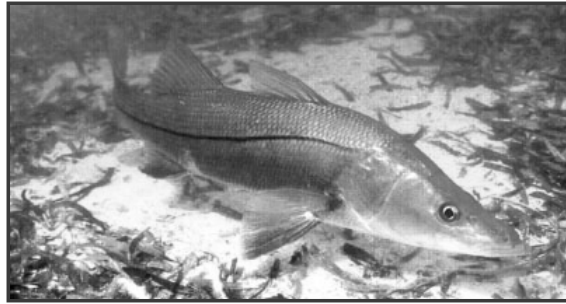


Snook

**2005 Stock Assessment Review and Discussion
February 24, 2006**



**Florida Fish and Wildlife Conservation Commission
Division of Marine Fisheries Management**

This is a brief review and discussion of the 2005 snook stock assessment completed by the Florida Fish and Wildlife Research Institute (FWRI) and includes a review of the biology, fishery, and current regulations for snook. This assessment includes data through 2004. The previous stock assessment for snook was completed in 2002. Snook is an important recreational fishery for the State of Florida.

Distribution



- Snook are found from Sebastian Inlet south on East coast and from Tarpon Springs south on West coast
- 4 species in Florida, common snook are most abundant
- Juveniles prefer shallow waters often with overhanging vegetation; Adult distribution closely follows the distribution of mangroves
- Adults also found along beaches, river mouths, nearshore reefs, salt marshes, seagrass meadows, and freshwater lakes and rivers
- Tolerant of wide range of salinities but are sensitive to abrupt changes in temperature

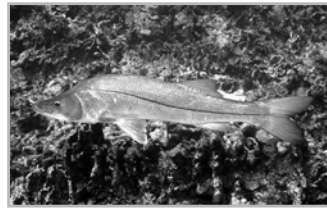


In Florida, snook are abundant along the East coast from Sebastian Inlet south and along the Gulf coast from Tarpon Springs south. They also occur in the Gulf of Mexico off Texas, Central America, and in the Caribbean throughout the West Indies. In the Atlantic they occur as far south as Rio de Janeiro, Brazil and as far north as Delaware. Snook are found in estuaries, adjacent rivers, and in nearshore waters. There are four species of snook in Florida, but the most abundant is the common snook. (This talk will focus on the common snook, *Centropomus undecimalis*.) Juveniles prefer low energy shallow waters, often near overhanging shoreline vegetation (*e.g.* mangroves) or seagrass. Adult distribution closely approximates the distribution of mangroves, but they are also found along beaches, river mouths, nearshore reefs, salt marshes, seagrass meadows, and freshwater lakes and rivers. Snook are tolerant of a wide range of salinities, but sensitive to abrupt changes in temperature. Snook are highly sensitive to cold weather events such as passing cold fronts. If the water temperature drops below 60 degrees Fahrenheit or drops rapidly snook become sluggish and could die. Natural mortality rates for snook are higher on the Gulf coast because snook are exposed to more cold kills and possibly red tides.

Biology



- Protandric hermaphrodites - begin life as males and then become females
- Spawn from April to September in Gulf and April to October in Atlantic in spawning aggregations
- Oldest: Atlantic - 18 years old
Gulf - 16 years old
- Largest: Atlantic - 45.1 inches TL
Gulf - 43.0 inches TL



Common snook are protandric hermaphrodites, *i.e.* they begin life as males and then after maturation the fish become females. Thus, most small snook are males and large snook are females. Along Florida's Atlantic coast, fifty percent of the fish in a given year class will be females by the time they reach 32 inches total length (TL_{max}). On the Gulf coast, fifty percent in a given year class will be females when they reach 26 inches TL. The reproductive season for snook extends over six months: on the Gulf coast from April to September and on the Atlantic coast from April to October. Snook spawn within aggregations and fish move to and from the spawning aggregation during the season. It is not known how many times individual fish spawn within one season.

Snook on the Atlantic coast attain larger sizes than snook on the Gulf coast. The oldest recorded common snook on the Atlantic coast was an 18 year old female, and the oldest recorded snook on the Gulf coast was a 16 year old male. The largest recorded common snook on the Atlantic coast was 45.1-inches TL and the largest on the Gulf coast was 43-inches TL.

