

# Contrasts in Apalachicola River Discharge Create Opportunities for Learning

**Bill Pine**

**University of Florida**

**billpine@ufl.edu**

**Thank you for the opportunity to present to the CAB**

# Opportunities for learning since 2012

- **Apalachicola oyster fishery collapsed in fall 2012**

# Opportunities for learning since 2012

- **Apalachicola oyster fishery collapsed in fall 2012**
- **Multiple years of below average Apalachicola River discharge 2005-2012**


# Opportunities for learning since 2012

- **Apalachicola oyster fishery collapsed in fall 2012**
- **Multiple years of below average Apalachicola River discharge 2005-2012**
- **Much discussion as to whether increased river discharge would promote recovery of oyster populations**

# Commonly mentioned challenges and issues from CAB 2020 survey

## 2. Key ABSI Challenges and Issues

The following ABSI key challenges and issues are listed in order of frequency mentioned and not in terms of priority.



<b>KEY ISSUES THE ABSI COMMUNITY ADVISORY BOARD SHOULD ADDRESS</b>
<i>Listed In order of frequency from the interview responses</i>
1. Oyster reefs: suitable locations, heights, substrate, and salinity (66)
2. Water quantity and timing: fresh water flow, quantity, timing, salinity balance, predation and drought (39)

*Listed In order of frequency from the interview responses*

1. Oyster reefs: suitable locations, heights, substrate, and salinity (66)
2. Water quantity and timing: fresh water flow, quantity, timing, salinity balance, predation and drought (39)

Survey of the Oyster Regions of St. Vincent Sound, Apalachicola  
Bay, and St. George Sound, Florida.

BY



LIEUT. FRANKLIN <sup>✓</sup>SWIFT, U. S. NAVY.

---

Extracted from Report of Commissioner for 1896. Appendix 4, Pages 187 to 221, Plate 22.

Survey of the Oyster Regions of St Vincent Sound Apalachicola

Bay, and

4.—REPORT OF A SURVEY OF THE OYSTER REGIONS OF ST. VINCENT SOUND, APALACHICOLA BAY, AND ST. GEORGE SOUND, FLORIDA.

By Lieut. FRANKLIN SWIFT, *U. S. Navy.*

INTRODUCTION.

LIEUT. F] Having completed the work of supplying the aquarium of the U. S. Fish Commission exhibit at Atlanta, Ga., with specimens of the Gulf fishes, I received instructions, dated September 30, 1895, from the United States Commissioner of Fish and Fisheries, to proceed to Apalachicola Bay, Florida, with the steamer *Fish Hawk* and the party under my command, and begin an oyster survey of the adjacent waters, the waters to be covered being St. Vincent Sound, Apalachicola Bay, and St. George Sound.

The object of the survey was to determine:

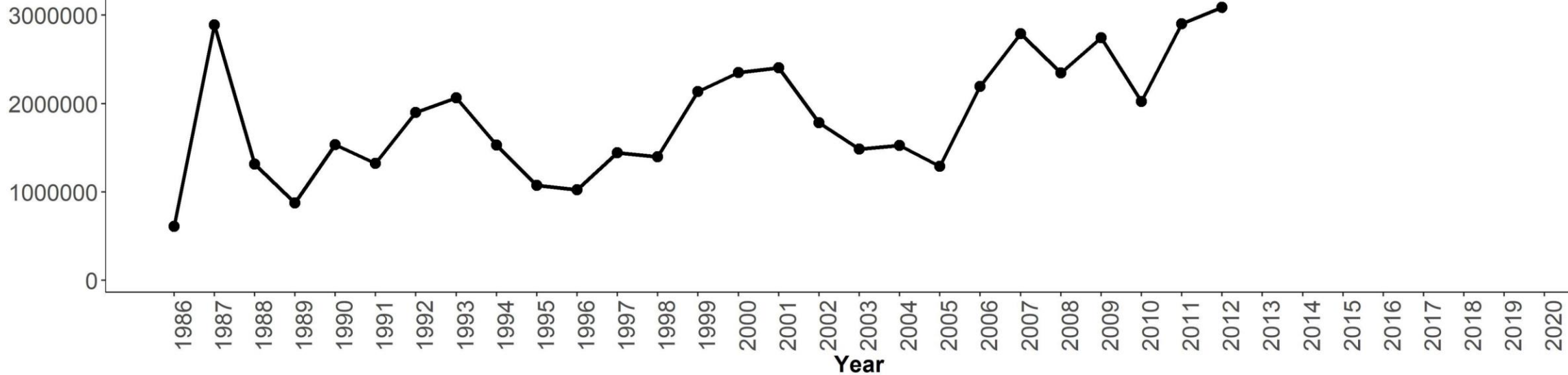
- (1) The positions, outlines, characteristics, and richness or productiveness of all oyster beds located in the waters named.
- (2) The positions, outlines, and characteristics of all areas of the bottom in the same waters, suitable for the planting of oysters, either in their natural condition or after preparation.

Fast forward about 120 years...

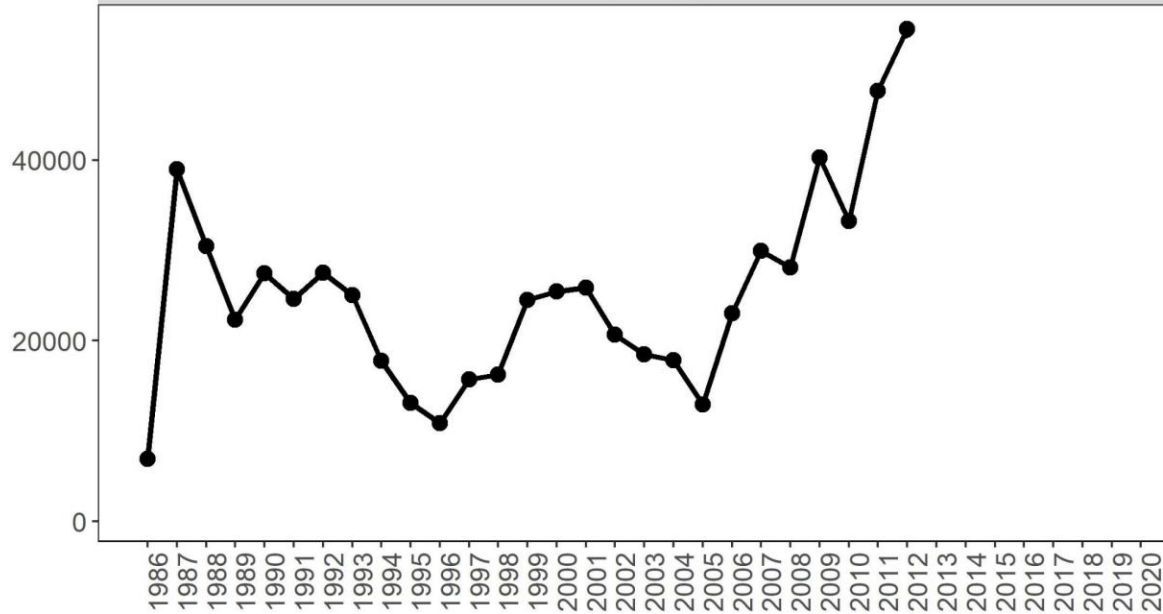


Area — Apalachicola

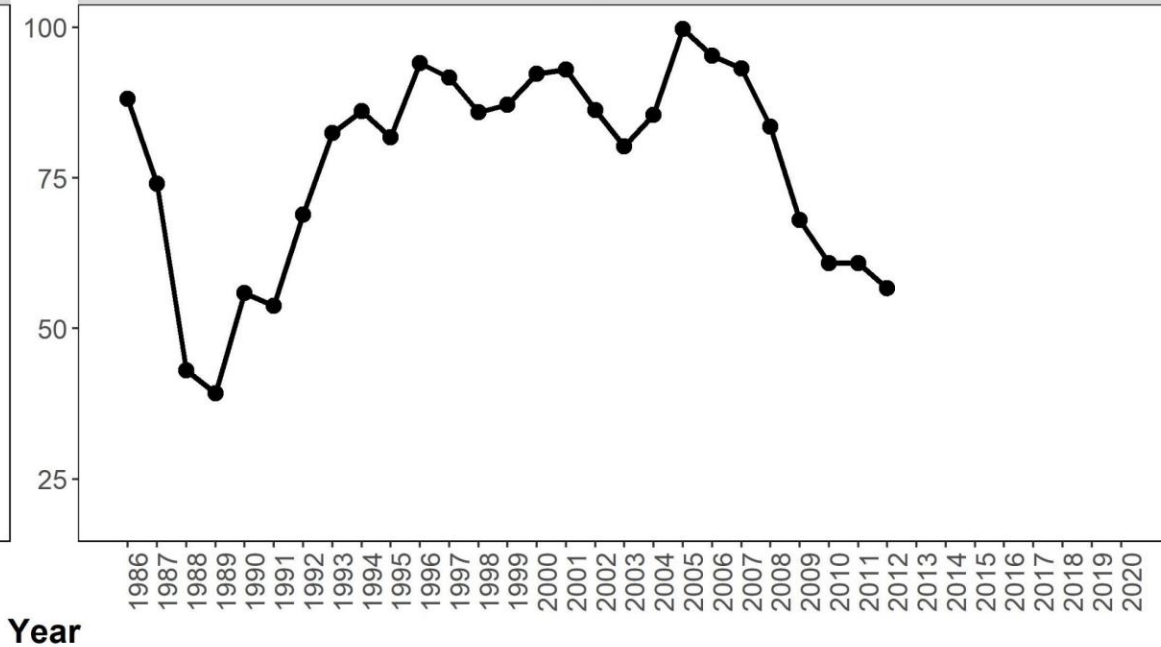
### Landings (lbs)



