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Scup

by

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Distribution, Biology and Management

Scup or porgy, *Stenotomus chrysops*, is a demersal, schooling species distributed in the Mid-Atlantic Bight from Cape Cod, MA to Cape Hatteras, NC. Previous tagging studies have indicated the possibility of two stocks, one in Southern New England waters and the other extending south from New Jersey. However, the lack of definitive tag return data from these studies, coupled with distributional information from NEFSC trawl surveys, support the concept of a single unit stock from New England to Cape Hatteras (Figure 15.1). A new industry-cooperative tagging study for scup, designed to evaluate fish movement and estimate mortality rates, was initiated in 2005.

Scup undertake extensive migrations between coastal waters in summer and offshore waters in winter, migrating north and inshore to spawn in spring. Sexual maturity is essentially complete by age 3 at a total length of 21 cm (O'Brien et al. 1993). Scup attain a maximum fork length of about 40 cm, and ages of up to at least 14 years.

U.S. commercial and recreational fisheries for scup are managed under the Summer Flounder, Scup and Black Sea Bass Fishery Management Plan (FMP) administered jointly by the Atlantic States Marine Fisheries Commission (ASMFC) and the Mid-Atlantic Fishery Management Council (MAFMC). Amendment 8 to the original Summer Flounder FMP incorporated scup into the FMP and implemented several major regulatory provisions for scup, including annual commercial quotas, recreational harvest limits, permit requirements, minimum fish size and gear restrictions, and a recreational fishery possession limit.

The Fishery

The principal gear used in commercial fishing for scup is the otter trawl. After peaking at 24,700 mt in 1963, commercial landings markedly decreased and averaged 5,400 mt annually during

1986-1995, and ranged between 1,200 mt and 4,400 mt during 1996-2005 (Table 15.1, Figure 15.2). The recreational rod-and-reel fishery for scup harvests a significant proportion of the total catch. After peaking at 5,300 mt in 1986, recreational landings averaged 2,300 mt annually during 1986-1995, and ranged between 400 mt and 3,800 mt during 1996-2005 (Table 15.1, Figure 15.3).

Research Vessel Survey Indices and Assessment

NEFSC spring and autumn survey biomass indices for scup have exhibited similar trends during the survey time series. The assessment for scup is currently index-based, and relies on the NEFSC spring survey spawning stock biomass (SSB) kg per tow index as the primary measure of stock biomass (Figure 15.4).

SSB indices peaked in the late-1970s and then declined until the late 1990s. SSB indices have increased since 1999 but have been highly variable. As stock biomass declined during the 1980s, the age structure of the scup population became truncated, with a low proportion of fish at ages 3 and older (Figure 15.5). Since 2000, the age structure of the population has expanded to approximate that observed in the late-1970s (Figure 15.5).

Biological Reference Points

Yield and SSB per recruit based reference points for scup (Figure 15.6) were last calculated in the 1998 assessment (NEFSC 1998) and are presented in Table 15.2. The lack of an analytical assessment for scup has prevented the estimation of MSY based reference points. The fishing mortality threshold of F_{msy} is defined to be F_{max} , currently at $F = 0.26$, and the index-based biomass threshold is set at the 1977-1979 average of the NEFSC spring trawl survey Spawning Stock Biomass (SSB) kg per tow value of 2.77.

Summary

Recent NEFSC spring SSB indices indicate that the stock is in an overfished condition; stock status with respect to the overfishing threshold ($F_{msy} = F_{max}$) cannot currently be evaluated as there is no reliable estimate of fishing mortality available for scup.

Table 15.1 Recreational and commercial landings of scup (thousand metric tons).

Category	1986-95 Average	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
U. S. Recreational	2.3	1.0	0.5	0.4	0.9	2.4	1.9	1.6	3.8	2.0	1.1
Commercial											
United States	5.4	2.9	2.2	1.9	1.5	1.2	1.7	3.2	4.4	4.2	4.2
Canada	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-
Total Nominal Catch	7.7	3.9	2.7	2.3	2.4	3.6	3.6	4.8	8.2	6.2	5.3

Table 15.2 Yield and SSB per Recruit Based Reference Points for scup.

