Potential food resources in the Suwannee River Estuary for juveniles of the threatened Gulf Sturgeon, *Acipenser oxyrinchus desotoi*.

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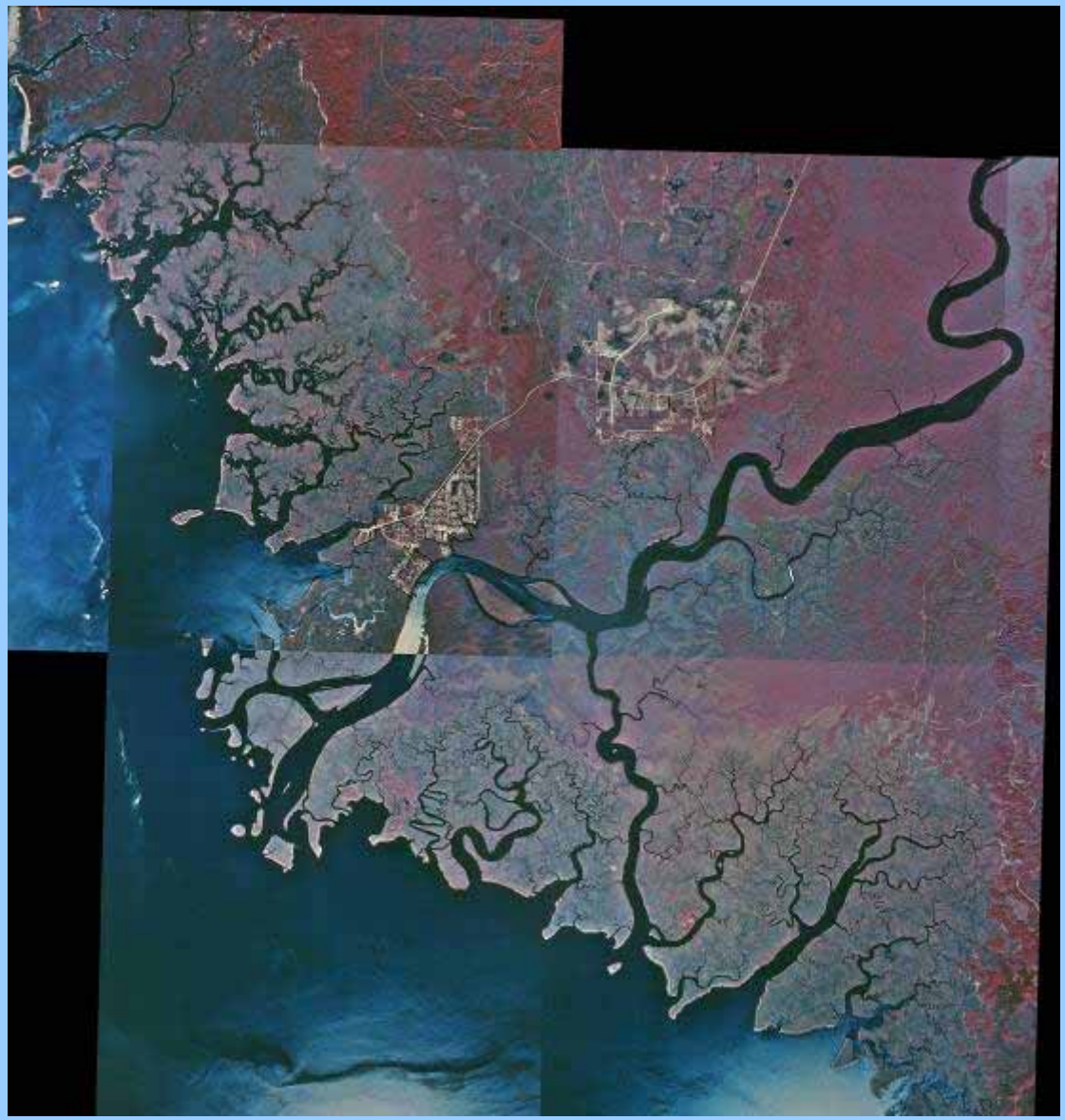
OBJECTIVES

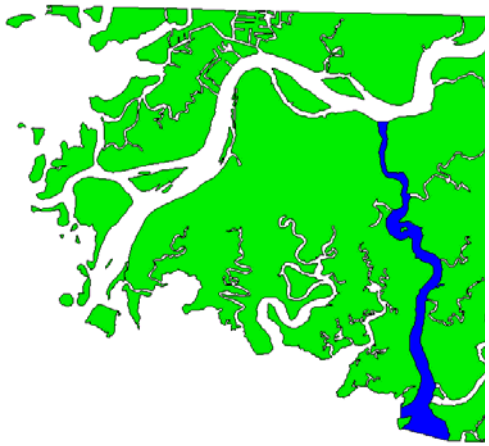
- Discuss the spatial distribution and abundance of benthos in the Suwannee River Estuary.

- Discuss which areas within the estuary are potentially most important in providing food resources for juvenile Gulf Sturgeon.