### Total Trips

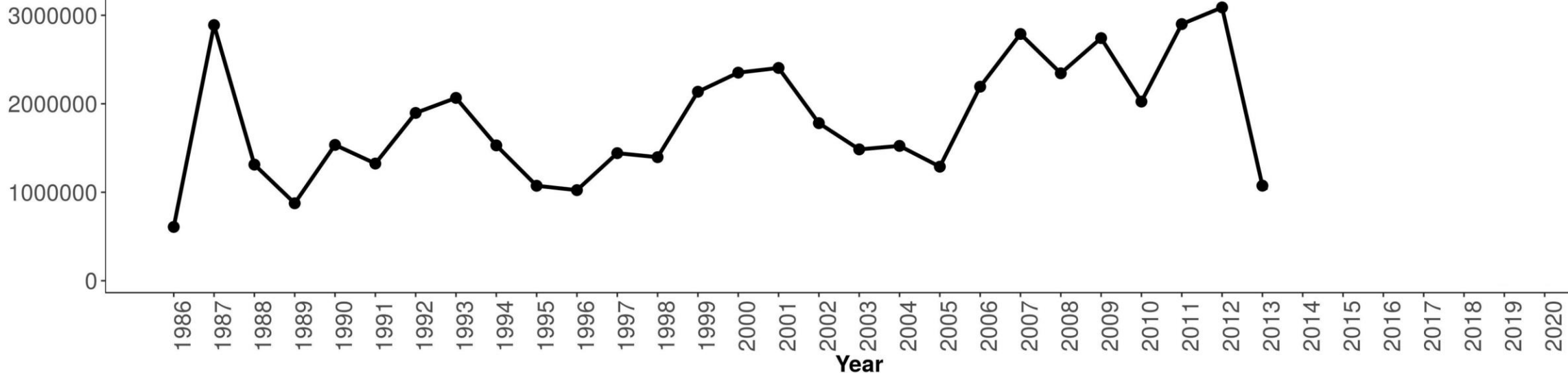


### CPUE

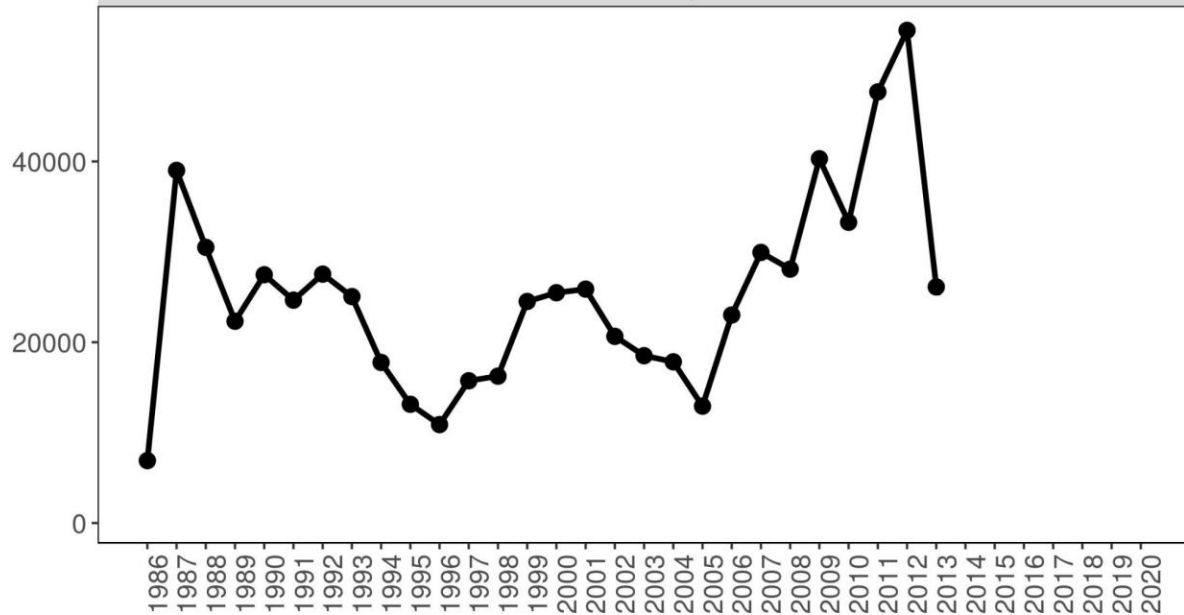


Area — Apalachicola

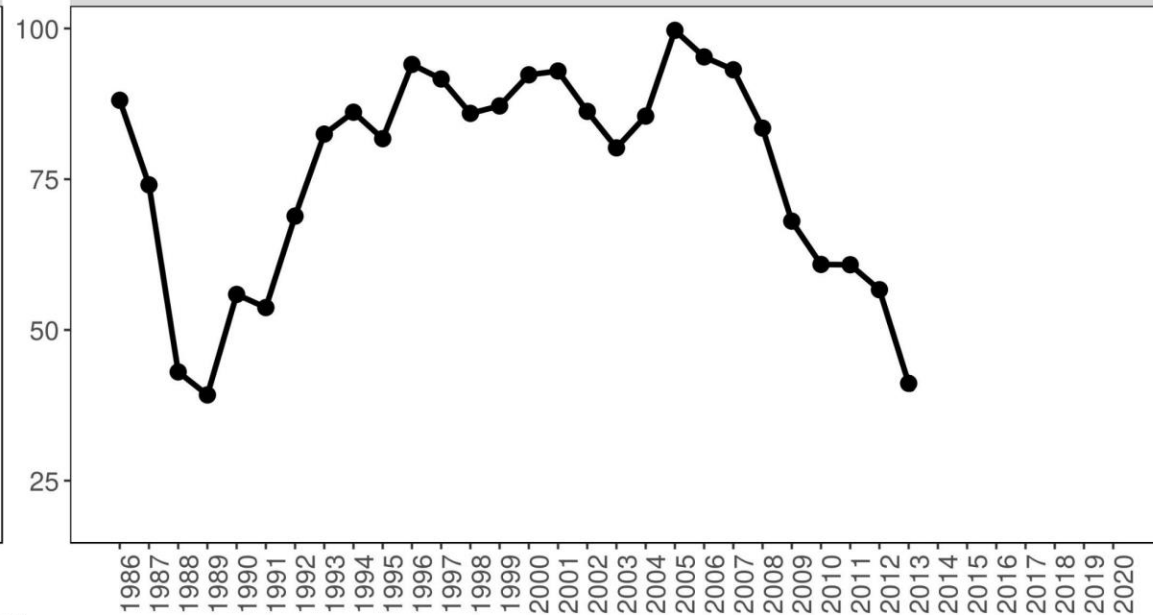
Landings (lbs)



Total Trips



CPUE



# Trends in Apalachicola Bay region oyster fisheries data

- **Oyster fishery landings and trips in 2012 were among the highest observed since mandatory reporting began in 1986**

# Trends in Apalachicola Bay region oyster fisheries data

- **Oyster fishery landings and trips in 2012 were among the highest observed since mandatory reporting began in 1986**
- **Community reported declines in oyster abundance in fall 2012**

# Trends in Apalachicola Bay region oyster fisheries data

- **Oyster fishery landings and trips in 2012 were among the highest observed since mandatory reporting began in 1986**
- **Community reported declines in oyster abundance in fall 2012**
- **Observed decline in oyster landings, trips and CPUE in 2013**

# Frequent CAB questions from 2020 survey

## 2. Key ABSI Challenges and Issues

The following ABSI key challenges and issues are listed in order of frequency mentioned and not in terms of priority.

<b>KEY ISSUES THE ABSI COMMUNITY ADVISORY BOARD SHOULD ADDRESS</b>
<i>Listed In order of frequency from the interview responses</i>
1. Oyster reefs: suitable locations, heights, substrate, and salinity (66)
2. Water quantity and timing: fresh water flow, quantity, timing, salinity balance, predation and drought (39)

