

# Atlantic Menhaden Technical Committee Report

## September 23, 2004

### Introduction

The Atlantic Menhaden Technical Committee (TC) met on September 23, 2004 in Manchester, NH for the first non-assessment year review of the stock of Atlantic menhaden. In August, 2004 the Atlantic Menhaden Management Board approved Addendum 1 to Amendment 1 to the Atlantic Menhaden Fishery Management Plan (FMP). This addendum addresses biological reference points, frequency of stock assessments, and updates the habitat section. In regards to the frequency of stock assessments, the addendum states:

“the new forward projection model is much more complex than the previous VPA used. Due to the complexity of the model, the TC will update the assessment every three years. The next Stock Assessment will be conducted in 2006. On each non-assessment year the TC will meet to review landings, catch-at-age matrix, effort, and fishery independent abundance data. The TC has specified “triggers” that will initiate an assessment in any non-assessment year. These triggers are:

- 1) The CPUE index falls below the 5<sup>th</sup> percentile for the past 20 years
- 2) The ratio of ages 2-4 to the total catch of all ages falls below the second standard deviation unit over the last 20 years

The first trigger examines fishery performance and relative abundance to determine if there has been a significant change. The second trigger was designed to look at the age 0-1 harvest, determine if radical changes in the age composition of the catch, and proceed with a stock assessment if such a change is significant. Because both triggers are statistically related, both should be reached to initiate an assessment. It should be noted that these are not management triggers, but are designed around the sensitivity of the model to the input data. These triggers are a minimum requirement to update the assessment, however, if the TC reviews the landings, catch-at-age matrix, effort, fishery independent data, and notes a marked change, they can request that an update of the assessment be done in the absence of hitting those triggers.”

### Data

The Technical Committee reviewed the 2003 landings, Catch Per Unit Effort (CPUE), Catch at Age, and the Indices used in the 2003 stock assessment.

#### *2003 Landings Data*

Coast wide landings data from 2003 shows some interesting differences when compared to previous years (figure 1). Overall, both reduction and bait landings declined in 2003, although the bait landings were only slightly lower than they have been over the past five

years. Reduction landings have decreased significantly since the 1992-1997 time period. Improved reporting of bait landings since the 1992-1997 time period has provided a better estimate of the magnitude of coastwide bait landings, but seem to have leveled off in and around 35,000 mt.

Areal extent of landings shows a concentration of landings within Chesapeake Bay (Figure 2). As a percentage of coast wide landings, removals from Chesapeake Bay are about 70% for 2003. However, overall removals (as mt) from Chesapeake Bay have been declining (Figure 3). This decline appears to be the result of decreased effort (Figure 3 & 4).

#### *Catch Per Unit Effort (CPUE)*

The coast wide CPUE index (Figure 4 & 5) is well above the trigger as required for Addendum 1, and slightly above the 20-year average. CPUE has been increasing, with yearly variation, both coastwide and within Chesapeake Bay.

\*\*\*It is important to note, both here and elsewhere, that Catch Per Unit Effort (CPUE) **is not** an appropriate measure of abundance given issues of inverse catchability. CPUE is only used, as a possible explanation for reduced landings\*\*\*

#### *Catch at Age*

Catch at age was similar in 2003 when compared to other years for both Chesapeake Bay and coastwide (Figures 6 & 7). In 2003 a slight increase in the numbers of age 2's are noticeable from 2002, but may reflect the stronger 2001 year class which was for the first time fully selected by the fishery in 2003. Coastwide, numbers of fish landed by age class declined for all age classes.

Proportion of ages 2-4 examines the contribution of older individuals relative to all age classes in the reduction fishery. The landings of older (age 2-4) individuals, as a percentage of total catch, were higher in 2003 than in 2002. Additionally, this proportion was both higher than the trigger, as well as the recent 20-year average (figure 8)

#### *Seine Indices*

The Technical Committee reviewed the following juvenile menhaden indices:

- North Carolina Seine Index
- Virginia Institute of Marine Science Seine Index
- Maryland Department of Natural Resources Seine Index
- Connecticut River Seine Index
- Rhode Island Narragansett Bay Seine Index

Using these juvenile abundance indices, the Technical Committee calculated a coastwide recruitment index similar to that used in the most recent assessment (Figure 9). Results of this index suggest that recruitment remains low, but has not decreased dramatically in 2003.

