Future Assessments & Research Recommendations

Angela Giuliano

August 14, 2024

Future Assessments

- Next Benchmark Assessment
  - 5 years (data through 2027)
  - Don't recommend longer due to stock condition
- TLA Updates
  - Every 2 years
  - 1st with 2023 fishing year as terminal year
  - 2nd with 2025 fishing year as terminal year

Short Term Research Recommendations (1-5 years)

- Develop methods (e.g., voluntary logbook programs, catch cards, app reporting) to estimate recreational discard catch length composition coastwide. Several apps have been developed or are under development to provide these data, but quantity and quality of data collected still need to be assessed (***high***).
- Greater intensity of age sampling coastwide is needed for adults to better characterize year class strength when size-at-age overlaps considerably (***high***).
- Collect data to estimate movement rates (e.g., acoustic tagging) of sub-adults in inshore waters to the adult population in offshore/nearshore waters for development of a multi-area assessment model. NC has received funding for a satellite tagging study, but efforts are needed in all stock areas (***high***).

Short Term Research Recommendations (1-5 years)

- Expand observer coverage to include other gears of concern (i.e., haul seine, purse seines, pound nets; ***moderate***).
- Expand biostatistical sampling (ages and lengths) to better cover all statistical strata (gears/states/seasons) and collect more otolith ages proportional to lengths. Conduct statistical analysis to determine appropriate sample sizes to adequately characterize the age-size composition of removals. Greater sampling would support development of seasonal models (***moderate***).
- Determine batch fecundity estimates of red drum to support fecundity-based assessment. Age-specific spawning frequency and spawning season length needs to be included for this indeterminate spawner (***moderate***).

Short Term Research Recommendations (1-5 years)

- Update maturity schedules for Atlantic red drum from Florida to Virginia. Preferably, gonad histology samples should be collected from all sizes over time and archived. South Carolina collects data, but data are needed from all other states (***moderate***).
- Continue and expand observer coverage for the NC and VA gill net fisheries to quantify total discards and size compositions with a goal of reaching CVs of 0.2 or less (***low***).

Short Term Research Recommendations (1-5 years)

- Further study is needed to determine discard mortality estimates for the Atlantic coast, both for recreational and commercial gears. Additionally, discard estimates should examine the impact of slot-size limit management and explore regulatory discard impacts due to high-grading. Covariates affecting discard mortality (e.g., depth, size, seasonality, terminal tackle) should be investigated. Some work has been done to estimate discard mortality rates for adults in SC (***low***)
- Determine contributions of stocked fish to wild populations and their impacts to stock status for the southern stock. A data set of fin clips exist in SC that could be analyzed for this (***low***).
- Investigate reference points for red drum management. Potential to use operating model to do so (***low***).

Long Term Research Recommendations (5-10+ years)

- Expand tag-recapture analyses to states outside South Carolina. Further explore other tag-recapture models to use all available tag data (***high***).
- Index sub-adult abundance in VA inshore estuarine waters with non-trawl gears (e.g., seine or other net surveys; ***high***)
- Develop longline surveys (with age sampling) targeting adult red drum at the northern and southern extents of the population range (***high***).
- Investigate a seasonal model to provide greater resolution on growth data (i.e., conditional age-at-length) within a fishing year. See work done during this assessment to evaluate data for supporting seasonal time steps (***high***).

Long Term Research Recommendations (5-10+ years)

- Incorporate tag-recapture data directly into assessment models used for stock status determination (***moderate***).
- Identify impacts of water quality, environmental, ecosystem, and habitat changes on red drum stock dynamics. Incorporate in stock assessment models (***moderate***).
- Investigate a two-area model that separates fish between inshore/offshore areas to better differentiate life history stages (older sub-adults vs. mature adults) that can't be as clearly separated by available data (i.e., lengths). Data to inform movement rates between areas will be needed which are essentially the same data to inform descending selectivity of the recreational fishery. Catch data will also need to be split into areas (***moderate***).