Predator/Prey Monitoring Program

ECOLOGICAL DEPLETION OF ATLANTIC MENHADEN AND EFFECTS ON ATLANTIC COAST STRIPED BASS

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Chesapeake Bay Ecological Foundation, Inc

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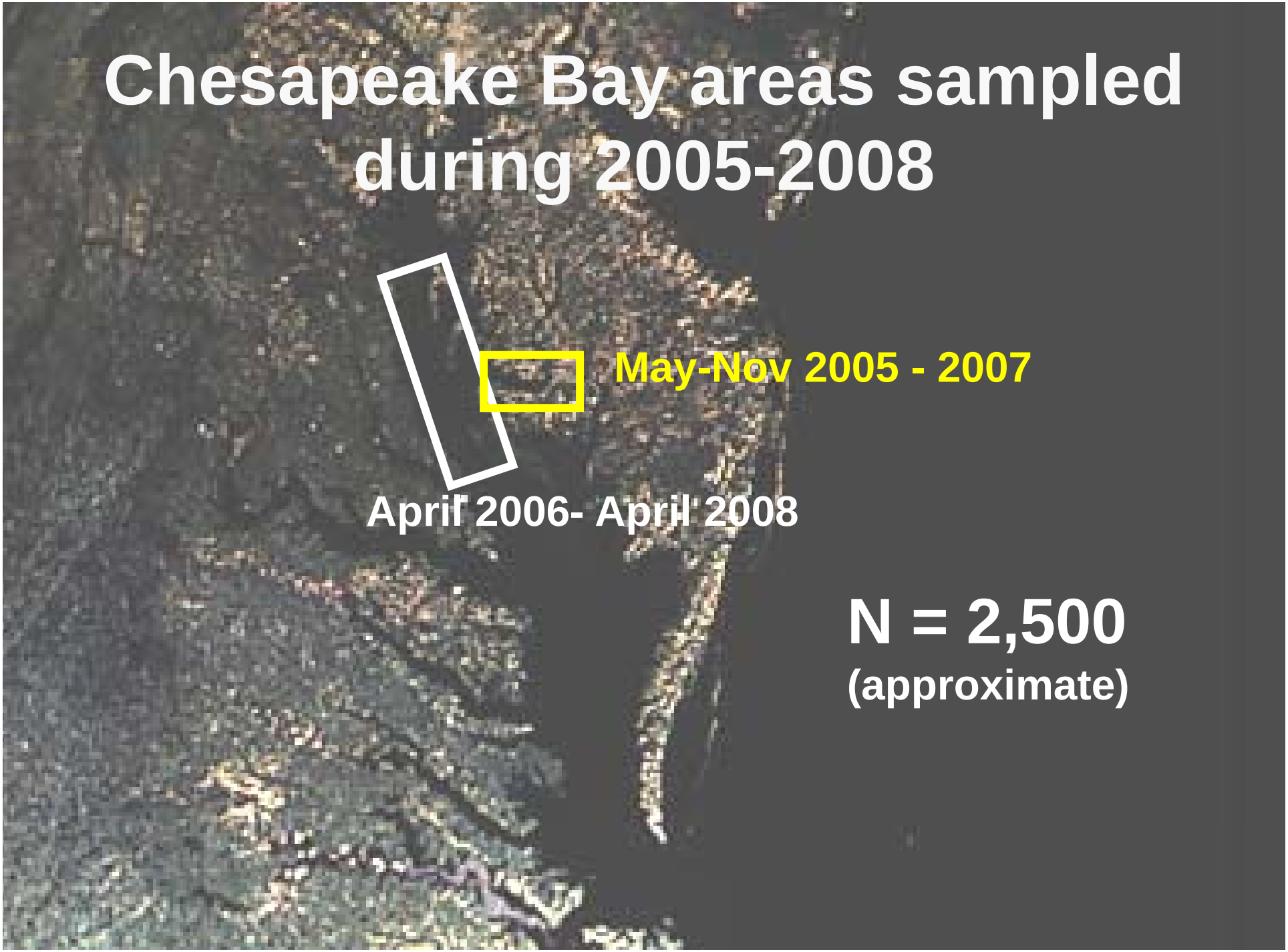
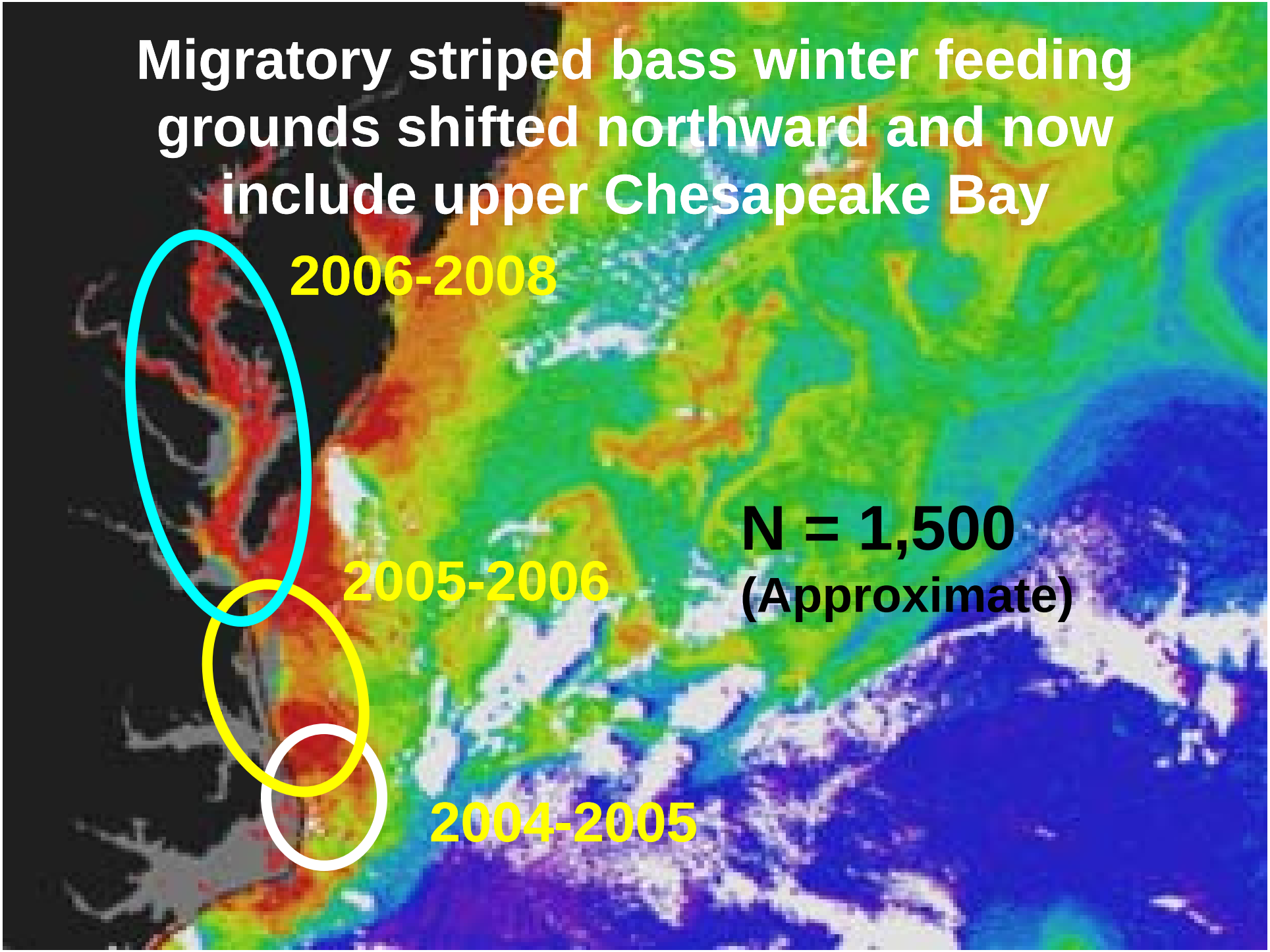
Chesapeake Bay areas sampled during 2005-2008



