

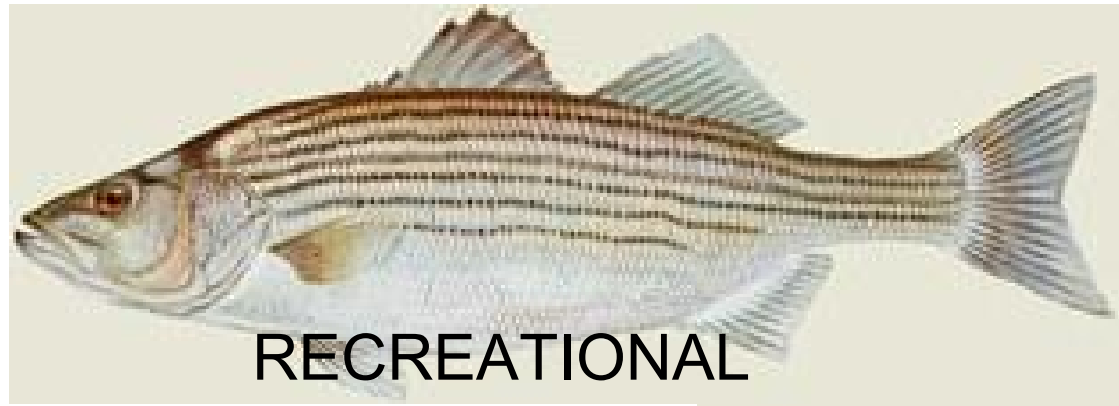
A satellite-style map of the Chesapeake Bay region, showing the bay's complex waterways and the surrounding landmasses of Virginia and Maryland. The map is rendered in shades of blue, green, and brown, with a semi-transparent white box overlaid in the center containing text.

The Shifting Economic Picture of Chesapeake Bay's Living Resources

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Department of Agricultural & Resource Economics

Chesapeake Bay Commission
November 10, 2006
Virginia Beach, VA

Society's Changing Values of Fish



COMMERCIAL

ECOLOGICAL

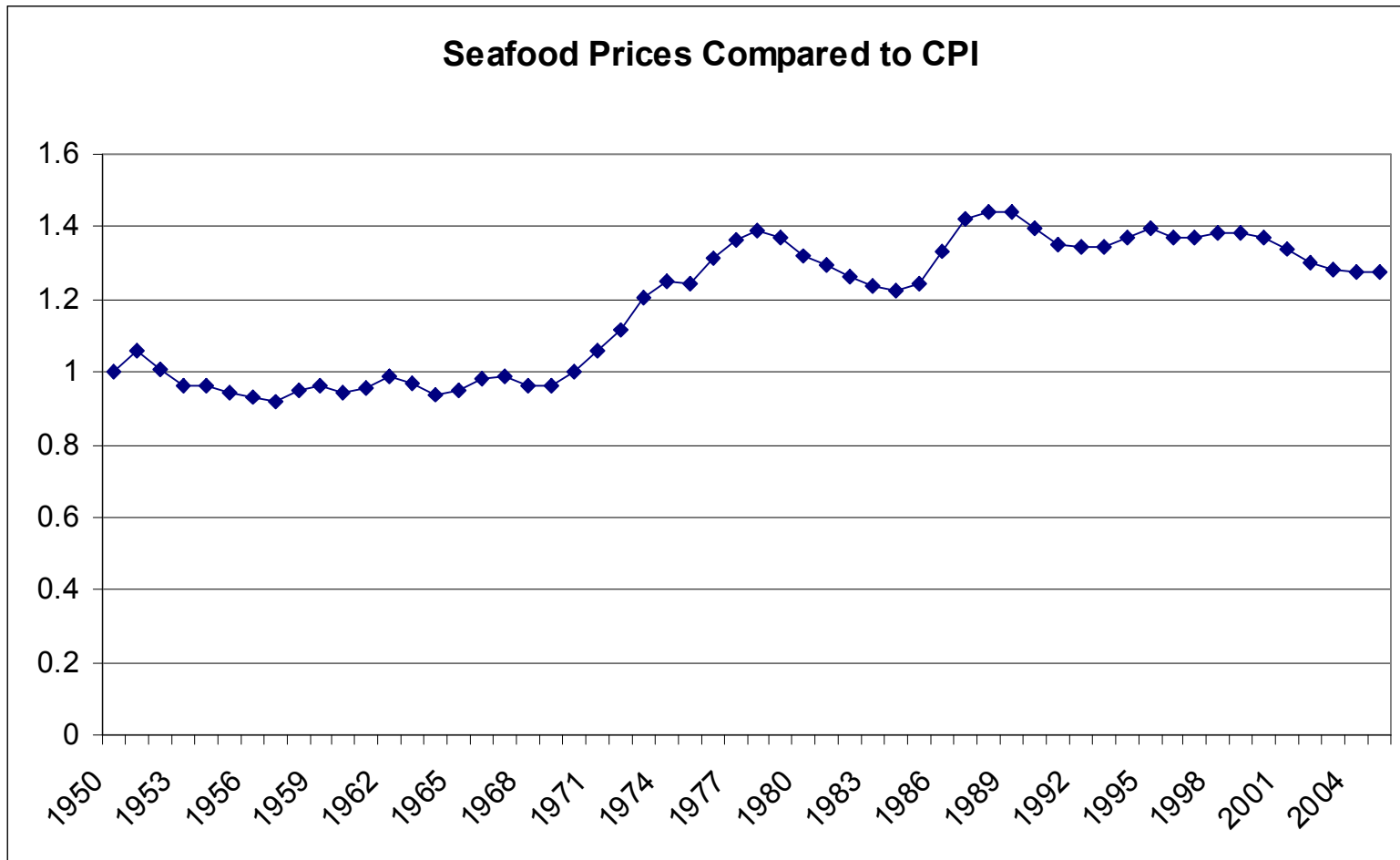


COMMERCIAL VALUE

- Has Declined Over Time
 - Substitutes
 - Globalization
 - Aquaculture
- What Is Future Role?