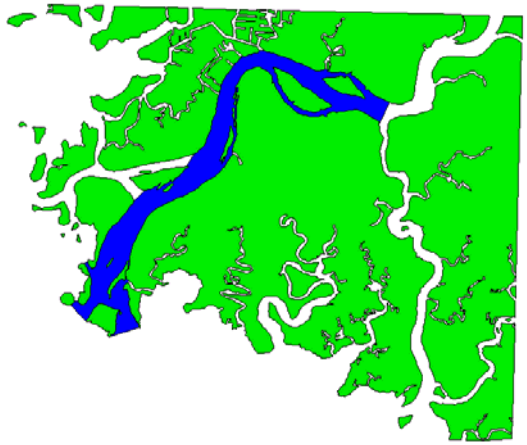
Suwannee River Estuary



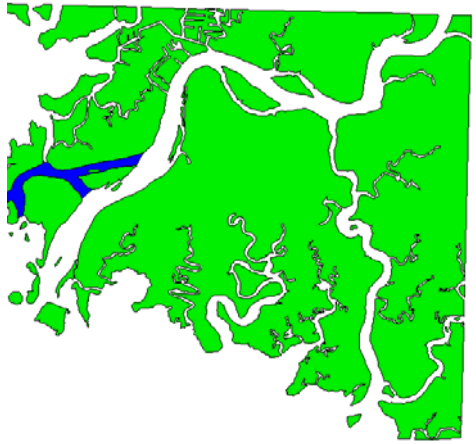
STUDY AREA



EAST PASS



WEST PASS



WADLEY PASS

NORTH SOUND

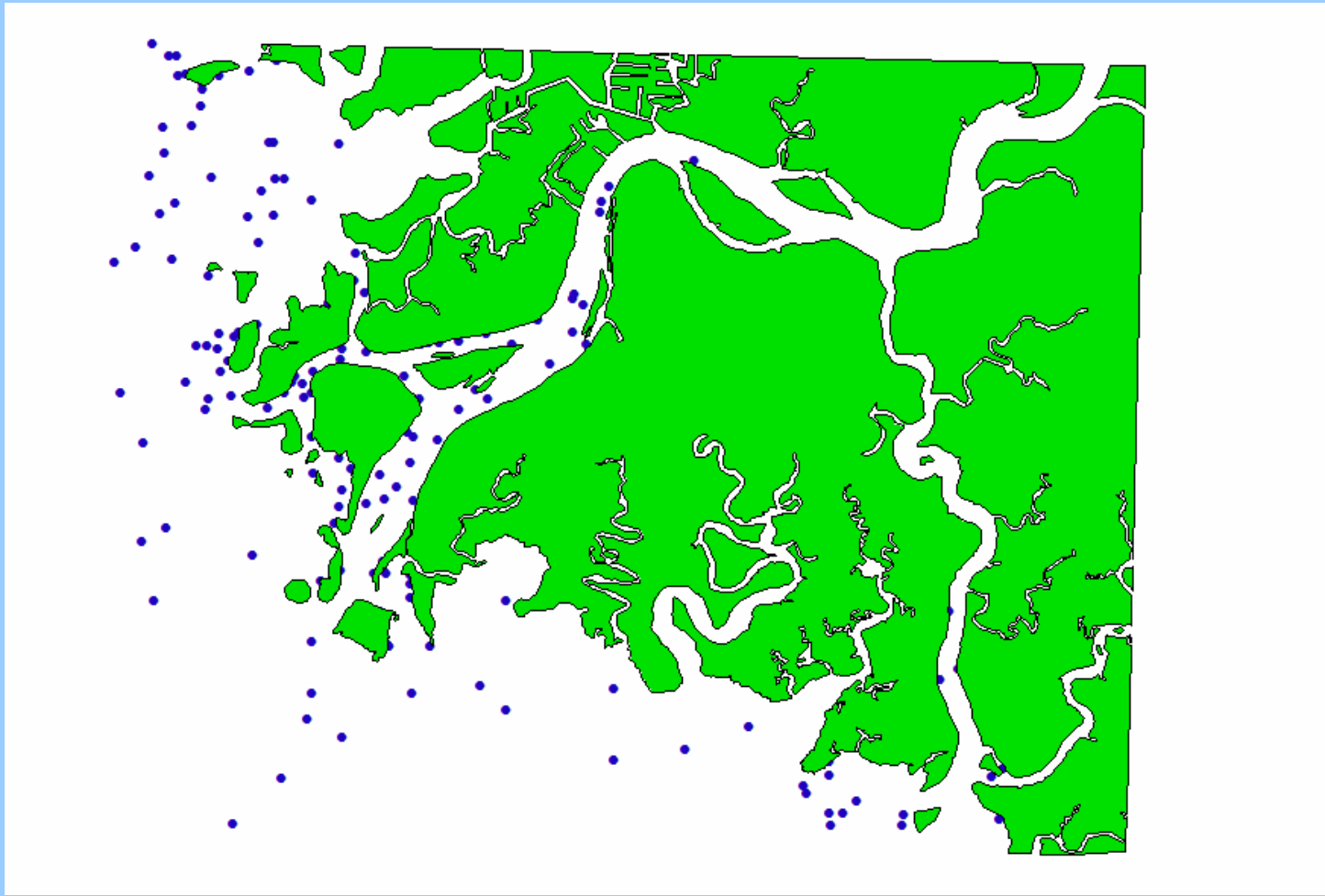
SOUTH SOUND

Sample Site Selection

- A grid (100 m centers) was placed over the entire study area.

