

# Catfish Distribution, Diet, and Movement in Maryland Tributaries of Chesapeake Bay



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Sustainable Fisheries Goal Implementation Team  
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# Rationale and Objectives



***Rationale:*** Understand the distribution, movement, and potential impacts of blue catfish in Maryland

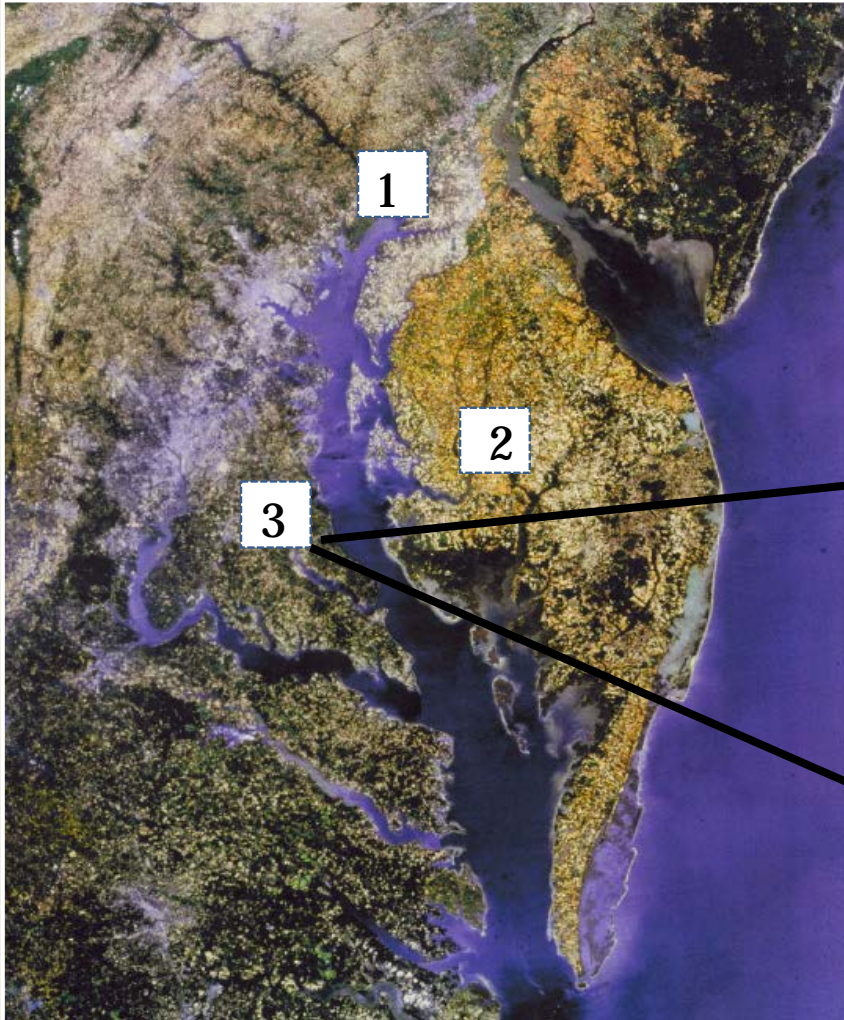
***Objectives:***

1. Determine distribution, abundance, and diet in tidal freshwater areas (funded by NOAA CBO)
2. Evaluate competition with white catfish
3. Study movement of individual catfish (funded by SI)



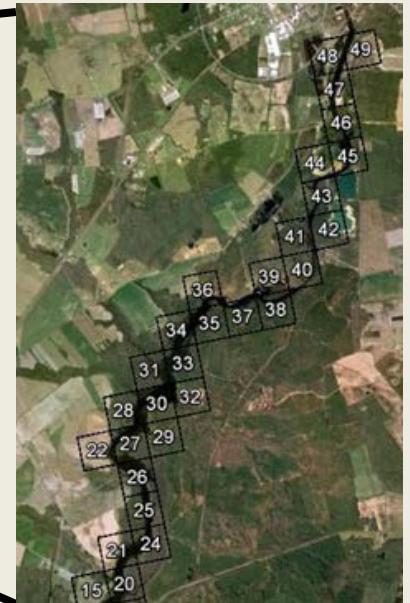
Chesapeake Bay Program  
A Watershed Partnership

