Science, Service, Stewardship

Is there a 'cryptic biomass' of relatively old and large red snapper in southeast US continental shelf-break waters?
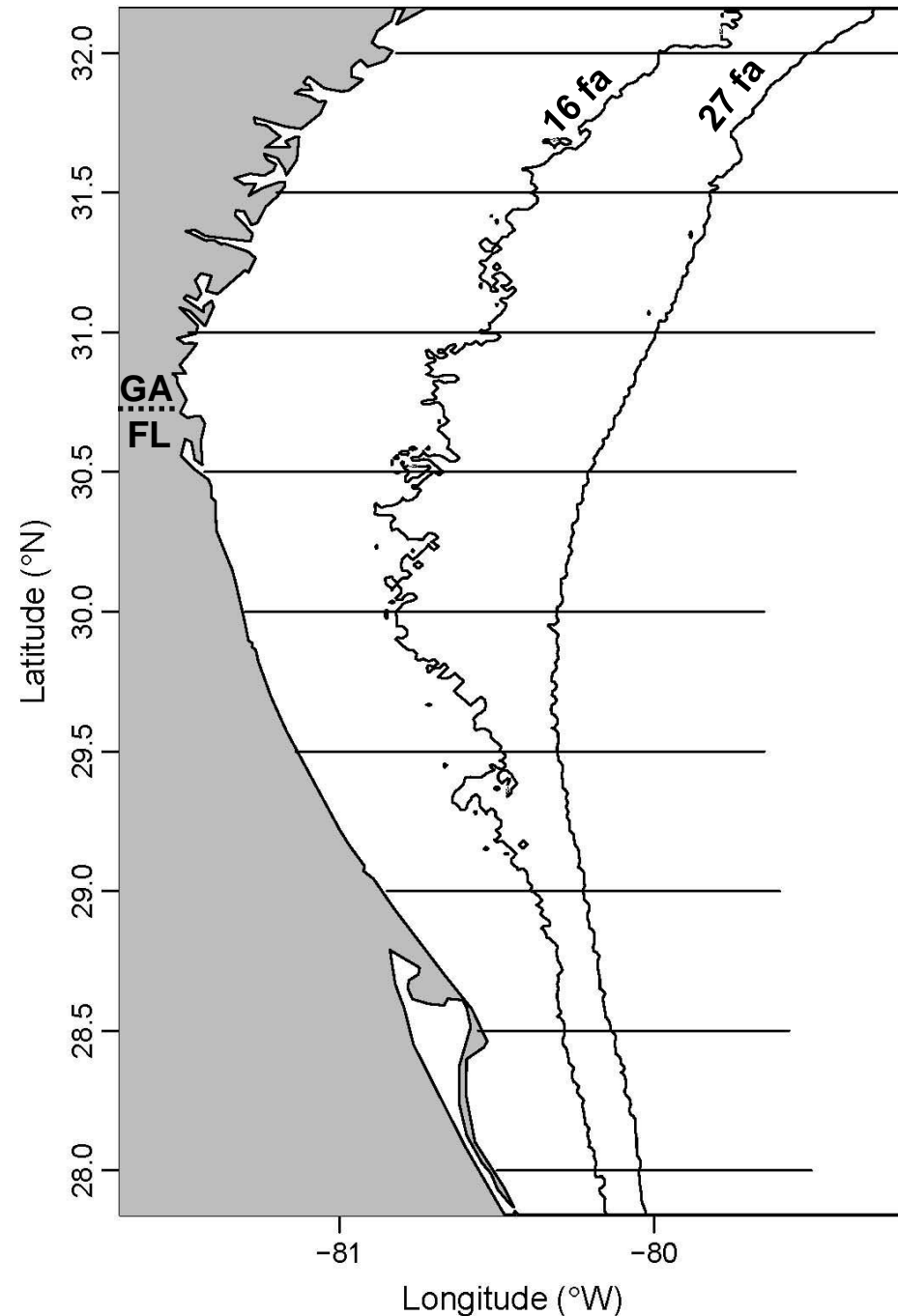
NOAA FISHERIES SERVICE