- 156 random sites were selected for sampling in June-July 2002

SAMPLING STATIONS
June 2002



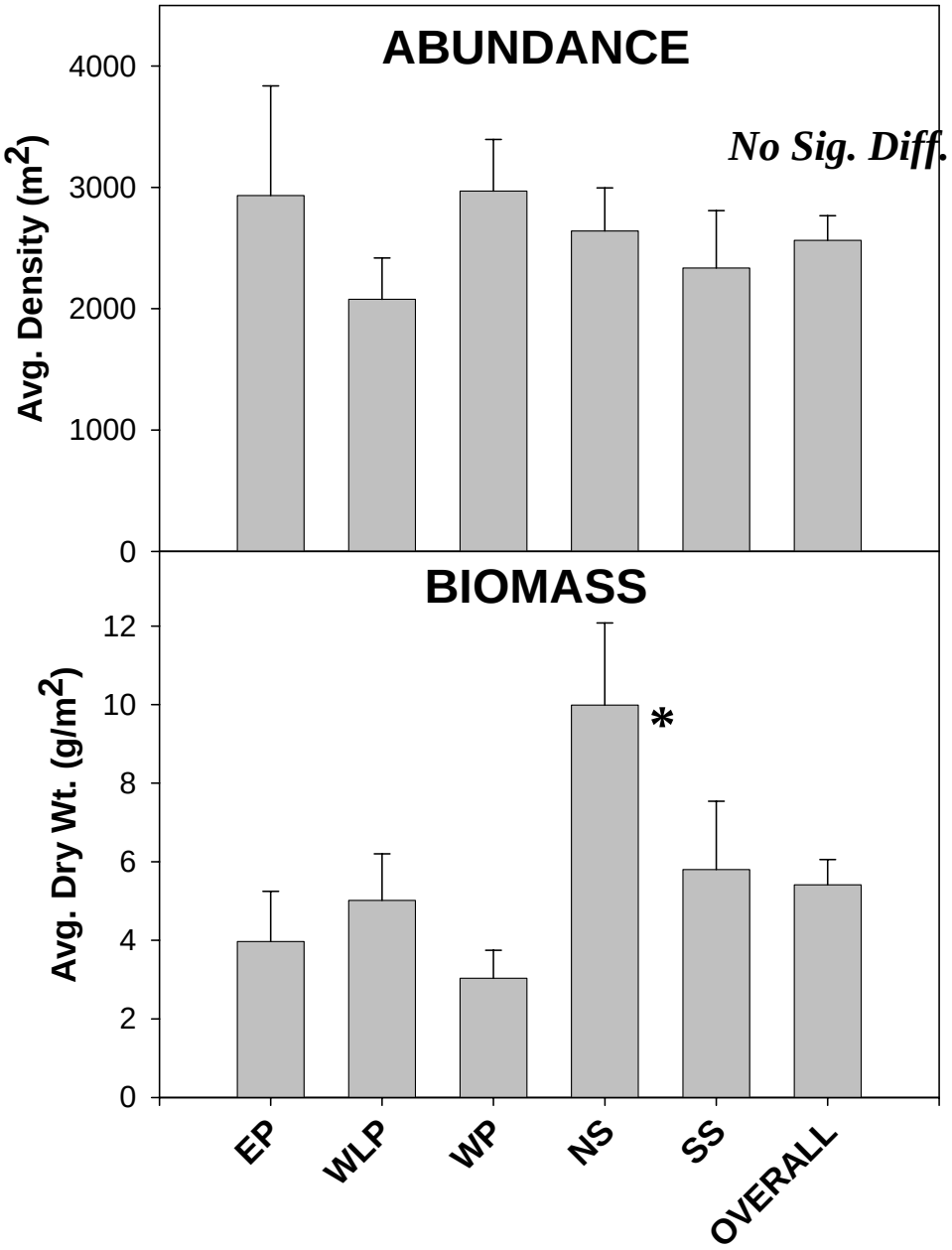
Sampling Methods

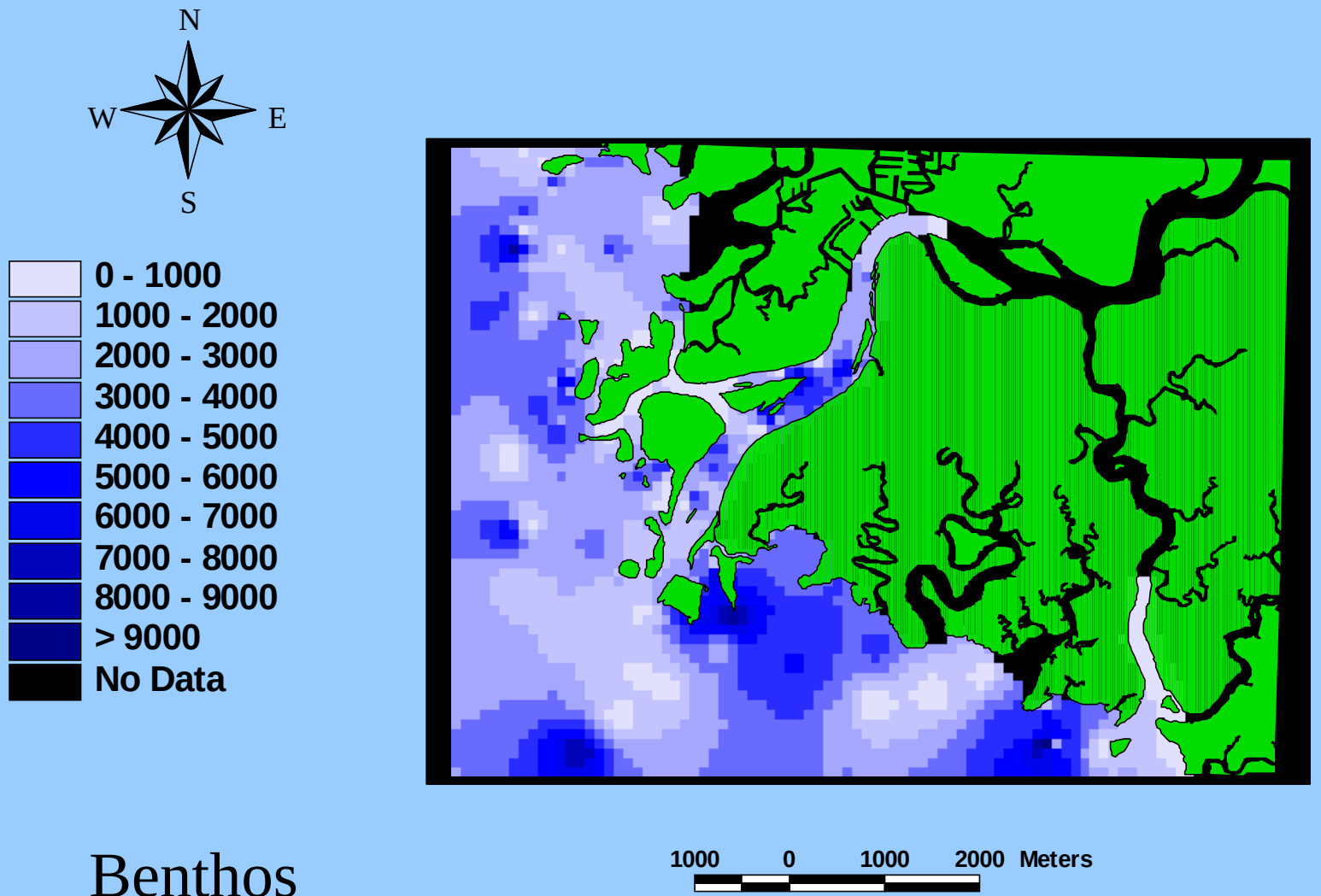
Benthic Core

- 15 cm in diameter (0.018 m^2) and 15 cm deep
