

Multispecies Monitoring Report

November 9, 2000

Fishermen's Report Summary and Background

Overview

This report begins the process that will culminate in the fourth annual adjustment to the Northeast Multispecies Fishery Management Plan.

The Council initiated the annual adjustment process in 1996 in an effort to balance two countervailing arguments. During the development of Amendment 7, analysis indicated that even an accelerated reduction in days at sea allocations to 50% of baseline levels would be insufficient to reduce fishing mortality rates quickly enough to a level which will diminish risk of stock collapses and allow eventual rebuilding to the prescribed biomass thresholds. On the other hand, the fishing industry was critical that the accelerated schedule of mortality reductions left no time to analyze the effects of existing measures before moving on with additional cuts.

The annual adjustment process is the product of a compromise between these positions.

The annual adjustment process utilizes the framework adjustment to accomplish its objectives. Stripped of legal jargon this process entails an “expedited rulemaking” where some of the analytical requirements and much of the opportunity for public comment are waived in the interest of efficiency. In general, this process is accomplished within the span of two consecutive Council meetings. An affirmative vote by the Council authorizes the NMFS regional administrator to publish either a proposed rule or final rule in the Federal Register, as circumstances dictate.

Circumstances Unique to the 2001 Annual Adjustment

This Multispecies Monitoring Committee Report marks the transition to new standards imposed by the Sustainable Fisheries Act. Although the SFA was enacted in 1996, the complexities generated by its mandates have necessitated that the Council take a measured approach toward full implementation. A fuller description of SFA compliant overfishing definitions is provided later in this report.

The Multispecies Monitoring Committee Process

The MSMC meets annually in October. At this meeting available information is provided on landings of the stocks comprising the multispecies complex for both the preceding year and the partial current year. An approximation of fishing effort from both the days at sea (DAS) and vessel trip report (VTR) databases for the current and previous years is also provided.

The most recent stock assessments are made available to the Committee. Historically these assessments are the peer reviewed products of the SAW/SARC (Stock Assessment Workshop/Stock Assessment Review Committee) process. Recently due to the constraints of personnel and budgets conflicting with the requirement for more frequent assessment updates (ultimately annual) the products provided have become more provisional. For example the assessments for 19 stocks through the year 2000 were produced by the Northern and Southern Demersal Working Groups which, while providing the best available information, lack the imprimatur of the SAW/SARC process.

Armed with this information and with knowledge of any recent changes in fishing conditions such as management measures, effort shifts, or changes in selectivity, the MSMC estimates a fishing mortality rate which could reasonably be expected to prevail through the current year for each stock in the multispecies complex.

Using a beginning stock biomass obtained from the most recent assessment and applying the estimated fishing mortality rate for that stock the MSMC projects a stock biomass for the conclusion of the fishing year.

Comparison of the estimated fishing mortality rates and projected stock biomass levels with the targets adopted by the Council in the Multispecies FMP provides a criterion to measure the sufficiency of the current year management measures.

Under the Amendment 7 standards the MSMC is charged with providing target TAC's for five stocks (GOM and GBK Cod, GBK Haddock, GBK and SNE Yellowtail) to insure that the fishing mortality rate thresholds specified by the Amendment will not be exceeded. If changes from current TAC levels are necessary the MSMC recommends management options which analysis indicates are sufficient to attain the desired outcome.

Sources of Uncertainty

As with every predictive endeavor the MSMC process entails an inevitable level of uncertainty. In modeling the outcomes of changes to management measures certain assumptions (e.g., changes in fishermen's behavior in response to restrictions, the catchability of fish remains in direct proportion to recruited biomass) must be made. Absent the time or means to verify such assumptions a level of uncertainty pervades the process.

Recently, additional factors have provided new source of uncertainty. First the administrative procedures of NMFS and the Council have moved the report deadline back one month (from December to November). This schedule reduces the amount of current year landings and effort data available for analysis.

Secondly, there has been a decline in the quantity and quality of data available. A scarcity of biological samples has made it difficult to identify the distribution of age classes in the catch.