Yield and SSB per Recruit-based Reference Points

$$F_{msy} = F_{max} = 0.26$$

For further information

Northeast Fisheries Science Center (NEFSC) 1998. 27th Northeast regional stock assessment workshop (27th SAW). Stock Assessment Review Committee (SARC) consensus summary of assessments. NEFSC Ref. Doc. 98-15, 350 p.

Northeast Fisheries Science Center (NEFSC) 2002. 35th Northeast regional stock assessment workshop (35th SAW). Stock Assessment Review Committee (SARC) consensus summary of assessments. NEFSC Ref. Doc. 02-14, 259 p.

O'Brien, L., J. Burnett, and R.K. Mayo. 1993. Maturation of nineteen species of finfish off the northeast coast of the United States, 1985-1990. NOAA Tech. Report. NMFS 113, 66 p.

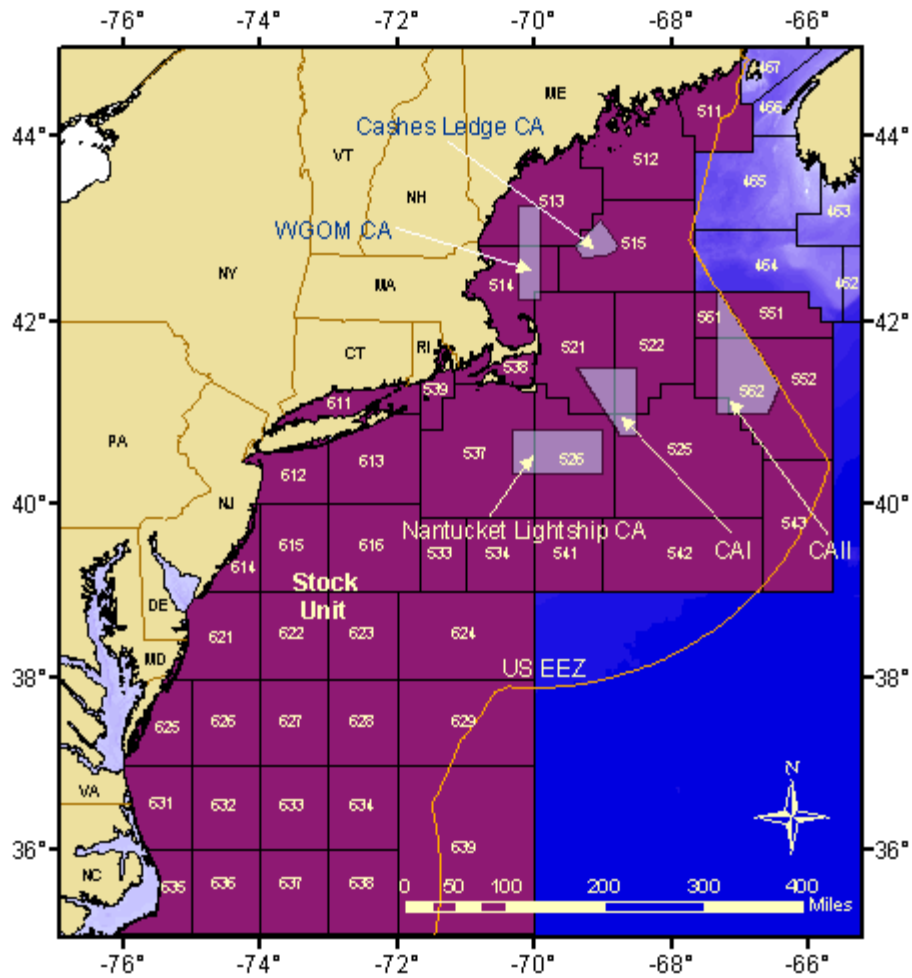


Figure 15.1. Statistical areas used to define the scup stock.