- 0.5 mm mesh sieve

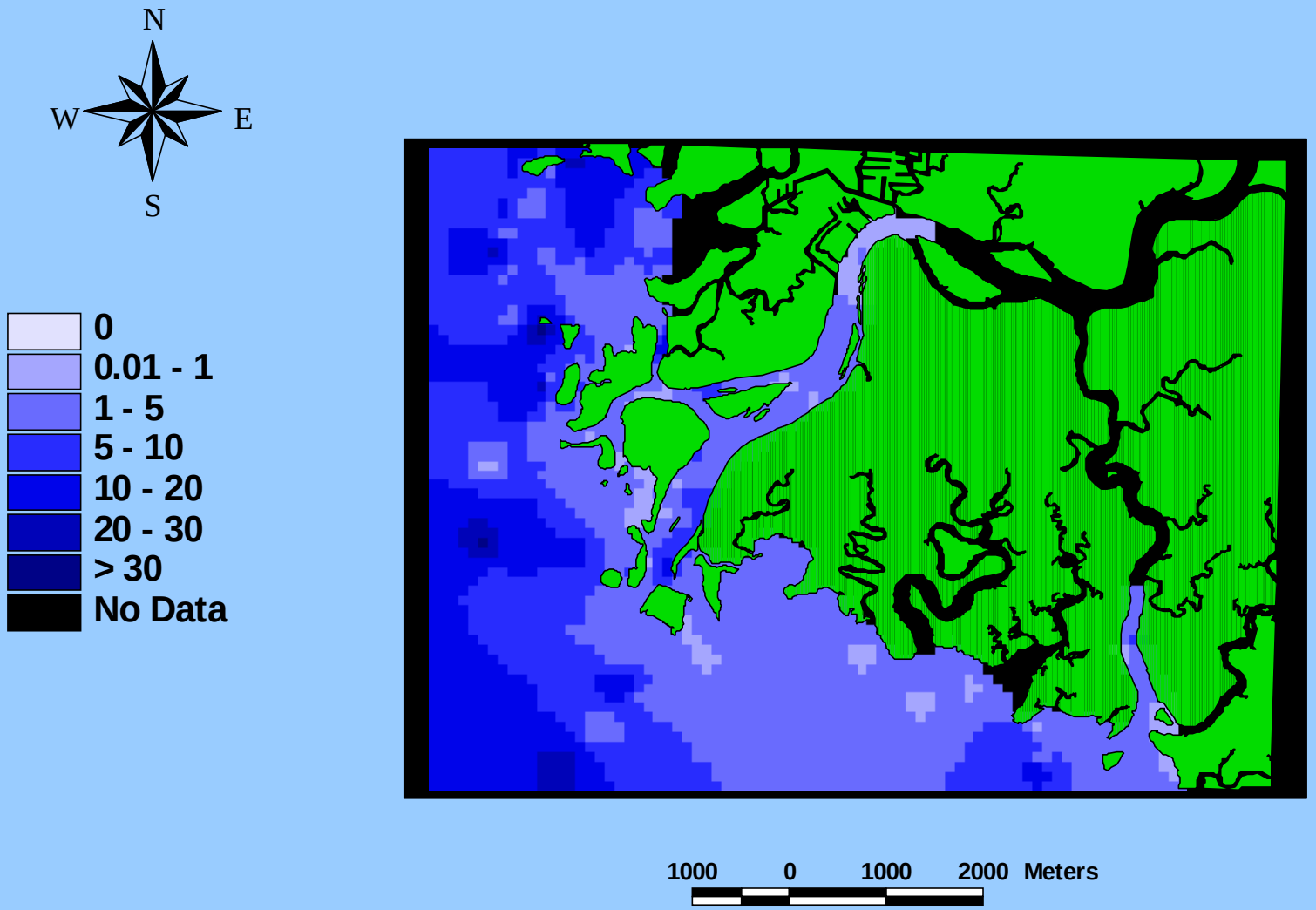
Laboratory Methods

- Fauna abundance
- Sample dry wt. (60^0 - 24 hrs)


ABUNDANCE
Avg. Density (m2)
4000
3000
2000
1000
0
No Sig. Diff.
BIOMASS
Avg. Dry Wt. (g/m2)
12
10
8
6
4
2
0
*
EP
WLP
WP
NS
SS
OVERALL

