

Report of the New England Fishery Management Council's Multispecies Monitoring Committee

Executive Summary

DAS usage in 1998

DAS usage in 1998 increased to 52,025 in 1998, an 8% increase from 1997 and a 19% increase from the MSMC's prediction of 43,854. As in previous years, DAS greatly exceeded the actual usage in those years. In general, vessels with individual days-at-sea used 90% of their allocation while fleet category vessels used only 44% in fishing year 1998. Based on fishing year 1998 utilization rates, days-at-sea limits in 1998 are more constraining on individual vessels than fleet vessels. Utilization of DAS usage May-August 1999 is similar to utilization in May-August 1998.

Status relative to Amendment 7 objectives for 5 critical stocks

The Multispecies Monitoring Committee (MSMC) utilized assessment updates and projections provided by the NDWG to estimate TTAC for Georges Bank cod, Georges Bank haddock, Georges Bank yellowtail, Southern New England yellowtail and Gulf of Maine cod in 2000 based on Amendment 7 target fishing mortality. Stock status has improved for the three Georges Bank stocks and Southern New England yellowtail. Calendar year 1998 fishing mortality rates are below the overfishing definitions for these stocks and below the more restrictive Amendment 7 targets for all but Georges Bank cod. The fishing mortality rate on Georges Bank cod increased slightly to 0.26 in calendar year 1998. Spawning stock biomass has increased for these stocks but, with the exception of Georges Bank yellowtail, remains below the Amendment 7 biomass goals. In general, recruitment (incoming year classes) is below the long-term average with the exception of Georges Bank yellowtail.

Stock status in 1998 for Gulf of Maine cod is similar to stock status in 1997. The fishing mortality rate is projected to decreased slightly to 0.64 in 1998, and remains well above both the overfishing definition ($F_{20\%}=0.37$) and the Amendment 7 mortality target ($F_{MAX}=0.27$). Recruitment is at record low levels and spawning stock biomass declined in 1998 to the lowest level ever observed. However, the reduction was not as large as the 37% predicted in the 1998 MSMC report. A sensitivity analysis suggests that if discarding did not appreciably increase in 1999, then the fishing mortality rate on Gulf of Maine cod may be approaching F_{MAX} . However, given record low spawning stock biomass, poor recent recruitment and decline in the survival ratios (recruit/ spawning stock biomass), the Amendment 7 **objective of F_{max} remains inappropriate for rebuilding Gulf of Maine cod.**

Target total allowable catches (TACs) were calculated for calendar year 2000 (January 1 2000 to December 31, 2000) based on MSMC projected stock sizes for January 1, 2000 and target fishing mortality rates. These target TACs are assumed to be the target TACs for the fishing year (May 1, 2000 to April 30, 2001). The USA TACs assume that the 1999 Canadian quota for the three Georges Bank stocks (GB cod, GB haddock and GB yellowtail) will be carried over in 2000. The assumed Canadian quota was subtracted from the Total TACs for

transboundary stocks to obtain the USA target TAC. USA Target TACs are found in the Table 1.

Fishing mortality needs to be reduced on Georges Bank cod (36%) and Gulf of Maine cod (56.2%) from the calendar year 1998 fishing mortality rates to achieve Amendment 7 target fishing mortality rates. The MSMC proposes various options consisting of days-at-sea reductions, trip limits, and area closures and combinations thereof for achieving Amendment 7 targets. Options 1, 2, 3 and 4 achieve $F_{0.1}$ for Georges Bank cod. Options 3 and 4 may achieve F_{max} for Gulf of Maine cod. Only options 1 may achieve an F between $F_{0.1}$ and F_{MAX} for Gulf of Maine cod and Option 2 may achieve the $F_{0.1}$ for Gulf of Maine cod. The options are summarized in Table 2 and pros and cons are summarized in Table 3. The options are discussed in more detail with examples as needed in Chapter 8.

Table 1. 1998 landings (calendar year) and TACs for 1998, 1999 and 2000 (calendar year applied to fishing year) in metric tons for the 5 major groundfish stocks.

<u>Stock</u>	<u>1998 landings</u>	<u>1998 TAC</u>	<u>1999 TAC</u>	<u>2000 TAC¹</u>
Georges Bank cod	6959	4700	5354	4145
Georges Bank haddock	1841	4797	5600	6252
Georges Bank yellowtail	1800	2145	2725	4618
SNE yellowtail	369	814	1115	951
Gulf of Maine cod (F_{MAX})	4156	1783	1340	1918
Gulf of Maine cod ($F_{0.1}$)	4156	NA	782	1118

¹. USA Target TAC in 2000 assumed Canadian quota of 1900 metric (GB cod), 3900 metric tons (GB haddock) and 2000 (GB Yellowtail) in 2000

Fishing mortality reductions needed to achieve Amendment 9 rebuilding objectives.

