

# Diet Analysis of Potomac River Blue Catfish



**Mary Groves<sup>1</sup>, Tim Groves<sup>1</sup>, Joseph Love<sup>2</sup>,  
Branson Williams<sup>1</sup>, Ross Williams<sup>1</sup>**

**<sup>1</sup>Maryland Department of Natural Resources, Inland  
Fisheries  
Cedarville Fish Hatchery, RR 4, Box 106E,  
Brandywine, MD 20613**

**<sup>2</sup>Maryland Department of Natural Resources, Inland  
Fisheries  
Tawes State Office Building, B2, 580 Taylor Ave,  
Annapolis, MD 21401**

**Sustainable Fisheries Goal  
Implementation Team Meeting**

**June 11-12<sup>th</sup>**

**Annapolis, Maryland**



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- *PIs:*  
Mary Groves, Tim Groves, Joseph Love, Branson Williams, Ross Williams
- *Partners:*  
Smithsonian Environmental Research Center



# Diet Analysis of Potomac River Blue Catfish



- *Rationale:* The diet of Blue Catfish in the Potomac River is unknown. Determining diet is essential to better understand potential impact of this growing population.
- *Objective:* Identify food resources used by Blue Catfish in the Potomac River.



# Diet Analysis of Potomac River Blue Catfish



- *Approach:* Since 2008, Blue Catfish from Maryland's portion of the tidal Potomac River have been collected. In addition to basic biological data, gut contents were sorted and identified to the lowest possible taxon.



# Diet Analysis of Potomac River Blue Catfish



- *Preliminary results (2008–2011):*
  - *N= 880 fish (3g–30kg)*
  - *39% empty or well-digested matter*
  - *Fish use shallow water habitats (e.g. Tesselated darters, Bluegill sunfish frequently observed in guts)*
  - *Clupeids comprise ~ 10% of diet (7% gizzard shad)*
- *Potential relevance/impacts:* Gain an understanding of species most affected by the presence of Blue Catfish, either through predation or competition.



# Diet Analysis of Potomac River Blue Catfish



The Blue Catfish diet study will continue on the tidal Potomac River. MDDNR has worked with the Smithsonian Environmental Research Center to collect unidentifiable gut contents for DNA bar coding. The results of this process will help close the gap on the list of fish that are utilized by Blue Catfish

The continuation of the annual Blue Catfish survey will enable the examination of temporal shifts in growth and density and will allow further comparisons of the Potomac River Blue Catfish population with other river systems.



# Methods



- *Fish\* collected primarily using low-frequency electrofishing, but also hook-and-line*
- *2008 – 2009: gastric lavage and fish returned to water*
- *2010 – present: fish sacrificed and dissected (also take otoliths for aging studies, gravid ovaries, etc.)*

*\*target fish > 610mm TL (primarily piscivorous)*

# 2008 – 2011 Results



- N= 880 fish (size range; 3 g – 30 kg)
- Many fish are not captured actively feeding (39% guts empty or well-digested matter)
- Initial data does not show a high number of clupeids in blue catfish guts.
- Data does show a surprising number of white perch being used as a food source.
- Blue Catfish are generally believed to be a deep water species but examination of stomach contents show that they frequently utilize shallow water species for food. This adds a new perspective to their possible impact on other fish species.