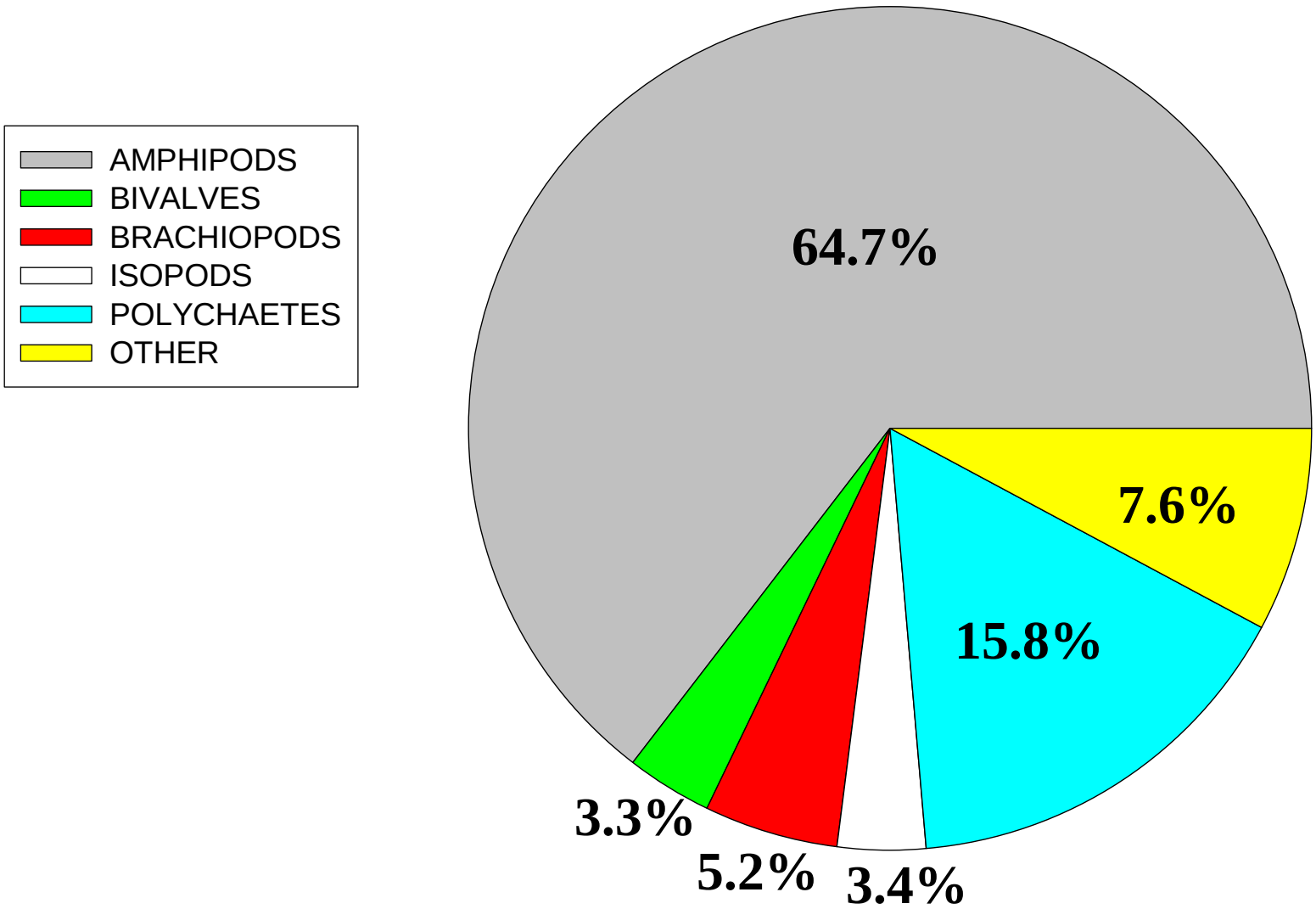


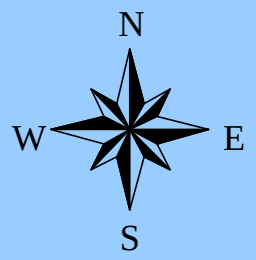
Benthos Density (m^2)

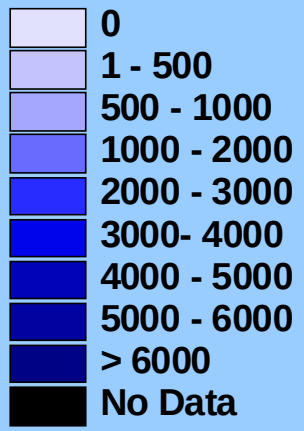


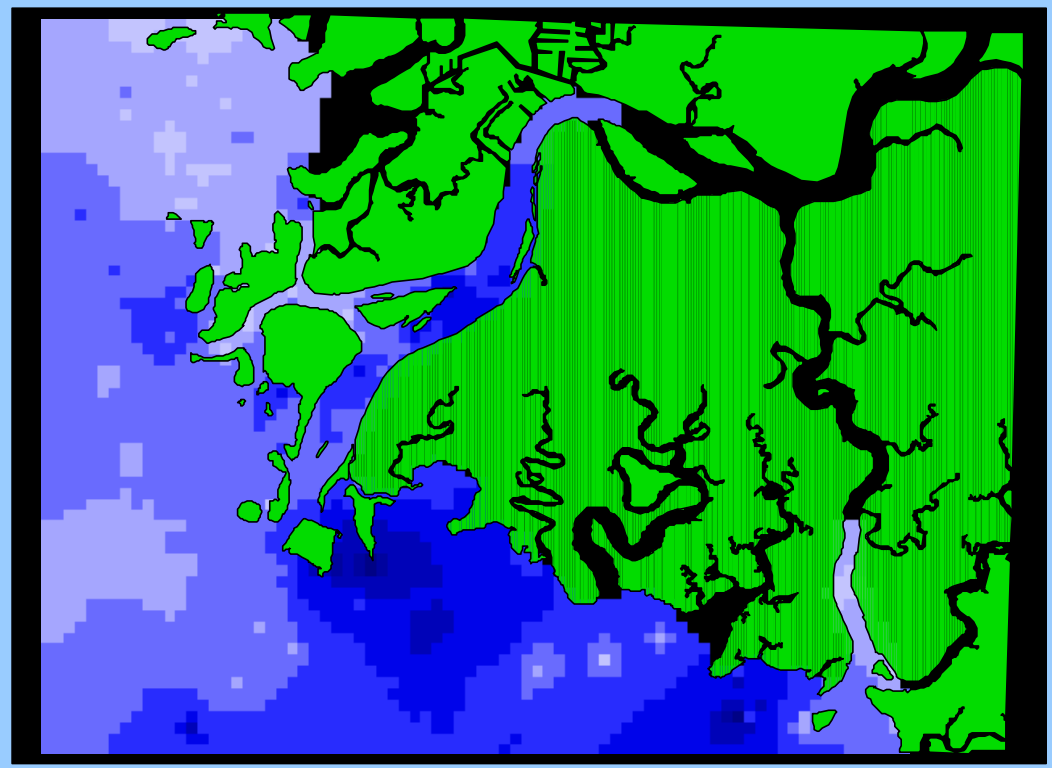
BIOMASS (g/m^2)