# Methods: Low-frequency Electrofishing

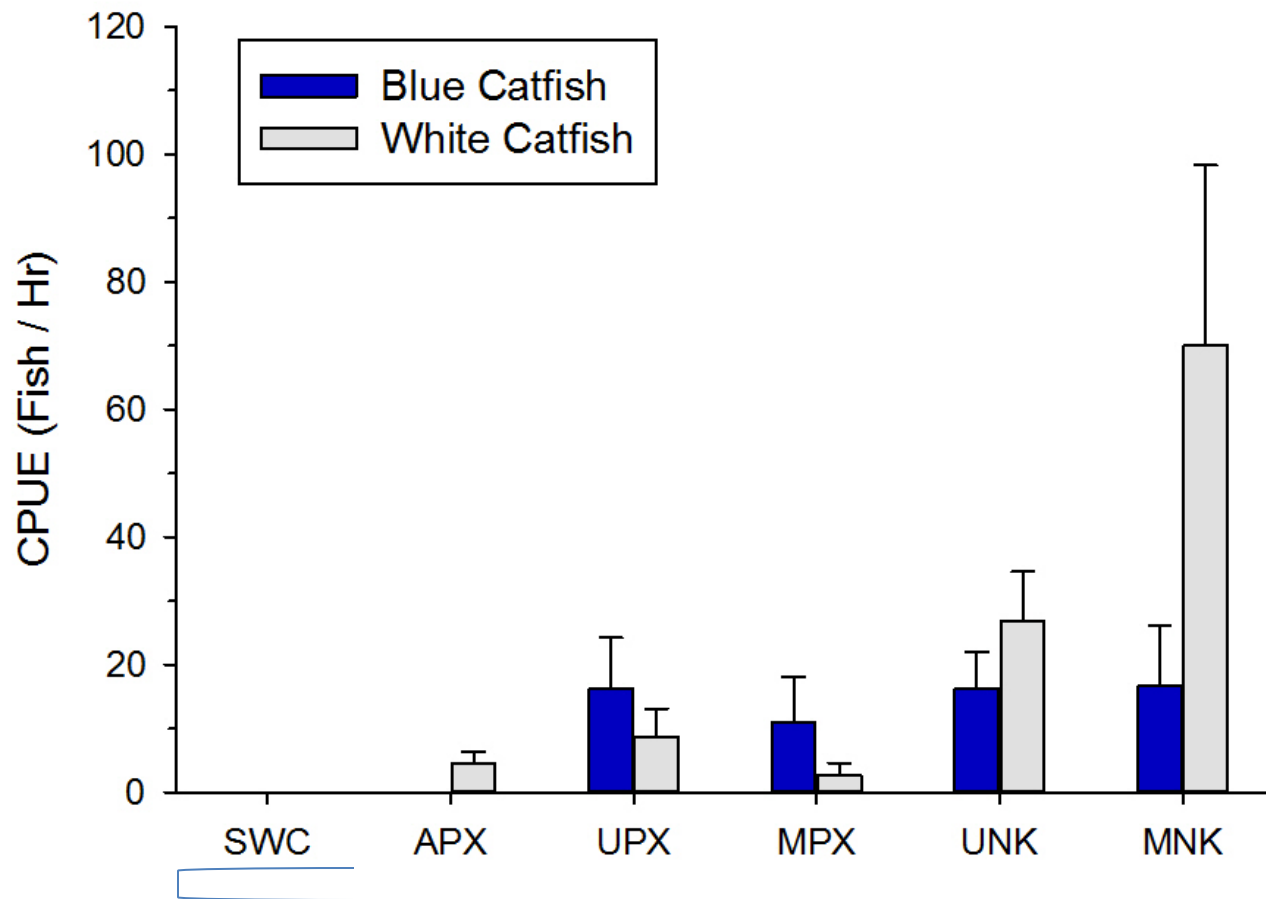


1. Upper Bay - Susquehanna Flats and Swan Creek
2. Nanticoke River / Marshyhope Creek
3. Patuxent River

Each site is broken into quadrats for randomized sampling



# Results: Distribution and Abundance



# Lab Methods: Catfish Processing

All  
