

B. SCUP ADVISORY REPORT

Status of Stock: The stock is not overfished, but the stock status with respect to overfishing cannot currently be evaluated. The 2001 estimate of spawning stock biomass (2000-2002 average = 3.20 SSB kg/tow), based on the 3-year moving average of the NEFSC spring survey (Figure B1), exceeds the established biomass index threshold (2.77 SSB kg/tow). The change in stock status results from the extremely high survey index in the spring 2002 survey. Though the relative exploitation rates have declined in recent years (Figure B2), the absolute value of F cannot be determined. Survey data indicate strong recruitment and some rebuilding of age structure.

Management Advice: Management should continue efforts to further reduce fishing mortality rates and minimize fishery discards to rebuild the stock. Managers need to further constrain recreational catches as this sector continues to overshoot its target allocations.

The stock can likely sustain modest increases in catches, but managers should make their decisions with due consideration of high uncertainty in stock status determination.

Forecast for 2003: Reliable forecasts for this stock could not be developed, given the inability to estimate the absolute magnitude of F and uncertainty in the index of SSB. The 2002 spring survey value is highly uncertain since the abundance of all age groups in the survey increased substantially as compared with the 2001 results.

Scup Catch and Status Table (landings, discards, quota in '000 mt; SSB index in kg/tow)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Max ¹	Min ¹	Mean ¹
Commercial landings	6.3	4.7	4.4	3.1	2.9	2.2	1.9	1.5	1.2	1.7	9.9	1.2	5.3
Recreational landings	2.0	1.5	1.2	0.6	1.0	0.5	0.4	0.9	2.4	1.9	5.3	0.4	2.1
Recreational discards	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Total Landings ²	8.3	6.2	5.6	3.7	4.0	2.7	2.3	2.4	3.6	3.6	12.5	2.3	7.5
Commercial Quota							2.7	2.1	1.1	1.1	2.0		
Rec. Harvest Limit							0.9	0.7	0.6	0.6	0.8		
SSB Index ³	0.32	0.18	0.15	0.06	0.08	0.06	0.08	0.08	0.25	3.20	3.20	0.06	0.61

¹Over the 1979-2001 time period. ²Total catches not provided due to uncertainty in estimating commercial discards, see "Catches" below. Entries may differ from sum of commercial and recreational landings due to rounding. ³Calculated as moving three-year average of NEFSC spring trawl survey biomass index, (kg/tow).

Stock Identification and Distribution: Scup are distributed primarily between Cape Cod, MA and Cape Hatteras, NC, and are assumed to constitute a single unit stock.

Catches: US commercial landings averaged over 18,000 mt per year from 1950 to 1966 (peaking at over 22,000 mt in 1960) and declined to about 4,000 mt per year in the early 1970s (Figure B3). Landings fluctuated between 7,000 and 10,000 mt from 1974 to 1986 and have since declined to less than 2,000 mt. Landings in 2001 were 1,729 mt (3.8 million pounds) — less than 8% of the 48.5 million pound peak observed in 1960. Recreational landings have been increasing since 1999 and, in 2001, accounted for slightly more than 50% of the total landings. Recreational landings were 1,933 mt in 2001; dead discards comprised about 2% of the recreational catch. Limited sea sampling information suggests that commercial discards are variable and large. Total landings in 2001 were * mt, a 67% increase from 2000.

Data and Assessment: Scup was previously assessed at SAW 31 in 2000. As in previous assessment reviews, the SARC concluded that estimates of commercial fishery discards are not reliable due to limited sample size and uncertainty as to their representative nature of the sea sampling data for scup. The uncertainties associated with the catch data led the SARC to conclude that an analytical assessment would be inappropriate as the basis for management decisions for scup at this time. An analytical formulation for scup will not be feasible until the quality and quantity of the input data (biological sampling and estimates of all components of catches) are significantly improved and an adequate time series developed.

Biological Reference Points: A yield-per-recruit analysis from SAW 27 with an assumed M of 0.20 indicates that $F_{max} = 0.26$ (21% exploitation rate). The biomass threshold is defined as the maximum value of a 3-year moving average of the NEFSC spring survey catch per tow of spawning stock biomass (1977-1979 = 2.77 SSB kg/tow).

Fishing Mortality: Absolute estimates of fishing mortality for scup could not be calculated. Relative fishing mortality rates are available from total landings divided by the 3-year moving average of the spring and fall survey indices, indicating substantial declining trends since the mid-1990s (Figure B2).

Recruitment: Indices of recruitment from the NEFSC fall survey suggest improved recruitment in 1999-2001, with estimated age-0 abundance exceeding the 1984-2001 average of 69.03 fish/tow (Figure B4).

