



# Wide-spread mortality of young-of-year smallmouth bass *Micropterus dolomieu* in the Susquehanna River Basin:

*The effect on the population*

**Mission:** To protect, conserve, and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities

# Onset of disease outbreak

- First appeared in 2005
- West Branch Susquehanna, Susquehanna, and Juniata rivers
- Affected young-of-year (YOY) smallmouth bass
- Disease prevalence as high as 70%



Photo: J. Cukjati - USGS PA Water Sci. Center



# Onset of disease outbreak

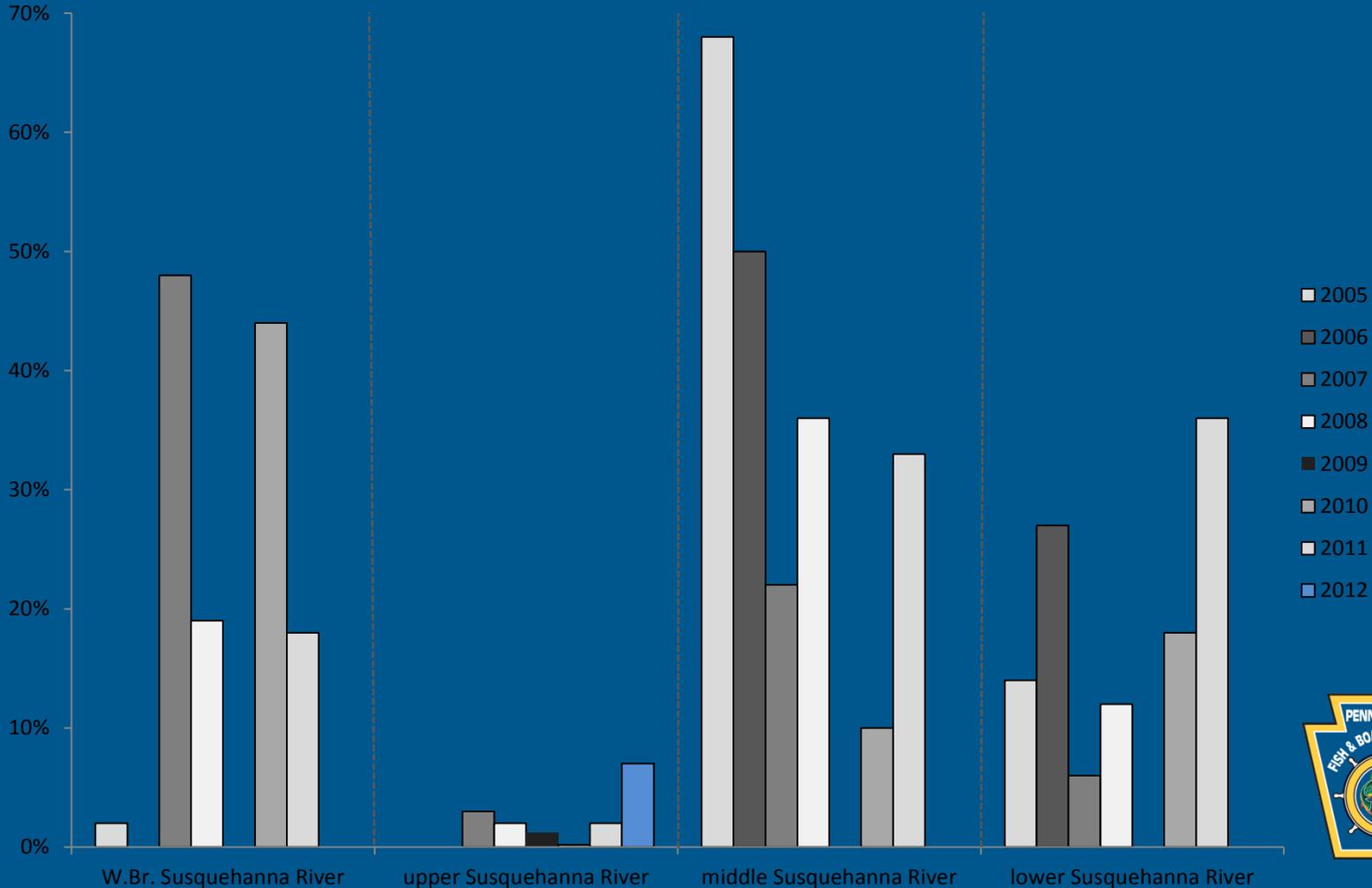
- Varies temporally and spatially
- Most prevalent during years with normal (low) summer flow and high water temperature
- First documented in tributaries in 2010
- First documented outside of Susquehanna Basin in 2011