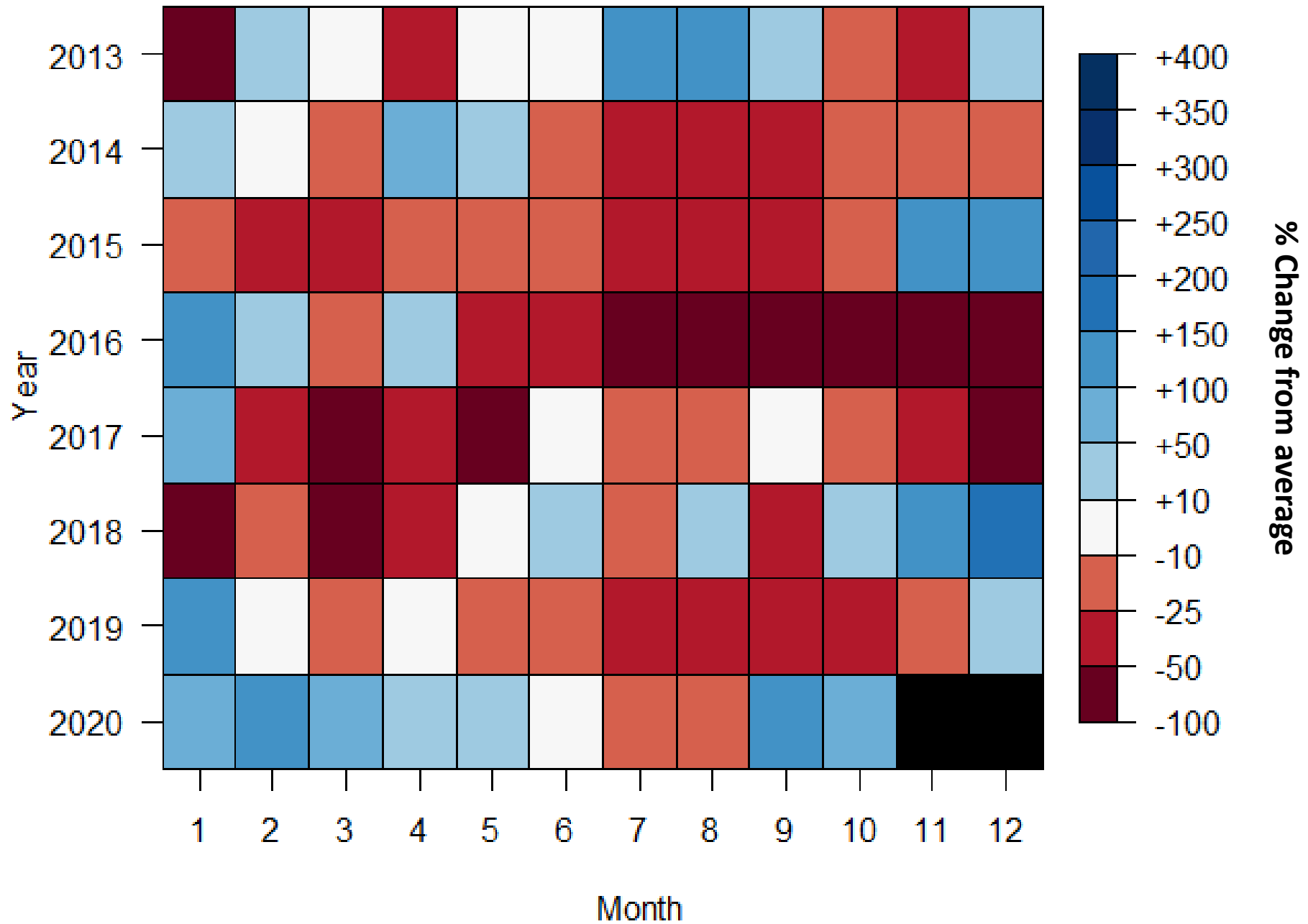




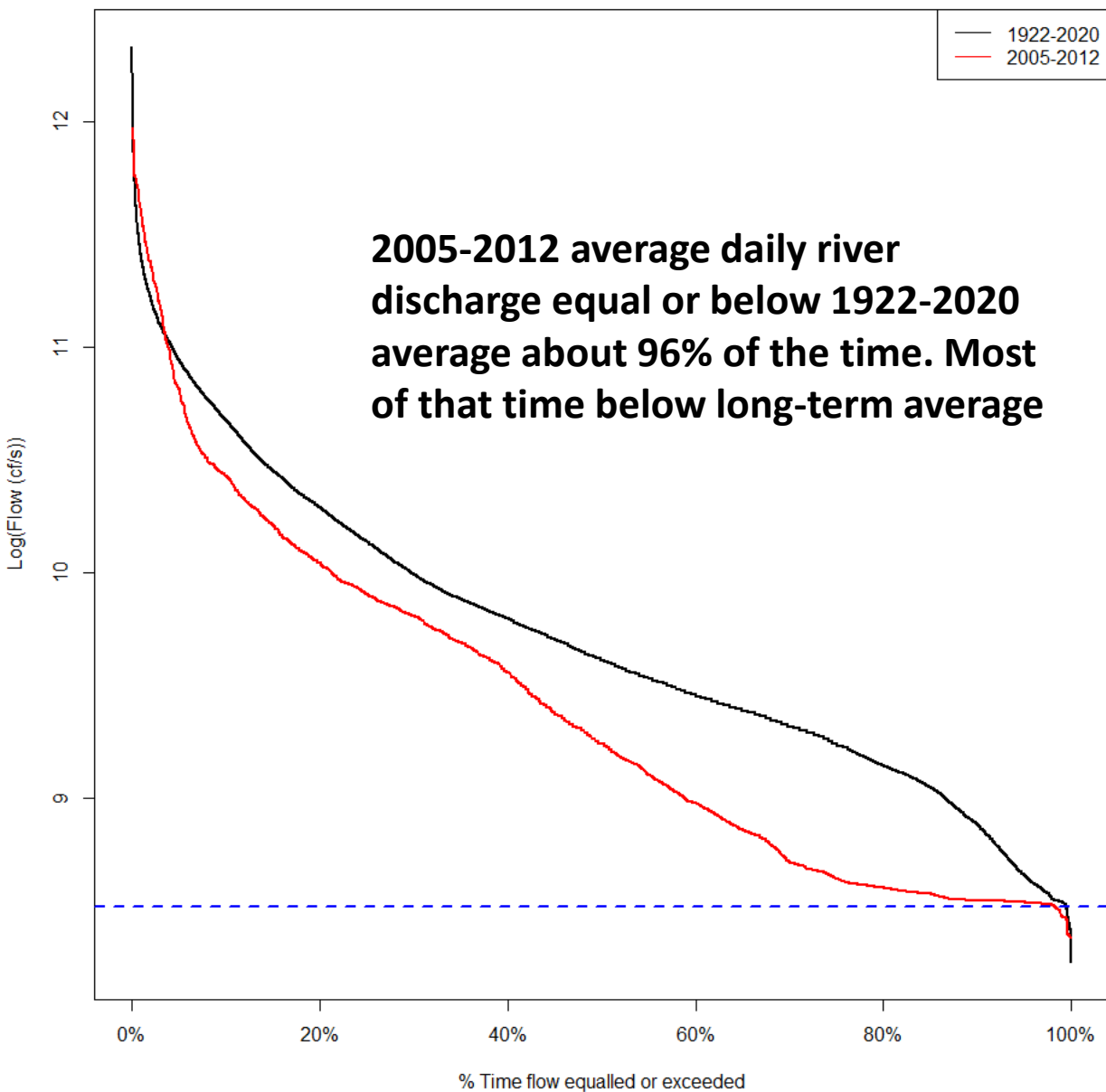




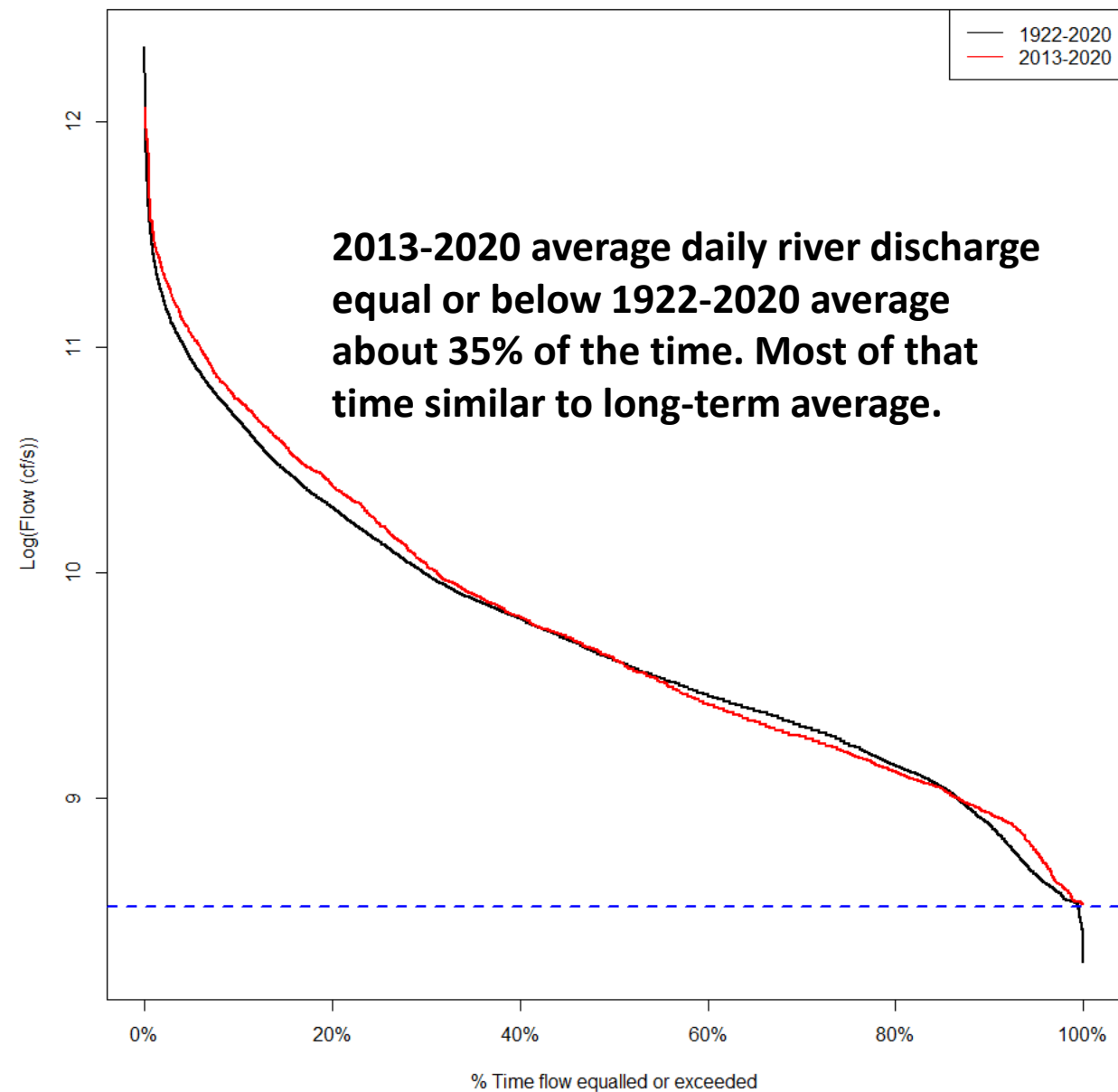
# Deviations in Discharge from Period of Record



Discharge duration

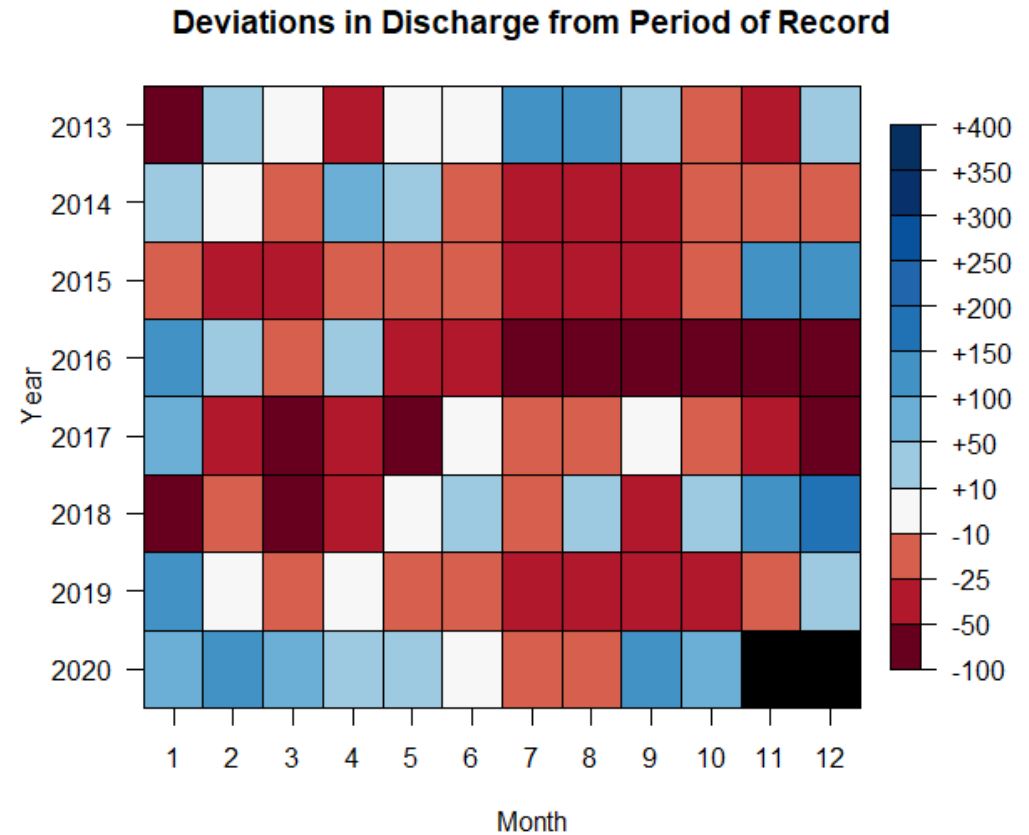


Discharge duration



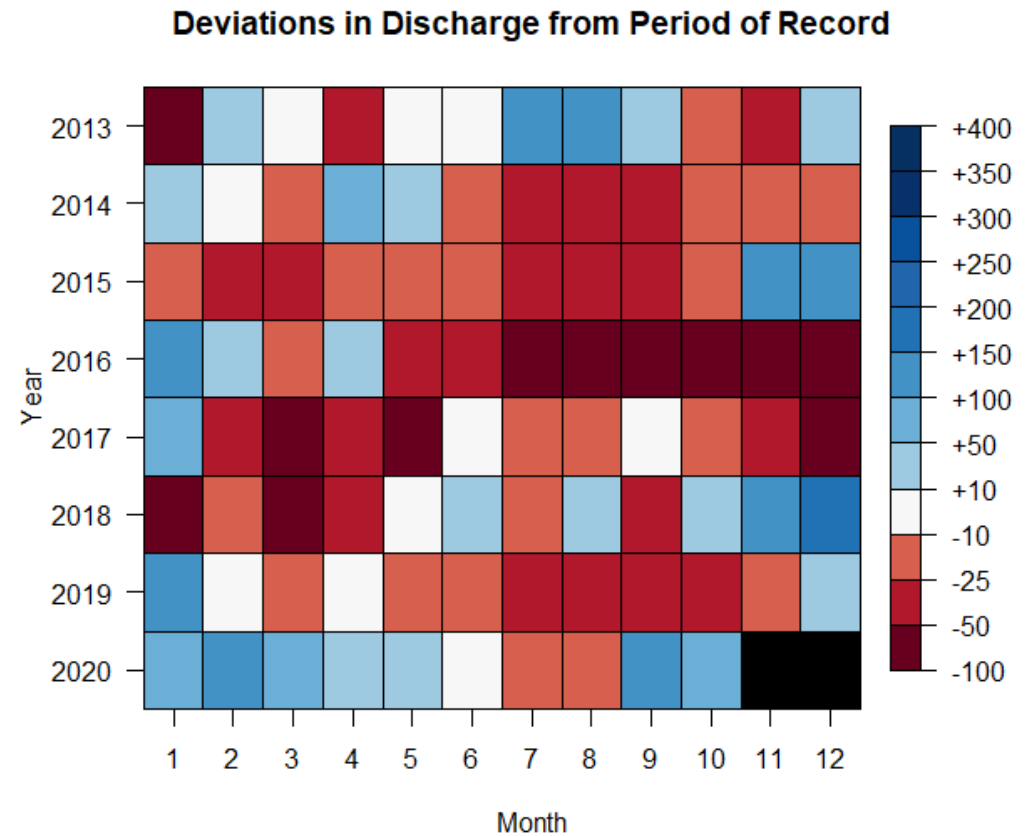
# Opportunity for learning?