Stock Biomass: NEFSC spring and winter indices of stock biomass and abundance for 2002 were the highest within each respective time series (Figure B5). Other survey indices have increased since the mid-1990s.

Special Comments: Major uncertainties in estimating total catch continue to rule out an analytical stock assessment. The SARC expressed concerns about the failure to collect sufficient catch information that has bedeviled the production of scup assessments in the past. The panel suggested that a working group be tasked to recommend minimum and appropriately representative sampling levels for each component of the catch as a requirement for improving assessments.

Current stock biomass and age structure are uncertain given the high catch and variance in the 2002 NEFSC spring survey. This is one factor that limits the ability to do population projections.

Given the apparent high degree of inter-annual variation in individual survey indices, the use of a biomass index based on multiple survey signals should be explored as the stock status criterion. Alternative estimates of biomass reference points should be evaluated.

Sources of Information: NEFSC. 1998. Report of the 27th Northeast Regional Stock Assessment Workshop (27th SAW): Stock Assessment Review Committee (SARC) Consensus Summary of Assessments. Northeast Fish. Sci. Cent. Ref. Doc. 98-15, 350 p.; NEFSC. 2000. Report of the 31st Northeast Regional Stock Assessment Workshop (31st SAW): Stock Assessment Review Committee (SARC) Consensus Summary of Assessments. Northeast Fish. Sci. Cent. Ref. Doc. 00-15, 400 p. NEFSC. 2002. DRAFT Report of the 35th Northeast Regional Stock Assessment Workshop (35th SAW): Stock Assessment Review Committee (SARC) Consensus Summary of Assessments. Northeast Fish. Sci. Cent. Working Document

Figure B1. Trends in SSB indices for scup. Dashed line represents the biomass threshold. Solid line is the 3-year moving average of the NEFSC spring survey index values.

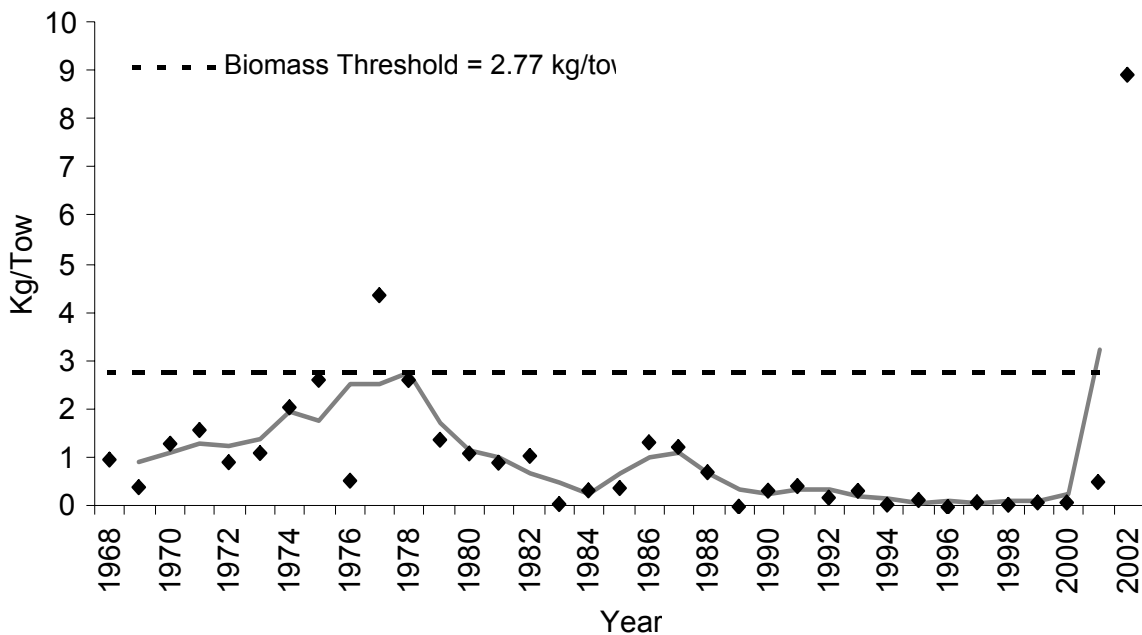


Figure B2. Estimated relative exploitation index based on total landings (1,000's of lbs) and SSB from either the NEFSC spring or NEFSC fall survey (kg/tow; three-year average).