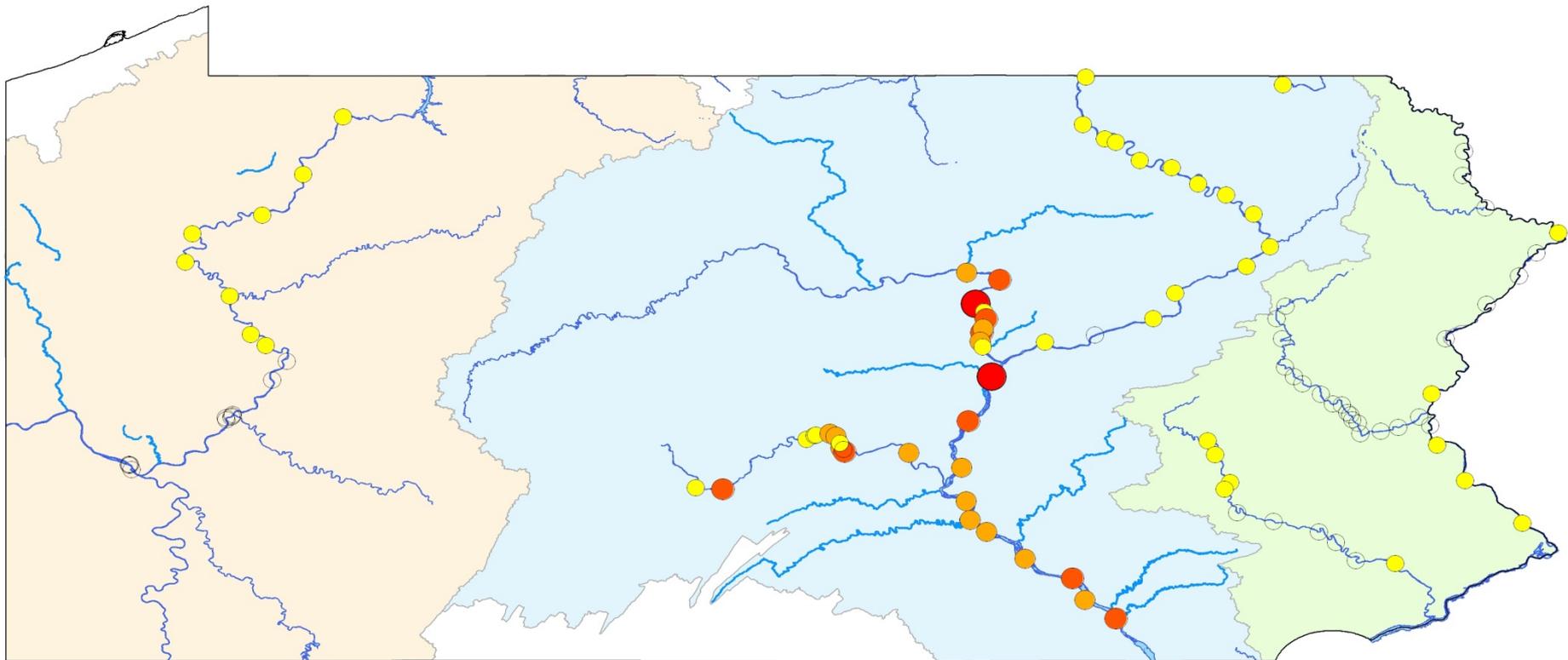


Photo: J. Chaplin - USGS PA Water Sci. Center

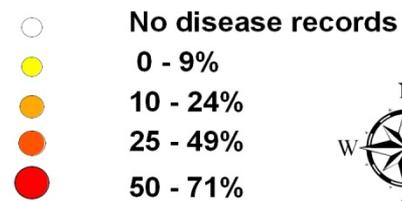


# Prevalence of disease among young-of-year smallmouth bass *Micropterus dolomieu* at different reaches of the Susquehanna River: 2005 – 2012