Catfish

Measure and  
weigh



Dissect catfish



Stomach contents:

- Identify invertebrates
- DNA barcode fish
- score, weigh contents



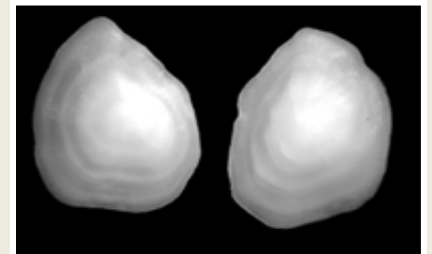
Extract otoliths



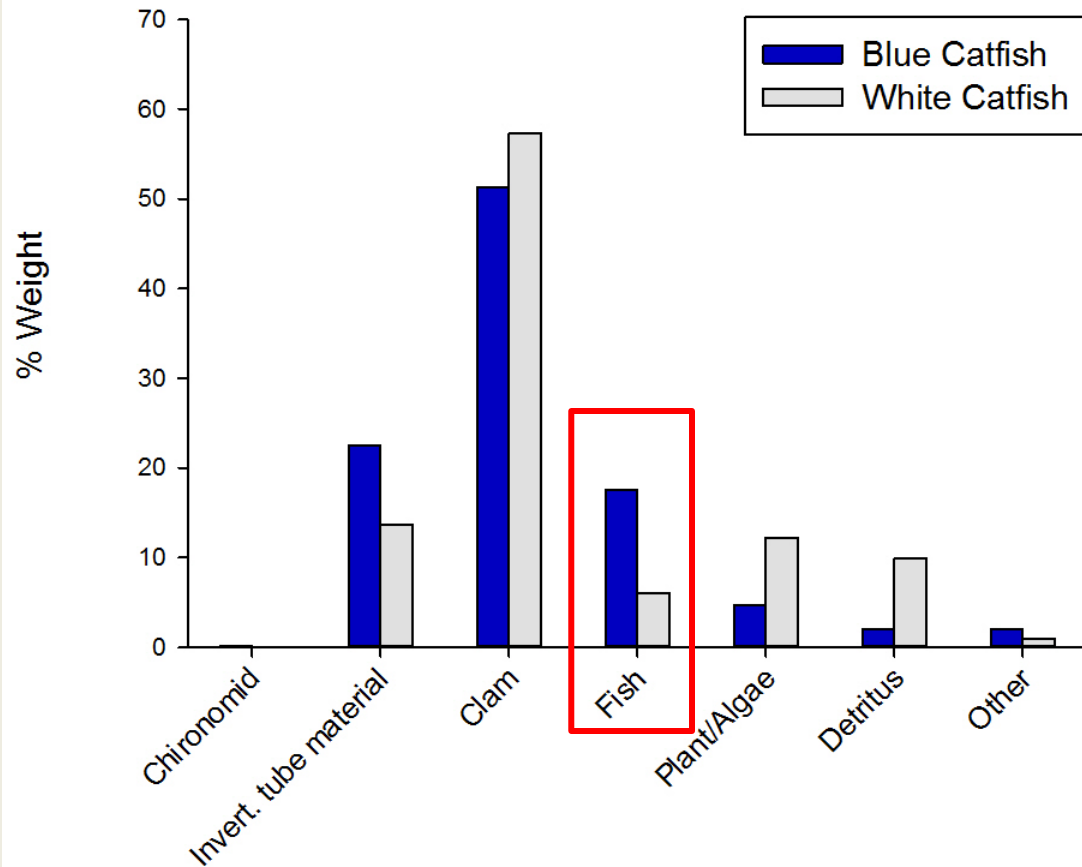
Tissue Samples:

