

Scup
Stenotomus chrysops

Common Name: Porgy

Interesting Facts:

- * Scup are thought to spawn in the morning unlike most fish that spawn at night.
- * Scup's laterally flattened body is about 2 times as long as it is wide.
- * Scup feed frantically and fight energetically when hooked.

Largest Recorded: 6 lbs, 3 oz., Fenwick Shoals, MD

Age/Length at Recruitment:
50% recruited to the fishery at age 2 (6.1") and 100% recruited to the fishery at age 3 (~8.3")

FMP Rebuilding Goals:
Biomass target ($SSB_{40\%}$) = 203 million pounds
Fishing mortality target ($F_{40\%}$) = 0.177

Stock Status: Stock is rebuilt and not overfished

Species Profile: Scup

New Scup Model Yields Positive Results

Introduction

For many years the scup fishery management program has been hindered by the lack of a scientifically-based scup stock assessment. In the absence of an assessment, fishery managers have relied on one primary survey index to form the basis their management decisions. With the review and approval of the scup assessment through the 2008 Data Poor Stocks Peer Review this past December, managers now have a scientifically-sound approach to assess the stock status of the scup resource and manage it accordingly.

Not only does the new assessment provide a much needed tool to assess stock status but it also yielded promising news regarding stock abundance. The 2008 Data Poor Stocks Peer Review set the scup rebuilding goal at 203 million pounds of spawning stock biomass, with a deadline of January 1, 2015. The new assessment indicates that the current population size is about 130% of the biomass goal; therefore, the stock is considered rebuilt. Despite this good news, scientists have advised caution in rapidly increasing quota levels due to uncertainty in recruitment, which is the number of fish that enter the population.

Life History

Scup are a migratory, schooling species found on the continental shelf of the Northwest Atlantic, commonly inhabiting waters from Cape Cod, Massachusetts to Cape Hatteras, North Carolina. The abundance of scup in a specific area is frequently influenced by water temperature. Scup prefer temperatures greater than 45 degrees F and are most frequently encountered in water temperatures from 55 to 77 degrees F.

Scup overwinter in offshore waters from southern New Jersey to Cape Hatteras. When water temperatures begin to rise in spring and summer scup migrate to more northern and inshore waters to spawn. Spawning areas include locations from southern New England to Long Island, New York. Large fish arrive to the spawning grounds first, followed by successive waves of smaller individuals, suggesting that scup school by size. Larval scup are pelagic and are found in coastal waters during warmer months. Juvenile scup use a variety of coastal habitats and can dominate the overall fish population in large estuarine areas during the summer months. Fifty percent of scup enter the fishery at age two (~6.1 inches); and 100% enter the fishery at age three (~8.3 inches).

Commercial & Recreational Fisheries

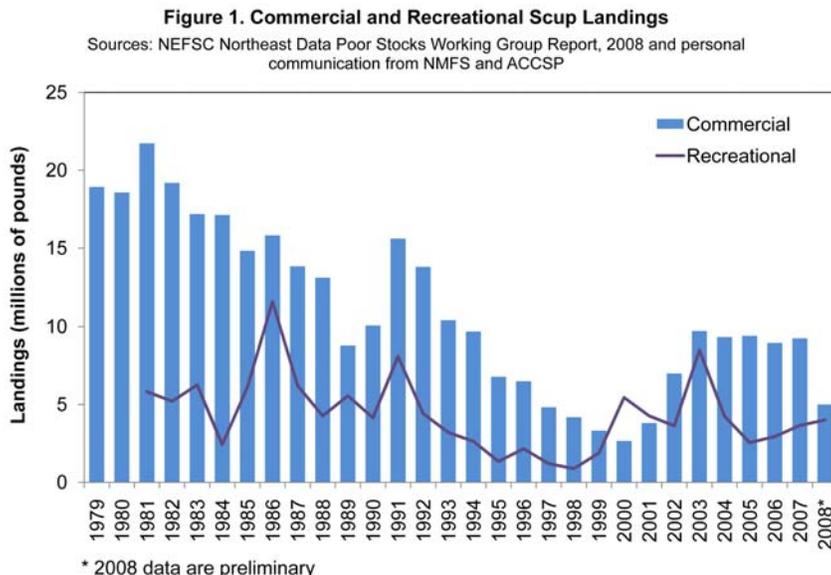
For decades scup have been highly sought after by commercial, recreational, and subsistence fishermen throughout southern New England and the Mid-Atlantic, largely due to its fine flavor and its avaricious pursuit of baited hooks.

