZ. Recreational harvest data is also occasionally available, though this harvest is much smaller than that of the commercial fisheries and recreationally harvested specimens cannot be sold commercially. The only available stock assessment for thresher sharks occurring within U.S. waters was recently completed on the common thresher shark stock occurring in waters off the West Coast of North America (Teo et al., 2016). As previously mentioned, a comprehensive worldwide status review was conducted by the NMFS in 2016 on common and bigeye thresher sharks (Young et al., 2016).

According to the Food and Agricultural Administration (FAO) of the United Nations (UN) Global Capture Production dataset, total reported global harvest of thresher sharks (*Alopias* spp.) increased dramatically from 2004 to 2005 then peaked in 2011 at 18,464 metric tonnes (mt). Common thresher shark harvest increased sharply in the late 1990s, peaking in 2000 at 654 mt; worldwide reported catch then declined to 188 mt in 2013. Worldwide landings of bigeye threshers ranged from between 49 and 301mt per year during the years 2000-2009 and then ranged from 27 mt in 2010 to 440 mt per year in 2013. However, FAO data is misleading as it is often incomplete due to harvesters not consistently reporting catch, bycatch, and discards at sea. FAO data is also limited due to lack of species specific reporting and the lack of a consistent data management and reporting system in some nations (Young et al., 2016).

In the Eastern Pacific Ocean, shark catch data is compiled by the Inter-American Tropical Tuna Commission (IATTC), the Regional Fisheries Management Organization (RFMO) operating in this region. Their data includes information on both common and bigeye thresher sharks, which are caught as bycatch in the fisheries targeting tunas and swordfish, primarily using longline and purse-seine gears. Prior to 2005 most shark data consisted of aggregated data where all sharks caught as bycatch were lumped into one category. In a 2005 study, thresher sharks comprised approximately 3% of the shark species observed, with common threshers accounting for only 0.2% of the catch and bigeye and pelagic threshers accounting for approximately 1% each. Unidentified thresher sharks accounted for another 0.7% (Roman-Verdesoto and Orozco-Zellor, 2005). Overall, bycatch of thresher sharks in purse-seine vessels operating in the Eastern Pacific Ocean ranged between 9 and 17 tons per year over the years 2010 through 2014 (IATTC, 2013).

Harvest of common thresher shark peaked along the Pacific Coast of North America in the early 1980s followed by a dramatic decline in the population. In the 1990s, following a series of regulations imposed on the U.S. and Mexican fisheries, the coastal population rebounded. Currently, the population has recovered to a level approximating that seen prior to the peak fishing effort, and due to current regulations harvest has been maintained well below the harvest guidelines of 340 tons per year. Commercial landings of common thresher, for the years 2004-2014 have averaged approximately 115 mt per year. Bigeye threshers were estimated to comprise only about 9% of the total thresher harvest and no bigeye threshers are recorded from catches from 2010 to 2015 (NMFS, 2009; PFMC, 2003; Teo et al., 2016; Young et al., 2016).

In the Western and Central Pacific Ocean, shark catch data is compiled by the Western and Central Pacific Fisheries Commission (WCPFC), the RFMO operating in this region. Like with the IATTC there has been a lack of consistent reporting of shark bycatch data and when such data is available, it is often reported simply as "shark". In 2011, WCPFC instituted a shark reporting requirement which required threshers to be reported by species; yet, several fishing fleets are still not reporting this data (Miller et al., 2014). Bigeye threshers are the most commonly caught species of thresher shark in the WCPFC area, especially in longline fisheries south of Hawaii; common threshers are also caught, although infrequently. Overall, thresher sharks are estimated to only comprise approximately 1.81% of the commonly caught shark species in the longline fisheries operating within the WCPFC region (Clarke et al., 2011). Within the purse-seine fisheries thresher sharks are rarely encountered in this area (Clarke, 2013). Based on Hawaii-based logbook data, overall thresher shark catches have shown an upward trend since 1991, while actual landings data declined from 50 mt in 2001 to 16 mt in 2010; this decline may be the result of the United States' ban on shark finning imposed in 2010 (NMFS, 2011). In the Pacific Island region landings are not generally reported by species, but bigeye threshers are believed to be encountered more frequently than common threshers. Total thresher landings in the Pacific Islands actually declined from 63,314 pounds in 2005 to 39,856 pounds in 2010 (Young et al., 2016).