The MSMC examined projections for achieving Amendment 9 rebuilding targets for Georges Bank cod, Georges Bank haddock, Georges Bank yellowtail, Southern New England yellowtail, and Gulf of Maine cod. Two sets of target fishing mortality were used: the fishing mortality rate derived from the literal interpretation of Amendment 9 control rule ($F_{control\ rule}$) and fishing mortality rate that achieves rebuilding to B_{msy} within the Amendment 9 specified time schedule (F_{MSMC}). Substantial reductions from 1998's fishing mortality are needed to achieve rebuilding within Amendment 9 timeframe for all stocks but Georges Bank yellowtail. Mean percent change in mortality (averages both positive and negative changes) is -21%. Mean reduction (average of all stocks needing reductions) is -57% to achieve F_{MSMC} and -78% to achieve $F_{control\ rule}$ for these five stocks. The Amendment 7 fishing mortality targets do not achieve rebuilding within the Amendment 9 rebuilding schedule for Georges Bank haddock, Southern New England yellowtail and Gulf of Maine cod.

The Multispecies Monitoring Committee (MSMC) utilized assessment updates and projections provided by the NDWG to estimate TTAC in 2000 for white hake, American plaice,

witch flounder, Georges Bank winter flounder, Southern New England winter flounder and Cape Cod yellowtail based on Amendment 9 control rules. Substantial reductions from 1998's fishing mortality are needed to achieve rebuilding within Amendment 9 (mean percent change in mortality is -48% to achieve F_{MSMC} and -71% to achieve $F_{control\ rule}$; a mean reduction of -78% is needed to achieve F_{MSMC} and -89% is needed to achieve $F_{control\ rule}$) for these six stocks. Of the 11 stocks examined, 9 out of 11 need reductions to achieve $F_{control\ rule}$ and 8 out of 11 need reductions in fishing mortality to achieve F_{MSMC} .

Reductions from 1998 landings to 2000 TTAC needed to achieve target fishing mortality rates for 11 stocks.

The landings corresponding to the Amendment 9 target fishing mortality rates in 2000 are well below 1998 landings for most species. Despite a large increase in the 2000 Georges Bank yellowtail TTAC, the % change from 1998 landings to 2000 TTAC's for 11 stocks combined is -19% ($F_{control\ rule}$) to -36% (F_{MSMC}). The 2000 TTAC is less than 1998 landings for 9 out of 11 species to achieve $F_{control\ rule}$ and 8 out of 11 to achieve F_{MSMC} . Major reductions are needed for species in the Gulf of Maine, Georges Bank and Southern New England.

Status of other stocks without updated assessments or projections

Status of pollock, redfish, Gulf of Maine winter flounder, SNE/ MA windowpane flounder was updated through calendar year 1998 using research trawl survey indices, commercial landings and a relative exploitation index. Survey biomass is low for pollock and Southern New England windowpane and medium for redfish, Gulf of Maine winter flounder and Gulf of Maine/Georges Bank windowpane. The MSMC notes a downward trend in relative exploitation for these five species, but cautions that relative exploitation does not correlate directly with the magnitude of fishing mortality. Fishing mortality rates may be either above or below Amendment 9 target rates.

Table 2. Summary of MSMC options for 2000 fishing year. FW=Framework; GB=Georges Bank; GOM=Gulf of Maine

Option	DAS	Area Closures		Cod Trip Limit		GB Haddock Trip Limit	Other measures	
		GB	GOM	GB	GOM		General	Gulf of Maine
1	Reduce 36%	Status quo	Status quo through FW 31	None	as in FW 31	Status quo	None	None
2	Reduce 50%	Status quo	Status quo through FW 31	None	as in FW 31	Status quo	None	None
3	Status quo	one of four options in FW 30	Status quo through FW 31	as in FW 31 (2,000/day, 20,000 max, no adjustment	as in FW 31	Status quo	Count first day of a trip as 24 hrs. off DAS	During May, June, July and November: - Vessels (except Day Gillnet) must take layover days equal to trip length - Day Gillnet vessels limited to 80 net tags
4	Status quo	one of four options in FW 30	Status quo through FW 31	as in FW 31 (2,000/day, 20,000 max, no adjustment	as in FW 31	Status quo		Closures, if 50% of TAC landed by July 31: Cashes Ledge CA (Nov.) Blocks 124 & 125 (Jan.)