- **2013-2020 Apalachicola River discharge has been higher than observed 2005-2012**



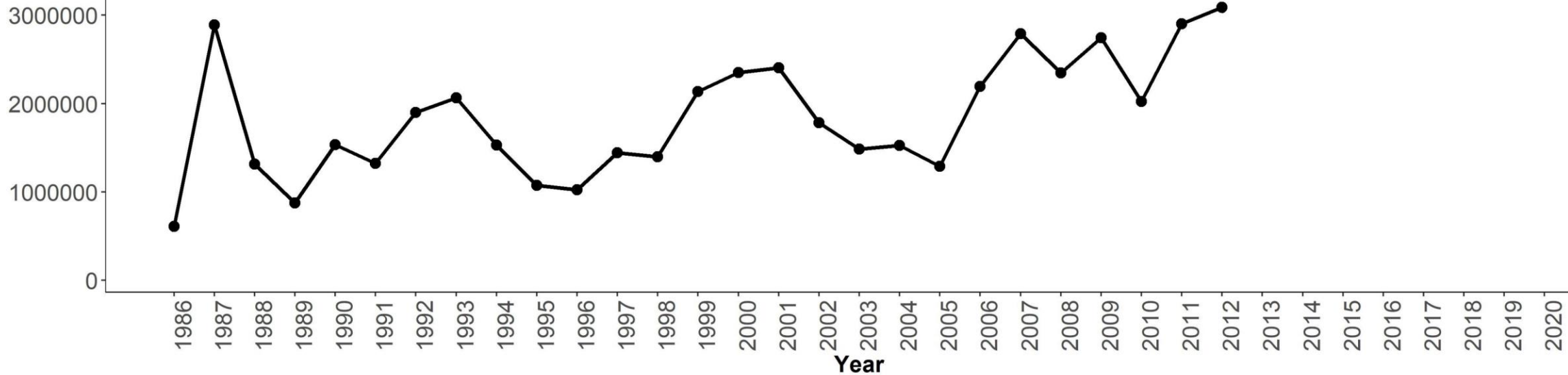
# Opportunity for learning?

- **2013-2020 Apalachicola River discharge has been higher than observed 2005-2012**
- **How have oyster populations responded to higher river discharge during this period of time?**

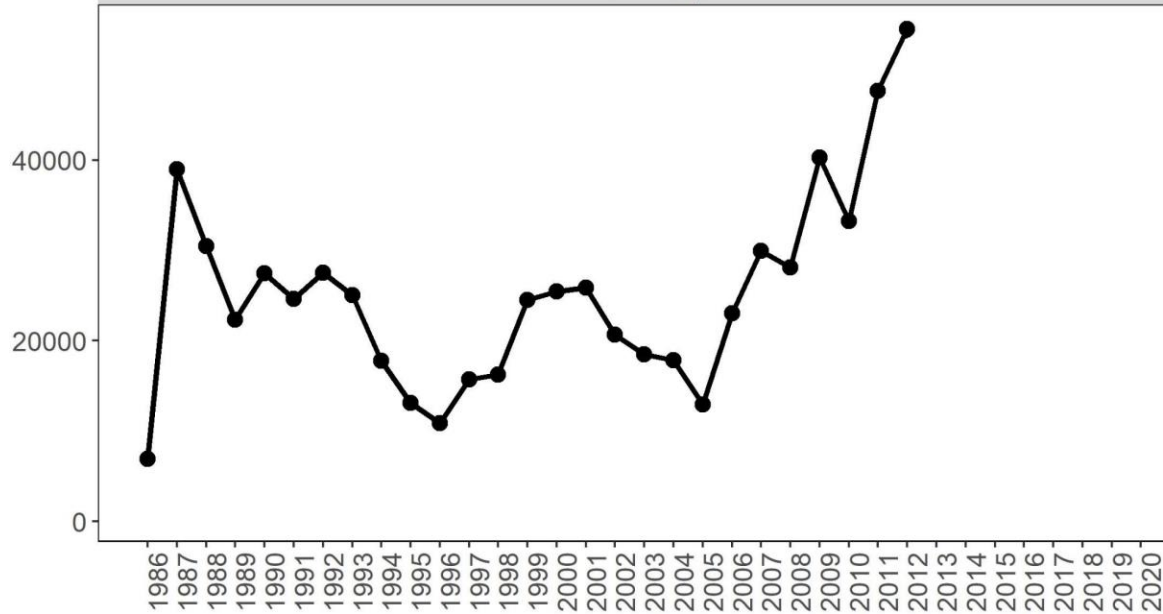


Area — Apalachicola

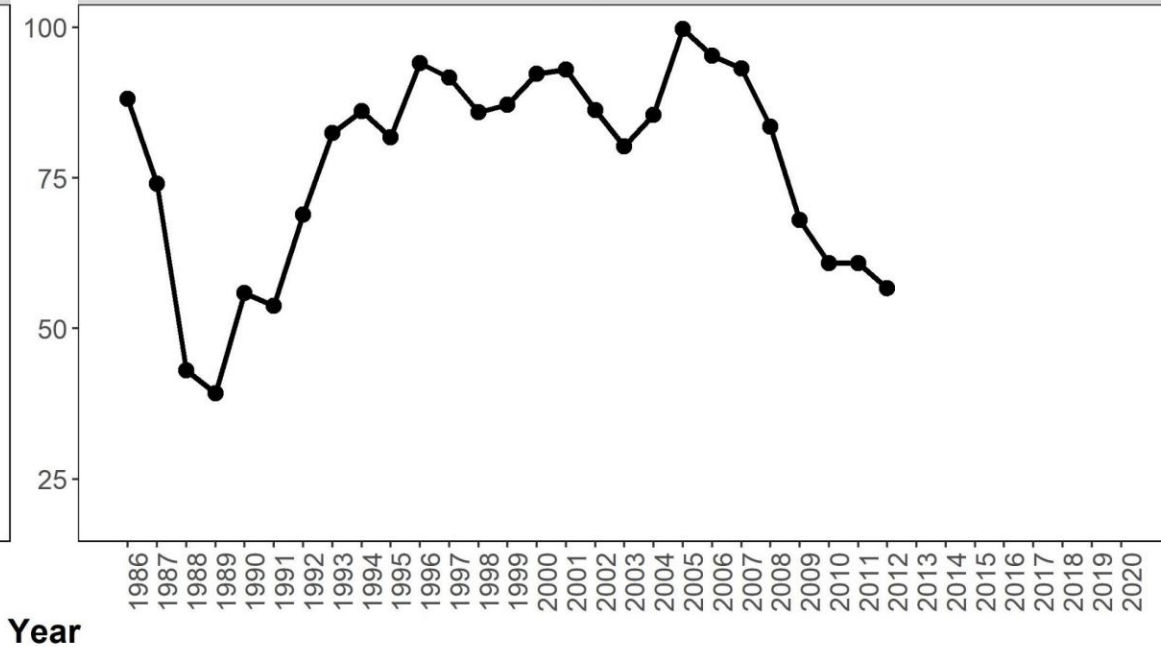
### Landings (lbs)