Scup support commercial fisheries from Massachu-



Photo: NEAMAP

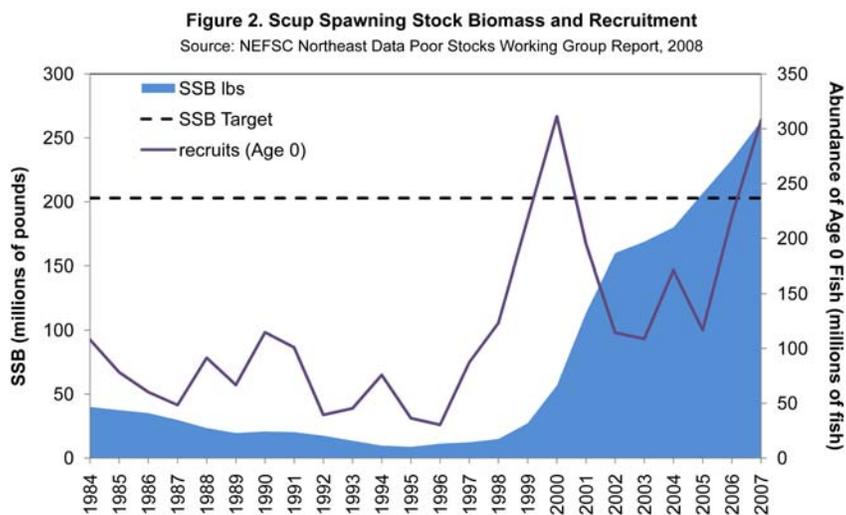
setts to North Carolina. From 1974 to 1986, commercial landings fluctuated between 15.4 and 22 million pounds without trend. By 2000, in response to low stock abundance and quota management that began in 1997, landings dropped to 2.7 million pounds, an all-time low for the time series (1930-2008). Since then, landings have been slowly increasing, with a preliminary estimated five million pounds landed in 2008. The primary commercial fishing gear is otter trawl, accounting for approximately 80 percent of the total catch. About one-third of the commercial landings occur in state waters, the largest shares of which are landed in New Jersey and Rhode Island. Commercial fishery discards are an important part of the total fishery removals from the stock, often at about the same level as the commercial landings. Since 2000 the commercial discards have been reduced due to fishery regulations.



The recreational fishery for scup is significant, with anglers accounting for 17 to 67% of total annual catches from 1985 to 2001. Recreational landings have fluctuated since 1998. Data shows increases through 2001, decreases in 2002, and substantial increases in 2003. Since 2004 landings have ranged from 2.4 to 4.4 million pounds. An estimated four million pounds were landed in 2008. The majority of recreational landings come from state waters, with anglers in New York, Massachusetts, and Connecticut catching the greatest proportion (>90%).

Stock Status

The assessment model for scup changed in 2008 from a simple index-based model to a complex statistical catch at age model, called ASAP. ASAP models the scup population similar to how the U.S. Census Bureau models human populations and using similar data (population size at age, growth rates, age at maturity, reproductive potential and success, life span, and removals by deaths). The new scup assessment model uses widely-accepted and commonly-used fishery science principles to analyze the population size, and incorporates a broader range of fishery and survey data than was used previously. The fishery catch is now modeled as four fleets: commercial landings, recreational landings, commercial discards and recreational discards. Indices of stock abundance from fourteen surveys were used in the model calibration.



Recruitment at age 0 averaged 91.4 million fish during 1963-1983, and averaged 119.6 million fish from 1984-2007. The 2000 and 2007 year classes are estimated to be the largest of the time series at 311.2 and 307.9 million age 0 fish, respectively. With greatly improved recruitment and low fishing mortality rates since 1998, spawning stock biomass (those fish that can reproduce) has steadily increased to about 263 million pounds in 2007.

The new reference points are a fishing mortality (F) target of $F_{40\%} = 0.177$ and a spawning stock biomass (SSB) target of $SSB_{40\%} = 203$ million pounds. $F_{40\%}$ is the rate of fishing that will result in 40% of the spawning potential of a virgin (unfished) stock. The current F is 0.054 and SSB is 263 million pounds, therefore overfishing is not occurring and the stock is rebuilt.

Technical advice to managers have cautioned rapid increases in quota to meet the revised maximum sustainable yield given uncertainties in recruitment. They advised a more gradual increase in quotas to account for the uncertainty in the model estimates and stock status.

Atlantic Coastal Management

In an effort to coordinate management actions in both state and federal waters, the Atlantic States Marine Fisheries Commission and the Mid-Atlantic Fishery Management Council (Council) established a joint management program for scup in 1995. This program is currently managed under Amendment 14 to the Summer Flounder, Scup and Black Sea Bass Fishery Management Plan, and several subsequent addenda. The management program divides a total annual quota between the recreational fishery (22%) and the commercial fishery (78%).

Each fall the Commission and Council

meet to set recreational fishery management measures for the following year; these measures usually include a combination of minimum size limits, bag limits and fishing seasons. Since 2004, the states of Massachusetts, Rhode Island, Connecticut, and New York have formed a northern region when setting their recreational regulations. This regional approach creates consistency between the states where fishermen from different states are often fishing alongside each other in the same waters.

The commercial quota is divided into three quota periods, Winter I (January - April), Summer (May - October) and Winter II (November - December). A coastwide quota regulates the winter periods, while state-by-state quotas regulate the summer period. Specific management measures for the commercial fishery include minimum size limits, minimum mesh requirements for



Photo: Mark Terceiro, NMFS Northeast Fisheries Science Center

trawls, a moratorium on entry into the fishery and closed seasons.

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