

# Trophic Dynamics of Blue Catfish (*Ictalurus furcatus*) in Maryland



Robert Aguilar

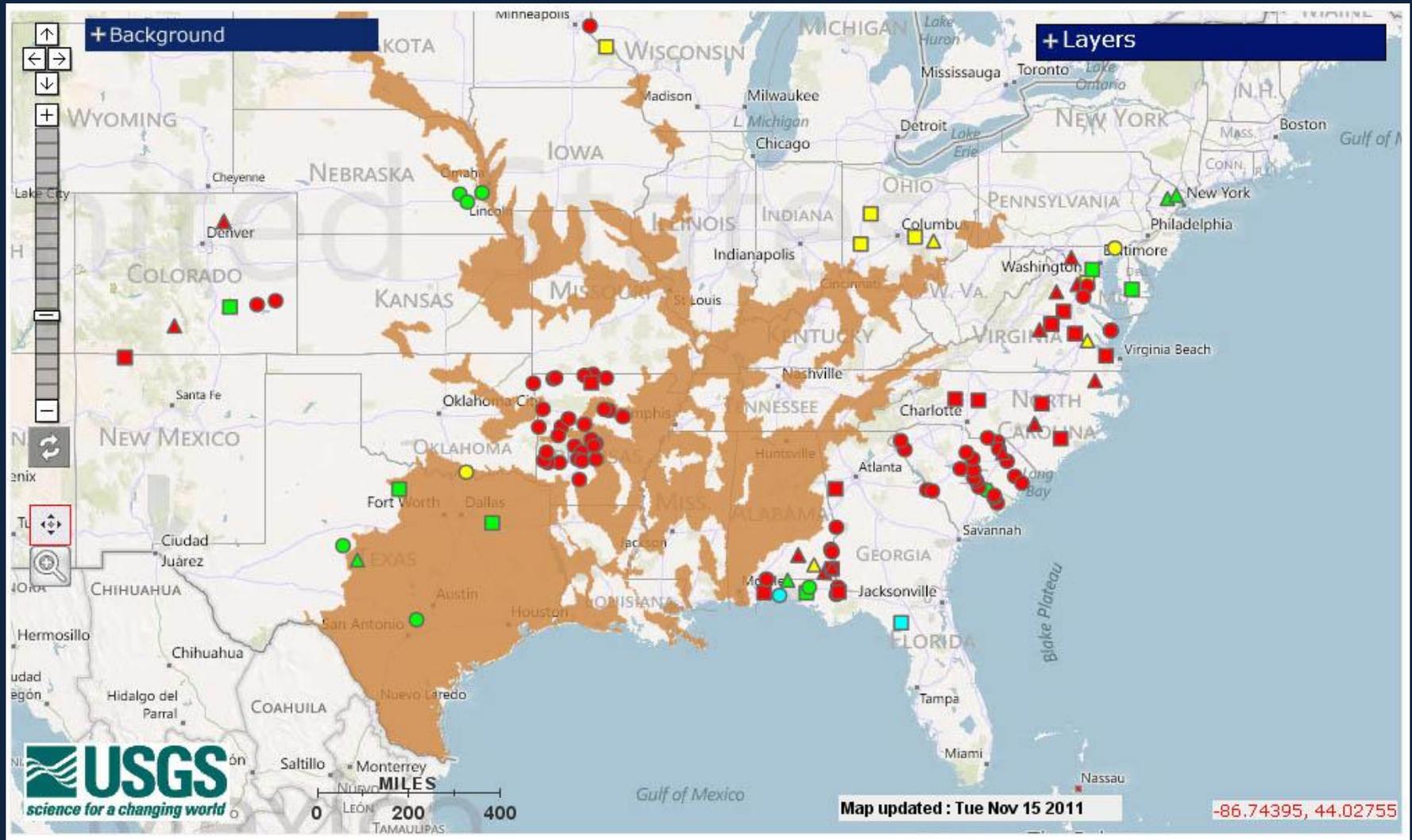
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# Blue Catfish: "Invasive" Species