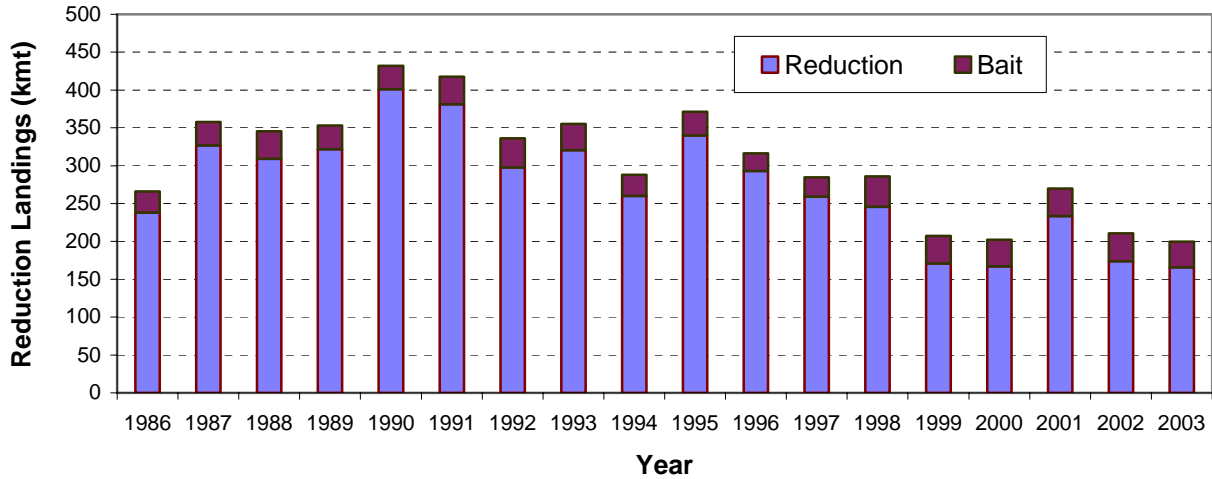
## **Conclusions**

The Technical Committee reviewed both CPUE and proportion of age 2-4 in the reduction fishery catch. Upon examination it appears that neither trigger has been met as outlined in Addendum 1. Further, both CPUE and proportion of age 2-4 Atlantic menhaden in the reduction fishery catch were higher than their 20-year average.

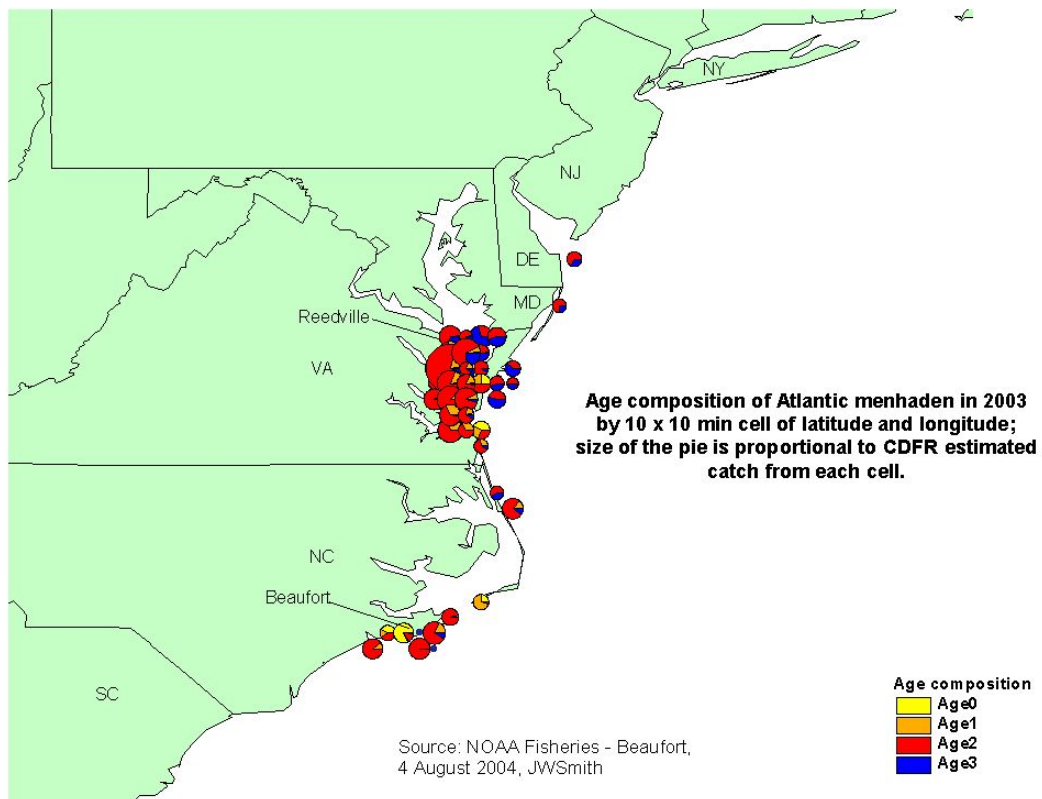
The Technical Committee examined the regional and composite recruitment Indices and concluded that while recruitment is lower than historical levels, it had not been reduced further in 2003. Additionally they examined the catch at age matrix and CPUE both coastwide and from within the Chesapeake Bay. They found no dramatic shifts in any of the indices.

