

# Overview of diadromous fishes in the Albemarle-Pamlico Estuary

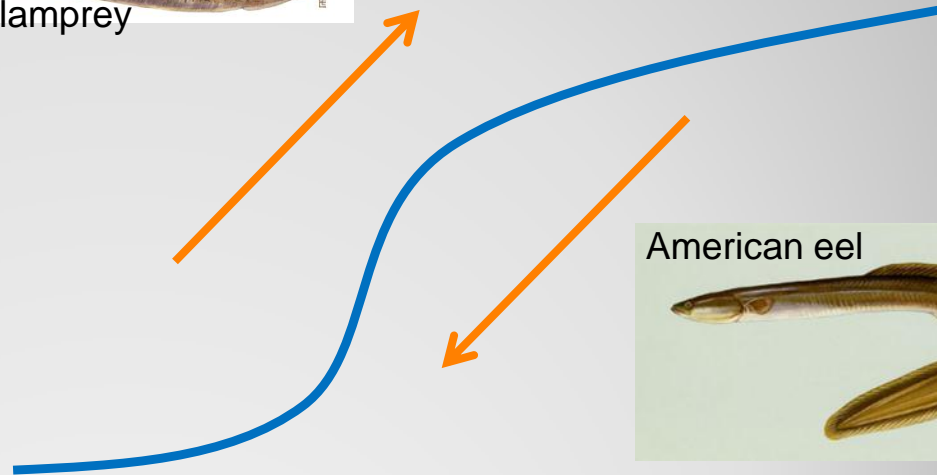
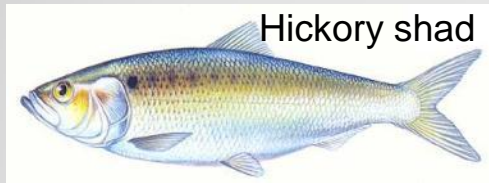
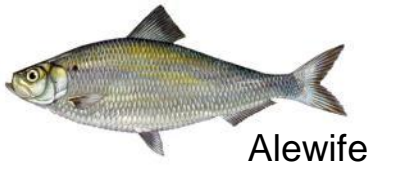
**Joseph E. Hightower**

U.S. Geological Survey  
NC Cooperative Fish and Wildlife Research Unit  
North Carolina State University  
Raleigh, North Carolina

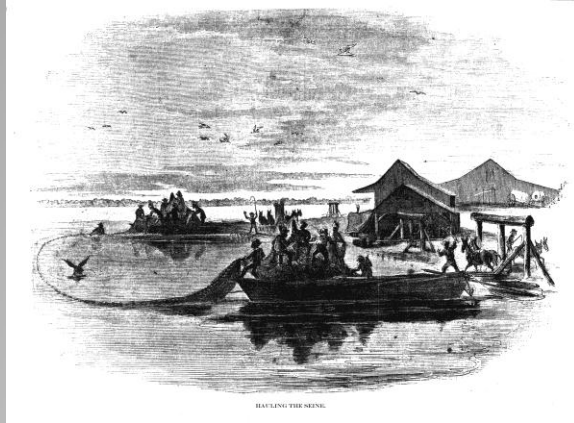
# Outline for talk

- Diadromous species in NC
- Historical records
- Status
- Research
- Restoration plans

# Diadromous species

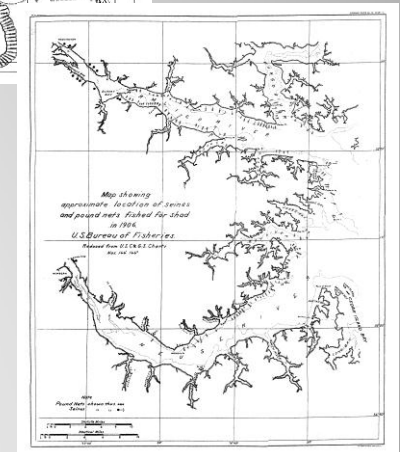
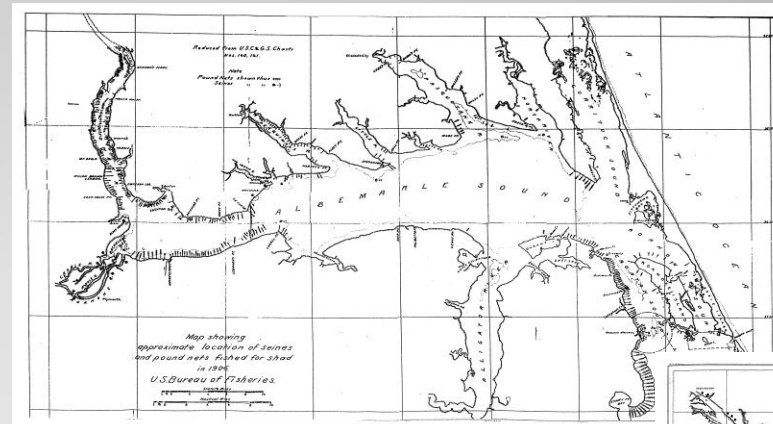


# Substantial fisheries by 1900

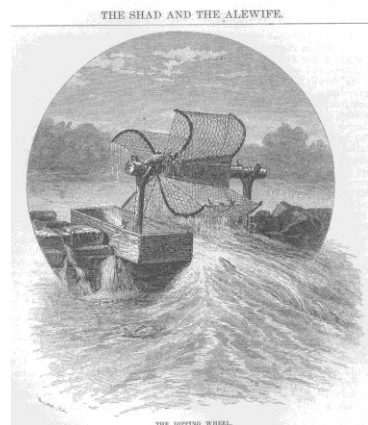
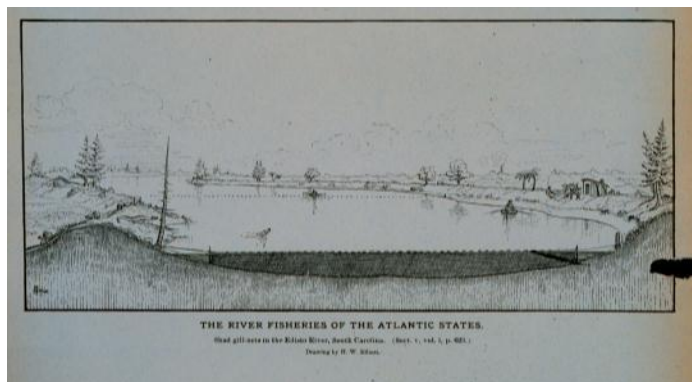
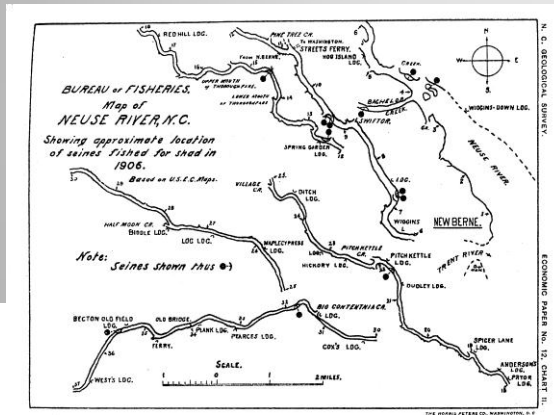