N = 2,500
(approximate)


Migratory striped bass winter feeding grounds shifted northward and now include upper Chesapeake Bay
2006-2008
2005-2006
2004-2005
N = 1,500
(Approximate)

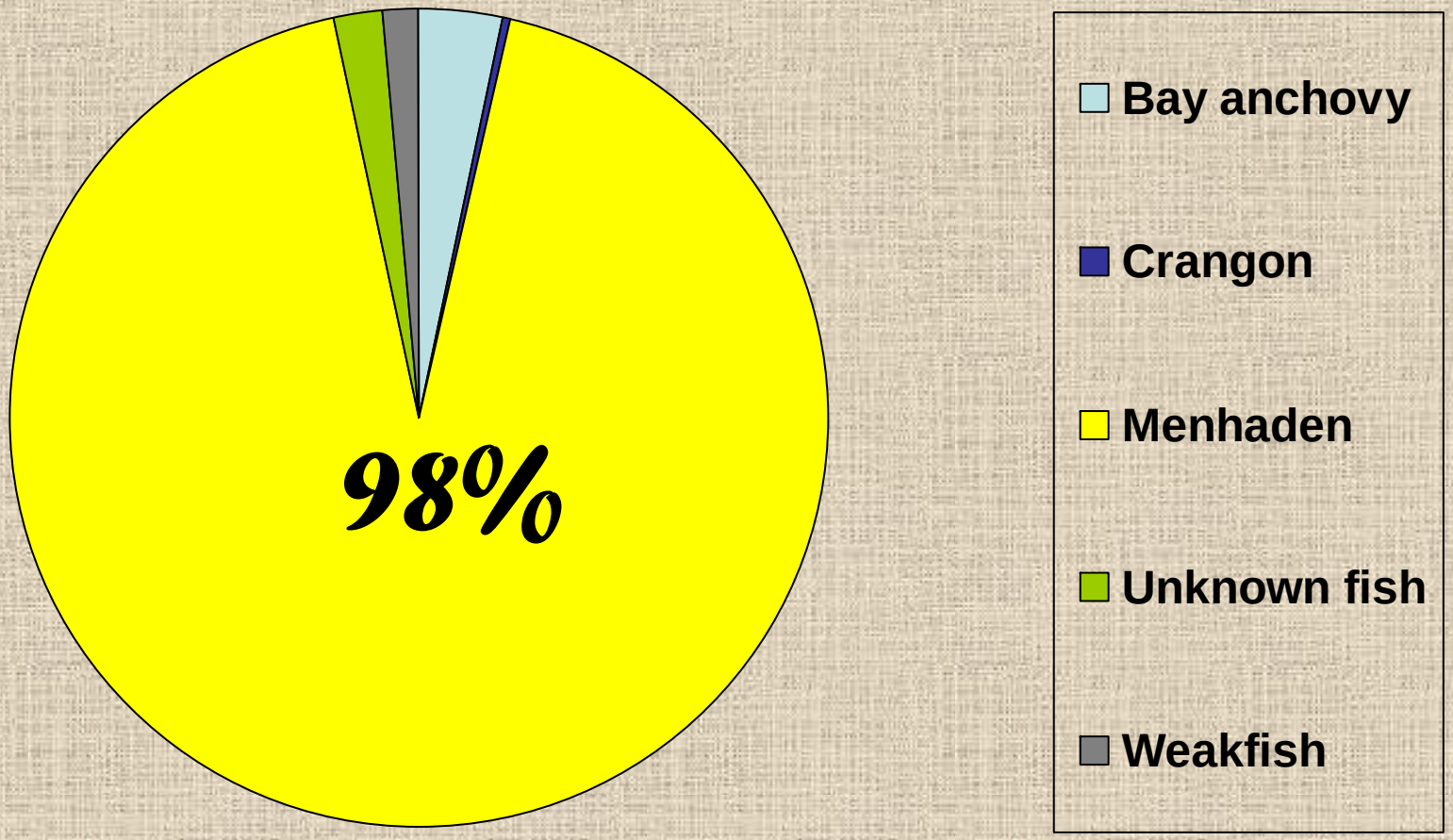
Chesapeake Bay Bioenergetics Studies

- Hartman and Brandt (1995), mid-Bay, 1990-1992