Given these observations, the Technical Committee concluded that an update in the stock assessment was not warranted for 2004. The Technical Committee will meet again in 2005 to re-examine the triggers and other relevant indices and make an assessment recommendation based on the available data.

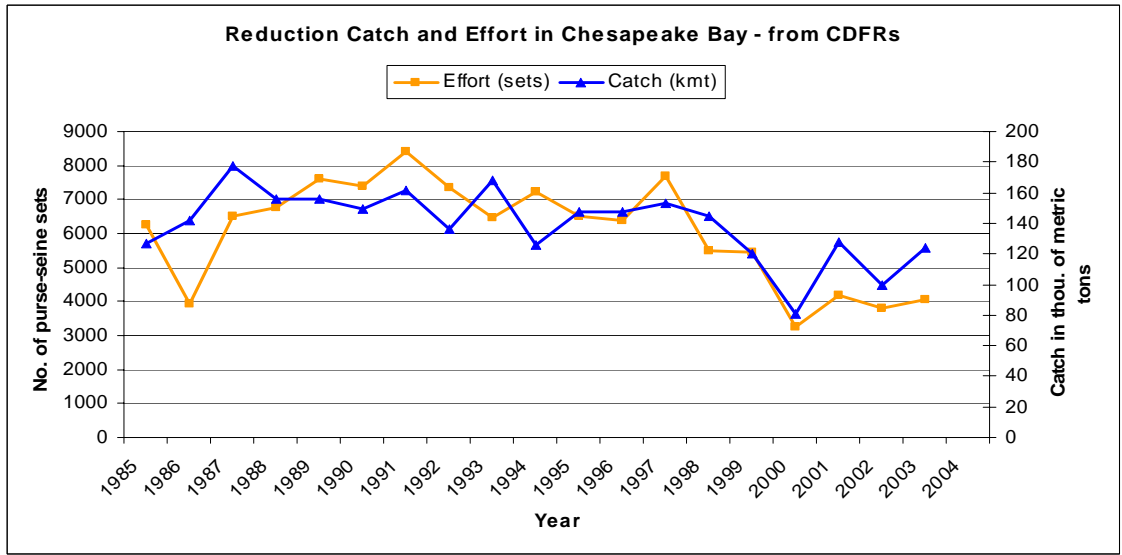
**Figure 1: Bait and reduction Landings coastwide 1985-2003**



