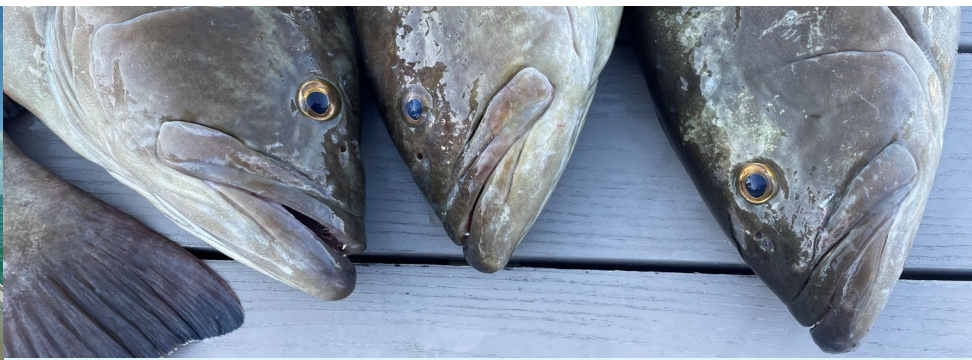




Tab B, No. 8(a)

Reef Fish Amendment 56 / 2022 Gag Grouper Emergency Rule:

# Gag Grouper Fishery Dynamics in the Gulf of Mexico



# Background

- SEDAR 72 found Gulf gag grouper to be overfished and undergoing overfishing
  - Only about 2% of SSB is male
  - Sectors not landing their ACLs
- Council and SERO working on emergency rule to reduce F
- Council working on RF Amendment 56, which will create gag rebuilding plan



# A Little Life History...

- Protogynous hermaphrodites: born female, transition to male
- 50% of females sexually mature by 3.9 years old (~24 in TL)
- Spawn January – April; peak in mid-February – mid-March



- Juveniles settle inshore in seagrass beds and shallow relief
- Adults move to deeper nearshore/offshore reefs
- Previously thought gag “move inshore” in winter; tag data refutes this assumption to some degree
- Aggregate spawners: one male can fertilize several females

# Gulf Gag Grouper Directed Fleets

## Recreational Sector

- Federal for-hire fleet
- Private vessels and State for-hire fleets

## Commercial Sector

- IFQ Program:
  - Vertical Line
  - Longline





# Gulf Gag Grouper Directed Fleets: Recreational Sector

- Landings spike when fishing season opens June 1
  - Anglers fish deep, cool water for actively feeding gag grouper
- Landings drop off considerably in July as water warms
- Landings remain low until late-October
  - First cold fronts start to arrive, water temperature drops
- Landings spike in November and remain high through December 31.
- Recreational spearfishing more popular in Nov/Dec
  - Summer rains over, and water is cool and clear
  - Cool water = active gag grouper bite, especially nearshore

# Gulf Gag Grouper Directed Fleets: Commercial Sector

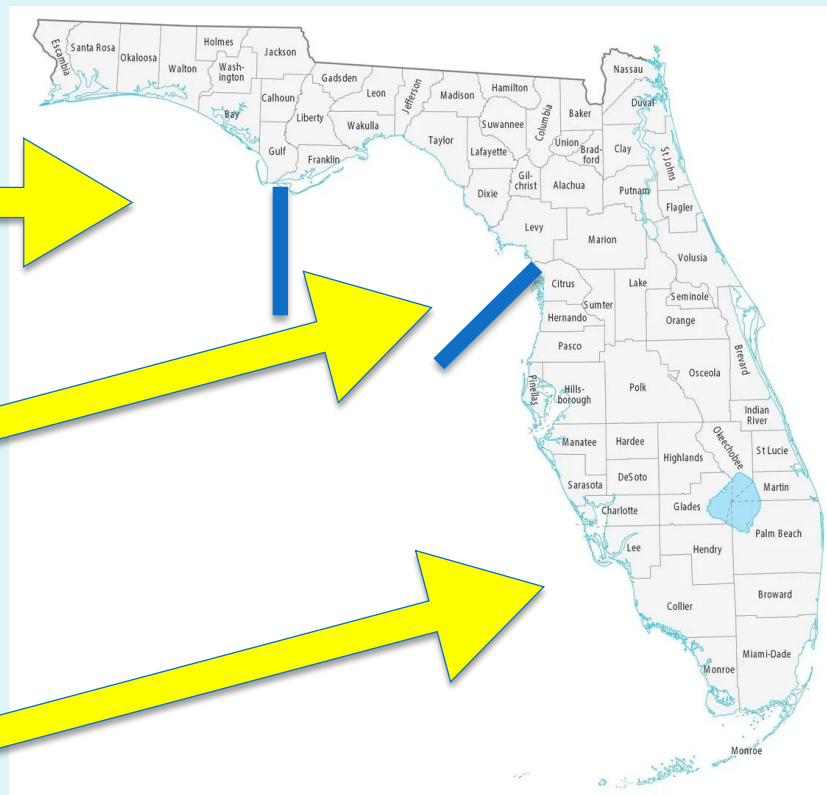
- Managed under the Grouper Tilefish Individual Fishing Quota (IFQ) program
  - Permitted year-round for those holding allocation
- Hook and line landings higher January – March
  - Water temperatures cool
- Hook-and-line landings decrease into the summer
  - Warm water means less actively feeding gag grouper
- Landings increase again in fall and early winter
  - Bite picks up as water temperatures decrease
- Commercial longline landings account for about 1/3 of commercial harvest, and come from deeper waters