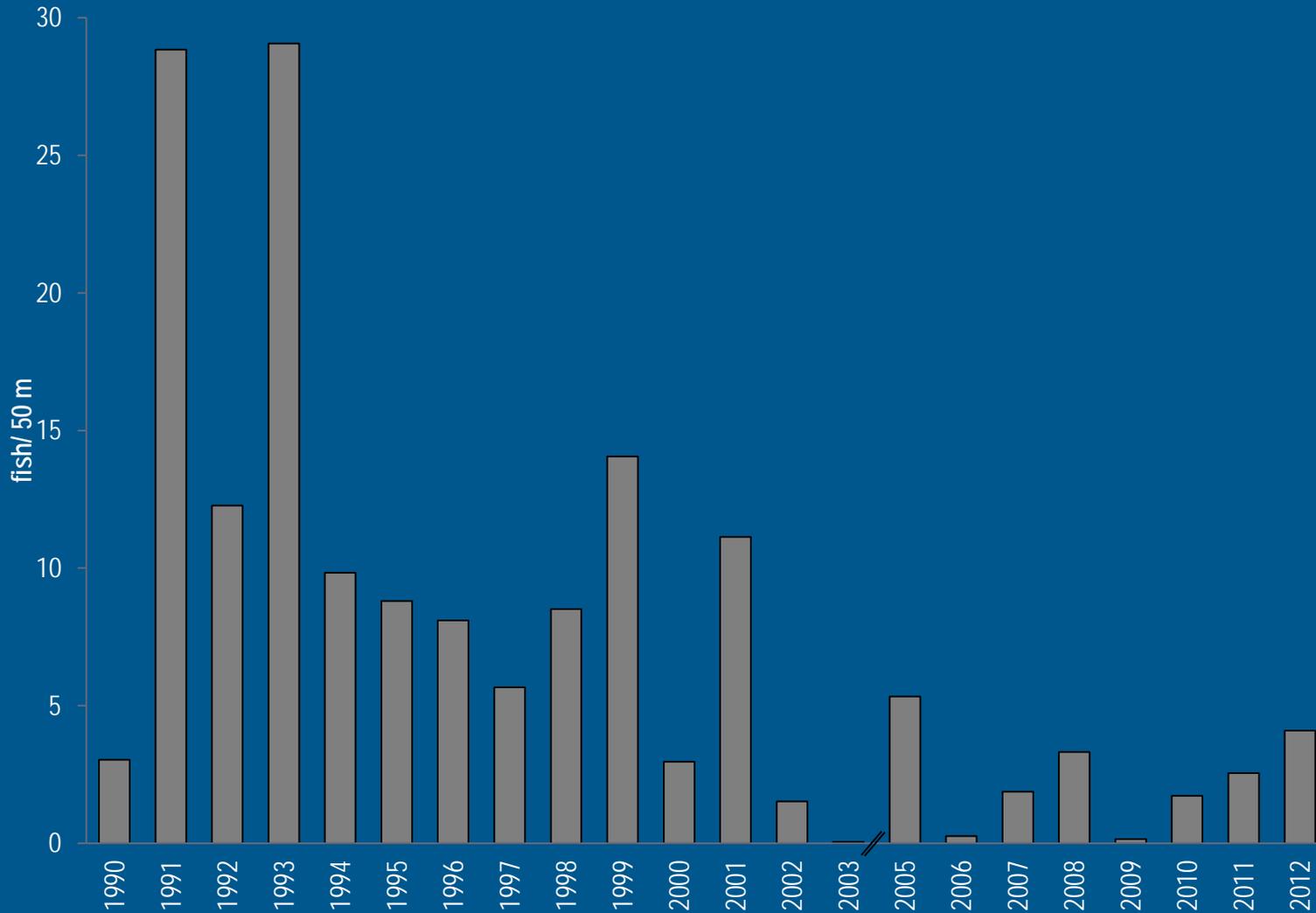




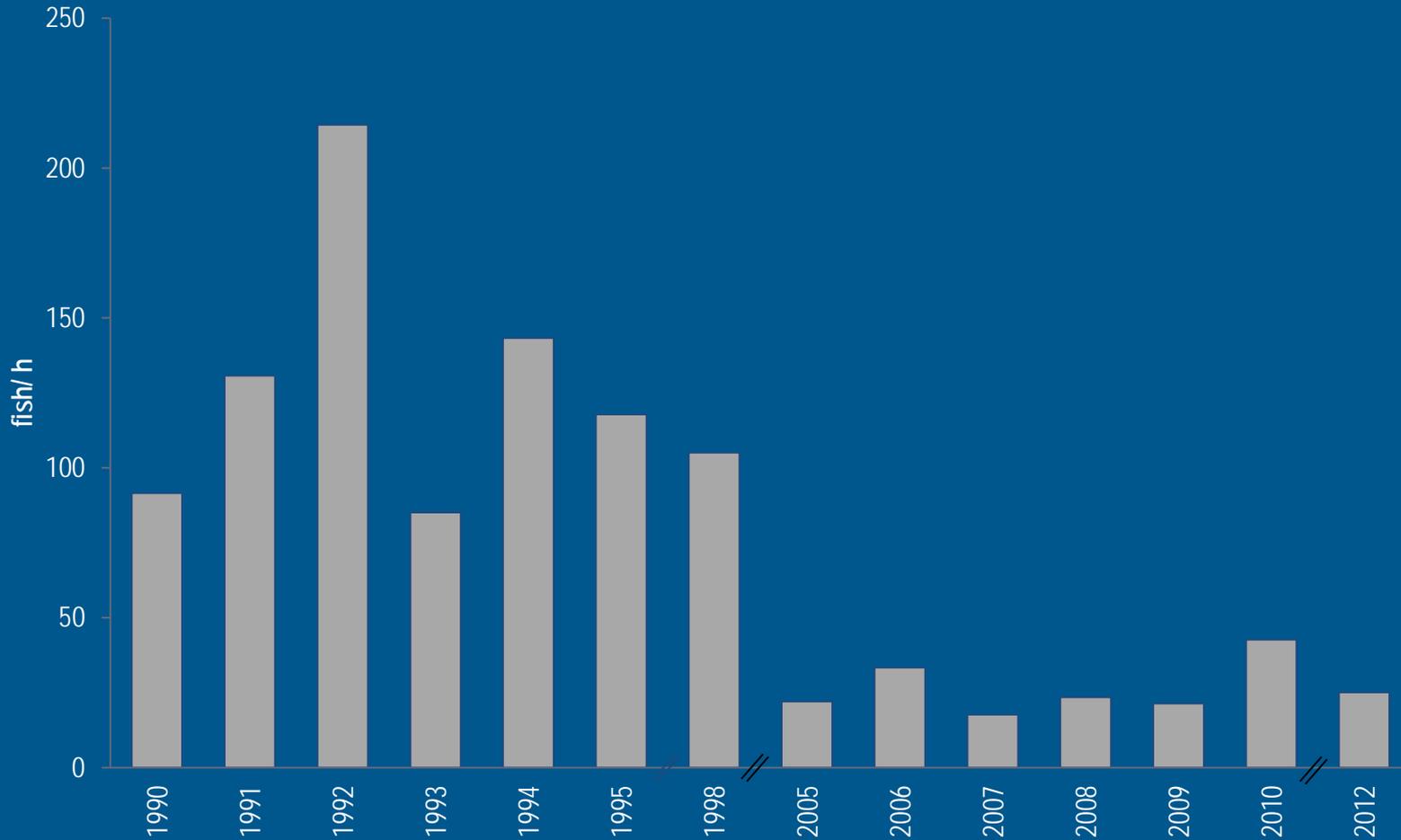
**YOY smallmouth bass  
Historic Disease Prevalence**



