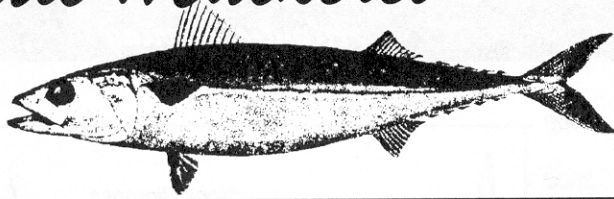


Atlantic Mackerel



by W. Overholtz

The Atlantic mackerel, *Scomber scombrus*, is a fast swimming, pelagic, schooling species distributed in the Northwest Atlantic between Labrador and North Carolina. There are two major spawning components of this population: a southern group that spawns primarily in the Mid-Atlantic Bight during April and May, and a northern group that spawns in the Gulf of St. Lawrence in June and July. Both groups winter between Sable Island (off Nova Scotia) and Cape Hatteras in waters generally warmer than 7°C (45°F), with extensive northerly (spring) and southerly (autumn) migrations to and from spawning and summering grounds. The two groups are managed as a unit stock. Maximum observed size in recent years is about 47 cm (18.5 in) in length and 1.3 kg (3 lb) in weight. Sexual maturity begins at age 2 and is usually complete by age 3. Maximum age is about 20 years.

Mackerel are subjected to seasonal fisheries, both commercial and recreational, throughout most of their range. United States commercial landings have been taken primarily between January and May in southern New England and Mid-Atlantic coastal waters and between May and December in the Gulf of Maine. United States recreational catches occur mainly between April and October. Canadian landings have typically been taken from off Nova Scotia and Newfoundland between May and November. The intensive distant-water fishery conducted between 1968 and 1977 occurred mainly between December and April from Georges Bank to Cape Hatteras.

Since April, 1983, the U.S. fishery has been managed under the Mid-Atlantic Fishery Management Council's Atlantic Mackerel, Squid, and Butterfish Plan. Management is based on annual quota specifications. For 1997, domestic annual harvest (DAH) was set at 90,000 mt within an allowable biological catch (ABC) of 383,000 mt.



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NOAA Fisheries
NEFSC photo by Brenda Figueroa

Mackerel landings increased dramatically as foreign effort intensified in the late 1960s, reaching a peak of roughly 430,000 mt in 1973. Landings subsequently declined to about 30,000 mt in the late 1970s, increased to about 87,000 mt in 1990, and then declined to 27,400 mt in 1995. Increases in landings in the 1980s were due to increased U.S. and foreign joint venture fishing operations. Landings for 1996 totalled 37,600 mt, of which 17,100 mt was taken by the U.S. (15,800 mt commercial, 1,300 mt recreational). Canadian landings increased from 17,700 mt in 1995 to 20,400 mt in 1996. There was a distant-water fleet catch of less than 100 mt in Canadian waters in 1996.

Year classes from 1975 to 1980 were all relatively weak. Cohorts since 1981 have been much stronger (except for 1983), particularly the 1982 year class, which was the largest since 1967. The 1984 to 1988, 1991, and 1993 cohorts also appear to be relatively strong.

Total stock biomass (ages 1 and older) increased from around 300,000 mt during 1962-1965 to 1.6 million mt in 1969 before dropping to a stable low level during 1977-1981, averaging 776,000 mt per year. The stock has since increased to well over 2 million mt. This increase in biomass has been accompanied by decreased growth rates of individual fish. Spawning stock biomass (50% of age 2 fish and 100% of ages 3 and older) increased from about 500,000 mt in 1982 to more than 2.0 million mt in 1994 and has since remained at or above that level.

Rebuilding of the mackerel stock from relatively low levels in the late

“Rebuilding of the mackerel stock from relatively low levels in the late 1970s and early 1980s has resulted from low catches during 1978-1993 ... as well as improved recruitment.”

1970s and early 1980s has resulted from low catches during 1978-1993 (average of 49,400 mt) as well as improved recruitment. Stock biomass levels are now among the highest observed and fishing mortality is substantially below $F_{0.1}$. The resource is underexploited and catches can be increased substantially without adversely affecting spawning stock biomass.

