

**Notes from the Weakfish Technical Committee Meeting, June 27-28, 2005,  
Manchester, NH**

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Chairman  
July 1, 2005*

The meeting was attended by representatives from FL, NY, NJ, MD, NC, RI, CT, and DE. Three topics were on the agenda: sampling requirements, projections of stock status, and management tactics for reducing F based on current fishery catches.

Discussion began with a series of questions related to the intensity of sampling. The first was a rhetorical question, “Is emphasis on catch sampling appropriate if the majority of the problem (declining population and catch) is due to M?” The next questions were directly related to the magnitude and effect of sampling, “What kind of assessment will we have?” and “Is a data-hungry model the best assessment technique for this situation?” Given the rapid decline in stock size and possibility of greater restrictions on harvest, many on the TC felt that a less data intensive assessment (indices, rescaled relative F, and cohort catch curves from survey data) was likely in the future. It was noted that the strongest advocates for intensive age-structured assessments and sampling were not present.

The TC endorsed the proposed sampling scheme for commercial and recreational fishery sampling developed by ASMFC staff in principle. The TC agreed with minimum sampling requirement of 3 otoliths and 6 lengths per metric ton landed for each state. A cap of 1,000 otoliths per state was agreed upon in recognition of the physical limit of how many could be reasonably processed and read if the stock returned to a greater abundance. These samples were to be distributed proportionally among gears, months, and areas as appropriate.

I presented projections of weakfish biomass under different reductions in Z to the TC. The current weakfish assessment provided the pieces for an external production modeling approach that did not require an assumption of ecological stability. Estimates of full

time-series (1981-2003) of  $F$ , biomass ( $B$ ), and  $Z$  had been previously estimated.  $Z$  was considered the negative counterpart of the intrinsic rate parameter ( $r'$ ) in a Schaefer biomass dynamic model. Projections of biomass through 2025 used  $r'$ ,  $K$  (unfished biomass),  $B_{2003}$  and mean estimates of  $F$  and  $M$  for 2001-2002 as a starting point. I assumed that cuts in  $F$  would not occur until 2006, so biomass trajectory during 2004-2005 was based on a continuation of average conditions. Cuts were instituted in 2006 and maintained until 2025. Biomass trajectory was estimated for cuts in  $Z$  equivalent to  $F \cdot 0$  (no action),  $F \cdot 0.5$  (proposed action),  $F \cdot 1.0$  (complete moratorium with no discard loss),  $F \cdot 1.5$ , and  $F \cdot 2.0$ . The latter two cuts implied reductions in  $M$  as well as  $F$ . This projection model was mechanistic in nature and allowed for recovery from very low biomass levels given enough time (i.e., there was not a threshold biomass other than 0 where recovery was not possible).

Stemming the decline in weakfish biomass by managing the fishery alone seems unlikely based on these simulations unless the amount of  $Z$  attributed to  $F$  has been seriously underestimated. Natural mortality will have to fall for recovery to occur. In the scenario without management action, weakfish became near extinct after 2010. Biomass fell to an extremely low level, but over a longer period, when  $F$  was cut in half. Weakfish biomass fell slowly throughout a low range when a completely effective closure of the fishery was simulated. Biomass increased only when some depreciation of  $M$  was part of the reduction in  $Z$ . Biomass slowly increased when  $Z$  was reduced by  $1.5 \cdot F$  (implying a reduction in  $M$  as well) starting in 2006. Recovery to 30% of unfished biomass did not occur until 2025 with the  $1.5 \cdot F$  cut. A cut in  $Z$  equal to  $2.0 \cdot F$  resulted in recovery to 30% of unfished biomass by 2014.

The TC requested projections with  $M$  falling steadily as well as changes in  $F$ . The projection model was modified so that  $M$  fell at a constant rate ( $M \cdot 0.7$ ,  $0.8$ , or  $0.9$  per year) until hitting a base level ( $0.38$ , the mean  $M$  prior to the rise in the mid-1990s). This model indicated that recovery would not occur with a linear drop in  $M$  without a reduction of  $F$  (a reduction of  $0.5 \cdot F$  was simulated). Recovery was not likely until 2020 at the earliest.

