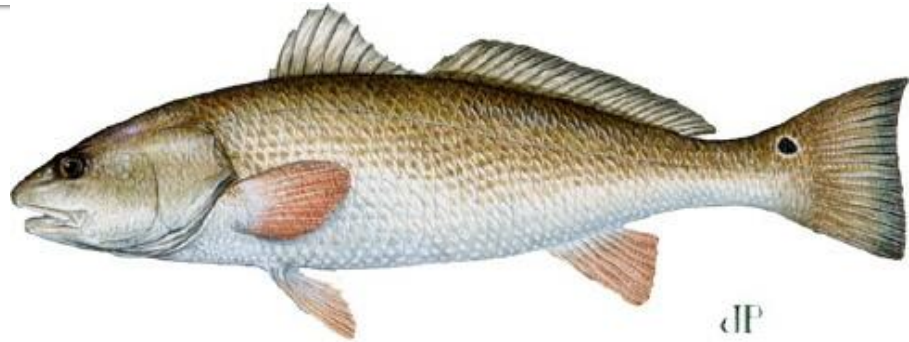
Tab G, No. 6

Logistics and Estimated Costs of Conducting a Gulf-wide Red Drum Study



Council Motion – October 2020

<u>Motion</u>: To request staff provide guidance on using 2020 budget funds for the intention of red drum independent offshore purse seine data and an independent stock assessment on gray triggerfish.

Overview

- Management Status
- Logistics and Considerations
- Main Questions to Estimate Abundance
- Estimated Costs of Study
- Study Areas in the Gulf of Mexico
- Next Steps

Management Status

- Red drum closed in federal waters since 1988
- Inshore fishery with effort on juveniles and sub-adults throughout state waters in the Gulf of Mexico
- Each state manages these fisheries independently based on subadult red drum escapement rates

Logistics and Considerations

- Adult and subadult red drum form large spawning aggregations in Gulf federal waters
- Multiple sampling methods have been employed:
  - **Aerial Surveys**: determine number and abundance of spawning aggregations
  - **Purse Seine**: determine abundance (fish can be tagged)
  - **Genetic profiling**: determine abundance and closed-population CMR model (mark-recapture)
  - **Acoustic tracking**: internal tags transmit to receivers to track movement
  - **Mark-Recapture**: with external tags to estimate movement, exploitation, and discard mortality

See Lowerre-Barbieri et al. 2018

Main Questions to Estimate Abundance

1. **What sample sizes are needed to adequately characterize the age structure?**
   - Need to sample about 60 schools and 10-20 fish per school
2. **What impact will harvesting fish for the survey have on red drum stocks?**
   - Survey harvest equal to 5,616 fish, which was obtained by sampling 36 schools with 156 fish collected per school
3. **How many fish need to be marked and recovered to estimate population abundance?**
   - Approximately 20,000 fish and recover/inspect 50,000 fish