### Total Trips

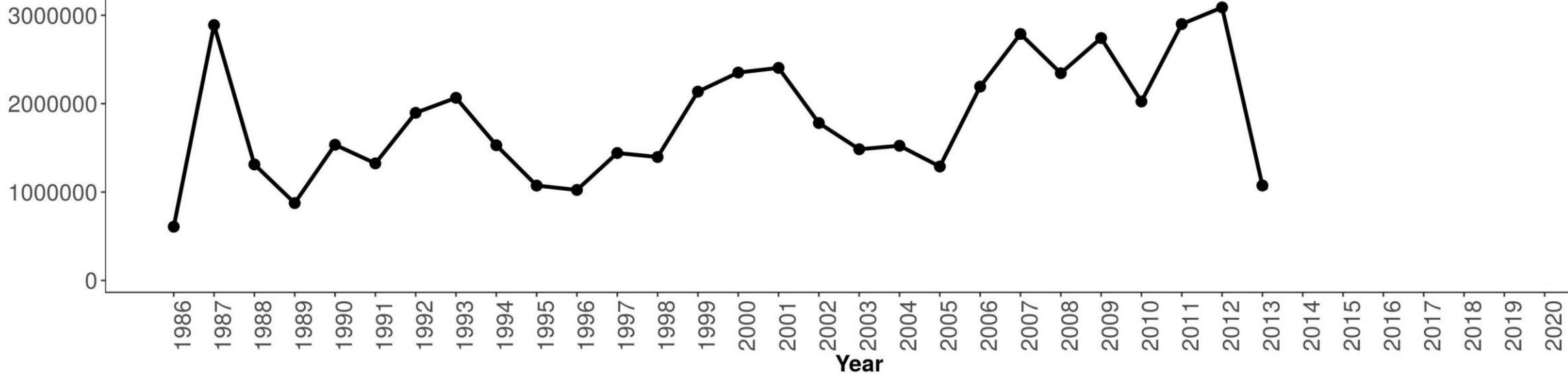


### CPUE

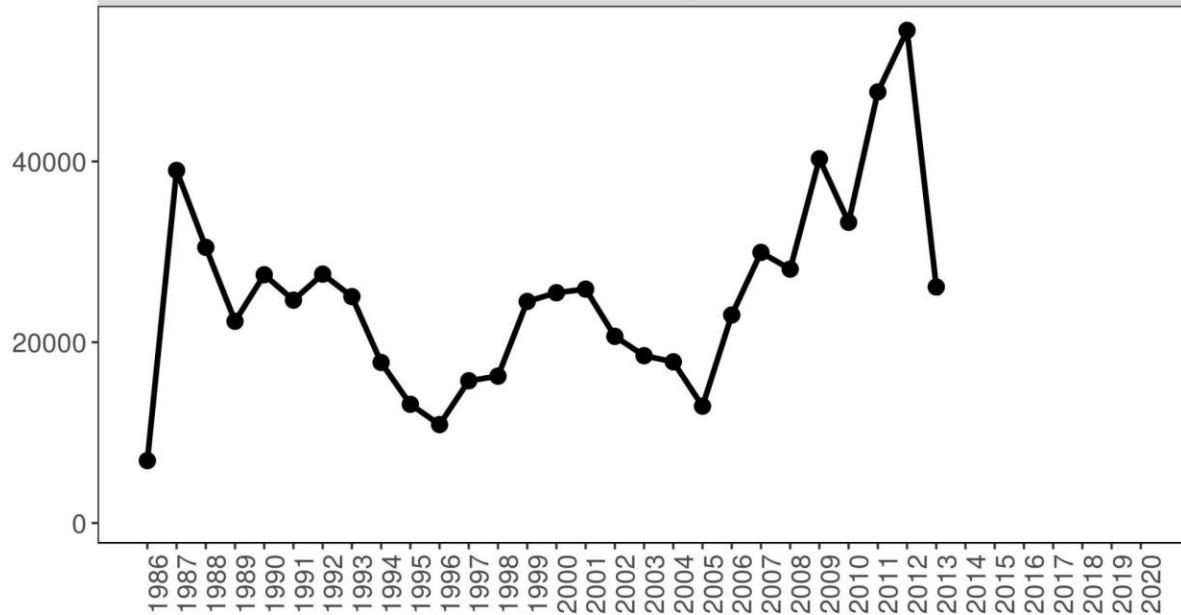


Area — Apalachicola

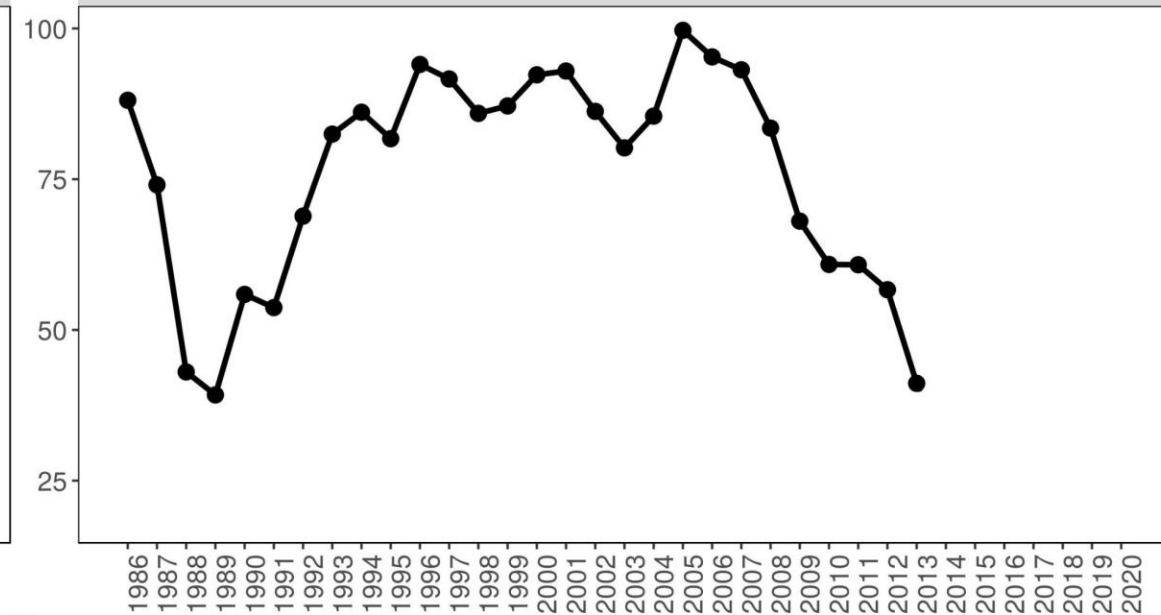
### Landings (lbs)



### Total Trips

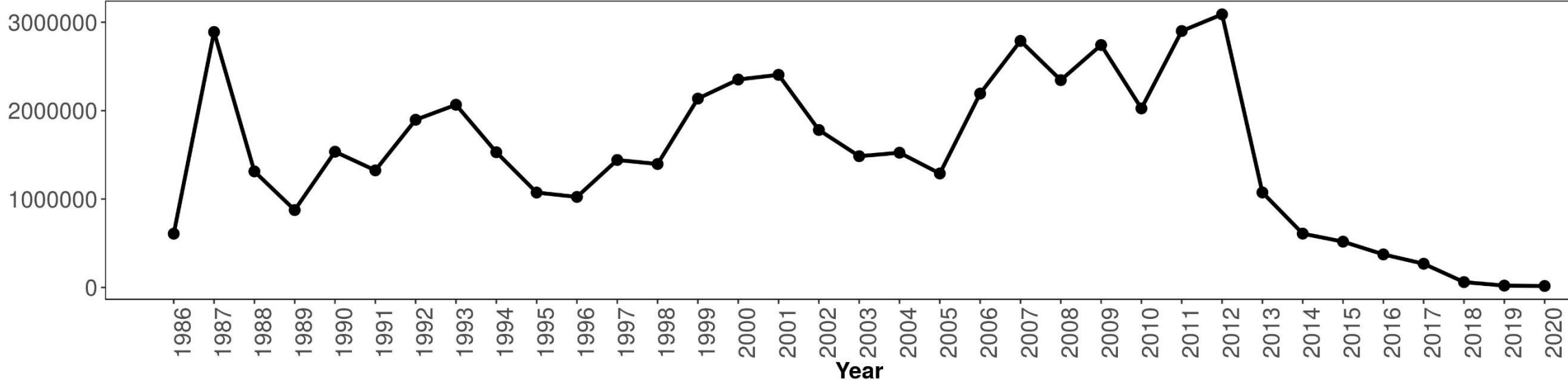


### CPUE

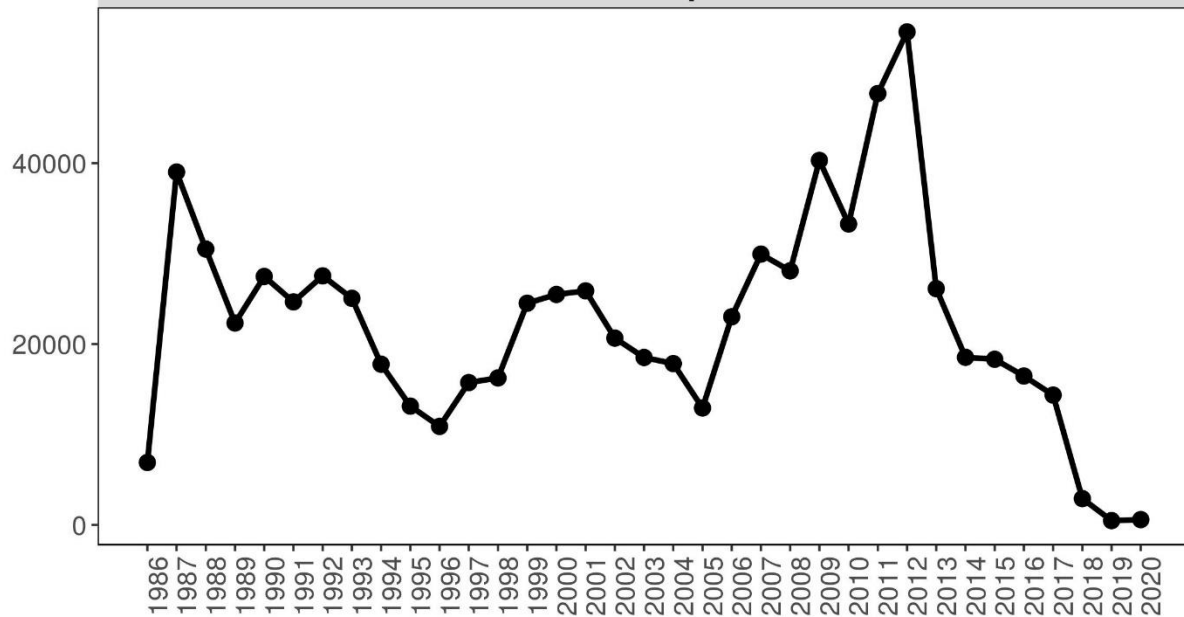


Area — Apalachicola

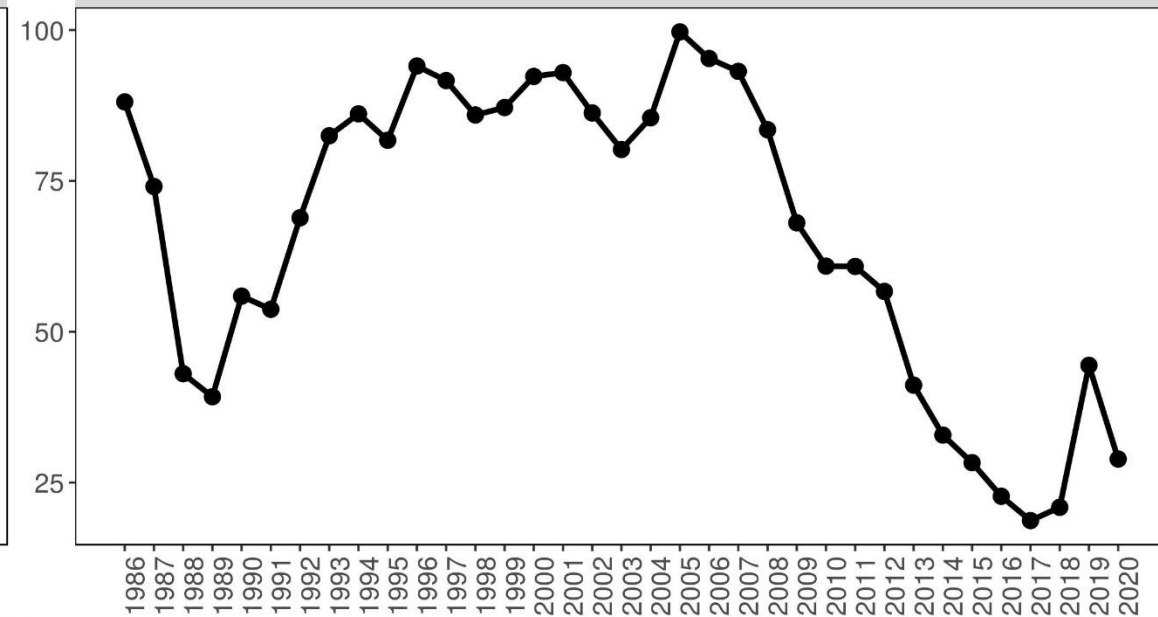
### Landings (lbs)



