



## YOU CAN HELP PROTECT FLORIDA SHARKS

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION  
CONSIDERS NEW SHARK PROTECTIONS, INCLUDING:

- **Addition of Hammerhead (Great, Scalloped and Smooth) and Tiger Sharks to Florida's Prohibited Species List**
- **Requirement for use of circle hooks to reduce post release injury and mortality to sharks**



### Here's why the proposed shark protections are so important:

- **ECOSYSTEM:** Healthy shark populations help ensure healthy marine ecosystems.
- **ECONOMY:** Tourism and water-related industries, including boating, fishing and diving, are vital to Florida's economy. Protecting our marine ecosystems by protecting sharks helps ensure the future prosperity of these industries.
- **HUMAN HEALTH:** Large sharks contain unsafe levels of mercury and other toxins. The continued harvest or recreational catch of large sharks supports the unhealthy consumption of shark meat. **Note:** The Florida Department of Health *advises NO ONE eat shark meat from any animal over 43 inches in length caught in Florida waters.*
- **GLOBAL AND REGIONAL DECLINES:** Worldwide sharks are under enormous fishing pressure mainly due to the demand for shark fin soup. Hammerhead and Tiger sharks populations are down to only a small fraction in just the past thirty years.
- **CIRCLE HOOKS:** Use of circle hooks has been demonstrated to greatly reduce release mortality of released sharks, since they are much less likely to be swallowed and "gut hook" the shark.

## Suggested talking points for each of the proposed measures

### **Addition of three large hammerhead species – great, scalloped and smooth – and tiger sharks to Florida’s Prohibited Species List**

#### **1. These species are highly vulnerable to extinction.**

##### **Hammerhead Sharks – Great, Scalloped, Smooth:**

These large hammerhead species have been assessed as Endangered – Very High Risk of Extinction (Great and Scalloped) and Vulnerable – High Risk of Extinction – by IUCN (International Union for the Conservation of Nature) Red List of Threatened Species.

##### **Tiger Sharks:**

Assessed by the IUCN as Near Threatened (approaching threatened status).

#### **2. Hammerhead and Tiger Shark populations have declined dramatically regionally and globally, and further evidence shows reduction in size of these species.**

##### **Hammerhead Sharks – Great, Scalloped, Smooth:**

According to published scientific studies, populations of large hammerhead species have declined by 89% in the Northwest and Western Central Atlantic since 1986 (Baum et al 2003; Jiao et al 2009), scalloped hammerheads have declined by >99% in the Gulf of Mexico since 1834 (Baum et al. 2004), and great hammerheads have declined by 90% in the US Atlantic according to US Pelagic Fishery logbook data (Baum et al. 2003).

Stock assessment of scalloped hammerheads in the Western North Atlantic Ocean and Gulf of Mexico determined that this species is “overfished” and “overfishing is occurring” and found the level of population depletion relative to 1981 to be 83% (Jiao et al 2009).

Similar declines have been documented in other parts of the world, ranging from 64% to greater than 99% -- total collapse (>99% Mediterranean – Ferretti et al 2008; 64% Scalloped and 79% Great in S. Africa – Dudley et al. 2006; 80% E. Atlantic – IUCN Shark Specialist Group 2007; Collapse in W Africa – Anon 2002; 85% Queensland, Australia – de Jong et al. 2009; 93% S. Brazil – Kotas 2004, Kotas 2009; 62% Mexico – Soriana et al 2006).

Findings from “Documenting the Loss of Large Trophy Fish from the Florida Keys with Historical Photographs” revealed that the length of sharks caught dropped from 6.4 feet in 1956–1960 to less than 3 feet in 2007. “Sample sizes were small, but these results suggest a loss of large predatory sharks from south Florida waters prior to 1965, particularly when the species caught are considered. Of the 16 individual sharks caught and photographed between 1956 and 1960, 4 individuals were hammerhead (*Sphyrna mokarran* and *S. lewini*.) and 3 were great white (*Carcharodon carcharias*) sharks. Between 1965 and 1979, only 1 hammerhead and 1 great white shark were photographed, despite equivalent numbers of total sharks in the sample. The most commonly caught species in this second time period were reef (*Carcharhinus perezii*) and silky (*C. falciformis*) sharks. In 2007 the only species of sharks caught and photographed were immature sharpnose (*Rhizoprionodon terraenovae*), reef (*Carcharhinus* spp.), and bonnethead (*S. tiburo*.)” McClenachan 2009.