In the Atlantic Ocean, data on the catch of thresher sharks is compiled by the International Commission for the Conservation of Atlantic Tunas (ICCAT), the RFMO coordinating fisheries management in this area. While pelagic thresher sharks are not found within this region, both bigeye thresher and common thresher are harvested. Approximately 1,142 mt of common thresher sharks were reported harvested to the ICCAT during the years 1993 to 2013, with about 96% being reported by European Union flagged vessels. While this species is harvested using purse seines, gillnets, trawls and trammel nets, approximately 70% of the catch over the years 1987 to 2013 was reported as being caught in the longline fishery; this represented approximately 802 metric tons of the total harvest. Bigeye threshers are also caught in ICCAT regulated fisheries, and between 1993 and 2013 there were approximately 1,608 mt reported; nearly half of this catch was reported by Brazilian fleets. In 2009 ICCAT began prohibiting the retention, transshipping, landing, storing, selling, or offering for sale any part or whole carcass of bigeye thresher sharks, after which reported catch declined dramatically. While the bigeye and common thresher have been harvested along the U.S. Atlantic coast for decades, a prohibition against harvest of bigeye thresher was implemented in the United States in 2000, although they are still caught as bycatch. In 2010, 46 tons of dead, discarded bigeye thresher accounted for the second largest amount of dead discards in the Atlantic, but in 2011 this number had dropped to

27 tons (NMFS, 2010; Young et al., 2016). Results from a variety of studies however, indicate that both species' populations in the Northwest Atlantic, while depleted, appear to have stabilized (Young et al., 2016).

Threats

Globally, overharvest in both directed and bycatch fisheries is the primary threat. Also, there is a general lack of species specific data available to reliably estimate populations and often, when data is available, it is not provided at the species level, thus precluding its use for species specific population estimates. In some areas, species are known to represent a specific proportion of the overall population, thus allowing a relative population estimate to be determined. Unfortunately, even when species specific reporting of shark harvest is required by an RFMO, data is often not available due to non-compliance with reporting requirements. Without reliable population data, populations cannot be assessed. Both meat and fins harvested from directed and bycatch fisheries are utilized from thresher shark fisheries. At this time however, we are unsure of what proportion of harvested thresher shark in the United States is used domestically versus how much enters international trade. Thresher shark fins are believed to be primarily consumed in the Asian market, but it is unclear how much fin trade originates from thresher sharks harvested in U.S. waters.

Species Management:

At the global level, the entire family Alopiidae, which only includes the three CITES listed thresher shark species, the common thresher *(Alopias vulpinus),* the bigeye thresher *(Alopias superciliosus)* and the pelagic thresher (*Alopias pelagicus)*, are listed among the Highly Migratory Species (Annex 1) in the United Nations (UN) Convention on the Law of the Sea (UNCLOS). The Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, which builds on UNCLOS and has been in force since 2001, encourages States to cooperate on these multijurisdictional stocks through regional and sub-regional management bodies. Since the Agreement's inception there have been regional agreements aimed at conserving these migratory stocks but while the agreement's aim is conservation, there are relatively few enforcement measures specific to thresher sharks.

Also globally, on November 9, 2014, the common thresher (*Alopias vulpinus*), the pelagic thresher (*Alopias pelagicus*) and the bigeye thresher (*Alopias superciliosus*) were listed under Appendix II of the Convention on Migratory Species of Wild Animals (CMS or Bonn Convention). The CMS provides a global platform for the conservation and sustainable use of migratory animals and their habitats. A CMS Appendix II listing acknowledges that these species need, or would greatly benefit from, international cooperation on management and encourages Parties to take cooperative actions on management, including establishing global or regional measures to conserve the species. CMS decisions may also trigger management responses nationally. It should be noted that the United States is not a Party to CMS.