- Overton (2003), whole Bay, 1998-2000
- Insufficient number of menhaden to support nutritional needs of striped bass in Bay

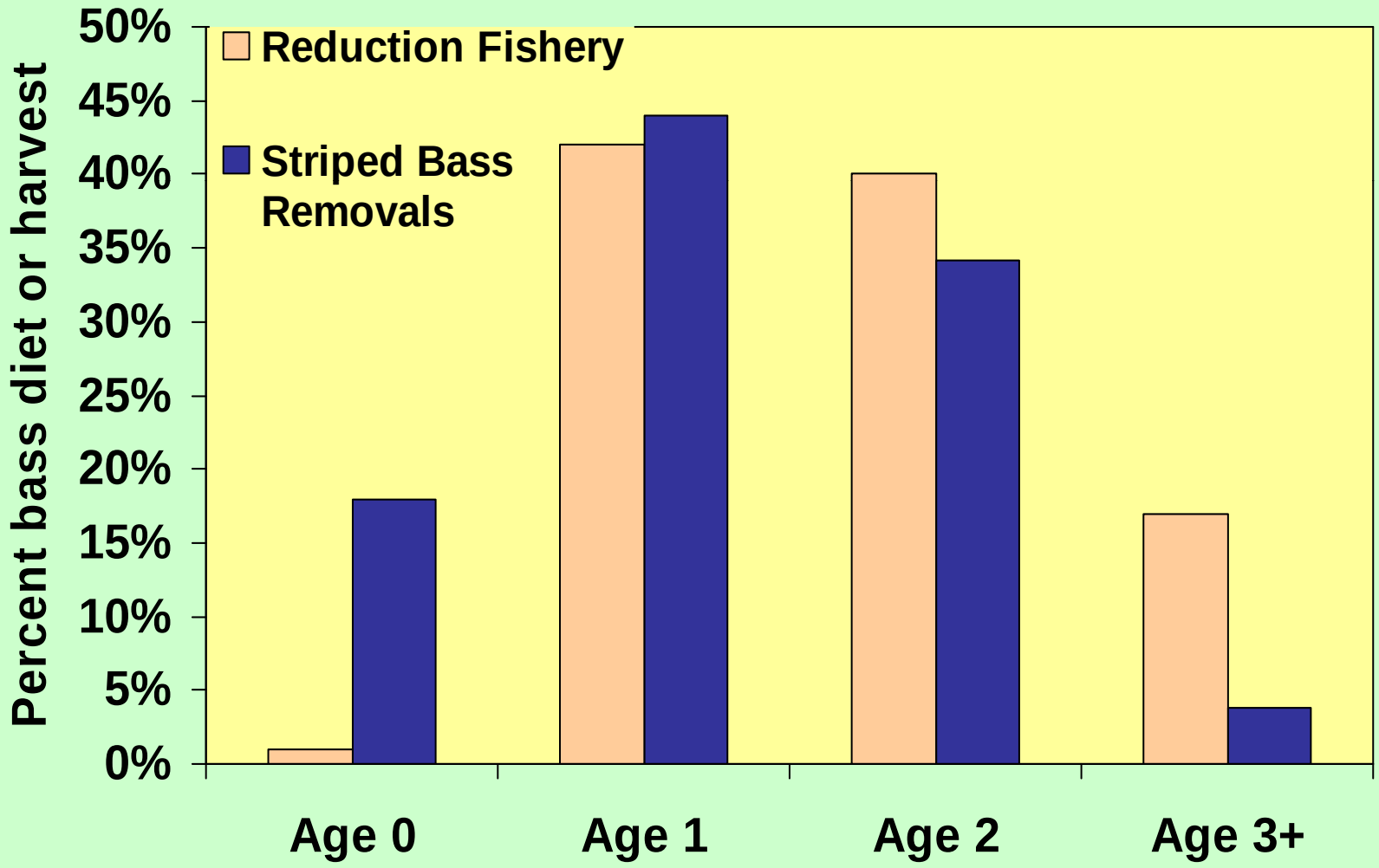
First year-round food habit study of large Chesapeake Bay striped bass (>17”), including migratory striped bass (>28”) from fall through spring.