Third, management actions intended to reduce the landings of Gulf of Maine Cod had unforeseen consequences. During 1999 the daily landing limit was adjusted four times. Absent substantial information from observed trips the assessment and projections processes could not provide a single reliable estimate, but instead provided a range based on different assumptions of Cod discards from zero to 2,500 metric tons.

Transition to Sustainable Fisheries Act Mandates

In 1996, Congress placed new levels of responsibility on NMFS and the Regional Fishery Management Councils with enactment of the Sustainable Fisheries Act (SFA). Among numerous other provisions, the Act identified optimum sustainable yield as an overarching objective. It also identified maintaining stock biomass at a level that can produce maximum sustainable yield (MSY) as a key biological criteria that guides management. This stock biomass is usually identified by the symbol B_{MSY} .

Furthermore, the Act identified a biomass level - usually one half B_{MSY} - as a minimum biomass threshold. NMFS is required on an annual basis to provide a report on stock status for the Secretary of Commerce. Stocks below or declining toward their biomass threshold need to have rebuilding plans developed which would restore B_{MSY} as quickly as possible, usually within ten years.

Subsequently, under another SFA requirement, NMFS published in May, 1998 a set of guidelines intended to clarify the intent of Congress and facilitate the preparation of SFA compliant fishery management plans. These guidelines identified the form of an “MSY Control Rule”, basically a function which relates stock biomass to an allowable fishing mortality rate.

Subsequently, in mid 1998 an “Overfishing Definition Review Panel” completed a report that identified specific values for control rules applicable to most New England stocks.

Notably each control rule contained the following benchmarks:

- (1) the value of B_{MSY}
- (2) the value of $B_{threshold}$ (usually $1/4$ to $1/2 B_{MSY}$ from which B_{MSY} can be achieved in no more than 10 years).
- (3) the value of F_{MSY} (a mortality rate which applied to a stock at B_{MSY} will produce maximum sustainable yield).
- (4) a curve depicting F_{target} (a series of mortality rate values which if applied to a corresponding biomass will allow the stock to rebuild to B_{MSY} within the prescribed time.

In addition each control rules identifies an “overfished condition” which occurs when biomass declines below $B_{\text{threshold}}$. Several interpretations of when overfishing occurs exist, but overfishing always occurs when fishing mortality exceeds F_{MSY} .

The establishment of these criteria greatly diminish the flexibility available to a Fishery Management Council which must eliminate overfishing or an overfished condition.

In October, 1998 the NEFMC submitted Amendment 9 to the Northeast Multispecies FMP. With this document the Council and NMFS basically established agreement on values for the terms of reference inherent in the control rules for the principal New England groundfish stocks.

The final step to implement the requirements of the SFA, however, is yet to be taken. Currently the Council is in the final stages of preparation of a public hearing document for Amendment 13 to the Multispecies FMP. Among the objectives of Amendment 13 is the development and implementation of rebuilding plans for the principal groundfish stocks.

Comparison of Amendments 7 and 13

There are several fundamental differences between the provisions of Amendment 7 and any SFA - compliant rebuilding programs which may be incorporated into Amendment 13.

First, Amendment 7 applies discrete measures to only five stocks (GOM and GBK Cod, GBK Haddock, and GBK and SNE Yellowtail). Eleven other stocks were aggregated within a 25,500 metric ton TAC with no mechanism for discrete management. In contrast, Amendment 13 will seek to manage approximately 17 individual stocks.

While Amendment 7 identifies a target biomass for all discrete stocks (except GOM Cod) there is no designated time for its attainment. Instead, the objective is a fishing mortality rate (F_{max} for GOM Cod, $F_{0.1}$ for all others) with a target TAC as proxy.

In contrast, SFA requires a time certain for attainment of B_{msy} with a maximum duration of 10 years except in rare circumstances. The clock timing the rebuilding schedules actually started in November, 1999 when Amendment 9 was approved.

The MSMC Directive

Due to the transition from Amendment 7 to the SFA compliant objectives in Amendment 13 this report reflects a unique challenge. At this time it is not precisely known when Amendment 13 will be approved therefore the Council must retain the option to undertake another annual adjustment for the fishing year beginning May 1, 2001. In addition, the Council must have information relating current stock conditions to SFA compliant rebuilding schedules.