##### **Tiger Sharks:**

Logbook data from the US Pelagic longline fishery targeting tuna and billfish from 1986 to 2000 reported declines of an estimated 65% (Baum et al. 2003)

The Hydenoil Inc. shark fishery on Big Pine Key in the early 1930s reportedly landed 100 sharks per day averaging nearly 2.3 meters in length, with tiger sharks reported as frequent catches. A 2001 survey conducted in the same area as the fishery suggested that tiger shark numbers had been “greatly reduced”. (Heithaus 2001)

#### **3. These species are long-lived and have very low reproductive rates, taking 9 to 15 years to reach maturity and only giving birth every one to two years to a small number of live pups.**

“Those with the lowest recovery capabilities ( $r_{2M} < 0.04$ ) tended also to be coastal species, but were generally medium to large-sized sharks, slow growing and late to mature (Pratt and Casey 1990). For example, the slow-growing, late-maturing sharks with lowest  $r_{2M}$  -values should be

least resilient to fishing mortality, and protecting their reproductive stock should be the priority.”(Smith et al. 1998)

***Great Hammerhead Shark:***

Reaches maturity at 8.2 to 9.8 feet (age unknown), 11 month gestation period, gives birth every two years to an average of 24 pups, and has an estimated lifespan of 44 years.

***Scalloped Hammerhead Shark:***

Reaches maturity at 15 years of age, 9 – 12 month gestation period, gives birth every year to an average of 27 pups, and has an estimated lifespan of 31 years.

***Smooth Hammerhead Shark:***

Reaches maturity at 8.7 feet (age unknown), unknown gestation period, frequency and litter size, and an estimated lifespan of 20+ years.

***Tiger Shark:***

Reaches maturity at 15 years, 13 – 16 month gestation period, gives birth every two years to an average of 46 pups.

(Ward-Paige 2010)

**4. These large coastal shark species are vital components to the marine ecosystem. Allowing their numbers to be further depleted will have negative ripple effects throughout the whole system.**

Numerous studies reveal that overfishing of sharks can have disastrous long-term effects on important commercial fisheries and the health of coral reefs, and that ecosystems with healthy shark populations yield higher numbers of fish. This is because sharks play a vital regulating role in the ecosystem, while also strengthening gene pools and preventing disease outbreaks in fish populations.

Published studies have demonstrated the following potential impacts of depletions of large shark species:

- Collapse of valuable commercial fisheries (Myers et al. 2007, Helfman 2007)
- Decline of coral reef health (Bascompte et al. 2005)
- Decline in abundance of commercially important fish species (removal of tiger sharks led to a “total and rapid crash in the abundance of tuna and jacks” Stevens et al. 2000)

And other studies show that marine ecosystems with larger numbers of sharks also have a higher biomass of prey species (Friedlander et al. 2002).

**5. Hammerhead and tiger sharks are charismatic animals that are extremely valuable to dive tourism. Sharks are ranked as the #1 attraction to divers and sustainably bring hundreds of millions of dollars a year to economies around the world.**

“Scuba divers contribute more than \$41. Billion dollars to local coastal economies alone each year through dive-related vacations.” Oceana 2008

“Surveyed divers ranked sharks as the top species they would like to see on a dive. Seventy-one percent of divers were willing to pay more to see sharks, with the average amount being \$35.36 per dive. Again, using a conservative estimate that the 1.2 million active U.S. scuba divers take an average of five dive trips per year, the annual value of seeing a shark is \$212.2 million. The market for the U.S. shark fishery is currently valued at \$19 million (NMFS 2006 Commercial Landing Statistics). Clearly, sharks are worth more alive as part of the ecotourism industry than dead as part of the fishing industry.” (White 2008)

A recent WTF (willingness to pay) survey aimed at Florida divers with an average of 1000 logged dives revealed that over 75% of them were willing to pay extra to see sharks on a given trip (Medd, unpublished data). “These high WTP values reflect strong socio-economic interests for tourists to experience sharks in the wild, and may reflect the wide distribution and popularity of this industry” (Gallagher and Hammerschlag 2011).