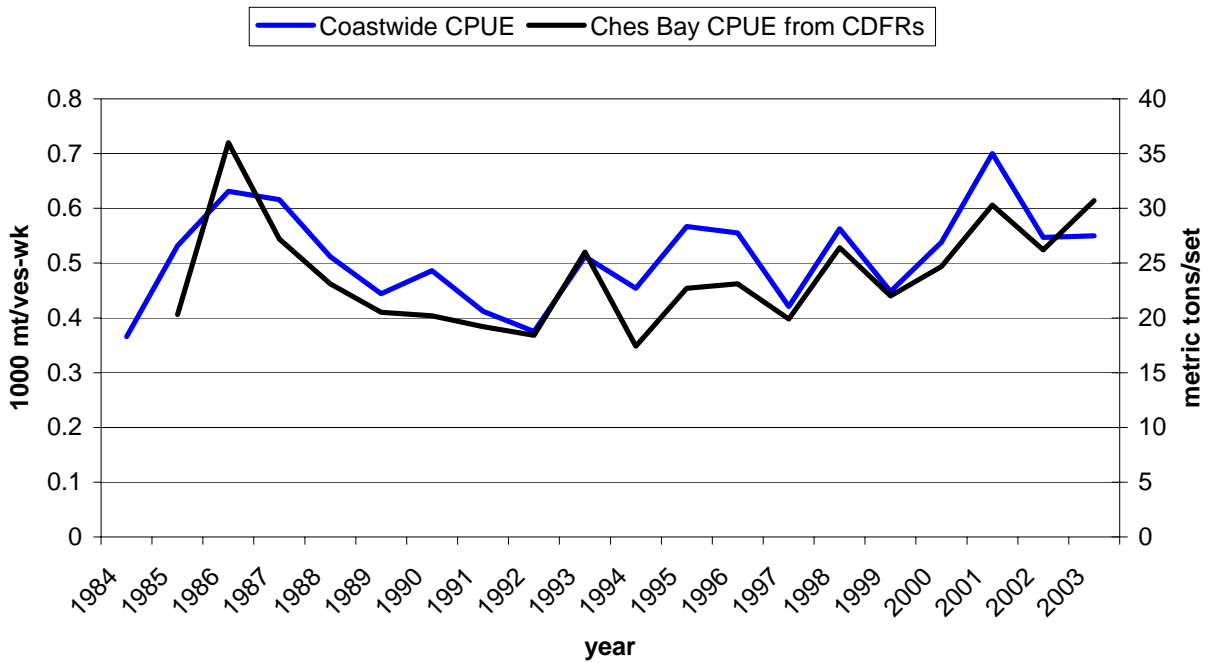
**Figure 2: Plot of Catch by area and age class.**



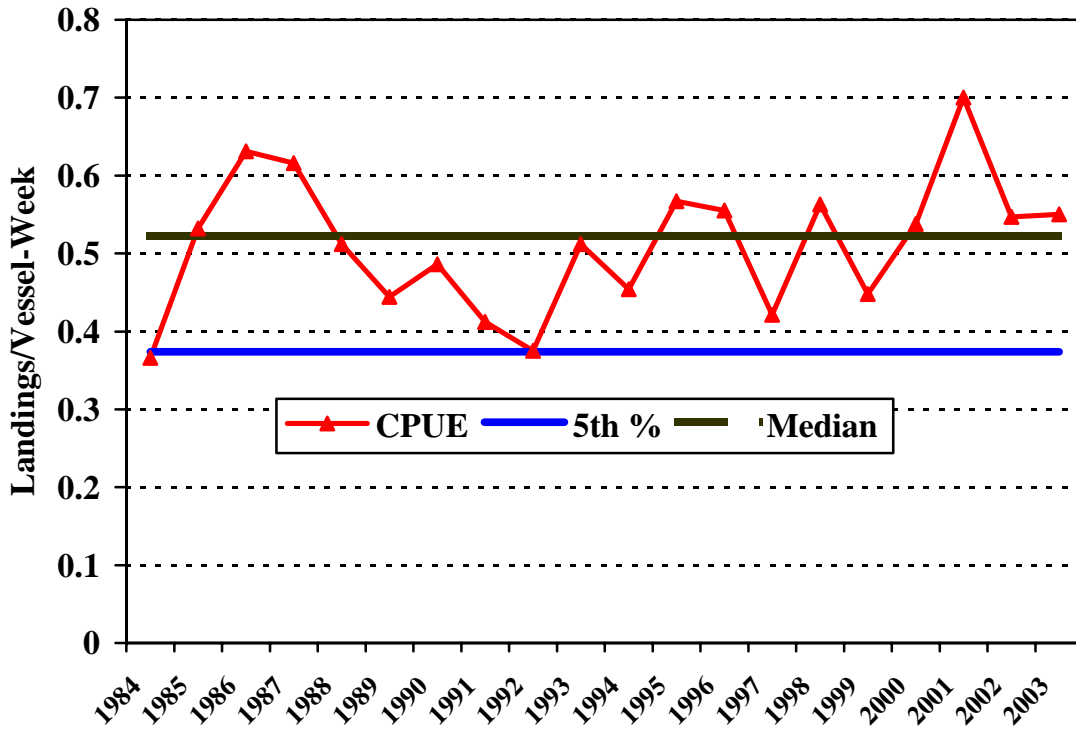
**Figure 3: Catch and Effort in Chesapeake Bay**



