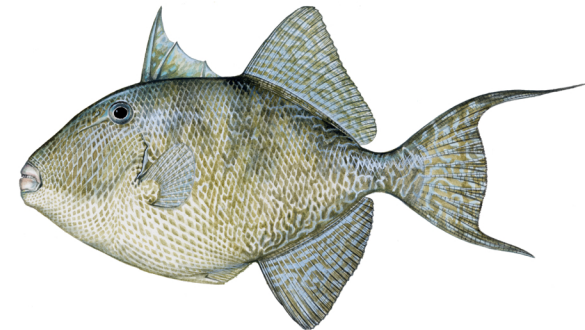




# Gulf Gray Triggerfish Age Validation Challenges and Recommendations.



# Overview

- Assessment and Management Status
- Council Request
- Gray Triggerfish Aging Issues
- Potential Methodologies
- Considerations for Stock Assessment
- Questions for SSC



# Assessment and Management Status

- Last approved stock assessment terminal year 2015
- SEDAR 62 was terminated because of irreconcilable data issues; Research Track recommended
- Aging of gray triggerfish a top concern
- Gray triggerfish not overfished or undergoing overfishing; however, stock is in rebuilding plan
- Important socio-economic species, particularly in the northern and eastern Gulf of Mexico



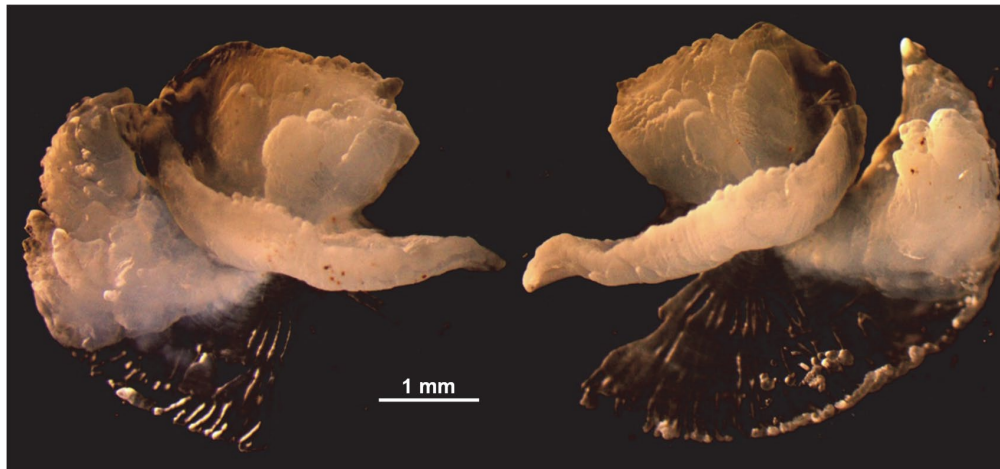
# Council Request

- Council determined that 2020 unspent funds should be considered for special research and data needs ~\$800,000 total
- Council requested staff to evaluate research gaps, such as aging issues with gray triggerfish, and determine possible contributory research for the SEDAR Research Track assessment scheduled in 2023
- Council also considering assisting with expansion of a pilot project for effort monitoring of the shrimp industry electronic logbook program

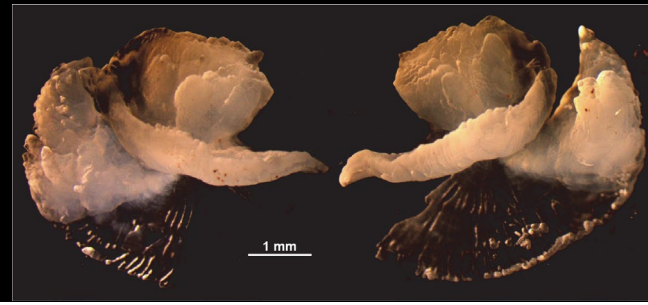


# Gray Triggerfish Aging Issues

- Spines historically used for ageing by counting translucent zones on the first dorsal spines
  - Need for sex-specific age and growth curves (Jefferson et al. 2019; Allman et al. 2017; Simmons and Szedlmayer 2012)
- Otoliths difficult to extract; small and fragile (photo of otoliths from Patterson et al. 2019: SEDAR62-WP-17)



# Aging Issues Continued



- Study using bomb radiocarbon validation to compare spines and otoliths: Potential aging bias: may underestimate age by 1 to 2 years (Patterson et al. 2019: SEDAR62-WP-17)
- Study in Ghana and U.S. South Atlantic compared aging of spines and otoliths: Potential aging bias starting at age-3 (Shervette et al. 2021)
  - Developed methodology for extracting otoliths
- Studies did not consider sex when estimating aging differences in hard parts (dorsal spines vs otoliths), but no evidence that increment formation differs

# Potential Methodologies

- Bomb radiocarbon validation may be more accurate for ageing hard parts
  - Expensive (\$300/fish)
- Mark recapture
  - Expensive due to field work (\$500,000?)
  - May be too difficult to tag the number of fish and subsequently recapture them to get aging validation completed within this time frame

# Considerations for Stock Assessment

- After aging validation study completed – how will this be apply in SEDAR?
  - Ideally would have good sex-specific growth curves
- If otolith are necessary, how do we practically age large numbers of gray triggerfish moving forward?
- Is it possible to determine a correction bias for previous hard parts samples from this type of study?
- Would the sampling protocols for hard parts need to be amended?





# Questions for the SSC

- Is the timeline reasonable to produce data by 2023?
- Are the expected products valuable to future gray triggerfish stock assessments and management?
- Are the proposed funds adequate to fund the intended research?



# Feedback

