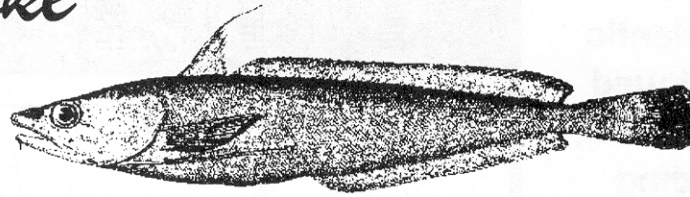


White Hake

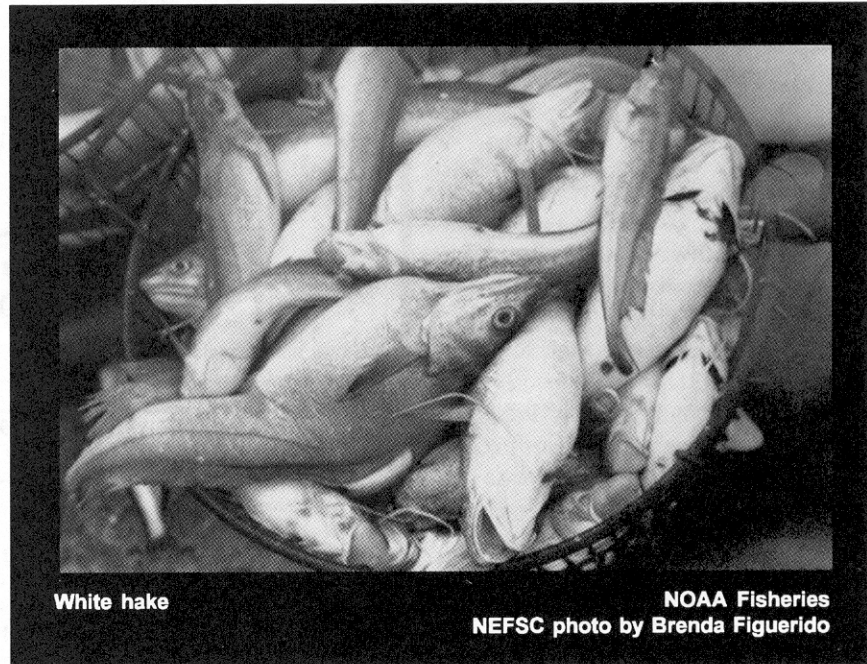


by K. Sosebee

The white hake, *Urophycis tenuis*, occurs from Newfoundland to Southern New England and is common on muddy bottom throughout the Gulf of Maine. Depth distribution of white hake varies by age and season; juveniles typically occupy shallower areas than adults, but individuals of all ages tend to move inshore or shoalward in summer, dispersing to deeper areas in winter. Most trawl catches are taken at depths of 110 m (60 fathoms) or more, although hake are taken as shallow as 27 m (15 fathoms) by gillnetting.

Larval distributions indicate the presence of two spawning groups in the Gulf of Maine, Georges Bank and Scotian Shelf region, one which spawns in deep water on the continental slope in late winter and early spring and a second which spawns on the Scotian Shelf in summertime. Populations in U.S. waters appears to be supported by both spawning events, but individuals are not distinguishable in commercial landings. White hake attain a maximum length of 135 cm (53 in.) and weights of up to 21 kg (46 lb), with females being larger. Ages of more than 20 years have been documented. Juveniles feed primarily upon shrimp and other crustaceans, but adults feed almost exclusively on fish, including juveniles of their own species.

The principal fishing gears used to catch white hake are otter trawls and gill nets. Recreational and distant-water fleet catches have been insignificant, and Canadian catches have generally been minor. The fishery is managed under the New England Fishery Management Council's Multi-species Fishery Management Plan (FMP). Management measures include a moratorium on permits, days-at-sea restrictions, time/area closures, gear restrictions, and minimum size limits.



White hake

NOAA Fisheries
NEFSC photo by Brenda Figuerido

torium on permits, days-at-sea restrictions, time/area closures, gear restrictions, and minimum size limits. Total landings in 1996 were 3,700 mt, a 62% decline from 1992.

U.S. landings have primarily been taken in the western Gulf of Maine, both incidentally to directed operations for other demersal species and as an intended component in mixed-species fisheries. Since 1968, the U.S. fishery has accounted for approximately 90 percent of the Gulf of Maine-Georges Bank white hake catch. Canadian landings averaged 600 mt from 1977-1991 and then increased to 1,700 mt in 1993, but have since declined to former levels.

Total landings of white hake increased from about 1,000 mt during the late 1960s to 8,300 mt in 1985. Landings then declined to 5,100 mt in 1989, rose sharply to 9,600 mt in 1992,

and have since steadily declined to levels not seen since the early 1970s. The increase throughout the 1970s and early 1980s reflects both a general increase in incidental catches associated with expansion of the New England otter trawl fleet and an increase in directed fishing effort. Small white hake are difficult to distinguish from red hake, *Urophycis chuss*, resulting in an unknown (but presumed small) degree of bias in reported nominal catches.