Percent Composition of Major Taxa

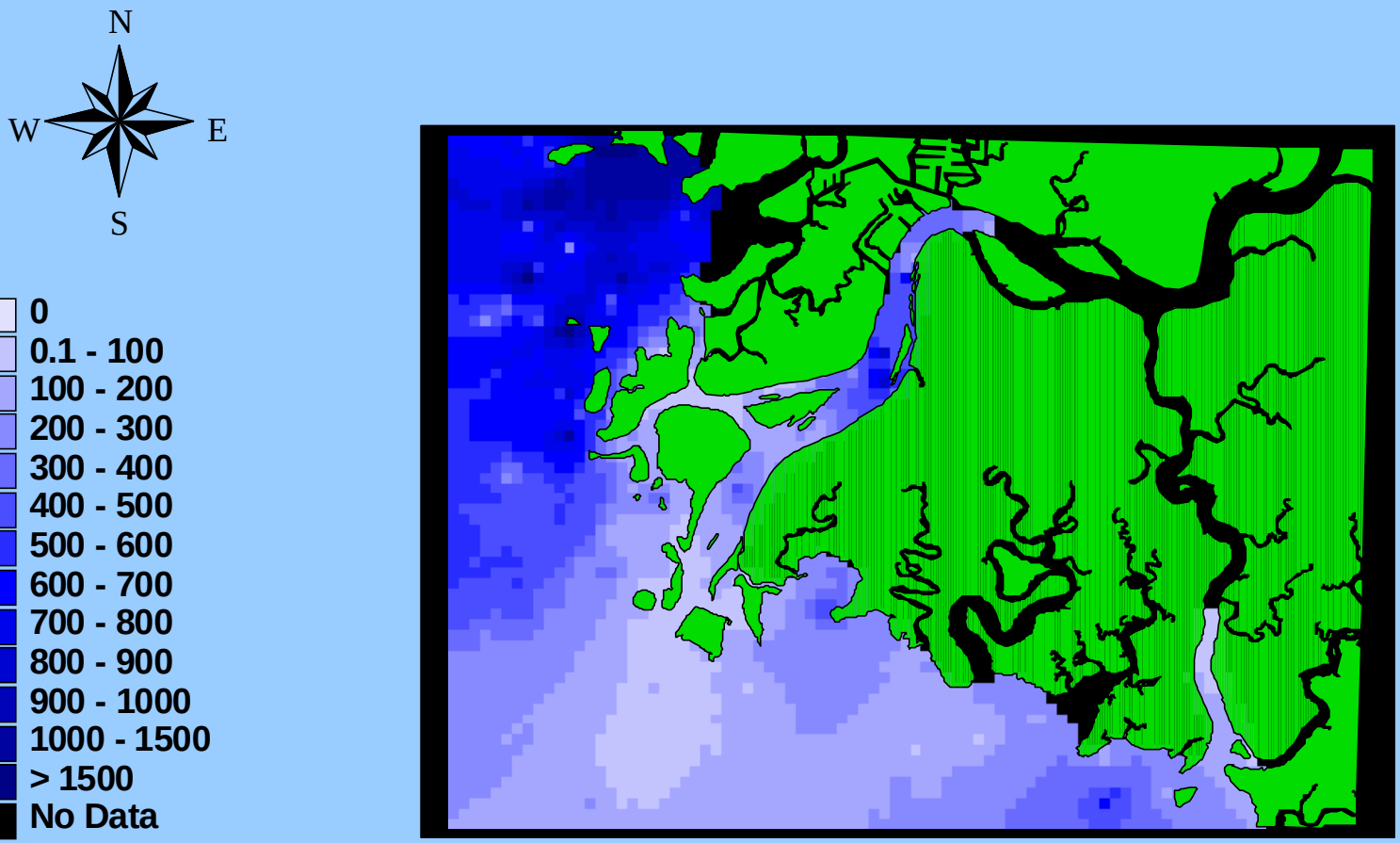








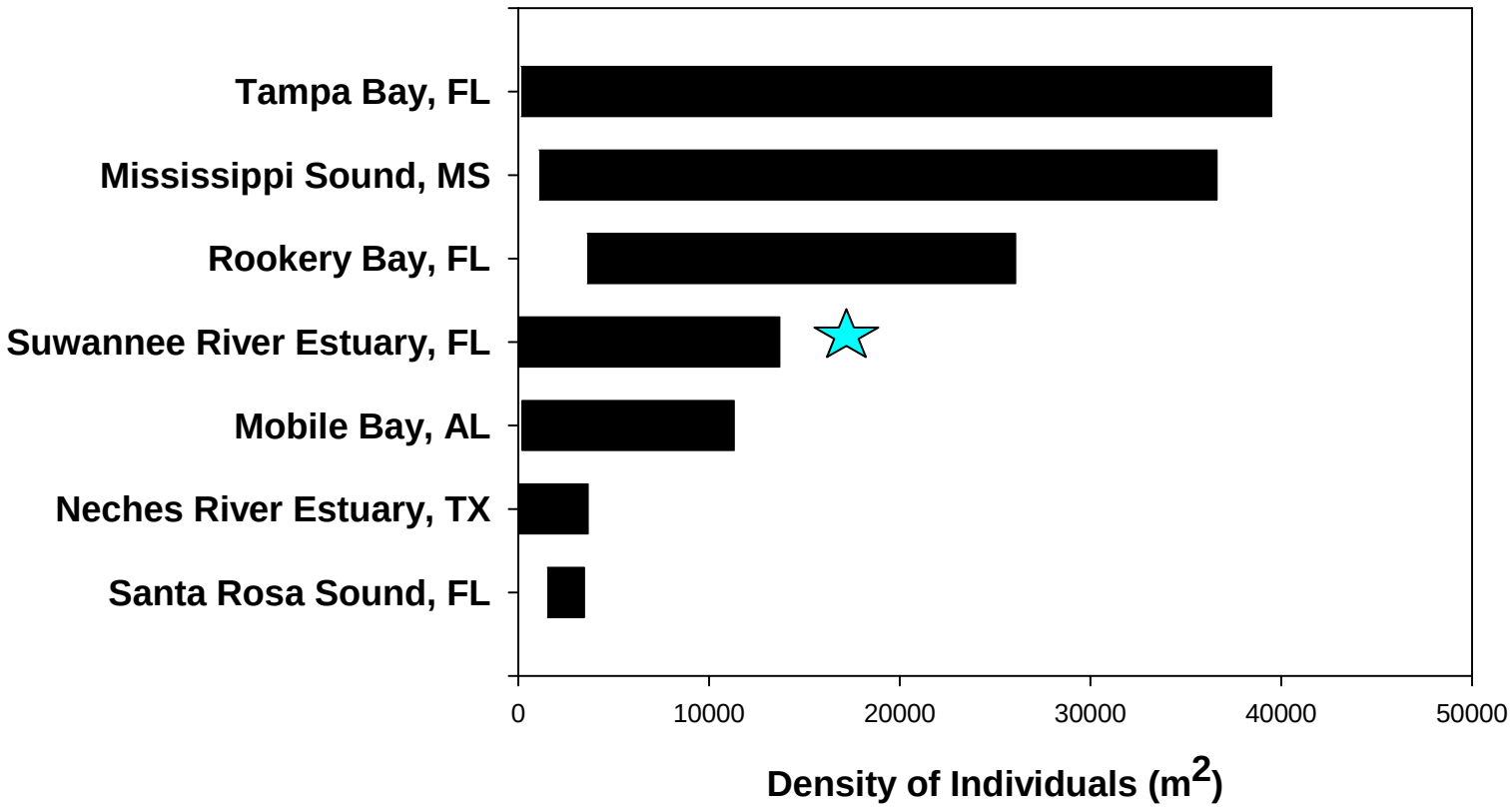
Amphipod Density (m^2)



Polychaete

Density (m^2)

How Does the Suwannee Compare?