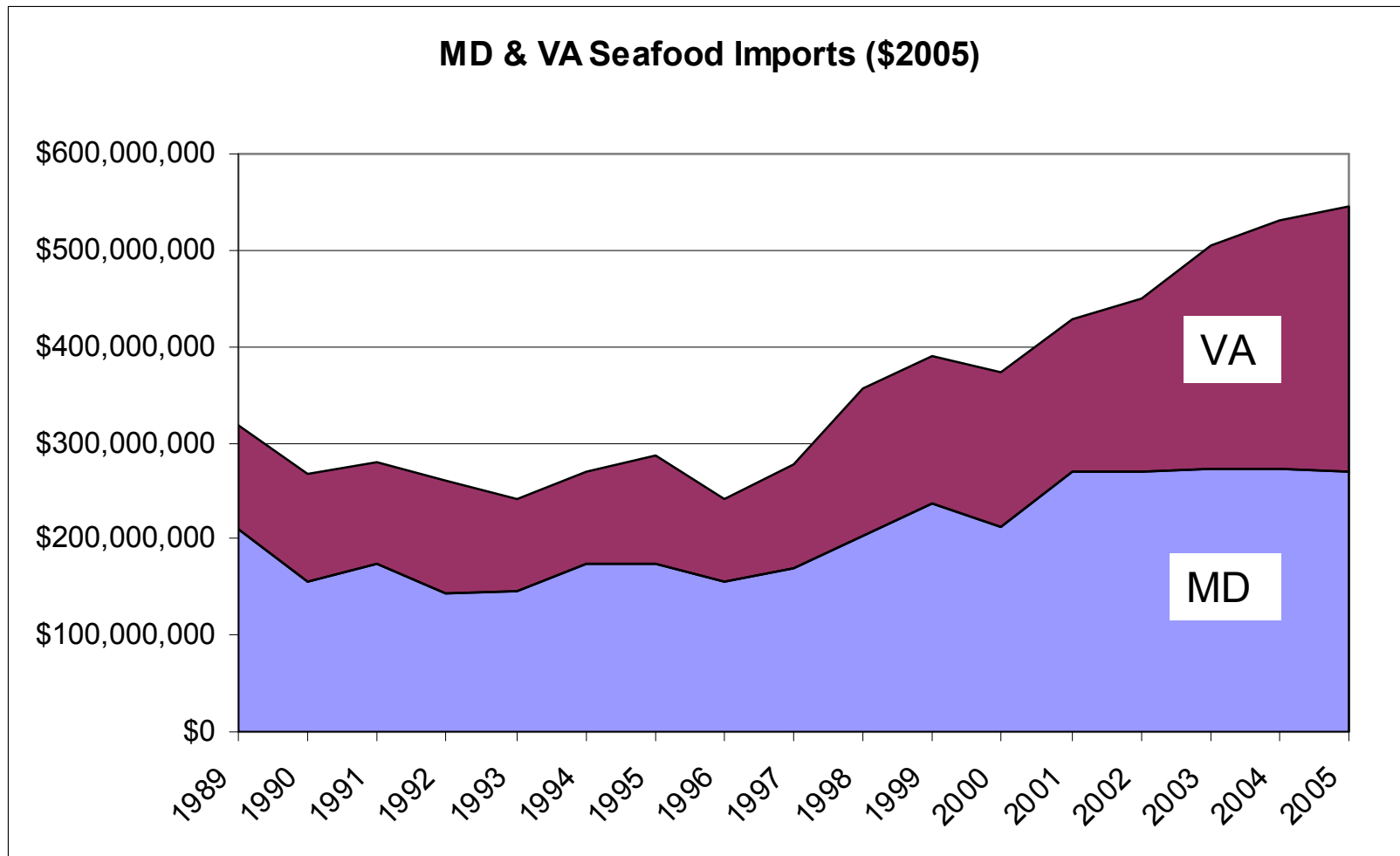


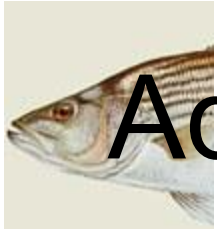
Demand for Seafood Is Up



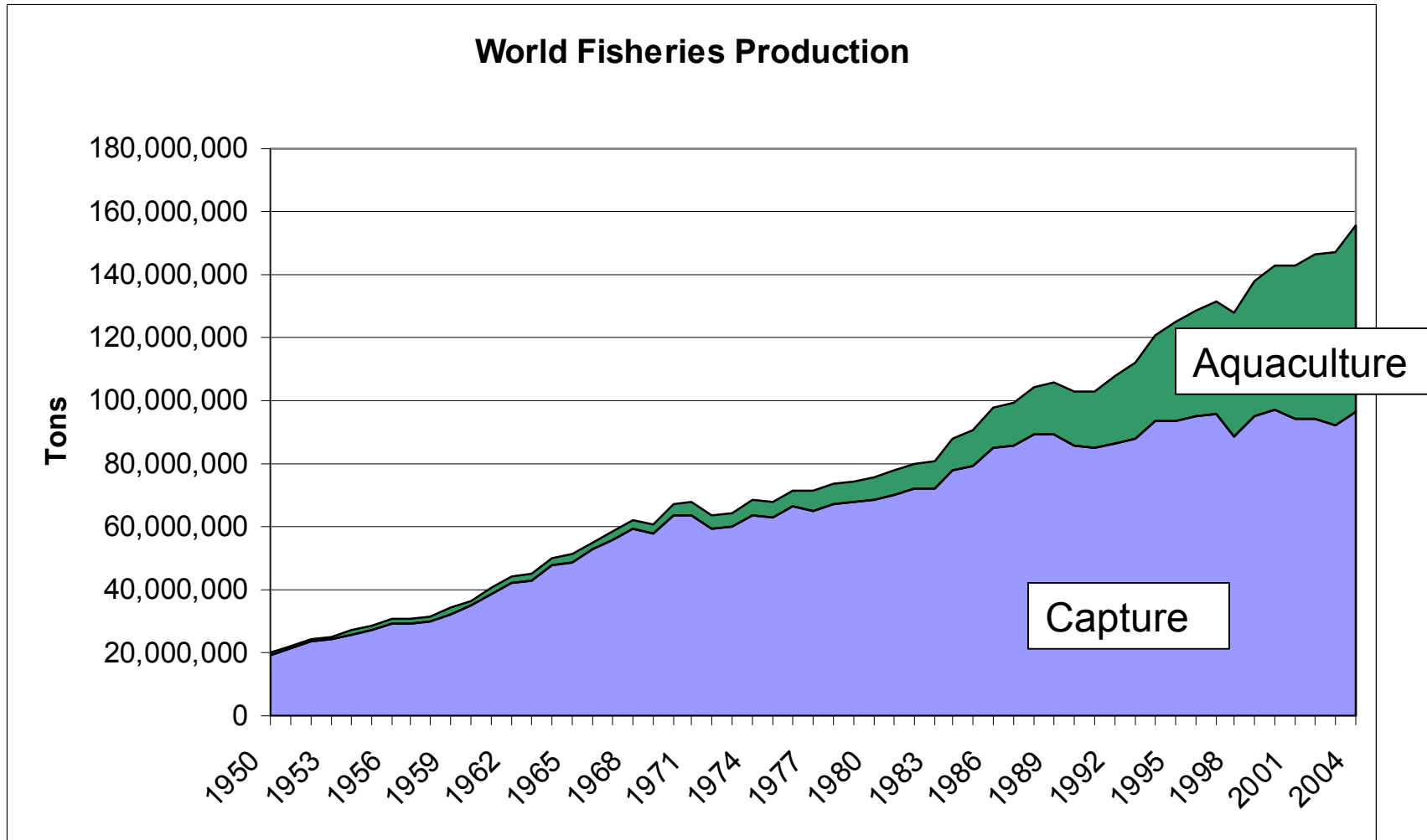


Imports Playing a Greater Role

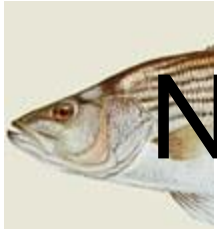




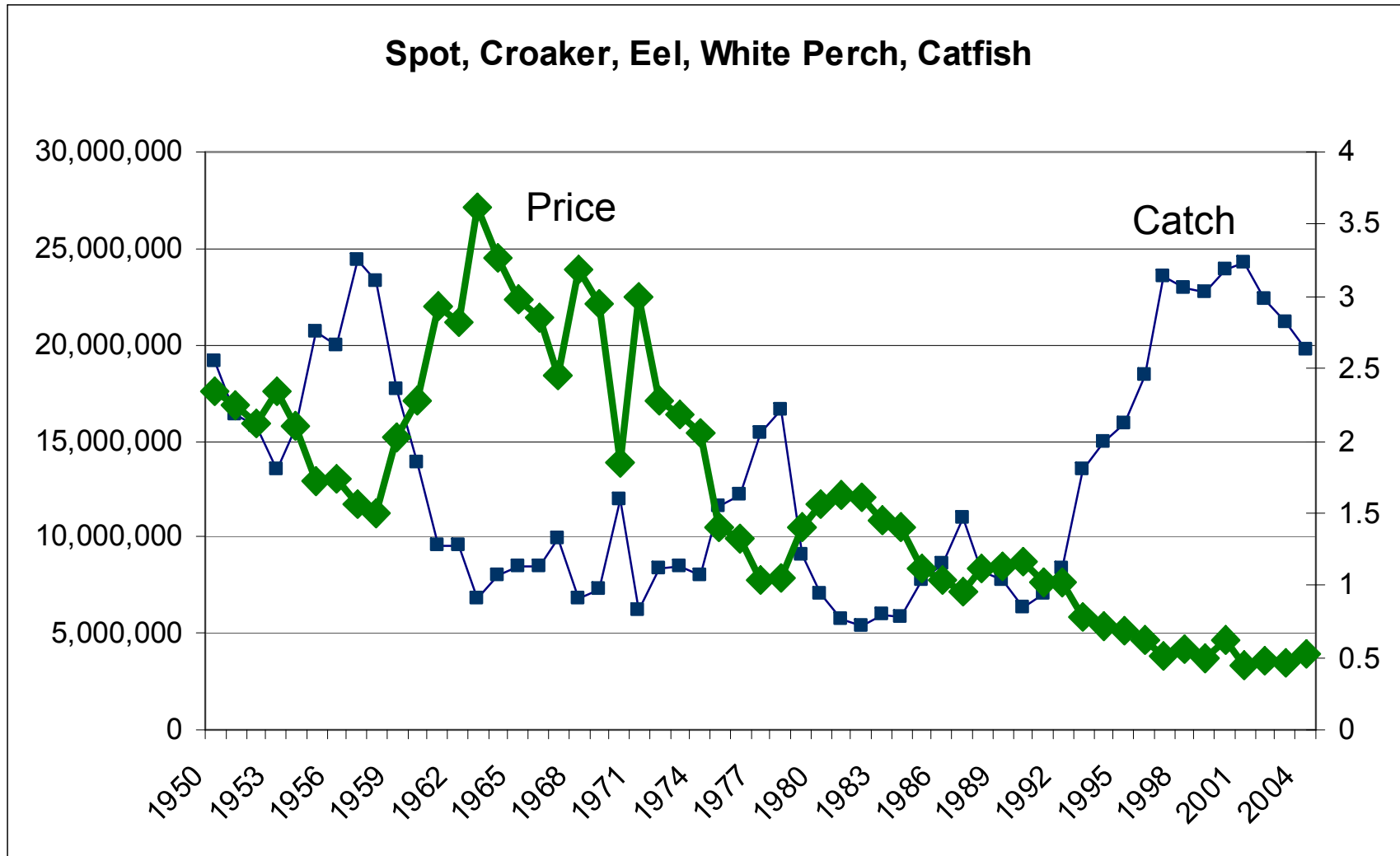
Aquaculture Meeting Demand

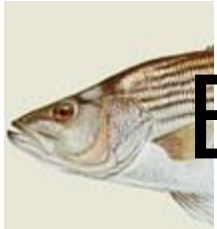


Source: FAO

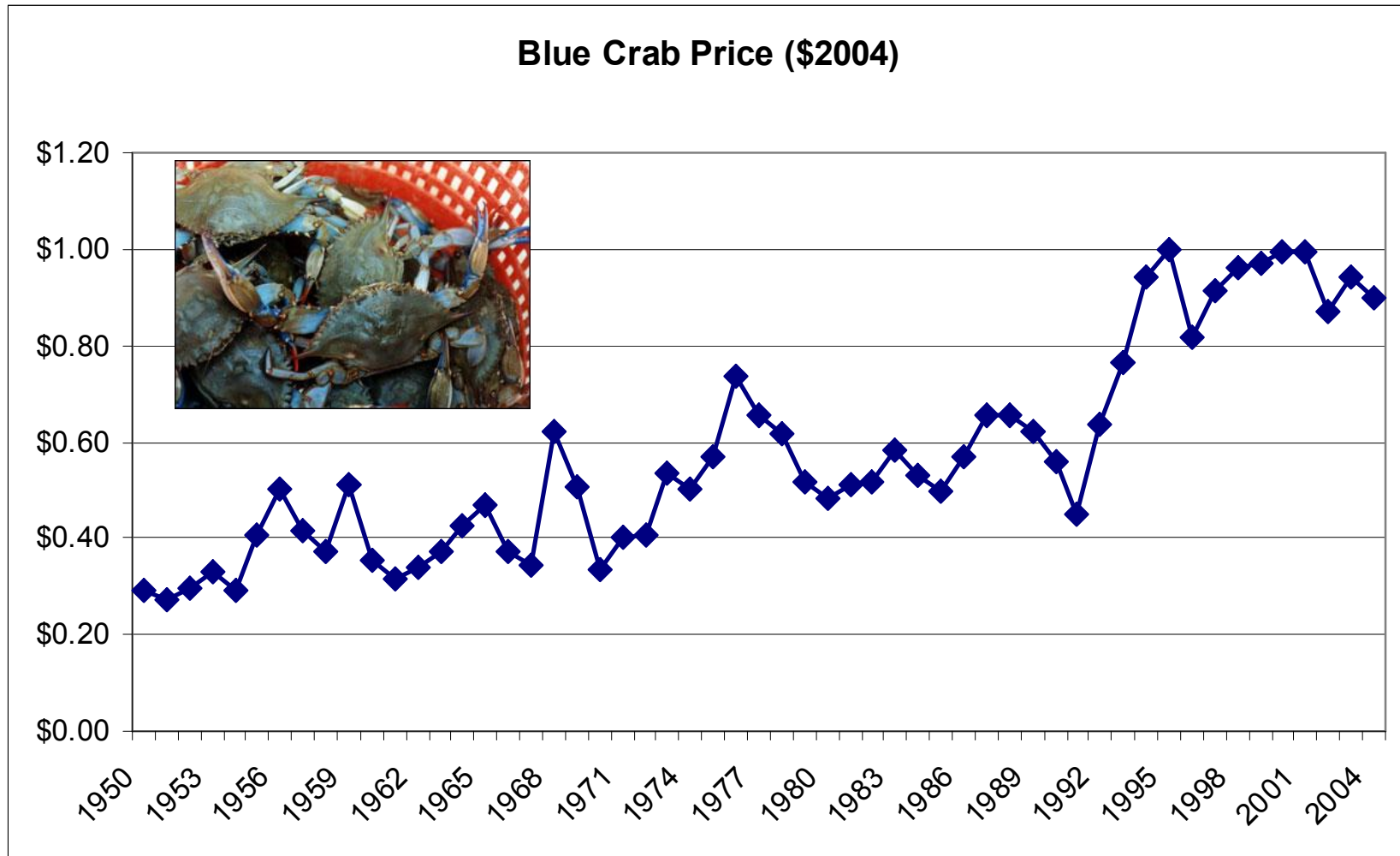


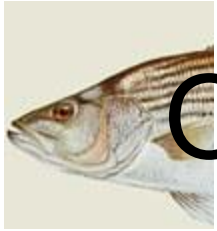
Not Chesapeake Production



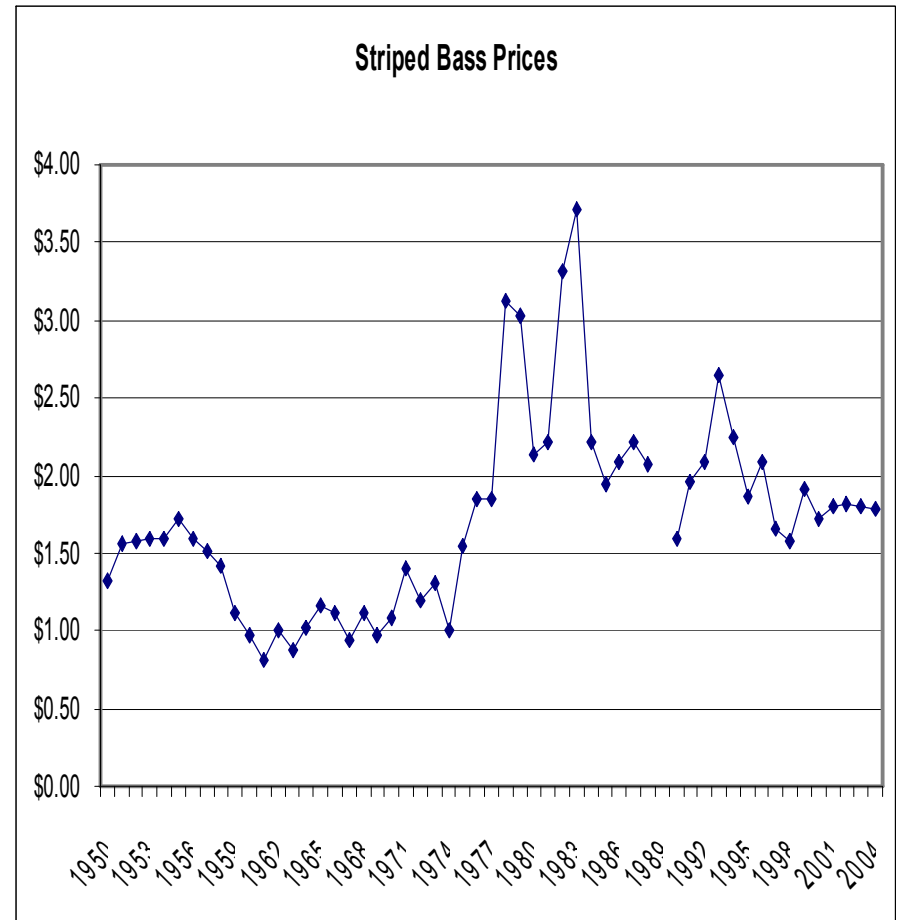
