

Southeast Region Headboat Survey Program Description

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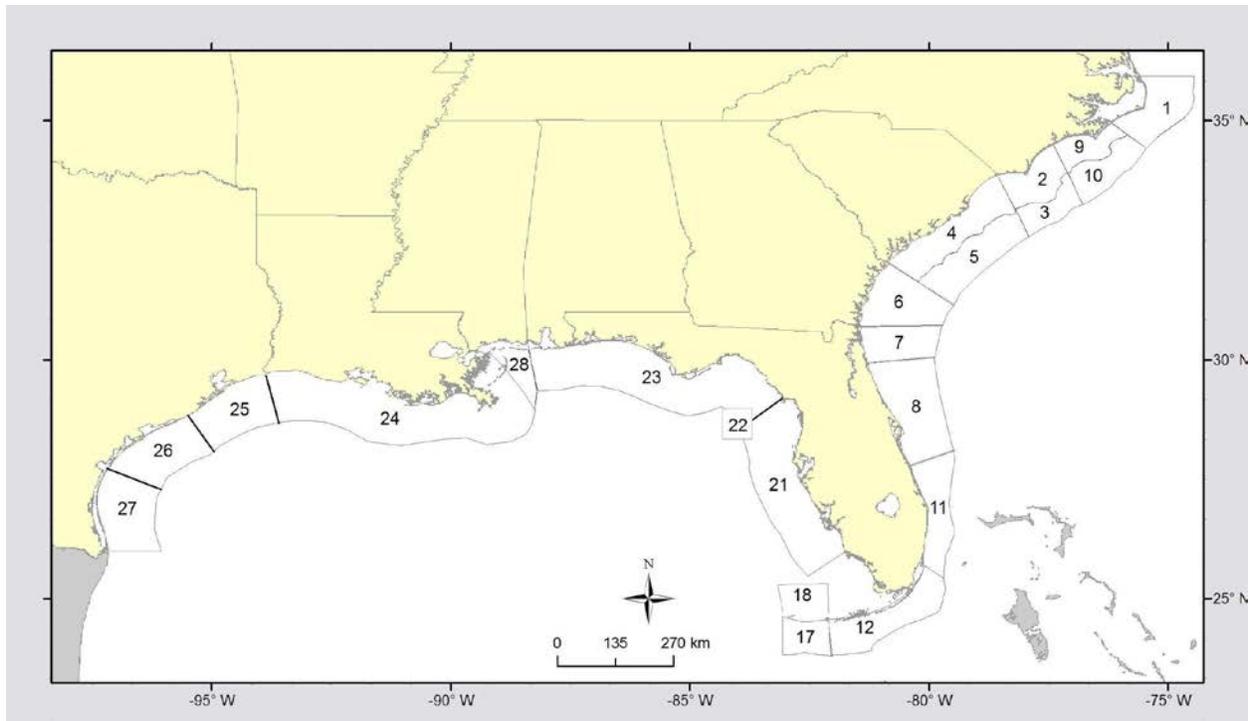
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Program Description:

The Southeast Headboat Survey (SRHS) is administered by the NMFS component of the Beaufort NC NOAA Laboratory. The survey has operated along the east coast of the U.S. since 1972 and began operations in the Gulf of Mexico in 1985. Dates of area full-time coverage are: North Carolina-1972; South Carolina-1974; NEFL 1978; SEFL and the Florida Keys-1981; SWFL to South Padre Island TX-1986. The survey is the longest continuous time series of recreational fisheries data on the east coast from federal waters.