Native range

Non-native records

# Range in Chesapeake Bay

**Introduced into VA in 1970s**

**Appeared in MD in late 90s**

Major VA tributaries

Potomac River

Patuxent

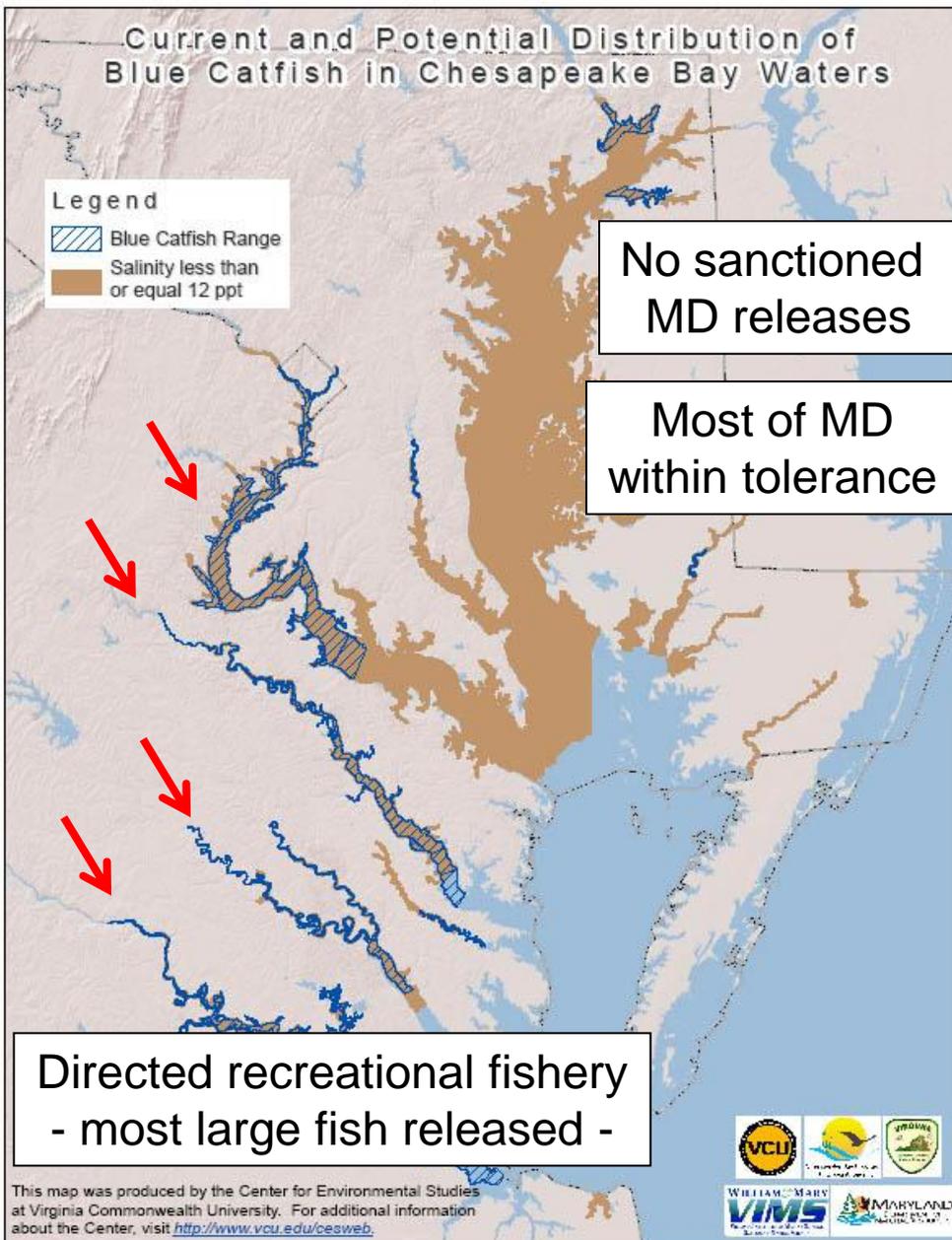
Nanticoke / Marshyhope

Sassafras

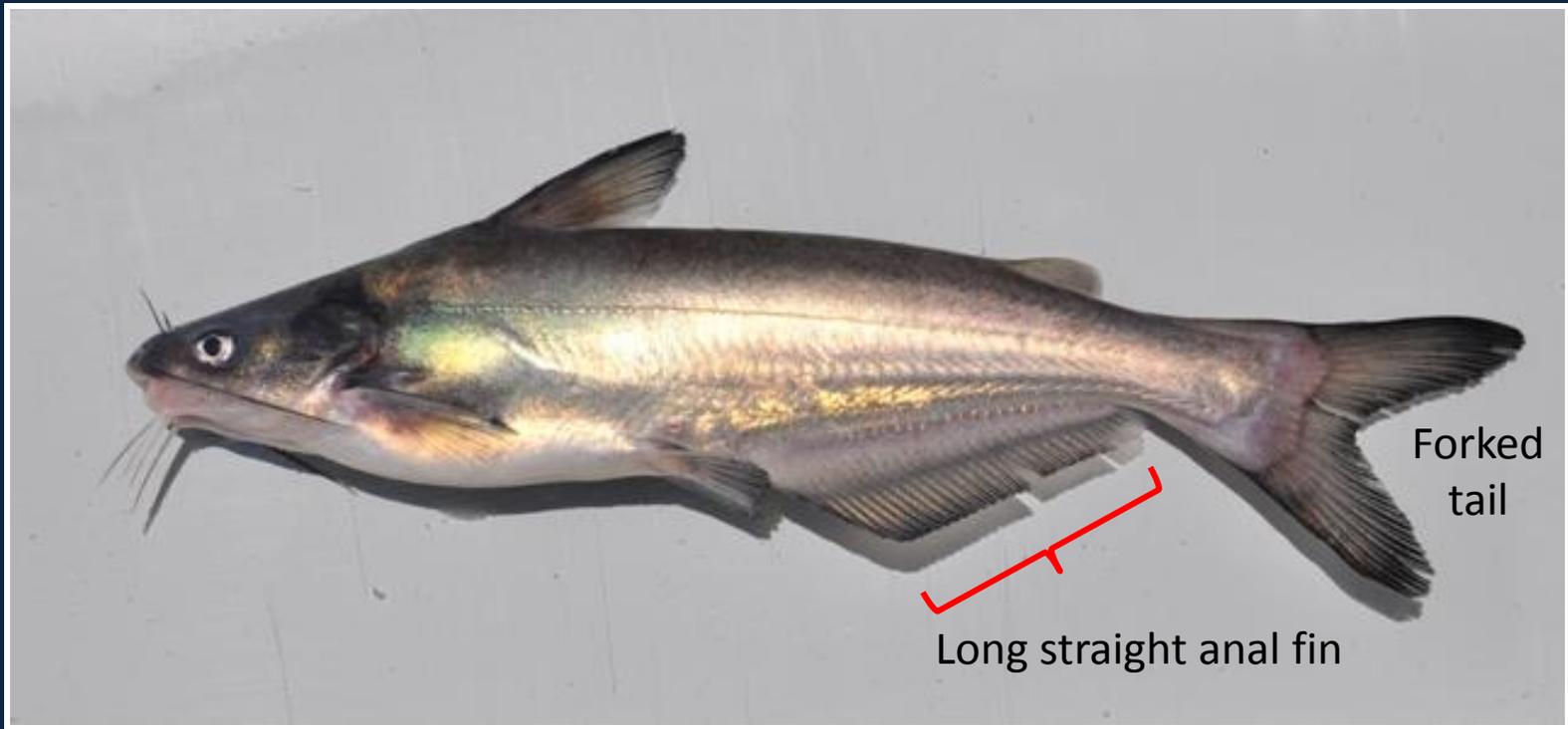
Susquehanna Flats