Shark diving tourism in the Bahamas brings a calculated \$78 million dollars per year to the local economy. The value of a single live shark from dive tourism has been estimated at \$200,000 over

its lifetime. That same shark would be worth roughly \$150 – one time – when harvested by a fishery. (Bahamas Diving Association 2008)

**6. The meat from hammerhead and tiger sharks is not considered palatable and is also highly contaminated with mercury and other toxins.**

According to the Florida Dept. of Health Advisory on consumption of fish caught in Florida waters, all sharks from all Florida waters over 43 inches in length should not be consumed by anyone because of high levels of mercury and other toxins. Women of child-bearing age and young children should not eat any species of shark caught in any Florida waters regardless of size. All others should limit consumption of Florida caught shark less than 43 inches in length no more than once a month.

**Note:** *This means that all Hammerhead (Great, Scalloped, Smooth), Tiger and Bull sharks harvested from Florida State waters are not safe for consumption by anyone, since Large Coastal sharks under 54 inches are prohibited from commercial and recreational harvest. (Source: Your Guide to Eating Fish Caught in Florida Waters, Florida Department of Health 2009 - <http://www.doh.state.fl.us/floridafishadvice/Final%202009%20Fish%20Brochure.pdf>).*

**7. These species depend on the Essential Fish Habitats located along Florida's coasts, which serve as breeding, pupping and nursery grounds, for their survival.**

Florida is a very important state for sharks. Florida's coasts are Essential Fish Habitats for hammerhead and tiger sharks. "The term essential fish habitat means those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." -- Magnuson-Stevens Act §3(10)

"...each Council should include EFH considerations within the FEP, using the ecosystem approach to describe such habitat based on the EFH descriptions from existing FMPs." -- Ecosystem Report to Congress, 1999

Mandates established through the Magnuson-Stevens Act task the regional Councils to identify, describe, map and protect Essential Fish Habitat (EFH).

**Great Hammerhead Shark** - EFH zones for all life stages for the Great Hammerhead are located all along Florida's coasts and also extend farther up the East Coast. [3] If you look at a EFH Detail Map, you'll see that the concentration of Great Hammerheads occurs overwhelmingly in Florida.

**Scalloped Hammerhead Shark** - EFH zones for all life stages for the Scalloped Hammerhead are located all along Florida's coasts and also extend farther up the East Coast and the Gulf of Mexico.

**Tiger Shark** - EFH zones for tiger sharks extend up and down the East Coast and in the Gulf of Mexico. The EFH Detail Map for tiger sharks in the neonate life stage, which indicates where the pregnant tiger sharks go to give birth, shows that these individuals are concentrated almost exclusively in Florida coastal waters.

(NOAA Habitat Conservation – Highly Migratory Species data evaluation tool - [http://sharpfin.nmfs.noaa.gov/website/EFH\\_mapper/HMS/map.aspx](http://sharpfin.nmfs.noaa.gov/website/EFH_mapper/HMS/map.aspx)).

***Requirement for use of circle hooks to reduce post release injury and mortality of sharks.***

Between 1.5 and 2 million sharks are caught and released in Florida each year. Commercial shark harvest totals around 2 million pounds or (using the 20 lb avg) 100,000 sharks and recreational shark harvest is around 70,000 sharks per year.

NMFS estimates that at least 20% of released fish end up dying. If this figure is correct, then between 300,000 and 400,000 sharks per year could be dying in Florida from catch and release fishing. This is from well-meaning people who don't even intend to kill the animals.

Anything that can be done to reduce the post release mortality % can have a very substantial positive impact on these vulnerable and valuable shark populations.

Use of Circle Hooks (especially combined with angler education on proper handling techniques) has been proven to greatly reduce post release mortality among large game fish, including sharks. (UK Shark Tagging Programme 2002; Ward et al. 2008).