Multispecies Monitoring Committee

Fishermen's Report Summary and Background
November 1999

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- **The Multispecies Monitoring Committee and Its Function**

The MSMC was established by the NEFMC as part of Amendment 7 to the Northeast Multispecies FMP. The MSMC is charged with monitoring the current plan measures, assessing their effectiveness, projecting groundfish stock conditions and formulating any additional measures necessary to achieve the plan's objectives in the forthcoming fishing year.

The MSMC membership consists of technical staff from the New England and Mid-Atlantic Fishery Management Councils, representatives of NMFS' Northeast Fisheries Science Center and Regional Office, representatives of the fishery agencies of the New England states, the U.S. Coast Guard, and a member of the New England Fishing industry. Meetings are generally held at the New England Council office in Saugus, MA and at the Northeast Fisheries Science Center in Woods Hole, MA.

The MSMC Report is intended to initiate a framework adjustment process to the Northeast Multispecies Fishery Management Plan (FMP). The report provides a suite of goal-effective options, designed to attain the FMP's objectives during the next management year. These options are developed after analysis of information on the effectiveness of current measures and a projection of stock conditions to provide a benchmark upon which to apply any proposed changes.

The Council retains several courses of action on receiving the MSMC report. It may select any option provided and forward it to the NMFS Regional Administrator (RA) as a proposed rule. More probably the Council may craft its own measures after taking public testimony on the social and economic impacts of the MSMC proposals. These measures receive further deliberation at a subsequent meeting at which time one alternative is forwarded to the RA as a recommended final rule. Finally, should the Council default in providing a recommended alternative the RA is authorized to select as a proposed rule any MSMC options not expressly rejected by the Council.

In 1999 provisions of the Sustainable Fisheries Act (SFA) have modified the procedures and timing of the annual adjustment process. The MSMC report, along with stock assessments and advisory reports from the SAW/SARC process are incorporated into a stock assessment and fishery evaluation (SAFE) report which is formally presented during the November Council meeting. As has been the case in the past the Council must finalize debate by the January meeting and provide the RA with its decision by February 1st. A final rule, which will govern fishing in the management year beginning on May 1st, must be published no later than April 1st.

- **Management Criteria and the Sustainable Fisheries Act**

The application of national standards mandated by Congress in the Sustainable Fisheries Act has added a new level of complexity to the annual adjustment process. As required by the SFA, the Council adopted new overfishing definitions under Amendment 9 to the Multispecies FMP. Not only are these new overfishing definitions more rigorous, embracing a biomass target in conjunction with a range of mortality rates designed to rebuild current biomass to the target level in a specified time interval not to exceed ten years, but these new definitions also must be applied to each discrete stock of fish.

Fishermen should become aware of these changes in the standards to which they are being held accountable. They should take away two important messages resulting from the application of these standards. 1) The bar has been raised. Mortality objectives will become more conservative. Stocks with low biomass levels may require additional reductions in mortality because current fishing mortality rate provides rebuilding at an unacceptably slow rate. For example, Southern New England yellowtail is below the Amendment 7 standard mortality rate ($F_{0.1}$ =0.27). Its biomass remains low because of poor recruitment but, nevertheless, Amendment 9 may well call for further reduction. 2) No matter how insignificant a weak stock's economic value is relative to other catch components, its condition will tend to dominate management policy.

- **Management Objectives In Transition**

The MSMC mission is to measure the effectiveness of all management measures presently in effect and, where shortfalls are detected, to recommend modifications or additions necessary to achieve the plan objectives.

Under Amendment 7 the council had identified 5 "critical stocks" (Gulf of Maine (GOM) cod, Georges Bank (GB) cod, GB haddock, GB yellowtail, and Southern New England (SNE) yellowtail). Each of these stocks (with the exception of GOM Cod) had a biomass threshold and a mortality rate objective which could be expected to allow rebuilding. The remaining large mesh multispecies (American plaice (dabs), winter flounder (blackback), witch flounder (greysole), windowpane flounder (daylights or sand dabs), white hake, ocean perch (redfish), and pollock) were managed under an aggregated TAC of 25,500 metric tons.