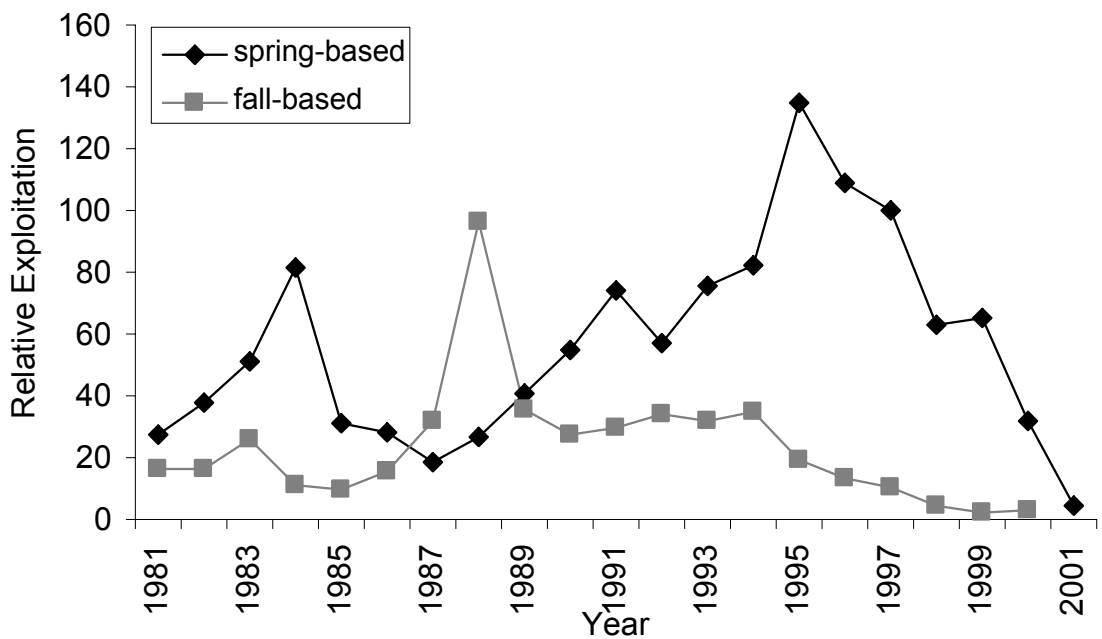


Figure B3. Catch of scup from Maine through North Carolina, including US commercial and recreational landings (1950-2001).

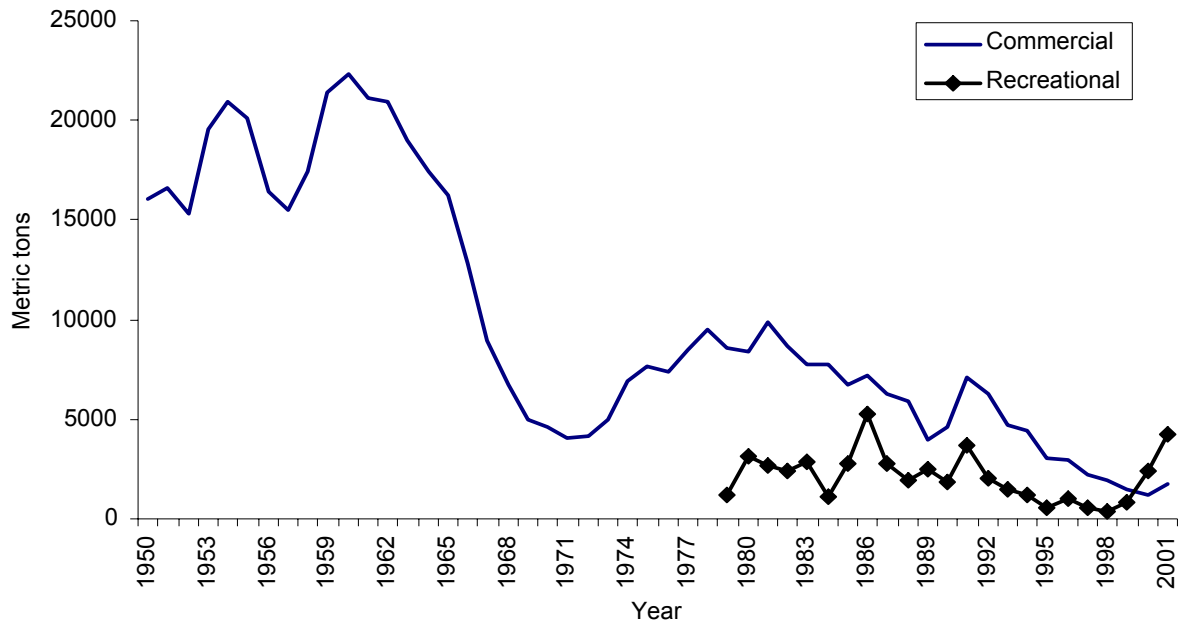


Figure B4. Indices of age-0 abundance (number fish caught per tow) from the NEFSC Fall survey.



Figure B5. Trends in NEFSC winter and spring survey biomass indices.

