

Photo credit: NOAA.

### KEY INFORMATION

#### Areas of Concern

Western Atlantic.

#### Year Identified as “Species of Concern”

1997

#### Factors for Decline

- Illegal Landings in both Commercial and Recreational Shark Fisheries
- Bycatch (especially from long-line gear)

#### Conservation Designations\*

IUCN: Vulnerable – Globally;  
the U.S. population in the Northwestern Atlantic and Gulf of Mexico is ranked as Endangered.

American Fisheries Society: Vulnerable

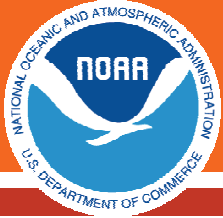
*\* While category names may be similar, it is important to note that scientific and conservation organizations use different criteria to classify species conservation status. We have not generally adopted any of the rankings used by these organizations, however we do review the information they present as part of our proactive approach to species conservation.*

#### Brief Species Description:

The dusky shark is also known as the bronze whaler or black whaler. It is a large, fairly slender shark with a low ridge along the back between the dorsal fins. The rounded snout is shorter than or equal to the width of the mouth. The first dorsal fin originates over or near the free rear tips of the pectoral fins. The color is bronzy gray to blue gray above with white ventrally (Castro 1983; Last and Stevens 1994). This species prefers warm temperate to tropical waters. The dusky shark occurs in both inshore (surf zone) and offshore waters from the surface to depths as deep as 1300 feet (400 m; Compagno 1984). The dusky shark is not commonly found in [estuaries](#) due to its avoidance of low salinity (Compagno 1984, Musick et al. 1993). The average size is about 11.8 feet (360 cm) length and about 400 pounds (180 kg). Males attain sexual maturity at 9.15 feet (280 cm, about 19 years); females mature at 9.3 feet (284 cm, about 21 years). This long lived shark (maximum age about 40 years) is viviparous (placental live bearer) with litter sizes ranging from 6 to 14. Young are born at 33 to 39 inches (85-100 cm). They reproduce every 3 years, either between June and July or December and January. Their diet includes bony fishes, cartilaginous fishes, and squid.