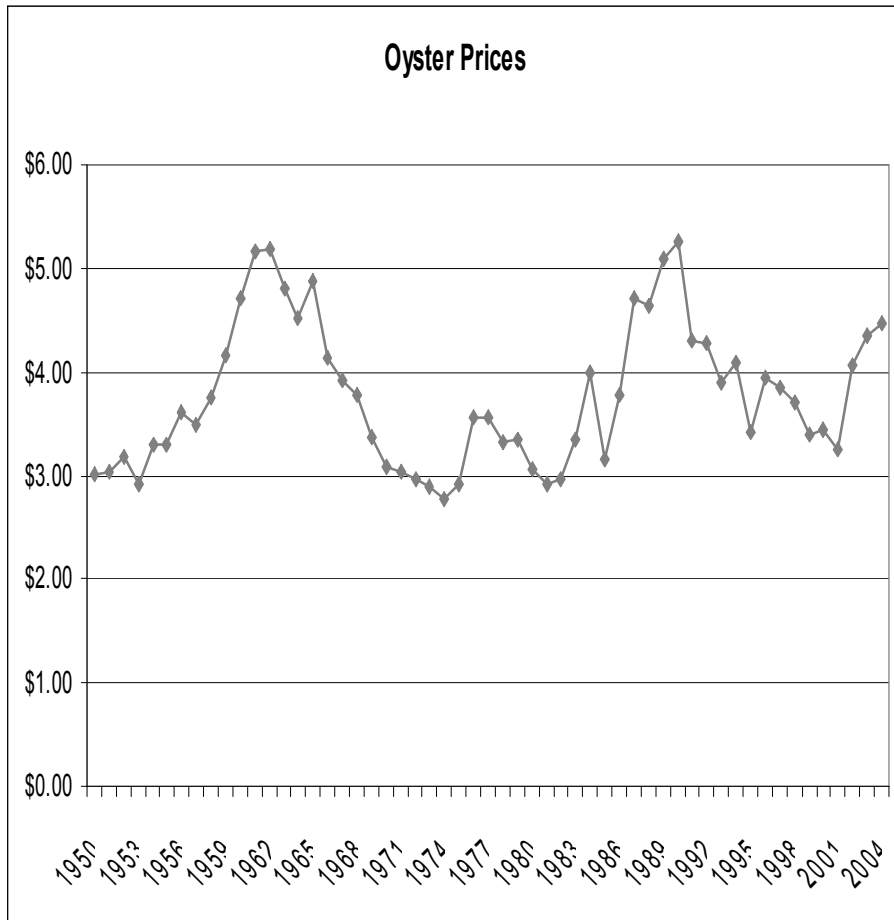


Except for “Iconic” Species





Or At Least Hold Their Own





Future of Commercial Fisheries in Chesapeake Bay

- Restored Ecosystem
 - More fish available, but of what value?
- Role of Sustainable Aquaculture
 - Plants, shellfish in conjunction with finfish
 - Conflicting use resistance
- Limited Specialized Market
 - Premium for Local Oysters, Crabs...



SCIENCE Article Doom and Gloom

washingtonpost.com

World's Fish Supply Running Out, Researchers Warn