This study continuous since April 2006 and is conducted within the Predator/Prey Monitoring Program.

Diet composition, by weight, of 17 inch + resident and migratory striped bass in the upper Bay during 2006-2007
N = 1,074

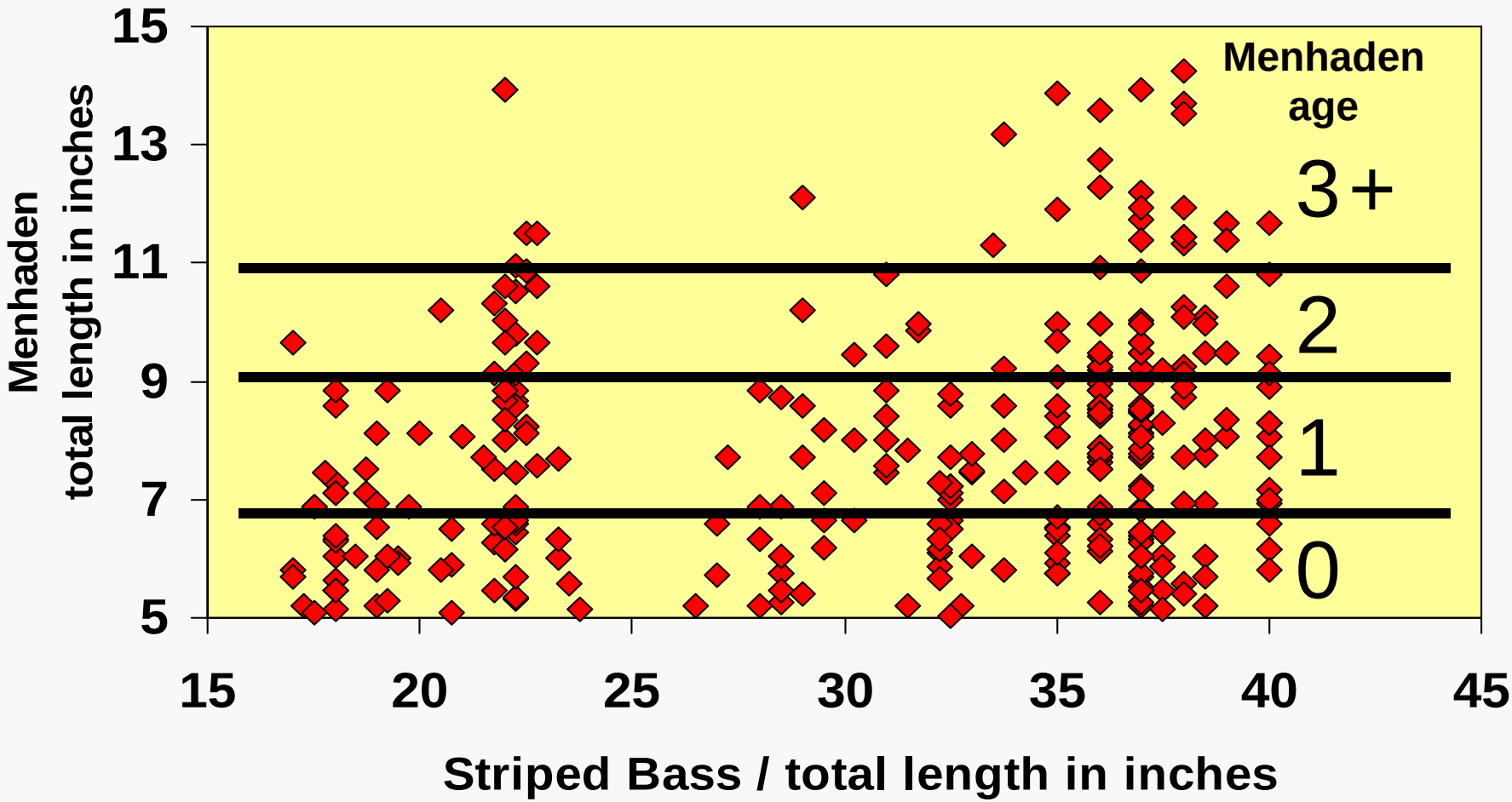


Age structure of menhaden removals by 17”+ striped bass in upper Bay during April 2006 – February 2007 (N = 1,074) or harvested by the reduction fishery in 2006 (NMFS)

