

Sharks



Review and Discussion
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Florida Fish and Wildlife Conservation Commission

Version 2

This is a review and discussion of sharks and shark-related issues in Florida.

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Photo courtesy of Heidi Thoricht.

Unless otherwise noted, images throughout the presentation are by FWC.

Outline

- Background
- Shark fisheries management
- Status of sharks
- Changes in public perception
- Current shark-related issues for Florida including shore-based fishing
- Options moving forward



Photo courtesy of Southwest Fisheries Science Center, NOAA Fisheries Service

Staff will provide background on sharks, shark fisheries management in Florida, the status of sharks, and information pertaining to the change in public perceptions over time. Staff will also provide an overview of current shark-related issues in Florida, including shore-based fishing, and will be seeking direction on options moving forward with respect to management of the shore-based fishery.

Background

- Sharks have existed for millions of years
- Vital role in marine ecosystems
- Long-lived, slow to mature, few offspring
 - Highly vulnerable to fishing pressure
- Rapid stocks declines in 1970s through early 1990s
 - Increased demand
 - Seen as an underutilized resource
 - Large coastal sharks heavily impacted
- Florida took on a leadership role in shark conservation in response to declines



Photo courtesy of NOAA

Sharks are one of the oldest types of animals on earth, having existed for more than 400 million years. As top predators, sharks play a vital role in marine ecosystems by helping to keep fish and other marine organism populations healthy and in proper proportion. Sharks are also long-lived animals that are slow to mature and have few offspring. For example, white sharks (commonly known as great whites) can live up to 70 years and females do not start producing offspring until around age 15. Unlike many other fish species, which can produce thousands of eggs per spawning event, multiple times per year, most shark species give birth to fewer than 10 pups per litter, and not all mature female sharks produce a litter each year. These life history characteristics make sharks highly vulnerable to fishing pressure and to becoming overfished. This is especially true for large coastal sharks.

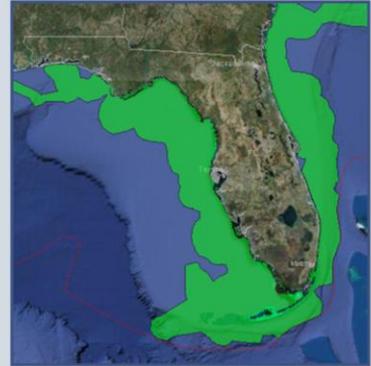
In the mid-1970s through the early 1990s, shark stocks rapidly declined along the U.S. Atlantic coast due to high rates of harvest and an increased demand for shark products, including meat, fins, and other shark products. At the time, sharks were seen as an underutilized resource that could be exploited further as a fishery target. Large coastal shark species became preferentially targeted due to their high meat content, large fin sizes, and proximity to land. In response to the steep population declines, Florida began implementing shark fishing regulations in the early 1990s, quickly becoming a leader in shark conservation.

Florida – A Leader in Shark Management

- Florida led development of strict regulations
- FWC regulations are more strict than federal waters
 - Commercial fishers follow recreational regulations

Additional conservation warranted in state waters

- Florida's waters include Essential Fish Habitat (EFH)
- Shallow state waters contain critical nursery habitat
- Pregnant females susceptible to harvest in coastal waters



Great hammerhead EFH in Florida's state waters (www.sharppin.nmfs.noaa.gov)



Florida enacted strict regulations in the early 1990's, including a prohibition on shark finning (the removal of shark fins at sea and discarding the rest of the shark), before the National Oceanic and Atmospheric Administration (NOAA) and many other states. Many of Florida's shark regulations are more strict than federal regulations, including holding commercial fishers to the recreational bag and size limits when fishing in state waters.

There are considerable conservation benefits to limiting shark harvest from Florida's coastal and nearshore state waters. NOAA Fisheries has identified Florida's coastal waters as Essential Fish Habitat (EFH) for several large coastal sharks, such as the great hammerhead and tiger shark. EFH is defined as waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Florida's shallow state waters contain critical nursery habitat where pregnant female sharks occur in predictable locations at specific times of the year, making them more susceptible to harvest. By limiting or prohibiting harvest of species particularly susceptible to fishing pressure in state waters at this important life stage, Florida is able to provide an extra level of shark conservation while maintaining harvest opportunities for many of these species in adjacent federal waters under the federal regulations.