By [Juliet Eilperin](#)

Washington Post Staff Writer

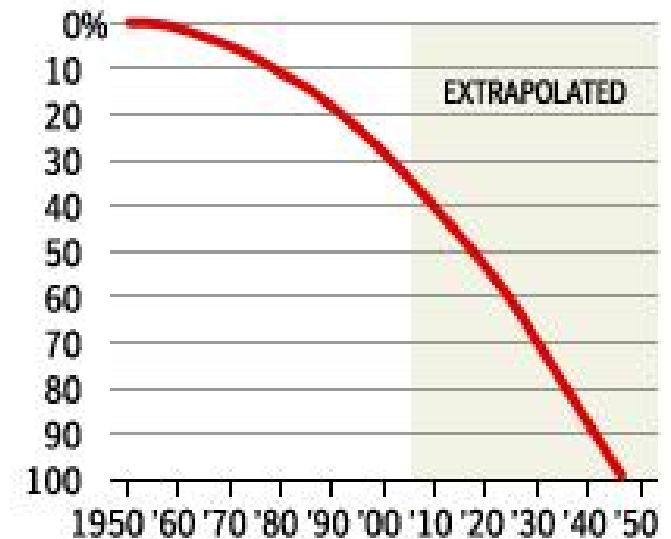
Friday, November 3, 2006; Page A01

An international group of ecologists and economists warned yesterday that the world will run out of seafood by 2048 if steep declines in marine species continue at current rates, based on a four-year study of catch data and the effects of fisheries collapses. The paper, published in the journal *Science*, concludes that overfishing, pollution and other environmental factors are wiping out important species around the globe, hampering the ocean's ability to produce seafood, filter nutrients and resist the spread of disease.

Fisheries' Downfall

If current fishing trends continue, all of the commercial fisheries will have collapsed by 2050, according to a peer-reviewed study.

Percentage of fisheries collapsed



SOURCE: *Science* | The Washington Post

That's A Big IF....

Chesapeake Fish Supply May Increase Researcher States

By [Doug Lipton](#)