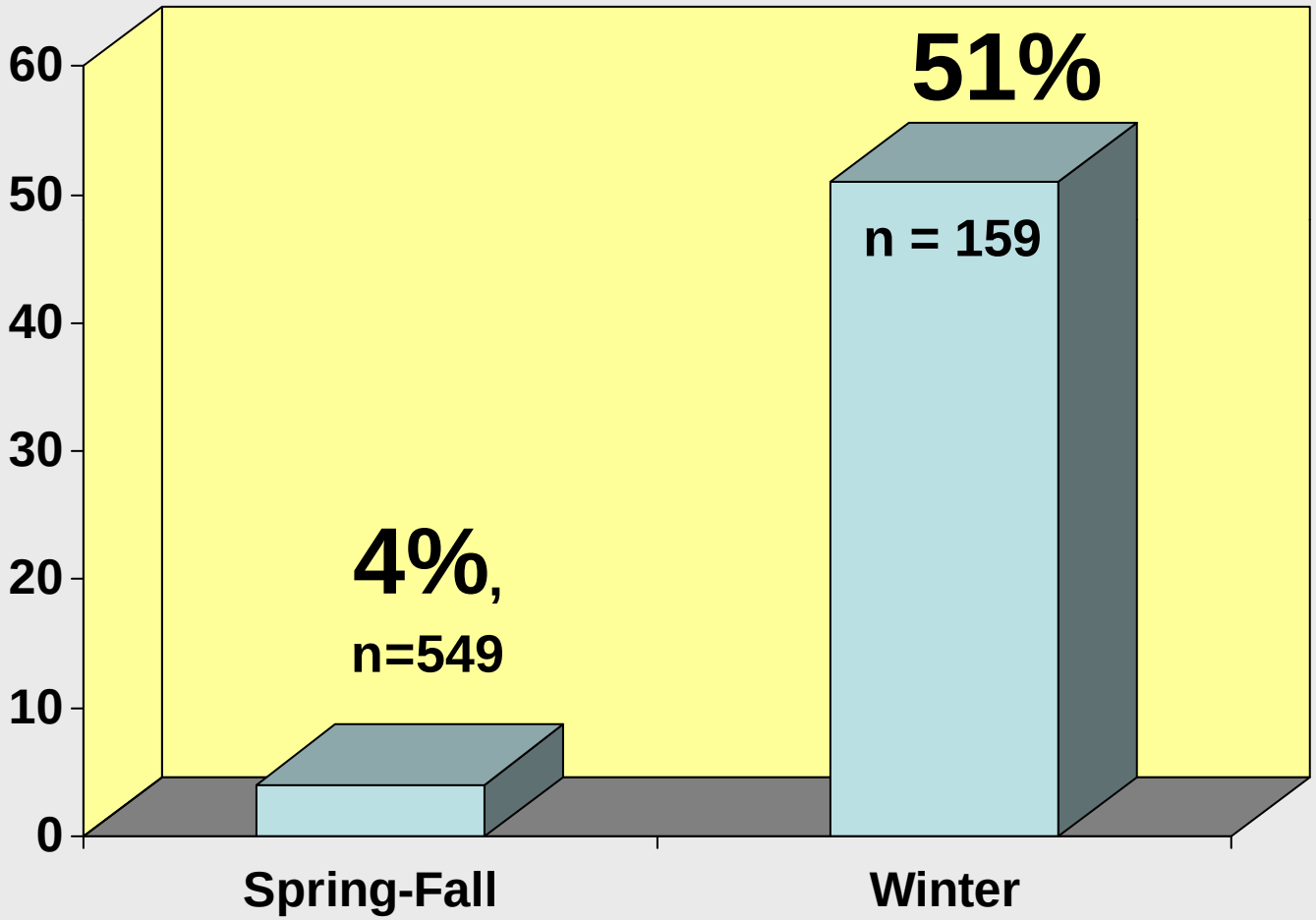


Resident and migratory striped bass compete for the same size menhaden in the upper Bay