Table 3. Summary of Pros and Cons of MSMC Options

Option	Pros	Cons
1	• Achieves an F between $F_{0.1}$ and F_{MAX} for Gulf of Maine cod • Achieves $F_{0.1}$ for Georges Bank cod • Reduces potential cod discards • Reduces mortality but may not achieve fishing mortality targets on other regulated species that need rebuilding under Amendment 9 • No additional enforcement or administrative burden	• Probably does not achieve $F_{0.1}$ for GOM cod • Increases pressure on species not managed by groundfish DAS • Lost yield from regulated species not in need of fishing mortality reduction (under Amendment 9 rebuilding timetable, that includes southern New England winter flounder, Georges Bank and under $F_{control\ rule}$ Cod yellowtail flounder)
2	• May achieve $F_{0.1}$ for Gulf of Maine cod. • Achieves $F_{0.1}$ for Georges Bank cod. • Reduces potential cod discards • Reduces mortality but may not achieve fishing mortality targets on other regulated species that need rebuilding under Amendment 9 • No additional enforcement or administrative burden	• Increases pressure on species not managed by groundfish DAS • Lost yield from regulated species not in need of fishing mortality reduction (under Amendment 9 rebuilding timetable, that includes southern New England winter flounder, Georges Bank and Cape Cod yellowtail flounder)
3	• May achieve F_{MAX} for Gulf of Maine cod • Achieves $F_{0.1}$ for Georges Bank cod • Reduces “pulse fishing” after opening of rolling closures when catch rates are highest • Counts per-day trip limits as per-DAS for all vessels (currently day boats may land a per-day limit for less than a full DAS counted against the vessel allocation, and Day Gillnet vessels are only charged 15 hours but may land a full per-day limit)	• Does not achieve $F_{0.1}$ for Gulf of Maine cod • Not likely to achieve fishing mortality targets on other regulated species that need rebuilding under Amendment 9 • Reactivation of latent effort (unused DAS) • Layover days are difficult to enforce • Would also limit monkfish nets to 80 tags
4	• Provides a backstop to prevent exceeding the target TAC that does not rely on trip limits • May achieve F_{MAX} for Gulf of Maine cod • Achieves $F_{0.1}$ for Georges Bank cod	• Does not achieve $F_{0.1}$ for Gulf of Maine cod • Not likely to achieve fishing mortality targets on other regulated species that need rebuilding under Amendment 9 • May encourage pulse fishing before reaching the 50 percent threshold • Backstop has disproportional effects on vessels that fish in Cashes Ledge and Blocks 124 and 125.

Recreational Fishing Options

The MSMC indicates that the stock of concern at this time with respect to recreational catch is Gulf of Maine cod. Given the apparent disparity between recent recreational landings and the landings associated with achieving target fishing mortality rates in 2000, the MSMC recommends that the Council apply comparable conservation measures to both commercial and recreational sectors. For example, possession of cod in closed areas could be prohibited when the closure is in effect, and/or a bag limit could be imposed on party/charter vessels.

Georges Bank Yellowtail Flounder

The MSMC recommends that fishing mortality on Georges Bank yellowtail flounder in 2000 be held at $F_{0.1}$, even though that is lower than could be allowed under the Amendment 9 overfishing definition control rule. The projection of biomass and yield increases under the higher fishing mortality rate are dependent on maintaining recruitment levels at twice the median observed levels. Given the history of recruitment on this stock, this high level of recruitment is not likely to occur.

Scallop Vessel Access To Closed Areas

The MSMC recommends against increasing fishing mortality on Southern New England and Cape Cod yellowtail flounder. Any program to provide access to the Nantucket Lightship Closed Area and Closed Area I should be demonstrated as conservation neutral with respect to scallop vessel bycatch of these stocks. For Georges Bank yellowtail, the MSMC notes that the target TAC will approximately double from 1999 to 2000. It does not have a recommendation on what portion of that TAC should or could be allocated to the scallop vessels.