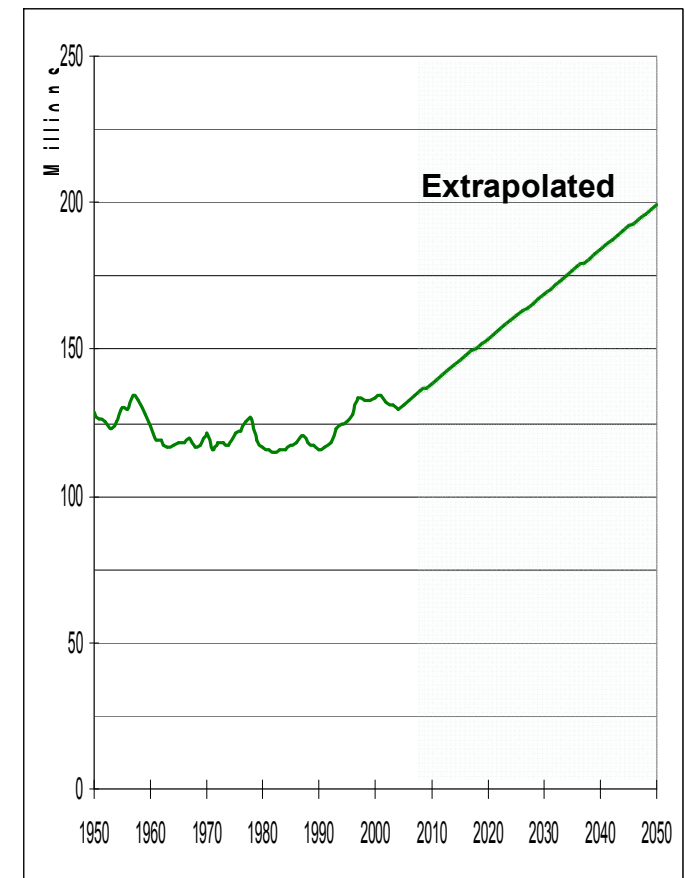
University of Maryland Economist

Friday, November 10, 2006; Page A01

A lone economist stated today that the Chesapeake Bay will supply more seafood by 2048 if steep recovery of Bay species can be realized, based on a four-hour study of catch data and the effects of fisheries restoration.

The paper, not published anywhere, concludes that overfishing, pollution and other environmental factors when appropriately managed, improve the Bay's ability to produce seafood, filter nutrients and resist the spread of disease.

Fishery Upswing



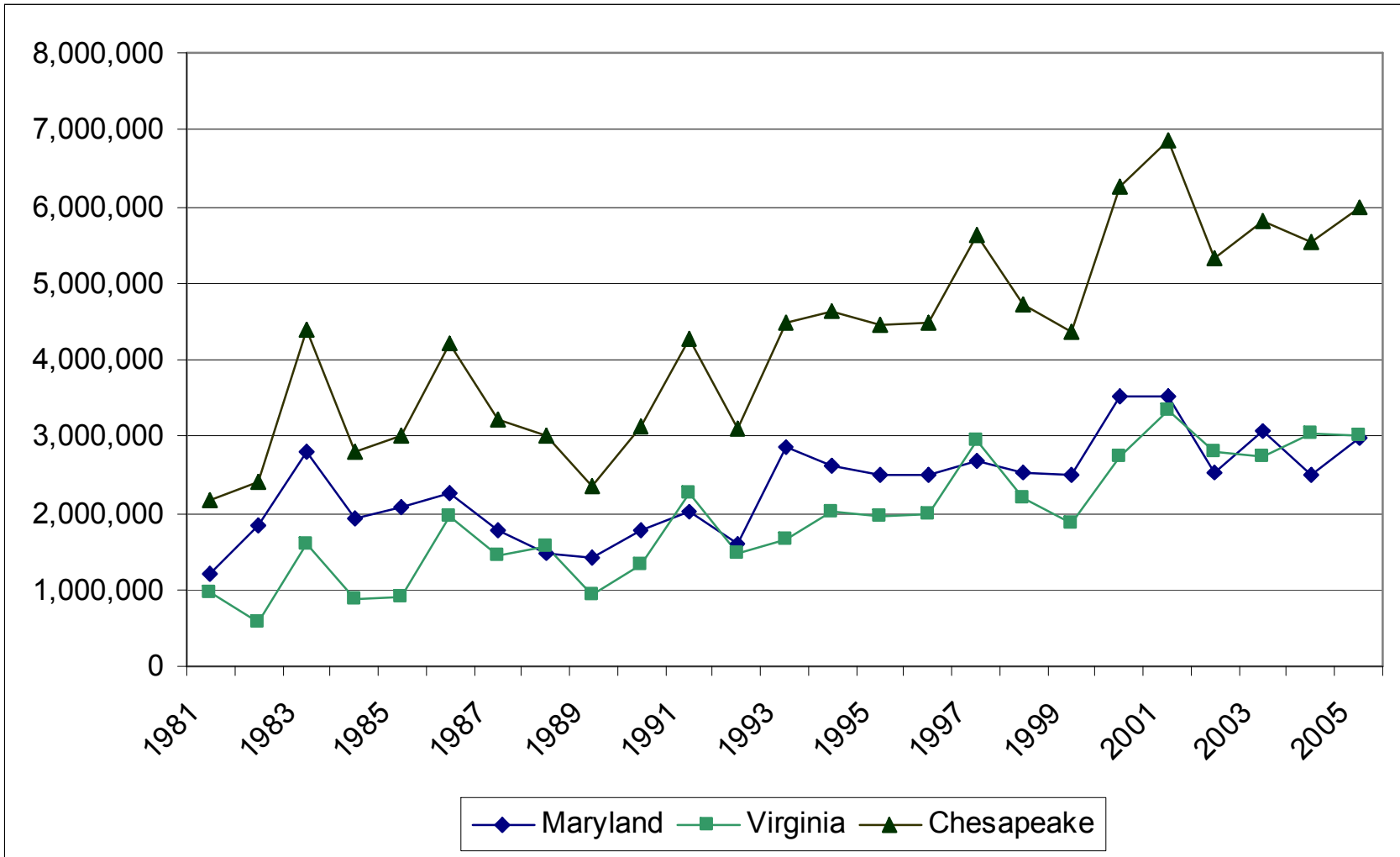


Recreational Value

- Has Increased in Recent Years
 - Wealthier society
 - Leisure time
- Limitations on Future Growth
 - Substitutes (again) compete for leisure time
 - Congestion
- Key Issue
 - Value of Catch vs. Keep