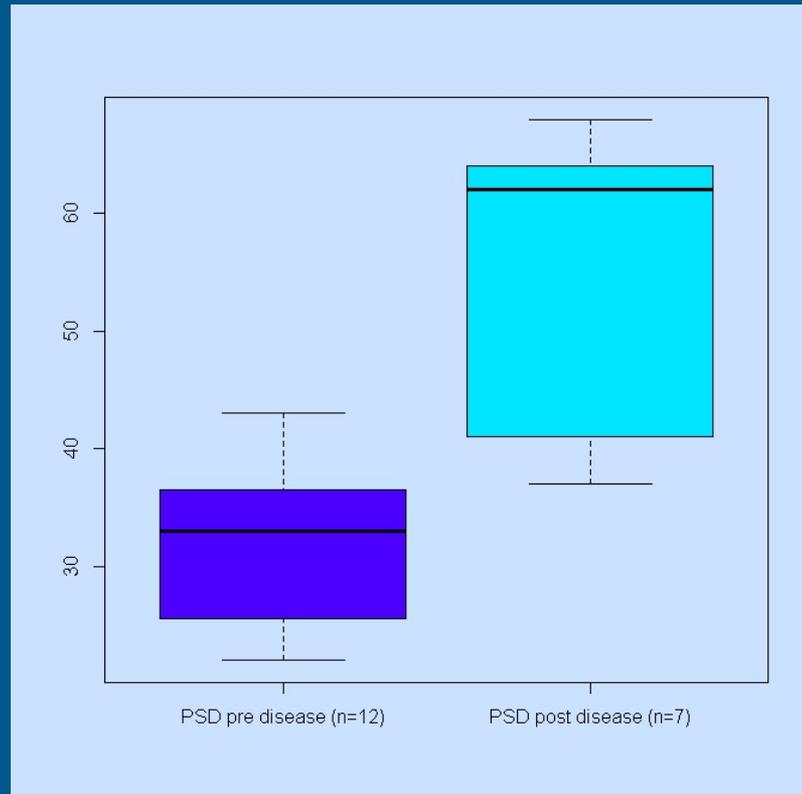
# Catch rate (fish/ 50 m) of young-of-year smallmouth bass *Micropterus dolomieu* at the middle Susquehanna River: 1990 - 2012