Scup Total Commercial Landings

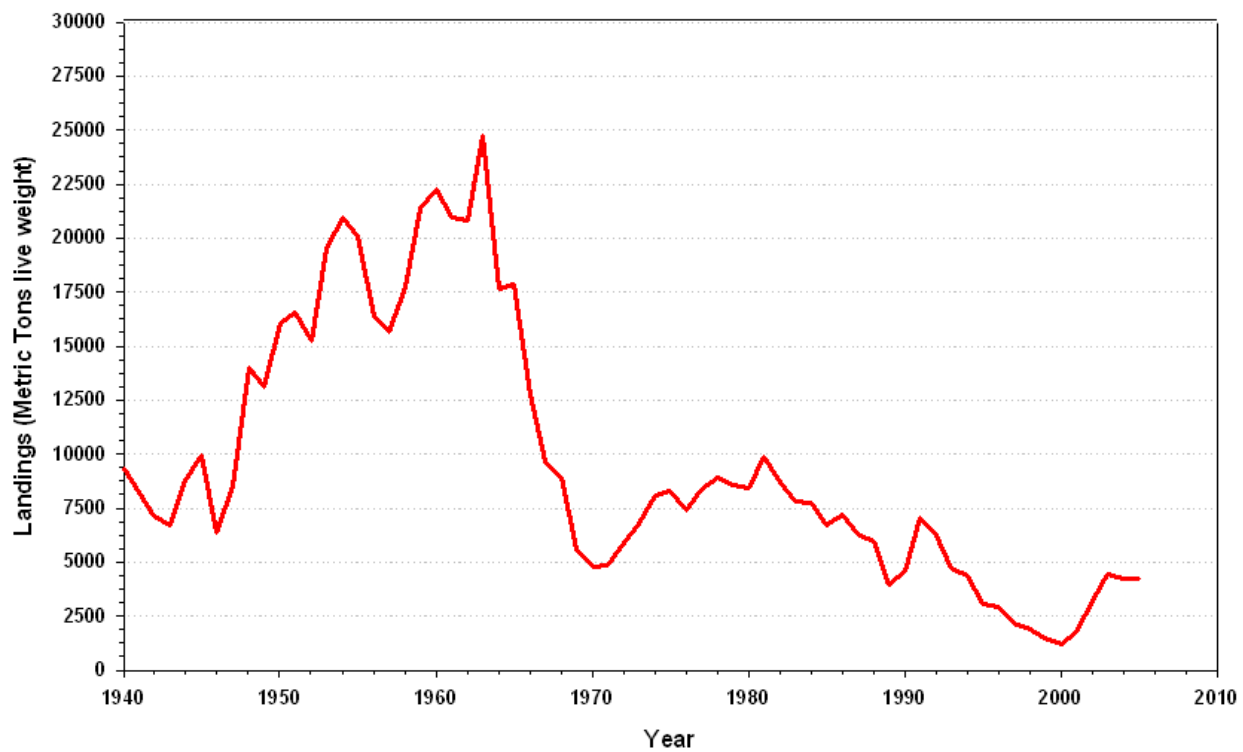


Figure 15.2. Total commercial landings of scup, 1940-2005.