Fishery

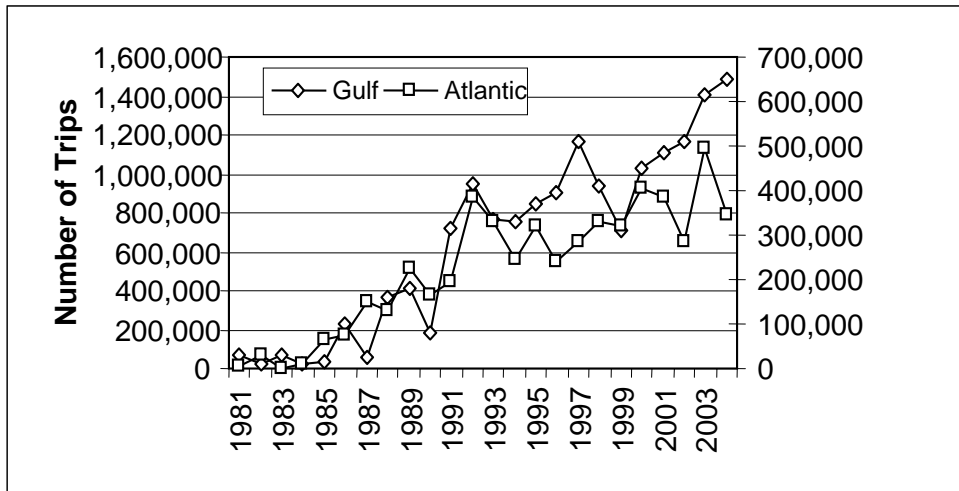
- No commercial harvest = Gamefish
- Snook are managed as two separate units - Atlantic and Gulf coasts
- Number of fishing trips for snook has increased over time on both coasts peaking on Gulf coast in 2004 and on Atlantic in 2003
- Total catch has increased over time peaking on the Gulf coast in 2004 and on the Atlantic in 2003
- Since 1998 there has been an increase in harvest on the Gulf coast and stable harvest on the Atlantic coast
- Anglers release 90% of the snook they catch



Snook was declared a gamefish by the 1957 Florida Legislature, which means there is no commercial harvest allowed (*i.e.*, buying and selling prohibited). Common snook on the Atlantic and Gulf coasts are sufficiently isolated and have slightly different life histories such that they are managed as two separate management units. The Atlantic coast management unit comprises all snook found in waters of the Atlantic Ocean north and east of the Dade-Monroe County line and those harvested from the Lake Okeechobee and the Kissimmee River. The Gulf coast unit includes snook occurring in the Florida Keys, Everglades National Park (ENP), and along the entire Gulf coast.

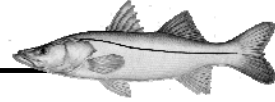
The number of fishing trips for snook has increased over time on both coasts, peaking on the Gulf coast in 2004 and on the Atlantic coast in 2003. Total catch has also increased over time, also peaking on the Gulf coast in 2004 and the Atlantic in 2003. Since 1998 there has been an increase in harvest on the Gulf coast and stable harvest on the Atlantic coast. Anglers release 90% of the snook they catch.

Number of Trips

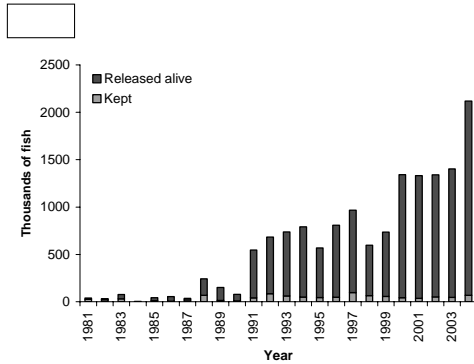


The number of directed fishing trips for snook has increased since the early 1980s. Directed trips for snook on the Gulf coast during 2004 reached 1,491,332. Trips on the Atlantic coast peaked in 2003 at 493,956 and decreased in 2004 to 343,506. Based on marine recreational fisheries statistics survey (MRFSS) interviews of anglers who indicated preference for a particular species in 2004, snook was the fifth most targeted fish on the Atlantic coast and the fourth most targeted species on the Gulf coast. Since 1993, snook have been the most frequently noted targeted species in the Everglades National Park Creel Survey followed by spotted seatrout and red drum.

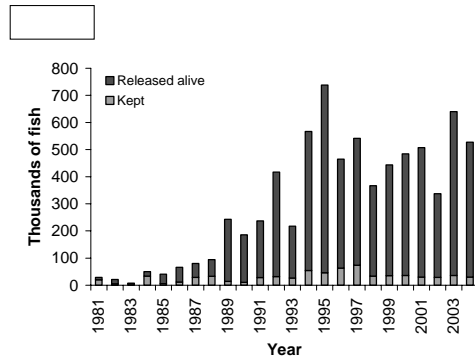
Estimated Total Recreational Catch



Gulf



Atlantic



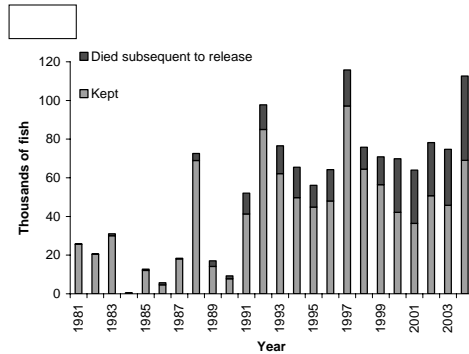
- Includes fish kept and fish released alive
- Anglers release 90% of the snook they catch

Angler interviews indicate that recreational anglers in Florida continue to release more than 90% of the snook they catch. In 2004, the total catch, including the number of releases, was approximately 2,124,000 fish on the Gulf coast and 527,000 fish on the Atlantic coast. The total catch for snook peaked on the Gulf coast in 2004 at 2,124,000 fish and peaked during 1995 on the Atlantic coast at 737,000 fish.