Objectives

- Determine whether red snapper from high-current, continental shelf-break waters (>27 fa) are, on average, more abundant, older and larger than those from shelf waters (<27 fa)

- Assess benefit of establishing a longline survey for red snapper in shelf-break waters

Methodology

- Study area: center of red snapper abundance
- Survey methods determined collaboratively with industry representatives
- Survey gear: bottom longline
  - Effective in high-current, shelf-break areas
- Survey design
  - Three depth strata
  - Eight latitude bands
  - N=4 longline sets in each of 24 depth x latitude cells
 - N=96 sets total
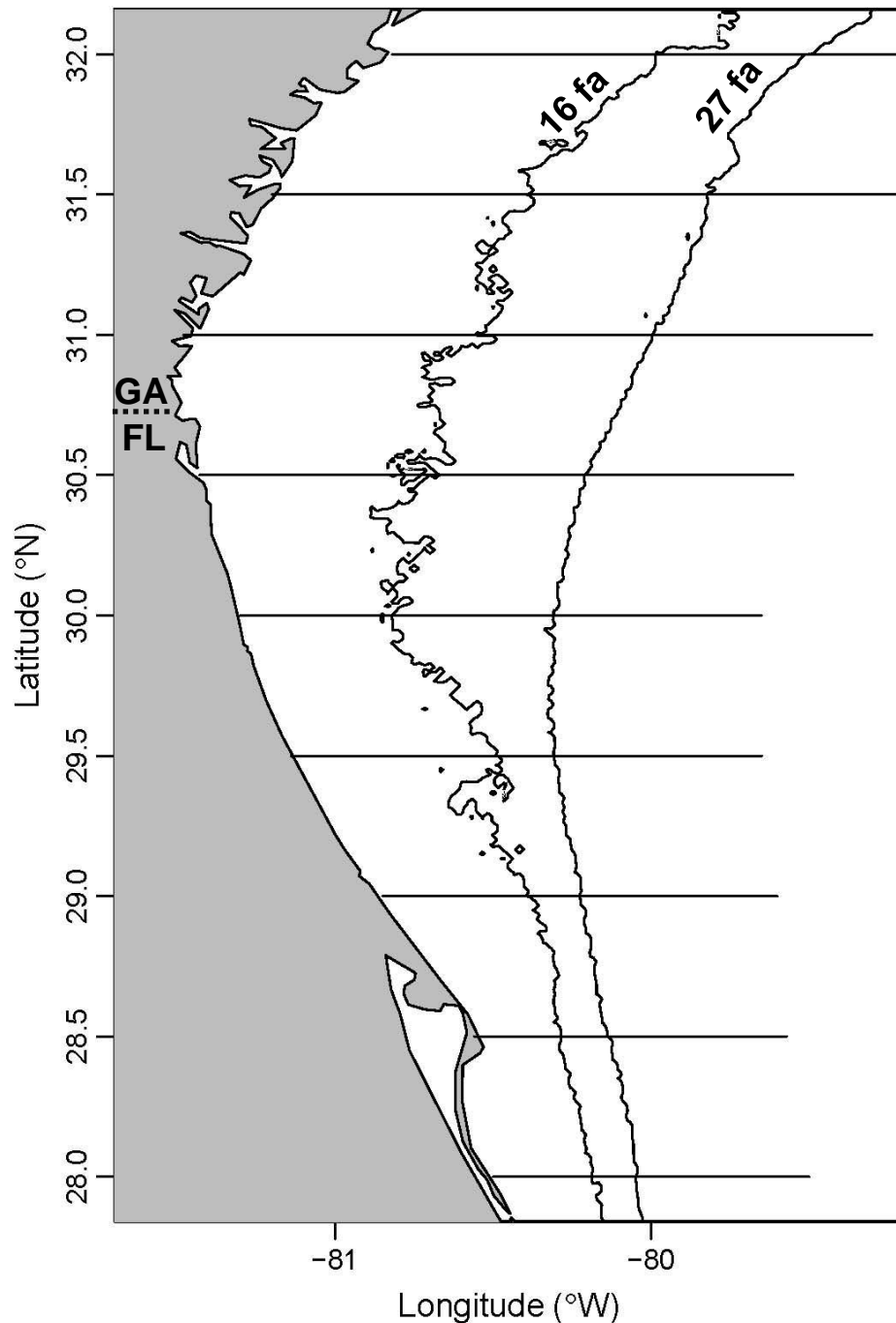
Methodology