### Total Trips

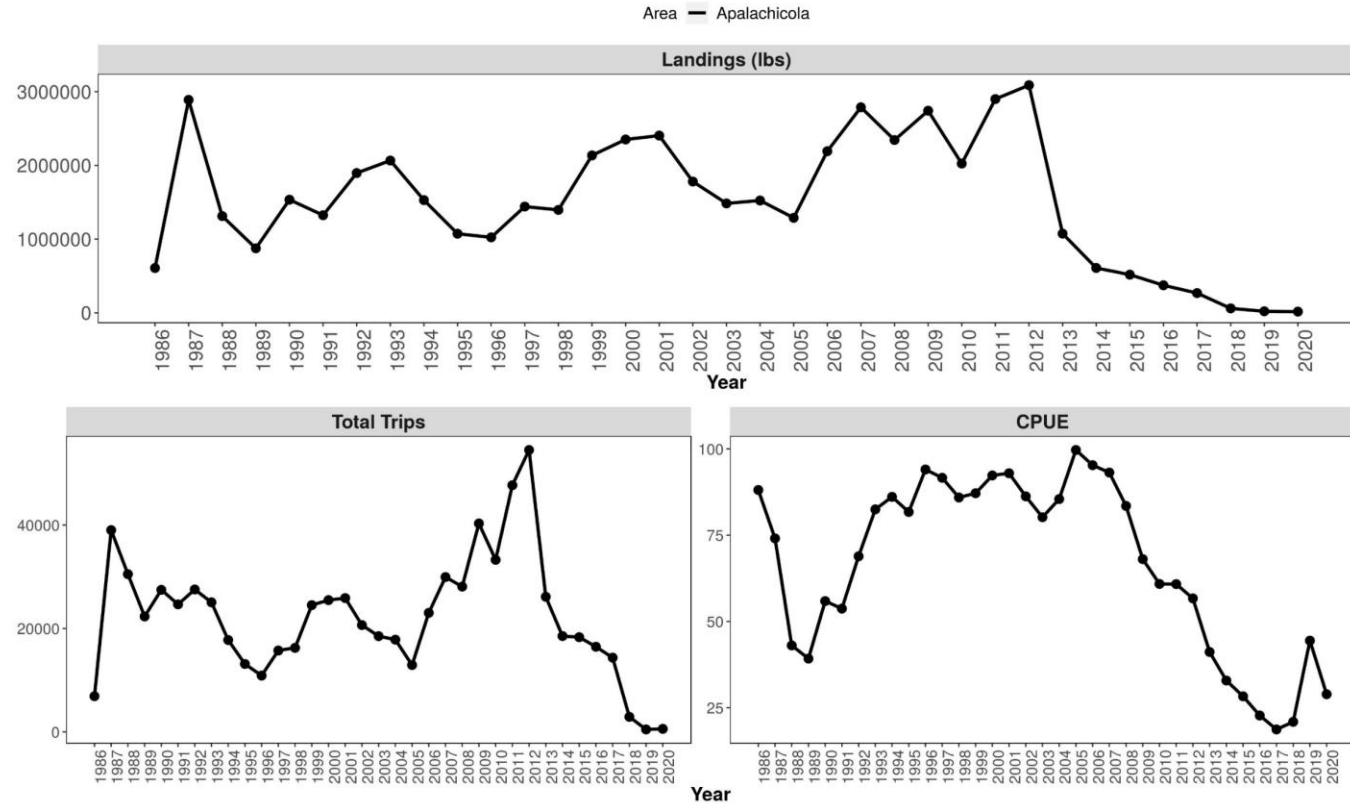


### CPUE



# Opportunity for learning?

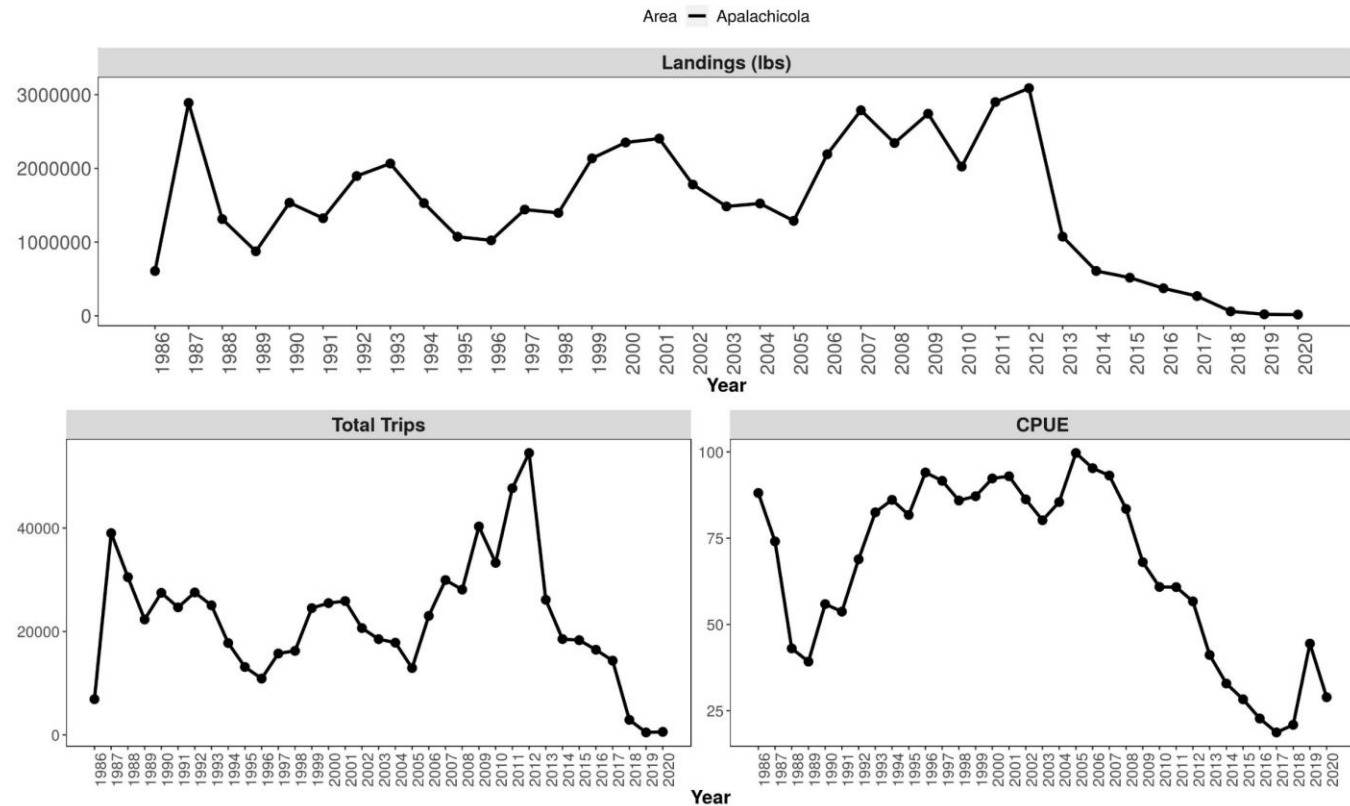
- Trends in oyster fishery data suggest declines in landings, trips, and CPUE (catch per trip) since 2012





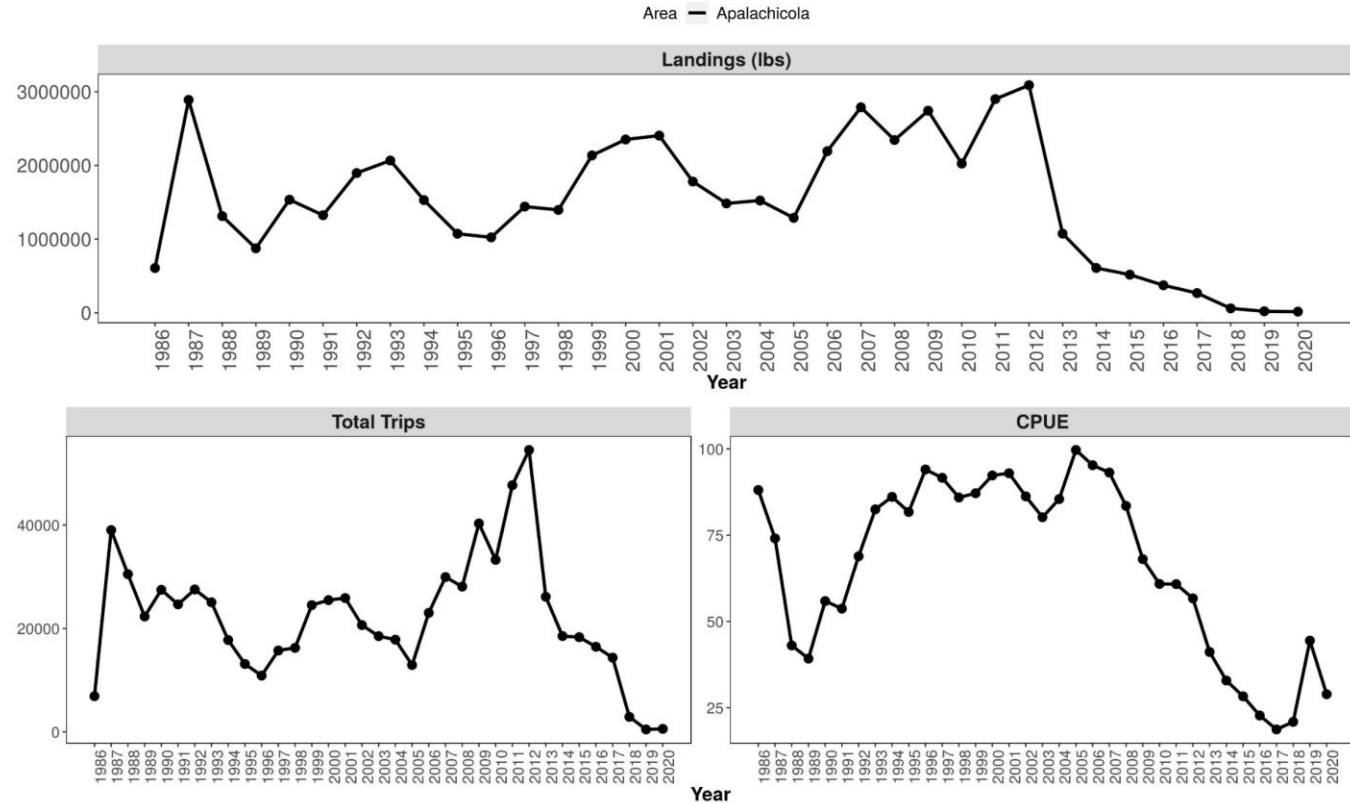
# Opportunity for learning?

- Trends in oyster fishery data suggest declines in landings, trips, and CPUE (catch per trip) since 2012
- Since 2013 Apalachicola River discharge has often been higher than observed during 2005-2012



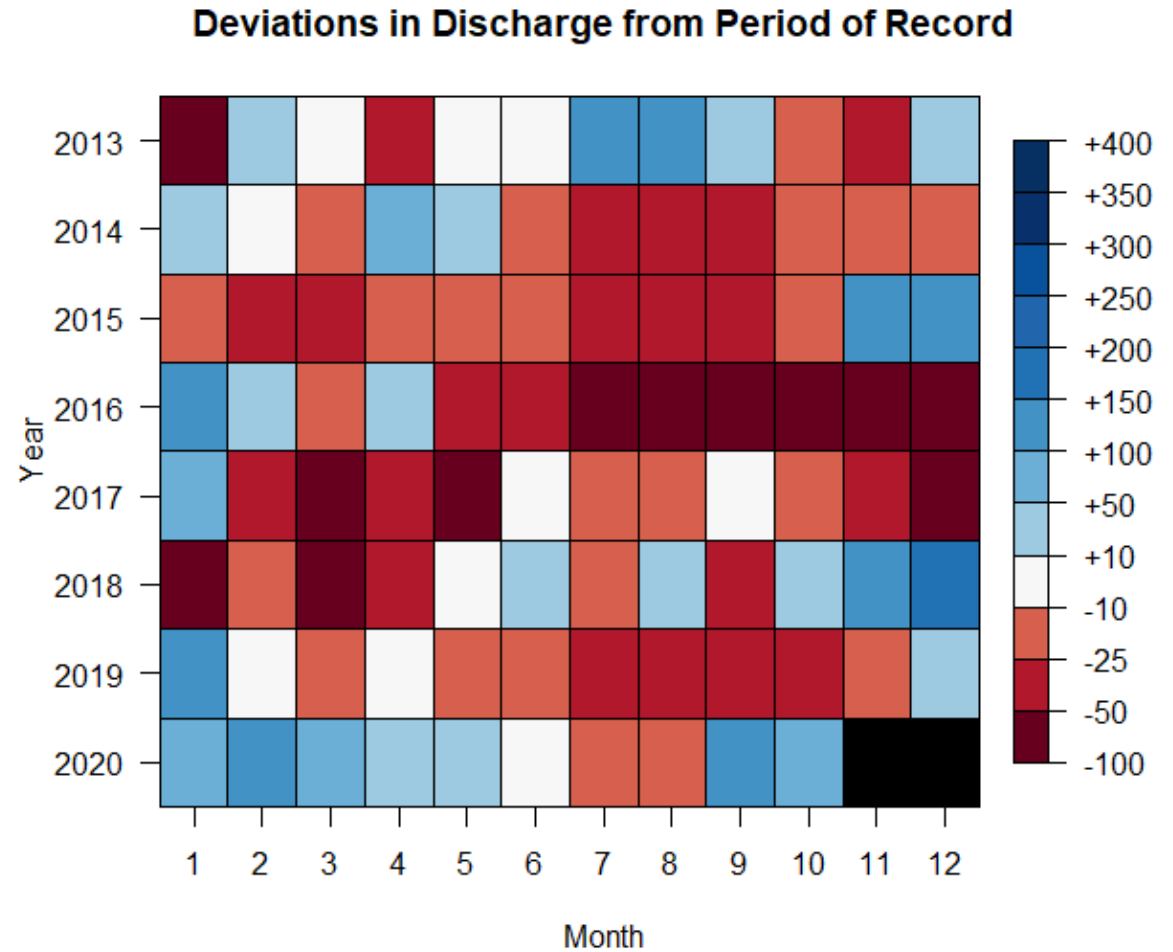
# Questions to consider...

