

## Study Overview:

Determine levels of "new" & legacy  
poly & perfluorinated alkyl substances (PFAS)  
in alligator & fish of the Cape Fear River

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## The BIG Questions:

- Are PFASs present and accumulating in wildlife?
  - For how long?
- Are the levels associated with indicators of adverse health in wildlife/ecosystems?
- Can this tell us anything about effects on humans?
- Can consuming fish caught from the Cape Fear River increase PFAS levels in humans?

## PFAS: Persistent, Ubiquitous, and Toxic

Little ecological exposure or health data available within the Cape Fear River

Study goal:

- Characterize levels of PFASs in blood/serum using LC/MS/MS
  - Alligator
  - Striped Bass
  - Catfish - also muscle, liver, kidney
- Evaluate impacts on health (biomarkers)
- Communicate findings to stakeholders

# The Sentinel Species

'Watch and Warn'

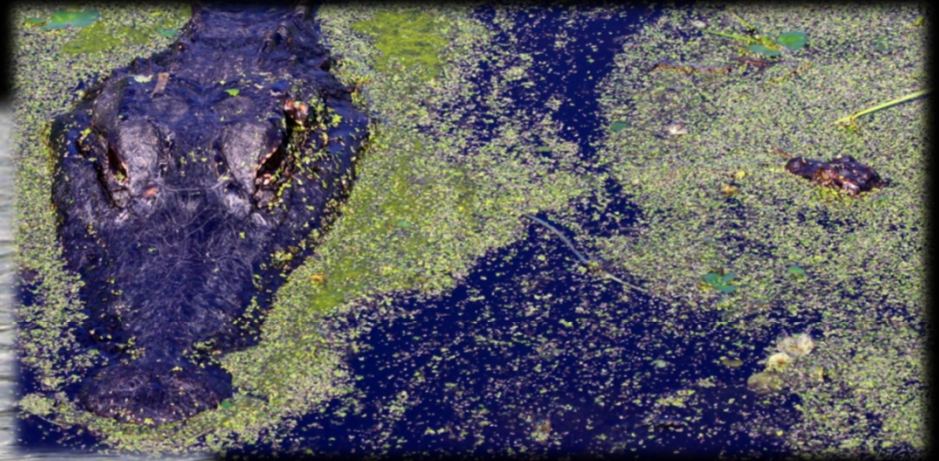
Powerful for studying gene x environmental perturbations

Weak for some mechanistic studies – lab mouse models and cell systems





# Alligator: Keystone predator for Cape Fear River





# Perfluoroalkyl acids

SETAC PRESS

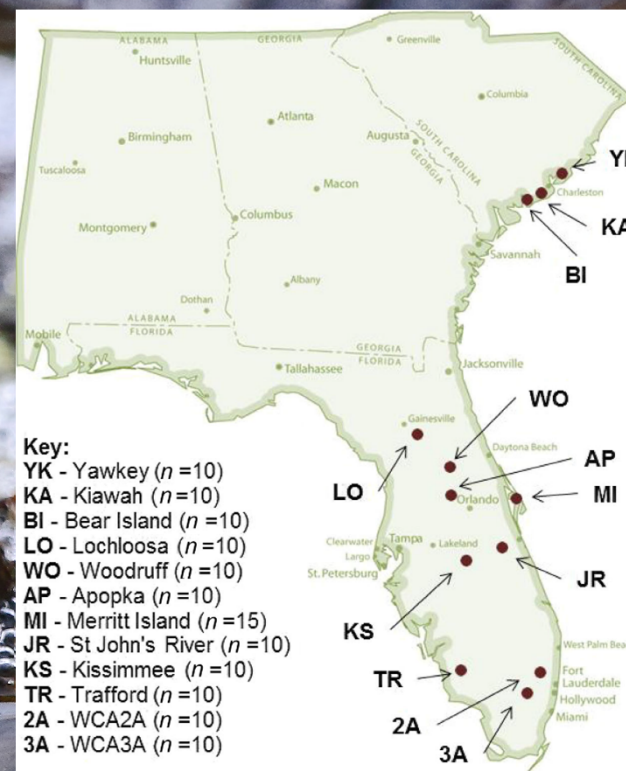
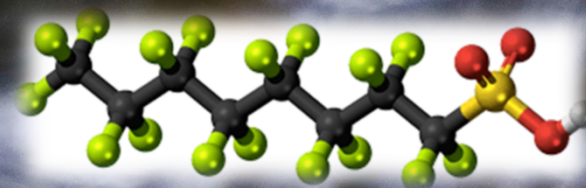
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## Environmental Toxicology

### PERFLUORINATED ALKYL ACIDS IN PLASMA OF AMERICAN ALLIGATORS (*ALLIGATOR MISSISSIPPIENSIS*) FROM FLORIDA AND SOUTH CAROLINA

