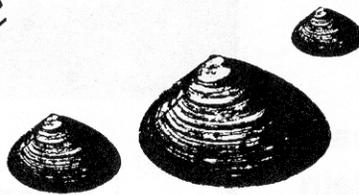


Atlantic Surfclam



by J. Weinberg

Atlantic surfclams, *Spisula solidissima*, are distributed in western North Atlantic waters from the southern Gulf of St. Lawrence to Cape Hatteras. Commercial concentrations are found primarily off New Jersey and the Delmarva Peninsula, although commercial quantities also exist in Southern New England waters, on Georges Bank, and off the Virginia Capes. In the Mid-Atlantic region, surfclams are found from the beach zone to a depth of about 60 m; beyond 40 m, however, abundance is low. Growth rates are relatively rapid, with clams reaching harvestable size in about six years. Maximum size is about 22.5 cm (8.9 in.), but clams larger than 20 cm (7.9 in.) are rare. Surfclams are capable of reproduction in their first year of life, although full maturity may not be reached until the second year. Eggs and sperm are shed directly into the water column; recruitment to the bottom occurs after a planktonic larval period of about three weeks.

The principal fishing gear for surfclam is the hydraulic clam dredge. Recreational and foreign fishing are insignificant. The Exclusive Economic Zone (EEZ) fishery is managed under the Surfclam-Ocean Quahog Fishery Management Plan (FMP) of the Mid-Atlantic Fishery Management Council, primarily by a total allowable catch (TAC) limit. In 1995 and 1996, EEZ landings totalled 19,600 mt and 19,800 mt (meats) under a TAC of 19,800 mt.

Total landings of surfclams averaged roughly 20,000 mt in the early 1960s, increased to over 40,000 mt by 1974, and then decreased by 1979 to well below the earlier average of 20,000 mt. Landings have subsequently increased, especially in the



Atlantic surfclam

NOAA Fisheries NEFSC Photo Archive



Sorting surfclam and ocean quahog research survey dredge haul

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EEZ. The 1987-1996 average was 30,300 mt, of which 21,700 mt was taken in the EEZ. Landings from inshore (state) waters rose from 5,400 mt in 1987 to over 11,000 mt in 1992-1993 and have since averaged about 9,000 mt, reflecting increased landings from inshore New York and New Jersey. Total landings from EEZ and state waters were 28,700 and 28,800 mt for 1995 and 1996, respectively.

The principal management objective under Amendments 1 through 7 of the FMP was to rebuild depleted stocks. Under Amendment 8, an ITQ (individual transferable quota) system was established in 1990, whereby the annual quota was allocated among participating vessels, based on vessel size and performance history. This system is intended to address economic inefficiencies resulting from the intensive regulatory scheme used to promote rebuilding. Trading of vessel allocations is permitted, which is intended to reduce vessel overcapitalization and to result in more efficient use of harvest sector capital.

In 1990, 128 vessels participated in the Mid-Atlantic EEZ fishery. With the adoption of Amendment 8, the number of vessels in the fishery declined to 75 in 1991, and to 37 by 1995. Two management areas, New England and the Mid-Atlantic, were formerly identified, but have been combined in Amendment 8. A single annual TAC applies to both areas. Currently, the Georges Bank region remains closed to the harvesting of surfclams, due to the presence of paralytic shellfish poisoning toxins.

New England - Middle Atlantic Atlantic Surfclam

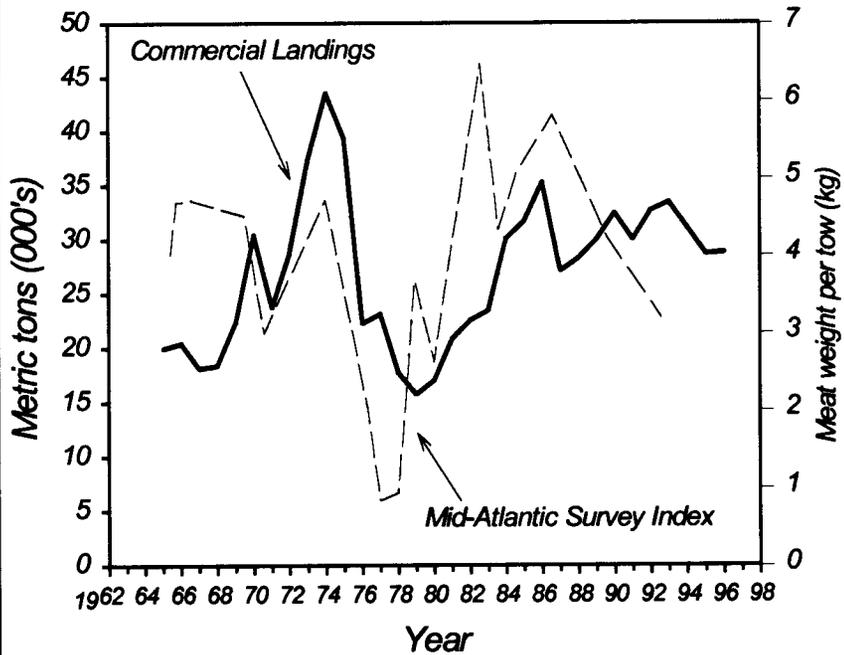


Table 31.1 Recreational catches and commercial landings (thousand metric tons, meats)