- Stable isotopes

Only  
Blue  
Catfish



# Result: Prey Items by Percent of Total Weight



# DNA Barcoding of Gut Contents

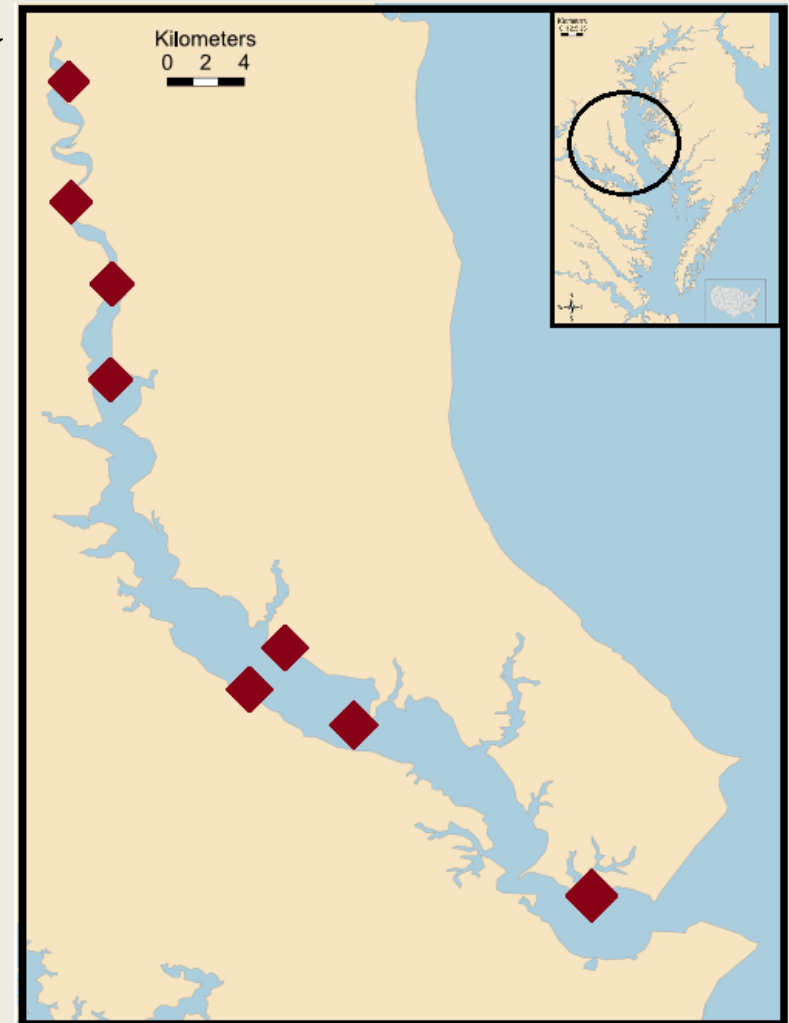
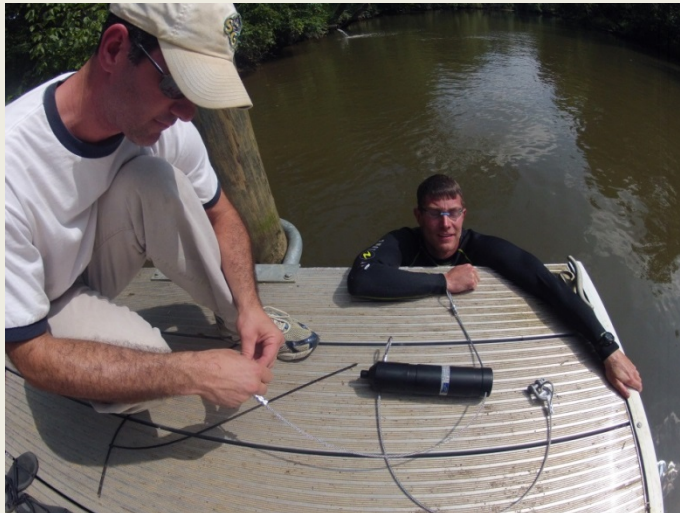