- Survey carried out by experienced commercial fishers during Sept 2010 – Jan 2011
  - Survey locations within each cell determined by fishers
  - 150 total hooks per set, divided evenly between 13/0, 14/0, 15/0 circle hooks

- All surveys accompanied by fishery observer responsible for data collection

- Fish ages determined from otoliths
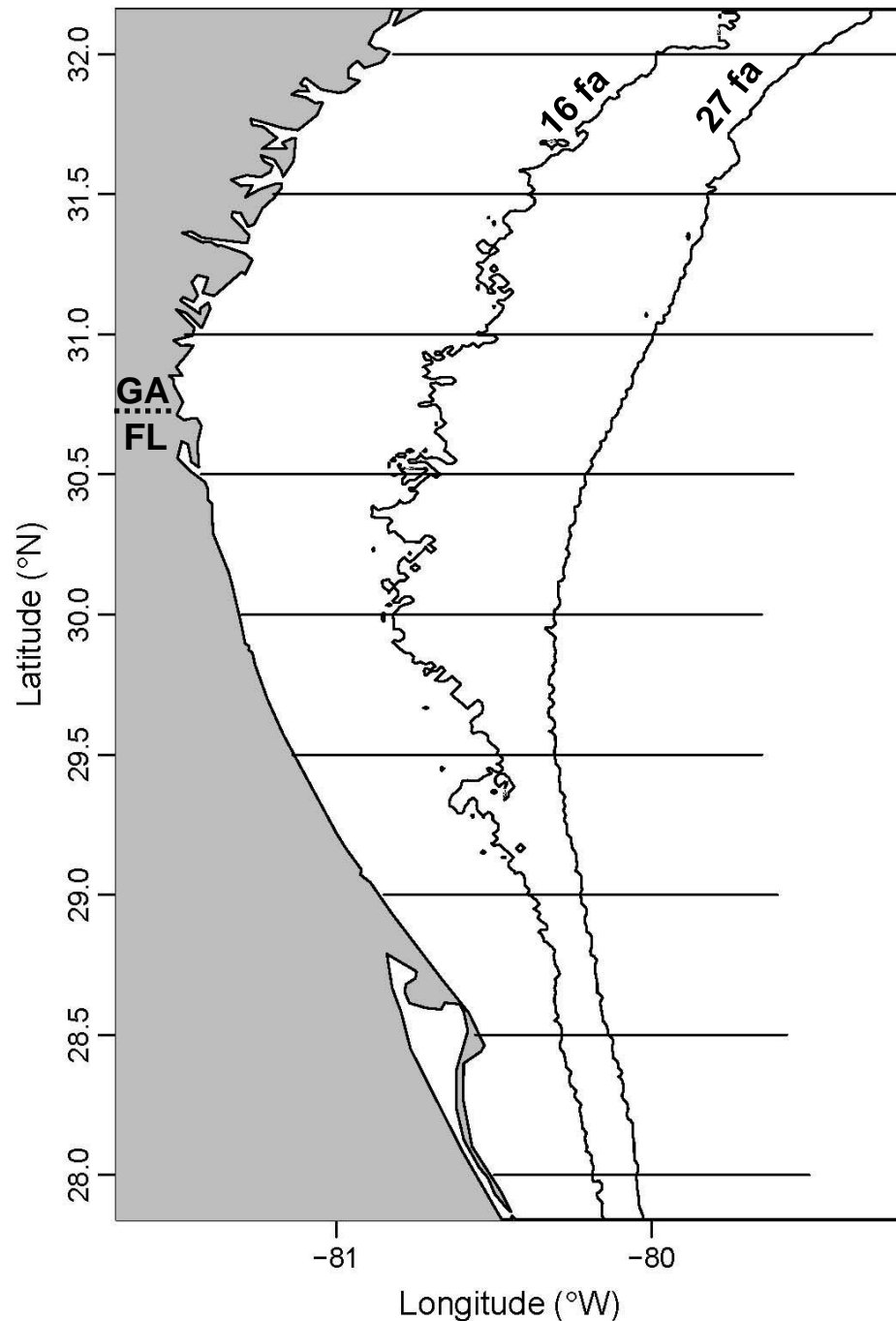
Results