The final topic covered was potential management measures. General discussion revolved around support for no action, a moratorium, and the previously proposed reduction of F by half. There was reluctant acceptance (consensus) of the 50% reduction in F as a management option. There were irresolvable and about even splits in the TC over no action or a moratorium. Opponents of no action felt that some management response was warranted given stock status, while proponents felt that there was little possibility of recovery (30% of unfished biomass in 6 years) under any fishery-related management action. Essentially opponents and proponents of a moratorium presented the same arguments in converse order, with closure representing the maximum response.

Tactics for recreational and commercial reductions were devised in the last part of the meeting. A 50% reduction in F was considered at the meeting, but the Board has requested the TC outline what 25% and 75% reductions in F might look like. These restrictions would probably not be imposed until 2006 and their effect (whether a 50% reduction in F occurred) could not be evaluated until 2007.

Recreational bag limits that provided a 50% reduction in F were explored using a bag limit analysis of 2003-2004 MRFSS data. A 20% loss of released fish was incorporated into the analysis. Most states were likely to fall at a two fish bag, but some southern states may fall at three.

Recreational seasons were also considered. The TC was provided with a recreational season analysis by Doug Vaughan that was prepared for consideration when Amendment 3 was being formulated. Seasons were based on patterns (cumulative percentage) of recreational landings during 1981-1985. The TC felt that this pattern should be applicable to the current recreational fishery since recreational seasons have not been part of weakfish management under Amendments 3 and 4. Based on coastwide catches, closed seasons accounting for a 50% reduction in F with current bag limits would be extensive. For example, recreational weakfish seasons could open or close in early to mid-July to reduce F by 50%; weakfish recreational catches typically occur during April-October.

The TC did not consider bag, season, and size limit combinations. The analysis of these combinations is very complex, based on equilibrium assumptions, and could not be completed without a great deal of effort. The TC felt that size limits could stay in place and that the effect of bag and season reductions were additive. The TC noted that rapidly falling stock size depicted in the projections could negate the effect of bag limits based on 2003-2004 catches.

Commercial reductions were based on weight of 2003-2004 harvest, reflecting the change to a biomass oriented assessment. The TC accepted the suggestion of using the reduction in fishing mortality rate formula in Amendment 4 (Attachment II of appendix I, page 82) to calculate reductions. Fishing seasons to be reduced would be those currently in place under Amendment 4 and average 2003-2004 harvest would be used to determine percentage of landing represented by the closed period. A rough example was provided for a 50% reduction in F for two of Maryland's fisheries, ocean trawl and Chesapeake combined gears. The trawl fishery would need to close 70 days out of 92 and the Chesapeake Bay would need to close for 41 of 61 days.

The TC recommended reducing bycatch of legal-sized weakfish from 300 pounds per trip to 75-150 pounds. The TC noted the trade-off of waste for a disincentive to direct gear on weakfish with this reduction. It was suggested that a bycatch-only fishery be considered, that is, all directed fisheries would be closed and only a bycatch allowance would be harvested.

States with trip ticket record systems have the potential to develop trip limits. This measure would require analysis. These would be directed trip limits and not bycatch trip limits.

The TC noted that reductions in F and rapidly declining stock size may have a profound effect on future assessment. The current assessment is based on an MRFSS index and the precision of that index and recreational harvest may be reduced substantially. The

ability to obtain representative samples from a fishery where weakfish are rarely caught could be problematic.

A brief discussion of weakfish stock structure ended the meeting. Des Kahn provided copies of Nesbit's report on coastal tagging from the 1930s and otolith microchemistry in the 1990s. The TC agreed that multiple stock structure was possible and, perhaps likely. The TC was unsure of what this information meant operationally and management-wise.

### **Tasks for the Technical Committee**

The Weakfish Board meeting is scheduled for August 16. I need the Technical committee to complete the following tasks by mid to late July so I can compile them for the Board. I want to illustrate the trade-off in F reductions with projection results.

- 1) Russ Allen or his NJ compatriots will complete the state-specific bag limit analysis and report the limits needed for 25%, 50%, and 75% reductions in F. This will be distributed to the TC.
  
- 2) Formulation of examples of potential commercial seasons will be provided by the following states: RI, NY, NJ, DE, MD, VA, and NC. These seasons should reflect 25%, 50%, and 75% reductions in F. No one will be held to these seasons at this point as far as I'm concerned. Send me something that is your best approximation of what could happen.
  
- 3) I will conduct additional projections with the falling M projection model and distribute results to the TC.