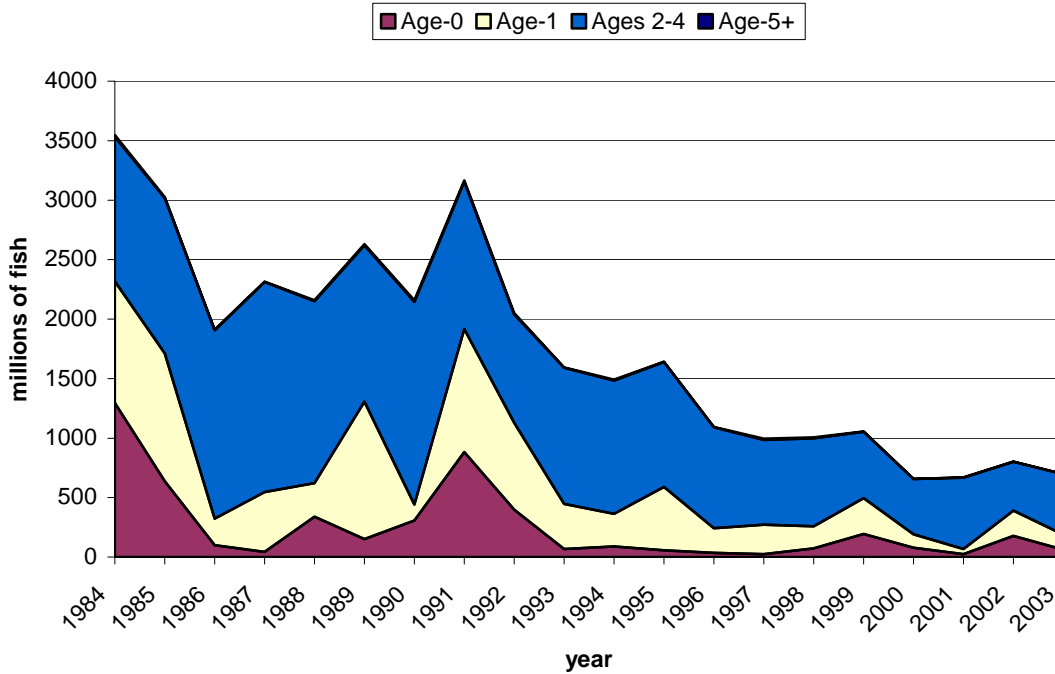
**Figure 4: Reduction fishing effort in Chesapeake Bay and Coast**