Category	Year										
	1977-86 Average	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
U.S. recreational	-	-	-	-	-	-	-	-	-	-	-
Commercial											
United States											
EEZ	19.0	21.7	23.4	21.9	24.0	20.6	21.7	21.9	21.9	19.6	19.8
State waters	5.3	5.4	4.9	8.1	8.5	9.4	11.0	11.6	9.1	9.1	9.0
Canada	-	-	-	-	-	-	-	-	-	-	-
Total nominal catch	24.3	27.1	28.3	30.0	32.5	30.0	32.7	33.5	31.1	28.7	28.8

Summary Status

Long-term potential catch	=	14,260 to 26,210 mt
SSB for Long-term potential catch	=	Unknown
Importance of recreational fishery	=	Insignificant
Management	=	Surfclam and Ocean Quahog FMP
Status of exploitation	=	Fully exploited (New Jersey) Underexploited overall
Age at 50% maturity	=	1 year
Size at 50% maturity	=	<4 cm (<1.6 in.) shell length
Assessment level	=	Size structured (DeLury)
Overfishing definition	=	F _{20%}
Fishing mortality rate corresponding to overfishing definition	=	F _{20%} = 0.18
M = 0.02 - 0.08 F_{0.1} = 0.07 F_{max} = 0.19 F₁₉₉₇ = <0.05		

Intensive fishing for surfclams was initiated after World War II, primarily off Long Island and northern New Jersey. Extensive offshore beds were discovered and exploited off Pt. Pleasant, N.J. during the 1950s; combined with inshore beds near Cape May-Wildwood, the New Jersey resources supported the fishery until the early 1970s. Declining productivity off New Jersey prompted a shift of effort to the south during the early 1970s, and with the discovery of extensive beds off southern Virginia and North Carolina, total landings rose to an average of 40,100 mt (meats) for 1973-1975, 50 percent higher than the 1965-1977 average (27,000 mt). The southern Virginia-North Carolina fishery collapsed during 1976, and most participating vessels returned to more northern areas.

Biomass indices from research vessel surveys employing hydraulic dredge gear have loosely paralleled trends in landings. For example, stock biomass and landings of surfclams declined steadily off the northern New Jersey coast from the mid-1960s to 1977. A mass mortality of surfclams in the northern New Jersey area during the summer of 1976 reduced the abundance of commercial-sized clams to extremely low levels. Surveys from 1978 onward indicated substantial recruitment by the 1976 year class in the area subjected to the clam kill. Growth of this year class resulted in an increasing proportion of total Mid-Atlantic landings from off northern New Jersey. Almost all of the 1976 year class is now larger than 12 cm. This was the minimum legal size until 1991. The limit was suspended for the 1991 fishing season due to the relatively low abundance of prerecruit-sized clams and the likely incentive under Amendment 8 to target beds of larger surfclams. Recruitment has taken place during the 1980s and 1990s,

although no cohort has dominated the population in the manner that the 1976 cohort did.

Biomass off the Delmarva Peninsula remained at relatively high levels until the return of the fleet from southern Virginia-North Carolina during 1976. Concentration of the offshore fishery in Delmarva waters between 1976 and 1980 resulted in a decline in harvestable biomass. However, recent surveys indicate that the abundance of clams in Delmarva waters has remained relatively high. These clams have grown at substantially slower rates than those off New Jersey, due to high density and perhaps other factors.

Research vessel survey data indicate adequate surfclam resources to support the Middle Atlantic EEZ fishery at or near current levels (18,000 to 23,000 mt of meats) for the next few years. Closure of the Georges Bank fishery implies that biomass will likely accumulate there due to the low natural mortality rate of surfclams. However, information about this area is limited and current biomass levels and future prospects are uncertain.

Landings from the EEZ continue to be relatively stable due to the large standing stock relative to the annual quota. In the last several years, fishing has been concentrated off Atlantic City, New Jersey. Catch per unit effort (bushels per hour fished) for the New Jersey area has declined slowly throughout the 1990s. Resources off New Jersey and the Delmarva Peninsula appear sufficient to sustain the fishery during the next several years.

For further information

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