- 96 sets made (shown at right)
  - 32 per depth strata
- N = 218 red snapper
  - Shallow = 93
  - Middle = 76
  - Deep = 49
- Age range: 3–15 years
- Size range: 48–96 cm TL
- Greatest number of red snapper caught on one longline set = 19
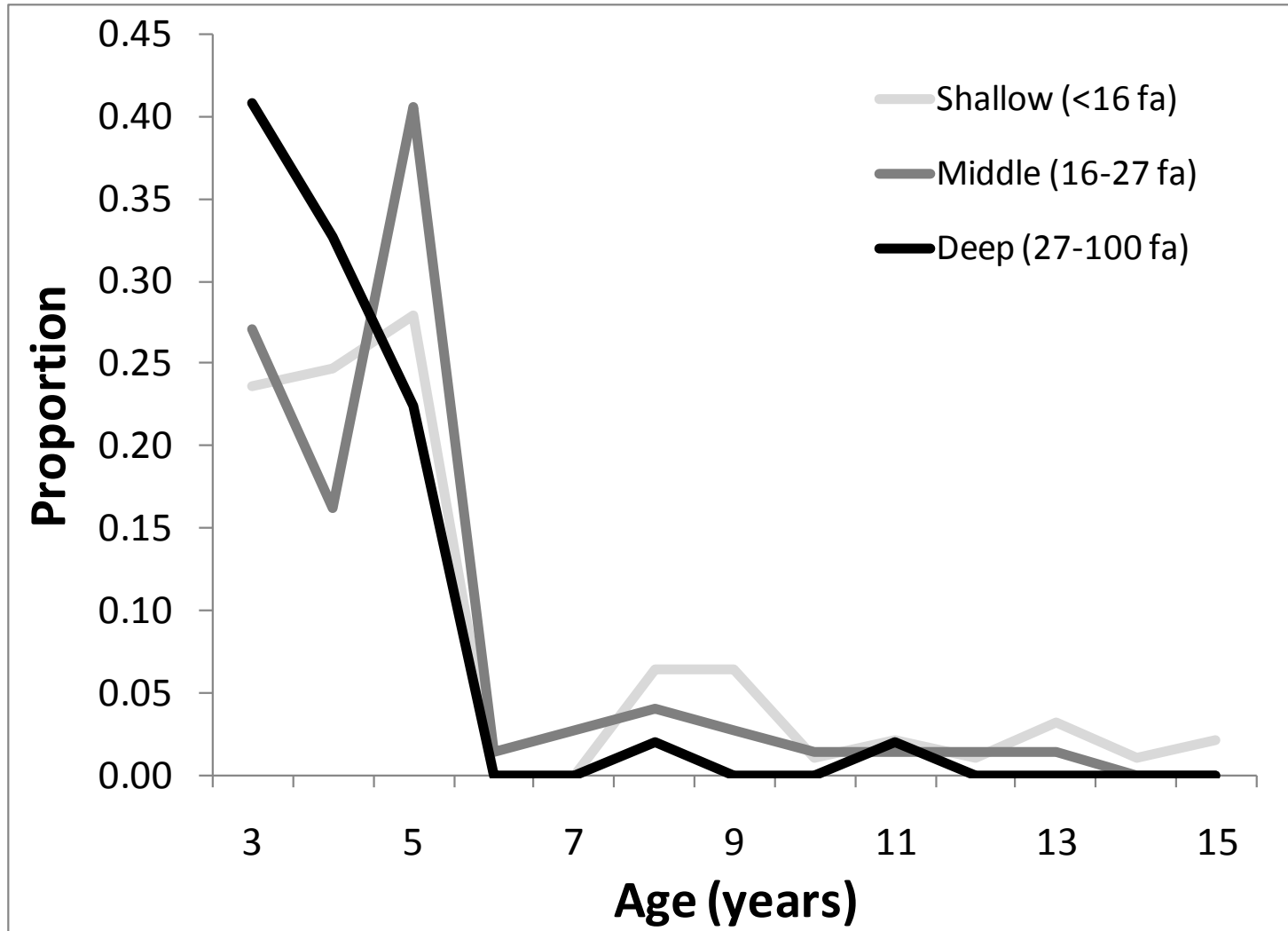- 57% of sets = 0 red snapper
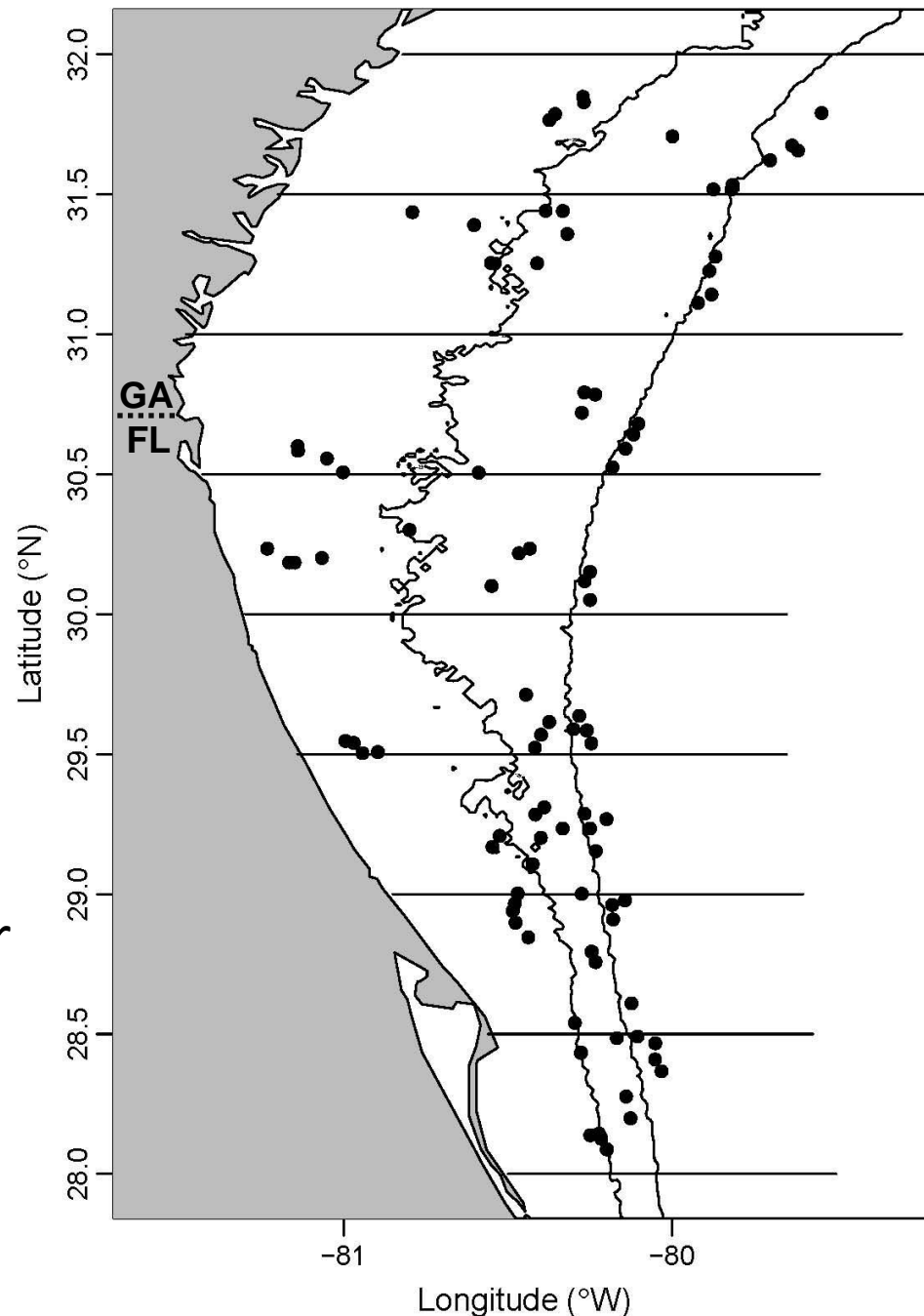
Catch-per-unit-effort