- Successfully extracted and sequenced DNA from unidentified gut contents
- Identified 21 fish species including river herring, menhaden, American eel, white perch and striped bass
- Identified 1 bird species: double-crested cormorant



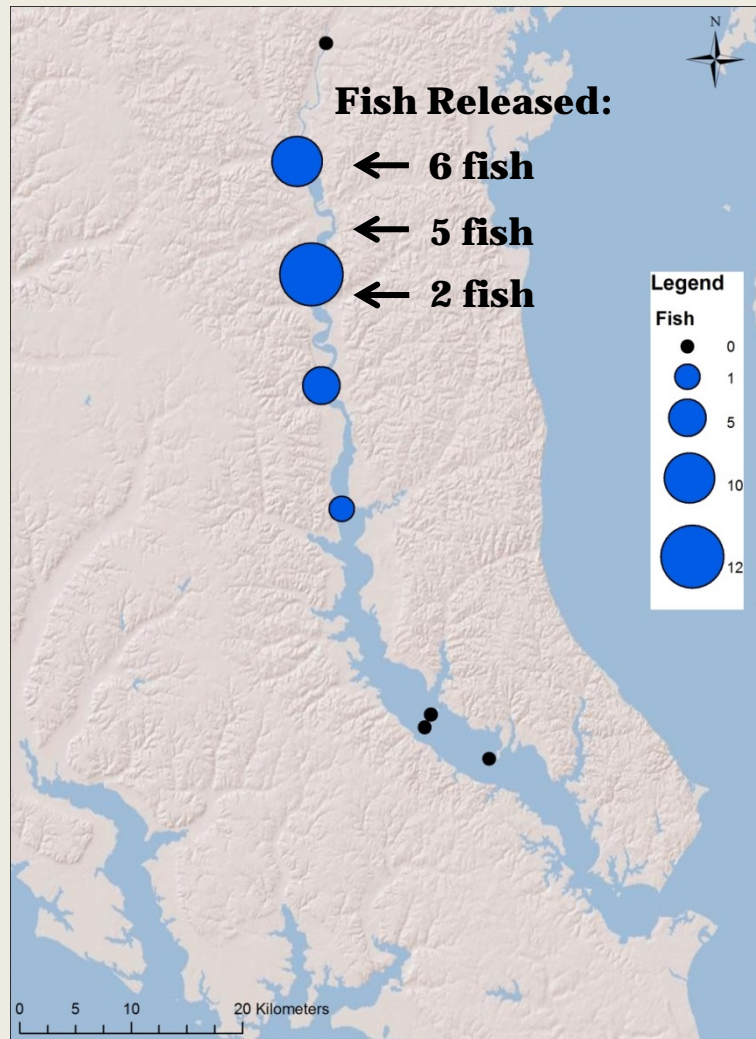
# Movement Study: Acoustic Telemetry

- Deployed an array of acoustic telemetry receivers in the Patuxent River
- Tagged 13 blue catfish
- Downloaded data from August – November 2013