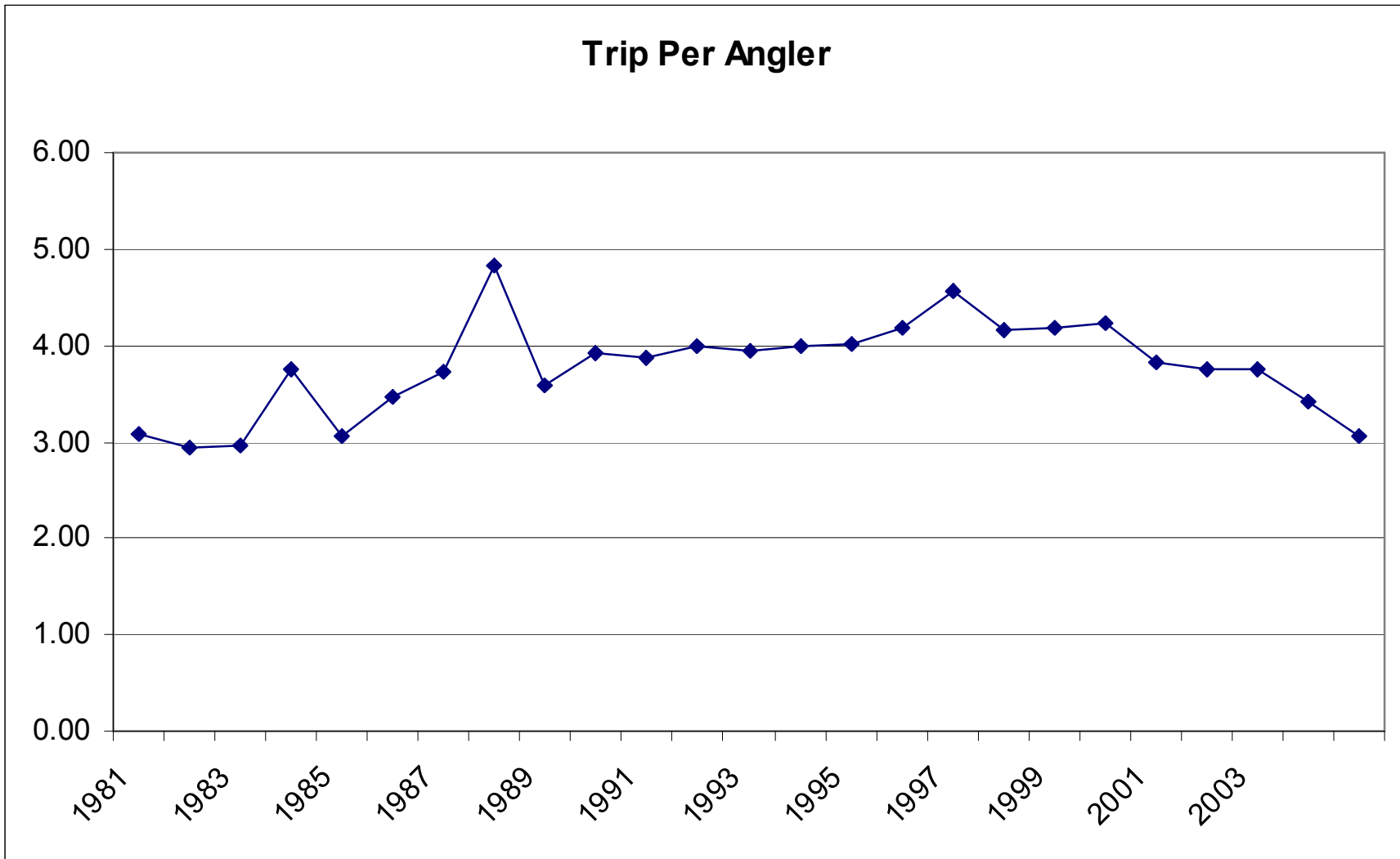
Number of Recreational Fishing Trips Has Been Increasing