Pound nets, Albemarle Sound

- Introduced in 1870
- 1125 in operation by 1896



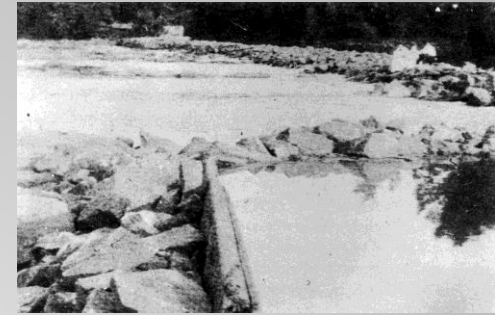
# Also impacted by river fisheries



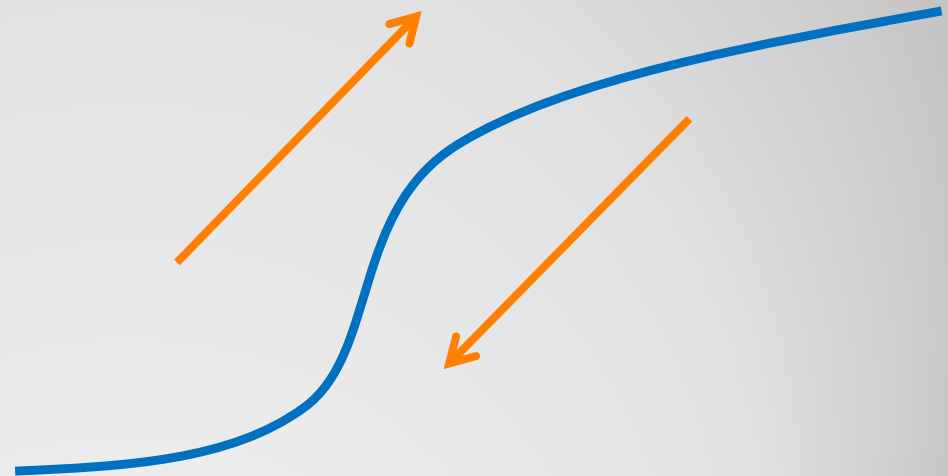
# Changes in available habitat due to dam construction



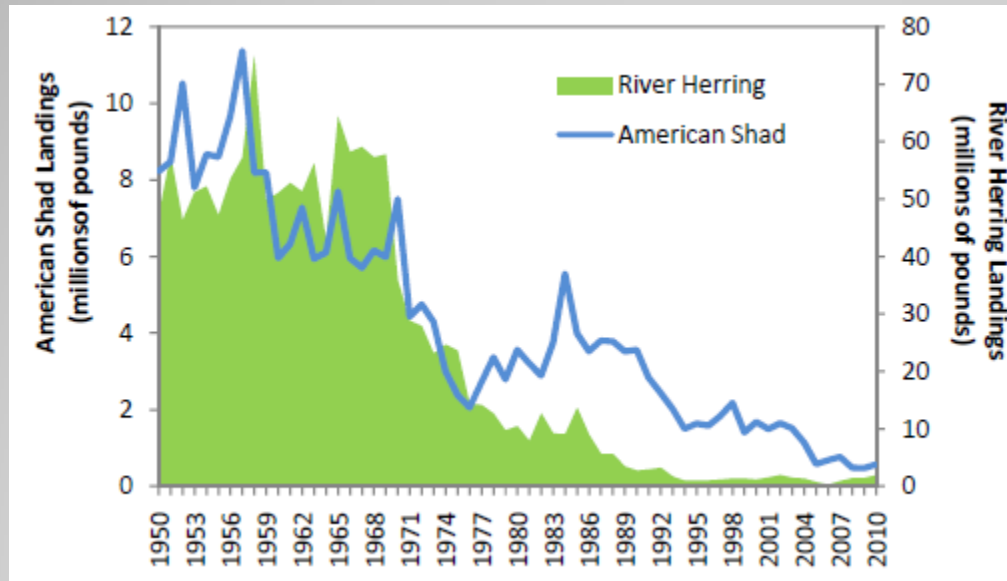
McDonald 1884



# Diadromous species: status



NC fishery closed  
Status (NCDMF): Depleted  
Status (ASMFC): Depleted coastwide  
Status (NMFS): ESA review



East coast landings, ASMFC  
stock status overview

[http://www.asmfc.org/speciesDocuments/shad/fmps/amendment2\\_RiverHerring.pdf](http://www.asmfc.org/speciesDocuments/shad/fmps/amendment2_RiverHerring.pdf)