The Amendment 7 standards do not comply with SFA requirements. The Council is cognizant of the enormous demands of compliance. It has determined that the framework adjustment process is inadequate to provide either the level of analysis or the overarching changes in management measures necessary to provide full compliance with the SFA. For this reason it has embarked on the development of Amendment 13.

For this report the following interim conventions will apply:

- For the 5 Amendment 7 "critical stocks" the management objectives will remain the biomass thresholds and mortality rate targets identified in Amendment 7. MSMC will provide a stock condition projection and a reference comparison with Amendment 9 (SFA compliant) overfishing definitions

- For the 7 Amendment 7 "aggregated multispecies" the management objective will remain the 25,500 MT TAC with the caveat that any identified large discrepancies between projected stock conditions and SFA compliant targets will weigh in the crafting of proposed management measures. The SAW/SARC process is providing first time assessments for several new stocks (Cape Cod yellowtail, GB winter flounder, SNE/ Mid Atlantic winter flounder) and have updated assessments for others (white hake, American plaice, witch flounder). These stocks have been identified for discrete management once SFA standards are fully operative.

Again, MSMC will provide comparisons between projected stock conditions and Amendment 9 overfishing criteria.

- **Information Sources Used by MSMC**

The Committee evaluates information from a variety of sources. The MSMC uses landings data provided by NMFS. The primary source of this information is dealer reports, however, this must be modified by a proration process using fishermen's vessel trip reports (VTR's) to assign landings to the appropriate stock unit.

The Northeast Regional Stock Assessment Workshop Advisory Reports on Stock Status Report (SAW 27, 28 and 29) provides current information on mortality rate, spawning stock biomass, abundance indices and recruitment levels and trends. Days at Sea (DAS) utilization rates and patterns are provided by the vessel call in service administered by NMFS.

In July, 1999 the Stock Assessment Workshop (SAW) Northern Demersal Working Group (NDWG) provided an updated assessment for 11 northern demersal stocks. These include GB Cod, GB Haddock, GB Yellowtail, GB Winter Founder, GOM Cod, GOM/GB Plaice, GOM/GB Witch Flounder, GOM/GB White Hake, Cape Cod Yellowtail, SNE Yellowtail, and SNE/ MA Winter Flounder.

The New England Fishery Management Council (NEFMC) provides detailed information of operative management measures including permanent and periodic area closures, trip limits, days at sea utilization controls (the "running clock") and any other measures which may influence catches or landings.

- **Source of Uncertainty**

The complex mix of management measures and the adaptive behavior of fishermen seeking to maximize revenues and preserve traditional activities in a rapidly changing regulatory environment results in unpredictable shifts in effort. It is the MSMC's role to anticipate these shifts, analyze their consequences, and propose measures to mitigate any adverse effects.

Under the multispecies FMP the fishing year begins May 1st. When the MSMC process begins in August there is only one month of landings subsequent to the previous annual adjustments available for analysis.

During 1999 rapidly changing landing limits and access restrictions produced an unprecedented complexity. For example, the GOM Cod landing limit declined from 400 lbs. to 200 lbs. on May 1st then was further reduced to 30 lbs. on May 23. The limit was raised to 100 lbs in early July but the actual impact on landings was blurred by changes in the "running clock" rules. Moreover, the disparity between landings and cod catches grew to an unknown degree with fishermen reporting record discards with little opportunity for verification due to an underfunded domestic observer program. Recreational cod catch, once seen as an almost inconsequential component appeared to grow relative to the commercial share due to disparate closed area access rules.

Stock assessments are made on a calendar year basis. They look retrospectively at the preceding year while the MSMC projects mortality rates, spawning biomass and partial recruitment forward for the next calendar year. The MSMC projects fishing year mortality rates and applies calendar year TAC's to the next fishing year.

The MSMC is confronted with the difficulty of quantifying the "value" of many measures. For example, an area closure does not eliminate all resident effort. Some effort is displaced into adjacent areas where catches continue at rates determined by the abundance, distribution, and catchability of species in the alternative areas.

Latent effort resulting from less than full utilization of allocated days at sea remains another area of uncertainty. A characteristic identified in previous MSMC reports remains consistent. Vessels in the fleet days category in aggregate use under half their allocation while those in individual days regularly utilize in excess of 80 percent.