Source: NOAA Fisheries, Marine Recreational Fisheries Statistic Survey

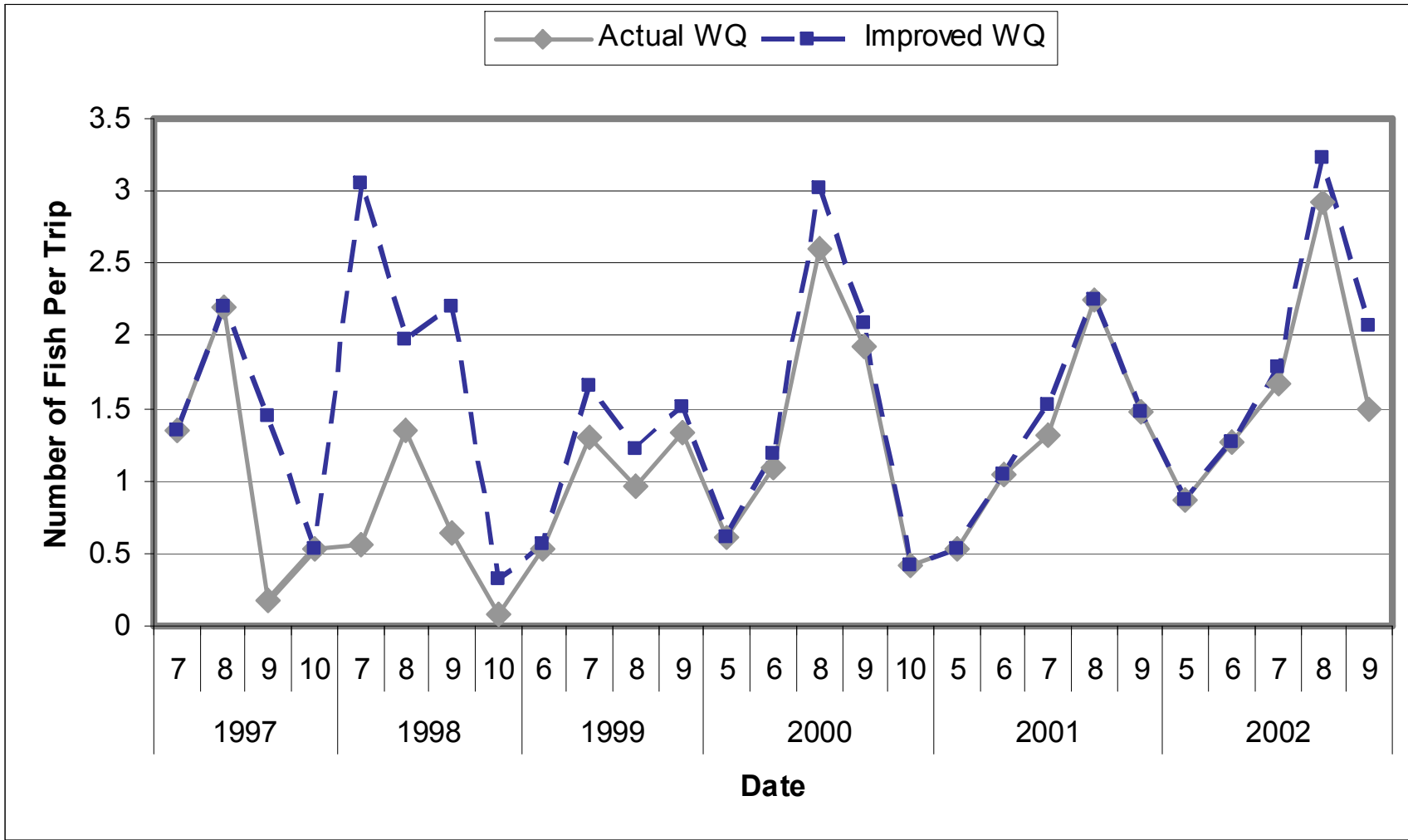


Individual Anglers Taking Fewer Trips





Recreational Value Per Trip Can Improve With WQ



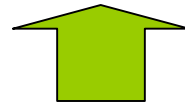


Future of Recreational Fisheries In Chesapeake Bay

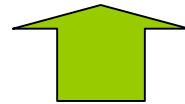
- Slowing Growth



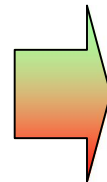
- Value of Trips



- Expenditures



- Value of Keep





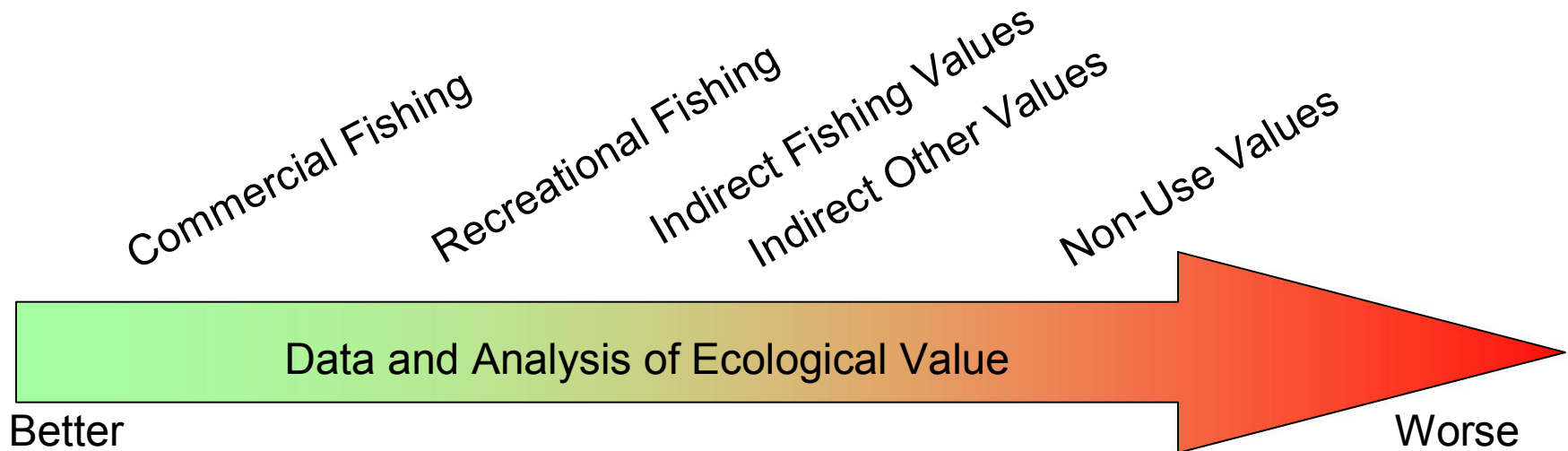
Ecological Value

Ecological Value = Direct Use Value + Indirect Use Value + Non Use Value

- Direct Use Value
 - Commercial Fishing (Market Value)
 - Recreational Fishing (Non-Market Value)
- Indirect Use Value
 - Linked to Fisheries with Direct Use Value
 - Prey, Habitat, Ecosystem Health
 - Linked to Non-Fisheries Bay Uses
 - Boating, Swimming, Quality of Waterfront Property
- Non-Use Value
 - Society's Willingness-To-Pay For Ecosystem Restoration Over and Above Direct and Indirect Use

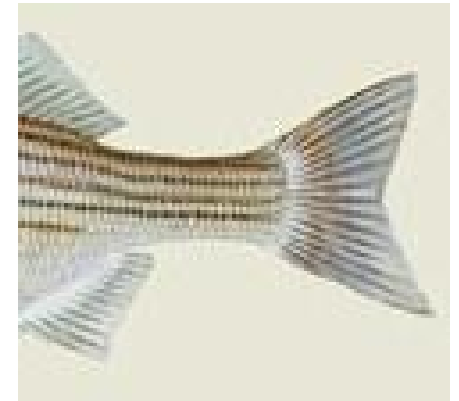
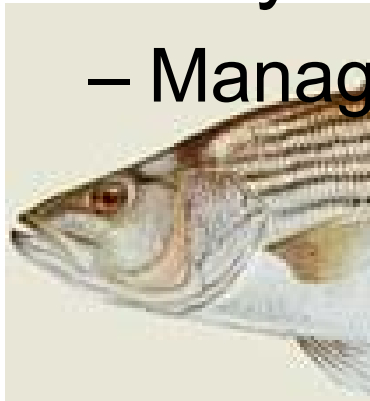


Invest in Measuring Ecological Value



More For Every Use

- Sustainable Aquaculture
 - For seafood
 - For restoration
- Ecosystem Based Fisheries Management
 - Managing the Ecosystem For Fish
- Ecosystem Management
 - Managing Fish For the Ecosystem



Finding The Balance



- Allocation of fish between its role as seafood, recreation or contributor to ecological health
- Bay Restoration
 - For Seafood and Recreational Fishing
 - For Ecological Value of the Bay
 - Includes Seafood and Recreation
 - Other Direct Uses of the Bay
 - Indirect Use Values
 - Non Use Values