- Do fisheries independent data from agency monitoring efforts show similar or different patterns for oysters?
  - All sizes of oysters?
  - Specific size classes of oysters?
  - Same pattern over all of Apalachicola Bay?



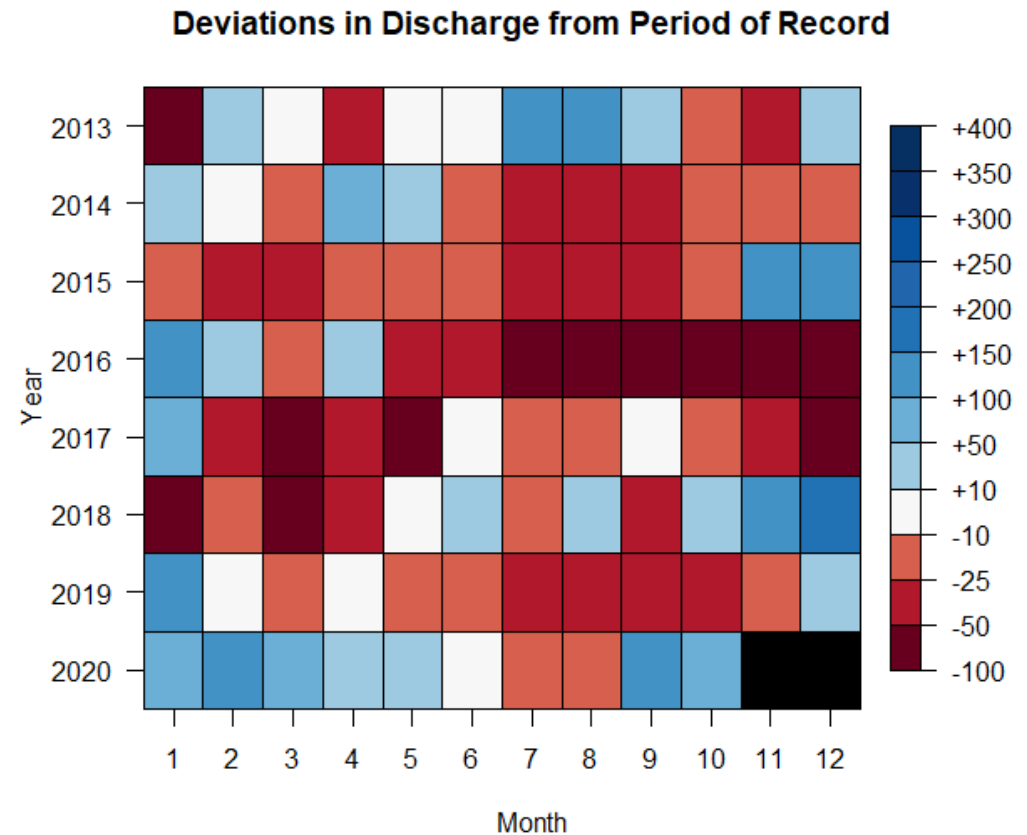
# Opportunity for learning?

- **Since 2013 Apalachicola River discharge has often been higher than observed during 2005-2012**



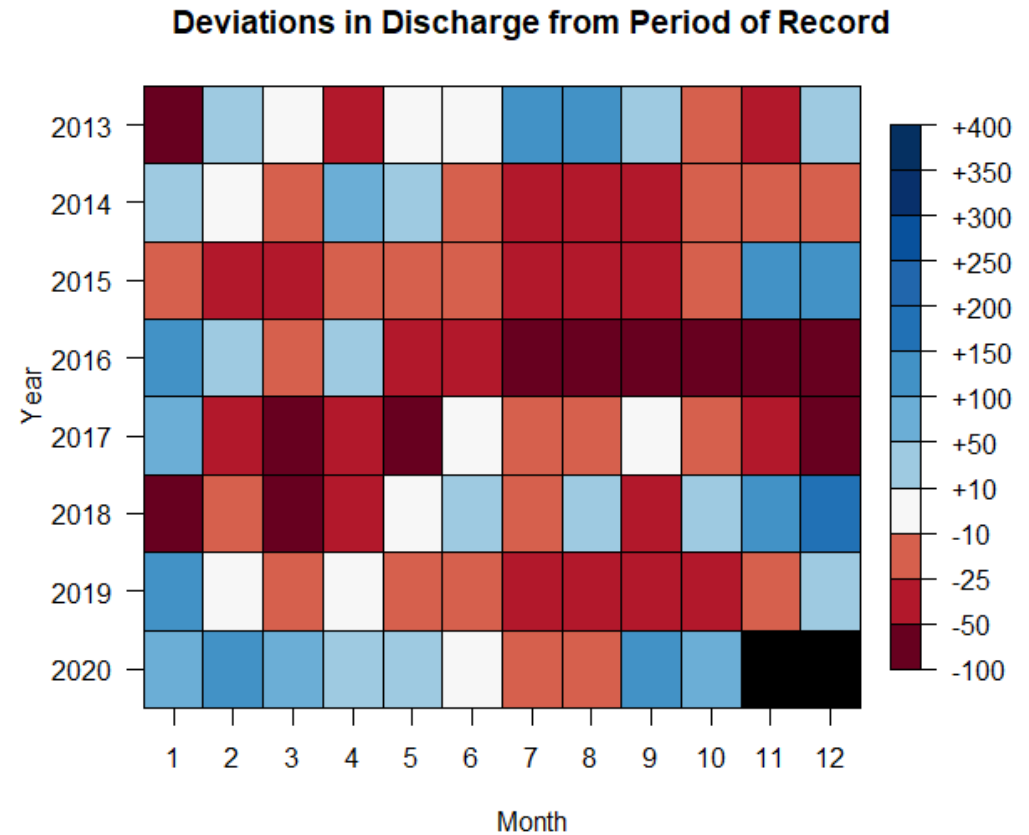
# Questions to consider...

- Why has river discharge been higher 2013-2020 than 2005-2012?
- Precipitation?
- Reservoir operations?
- Water withdrawals?
  
- Is this contrast greater (magnitude of water) and for longer time than could be done experimentally through dam releases?



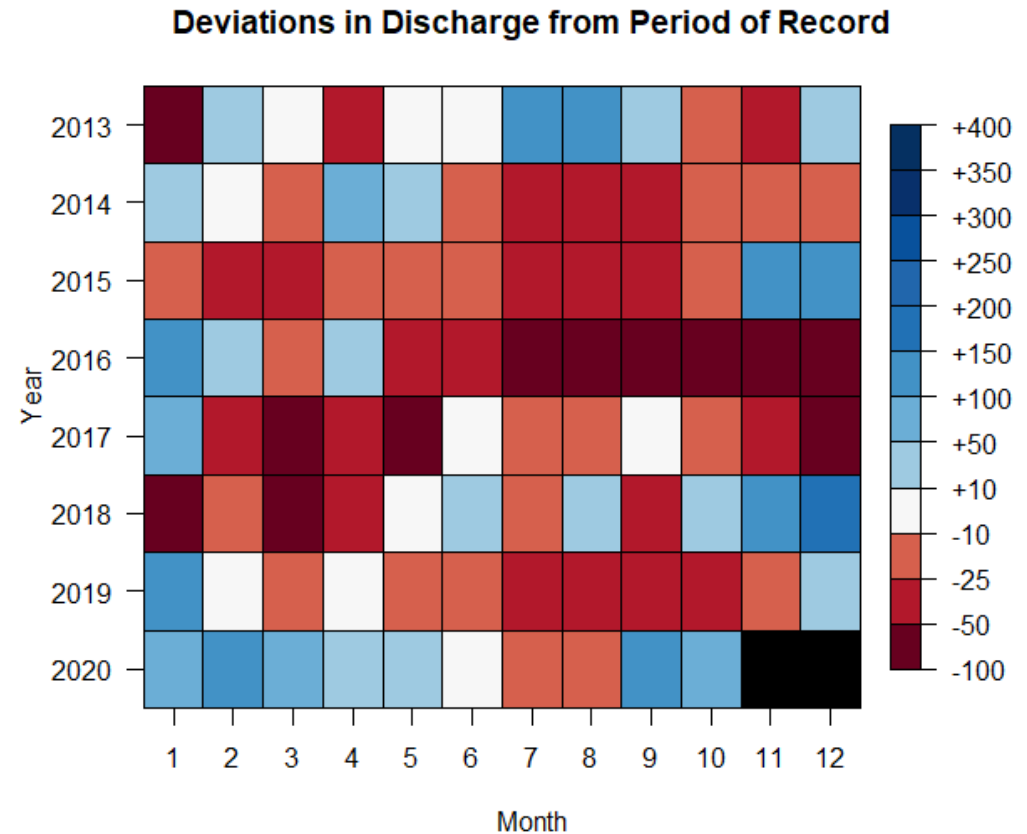
# More importantly...

- **Did Apalachicola Bay system respond in ways that were expected, or unexpected?**
  - What were those expected changes? *Where are they written down?*



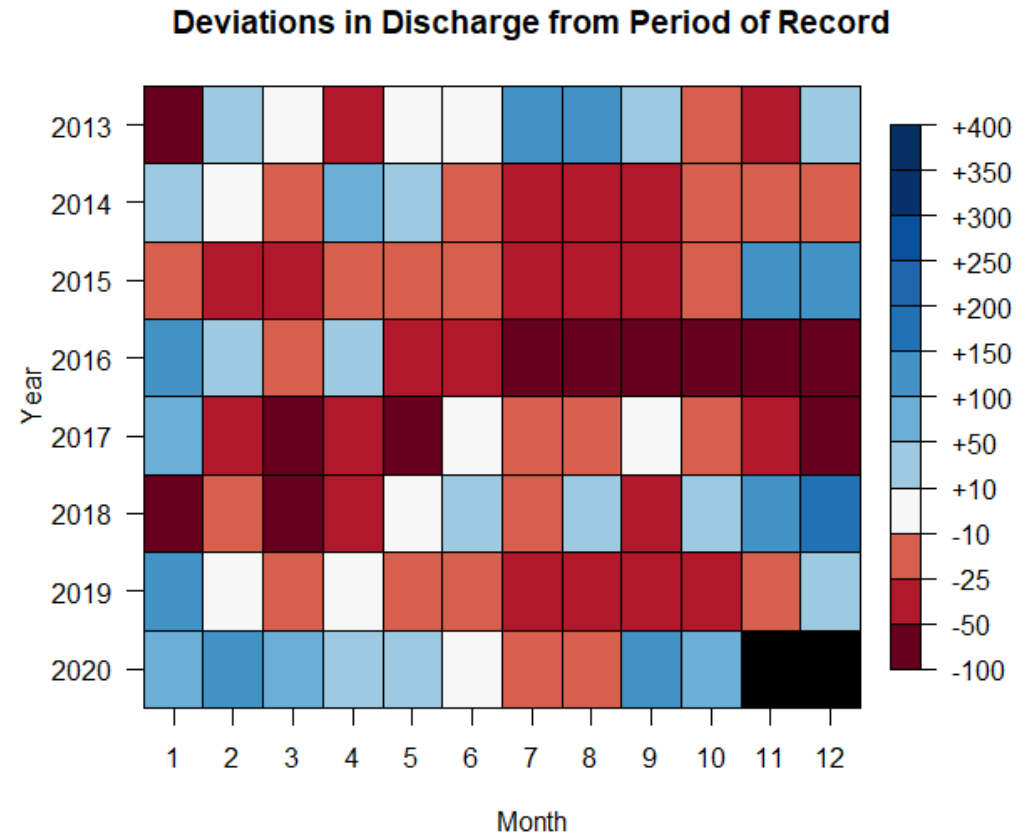
# More importantly...