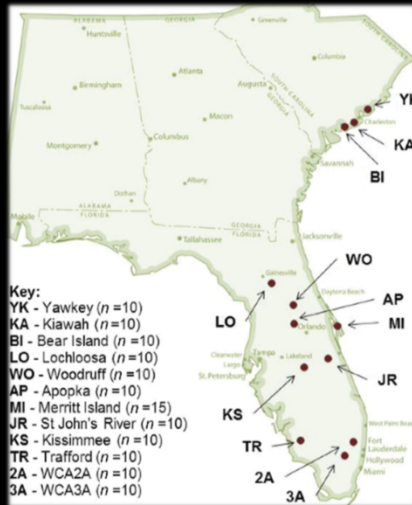
JACQUELINE T. BANGMA,<sup>†</sup> JOHN A. BOWDEN,<sup>‡</sup> ARNOLD M. BRUNELL,<sup>§</sup> IAN CHRISTIE,<sup>||</sup> BRENDAN FINNELL,<sup>#</sup>  
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PFOA PFD<sub>o</sub>A  
PFNA PFTriA  
PFDA PFTA  
PFUnA PFHxS  
PFOS

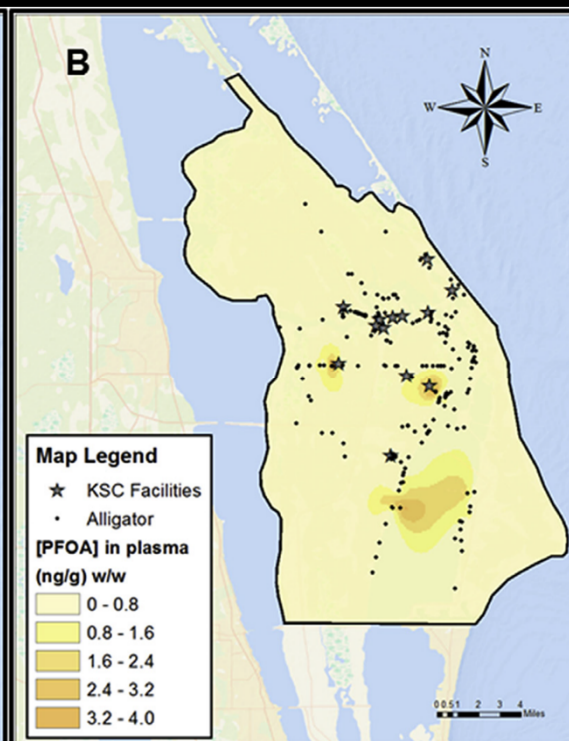
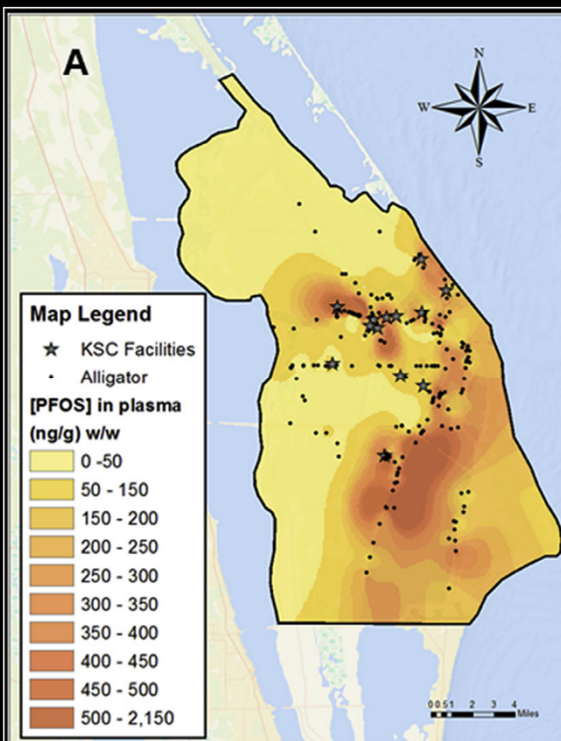




# Range of American Alligator



# 'Hotspots' of PFASs contamination





# Striped Bass: April and May 2018 = 63 adults



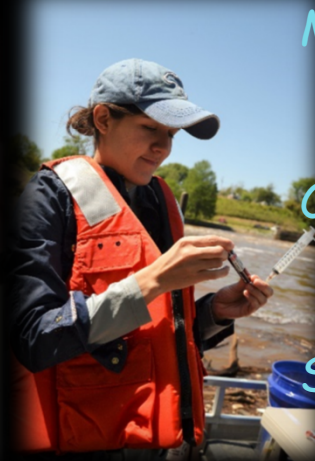
Control Striped Bass:  
planned June

Alligator Sampling:  
Beginning June/July  
Goal 40-50 Adults

MS assay development  
• on going

Catfish sampling  
• liver/kidney/muscle

StriperFest  
• March 2019





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UNIVERSITY

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**H**uman  
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**E**nvironment

  
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 **NIH** National Institute of  
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