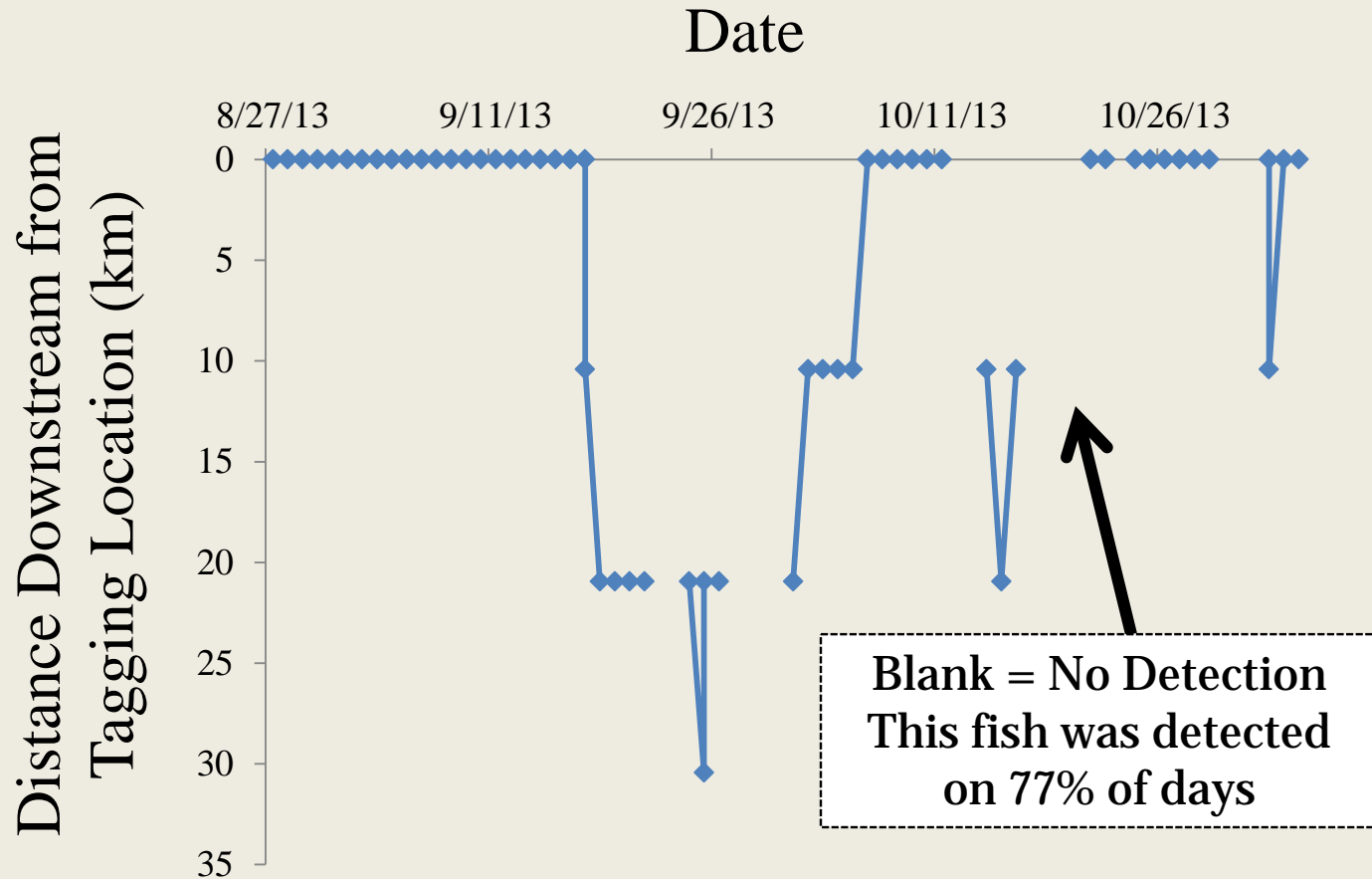


# Results: Number of Individual Fish Detected



- Some blue catfish are moving only short distances (<10 km)
- Others are moving relatively long distances
- Data very preliminary as most fish were tagged <2 months when data were downloaded
- Anticipate tagging 50 fish by end of 2014

# Results: Example of Movement



# Potential relevance/impacts



- Blue catfish are currently smaller and less abundant than in VA and Potomac River - this will likely change over time
- Diet indicates potential impact on forage fish and important commercial and sport fishes
- Individual fish are moving 10's of km in days-weeks  
- removing blue catfish from priority habitats may also require removal from nearby habitats