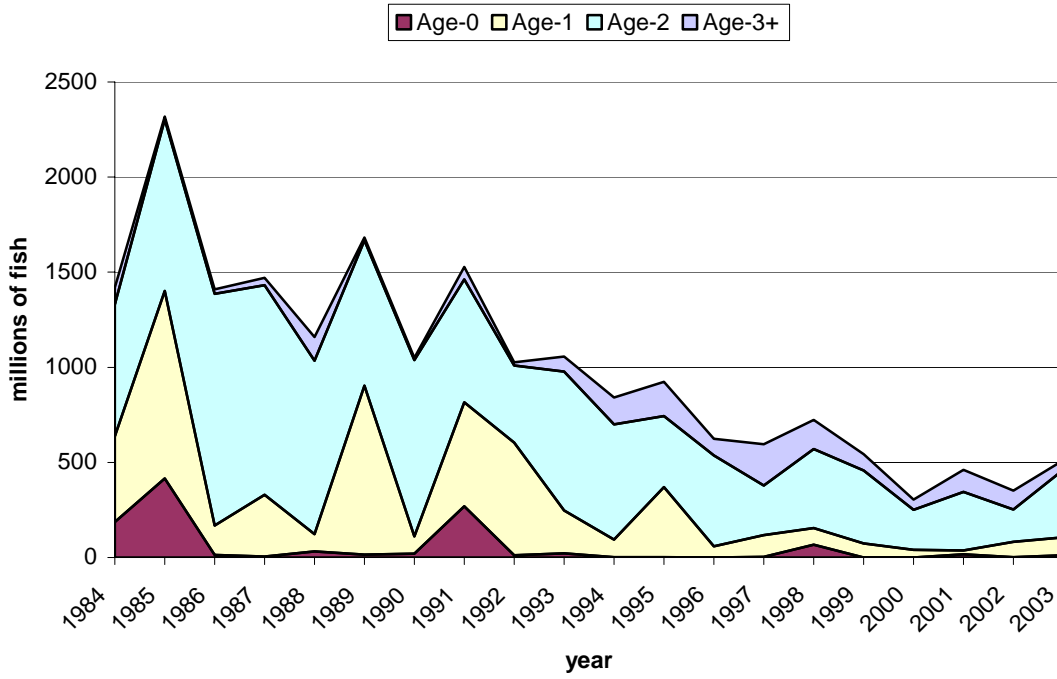
**Figure 5: Reduction Fishing Effort Coastwide with Trigger**