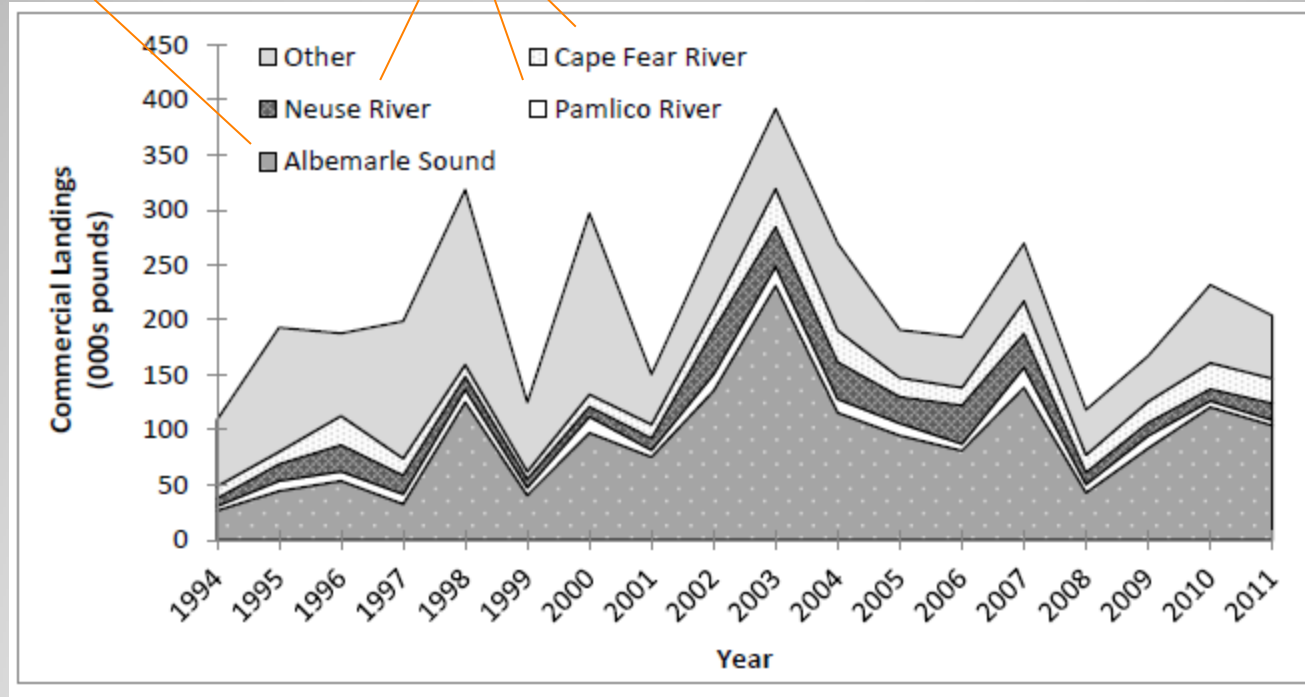
**Current status: river herring**



Status (NCDMF): Species of concern  
Status (ASMFC): Depleted coastwide

Stable and low

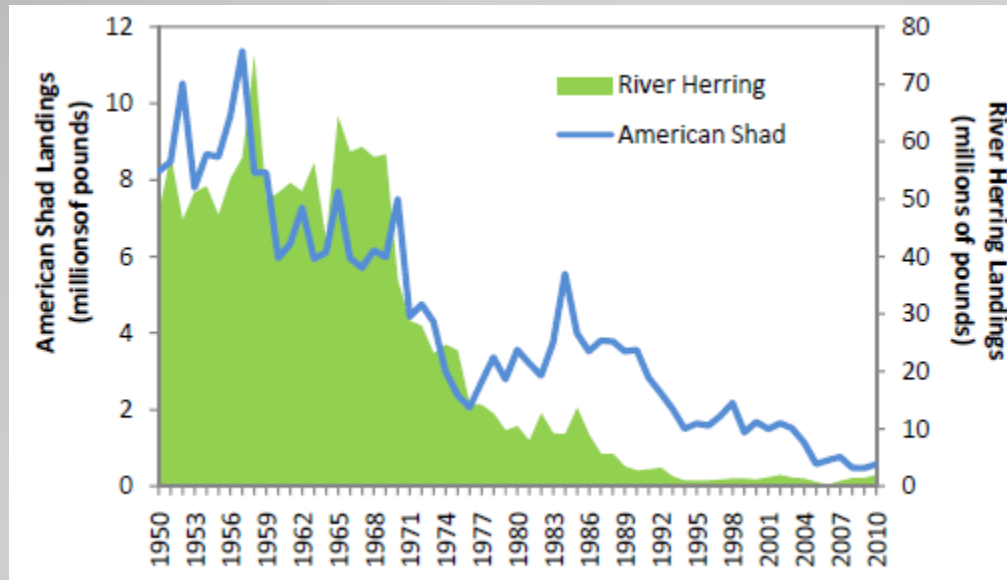
Unknown



North Carolina American shad Sustainability Fishery Plan (2012)

**Current status: American shad**

Status (NCDMF): Species of concern  
Status (ASMFC): Depleted coastwide

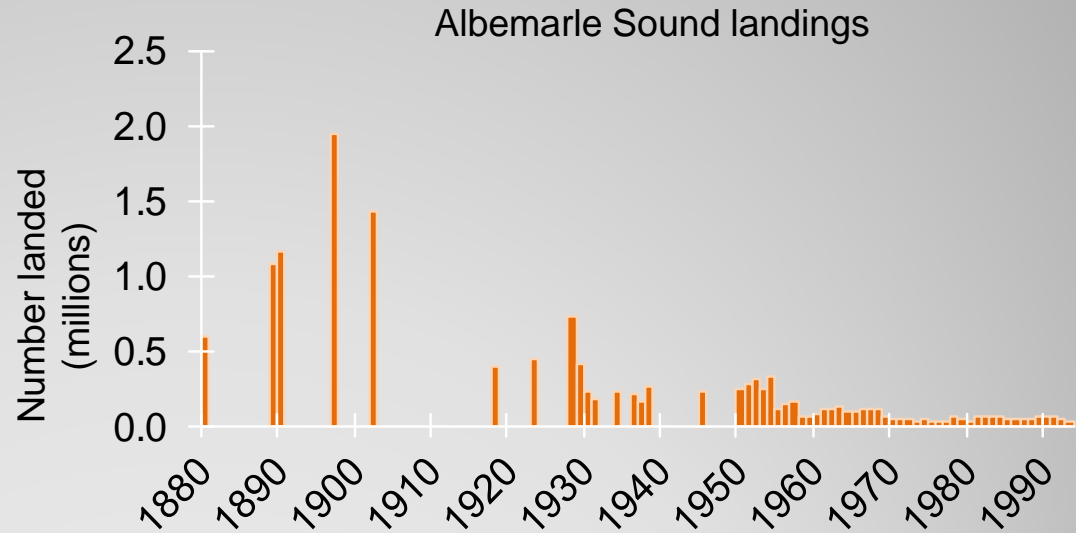
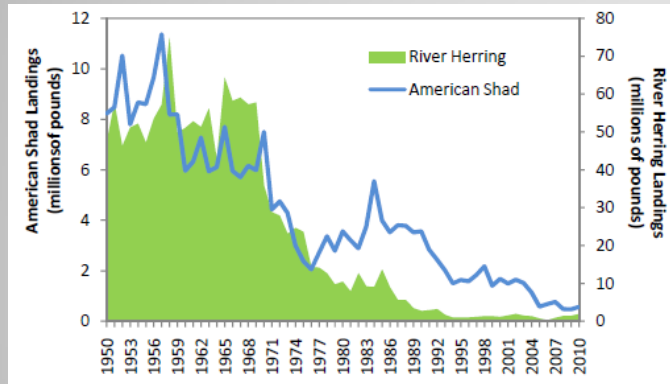
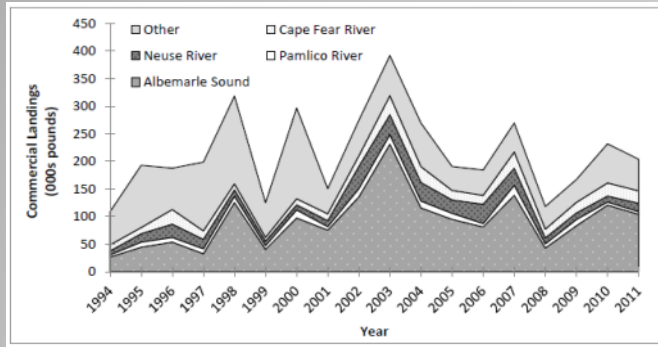