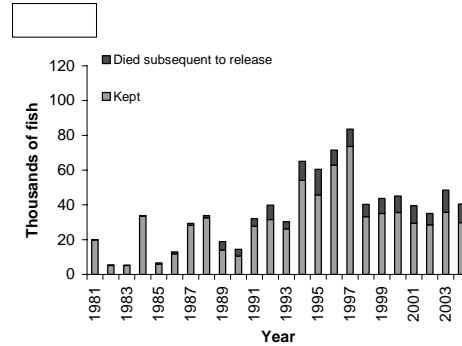
Estimated Harvest - Recreational



Gulf



Atlantic



- Includes those landed and kept and those that died after release
- 35% of the total statewide harvest are attributable to deaths that occurred after snook were released

Harvested fish includes those that are landed and kept as well as those that died after release. The average release mortality rate, *i.e.*, the percentage of snook that die after having been released alive, is 2.13%. The mortality due to hooking injuries or catch-and-release stress can be appreciable. Release mortality accounted for about 43,700 out of 112,600 fish (39%) harvested on the Gulf coast and 10,600 out of 40,400 fish (26%) harvested in 2004 on the Atlantic coast. Overall, the percentage of harvest due to release mortality has increased significantly since 1981 on both coasts.

Current Regulations



- Slot limit: 26" to 34" total length
- Bag limit: 2 per person - Atlantic
1 per person - Gulf (ENP and Monroe county)
- Closed season: Dec. 15 - Jan 31 - Statewide
June, July, Aug - Atlantic
May, June, July Aug - Gulf
- Snook stamp: Must purchase \$2.00 permit in order to keep a snook
- Management goal: 40% spawning potential ratio

The current regulations for snook are listed above. A management goal of 40% spawning potential ratio (SPR) was set in 1994 by the Marine Fisheries Commission. Spawning potential ratio is the ratio of the total weight of mature fish in a fished population to the total weight that would exist if the population was not fished. This SPR goal is more conservative than the goal for other species because snook are vulnerable to cold weather events and stakeholders wanted snook managed as a trophy fishery.

Snook Stamp

- In order to take and possess a snook you must buy a \$2.00 snook permit
- Monies generated from the snook permit go to fund snook research
- Sales of snook permits can be considered a measure of recreational effort for snook
- The ratio of snook permits to recreational license continues to increase
- In 2004-05 one-third of all residential licenses holders statewide purchased a snook permit

In the State of Florida in order to take and possess a snook you must purchase a \$2.00 snook permit in addition to your saltwater recreational fishing license. Monies generated from this permit are used solely to fund snook research. Sales of snook permits can be considered a measure of recreational effort for snook. The ratio of snook permits to recreational license sales continues to increase, with the largest west coast sales in Lee County and the largest east coast sales in Brevard County. The number of snook stamps sold has increased from 156,556 in license year 1995/1996 to 224,436 in license year 2004/2005. In 2004-05 one-third of all residential licenses holders statewide purchased a snook permit, which is surprising since snook only occur in the southern portion of the state.