Pocomoke

Middle



# Blue Catfish *Ictalurus furcatus* (Ictaluridae)



**Max size:** 1.7m (5.5ft)

**Max weight:** >100lbs

**Lifespan:** >20y

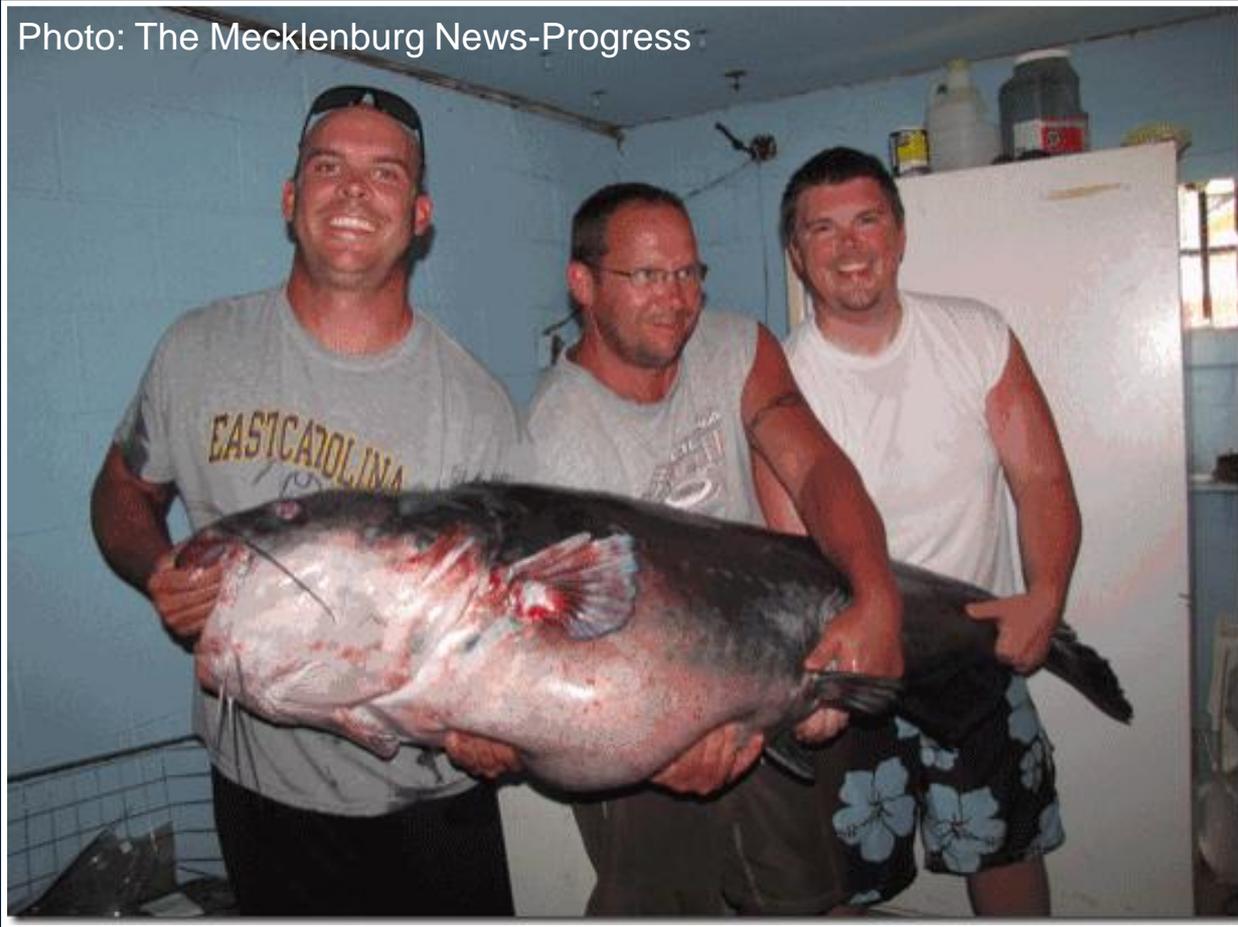
**Salinity tolerance:** ~12-14psu

**Reproductive potential:** High

**Diet:** Varied, with ontogenetic shift to increased piscivory

# Blue Catfish World Record

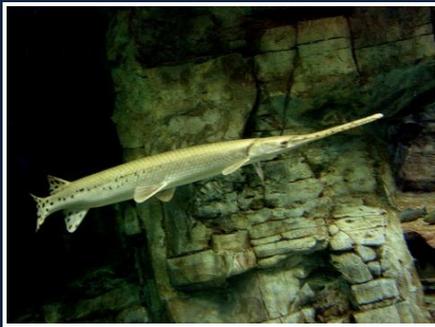
Photo: The Mecklenburg News-Progress



143lbs - Kerr Lake, VA - 18 June 2011

# Historic Chesapeake Bay Fish Fauna

longnose gar



striped bass



bowfin



Few native large predators in upper Bay reaches  
[Avian apex predators]