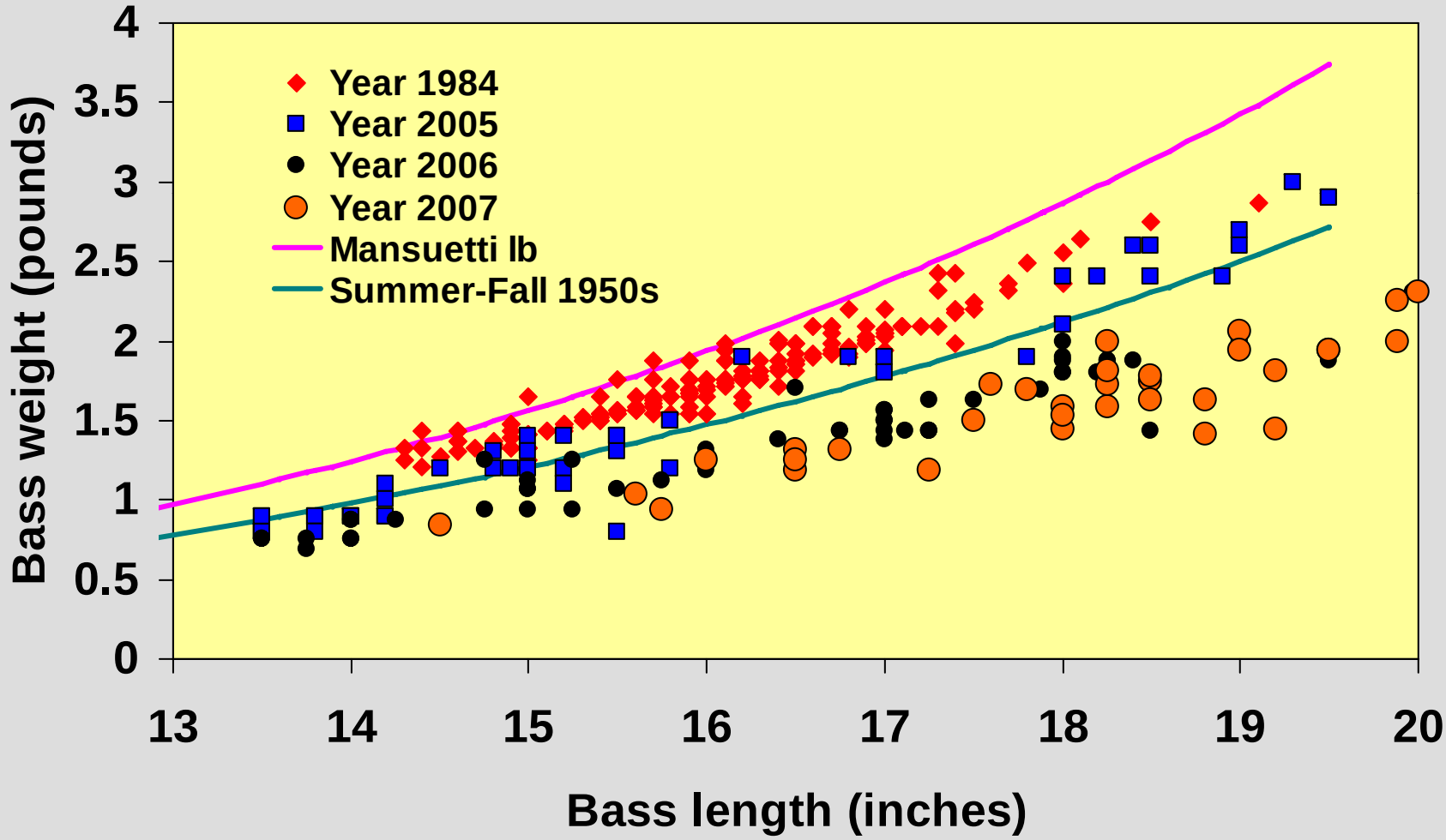
Length of striped bass versus length of menhaden consumed in upper Bay
April 2006 - February 2007



Percentage of 17”- 28” striped bass in upper Bay that removed ages 1+ menhaden, comparing spring through fall to winter



Length-weight of striped bass caught in Choptank (upper Bay) reflects its menhaden seine index. 1984 and 2005 had high menhaden indices and 2006-2007 were low.