A projected 7.4 percent decrease in 1998 DAS utilization failed to materialize despite capacity reductions and other sources of vessel attrition. This phenomenon underscores the fact that shifts in the use of days at sea remain dependent on the choice of individual fishermen. Factors such as relative profitability, restrictions on proximate fisheries or evolving fishing strategies can produce unforeseen shifts in effort.

- **Amendment Seven Issues**

Guidance from the NEFMC specifies that the overfishing definitions required by the Sustainable Fisheries Act and formalized by Amendment 9 will be fully implemented by Amendment 13. Until that time (estimated to be Fall, 2000) Amendment 7 standards will apply except that Amendment 9 standards should be applied as guides to the appropriateness of proposed measures.

Amendment 7 contains two objectives which apply to five critical stocks. They are (1) a mortality rate and (2) and SSB threshold. The following table summarizes these objectives and compare 1998 conditions.

Table 1. Comparison of Amendment 7 fishing mortality and spawning stock biomass targets compared to 1998 values.

Stock	Amend 7 Mortality Target	1998 Mortality Rate	Amend 7 SSB Threshold	1998 SSB Estimate
GB Cod	$F_{0..1}$ = 0.18	F =0 .28	70,000 MT	28,700 MT
GB Haddock	$F_{0.1}$ = 0 .26	F = 0.15	80,000 MT	38,100 MT
GB YT	$F_{0.1}$ = 0.25	F = 0.17	10,000 MT	17,300 MT
SNE YT	$F_{0.1}$ = 0.27	F = 0.20	10,000 MT	4,000 MT
GOM Cod	$F_{0.1}$ = 0.15	F = 0.64	Not Specified	8,300 MT
GOM Cod	F_{max} = 0.27	F = 0.64	Not Specified	8,300 MT

The problem areas remain the two cod stocks where mortality rates remain high and, in the case of GOM Cod, SSB remains critically low. SNE YT despite an F below $F_{0.1}$ remains at a low biomass level.

The draconian measures imposed on GOM Cod may be having a measurable effect. Despite the excessive mortality rate for 1998, a drop from 1.0 in 1996 is noteworthy. Amid considerable uncertainty introduced by unquantified discarding, particularly during May and June 1999, the 1999 mortality rate for this stock may be nearing the Fmax target.

- **Aggregated Multispecies Stocks**

The eleven stocks of large mesh multispecies managed under an aggregate 25,500 MT TTAC are a nascent concern. Under amendment 7 these stocks (white hake, pollock, redfish, witch Flounder, GOM winter flounder, plaice, GB winter wlounder, SNE/ MA winter flounder, GB windowpane flounder, SNE windowpane flounder and Cape Cod yellowtail) were monitored by a relative exploitation index which can be an unreliable metric.

The 1999 Northern Demersal Working Group updated the assessments of these stocks, and found wide disparity in stock conditions. For example, witch flounder (Greysole) thanks to low mortality and good recruitment had achieved its Amendment 9 mean biomass objective. In contrast White Hake was at a low SSB with very high mortality. Discrete measures for stocks as disparate as these will provide great challenges to future management.

- **Requirements of the Sustainable Fisheries Act**

The 1996 Sustainable Fisheries Act has radically altered the process of fishery management. Of particular concern is the form of SFA compliant overfishing definitions. At the heart of each definition is a biomass level which produces maximum sustainable yield (Bmsy). This level may be either observed or calculated and usually approximates one half the biomass of an unfished stock.

The relationship between biomass and allowable fishing mortality is expressed as a mathematical function known as a control rule. The mortality rate which provides the

highest sustainable yield from Bmsy is known as F msy. For biomass levels below Bmsy the control rule prescribes steadily decreasing fishing mortality until at a point known a B threshold. F must be reduced to and held at F = 0.

For stocks with current biomass levels below Bmsy (as is presently the case for most stocks), SFA requires rebuilding to BMSY in as short a time as is practicable, but in no case more than ten years. It is the discretion of fishery managers to specify a rebuilding period. The law requires an agressive, risk-averse strategy which usually incorporates the resiliency (natural ability to repopulate) of a stocks as a primary factor.