river herrings



shad

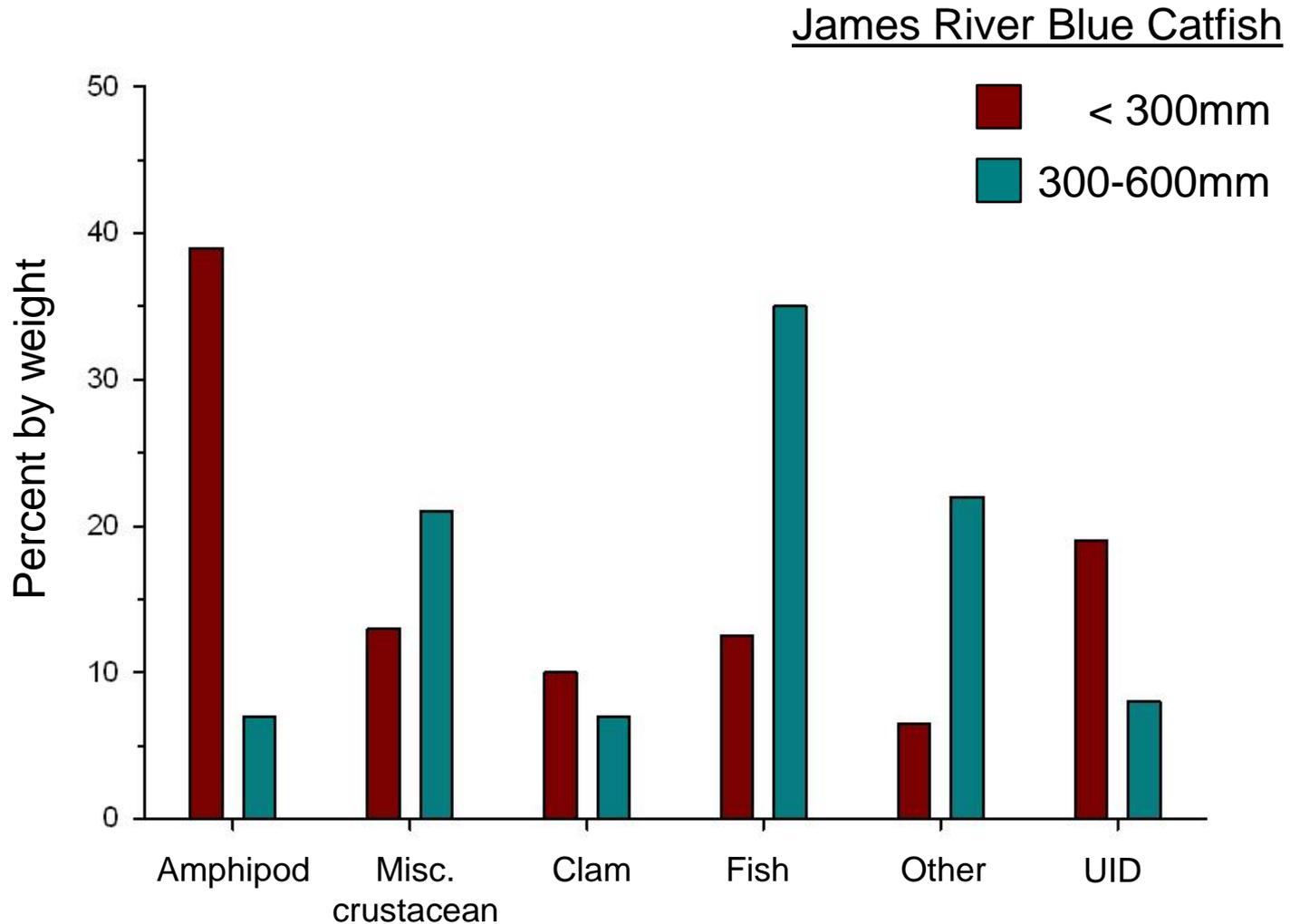


sturgeon



Migratory (anadromous) species were abundant  
[Marked population declines → conservation]