To assist the Council in developing rebuilding programs for overfished stocks the MSMC has developed the term of reference known as F_{MSMC} . In simple terms, F_{MSMC} is a fishing mortality rate which applied to a stock under prevailing conditions will result in rebuilding to the biomass threshold within the time limits prescribed in the overfishing definitions adopted under Amendment 9.

The accompanying table lists the five groundfish stocks which received discrete management under Amendment 7. An additional approximately 12 stocks will also be afforded similar assessment subject to available information. Under the SFA requirements, rebuilding programs for each stock determined to be below its biomass threshold must be established.

Comparison of Amendment 7 and Proposed Amendment 13
Fishing Mortality Rate and Biomass Targets for Five Major Groundfish Stocks

Stock Name	1999 SSB (MT)	Amendment 7 SSB Target (MT)	1999 Fishing Mortality Rate (fully recruited)	Amendment 7 Fishing Mortality Rate Target (fully recruited)	Proposed Amendment 13 Fishing Mortality Target ($F=F_{MSMC}$) ¹ Fully recruited	1999 mean biomass (MTS)	Amend. 9 Mean Biomass Target (MT)
GBK Cod	34,796	70,000	$F=0.22$	$F_{0.1} = 0.18$	$F=0.09$	42,991	108,000
GBK Haddock	48,522	80,000	$F=0.16$	$F_{0.1} = 0.26$	$F = 0.06$	86,470 (SSB)	105,000 (SSB)
GBK Yellowtail	33,491	10,000	$F = 0.13$	$F_{0.1} = 0.25$	$F= 0.27$	49,611	13,517
SNE Yellowtail	5,414	10,000	$F = 0.30$	$F_{0.1} = 0.27$	$F = 0.17$	6,449	15,718
GOM Cod	8,704 to 9,356 depending on discards	None Specified	$F = 0.29$ to $F = 0.76$ depending on discards	$F_{0.1} = 0.16$ $F_{MAX} = 0.27$	$F= 0.10$	16,947	33,000

¹ F_{MSMC} is the fishing mortality that rebuilds to B_{MSY} within the timeframe specified by the Amendment 9 control rules.

As can be discerned among the stocks listed in the table, Georges Bank Cod, Gulf of Maine Cod, and Georges Bank Haddock still require substantial reductions in fishing mortality in order to attain their Amendment 9 biomass targets.

As is often the case with multispecies fisheries, the continual conflict between protecting weak stocks while allowing access to commingled stronger ones will tax the Council's ingenuity. The results of efforts to protect Gulf of Maine Cod while allowing limited fishing for other species have brought consternation to scientists, fishermen and managers alike.

Economic Implications

As management of our fisheries matures and additional standards are applied, it is becoming apparent that a utopian age of rebuilt fisheries and relaxed management restrictions will not arrive anytime soon.

Stock specific measures appear to have been beneficial in some cases (Georges Bank Haddock, Georges Bank Yellowtail) but have produced muted results in others (Gulf of Maine Cod, Southern New England Yellowtail). Other stocks may have benefited from broad overall declines in fishing effort due to days at sea or capacity reductions.

Recruitment events are the products of an elusive combination of spawning biomass and environmental factors. Although Georges Bank Haddock may be entering a cycle of dependable recruitment, Georges Bank Cod and Southern New England Yellowtail have not shown such trend. Singular recruitment events may soon alter the dynamic of Gulf of Maine Cod and White Hake.

Irrespective of the course which nature sets, fishing effort will remain problematic. Presently, days at sea utilization is about constant with only about one third of allocated days actually used. Latent effort (unused DAS) activation continues as a possible impediment to liberalized access.

Finally, the issue of overall capacity in the New England groundfish fleet remains unresolved. A disquieting characteristic of some fishery management programs is the trend toward short, intensive seasonal fisheries. The social and economic cost of this phenomenon is well documented.

The expectation for New England groundfish stocks is that a sustainable exploitation rate even at a fully rebuilt biomass can be only 20%, or one fish in five, each year. The true essence of successful management may be centered less in the biology of fish than in the milieu of social and economic science.