The MSMC recommends that any program to allow scallop vessel access be done with sufficient monitoring of bycatch to insure that fishing mortality does not increase. Since data on current bycatch levels outside the closed areas is limited or is non-existent, making the determination that catches are not increasing will be extremely difficult. The MSMC notes that information on fish distribution and bycatch in closed areas is based on limited sampling during narrow time periods. Information on the seasonal changes in the distribution of bycatch species is necessary before expanding any access program beyond the time periods observed in the experimental fisheries. Any program that provides access to closed areas should begin conservatively and include a mechanism for relaxing restrictions based on observed bycatch levels.

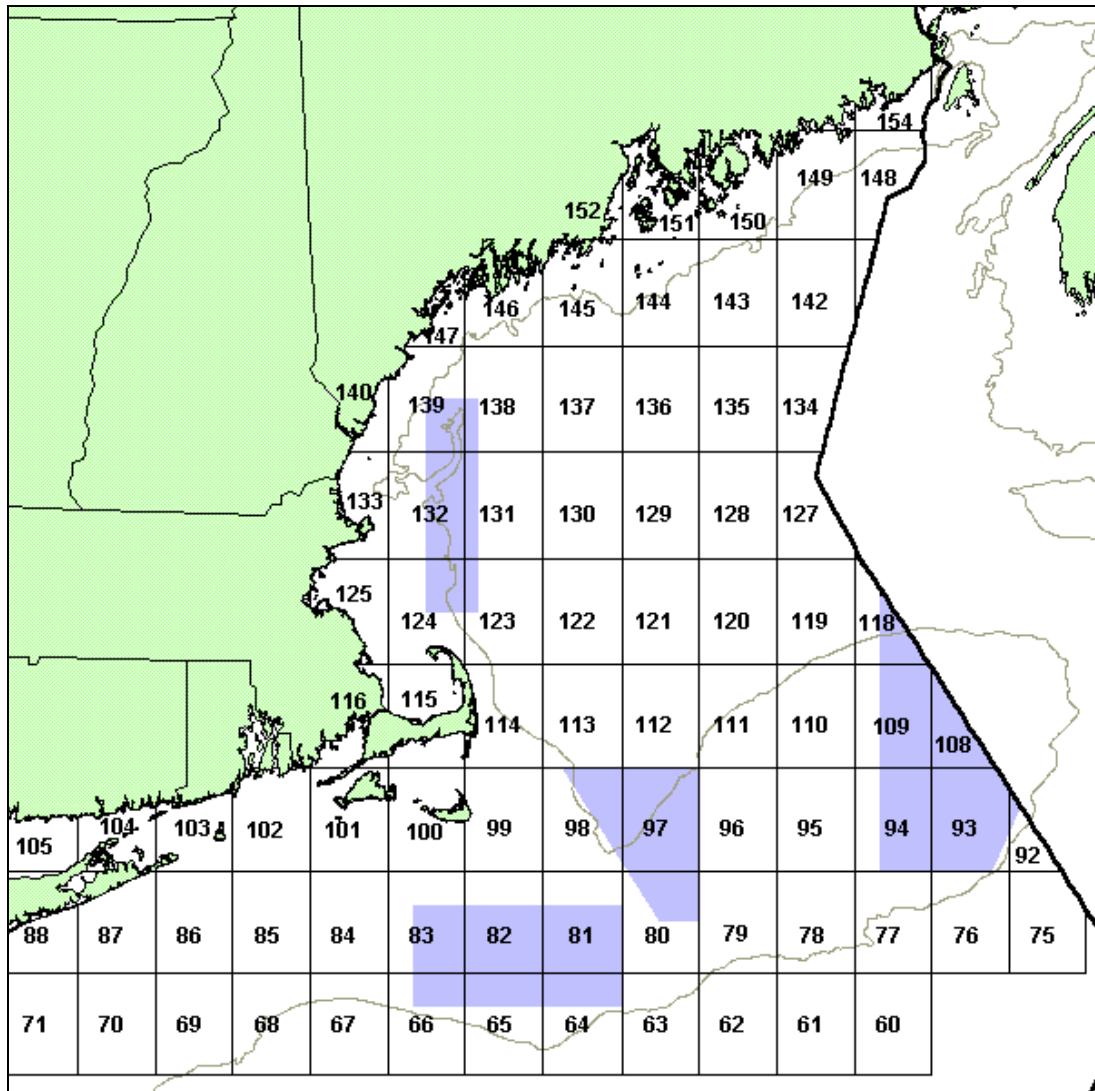


Figure 1. Gulf of Maine, Georges Bank and Southern New England divided into thirty minute squares used in describing area closures.