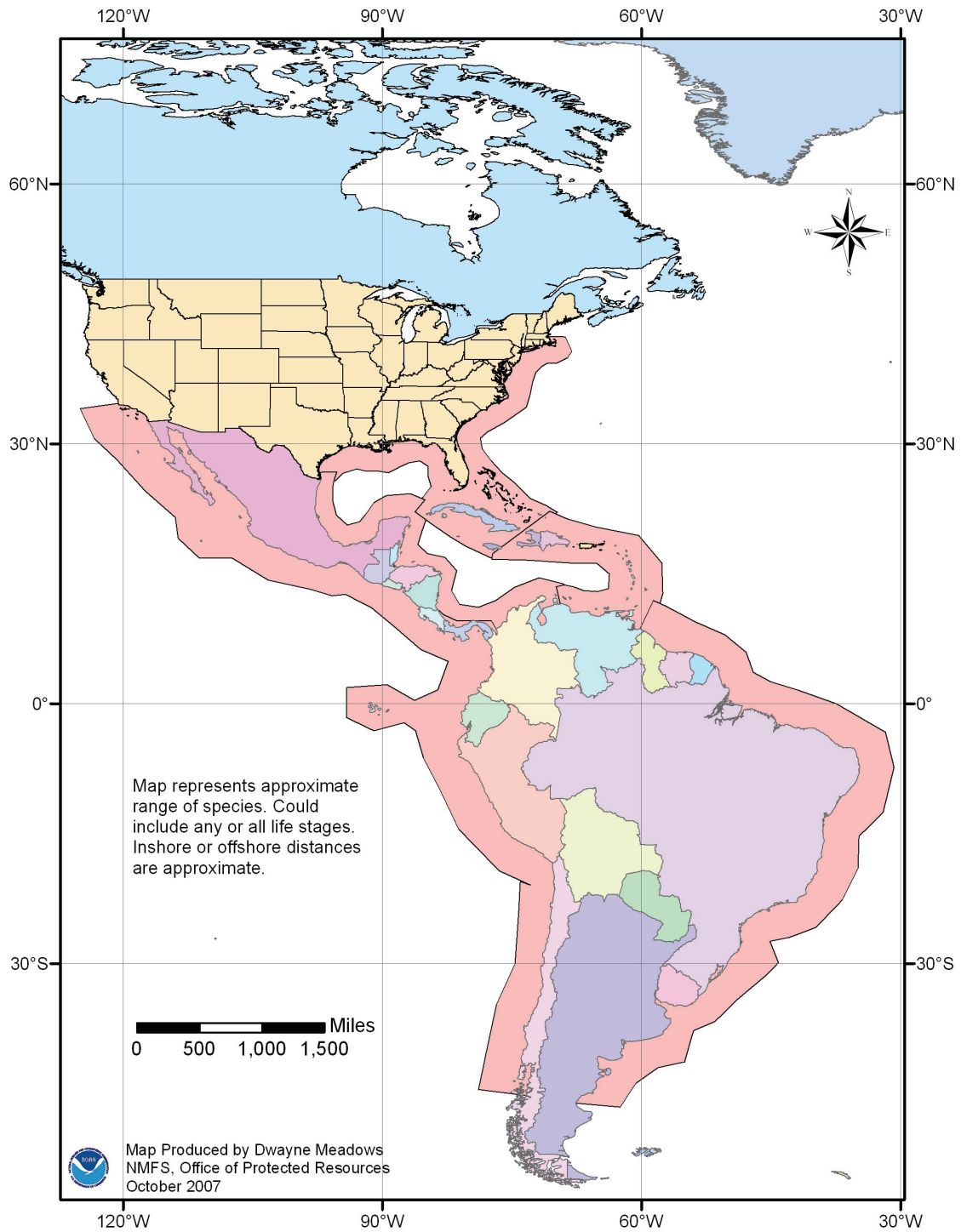
In the western Atlantic, where it is a species of concern, it occurs from southern Massachusetts and Georges bank to Florida, Bahamas, and Cuba (Figure 1). It also occurs in the Northern Gulf of Mexico, and Nicaragua; Southern Brazil (Compagno 1984). However, its distribution off Central America is poorly known. Elsewhere the species occurs in the Eastern North Atlantic, Mediterranean, Indian Ocean and in the Pacific. Its occurrence is uncertain in the eastern North Atlantic, but it has been recorded around oceanic islands off western Africa. These records and others from tropical insular areas may be misidentifications of a sibling species (*C. galapagensis*) (J. Musick, pers. comm.).

The dusky shark undertakes long temperature-related migrations. On both coasts of the U.S., dusky sharks migrate north in summer as the waters warm and retreat south in fall as water temperatures decrease. In Western Australia, adolescents and adults move inshore during the summer and fall, with neonates occupying separate inshore areas (Last and Stevens 1994). In the Indian Ocean, the young are known to aggregate in dense assemblages when feeding (Compagno 1984).



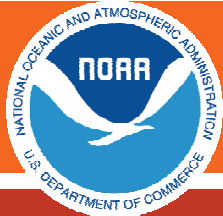
# Species of Concern

NOAA National Marine Fisheries Service



Map of the Western Hemisphere range of the dusky shark.

Figure 1.



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### Rationale for “Species of Concern” Listing:

#### ***Demographic and Genetic Diversity Concerns:***

Reviews of catch and landings data for the large coastal shark assemblage in the western Atlantic (including dusky and other requiem sharks) found that by 1986 the abundance of many of the large coastal species had probably declined by 50 to 75% from 1970s levels even prior to the expansion of the commercial shark fishery in 1986. Today the dusky shark population in the northwestern Atlantic and Gulf of Mexico is probably at 15 to 20% of its mid-1970s abundance (Cortés et al. 2006). Estimates of the intrinsic rate of population increase ( $r$ ) for dusky sharks to range from 1.7% per year to 5.6% per year, depending on assumed fishing mortality rates, the length of reproduction cycle, and assumptions about the rate of natural mortality (Sminkey 1996; Cortés 1998; Smith et al. 1998; Simpfendorfer 1999; McAuley et al. 2007; Romine et al. 2009). Current studies indicate that the reproductive cycle is three years (Castro 2009).