Scup Trends in Catch

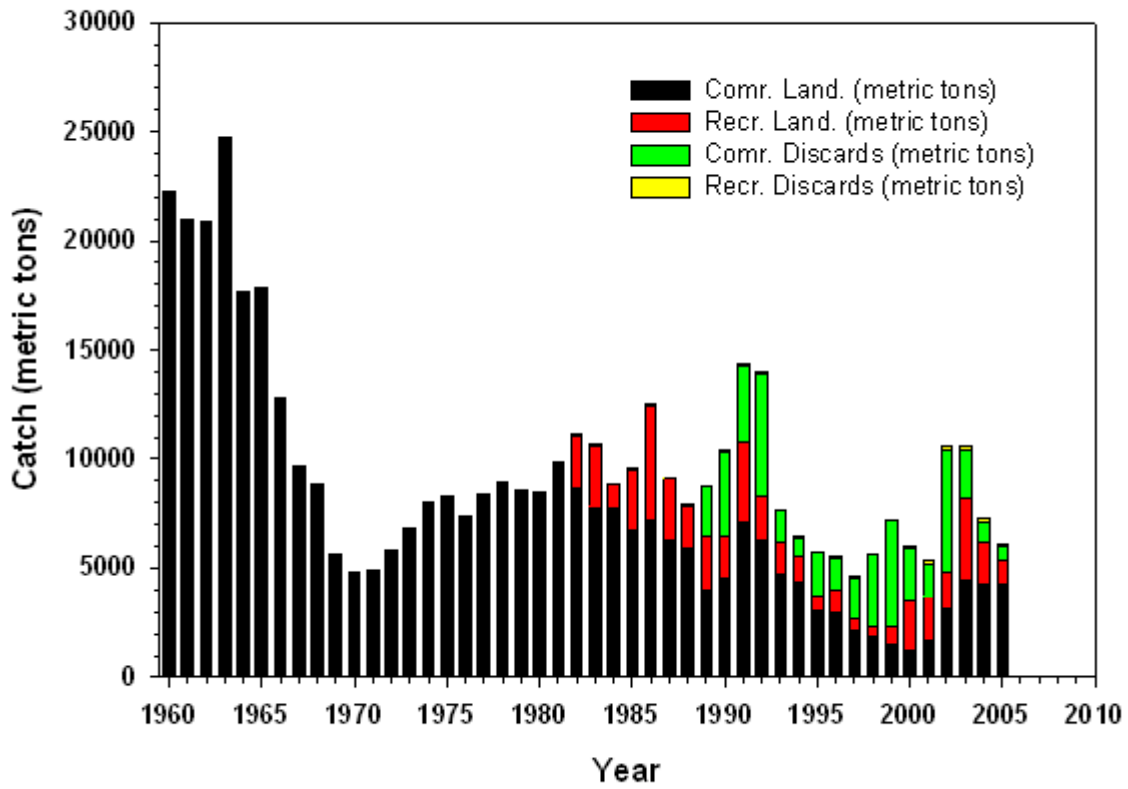


Figure 15.3. Trends in catch of scup.

