

Next steps:

Alternative Hypotheses

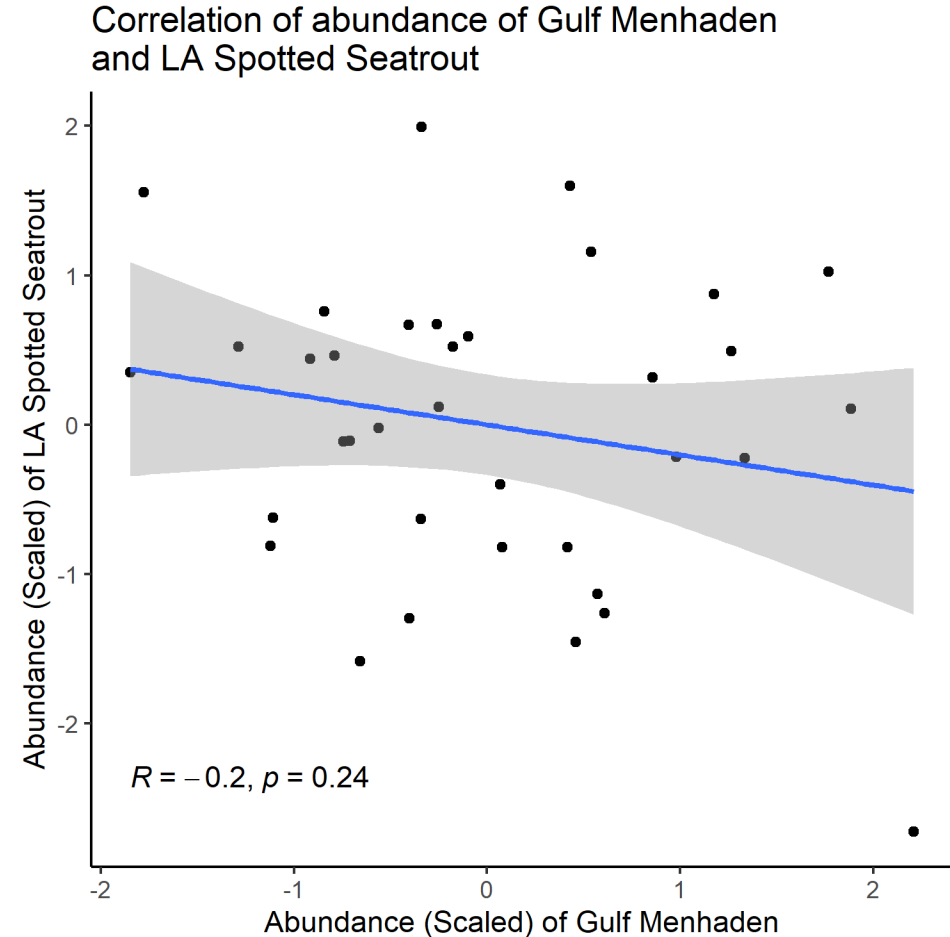
- Recreationally harvested stocks are depleted in GoA
 - SPR for SST
 - Escapement Rate for RD
- What are the proximal and distal causes of decline in recreationally harvested stocks?
 - Evidence from Chee et al. of a portfolio effect
 - What evidence is available to understand these processes

RD and SST dynamics

- Environmental
 - Seasonal temperature
 - Forage base
 - Freshwater
- Anthropogenic
 - Incidental catch
 - Recreational directed harvest

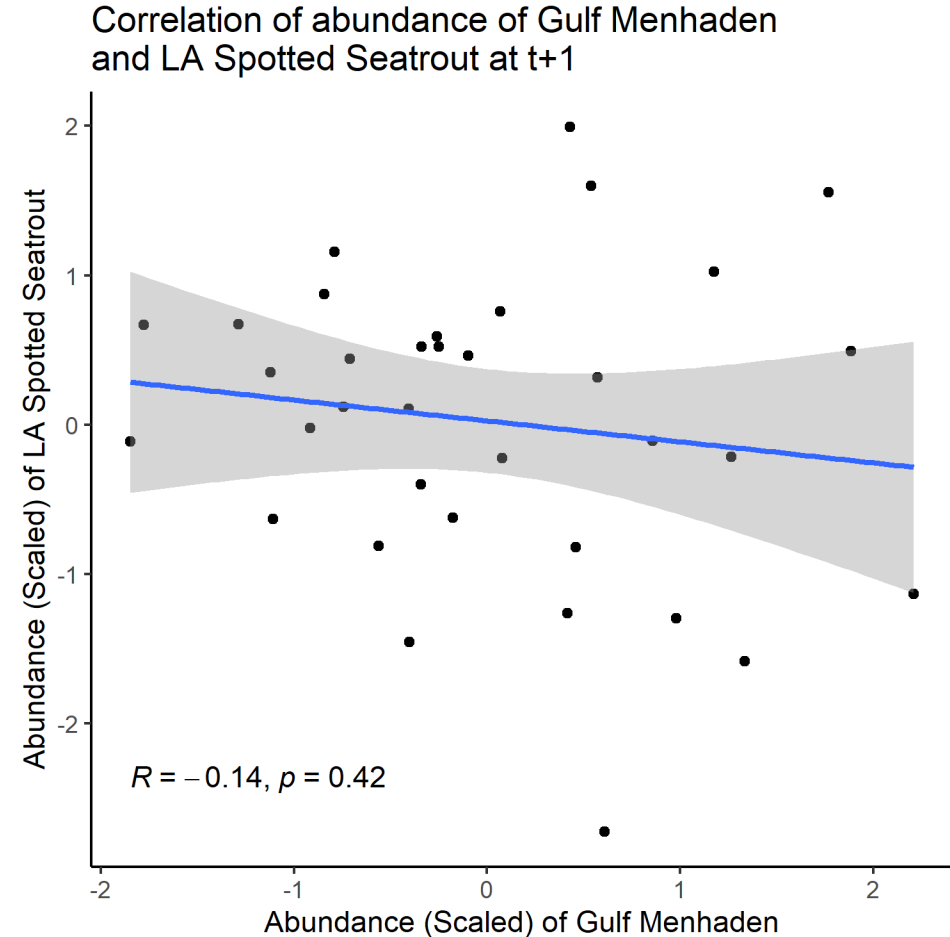
Preliminary Evaluation

- There is a relationship between relative abundance of SST and Gulf Menhaden abundance.