FWC Regulations

- Harvest prohibited for 26 shark species
 - Species particularly vulnerable to coastal fishing pressure
 - Contribute to population-level recoveries

Commercial and recreational harvest regulations

- Bag/vessel limits: 1 shark/person with a maximum of 2 sharks/vessel
- Minimum size limit: 54-inch inches for several species
- Allowable gear: hook and line only
 - Use of natural bait prohibited when using treble hooks
- Sharks must be landed with head, tail, and fins attached

Federal limited-access permit required for commercial harvest



Photo courtesy of Doug Perrine

FWC prohibits harvest of 26 sharks species when fishing in state waters. This prohibition includes not only species for which there are population concerns, but also provides for additional conservation of species that are particularly vulnerable to coastal fishing pressure, as discussed previously. These additional protections contribute to population level recoveries.

In general, FWC manages commercial and recreational shark harvesters with the same regulations. Harvesters are allowed one shark per person per day with a maximum of two sharks per vessel. Several shark species for which harvest is allowed are subject to a minimum size limit of 54-inches fork length. Sharks without a minimum size limit include several small coastal species that do not generally reach 54 inches in length. The only allowable gear is hook-and-line and the use of natural bait is prohibited when using treble hooks. All sharks that are harvested must be landed with the head, tail, and fins attached.

Commercial shark fishermen in Florida state waters are required to have an annual federal limited-access vessel permit, in addition to the state's commercial fishing license (the Saltwater Products License). Commercial harvesters may only sell their shark harvest to wholesale dealers who have a valid federal Atlantic shark dealer permit.

Prohibited Sharks and Similar Species

Pelagic Species

Bigeye sixgill shark
Bigeye thresher shark
Longfin mako shark
Sevengill shark
Sixgill shark

Others

Spiny dogfish*
Manta and devil rays
Spotted eagle ray*
Smalltooth sawfish
Largetooth sawfish

Small Coastal Species

Atlantic angel shark
Smalltail shark
Caribbean sharpnose shark



Zooplanktivores

Basking shark
Whale shark

Large Coastal Species

Galapagos shark
White shark
Sand tiger shark
Narrowtooth shark
Bigeye sand tiger
Bignose shark
Caribbean reef shark
Dusky shark
Night shark
Lemon shark*
Sandbar shark
Silky shark
Great hammerhead*
Scalloped hammerhead*
Smooth hammerhead*
Tiger shark*



* Species are prohibited from harvest in state waters but not federal waters

This slide includes a list of shark and shark-related species that are prohibited from harvest when fishing in state waters. Species in blue (also indicated by an asterisk) are those for which harvest is prohibited from Florida waters but not prohibited in adjacent federal waters.

As previously stated, these prohibitions on harvest reflect either the vulnerability of these species to fishing pressure or, in some cases, concerns about their population status. Very few species on this list are included in the Endangered Species Act (ESA): the giant manta ray is listed as Threatened and both sawfish species are listed as Endangered.

Worldwide Status

- Many overfished internationally or declining
 - 25% threatened with extinction
 - Protected by several nations and international treaties
- Some species recovering
- Sustainable shark fisheries increasing
 - Successful fisheries management
 - Decreasing demand for fins in China
 - Tighter regulations on selling and shipping internationally
 - Growing appreciation for ecosystem and ecotourism value



Photo courtesy of Getty Images

On a global scale, many shark populations are still being overfished. Some targeted shark species continue to decline and an estimated 25% of the world's shark and ray species are threatened with extinction according to the International Union for Conservation of Nature's (IUCN) Red List of Threatened Species. However, several species have been protected by national legislations (e.g., the U.S. Shark Finning Prohibition Act and Shark Conservation Act) and international treaties. Largely due to these protections, some shark species are showing signs of recovery.

