Drought Zooplankton Paper

# Introduction

## Background

* Review of Drought Synthesis project and how zooplankton ties in.
* Review of Estuary Zooplankton (summarizing FLOAT white paper)
  + Community changes over time
  + Correlation of abundance and distribution with outflow
* Review of initial Zooplankton results in Drought MAST

## Target Taxa background

* Brief summaries of target taxa knowledge, similar to our three zooplankton paper intro
  + H longirostris - Rosie
  + Daphnia - Sam
  + L tetraspina – Christina
  + P forbesi - Arthur

## Questions:

* Do we see regional changes in taxa BPUE?
* Are there env parameters correlated with higher BPUE?
* Does Drought impact the env parameters correlated with higher BPUE?
  + Are the env parameters for taxa changing, or moving?

# Methods

## BPUE calculations

## Regional Drought Changes

* Regional designations (Figure?)
* Grouping and averages
* AOV of taxa regional differences

## GAMS

* BPUE ~ Salinity and month
  + Presence/absence binomial model (glm)
  + Count for just presence negative binomial model (gam)

## Salinity Zones

* Calculating taxa “preferred” salinity zones
* AOV of drought vs wet year BPUE within salinity zone
* Salinity zone distribution between drought and wet years

# Results

## Regional Drought Changes

* Figure: Regional BPUE changes heatmap

## GAMS

* Model decision making (AIC?)
* Model outputs for four target taxa

## Salinity Zones

* Figure: Salinity Bins (could also just be a table)
* Figure: Within Salinity Zone BPUE drought/wet changes
* Figure: Target Salinity Zone distributions

# Discussion

* Regional changes in zooplankton abundance between drought years is likely due to changes in the distribution of their “preferred” salinity zones
* Figure: art/conceptual model of drought > flows > salinity zone distribution > Zooplankton distribution
* Tie this in to the “Zooplankton and Management”
  + How understanding this process can impact management decisions
  + Prey vs predator spatial overlap