Preliminary Evaluation

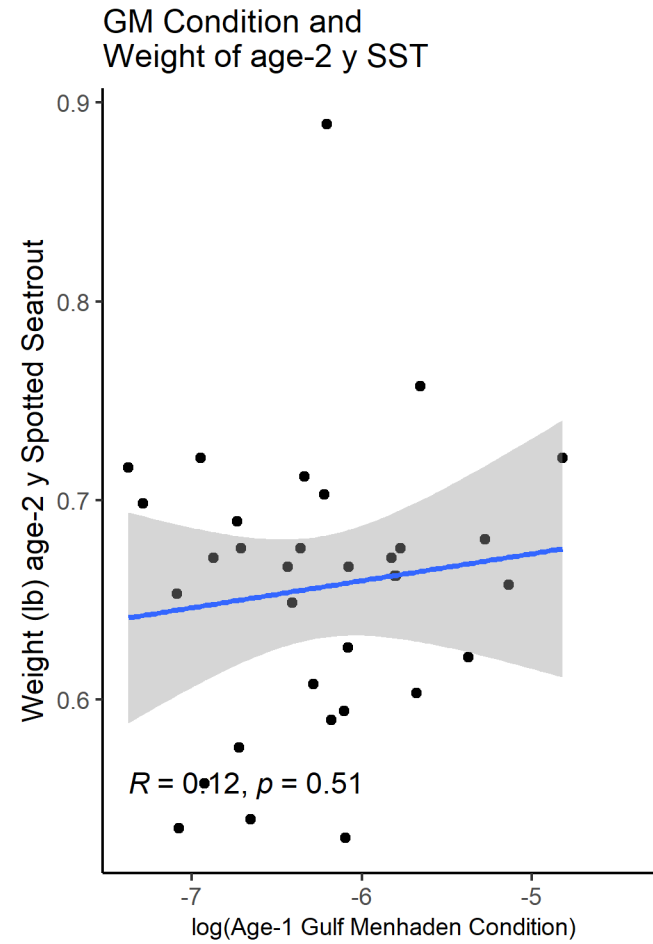
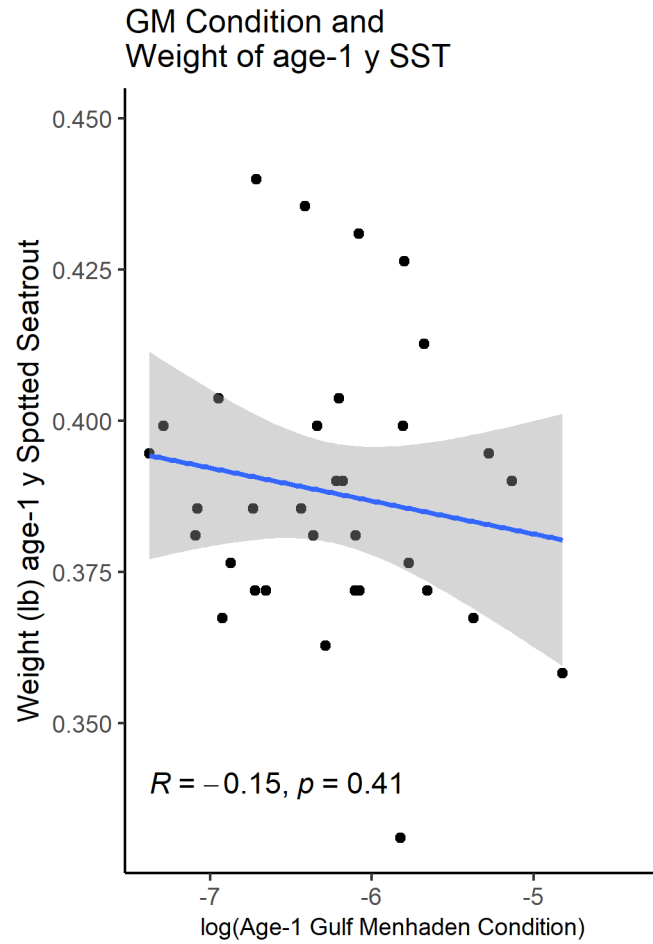
- There is a relationship between relative abundance of SST in year $t+1$ and Gulf Menhaden abundance (previous year abundance).



Preliminary Evaluation

- There is a relationship between **relative condition** of SST in year t and Gulf Menhaden abundance in year $t-1$ (previous year abundance) or year t .

Preliminary Evaluation



Alternative Approach: Struct. Eq. Modeling

- Allow quantification of:
 - 1.) the strength and direction of functional linkages,
 - 2.) standardized path coefficients, and
 - 3.) graphical representations of these relationships.
- Assess the relative contribution of environmental, biological, and anthropogenic factors to observed trends in stock abundance (focusing on Spotted Seatrout)

Alternative Approach: Struct. Eq. Modeling

- The structural equation modeling (SEM) analysis for Spotted Seatrout is based on 31 years of data
 - Fishery-independent and fishery-dependent sources.
- The data includes up to ~35 candidate features representing:
 - abundance at different life stages,
 - environmental conditions, and
 - fishing activity

Preliminary Model