East coast landings, ASMFC  
stock status overview

[http://www.asmfc.org/speciesDocuments/shad/fmps/amendment2\\_RiverHerring.pdf](http://www.asmfc.org/speciesDocuments/shad/fmps/amendment2_RiverHerring.pdf)

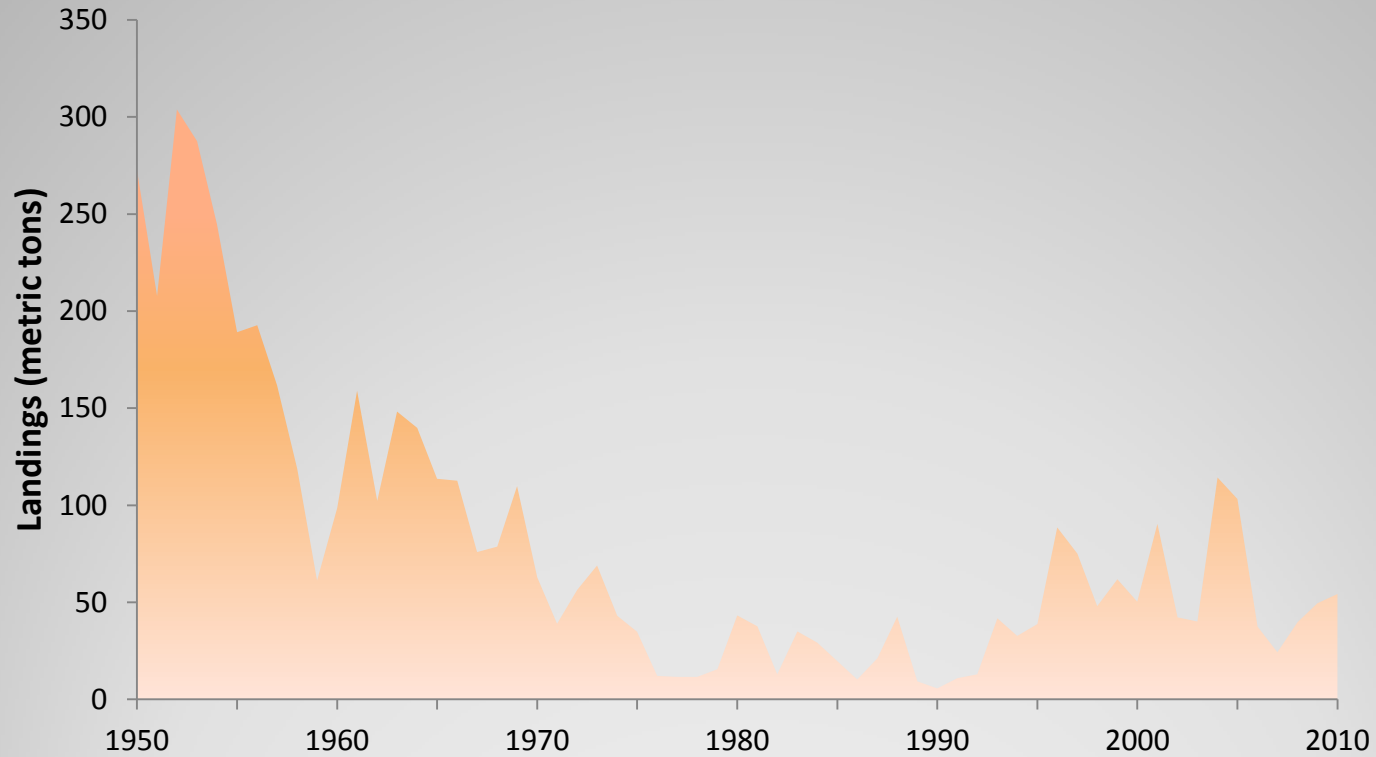
**Current status: American shad**

Status (NCDMF): Species of concern  
Status (ASMFC): Depleted coastwide



**Current status: American shad**

Status (NCDMF): Unknown



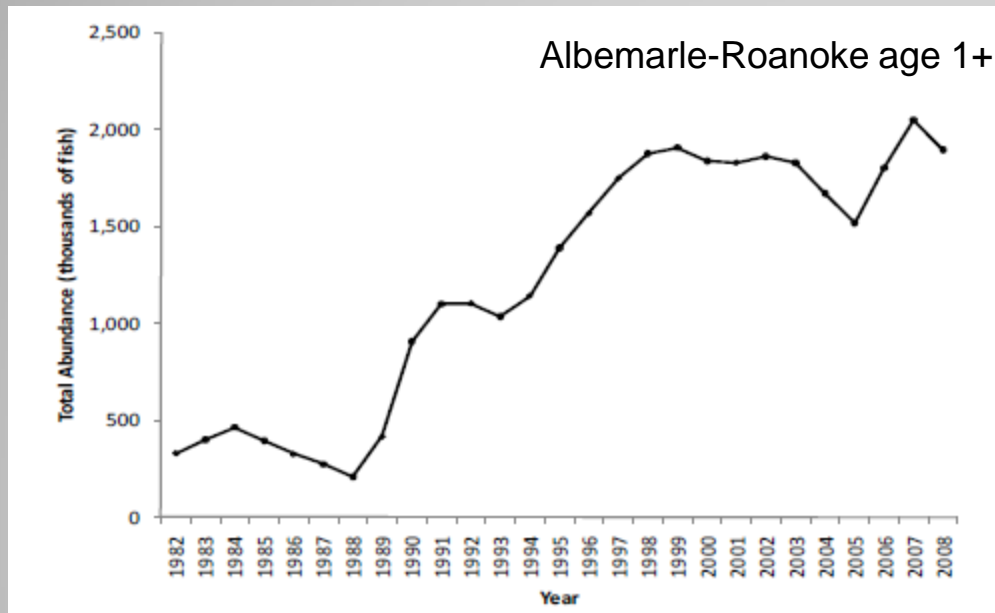
**Current status: Hickory shad**

Status (NCDMF): Unknown



**Current status: Hickory shad**

Status (NCDMF), Albemarle: viable  
Status (NCDMF), Central/southern: concern

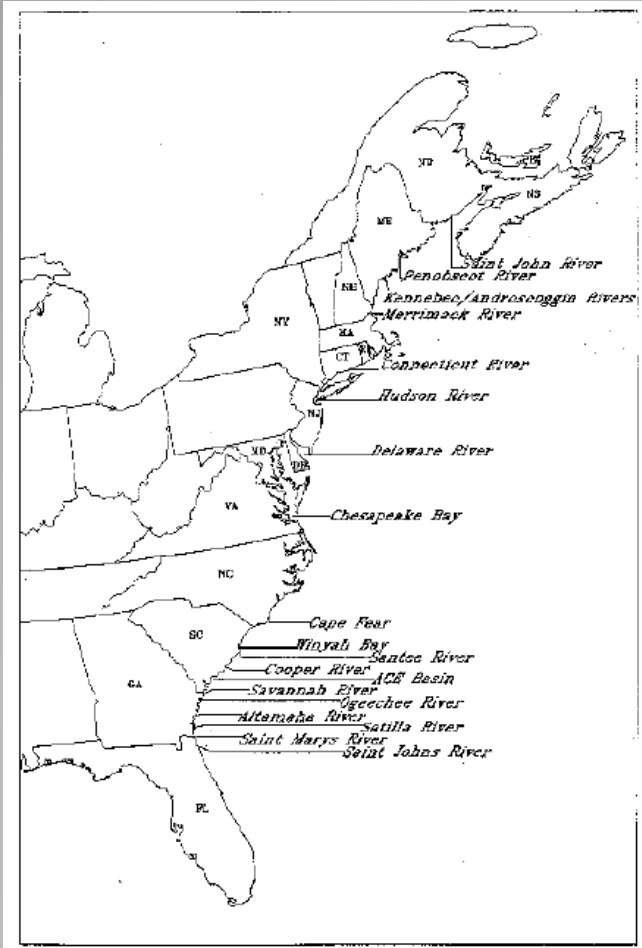


Takade-Heumacher (2010)

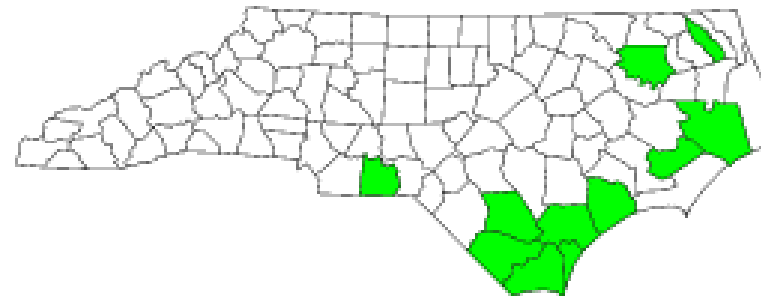