Sustainable shark fisheries are increasing in frequency for a variety of reasons, including successful fisheries management. Rules and policies designed to protect sharks, such as prohibiting shark finning, are working. Historically, there has been a high demand for shark fins in China for shark fin soup, a traditional symbol of status. In recent years, as international awareness of global shark declines and public outcry over the inhumane practice of finning has increased, demand for shark fins in mainland China has declined. However, the decline in demand for fins in China is somewhat offset by expanding and emerging markets outside of the mainland in Macau and also in Thailand. Tighter regulations on selling and shipping shark products, increased interest in shark-related ecotourism, and a growing appreciation for the importance of a shark's role in a healthy ecosystem has also contributed to the increase in sustainable shark fisheries.

South Atlantic Status

- Preliminary recovery in the southeastern U.S. due to management measures
 - Small sharks have a higher capacity to recover
 - Large sharks also showing signs of recovery
- Need for ESA listing recently evaluated for several species
 - Listing not warranted for most species, but oceanic whitetip listed as threatened
 - No other populations off Florida ESA listed

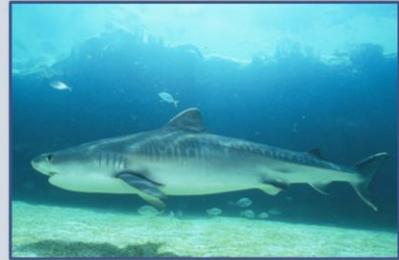


Photo courtesy of Doug Perrine

In contrast to continued concerns about the global status of sharks, shark populations along the U.S. Atlantic coast are responding well to state and federal fisheries management measures. Research has shown a preliminary recovery of sharks in the southeastern U.S. Small coastal sharks have a higher capacity to recover because they reach maturity at younger ages. Large coastal sharks mature at later ages and are slower to recover from declines; despite this, research indicates that some large coastal sharks, such as spinner and tiger sharks, are increasing in abundance.

NOAA Fisheries has evaluated the population status of several species and recently determined that ESA listing was not warranted for the great hammerhead or smooth hammerhead in U.S. Atlantic waters. The oceanic whitetip shark, found globally in deep, open oceans, was listed as Threatened under ESA earlier this year. Currently, no other shark populations off the mainland South Atlantic or Gulf coast states are listed under ESA.

Changes in Public Perception

- Shark fishing largely unregulated prior to the 1990s
 - 1970s–80s: fear and villainization following release of “Jaws”
- 1990s: Attitude shift toward conservation

High profile, high interest topic

- Increasing interest in sharks is magnifying social conflicts
- Social media increasing awareness of negative interactions
 - Increased ability to share fishing stories
 - Increased accessibility of news sources
- Shark Week™



Photo courtesy of Doug Perrine



Prior to the early 1990s, shark fishing in the U.S. was largely unregulated. The movie “Jaws” caused fear among the public leading to villainization of sharks during the 1970s-80s. This fear, called the “Jaws Effect,” led to additional unregulated killing and harvest of sharks. However, beginning in the 1990s, the public attitude toward sharks shifted toward conservation. This shift was largely influenced by education campaigns and the increase in shark fishing regulations.

Sharks are a high profile, high interest topic with passionate stakeholders who have a variety of interests and perspectives. The growing availability of shark information is increasing public interest in shark conservation and magnifying existing social conflicts in Florida. Social media has also added a heightened awareness of negative shark interactions due to the increased ability for fishers to share fishing stories and an increased accessibility of news sources. Television programming, like the annual Shark Week™, featuring shark-based content help to increase awareness of sharks and shark conservation and also highlight both positive and negative interactions with sharks.

Current Shark-related Issues for Florida

- Shark bites
- Shark fin sales
- Shark feeding
- Other topics of public concern
- *Shore-based shark fishing*



Photo courtesy of NOAA

There are a variety of shark-related issues and conflicts in Florida. This presentation includes a discussion of shark bites, shark fin sales, shark feeding, other topics of public concern, and shore-based shark fishing.