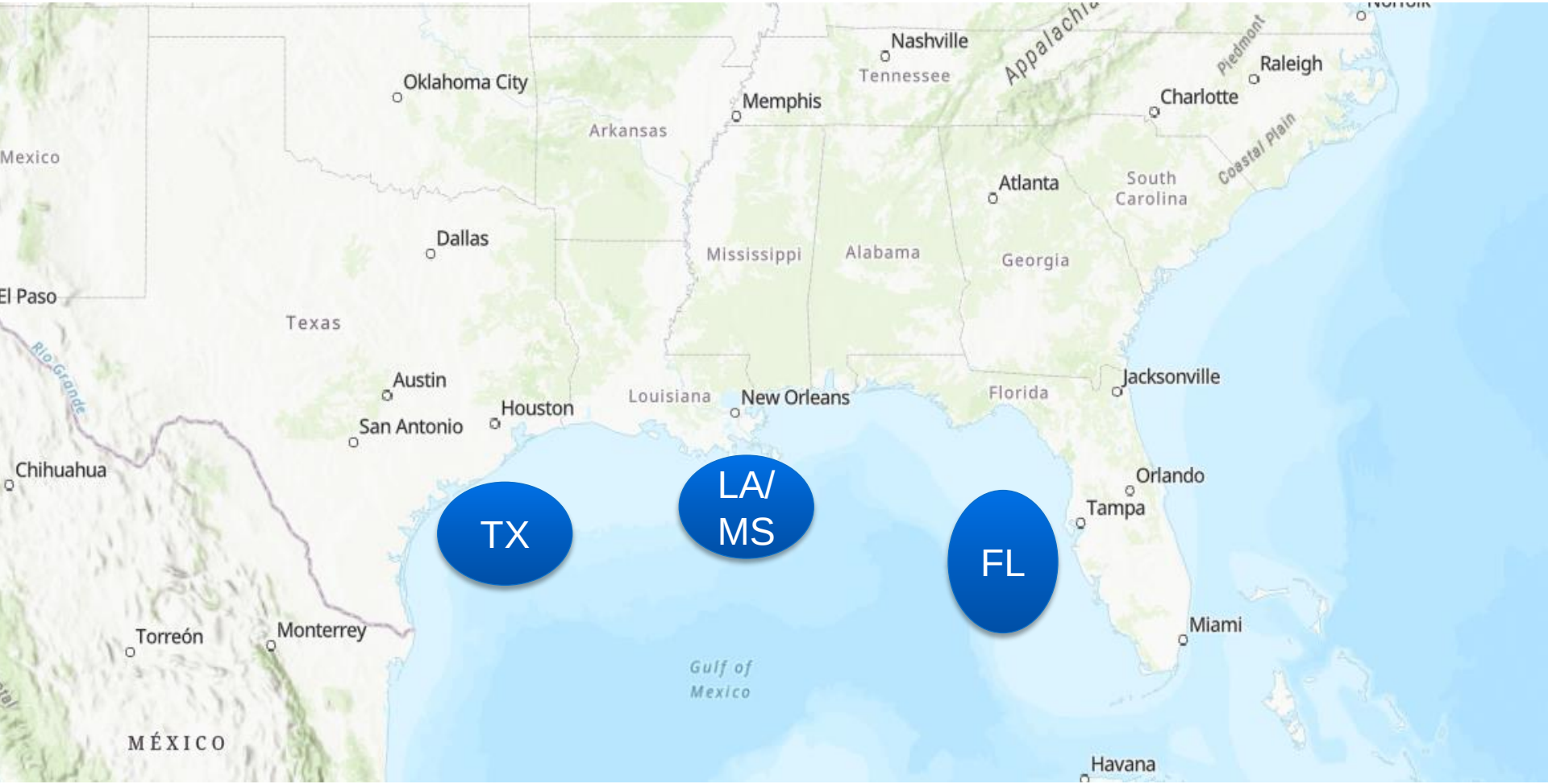
Linton, B. 2008. Recommended age composition and mark-recapture study sample sizes for Gulf of Mexico Red Drum

Estimated Costs of Study for Each Area

Personnel	Field Supplies	Laboratory Supplies	Vessel Costs	Aerial Surveys	Total
8 Techs hourly	Acoustic Receivers ($2,200 x 35 = $77,000)	Genomics Processing ($75,000)	Purse Seiner Vessels and Spotter Planes	Aerial Surveys	
1-Post Doc	Batteries ($25 x 150 = $3,750)	Specimen Genotyping ($3,600)	$6,000 per day x 8 trips = $48,000	$1,500 per day x 12 trips = $18,000	
Part-time Geneticist	Measure boards, scales, floats, etc. ($5,000)	Vials and office supplies ($2,000)			
Sub-Totals					
$400,000	**$85,750**	**$80,600**	**$48,000**	**$18,000**	**$632,350**