**Current status: Striped bass**

Status (NMFS): endangered



Known\* occurrences within past 20 yrs



(\*map has some errors)

Map Generated Oct. 22 2003

[http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon\\_shortnose.pdf](http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon_shortnose.pdf)

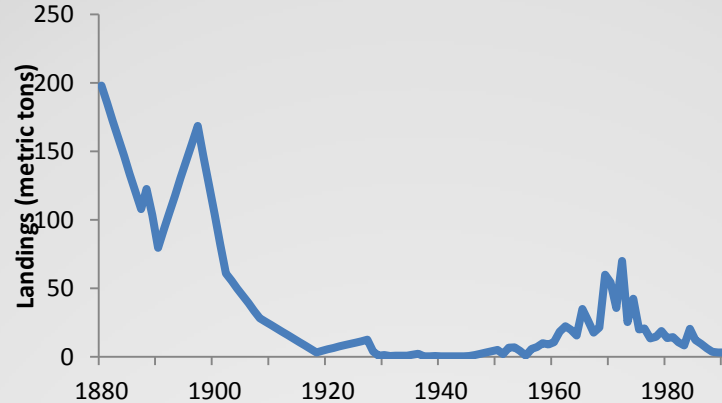
<http://www.fws.gov/nc-es/fish/shortst.html>

**Current status: Shortnose sturgeon**

Status (NOAA): endangered

Carolina distinct population segment classified as endangered (April 2012) due to:

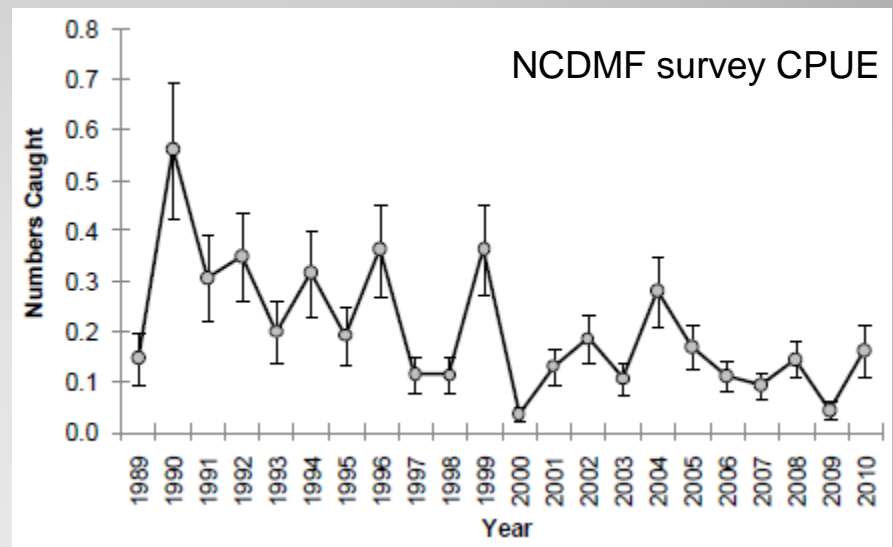
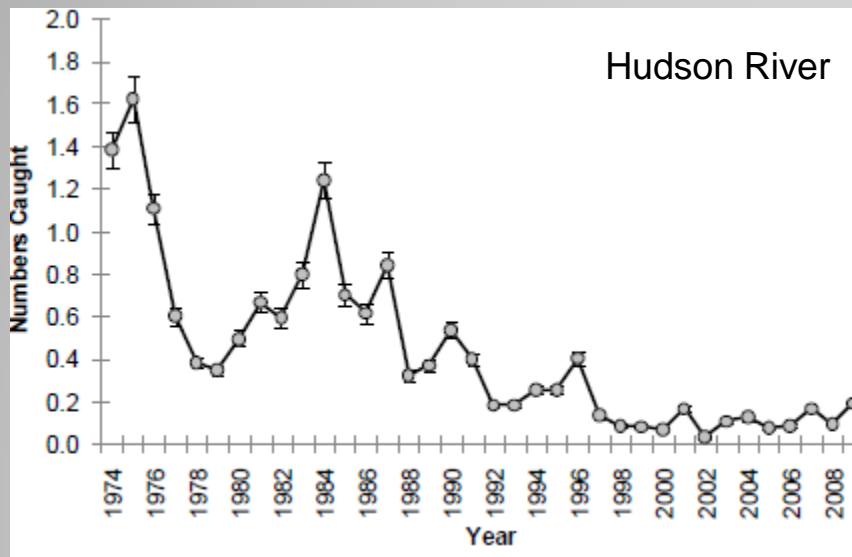
- Precipitous declines (<3% of historic levels)
- Limited spawning habitat
- Ongoing threats (dams, dredging, water quality, bycatch)



