



This document summarizes a draft rule amendment for the Florida Fish and Wildlife Conservation Commission's (FWC) Shark Rule 68B-44, Florida Administrative Code (F.A.C.), that would prohibit the harvest of lemon sharks in state waters. At the September 2009 Commission meeting staff was directed to investigate the status and vulnerability of the lemon shark population in Florida and to return to the Commission at the December meeting with a recommendation.

Author: Aaron Podey and Melissa Recks

## Lemon Shark Review

- **June 2009** – Stakeholders attending FWC public workshops on Atlantic States Marine Fisheries Commission shark plan expressed concern about the vulnerability and status of lemon sharks
- **August 2009** – A proposal to prohibit the take of lemon sharks was presented to the FWC Division of Marine Fisheries Management
- **September 2009** – The Commission directed staff to investigate the proposal and return to the Commission in December with a recommendation
- **October 2009** – Public workshops held



In June 2009, stakeholders attending FWC public workshops on the Atlantic States Marine Fisheries Commission (ASMFC) Interstate Fisheries Management Plan for Atlantic Coastal Sharks expressed concern about the vulnerability and status of the lemon shark, *Negaprion brevirostris*, population. In August, a proposal to prohibit the take of lemon sharks was presented to the Division of Marine Fisheries Management by lemon shark researchers and other concerned stakeholders. The public presented additional comments concerning the status of lemon sharks at the September 2009 Commission meeting. Staff was directed to investigate the proposal to prohibit the harvest of lemon sharks and return to the Commission in December with a recommendation. In October, DMFM staff held two public workshops to receive comments on the proposal to prohibit the harvest of lemon sharks in Florida waters.

## Lemon Shark Vulnerability

- NOAA Fisheries Service study found lemon sharks to be the most vulnerable of all 33 large coastal sharks
- Highly susceptible to harvest:
  - Often found near shore in shallow water
  - Aggregate at predictable sites at specific times
  - Sharks from the Carolinas, Marquesas, and Bahamas return to Florida's southeast coast
- High overharvest potential:
  - Slow growing
  - Low reproductive potential
  - High juvenile mortality



A recent National Marine Fisheries Service study found lemon sharks to be the most vulnerable of all 33 large coastal shark species. The study pointed to several reasons why lemon sharks are highly susceptible to harvest and also have the potential to be overharvested.

Lemon sharks are highly susceptible to harvest pressure. In Florida waters lemon sharks are often found near shore in shallow water. They aggregate in large groups off Florida's southeast coast and these aggregation seasons and sites are predictable. This behavior makes them easy to locate year after year. Although adult lemon sharks tagged in Florida travel to the Carolinas, Marquesas, and Bahamas, these sharks return to aggregate off Florida's southeast coast year after year. Because of these behaviors, large numbers of individuals could be removed from the population with minimal effort by harvesters.

Lemon sharks are also susceptible to overharvest because of their life history characteristics. Lemons sharks are a slow growing species that reaches sexual maturity at 12-15 years of age and at lengths of around 90 inches or greater. This species has low reproductive potential, producing 6 to 18 pups per litter, every second or even third year. Additionally, juvenile lemon sharks experience a mortality of 40-60%.

## Reasons to Prohibit Harvest

- Recent changes in federal regulations could cause effort to shift to lemon sharks:
  - Additional shark species added to the prohibited list
  - Changes to harvest limits
  - Sandbar shark take has been severely restricted
  - Tighter restrictions on reef fish
- Tagging study found high mortality of aggregating adults in one season
- High ecotourism value



Lemon sharks are good candidates for the prohibited species list for the following reasons:

Recently, federal regulations were changed that may cause an effort shift to lemon sharks. Additional shark species have been prohibited, and the take of sandbar sharks, one of the most sought after species, has been severely restricted limiting the options of commercial harvesters. The harvest limits of commercial sharks have been also been altered from total pounds per trip to 33 large coastal sharks per trip, which causes harvesters to target larger species like lemon sharks. Further, tighter recreational restrictions on reef fish species have decreased options for anglers, causing them to switch to other fishing opportunities.

Recently, some preliminary data from an ongoing tagging study found that at least 7.5% (possibly 10%) of tagged adult lemon sharks from a southeast Florida aggregation succumbed to fishing mortality in one season. With mortality at this level, the entire aggregation could be harvested in a few years.

Many Florida dive charter companies report ecotourism trips to see lemon shark aggregations are a large portion of their trips in the winter months. Additionally, a recent Bahamian government study found each shark to be worth over \$150,000 due to ecotourism over its lifetime.