#### ***Factors for Decline:***

Currently the principal threat to dusky sharks is from bycatch and illegal landings in commercial and recreational shark fisheries. Commercial and recreational possession was prohibited in 2000. However, despite being prohibited and the reduction in U.S. longline fisheries targeting sharks, dusky sharks are still regularly caught in commercial longlines targeting sharks and incidentally caught on a variety of other gears such as surface pelagic longline gear targeting tunas and tuna-like species and bottom longline gear targeting groupers and snappers (Cortés et al. 1996; Hale et al. 2007). This has important implications in the managed recovery of this species because evidence suggests hooking mortality is high for dusky sharks (Morgan and Burgess 2007). At-vessel mortality for bottom longline caught juvenile dusky sharks was about 85% (Morgan and Burgess 2007). The high hooking mortality of immature dusky sharks in bottom longlines implies that there will still be some level of mortality associated with the incidental catch of this species over its range. Dusky sharks have undergone two stock assessments in the U.S. (Cortés et al. 2006; Morgan 2008). A species-specific assessment was conducted in 2006 and indicated that the species was **overfished** with overfishing occurring as of 2003. Morgan's 2008 study was a Ph.D. dissertation project that analyzed the effects of the temporal gear closures and gear modifications on the northwestern Atlantic population of dusky shark. A new stock assessment is being conducted through the Southeast Data Assessment and Review (SEDAR) process and is expected to be final in 2011. With life history traits such as slow growth, late maturity, and reproduction every three years, the dusky shark is susceptible to overfishing. In 1993, dusky sharks were managed as part of the large coastal shark management unit; the complex was determined to be overfished with overfishing occurring. Ha (personal communication) found that the size of dusky sharks decreased between 1961 and 2005 off New Jersey, likely as a result of the high fishing pressure.

#### **Status Reviews/Research Underway:**

A new stock assessment is being conducted by the Southeast Data Assessment and Review process. It is anticipated to be completed in 2011. Experiments are currently being conducted using archival satellite tags, hook timers and time depth recorders to develop alternative measures such to reduce longline fishing mortality of dusky sharks (Carlson, personal communication).



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### Data Deficiencies:

More research needs to be conducted on: recreational mortality, discard information, as well as post-release survival in commercial and recreational fisheries. More information in regards to longevity is needed to further refine demography.

### Existing Protections and Conservation Actions:

Dusky sharks have been prohibited in both commercial and recreational fisheries since 2000. The mid Atlantic closure to bottom longline gear was implemented in 2005 to protect juvenile sandbar and prohibited dusky sharks during the months of January to July. However, dusky sharks are still at risk from longline fisheries outside this area and at other times of the year. Additionally dusky sharks are prohibited from harvest in state waters from all Atlantic states under the Atlantic States Marine Fisheries Commission's Interstate Coastal Shark Plan, which was implanted in January 2010.

### Links:

Highly Migratory Species Management: <http://www.nmfs.noaa.gov/sfa/hms/>  
Atlantic States Marine Fisheries Commission webpage: <http://www.asmfc.org>  
Essential Fish Habitat (EFH) Mapper: [http://sharpfin.nmfs.gov/website/EFH\\_Mapper/map.aspx](http://sharpfin.nmfs.gov/website/EFH_Mapper/map.aspx)

### Video:

Swimming underwater 0:09 <http://www.youtube.com/watch?v=RElc5A82GA4>

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## Species of Concern

NOAA National Marine Fisheries Service

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### **Point(s) of contact for questions or further information:**

For further information on this Species of Concern, or on the Species of Concern Program in general, please contact NMFS, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910, (301) 713-1401, [soc.list@noaa.gov](mailto:soc.list@noaa.gov); <http://www.nmfs.noaa.gov/pr/species/concern/>, or Calusa Horn, Species of Concern Coordinator, NMFS, Southeast Region, Protected Resources Division, 263 13th Avenue South, St. Petersburg, FL 33701, (727) 824-5312, [Calusa.Horn@noaa.gov](mailto:Calusa.Horn@noaa.gov); or visit the [Southeast Regional Office's webpage at: http://sero.nmfs.noaa.gov/pr/SOC.htm](http://sero.nmfs.noaa.gov/pr/SOC.htm).