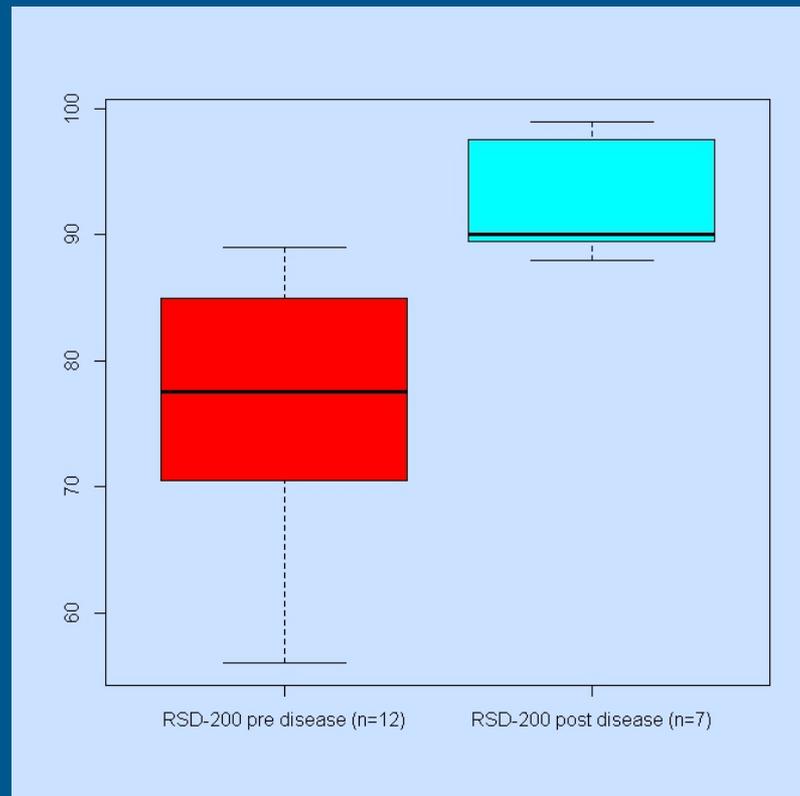
# Catch rate (fish/ h) of adult smallmouth bass *Micropterus dolomieu* at the middle Susquehanna River: 1990 - 2012



# Proportional stock density (PSD) of smallmouth bass *Micropterus dolomieu* at the middle Susquehanna River before (pre) and following (post) onset of disease-related mortality



Relative stock density of 200 mm and greater TL (RSD-200) of smallmouth bass *Micropterus dolomieu* at the middle Susquehanna River before (pre) and following (post) onset of disease-related mortality



# Overview

- Affected survival and recruitment of juvenile fish to the population
- Resulted in decrease in overall density of adult fish
- Created an atypical age (size) structure



Photo: J. Hepp



# Reason for urgency

- Takes 5 - 6 years to reach 15” (legal-length)
- Each poor year class translates to poor fishery 5 or 6 years later.



# Big business

- Fishing and Boating are big business in Pennsylvania
  - \$3.4 billion to PA economy, annually
  - 18,000 jobs
  - \$120 million in state and local tax revenue, annually



Photo: M. Hendricks



# Big business

- Major recreational resource
  - Nationally, black bass most popular game fish species (USFWS 2006)
  - Black bass second to trout in terms of total anglers and days spent angling in Pennsylvania (both residents and non-residents; USFWS 2006)
- Susquehanna River smallmouth bass (2007)
  - Nearly 69,000 trips (April – October)
  - 286,144 hours



Photo: A. Shiels



# Public outcry

- Several public meeting over the last several years
  - Approximately 1,000 attendees
  - Hundreds of comment letters



Photo: PFBC Archives



# Public outcry

- Press coverage
  - Newspaper articles
    - Numerous local articles (Harrisburg, Sunbury, Lancaster)
    - Baltimore Sun
    - Wall Street Journal
    - San Francisco Chronicle
  - Magazine articles
    - Outdoor News
    - Flyfishing magazine
    - Outdoor America
  - Television programs
  - Countless blogs and web forums



# Political activity

- Several contacts from legislators regarding constituents
- Presentations to House and Senate Fish and Game Committees
- Emergency Action to change regulations to immediate catch-and-release
- Formal regulation changes
- Request for PADEP impairment



# Questions