- CPUE (mean catch per longline) did not vary significantly by depth or latitude band

- No clear trend by depth or latitude

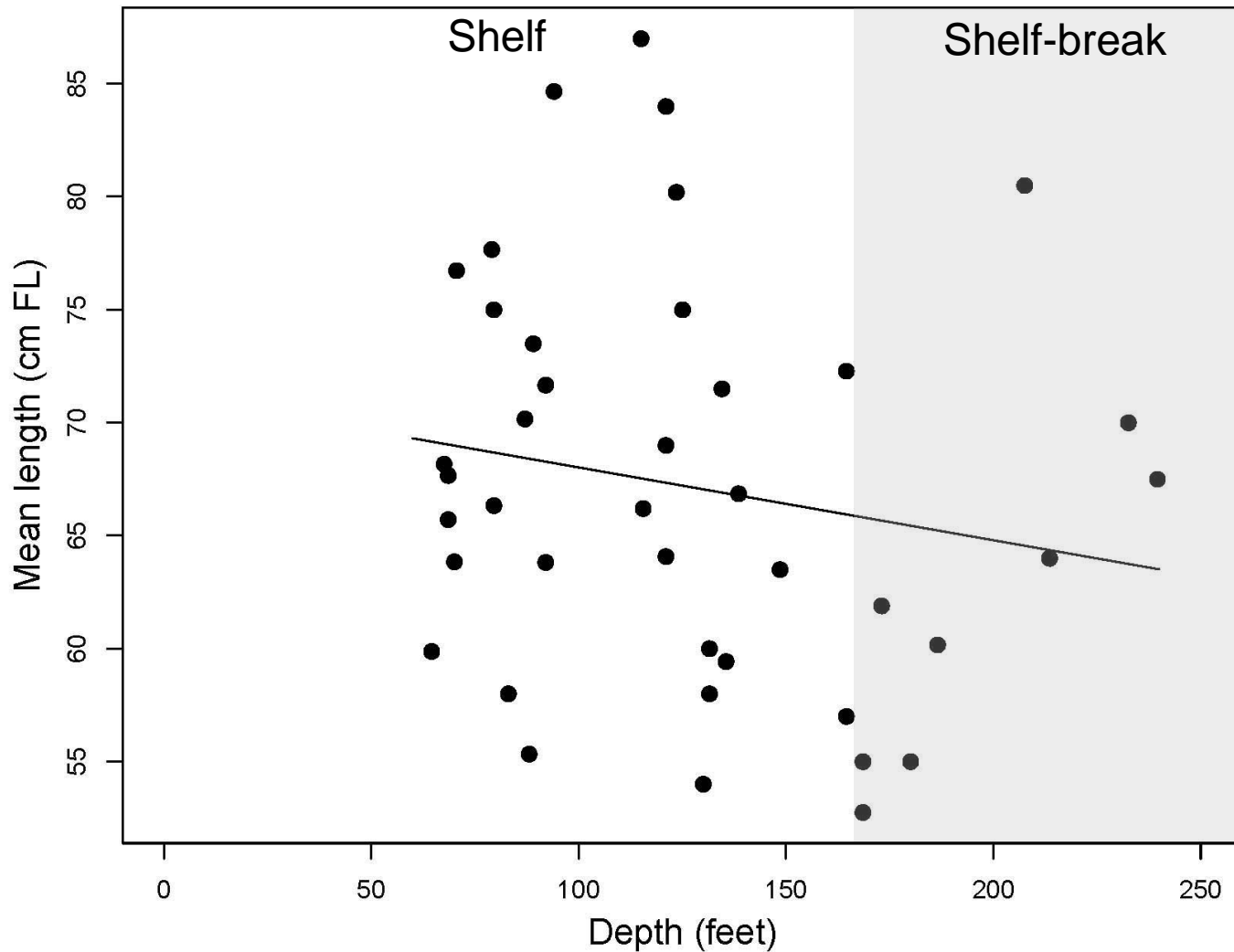- No