- **Did Apalachicola Bay system respond in ways that were expected, or unexpected?**
  - What were those expected changes?
- **Can any change be detected from available data collected by agency cooperators?**



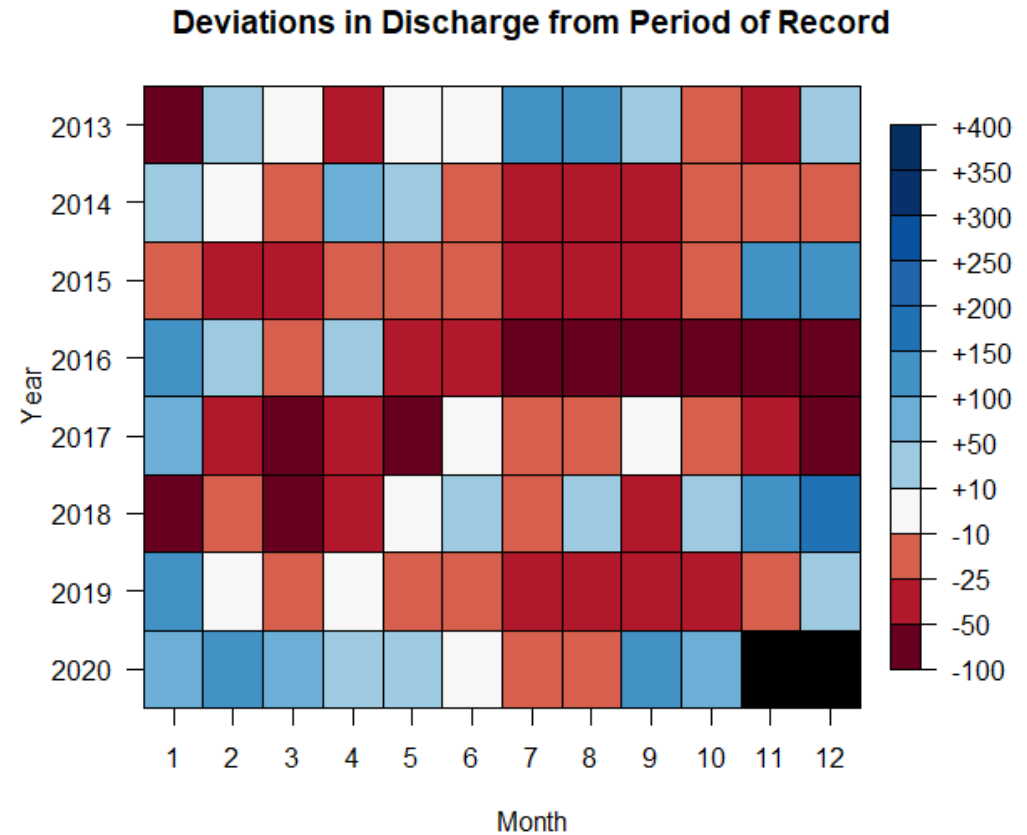
# More importantly...

- **Did Apalachicola Bay system respond in ways that were expected, or unexpected?**
  - What were those expected changes?
- **Can any change be detected from available data collected by agency cooperators?**
- **Or are monitoring programs not adequate?**



# More importantly...

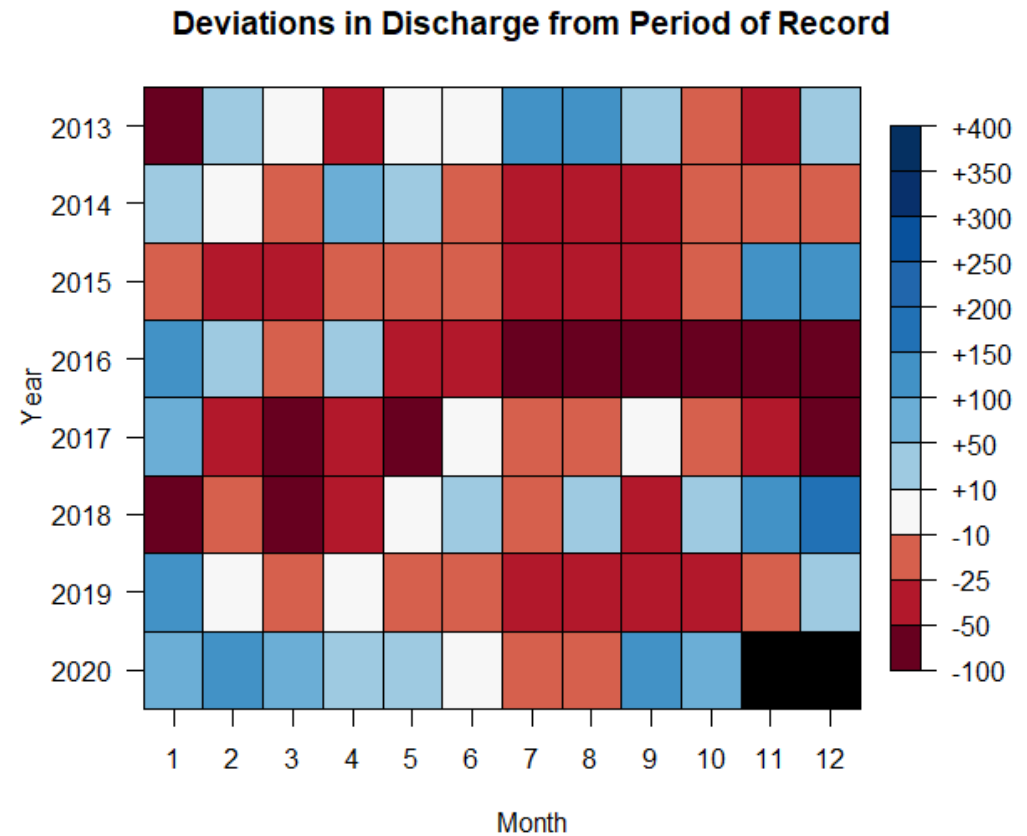
- **2005-2012 vs. 2013-2020** presents a critical opportunity to better understand role of river discharge in influencing Apalachicola Bay

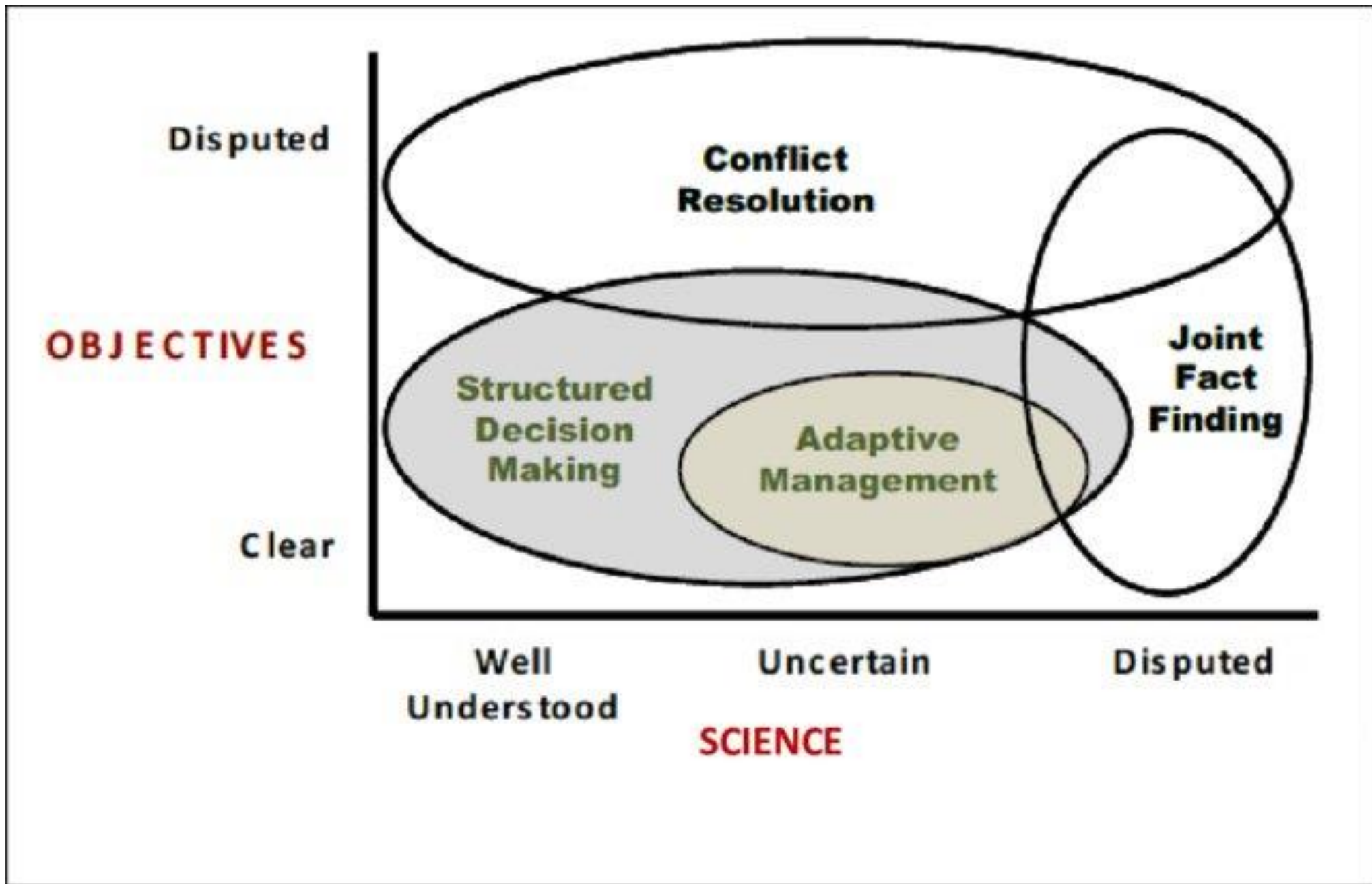




# More importantly...

- **2005-2012 vs. 2013-2020** presents a critical opportunity to better understand role of river discharge in influencing Apalachicola Bay
- Likely could not be planned as an experiment – so an opportunity for learning that must be taken when available





Thank you