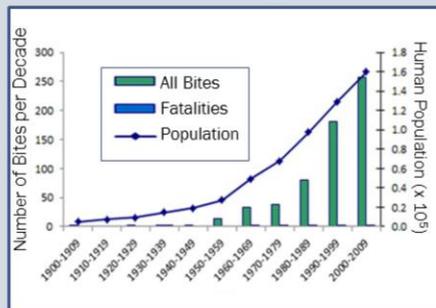
Shark Bites

Issue

- Number of bites correlated with human population increases
- Increasing media attention creates misconception that bites are common

FWC's role

- County, city, and beach patrols lead responses
- FWC staff coordinates with the UF International Shark Attack File



No credible evidence that fishing increases the occurrence of shark bites



The annual number of shark bites both worldwide and in Florida has been increasing as the human population increases and larger numbers of Florida residents and visitors take part in nearshore activities, such as swimming and surfing. The figure on the slide shows the increasing human population (line) as well as the number of shark bites, aggregated in 10-year increments (taller bar), and shark bite fatalities (fewer than 10 per decade), since 1900. This figure shows a strong correlation between the increasing human population and the increasing number of shark bites. Not all shark bites are considered unprovoked, some have been a result of humans harassing sharks or engaging them in activities such as shark feeding. Despite shark bites being relatively rare, increasing media attention and public access to online news sources makes them appear more common. Only about 1% of shark bites that occur in Florida waters are fatal.

County, city, and beach patrol officials have historically led responses to local shark bite incidents, in part because of proximity to the scene. FWC staff coordinates information related to shark bites with the International Shark Attack File staff at the University of Florida, which has shark bite records dating back to the mid-1800s.

Despite public concern that shore-based fishing activities draw sharks to nearshore waters (discussed later in this presentation), there is no credible evidence that the presence of fishing activity increases the occurrence of nearby shark bites.

Shark Fin Sales

Proponents of banning possession or sale of fins believe it would improve conservation

- Finning banned in the U.S. but continues elsewhere
- “Finning” is removing fins at sea and discarding remainder of shark
- Historical and on-going finning contributed to declines

FWC’s current position: ban on sale of fins in the U.S. would have

- Little to no impact on foreign practices
- Negative economic impacts on the sustainable U.S. fishery

FWC action

- Supported increasing penalties for illegal harvest
- Supporting federal legislation to ban imports from nations without adequate conservation measures



Photo courtesy of NOAA

In recent years, there has been a push by some shark advocates at both state and federal levels to ban possession and sale of separated shark fins. Proponents of banning the possession or sale of fins believe it would improve international shark conservation. “Finning” is the inhumane practice of removing shark fins at sea and subsequently discarding the rest of the shark without bringing it to shore. The practice of finning has been banned in Florida since 1992 and in all U.S. waters since 2000; however, finning does still occur in other parts of the world.

FWC believes that a ban on sale of shark fins in the U.S. would have little to no impact on foreign fishing practices and it would cause a significant negative economic impact to participants in the sustainable U.S. fishery, with a disproportionately negative impact on Florida’s commercial fisherman, relative to those of other east coast states. The proposed bans on possession and sale of shark fins would also mandate that part of the shark be thrown away, which goes against FWC’s and the IUCN’s philosophy that harvesters should use as much of a harvested shark as they can to reduce waste.

FWC supported recent state legislation that increased penalties for finning and possession of illegally harvested fins. FWC also supports proposed federal legislation that would ban import of shark products from nations without adequate shark conservation measures. FWC is working with the U.S. commercial shark fishery to implement traceability measures that would aid in this type of ban.

Shark Feeding

Issue

- Shark “feeding” is the practice of *divers* providing food to sharks *while in the water*
- Prohibited in state waters but allowed in adjacent federal waters
- Diver concerns about aggressive shark behaviors

FWC’s current position

- Acclimation of sharks to being fed may create a diver safety issue
- Could disrupt shark migratory behaviors and overall health

FWC action

- Supporting options for legislation that would prohibit shark feeding in federal waters



Photo courtesy of Albert Kok

Shark “feeding” is the practice of divers providing food to sharks while in the water. This practice is prohibited in Florida state waters but is allowed in adjacent federal waters. Divers have voiced concerns that sharks are becoming more aggressive in locations where feeding commonly occurs.