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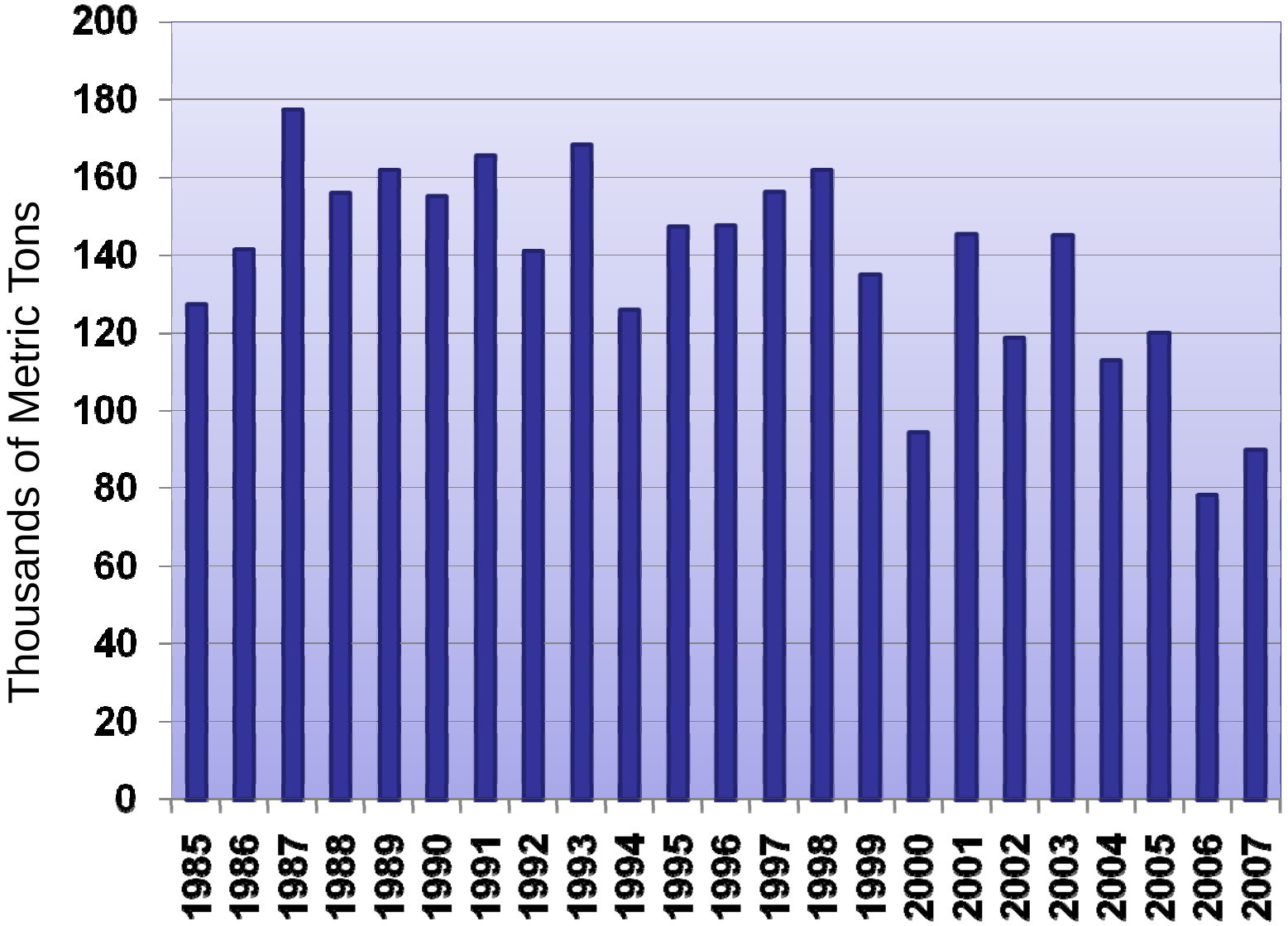
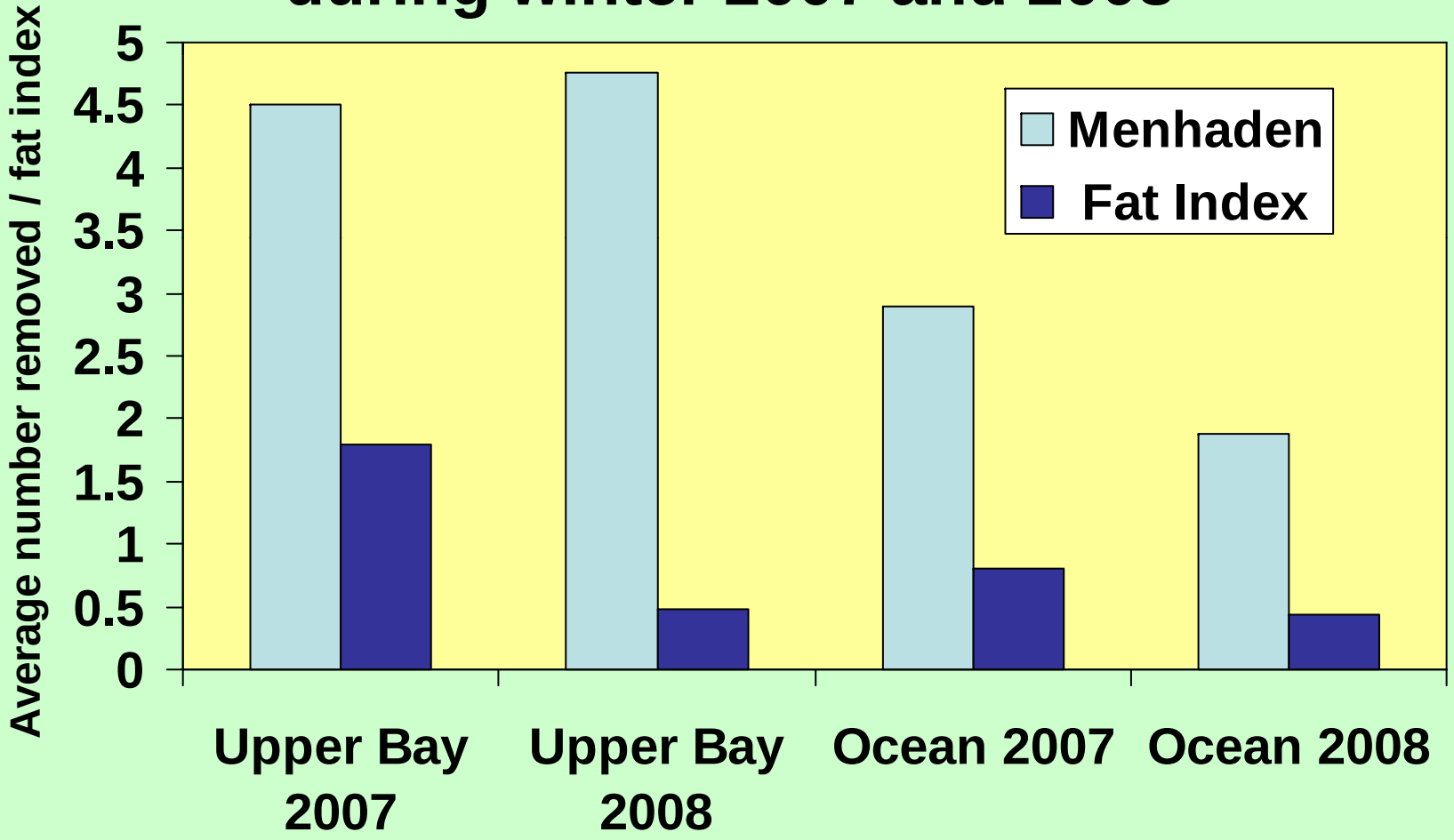
CHESAPEAKE BAY MENHADEN PURSE SEINE REDUCTION & BAIT LANDINGS

