

## APPENDIX B

### Definitions of Overfishing for Stocks Managed under the Multispecies FMP

The multispecies management unit currently includes stocks of the following species of finfish:

Atlantic cod.....*Gadus morhua*  
haddock.....*Melanogrammus aeglefinus*  
pollock.....*Pollachius virens*  
winter flounder.....*Pseudopleuronectes americanus*  
yellowtail flounder.....*Limanda ferruginea*  
American plaice.....*Hippoglossoides platessoides*  
witch flounder.....*Glyptocephalus cynoglossus*  
redfish.....*Sebastes marinus*  
white hake.....*Urophycis tenuis*  
windowpane flounder..*Scophthalmus aquosus*.

Under this proposed amendment stocks of silver hake (*Merluccius bilinearis*), red hake (*Urophycis chuss*), and ocean pout (*Macrozoarces americanus*) also will be included in the management unit. Because of its length, the analysis supporting the overfishing definitions for silver hake stocks is presented in a separate appendix (Appendix A).

#### All species except ocean pout, red hake and silver hake

In a letter, dated November 21, 1989, to the NMFS Northeast Regional Director, the Council proposed overfishing definitions as follows:

The Council defines overfishing as occurring when the target percent maximum spawning potential (%MSP) levels described in the Northeast Multispecies FMP are not achieved. The %MSP targets are described on page 6.4 of the FMP. These include:

#### Gulf of Maine

20% MSP for haddock  
20% MSP for cod  
20% MSP for winter flounder  
20% MSP for witch flounder  
20% MSP for American Plaice  
20% MSP for redfish

#### Georges Bank

30% MSP for haddock  
20% MSP for cod  
20% MSP for yellowtail flounder  
20% MSP for winter flounder  
20% MSP for witch flounder  
20% MSP for American Plaice

### **Southern New England**

**20% MSP for yellowtail flounder  
20% MSP for winter flounder**

The Council concluded that at the present time these target %MSPs are not being achieved for haddock, cod, and yellowtail flounder in the areas in which they are listed above. This conclusion was based on information presented and discussions that took place at the Autumn 1989 recent NEFC Stock Assessment Workshop (SAW). Although estimates of current exploitation rates for haddock were not specifically derived at the SAW, the Council assumed that much, if not all, recent fishing effort by large trawlers directed on Atlantic cod simultaneously affects haddock.

The Council is not certain about the current status of witch flounder, American plaice, or winter flounder, and requires advice regarding recent fishing mortality rates for these species. At present, redfish is primarily a bycatch of the other regulated groundfish species. The Council recommends, at least for the present time, that redfish be considered a "minor species" with the expectation that the %MSP that results with the successful regulation of the other species will ensure the long-term viability of the redfish stock.

### **Overfishing Definitions for Red Hake and Ocean Pout**

Given the lack of information on recent stock sizes, a preliminary definition of overfishing for stocks of these species is as follows: "Overfishing is deemed to occur whenever the five-year average of the appropriate NMFS abundance survey index falls below 1/2 of its long term average level." Although it may be somewhat arbitrary to apply a definition based on this 50% to individual stocks, experience with a wide variety of fisheries suggests that it is reasonable to expect stocks to vary from about 1/2 to twice their average abundance even in the absence of overfishing. The Council expects to refine its overfishing definition for stocks of ocean pout and red hake as more information becomes available.

#### **Red Hake**

According to this definition, the Gulf of Maine - Northern Georges Bank stock is not being overfished (Table B1), however, the Southern Georges Bank - Mid-Atlantic stock is just below the overfishing threshold (by 3.1%), indicating that the stock size is low and should be carefully monitored. The *Status of the Fishery Resources Off the Northeastern United States for 1989*, however, states that the stock has been subject to low fishing pressure since 1983 and with the strong 1985 year class, an increase in stock biomass can be expected in the next two years.

#### **Ocean Pout**

In each of the past four years, the abundance index for ocean pout has been well above 50% of its long term average. The high levels of fishing that have recently occurred on the northern stock in Cape Cod Bay take place in state waters during a time when there is no exempted fishery for ocean pout in the EEZ. In effect, the Multispecies FMP prohibits fishing on the northern stock of ocean pout because there is virtually no fishing on this stock in the June through November period, when the exempted fishery for pout is permitted in the EEZ. Only 2% of pout landings from the Gulf of Maine occur during this period.

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In evaluating overfishing definitions it is important not to confuse the definition of overfishing with rebuilding strategies. Overfishing is defined in terms of a %MSP threshold and a corresponding fishing mortality rate; rebuilding may require a fishing mortality rate lower than the %MSP threshold. In other words, the definition of overfishing should not depend on the current status of a stock. If a stock is overfished, re-defining overfishing in terms of higher %MSP values will not prevent it from occurring. Instead, appropriate modifications should be made to rebuilding strategies. For this reason, the Council does not think it reasonable at this time to increase %MSP targets as has been suggested for stocks of yellowtail flounder and haddock, but it will consider higher %MSP targets as rebuilding strategies. The Council also expects that in consultation with scientists from the NMFS Northeast Fisheries Center, the TMG and others, its definitions of overfishing continually will be re-evaluated and modified in light of the best information available.

On the other hand, in response to comments, it is clear that the term %MSP needs a more precise definition. The Council intended that this term means the spawning stock biomass per recruit (SSB/R) as the percentage of the unexploited SSB/R rather than (SSB) as a percentage of unexploited SSB. This definition of %MSP means that overfishing is defined in terms of a maximum fishing mortality rate rather than in terms of a minimum SSB.

As mentioned in the introduction to this amendment, the Council has already started the development of Amendment #5 which contains rebuilding strategies for all overfished stocks.

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Table B1

Stratified Mean Catch per Tow (kg)  
from NMFS Bottom Trawl Surveys  
of Ocean Pout and Red Hake

YEAR	OCEAN POUT Spring Survey Mid-Atlantic - Gulf of Maine	RED HAKE Spring Survey Gulf of Maine - Northern Georges	RED HAKE Autumn Survey Southern Georges - Mid-Atlantic
1963	-	-	7.588
1964	-	-	3.016
1965	-	-	3.887
1966	-	-	2.077
1967	-	-	1.078
1968	5.370	0.869	2.432
1969	6.150	0.492	2.364
1970	5.180	0.390	1.681
1971	2.180	0.569	1.734
1972	2.450	1.270	3.051
1973	3.370	2.041	1.875
1974	1.480	1.198	0.057
1975	1.340	2.108	3.763
1976	1.400	1.678	2.326
1977	3.570	1.383	2.304
1978	3.370	1.301	1.594
1979	1.490	1.187	2.514
1980	5.730	2.809	2.989
1981	7.610	4.350	2.250
1982	4.740	2.085	2.048
1983	4.240	3.080	5.151
1984	5.540	2.526	0.662
1985	7.010	3.961	2.015
1986	6.300	3.378	0.929
1987	2.700	3.587	0.627
1988	3.200	2.160	0.645
1989	<u>2.792</u>	<u>2.111</u>	<u>1.342</u>
Long-term Average	3.964	2.024	2.296
50% of Long-term Average	1.982	1.012	1.148

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