The NEFSC autumn bottom trawl survey biomass index fluctuated about a relatively high level during the 1970s and 1980s but has declined in recent years. The most recent 3-year average of the NEFSC autumn survey biomass index (6.5 kg per tow) is below the current overfishing definition (25th percentile of a 3-year moving average of NEFSC autumn biomass indices:

“Recruitment has varied considerably from 1.9 million fish in 1985 to 9.6 million fish in 1992, with the 1994 level (5.7 million) being about average.”

8.3 kg per tow) and is the lowest since 1968. Fishing mortality peaked in 1988 at $F=0.56$ (39% exploitation rate), declined to 0.34 in 1989, and has since fluctuated around the 1985-1993 average of $F=0.40$ (30% exploitation rate). Fishing mortality throughout the 1985-1993 period has exceeded F_{max} ($F=0.22$, 18% exploitation rate). Exploitable biomass has remained relatively stable since 1985, ranging from 11,600 mt in 1987 to a peak of 17,300 mt in 1993. Recruitment has varied considerably from 1.9 million fish in 1985 to 9.6 million fish in 1992, with the 1994 level (5.7 million) being about average.

The Gulf of Maine-Georges Bank white hake stock is at a low biomass level and is overexploited.

For further information

Fahay, M.P. and R.W. Able. 1989. White hake, *Urophycis tenuis*, in the Gulf of Maine: Spawning seasonality, habitat use, and growth in young of the year and relationships to the Scotian Shelf population. *Can. J. Zool.* 67: 1715-1724.

NEFSC [Northeast Fisheries Science Center]. 1995. Report of the 19th Northeast Regional Stock Assessment Workshop (19th SAW). Woods Hole, MA: NOAA/NMFS/NEFSC. *NEFSC Ref. Doc.* 95-08.

Sosebee, K. A., L. O'Brien, and L. C. Hendrickson. 1998. A preliminary analytical assessment for white hake in the Gulf of Maine - Georges Bank region. Woods Hole, MA: NOAA/NMFS/NEFSC. *NEFSC Ref. Doc.* 98-05.

Gulf of Maine - Georges Bank
White Hake

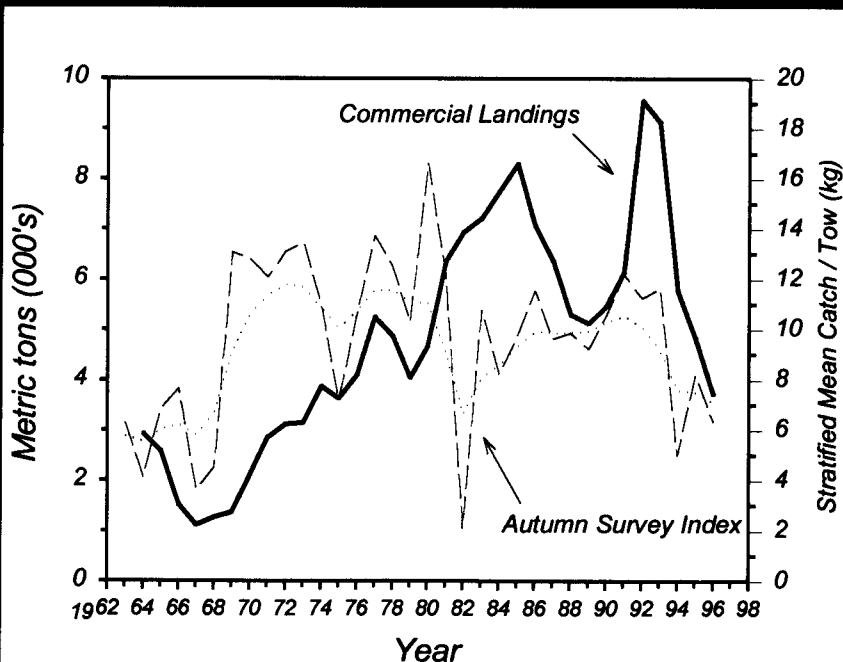


Table 17.1 Recreational catches and commercial landings (thousand metric tons)

Category	Year										
	1977-86 Average	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
U.S. recreational	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Commercial											
United States	5.6	5.8	4.8	4.5	4.9	5.6	8.4	7.5	4.8	4.3	3.3
Canada	0.6	0.6	0.5	0.6	0.5	0.6	1.1	1.7	1.0	0.5	0.4
Other	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
Total nominal catch	6.2	6.4	5.3	5.1	5.5	6.2	9.6	9.1	5.8	4.8	3.7

Summary Status

- Long-term potential catch = 7,700 mt
- SSB for long-term potential catch = Unknown
- Importance of recreational fishery = Insignificant
- Management = Multispecies FMP
- Status of exploitation = Overexploited
- Age at 50% maturity = 1.4 years (both sexes)
- Size at 50% maturity = 32.7 cm (12.9 in.), males
35.1 cm (13.8 in.), females
- Assessment level = Size structured (DeLury)
- Overfishing definition = 3-year moving average of NEFSC autumn survey biomass index falls within lowest quartile of the time series

$M = 0.20$ $F_{0.1} = 0.13$ $F_{max} = 0.22$ $F_{1996} = \text{Unknown}$