For further information

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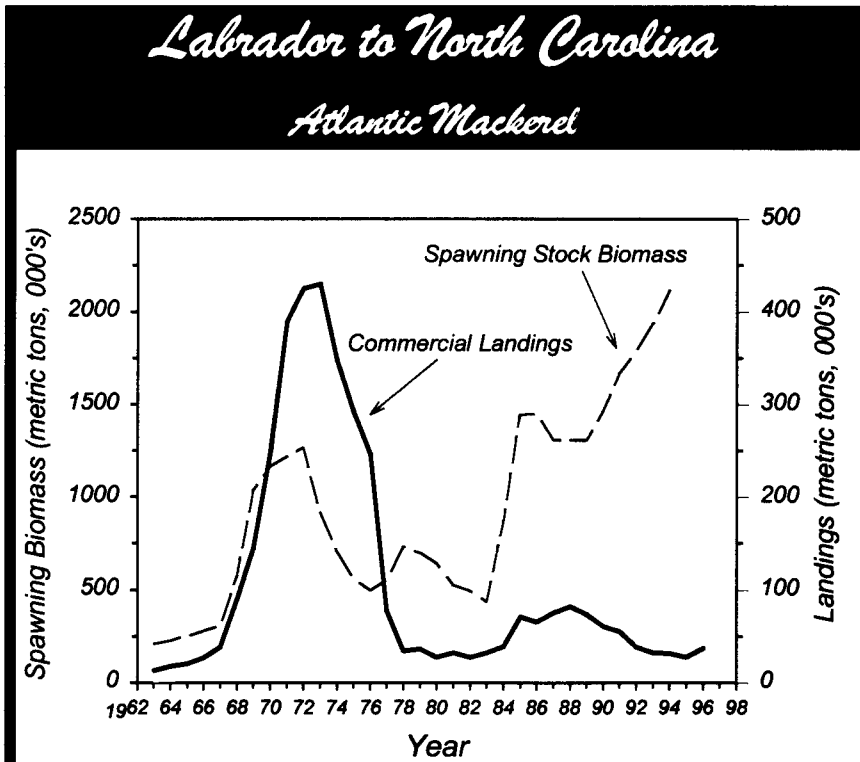


Table 22.1 Recreational catches and commercial landings (thousand metric tons)

Category	Year											
	1977-86 Average	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
U.S. recreational	2.7	4.0	3.2	1.8	1.9	2.4	0.3	0.5	1.1	1.2	1.3	
Commercial												
United States	4.0	12.3	12.3	14.6	31.3	27.0	11.8	4.7	10.1	8.5	15.8	
Canada	23.5	27.6	25.0	21.1	23.0	20.9	24.3	26.1	20.7	17.7	20.4	
Other	15.0	36.6	42.9	36.8	30.7	15.7	2.4	0.7	-	-	<0.1	
Total nominal catch	45.2	80.5	83.4	74.3	86.9	66.0	38.8	32.0	31.9	27.4	37.6	

Summary Status

- Long-term potential catch = 134,000¹ mt
- SSB for long-term potential catch = 1.0-1.2 million mt
- Importance of recreational fishery = Moderate
- Management = Mackerel, Squid, and Butterfish FMP
- Status of exploitation = Underexploited
- Age at 50% maturity = 1.9 years (both sexes)
- Size at 50% maturity = 26.0 cm (10.2 in.), males
25.7 cm (10.1 in.), females
- Assessment level = Age structured
- Overfishing definition = Minimum SSB of 900,000 mt and $F_{0.1}$ fishing mortality rate
- Fishing mortality rate corresponding to overfishing definition = Variable

M = 0.20 $F_{0.1} = 0.27$ $F_{max} = 0.98$ $F_{1996} = <0.05$

¹Assuming constant recruitment at level of geometric mean of 1961-1984 year classes and fishing mortality at $F_{0.1}$