evidence of greater abundances in shelf-break waters
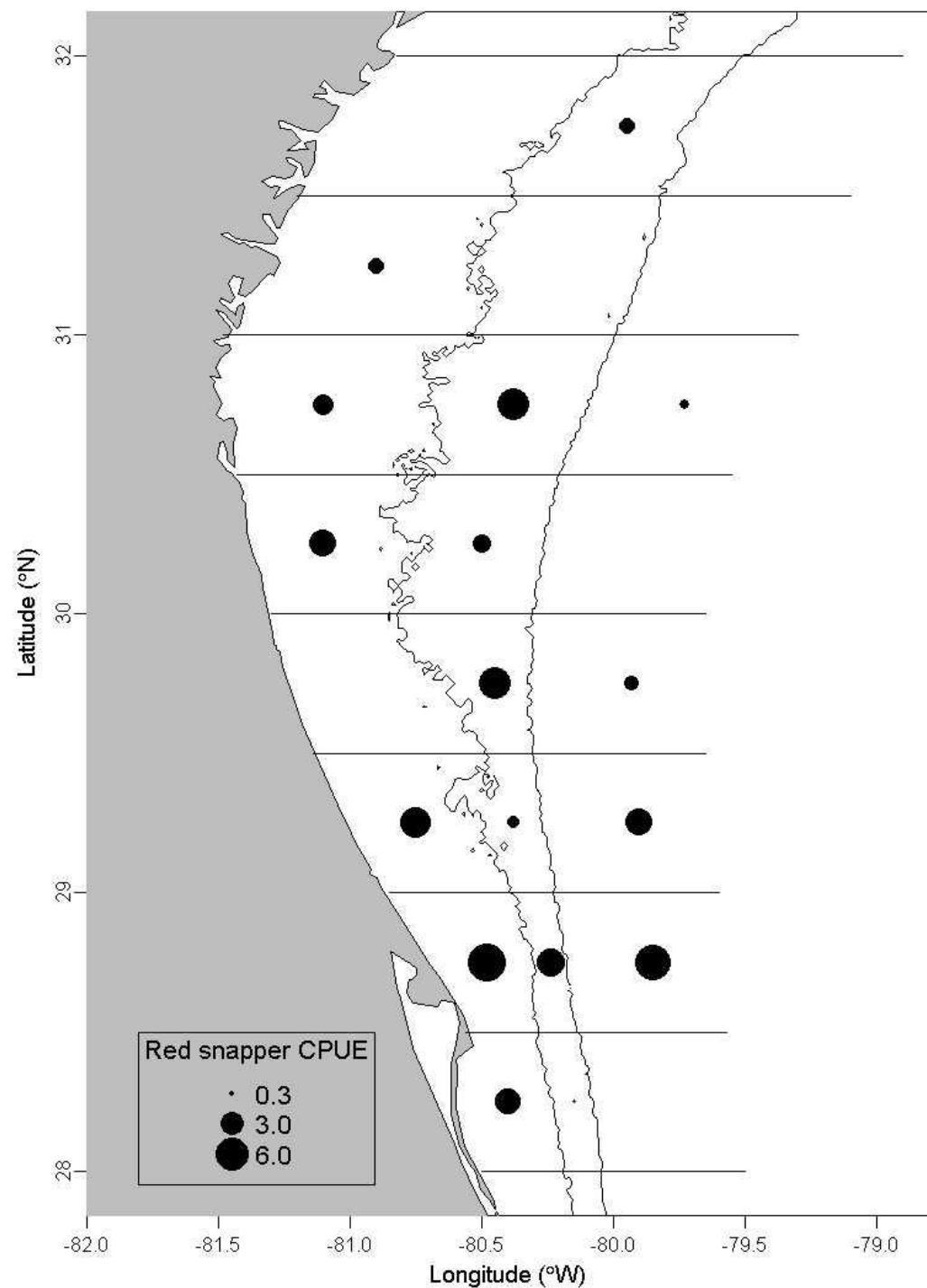
Age by depth strata: no evidence of relatively older fish in shelf-break waters