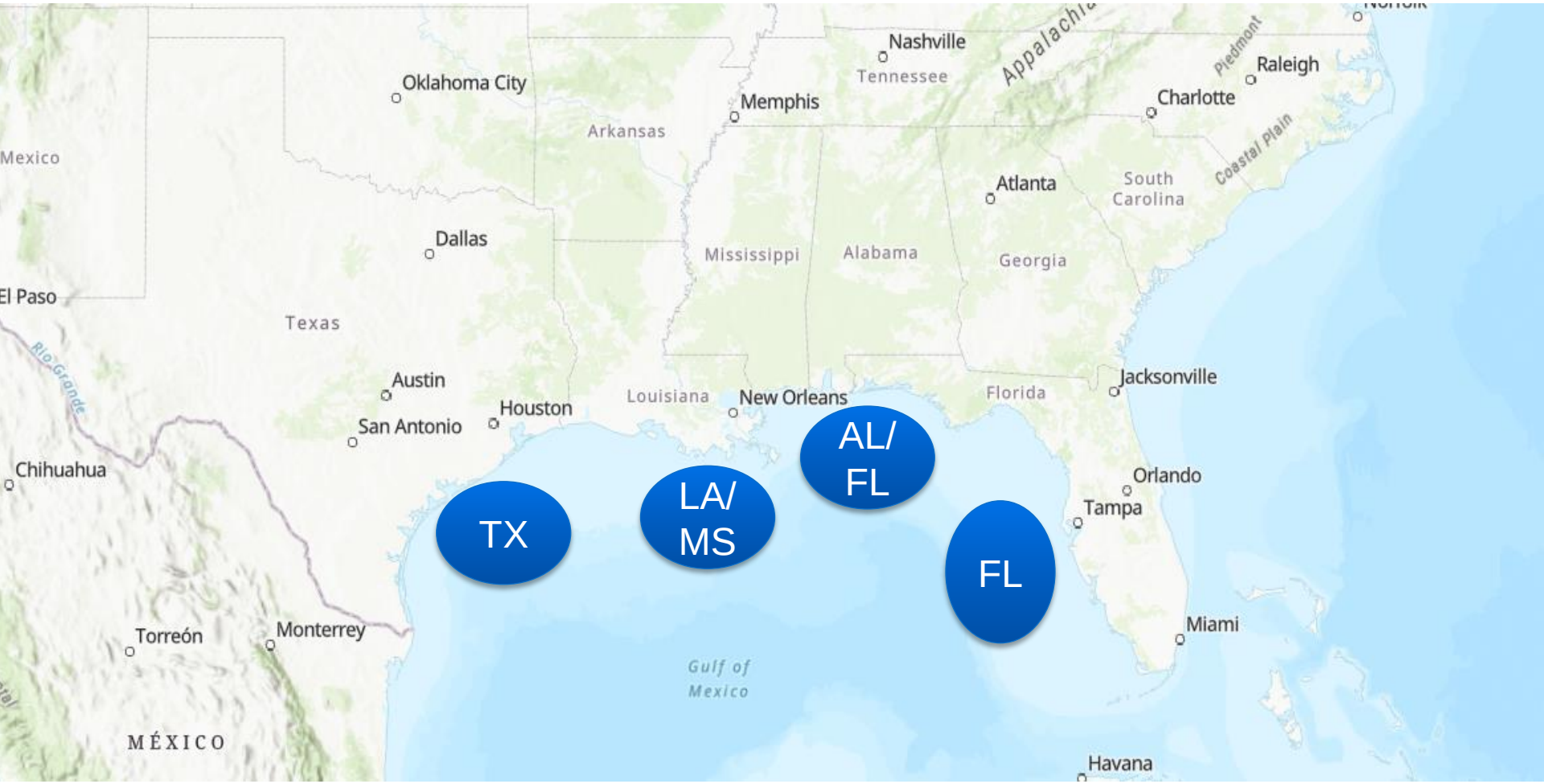
Study Areas in the Gulf of Mexico

Three main sampling regions:



Study Areas in the Gulf of Mexico

Might be necessary to include waters off FL panhandle /AL



Estimated Costs of Study

- Estimated sampling costs for each area: $632,350 x 3 regions x 3 years = $5,691,150 total project cost
- Four regions are sampled $632,350 x 4 regions x 3 years = $7,588,200 total project cost
- Costs could be greater for universities due to overhead
- Costs could be less for state/federal agencies
- Personal communication S. Lowerre-Barbieri 2021

Next Steps – Does the Council want to move forward?

- SSC for review and development of a Request for Proposals, may need to consult with independent experts
- Add to budget and determine how much funding and number of years
- Post Request for Proposals and determine review and ranking processes
- Consider cost benefit analysis and management implications of project results

Questions?