FWC believes that shark feeding has the potential to acclimate sharks to being fed and associate divers with food. This could create a safety issue for divers who are not participating in shark feeding as a result of sharks looking for food. Additionally, shark feeding has the potential to decrease a shark’s fitness and ability to survive in the wild as well as disrupt natural migratory behaviors.

FWC supports options for federal legislation that would prohibit shark feeding in federal waters off Florida.

Other Topics of Public Concern

Issues

- Interactions between sharks and fishermen
 - Sharks stealing fish or damaging gear
 - Staff exploring non-regulatory options
- Recent “shark dragging” incident
 - National conversation about gross mishandling of sharks
 - FWC LE investigation resulted in felony charges



Photo courtesy of Heidi Thoricht

In response to conservation measures, shark populations have increased. With the increased populations, some fishermen believe that sharks have become a nuisance by stealing hooked or speared fish and by eating released fish. Some anglers have expressed concerns that this depredation of fish by sharks could eventually lead to declines in those fish populations. In extreme cases, some stakeholders have reported sharks attacking their boat motor or tearing up fishing gear.

FWC recognizes that sharks are a valuable part of the ocean ecosystem and, at this time, staff is not recommending relaxing shark fishing regulations. However, staff is exploring non-regulatory options to address this problem. Staff currently advises fishermen that when they encounter sharks that are routinely feeding off their catch, the best option is to move to a new fishing area.

Another recent issue centers around the 2017 incident involving a live shark being dragged at a high speed behind a moving vessel. The incident caused considerable public outcry and started state-wide and national/international conversations about ethical fishing and gross mishandling of sharks and other animals. FWC Law Enforcement investigated the incident, resulting in felony charges for three individuals.

Shore-based Shark Fishing

- Florida's beaches are a popular fishing destination
- Shore-based shark fishing popular for decades
 - Catch-and-release oriented
 - Anglers often participate in research-related tagging programs
- Can occur from beaches, bridges, or piers
- Often occurs at night
- Participants
 - Private anglers and shore-based guides
 - Tournaments: regional, statewide, multi-state, and international



Florida's beaches are a popular fishing destination for a variety of shark and non-shark species. Shore-based shark fishing has been a popular recreational fishery for decades and is largely focused on catch and release. Participants in this fishery also have an opportunity to participate in research-related shark tagging programs, including the NOAA Apex Predator Program. Shore-based shark fishing can occur on beaches, bridges, or piers and is predominantly, although not exclusively, a nighttime fishery.

A variety of anglers participate in the fishery, including private recreational anglers as well as shore-based fishing guide services. Fishing tournaments are an important component of the fishery and can be regional, statewide, multi-state, and even international.

Although this is a traditional fishery in Florida, social media has drawn more attention to the activity in recent years. This has also exacerbated conflicts between user groups. Despite the appearance on social media that this fishery is growing, it is unclear how much of the growth is actually increased participation as opposed to perceived growth due to increased media attention.

Shore-based Shark Fishing Continued

Issue: Conflicts between anglers and other user groups increasing

- Does not threaten shark sustainability
- Social media has drawn attention to the activity

Public concerns

- Anxiety that fishing draws sharks nearer to shore
- Concern that tackle used creates a hazard
- Misconceptions that targeted shark species are ESA listed
- Angler concerns about elimination of this traditional fishery
- Broad concerns about improper handling



Photo courtesy of Stephen Kajura

In recent years, conflicts between shore-based shark anglers and other coastal user groups have been increasing. There are a variety of concerns related to this fishery from both the general and angling public. One of the most commonly heard concerns from the non-fishing public is that shore-based shark fishing draws sharks to nearshore waters where people are spending time in the water, potentially endangering those in the water. However, as stated earlier in the presentation, there is no credible evidence that fishing increases the likelihood of a shark bite occurring in nearby waters. Another concern from beach-goers is that the heavy tackle used when targeting sharks poses a safety risk for people in the water or when left on the beach. There is also considerable concern related to a common misconception that sharks that are prohibited from harvest are threatened or endangered. As discussed earlier in the presentation, there are a variety of reasons that FWC may choose to prohibit the harvest of a shark species. Although concern over targeting ESA-listed shark species is a common concern, ESA-listed species are not typically impacted by this fishery in Florida.