At the regional level, the International Commission for the Conservation of Atlantic Tunas (ICCAT) manages tunas and tuna-like species and adopts measures to address bycatch of other species caught in association with ICCAT fisheries. ICCAT, an intergovernmental regional

fishery management organization founded in 1969, has 50 Contracting Parties and its Convention area spans the entire Atlantic Ocean, including the Gulf of Mexico, Caribbean and Mediterranean Seas. Under a recommendation adopted in 2004, ICCAT Parties are required to report data on catches of sharks in all fisheries managed by ICCAT. However, catch data for sharks (including threshers) are still not reported by many Contracting Parties. Effective in 2010, ICCAT Recommendation 09-07 established a prohibition on retaining onboard, transshipping, landing, storing, selling, or offering for sale any part or whole carcass of a bigeye thresher shark (*Alopias superciliosus*) taken in the Convention area in association with ICCAT fisheries; exempted from this recommendation are Mexican small-scale coastal fisheries with a catch of less than 110 fish. Annual reporting of all thresher species' harvest, discards and releases is required by this ICCAT measure.

At the national level, since 1993 the United States has had a species management plan for all sharks, including the common thresher shark (*Alopias vulpinus*) and bigeye thresher (*A. superciliosus*), in the U.S. Atlantic, Gulf of Mexico, and the Caribbean Sea. Under the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) and its amendments, the harvest of the bigeye thresher is prohibited. While fishermen may harvest common thresher, there are regulatory measures in place to limit mortality of this species that include commercial and recreational permits, commercial quotas, and recreational size limits. The HMS FMP and its amendments do not manage the pelagic thresher shark as this species does not occur within this range. The commercial quota, while not being based on a species or Alopias spp. based stock assessment, is based on the best available science which includes several studies involving thresher shark population dynamics. These studies are comprehensively reviewed and evaluated in the 2016 Status Review of the Common and Bigeye Thresher Sharks (Young et al., 2016).

In the United States, the population of thresher sharks in the Atlantic, Gulf of Mexico and Caribbean are managed as part of a shark complex which includes common thresher, oceanic whitetip and shortfin mako sharks; harvest of bigeye thresher is prohibited. This group of sharks, referred to as "Pelagic sharks other than porbeagle and blue sharks" (PS) has an overall quota of 488 mt dressed weight (dw) for 2017. Unlike other shark management groups, the PS do not have a regional quota so any commercial harvest of these sharks by U.S. fishermen within the Atlantic, Gulf of Mexico and the Caribbean all are counted against the 488 mt annual quota.

The Atlantic pelagic species group was issued its first group quota in 1993 and the maximum sustainable yield for this group was calculated as 1,560 mt dw, based on an average of the 1986 to 1991 commercial landings. Subsequently, indications that Atlantic shark populations were declining resulted in a reduction of the quota for this group to 580 mt in 1997. In 1999 several regulations concerning the harvest of pelagic species were modified resulting in a new quota of 853 mt dw. This quota was apportioned between porbeagle, blue shark and other pelagic sharks with quotas of 92 mt dw, 273 mt dw and 488 mt dw, respectively. Additional regulation changes in 1999 included limiting the recreational catch to 1 shark per vessel per trip with a minimum size of 137cm fork length (fl) and a harvest prohibition on bigeye thresher. Ultimately, the quota system allows for the 488 mt dw quota to be distributed among oceanic whitetip, shortfin mako and common thresher sharks. Species specific quotas have not been implemented due the general lack of sufficient reliable data available for each species

individually, but over the years 2004 to 2007, the average commercial harvests for shortfin mako was 72 mt dw and the combined harvest for oceanic whitetip and common thresher was only 17.5 mt dw, thus leaving a large surplus within the pelagic species group available for harvest (NMFS 2008; Young et al., 2016).

In addition to the annual harvest quota for pelagic sharks in the U.S. Atlantic, Gulf of Mexico and Caribbean, license and reporting requirements, size limit and gear restrictions for commercial and recreational fishermen are used to regulate the harvest. Commercial permits are issued for both the directed and bycatch fisheries. In the directed fishery, of which there were approximately 85 commercial permits between the years 2004 and 2007, fishermen target pelagic sharks, while in the incidental fishery fishermen target other species but retain the sharks that are caught incidentally. A directed permit allows the holder to harvest an unlimited number of individual pelagic sharks per trip while the incidental permit allows the holder to harvest 16 pelagic and/or small coastal sharks (SCS) combined per trip. Currently there is no minimum size limit for the commercial harvest of pelagic sharks.