**Figure 6: Catch at Age coastwide 1984-2003: Reduction Only**



**Figure 7: Catch at Age from Chesapeake Bay 1984 –2003: Reduction Only**



**Figure 8: Proportion of 2-4 year olds in Coastwide Catch with Trigger**

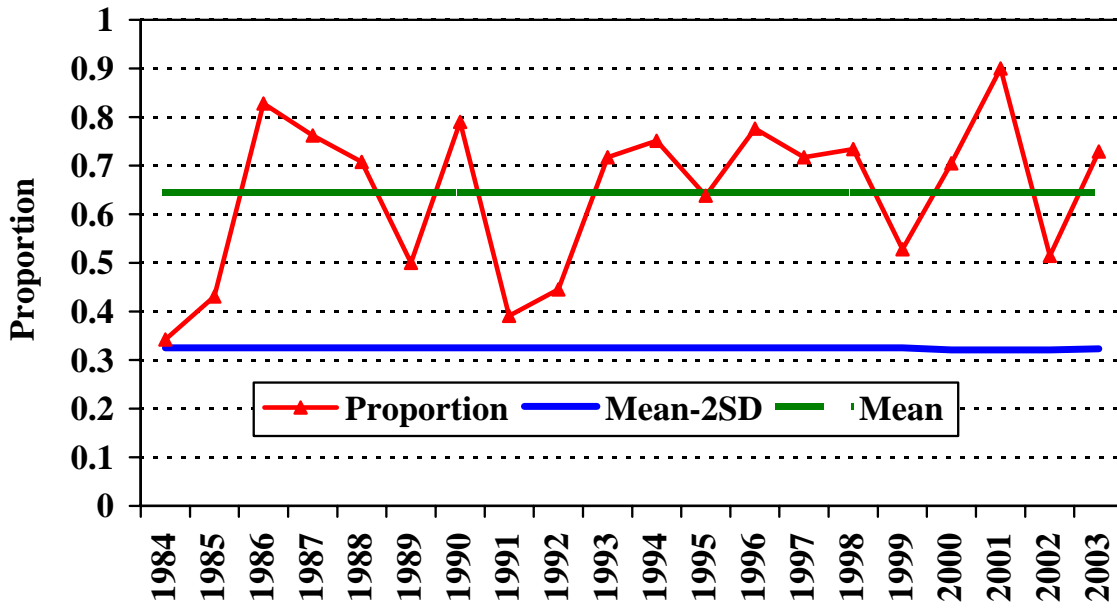
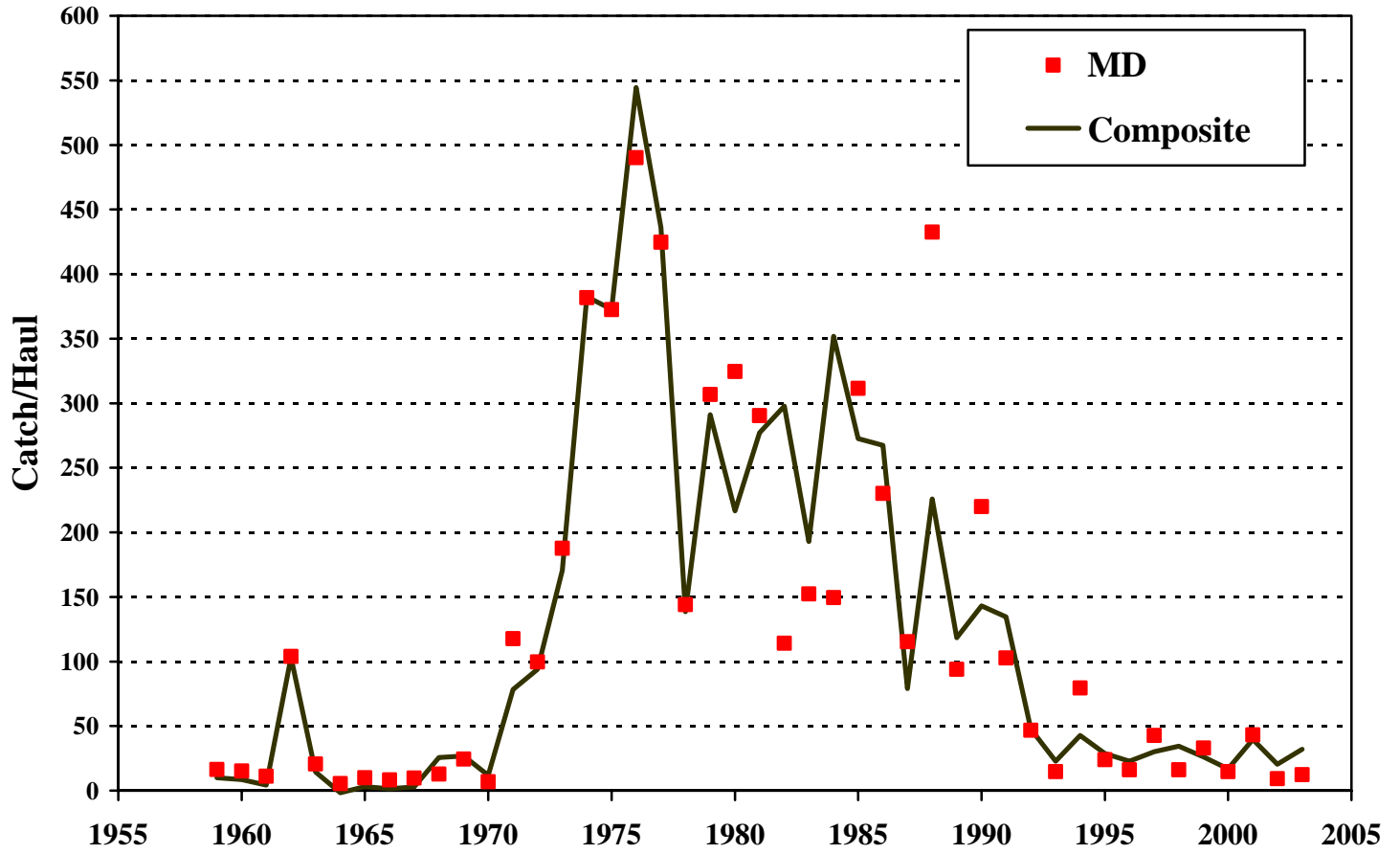


Figure 9: Coastwide Juvenile Abundance Index 1955-2003





## **Appendix A. Participant List**

### Participants

Matt Cieri, TC Chair

Alexi Sharov

Doug Vaughan

Gary Nelson

Joseph Smith

Trish Murphy

Peter Himchak

Ellen Cosby

Behzad Mahmoudi

Jason McNamee

Bill Windley, AP Chair

### Staff

Nancy Wallace

Bob Beal

### Guests

Amy Schick, Environmental Defense

Jeff Kaelin, Omega Protein