Objective 2:

WHAT'S FOR DINNER?

Principal Foods for Juvenile Gulf Sturgeon

•Huff, 1975

- Prefer non-tube building amphipods, isopods, insect larvae and mud shrimps

•Mason & Clugston, 1993

- Prefer non-tube building crustaceans and insect larvae
- Do not prefer organisms with a hard carapace or shell

• Heard et al., 2002

- Prefer non-tube building amphipods

Food Categories based upon Gut Content Analysis

- Principal Foods:

Free Living Amphipods	Shrimp
Isopods	Oligochaetes
Insect Larvae	Brachiopods

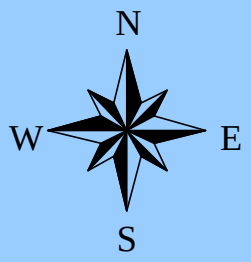
- Secondary Foods:

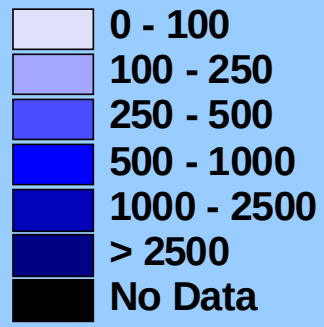
Tube Dwelling Amphipods	Nemerteans
Polychaetes	Nematodes
Cumaceans	Anthozoans
Ostracods	

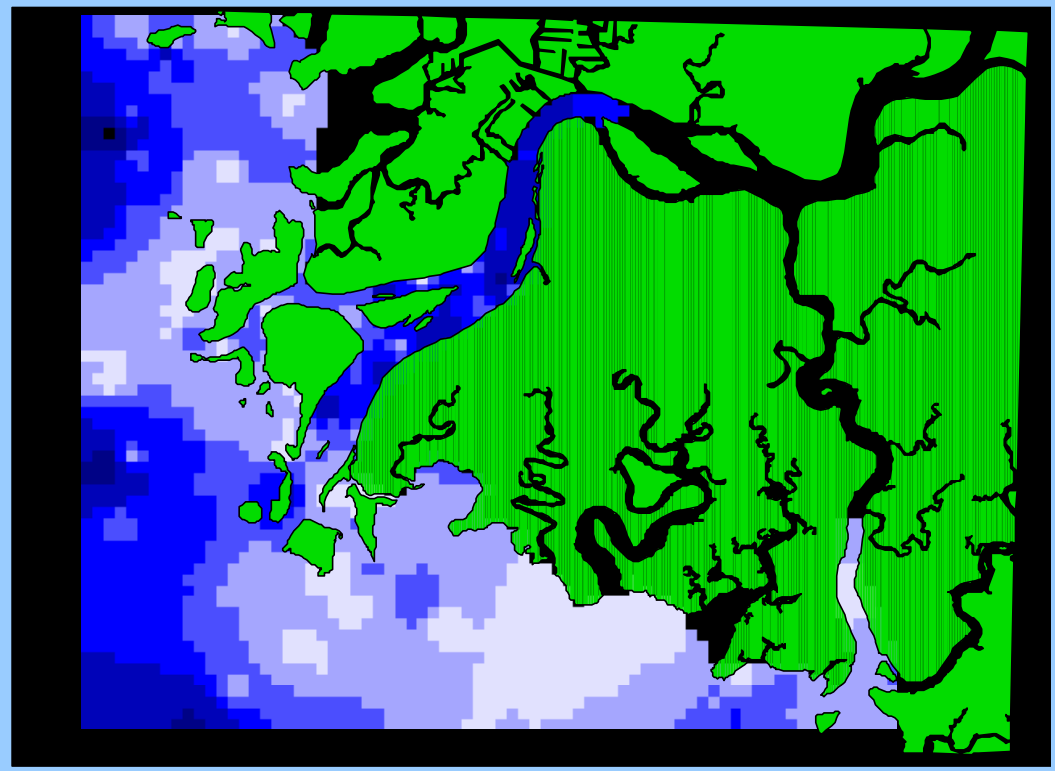
- Minor Foods*:

Ophuiroids	Gastropods
Bivalves	Decapods

* No taxa were excluded from all categories.