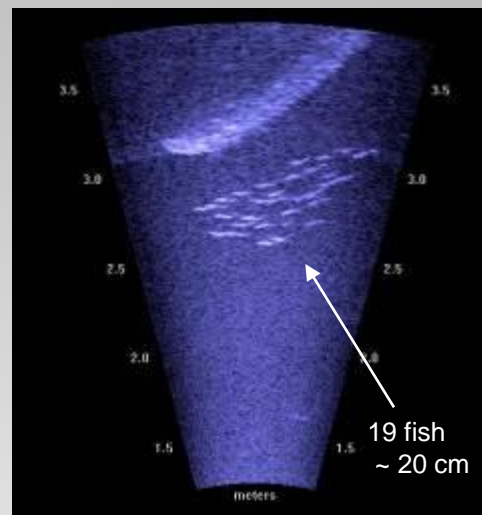
**Current status: Atlantic sturgeon**



Status (NCDMF): Unknown  
Status (ASMFC): Unknown  
Status (USFWS): ESA review



**Current status: American eel**

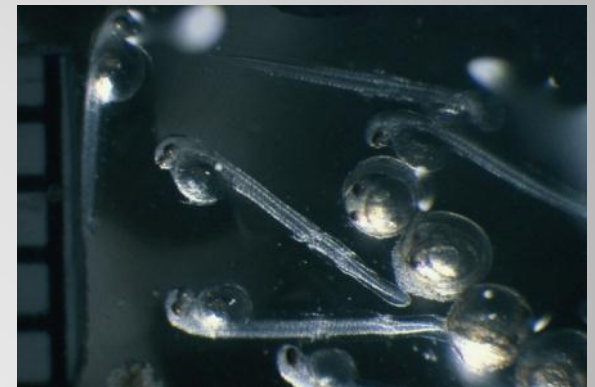
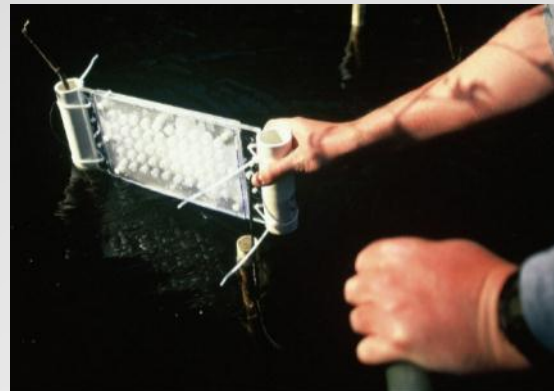
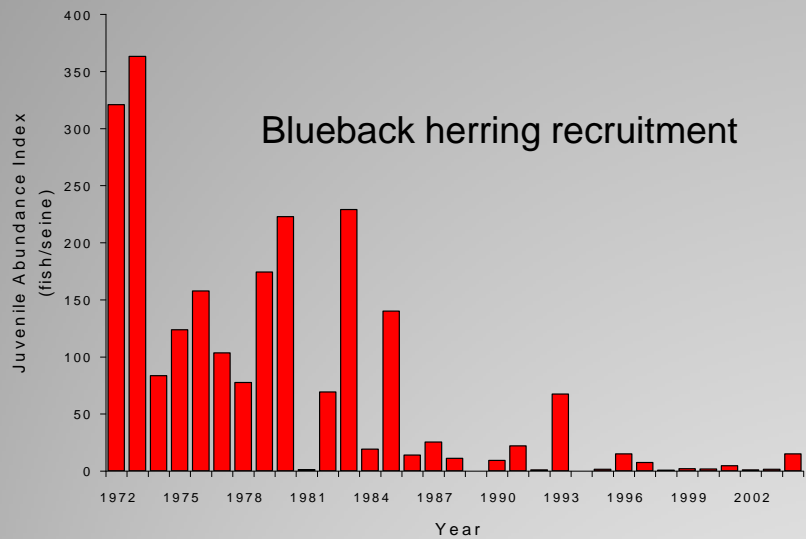


	2010		2011
	Median		Median
<b>Alewife</b>	280,500		267,600
<b>American shad</b>	25,560		28,860
<b>Blueback herring</b>	276,200		449,900
<b>Hickory shad</b>	239,800		131,400
<b>Striped bass</b>	465,700		544,700
<b>White perch</b>	428,900		359,300
<b>Other</b>	1,605,000		1,824,000
<b>Total Run Size</b>	3,323,000		3,607,000