The SRHS is divided into discrete geographic areas assigned to individual port agents. The individual areas comprising port agents' responsibilities are:

- Cape Hatteras-Cape Lookout NC (further divided into inshore and offshore territories)
- Cape Fear NC (further divided into inshore and offshore territories)
- South Carolina (further divided into inshore and offshore territories)
- Georgia – Central East Florida (GA-Sebastian FL)
- South Florida (Ft. Pierce-Miami FL)
- Florida Keys & Dry Tortugas, FL (Key Largo-Key West FL)
- SW Florida (Naples – Crystal River FL)
- NW Florida & Alabama (Carabelle FL – Dauphin AL)
- Louisiana
- Mississippi
- NE-Central TX (Freeport – Pt. Aransas TX)
- South Texas (Pt. Isabel/Brownsville TX)



There are two components to the survey. The dockside intercept sampling component is used to obtain size data from landed catch, bioprofiles (BP,) in order to estimate mean sizes of species landed in the headboat fishery. Additionally, port agents collect biological samples for life history studies. The SRHS is the primary or, for certain species, sole source of biological samples for age-growth and life history studies used in the stock assessment process.

The logbook component of the survey requests self-reported summaries of catch and effort for each vessel trip (trip reports). In the early years of the survey trip reports were voluntary and the SRHS paid fishermen for their participation. Participation is now mandatory and linked to charter vessel/headboat permit renewal. Reporting rates in the SRHS were very high through most of the 1990s, but fell to unacceptable levels by 2007, mostly in the south Florida and Florida Keys areas. A concerted effort was made in 2008 to notify headboat owners of reporting requirements and consequences for non-reporting (permit non-renewal or revocation). This effort improved reporting compliance to a satisfactory level.

These data provide annual landings estimates by species, area, and month for all species encountered in the Southeast Region headboat fishery. Trip report data is used to derive a long-term fishery dependent index of abundance. This information is used in all stock assessment SEDAR processes for both the South Atlantic and Gulf of Mexico to assess long-term health of species populations.

Survey Design:

Dockside Intercept

The dockside intercept component of the SRHS is an opportunistic survey. Each port agent is asked to sample the vessels in his/her area in rotation. Individual vessel schedules vary

considerably therefore it is rare to be able to sample vessels in an exact rotation. Consequently, the port agent has the latitude to sample where and when necessary to accomplish the goal of sampling all vessels approximately the same amount of times each month.

At the dockside intercept, port agents are instructed select anglers with uncommon species in their catches (stringers, coolers, etc). The rationale being if catches with uncommon fishes are selected, by default sufficient numbers of the more common species will be obtained. Port agents are instructed to measure and weigh all fishes in selected catches. However, once they have measured 10 fish of a given species they are not required to measure any more of that species from future catches during that sample. This ensures that uncommon species are sampled without oversampling common species.

Port agents use an electronic fish measuring board (FMB) connected to an electronic balance to measure and weigh anglers' catch (bioprofiles). At this point port agents also collect biological samples (otoliths, scales, spines, gonads and stomachs). These samples are linked to the size data in the bioprofiles. . Port agents often perform valuable education and outreach functions by answering bystanders' questions about the survey.

After sampling is completed the port agent approaches vessel personnel to collect any trip reports completed since their last visit. The port agent reviews the trip report forms for obvious errors and questions vessel personnel about any inconsistencies in the data (missing trip information, obvious species identification mistakes, etc.). He/she resupplies the vessel personnel with additional blank trip report forms if needed.

Logbook

The logbook component of the SRHS was designed as a census. Prior to January 1, 2013, paper forms were used to collect catch information by species (number and weight), total number of passengers, total number of anglers, location fished identified to a 10 mile by 10 mile grid, trip duration (half, $\frac{3}{4}$, full or multiday trip), and species and numbers of released fish and their disposition (dead or alive). Since non-reporting exists to some degree in most areas, the survey is not a census and catch estimates and total effort must be adjusted. Port agents collect headboat activity reports (HARs which contain information about a vessel's activity during a given month. A correction factor is calculated by month and vessel to adjust for non-reporting or over-reporting. These correction factors are applied to trip report landings by species-vessel-month combinations to generate total estimated number of fish landed. These numbers are then multiplied by mean weights of fish calculated from the bioprofile data by species-area-month combinations to generate a total weight of fish landed for each species-vessel-month combination. Landings estimates are provided by species, area and month.