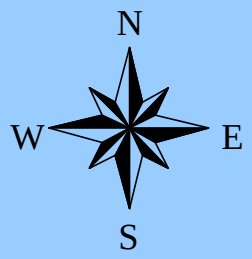


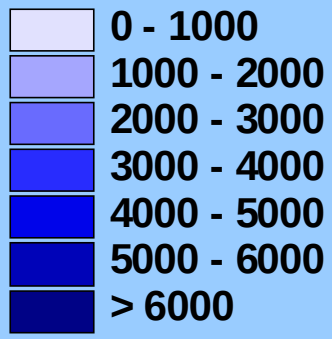
Principal Food Density

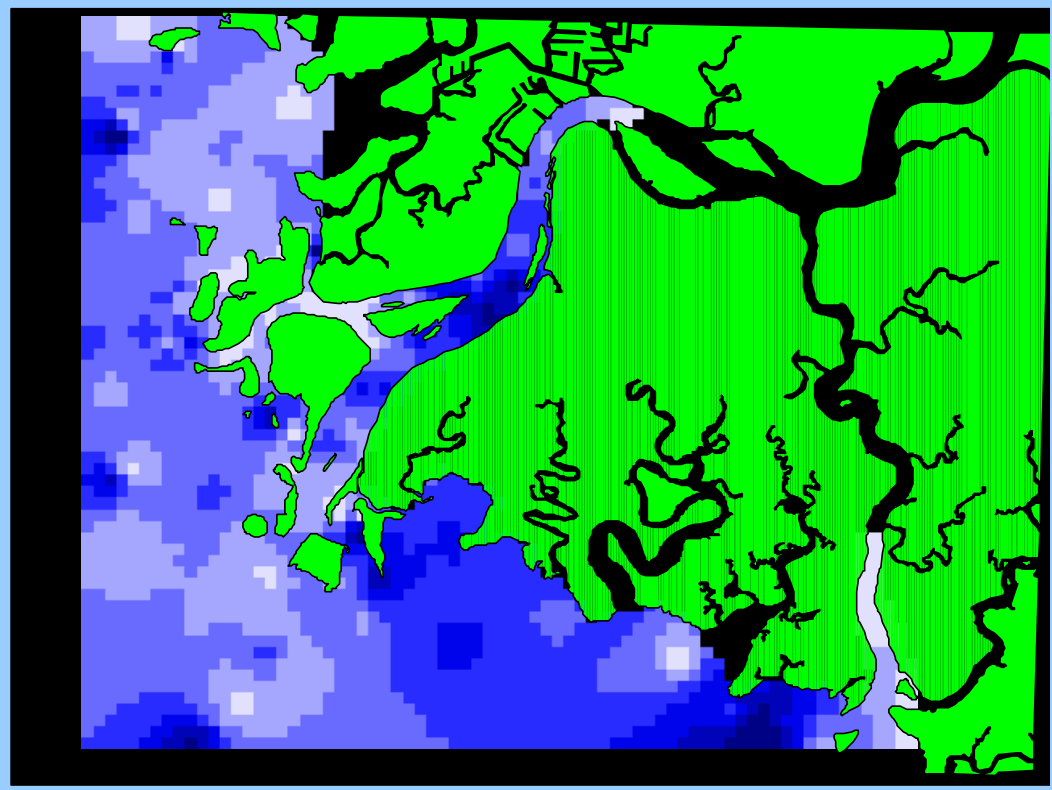
Biased Density

Biased Density =

$[(1.0*\text{Principal Food/m}^2)+(0.66*\text{Secondary Food/m}^2)+(0.33*\text{Minor Food/m}^2)]$







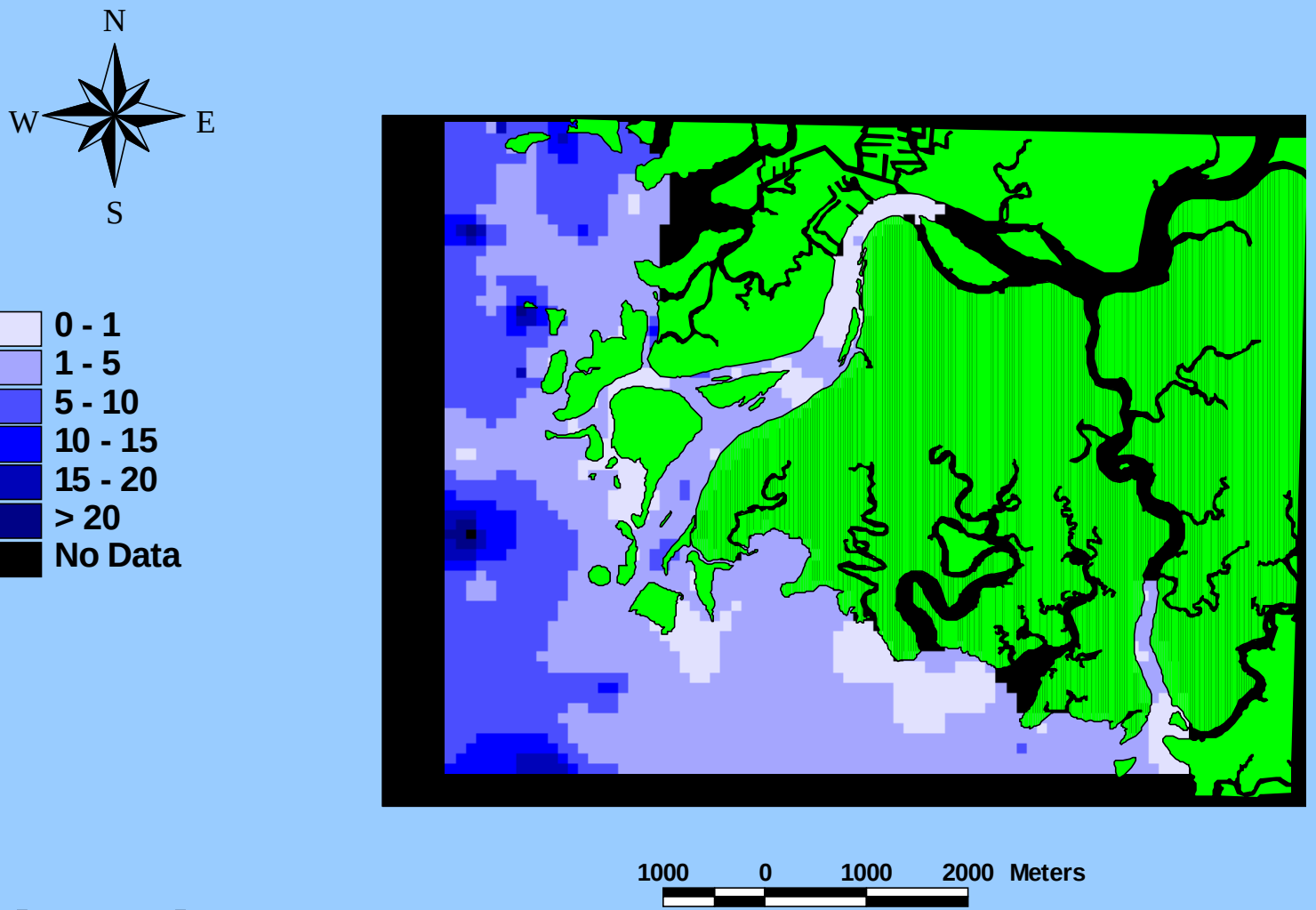
Biased Density

The goal is to include not only faunal density but an idea of energy as well.

Food Index = Biased Density / Total Density

Adjusted Biomass =

Overall Biomass* Food Index



Adjusted Biomass

Conclusions

- The density of benthic macrofauna in the Suwannee River Estuary is within the range of other estuaries around the Gulf of Mexico.
- The distribution of taxa is patchy within the estuary.
- The use of total density may not be the best method for predicting where juvenile sturgeon might be preferentially feeding.

Acknowledgements

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