Once the annual harvest quota is reached, the fishery is closed and neither directed nor incidental permit holders may land pelagic species group sharks, but shark dealers are allowed to sell any sharks that were stored before the closure. Commercial fishermen may use bottom longline, gillnet, rod and reel, handline, and bandit gear. Dealers who purchase pelagic shark from commercial fisherman must adhere to strict reporting requirements. A recreational permit is issued to an individual who may be on a vessel that harvests up to one pelagic shark per day. For most sharks, including common thresher, there is a minimum size limit of 54 inches (fork length); a recreationally caught shark cannot be sold. Recreational fishing for pelagic sharks is allowed year-round and only rod and reel and handline are allowed. All fish landed in both the recreational and commercial fisheries must be landed with their fins naturally attached. While commercial fishermen are allowed to remove the head and viscera, recreational fishermen must keep the head naturally attached, although they are allowed to remove the viscera and bleed the fish.

The harvest of the Atlantic pelagic shark complex is monitored through reporting by fishermen and dealers. The commercial fishermen must report their directed and incidental catch to NMFS within seven days of landing at the dock and the dealers must report activity every Tuesday for purchases made the previous Sunday through Saturday time period. When a level of 80% of the annual quota has been reported, the fishery is closed to further harvest; this closure becomes effective five days after a notice is issued. The buffer of the additional 20% of quota is to allow time for fish already harvested to be landed and reported. If the annual quota is exceeded, the overharvest is deducted from the following year's harvest quota. Through this accounting measure, the calculated annual harvest quota averages out to the allowed annual harvest over a series of years. Also, due to the real-time nature of the harvest reporting, there is less chance of harvesting significantly more than any one year's quota allocation. The Atlantic 2017 harvest season opened on January 1, 2017 and the Atlantic 2018 harvest season will begin on January 1, 2018; both the opening of the season and the seasonal quota are adjusted annually based on harvest from the prior year. As of September 22, 2017, only 17 percent of the 2017 harvest season quota of the Pelagic Species group, which includes the thresher sharks, had been

harvested; therefore, no change is anticipated in the 2018 harvest season quota, or harvest season opening date.

Pelagic shark regulations are set on both state and federal levels, and state regulations are consistent with regulations issued by NMFS. In the Atlantic, state fishery regulations are promulgated jointly among the states within the Atlantic States Marine Fisheries Commission (ASMFC). In certain instances, state regulations may be more restrictive than the corresponding federal regulations but they cannot allow for a harvest in excess of the federally established quota. State specific regulations apply to fisheries within three nautical miles from the shoreline, while federal regulations apply to fisheries from the three-mile limit to the 200 mile nautical mile EEZ (ASMFC 2008, ASMFC 2013).

Summary

The common thresher shark fisheries in U.S. waters of the Northwest Atlantic, Gulf of Mexico and Caribbean Sea are managed under a quota system which allows harvest from directed, bycatch and recreational fisheries in a combined pelagic species group. Anyone participating in these fisheries is required to be licensed, either by the NMFS or in the state where they are fishing. The quota under which this system is managed is determined based on the best available data which includes numerous studies related to pelagic species' population dynamics and historical harvest records from the directed, bycatch and recreational fisheries. The annual harvest is closed to fishermen when the NMFS determines, through harvester and dealer reports, that 80% of the annual quota has been harvested. The harvest quota is adjusted annually, based on the previous year's harvest, to insure the quota is not exceeded over a multi-year period. If there is overharvest in one year, the quota for the following year is reduced. There is one combined quota for the three species of the pelagic species management group, which are harvested in the U.S. Atlantic, Gulf of Mexico and Caribbean waters and encompasses all fish harvested whether they are taken from waters governed by state or federal regulations. The species management plan currently in place is designed to ensure that the populations of the pelagic species within the management group remain stabilized or increase and that harvests recorded since the plan was implemented do not exceed the established quota.

Conclusion

The Division of Scientific Authority (DSA), based on the information and data available, and management measures currently in place, finds that the export of wild common thresher sharks harvested by U.S. fishermen in the Atlantic Ocean, Gulf of Mexico and Caribbean in the 2017 and 2018 harvest seasons is not detrimental to the survival of the species, provided the harvest is in compliance with the U.S. management plan in place for the species.

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