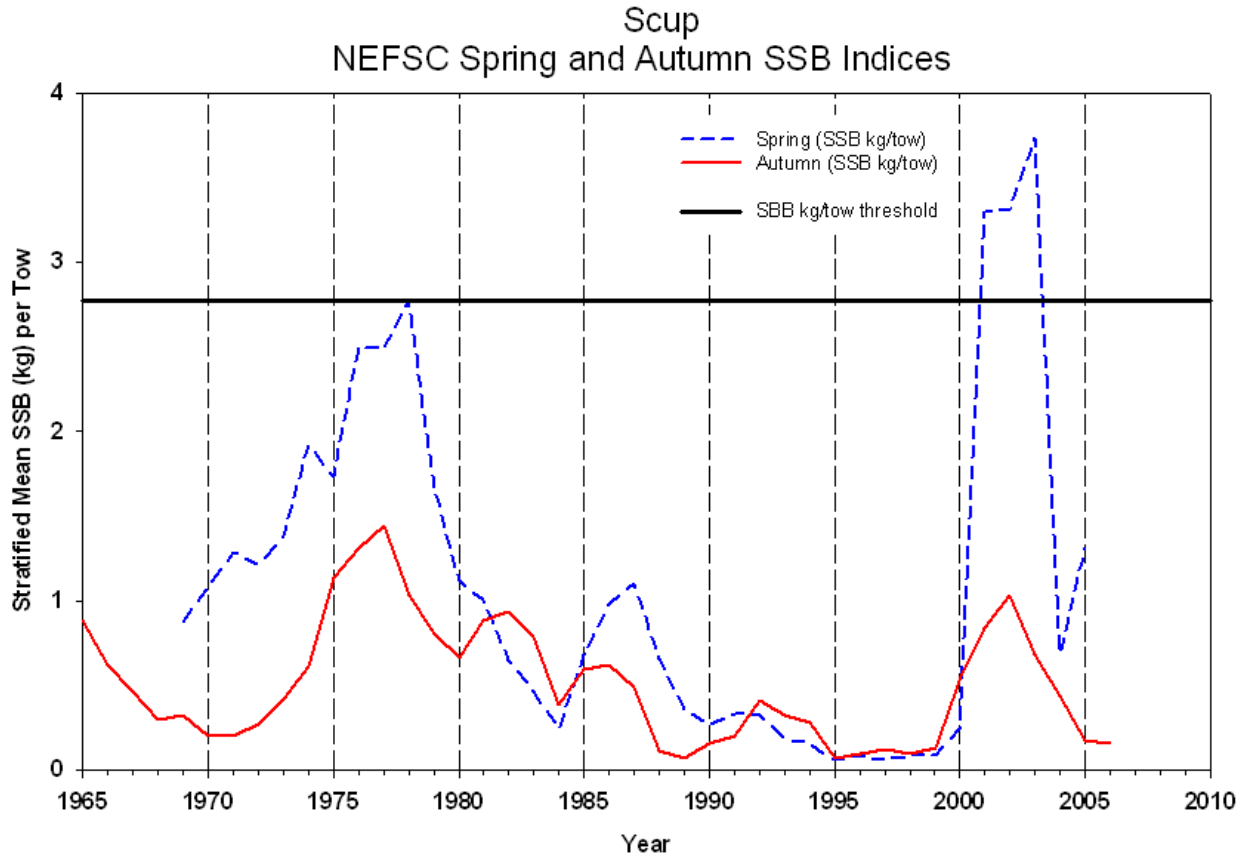


Figure 15.4. Spawning Stock Biomass indices (stratified mean SSB kg per tow; 3 year moving averages) for scup from NEFSC research vessel surveys. Solid horizontal line is the spring survey-based SSB threshold.