Anglers have expressed concern that further restricting this fishery could lead to the elimination of this traditional activity. Finally, both the fishing and non-fishing public have voiced concerns that improper handling techniques used by some participants in this fishery may have an unnecessary impact on sharks due to fishing-related shark mortality. Post-release shark mortality in the shore-based fishery can be caused by stress on the animal from lengthy fight-times that sometimes occur when bringing the shark to shore, which can disproportionately effect some species. Another potential cause of post-release mortality is the potential for injury to a shark's internal organs which may be caused by bringing large sharks out of the water.

Shore-based Shark Fishing Continued

FWC response to date

- Shark-Smart Fishing guidelines recently developed
 - Encourage ethical and considerate angling practices
 - Maximize survival of released sharks
- Facilitate conversations between different user groups
- Presentations to local governments to dispel misinformation
- Meetings with tournament directors



Photo courtesy of Doug Perrine

FWC has responded to concerns and conflicts related to the shore-based shark fishery in a variety of ways. Staff recently developed Shark-Smart Fishing guidelines to encourage courteous use of Florida beaches and best fishing practices, such as using appropriate tackle and releasing a shark as quickly as safely possible, to maximize the survival of released sharks.

Staff has also worked to facilitate conversations between different, often conflicting, user groups. One benefit of these conversations is that it has provided an opportunity for these groups to realize that they share an interest in shark conservation. These conversations have also provided an opportunity to dispel misconceptions about the fishery and fishing practices. Presentations at local governments or community meetings have also been an effective way to dispel misconceptions about the shore-based shark fishery as well as general shark behavior and biology.

Finally, staff has begun meeting with directors of shore-based shark fishing tournaments and attending in-person tournament meetings to encourage Shark-Smart Fishing among tournament participants and to reduce the number of fishing violations by participants in this fishery.

Options Moving Forward

Non-regulatory measures

- Increase public outreach and engagement with fishery
 - Shark-Smart Fishing guidelines
 - Encourage best practices for shore-based fishing

Potential rulemaking

- Explore rulemaking to alleviate user conflicts
 - Revisit temporary possession regulations
 - Explore permitting options for shore-based shark fishing
 - Legally define “shore-based shark fishing” in terms of fishing gear
- Consider requiring circle hooks for sharks



Commission direction requested

Photo courtesy of NOAA

There are a variety of options FWC could consider moving forward with management of sharks in Florida. In order to address shark-related concerns and issues important to Florida, staff can increase outreach and engagement with stakeholders on shark-related issues, promote FWC’s Shark-Smart Fishing education campaign, and continue to encourage proper handling and best practices for shore-based shark fishing.

If the Commission would like to consider regulatory measures to alleviate user conflicts related to the shore-based fishery, a variety of options could be considered. In order to further regulate this fishery, FWC would need to legally define “shore-based shark fishing,” which would likely be done in terms of the fishing gear that is used. After doing so, additional regulatory options could included requiring a permit (for an individual angler or a tournament) to participate in shore-based shark fishing, revisiting temporary possession regulations to mandate handling guidelines for both allowable and prohibited shark species, and requiring that both vessel- and shore-based shark anglers use circle hooks.

Staff is seeking Commission direction on next steps related to sharks and options moving forward.

Staff Recommendation

- Continue to stay engaged on all Florida shark-related issues

Shore-based fishing

- Work with tournaments and anglers to improve shark handling and minimize conflicts
- If Commission directs staff to explore regulatory options, staff recommends hosting public meetings prior to developing a draft rule



Photo courtesy of Doug Perrine



Staff recommends that FWC continue to stay engaged on all Florida shark-related issues.

Specifically for shore-based shark fishing, staff recommends continuing to work with shark fishing tournaments and anglers to encourage Shark-Smart Fishing practices and working with all user groups to minimize conflicts related to this fishery. If the Commission would like staff to explore regulatory options for this fishery, staff recommends hosting public meetings to engage all affected stakeholder groups prior to developing specific options and bringing forward a draft rule.