# Fish Important in Blue Catfish Diet



# Important Fish Prey

Commercial



menhaden

Recreational



white perch

Conservation



alosesines\*

Underutilized



gizzard shad



blue catfish

# Chesapeake Bay Catfish

## Native



White Catfish



Brown Bullhead



Yellow Bullhead

## Non-native



Channel Catfish

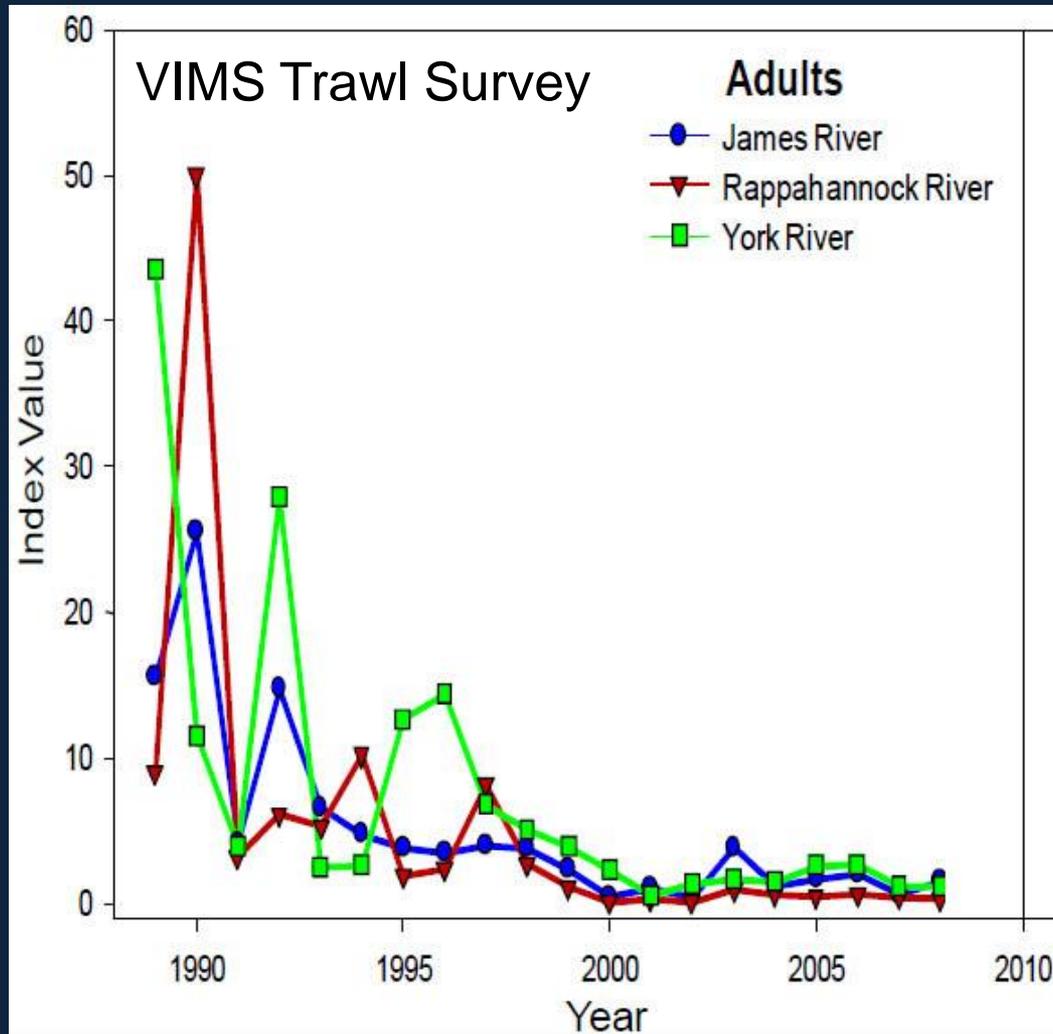


Blue Catfish



Flathead Catfish

# Decline of White Catfish



# Blue Catfish Concerns

- ❖ **Recovery efforts of anadromous fishes**
  - American shad
  - alewife
  - blueback herring
- ❖ **Impact native fish populations**
  - competition: white catfish, sportfishes, etc.
  - predation: sunfish, white perch, menhaden, alosines, etc.
- ❖ **Impact commercial & recreational fisheries**
  - positive and negative
- ❖ **Contaminant transfer**
  - bald eagles, ospreys and larger blue catfish

