

**Atlantic States Marine Fisheries Commission**  
**Atlantic Menhaden Technical Committee**  
**Conference Call Summary**

**July 21, 2010**

**Participants**

*Committee and Subcommittee Members:*

Jeff Brust (NJ)	Matt Cieri (ME)
Alexei Sharov (MD)	Mark Collins (SC)
Rob Latour, Chair (VIMS)	Derek Orner (NMFS)
Joseph Smith (NMFS)	Trish Murphey (NC)
Douglas Vaughan (NMFS)	Genny Nesslage, (ASMFC)
Jason McNamee (RI)	Brad Spear, Staff (ASMFC)
Erik Williams (NMFS)	

*AP Members and Guests:*

Ron Lukens (AP member)	Frank Kearney (CCA)
Ken Hinman (AP member)	Charlie Hutchinson (MSSA)
Amy Schueller (NMFS)	Dick Brame (CCA)
Mike Celestino (Multi-Species TC)	

**Board Tasks for the Technical Committee**

A memo from Board Chair George Lapointe dated 3 June 2010 laid out a number of tasks for the TC to carry out. In addition, one of the tasks requires assistance from the Multi-Species TC. The TC met via conference call to discuss work that has been done to date, make assignments for work to be completed, and develop a plan and timeline for moving forward.

The group views reference points as indicators of population status. The TC does not consider them as tools to determine what management action should be taken.

**Task 1: “Develop a suite of alternative biological reference points”**

*a) Spawning stock biomass or population fecundity relative to the unfished level*

One way to calculate SSB or fecundity of an unfished stock is through a spawner per recruit analysis. A brief write-up and analysis of this is included in the latest stock assessment report. The TC discussed the following issues with this approach (not necessarily unique to menhaden), including: 1) error/uncertainty may be perpetuated into the reference points; 2) the BAM model overpredicts productivity (i.e., values for SSB and MSY); and 3) this analysis assumes equilibrium conditions, which is not the case with menhaden where the environment affects population dynamics. SPR analysis results are interpreted as longterm average performance of the stock. This type of analysis can be modified by inclusion of variability in growth, natural mortality and fishing fleet selectivity.

Another option for computing unfished SSB levels is through projection of recruitment using the BAM model. Issues with this approach include: 1) no spawner-recruit curve is available for menhaden (what years or data should be used to project future recruitment; and 2) assumptions must be made regarding future changes in natural mortality and growth rate.

Potential candidates for reference points based on such analysis are fishing mortality F20- F30% MSP (fishing mortality resulting in 20-30% of the unfished level of spawners biomass) as a rule of thumb developed by Mace and Sissenwine (1993), and %MSP from the range of %MSP values adopted for other clupeids and other forage species around the world.

Alexei Sharov agreed to lead the analyses and write-up of this section of Task 1.

*b) Abundance-based reference point*

The 1992 Plan Revision established six management triggers; one of which focused on recruits to age-1, which is a measure of abundance. However, this trigger was dropped when Amendment 1 was adopted.

The TC agreed to explore empirical reference points based on historical observations and desired levels of abundance. One of the potential directions is evaluation of spawning stock in numbers of fish versus spawning biomass or total fecundity which can sometimes mask changes in population dynamics.

Matt Cieri agreed to lead the analyses and write-up for this section of Task 1.

*c) Evaluate whether an F-based reference point is appropriate for menhaden*

The TC agreed to develop an age-structured simulation model that used model and assessment results to explore population response to various levels of F with a series of assumptions. It was noted that the question can be posed at least in two different ways – Does F affect menhaden recruitment via the size of the spawning stock and Does F affect the ecosystem functions of the population such as predator prey interactions via reduced population size? Both approaches could be investigated. Because menhaden is a forage species, it might be better to move to a total mortality (Z)-based reference point (which includes fishing and natural mortality).

Developing a simulation model for menhaden will be a complex and time-consuming task. The committee will need to discuss and decide on many different assumptions and components of the model. This process would be similar to going through an assessment process with regard to time commitment and effort. It would take approximately a year to complete this simulation model.

Jason McNamee agreed to take the lead on this, with help offered by Rob and Doug.

Draft reports from each of the section leaders are due September 10<sup>th</sup>. And proposed simulation approaches should be circulated to the TC (Task 1c) in advance of a face-to-face meeting. That multi-day meeting is tentatively scheduled during the next TC meeting week (last week in September).

**Task 2: Pros and Cons of Alternatives**

Once the analyses and simulations mentioned above have been conducted, the section leaders will include pros and cons of each alternative reference point in their write-up.

**Task 3: Conduct Projections**

Projections would be completed after Tasks 1 and 2 are completed and approved by the TC for reference points recommended by the TC. The projections would be conducted by each section leader and any other committee members who can assist.

#### **Task 4: Work with the Multi-Species TC**

The Menhaden TC interpreted the Board's tasks such that the TC would conduct its work on the tasks, and then seek assistance from the MSTC. However, the TC recommends the MSTC work in parallel starting with a conference call to discuss the scope of work and make assignments. To develop reference points that account for predation will require a significant amount of work. The expertise to begin making progress on this work lies outside of the Menhaden TC. Staff at MD DNR has already begun exploratory work on this task.

#### **Task 5: Develop a Range of Management Strategies**

The group discussed the role of the TC in lending their experiences and thoughts on the effectiveness of different management approaches. However, the majority of the group felt that this was more of the Management Board's purview. Most of the TC sees its role as recommending reference points. However, if the TC is aware of management tools that can clearly address issues identified by the Board, it will include them in the write up of this task. In addition, the TC can evaluate how management strategies would affect the population relative to the reference points.

#### **General Process Overview**

Once the TC recommends alternative reference points, the Board would need to adopt them through an addendum process. Once new reference points are in place, the TC would incorporate them into the next stock assessment. Using new reference points would trigger the need for a peer review. At this time the next peer review of the menhaden stock assessment is scheduled for 2016. However, the Management Board can recommend changes to this schedule to the ISFMP Policy Board, the body that sets the assessment schedules across ASMFC species.