In 2009 the SRHS conducted a pilot project, *Implementation of Electronic Logbooks on Headboats Operating in the U.S. South Atlantic*, to test the feasibility of electronic reporting for logbooks. The Headboat Survey implemented an electronic logbook reporting pilot study in the South Atlantic. The software was installed on 8 vessels coast wide; 2 from NC, 2 in SC, 1 in GA and 3 in FL. The project was concluded in November 2010. The results from this project and feedback from captains were favorable regarding the application and ease of use of the electronic

logbooks. This project concluded that electronic reporting would streamline data collection and facilitate the ever increasing need for timely data analysis and results.

The SRHS received fiscal year 2012 funding from the Marine Recreational Information Program Operations (MRIP) Team for Pilot Project, *Phase II: Survey-Wide Implementation of Electronic Logbook Reporting on Headboats Operating in the U.S. South Atlantic and Gulf of Mexico*. The objective of this project was to develop and implement a Web-based portal and mobile application for electronic logbook data entry in the U.S. Atlantic and Gulf of Mexico headboat sector. This project included development by a software contractor of additional features of the Web-based data form useful to users and scientists (e.g., depth, location, maps). The software contractor and SRHS staff provided technical support to all participants during each stage of the transition process. These procedures were tested for the first 60 days of the project and implemented January 1, 2013. Currently, the proper legal framework is being developed by the South Atlantic and Gulf of Mexico Fishery Management Councils to ensure that electronic logbook reporting becomes the accepted procedure, as well as to ensure that timely and complete reporting is required to possess and maintain a for-hire permit in the applicable fisheries.

Ongoing projects

Pilot project: Validation Methods for Headboat Logbooks

The objective of this project is to determine and develop preferred methods for 1) verifying self-reported trip reports (both harvest and at sea discards (live and dead) and 2) expanding the reported data into statistically valid estimates total harvest and discards. The program consists of two components: 1) dockside verification and estimation and 2) a collaborative component for At-sea verification and estimation of discards. The dockside sampling component will evaluate alternative sampling approaches such as conventional interviews and camera based approaches for fish counts. The At-sea component consists of observers on headboats and will be used primarily in the verification of discards reported in captain's log books.

The objectives of this study are: 1) Design probability based sampling methods. 2) Test dockside validation methods and protocols. 3) Develop imputation and estimation procedures using only dockside sampling for landings estimation and both dockside and self-reported log book data for landings estimation. 4) Develop imputation and estimation procedures using only at-sea sampling for discard estimation and both at-sea-sampling and self-reported log book data for discard estimation.

Pilot project: Probability based dockside sampling methods

The National Research Council's independent review (NRC, 2006) of the SRHS identified potential sources of bias in the survey design. Sampler discretion in selection of vessels, vessel trips, anglers, and fishes for sample potentially introduces significant bias and should be eliminated or reduced. A probability based random sampling design would reduce or eliminate sampler bias while providing a basis for dockside landings and effort estimates which would validate existing logbook estimates.

In 2011 the SRHS hired an outside contractor to develop the probability based random sampling design. This new design instituted procedures for vessel and trip selection, angler selection and fish selection. Due to variability in vessels' schedules, angler cooperation, and staffing constraints it is incredibly difficult to eliminate all sources of sampler bias. A probability based sampling design was piloted in July-September 2012 and is currently under review to determine impacts to sampling productivity.

Development of an Oracle System for the Southeast Region Headboat Survey

In July, 2012 the SRHS prepared to transition to a fully relational Oracle system. The project addresses deficiencies in the storage and accessibility of historical and current headboat logbook data. The system is integrated into the SEFSC Data Warehouse, which employs a modern underlying architecture and technology supporting a database that can produce gains in process efficiency and data security, as well as improved capabilities for reporting, analysis, and integration with other data sources. The Oracle system, known as the Southeast Region Headboat (SRH) incorporates trip report data (both historical and transferred from the electronic logbook), headboat activity reports, bioprofiles, vessel directory, validation data, vessel reporting compliance, quality assurance/quality control, and data query. The trip reports, bioprofiles, vessel directory, headboat activity reports, and vessel reporting compliance functions (as well as data query associated with those components) became available in April, 2013. Other components are currently under construction. Final SRHS catch and effort estimates will be compatible with MRIP estimates of catch and effort and available for query by external data users.