When a stock is assessed the estimated SSB is compared with B threshold. Where SSB is below B threshold the management advice is for fishing mortality to be held as close to zero as is practicable. For intermediate SSB levels the control rule specified a fishing mortality rate consistent with rebuilding to Bmsy within the specified rebuilding period.

The following table, derived from the 1999 SAW Northern Demersal Working Group summarizes the magnitude of impact introduced by the new SFA compliant overfishing definitions. In this table the term "F control rule" is a literal interpretation of the Amendment 9 control rule while "F_{MSMC}" is a practical interpretation based on prevailing stock conditions which MSMC has projected to rebuild overfished stocks to B_{msy} within the Amendment 9 time frame.

Stock	F_{1998}	$F_{\text{Control Rule}}$	F_{MSMC}	% change F_{1998} to F_{MSMC}
GB Cod	0.28	0.19	0.09	-67%
GB Haddock	0.15	0.00	0.06	-60%
GB Yellowtail	0.17	0.50	0.38	+121%
SNE Yellowtail	0.20	0.00	0.17	-17%
GOM Cod	0.64	0.22	0.10	-84%
White Hake	1.09	0.00	0.06	-94&
American Plaice (Dabs)	0.32	0.02	0.11	-67%
Witch Flounder (Greysole)	0.37	0.11	0.11	-70%
GB winter flounder	0.42	0.00	0.09	-80%
SNE/ Mid. Winter Flounder (Blackback	0.33	0.40	0.33	0%
Cape Cod Yellowtail	0.41	0.07	0.50	+22%

The extreme range of prescribed changes in fishing mortality coupled with the geographic distribution of the impacted stocks underscores the complexity of any practical rebuilding strategy. The presence of a weak stock in any fishery complex diminishes the opportunity to access other more robust commingled stocks.

- **Economic Implications**

The integration of information available in the 1999 MSMC report leads to interesting conclusions about the rapidly evolving multispecies fishery.

The rigorous measures imposed to forestall a collapse of the GOM Cod stock did achieve a reduction in fishing mortality but at significant cost. Unknown quantities of cod were discarded at sea, fishing communities suffered economic dislocation and the quality of fishery - dependent data was compromised.

Mortality of GB cod did not decline. Biomass crept upwards but at a rate not adequate to achieve SFA rebuilding standards within the available time.

Among the remaining multispecies stocks which are not subject to discrete management results vary widely. For example, witch flounder (greysole) has achieved near target biomass and mortality levels. SNE yellowtail remains at only about 11% of its biomass target despite low (but not SFA compliant) mortality. White hake is at both low biomass (25% of target) and at a high mortality rate (F_{1998} = 1.09).

The fundamental message of this report is that the stock specific measures imposed by Amendment 7 have achieved muted success while imposing substantial social and economic burdens on specific fishing sectors. These measures still require modification to reduce wasteful and unproductive consequences such as discarding at sea. However the distribution and severity of soon to be non compliant stock conditions requires a broader strategy.

The proposed measures provided by MSMC contain elements which reduce either the allocation or the efficient use of days at sea. Days at sea is the one currency that cuts across all stock boundaries.

The downside of using DAS as a means to address mortality control is its impact on access to stocks that need less protection. Conversely, it can be argued that the plethora of area closures and landing limits needed to ultimately bring all managed stocks into compliance with Amendment 9 would be even more disruptive.

A final and sobering message is the persistent mismatch between capital assets and accessible resource in the multispecies fishery. For example, in 1998 fishing year, 1,650 permitted vessels were allocated a total of 154,286 DAS. Among these vessels a subset of 1,061 called in at least one DAS. These “DAS active” vessels used 51,880 of the 106,202 DAS allocated to them. This fishing activity plus the bycatch mortality associated with other fisheries conducted in the multispecies stock regions produced fishing mortality rates well in excess of those required by Amendment 9.

Presently multispecies permits may neither be split nor combined. Each permit is linked to a specific vessel and may be transferred only to vessels of comparable or lower fishing power. The wide scale reductions in fishing mortality which may result from Amendment 9 driven biomass rebuilding programs could well exacerbate the

disconnection between Days at Sea and mortality rates. If the result of evolving policy is a reduction in the available pool of DAS to a level where the economic viability of most fishing vessels is in jeopardy, a reassessment of the rules linking vessels and permits to effort is inevitable.