Scup Spring Survey Indices by Age

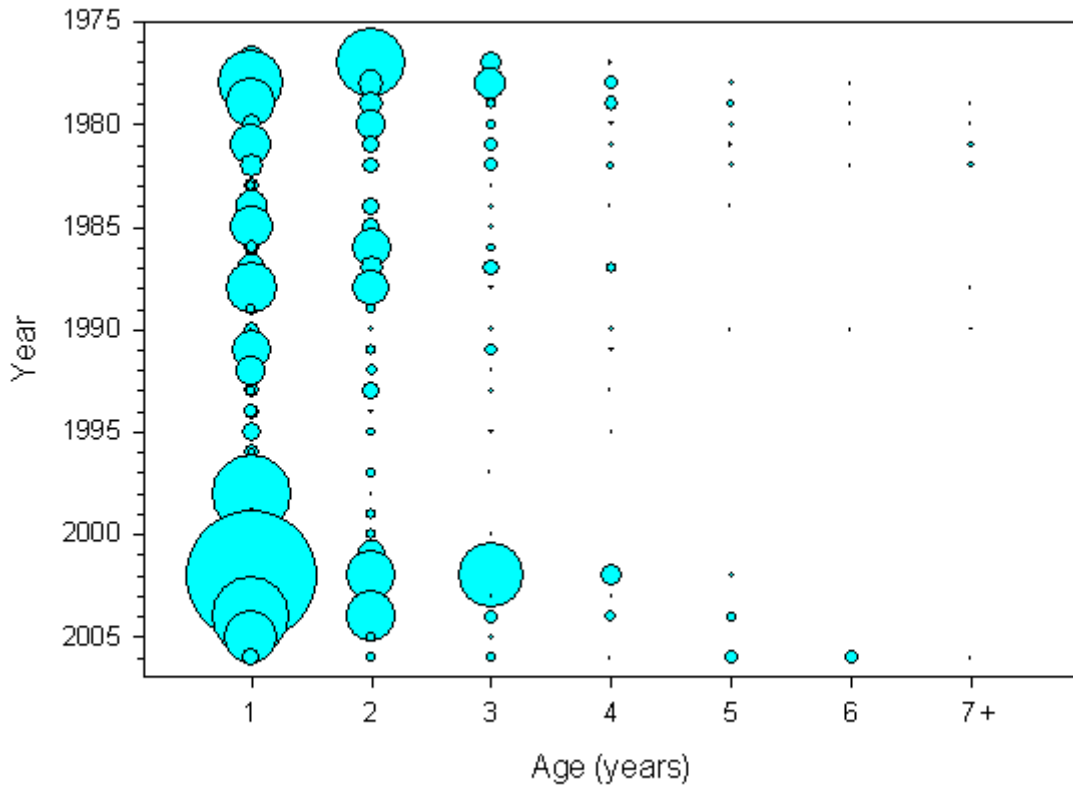


Figure 15.5. Age structure of the scup population, 1976-2006.

Scup Yield and SSB per Recruit

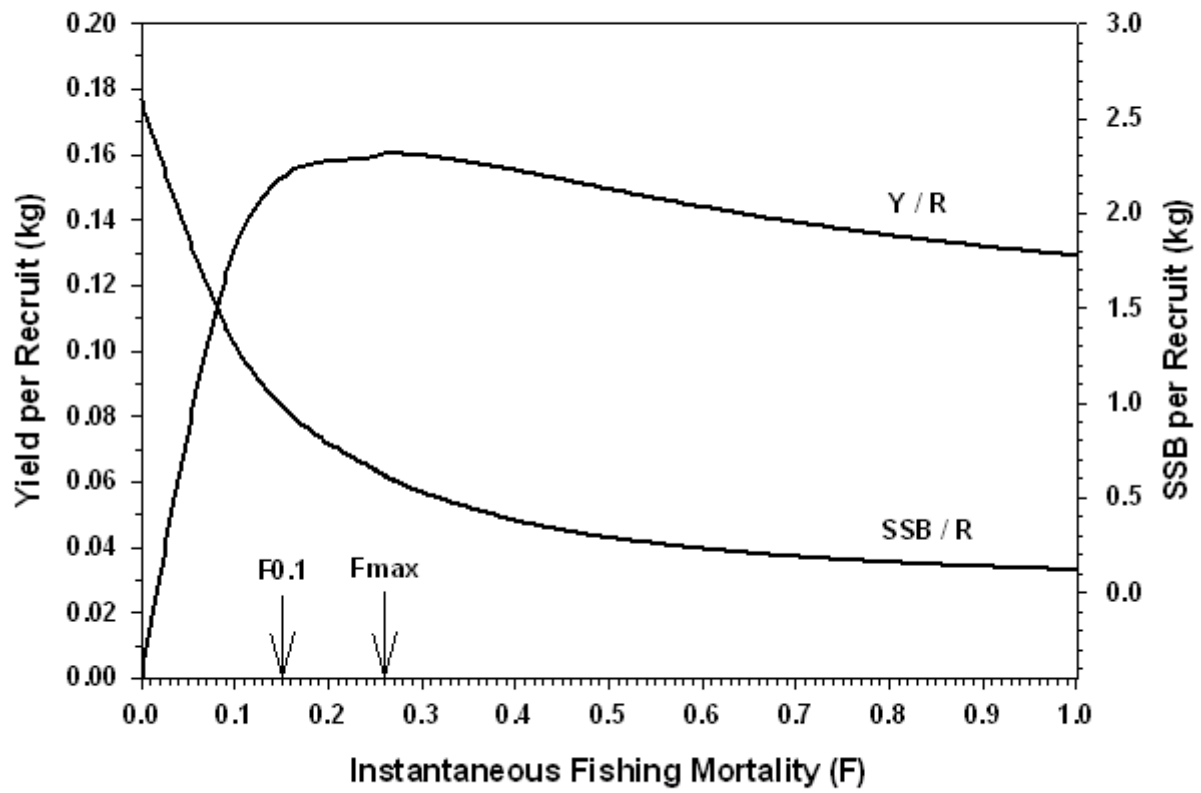


Figure 15.6. Yield and SSB per recruit results for scup.