# Gulf Gag Grouper Fishing Regions

Florida Panhandle

Big Bend

West Florida Shelf



# Gulf Gag Grouper Fishing Regions: Florida Panhandle

- Recreational fishing coincides with FWC's private angling and NMFS' federal for-hire red snapper seasons
- Anglers can fish for both species
  - Popular with for-hire operations
- Recreational landings in this region low compared to the rest of Florida
  - Bulk of biomass found in Big Bend and West Florida Shelf





# Gulf Gag Grouper Fishing Regions: Big Bend

- Low angler density, large resident biomass
- FWC occasional special spring season in state waters from April – June off Franklin, Wakulla, Taylor, and Jefferson Counties
- Large swaths of seagrass and low-relief natural bottom
  - Popular in fall when water temperature drops and nearshore visibility improves with less rainfall
- Madison-Swanson and Steamboat Lumps MPAs
  - Created to protect known habitats used by the gag SSB from fishing



# Gulf Gag Grouper Fishing Regions: West Florida Shelf

- Highest recreational fishing effort, large resident stock biomass.
- Fishing effort spikes in June, and drops quickly as water warms
- Fall cold fronts occur in late October and early November
  - Gag begin to bite more near shore (depths  $\leq 20$  meters or 65 feet)
  - Clear water means anglers can see suitable habitat for gag from the surface. Good for spearfishing.
- Fishing effort remains high from November through the end of December for both private and for-hire anglers
  - Most popular months for recreational gag grouper fishing

# Gulf Gag Grouper Fishing Regions: West Florida Shelf



# Management Considerations

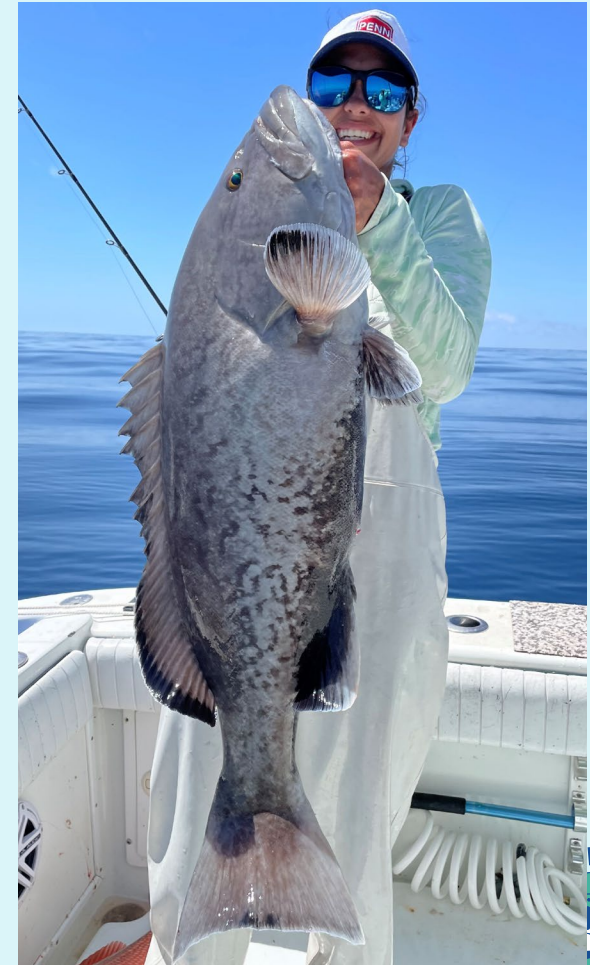
- SEDAR 72 found gag grouper to be overfished and experiencing overfishing
  - Gag grouper very vulnerable to red tide (2005, 2014, 2018)
  - Lower-than-average recruitment over the last 10-15 years (linked?)
- Female to male ratio outside Madison-Swanson and Steamboat Lumps MPAs approximately 50:1, and 20:1 inside those MPAs
- SSC recognized reproduction limitation, and recommended that future estimations of stock status and catch limits consider male SSB
- Need to conserve males to bolster recruitment
- Need to reduce discard mortality across the board





# Management Considerations: Protecting the Males

- Remaining males found in deeper waters (>30 m or 100 ft)
  - Typically fished in summer months, when water is warm
- Shallow depths
- Warm water means a slow bite
  - Less aggressive feeding by nearshore gag grouper, which are all female
- Anglers go to deeper waters, where fish nearer the bottom are in cooler water, and tend to feed more aggressively
  - Deeper water gag more likely to be large females and importantly, males





# Management Considerations: Protecting the Males

- Remaining males found in deeper waters (>30 m or 100 ft)
  - Summer fishing may result in disproportionate targeting of males and large females
  - Reducing fishing pressure on deep-water gag grouper may increase probability and speed of stock recovery
    - Larger, older fish vastly more reproductively valuable
    - May improve the ratio of females to males in the spawning stock biomass



# Management Considerations: Reducing Discard Mortality

- Summer fishing can drive anglers to deeper water
- Reef fish caught in water  $> 20$  m or 65 ft may suffer barotrauma
- Barotrauma may cause internal bleeding and organ damage; severity increases with depth
  - Venting and using descending devices can mitigate the effects of barotrauma
  - When caught in deeper depths  $> 100$  m or 330 ft, discard mortality is high, and may exceed 90%.



# Management Considerations: Reducing Discard Mortality

- Tailor fishing effort away from larger, older fish in deeper waters to reduce discard mortality
  - Greatest benefit to more reproductively important members of the SSB, including males
  - May increase recruitment and probability and speed of stock recovery
- Council public testimony (April 2022):
  - Winter fishing (Oct – Dec) primarily in nearshore waters  $\leq 20$  m or 65 ft.
  - Likelihood of barotrauma is substantially reduced; more so in cool winter water.
  - Probability of catching a male in nearshore waters  $\leq 20$  m or 65 ft is near-zero, per fishermen and empirically collected research



# Questions?