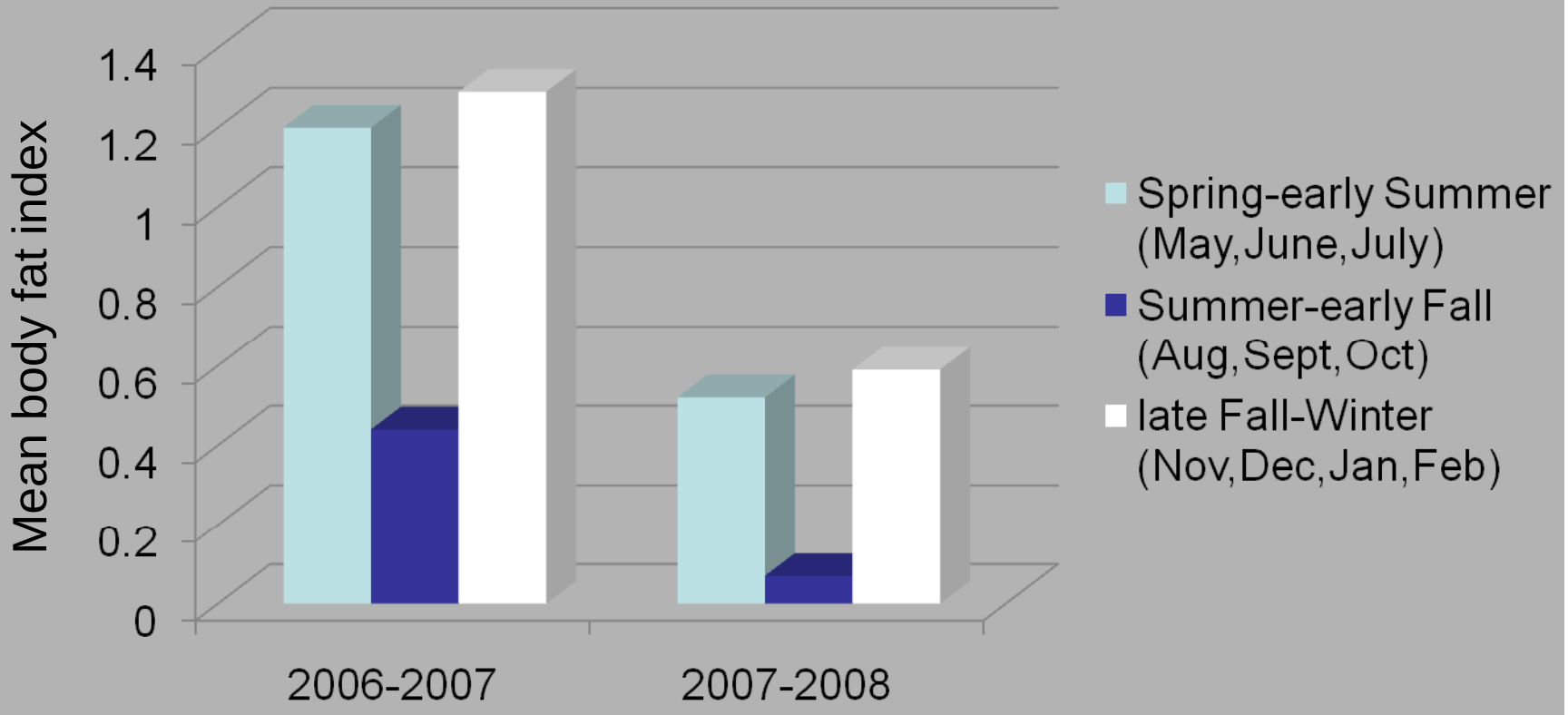
NATIONAL MARINE FISHERIES SERVICE DATA



Average number of menhaden removed by migratory striped bass (>28”) and average body fat index in upper Bay and ocean, during winter 2007 and 2008



Average Resident striped bass (17”- 28”) body fat index during 2006-2007 (N = 681) and 2007-2008 (N = 851)



Conclusion:

Striped bass are nutritionally stressed because of the *ecological depletion* of Atlantic menhaden, their primary prey.

Support for Predator-Prey Monitoring Program

- **Chesapeake Bay Ecological Foundation: samples, analysis, and funding**
- **East Carolina University: samples, analysis, and funding**
- **Maryland Department of Natural Resources: funding**
- **U.S. Fish and Wildlife Service: funding**