## Public Comments

### Public workshops:

Fort Myers – seven attendees

Dania – 56 attendees

### Public Correspondence:

Comments received via email, telephone, letters, and petition



### Recommendation from the public:

*Overall, most believed lemon sharks should be added to the prohibited species list*

### Workshop Survey Results:

29 people supported, six opposed, one uncertain



Two public workshops were held to gather public comments. A workshop was held in Fort Myers on October 19<sup>th</sup> and was attended by seven people. A second workshop was held in Dania on October 20<sup>th</sup> and was attended by 56 people. In addition to commenting at the workshops, the public commented via email, telephone, written letters, and an internet petition. At the time of this writing, staff has received over 25 comments outside of the workshops regarding lemon shark management, in addition to a petition with over 4,700 signatures asking to prohibit lemon shark harvest in Florida waters.

Overall, most of the stakeholders believed lemon sharks should be added to the prohibited species list because they are very susceptible to harvest, they are valuable apex predators in the ecosystem, and they supply more economic benefit alive than when harvested.

Six people stated they opposed banning the harvest of lemons citing inadequate data, commercial quotas are already in place, and the fishery is heavily managed.

At the workshops a written survey was provided and completed by 29 workshop attendees. Of those, 25 people supported the proposal to ban the harvest of lemon sharks, three people opposed the proposal, and one needed additional information.

## Proposed Draft Rule:

Prohibit all harvest of lemon sharks, *Negaprion brevirostris*, in state waters of Florida



The proposed draft rule would prohibit the harvest of lemon sharks in state waters. The proposed prohibition on harvest would apply to both the recreational and commercial harvest of lemon sharks in state waters of Florida. Legally-caught lemon sharks in adjacent federal waters would still be allowed to be landed in Florida.

Prohibiting the harvest of lemon sharks in state waters of Florida, while they are not prohibited in adjacent federal waters, would protect 90% of the known aggregations of this species because these aggregations occur within state waters.

## Staff Recommendation

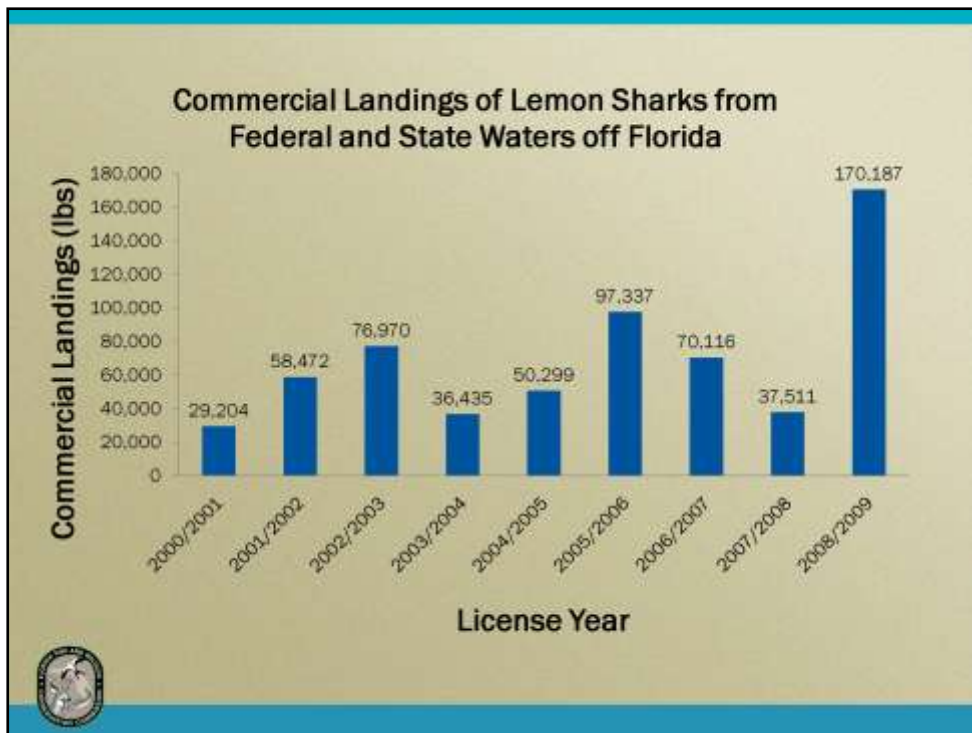
- Approve draft rule prohibiting the harvest of lemon sharks in state waters of Florida
- Proceed to Final Public Hearing in February 2010



Staff recommends approving the draft rule prohibiting the harvest of lemon sharks and, if approved by the Commission, proceeding to Final Public Hearing in February 2010.

The following slides are considered back up material and are not anticipated to be part of the actual presentation to the Commission





The above slide depicts the commercial landings of lemon sharks (pounds) from July 1, 2000 through November 1, 2009, data from the Fish and Wildlife Research Institute's commercial fisheries landings database.