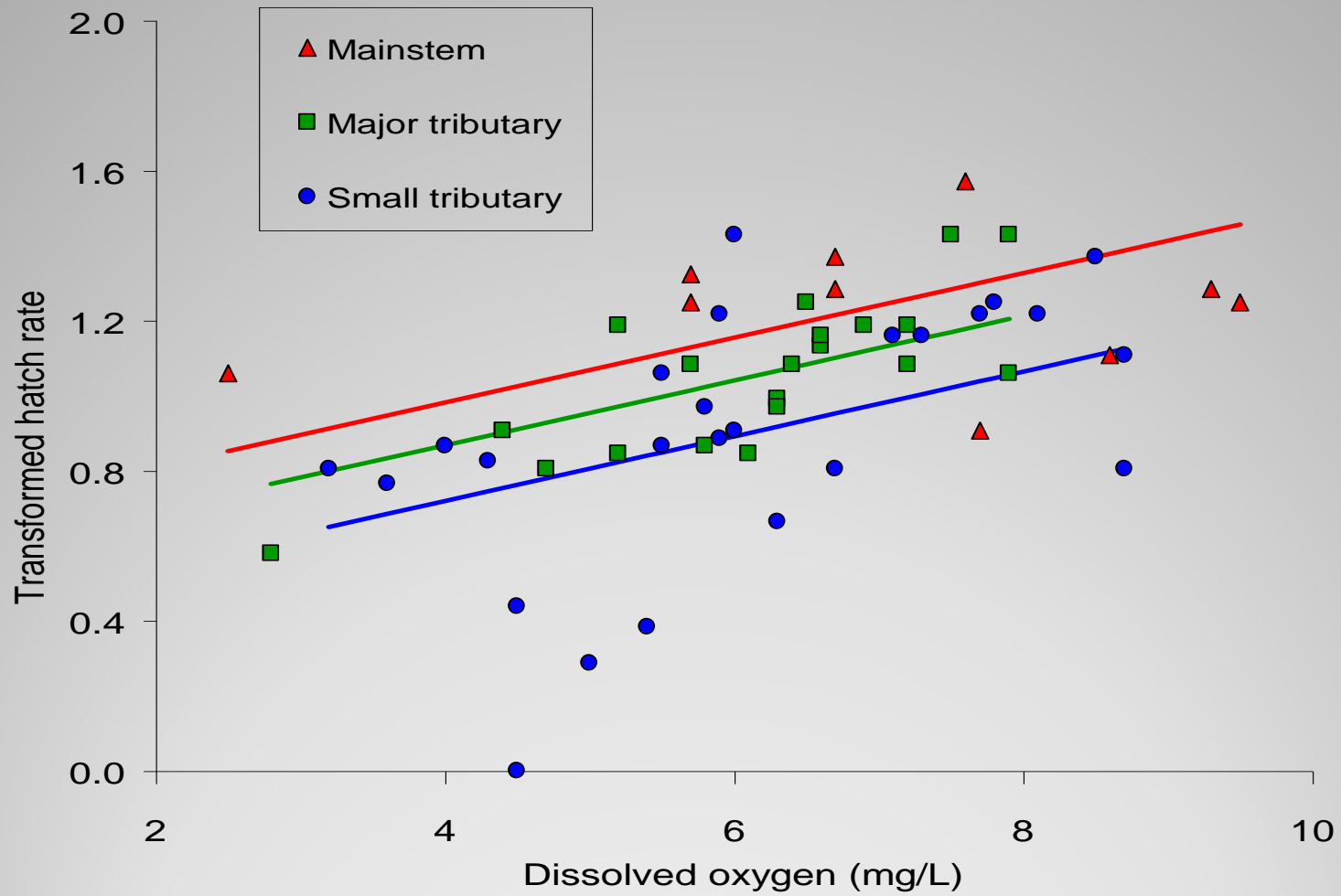
# Research: estimating abundance



## Research: estimating abundance and mortality



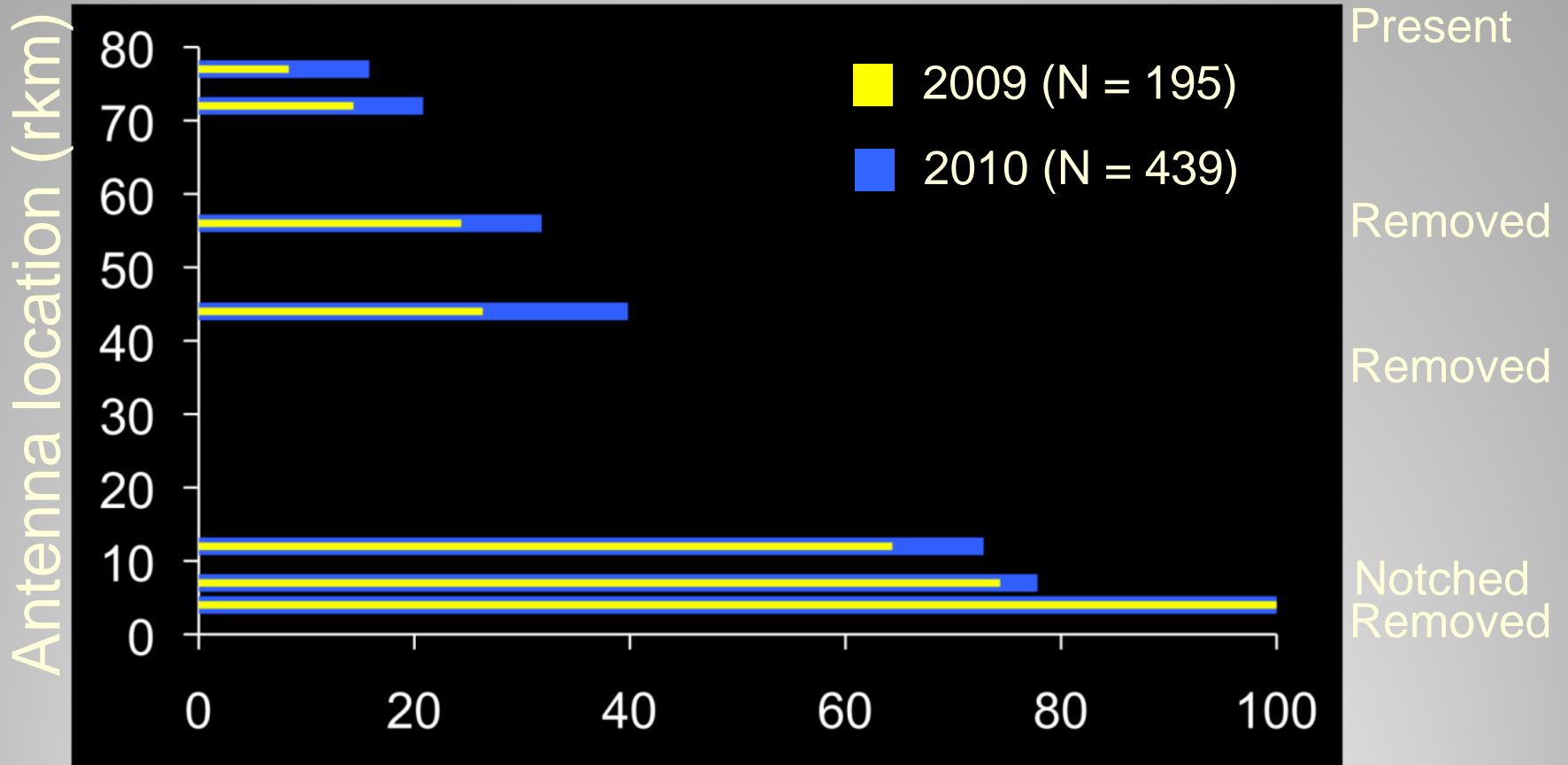
# Research: habitat quality



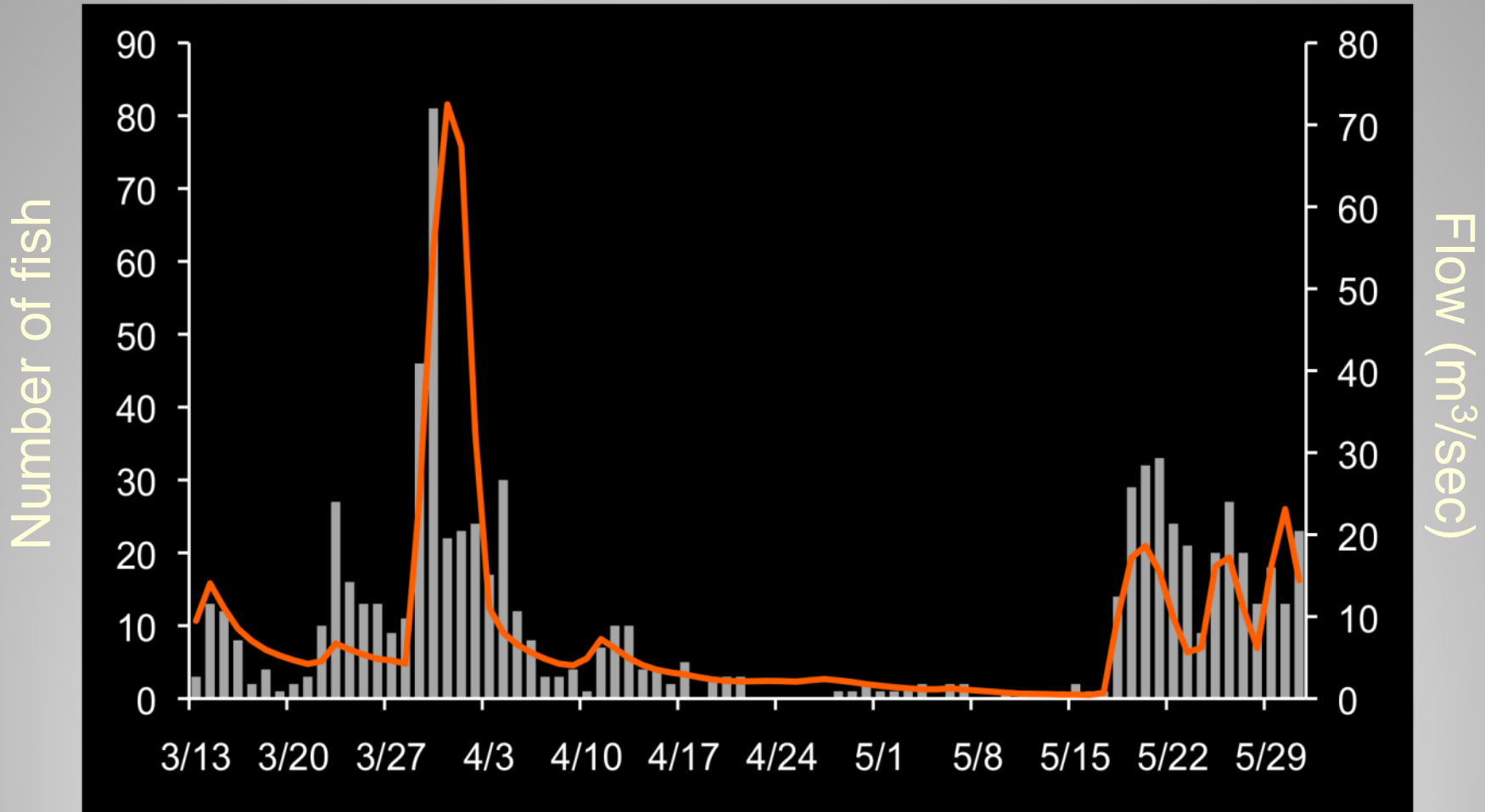