Assessment Results

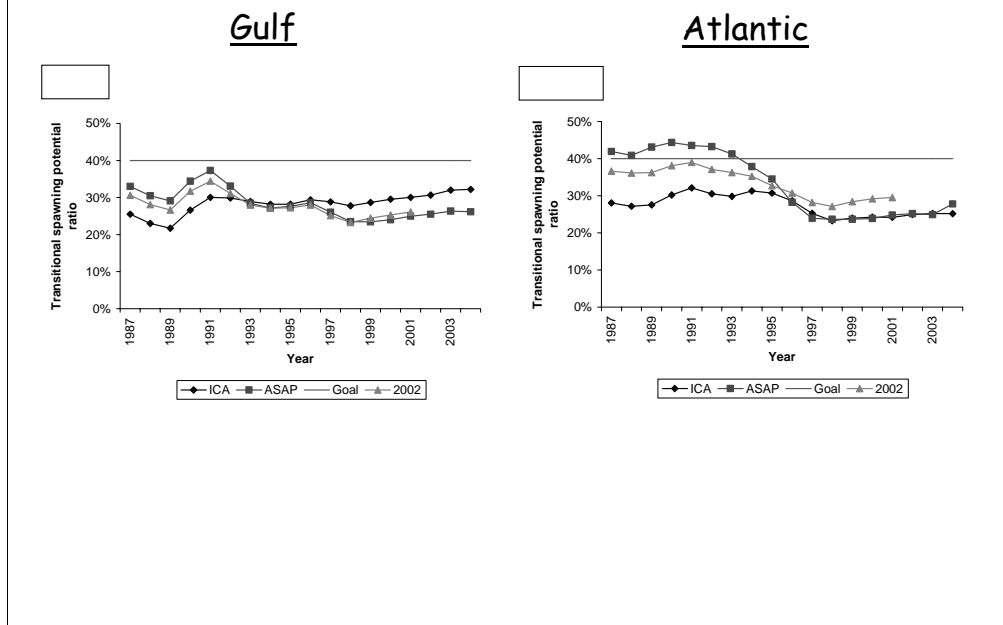
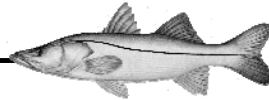
- Not meeting Commission's management goal of 40% SPR (Gulf 26-32%; Atlantic 25-26%)
- 35% of the total statewide harvest is attributable to deaths that occurred after snook were released
- Total snook harvest on both coasts has been increasing due to increased number of anglers and increased popularity of snook fishing



The most current assessment includes data through 2004. This assessment determined that we are not meeting our management goal of 40% spawning potential ratio (SPR). Depending on which model is used, the Gulf stock SPR ranges from 26 to 32%, and the Atlantic coast from 25-26% SPR.

On the Atlantic coast, total catch rates have increased since 1997 and the estimated total catch rate in 2004 was the highest in the fourteen year series. The catch rates on the Gulf coast have been increasing and the estimated total catch rate in 2004 was also the highest value. As previously mentioned, 35% of the total statewide harvest is attributable to deaths that occurred after snook were released. Also, the total snook harvest on both coasts has been increasing due to the increased number of anglers and the increased popularity of snook fishing. Recreational anglers in Florida continue to release more than 90% of the snook they catch.

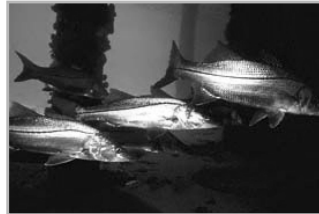
SPR Values



These two graphs show the Commission's management goal of 40% SPR as the solid line. Also shown are the two model results, Integrated Catch at Age (ICA) and Age Structured Assessment Program (ASAP) from the most recent assessment, as well as the estimates from the 2002 snook assessment. On the Gulf coast, the 40% SPR goal has never been met. On the Atlantic coast, one model suggests that the goal might have been met in the 1980s, but since 1993, the 40% has not been met. However, the other model suggests that the 40% goal was never met. The 2002 data shows a similar pattern as that predicted by the recent models. Even though the 40% SPR goal has not been met it does not necessarily mean that the snook stock is in danger of collapse. The 40% could be considered a target, and it may be necessary to set a threshold (less than 40%) that would trigger management action. The 40% target and a possible threshold will be discussed by the snook workgroup.

Snook Symposium Synopsis

- Snook Symposium V held in St. Pete Feb. 8-9, 2006
- Stakeholders had concerns about environmental degradation, habitat loss, shore based licenses, snook stamp fee
- Stakeholders asked us to form workgroup to address snook fishery issues such as:
 - 40% SPR goal
 - length measurement of snook
 - impact of red tide and cold kills on recruitment
 - catch and release education
 - enforcement and poaching
 - displaced effort from other fisheries closures *e.g.* seatrout



FWRI and DMFM held the fifth Snook Symposium in St. Petersburg in February 2006. There were approximately 180 participants in this symposium consisting of guides, snook anglers, reporters, managers, biologists, recreational outreach, and law enforcement officers. At the conclusion of this meeting some stakeholder concerns such as environmental degradation, habitat loss, shore based license sales, and the snook permit fee were identified. Stakeholders also asked DMFM to form a workgroup of stakeholders, managers, and scientists to discuss their ideas relating to the current management of snook and the results of the assessment. Some of these ideas included the 40% SPR goal, length measurement of snook, the impact of red tides and cold kills on recruitment, catch and release education for anglers, enforcement and out-of-season poaching, and displaced effort from other fisheries' closed season on the snook stock (*e.g.* seatrout closed season).

Staff Recommendation

- DMFM is in the process of forming a workgroup to address potential management measures
- If management changes are recommended then DMFM will return at a later meeting with those suggestions



The Division of Marine Fisheries Management is in the process of forming a snook workgroup to address issues raised at the Snook Symposium in February. If this group recommends management changes then staff will return at a future meeting with those suggested changes.