Mean age per longline set as a function of depth: no evidence of older fish in shelf-break waters
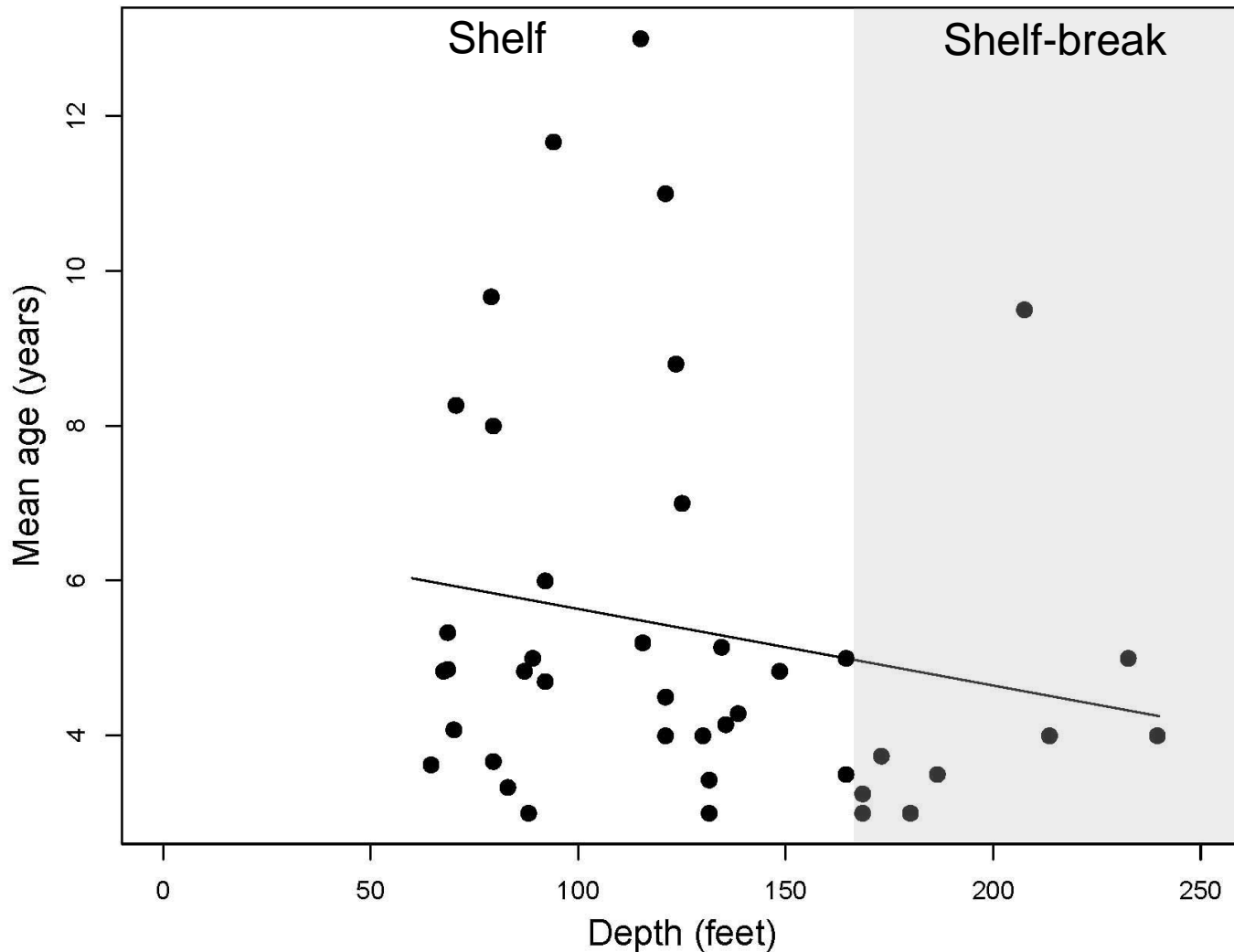
Mean length per longline set as a function of depth: no evidence of larger fish in shelf-break waters

Conclusions

- Cryptic biomass hypothesis not supported by longlining data
  - No evidence of greater abundances, ages or sizes of red snapper in shelf-break waters
- Ages surveyed suggest age truncation of the population similar to that identified in the SEDAR 24 assessment