# Blue Catfish Research Needs

Scoping Paper – Fisheries Ecosystem Workgroup (FEW)  
Fabrizio et al., 2010



1. Spatial Distribution



2. Relative Abundance



3. Feeding Habits



4. Age and Growth \*

5. Bioaccumulation of Contaminants \*

6. Management Options

# Project Objectives

## Spatial variation in diet

Patuxent\*  
Nanticoke\*  
Sassafras  
Upper Bay

## Seasonal variation in diet

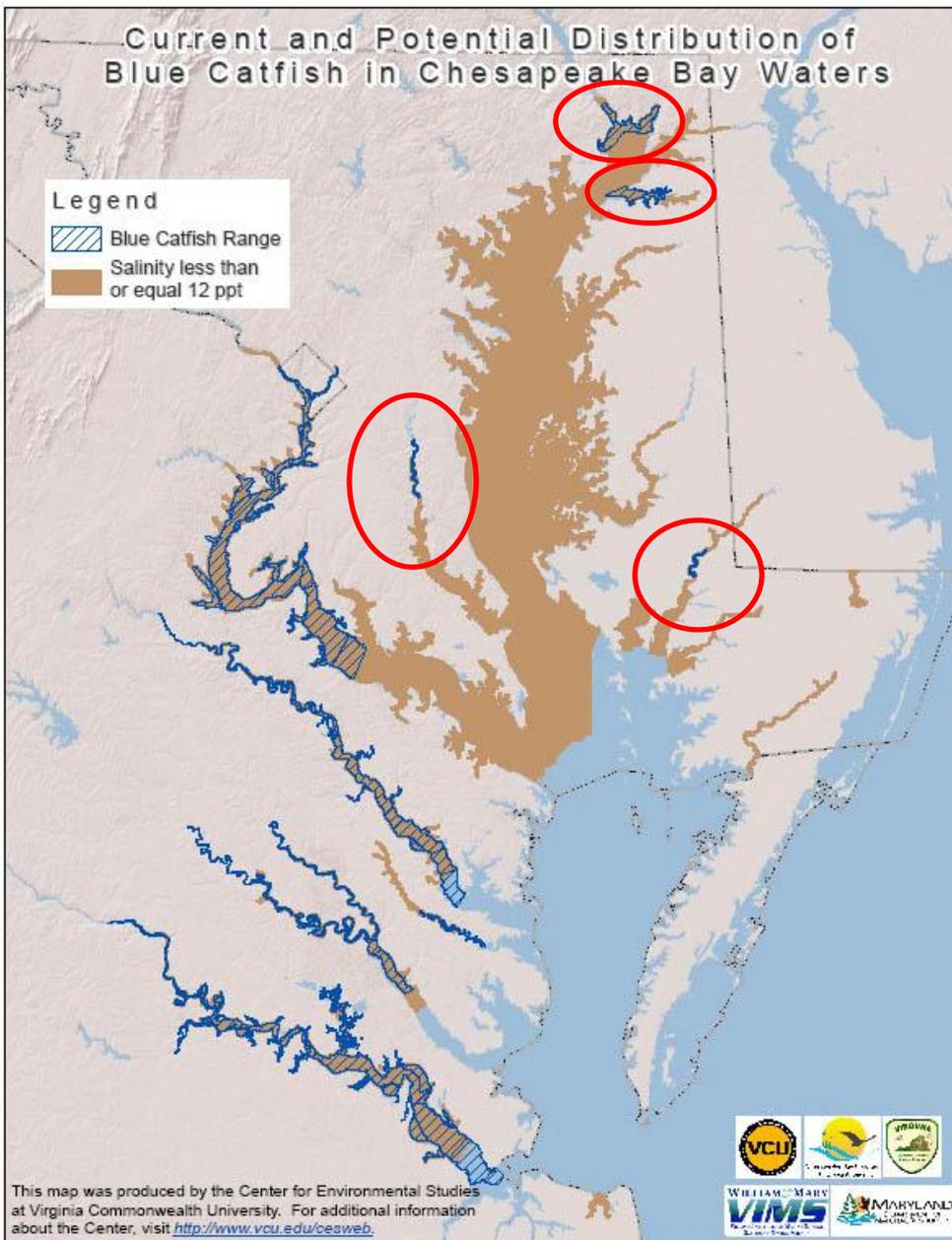
3 seasons

## Ontogenetic shifts in diet

3 sizes

Other catfishes

Genetic gut content analyses



# Research Outcomes

1. Augment existing research - VIMS, MD DNR, VDGIF
2. NOAA SCSOR Project
3. Address FEW Research Needs
4. Aid Management - MD DNR / Fisheries GIT
4. Ecosystem Modeling / EBM Reference Points
5. Niche Overlap Among Catfishes