# Research: habitat quality



# Research: habitat quantity



# Research: habitat quantity



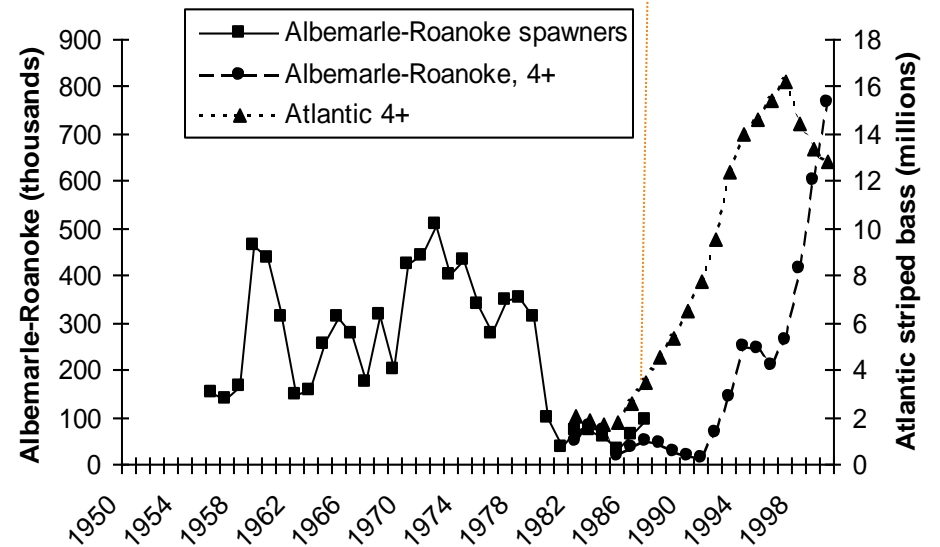
# Research: habitat quantity





## Research: other factors

# Research: other factors



# Diadromous species

