



GulfFIN Committee

Beverly Sauls, Chair, FLFWC
Nicole Beckham, Vice-chair, ALDCNR
Steve Brown, FLFWC
Marie Head, ALDCNR
Megan Fleming, MDMR
Darrin Stewart, MDMR
Michael Harden - LDWF
Nicole Smith, LDWF
Justin Esslinger – TPWD
Joel Anderson, TPWD

Lisa Hollensead, GMFMC
Ken Brennan, NOAA Fisheries SEFSC
Alan Lowther, NOAA Fisheries SEFSC
Jessica Stephen, NOAA Fisheries SERO
Richard Cody, NOAA Fisheries OST
Graciela Garcia-Moliner, CFMC
Daniel Matos-Caraballo, PRDNER
Gregg Bray, GSMFC

GulfFIN MRIP Implementation Plan (2023-2026)

The Gulf Fisheries Information Network (GulfFIN) is a state-federal cooperative program to collect, manage, and disseminate statistical data and information on the marine and estuarine commercial and recreational fisheries of the Southeast Region. GulfFIN has been assisting state and federal partners with the coordination of operational recreational data collection efforts in the Gulf of Mexico and East Florida since 1998. The Marine Recreational Information Program (MRIP) began in 2008 out of the need to develop changes in survey methods to improve the quality and coverage of recreational data. As MRIP evolved, GulfFIN members have played a more active role in assisting with these improvements. All five Gulf States completed MRIP pilot research projects to test new data collection techniques that addressed a variety of important recreational data issues. At this time four Gulf states have MRIP certified data collection systems to improve recreational effort and landings estimates for managed reef fish species. Further, GulfFIN, the Gulf States and NOAA Fisheries are working to collaboratively implement the Transition Plan for Gulf State Surveys (<https://media.fisheries.noaa.gov/2022-10/Gulf%20Transition%20Plan%20Final.pdf>) to incorporate these state program estimates into the federal science and management process. GulfFIN has developed this regional implementation plan to identify regionally unique data needs for fisheries science and management in the Gulf of Mexico, and cooperative approaches to address those needs. Nationally, MRIP uses regional implementation plans from across the country to develop a national inventory of partner needs and associated costs, and to specify priority-setting criteria for supporting those needs.

Note that regional implementation plans are generally intended to be broader in scope than transition plans – transition plans focus on specific survey methods rather than the full suite

of recreational data needs for the region. However, implementing a transition plan may be a key component of a regional implementation plan.

Baseline Assessment of Current Regional Data Collection Programs

This section provides a brief overview of existing programs and highlights recent efforts to modify designs or improve coverage, current data gaps, and any related issues or concerns that should be addressed in the future.

MRIP General Survey

The General Survey covers all recreational fishing in all marine and estuarine waters bordering the states. This survey is currently conducted in Florida (Gulf and Atlantic coasts), Alabama, and Mississippi, and provides effort and catch (both harvest and discards) estimates for shore, private boat, and for-hire charter modes for all saltwater finfish species.

The main objective of the MRIP General Survey is to produce within-year cumulative catch and effort estimates, with bi-monthly updates, for use in marine fisheries management and stock assessments. For federally managed species, precise estimates of landings and discards on an annual and regional scale are generally considered adequate for stock assessments; however, some species with limited distributions or that are assessed within multiple stock boundaries often require precise estimates at smaller subregional scales. Assessments for state-managed species may use annual estimates at the state level, and these estimates are also adequately precise for common species. However, annual estimates at state and regional scales remain highly imprecise for species that are rarely intercepted in a general survey. For example, deep water fishing trips that target important managed species such as tilefish, snowy grouper, yellowfin tuna, or swordfish are rarely intercepted in the Access Point Intercept Survey (APAIS) portion of MRIP, and a catch estimate often cannot be generated when no anglers are intercepted. Fisheries that are limited in their geographic distribution also suffer from low precision. For example, hogfish in southeast Florida and the Keys are managed as separate stocks, and post-stratified estimates at the sub-state level are highly imprecise. The Florida Keys continue to be included in coast-wide estimates for the west coast of Florida; therefore, landings for fisheries managed as part of an Atlantic coast stock must be post-stratified from the Gulf. The MRIP General Survey has also struggled to deal with derby fisheries such as red snapper in the Gulf of Mexico and the Atlantic coast of Florida. With extremely short fishing seasons it has been difficult to allocate enough sampling effort during the open season to accurately capture the removals and fishing effort that are occurring. For this reason several states have developed specialized surveys to improve the accuracy of landings estimates for red snapper and other reef fish species.

While precise estimates at the annual level are adequate for assessment of stocks, they are often inadequate for managing recreational fisheries with Annual Catch Limits (ACLs). Bi-monthly (wave) estimates must be used to predict whether an ACL will be met before the end of a year, and fisheries are often closed in-season to prevent overages. Precise estimates (PSE < 40%) on a shorter time scale would provide more certainty around managing fisheries with established ACLs.

Specific issues related to various components of the MRIP General Survey are discussed below in items 1-3.

1. MRIP Access Point Angler Intercept Survey (APAIS)

The primary focus of this portion of the MRIP survey is to measure catch per unit effort (CPUE) for both harvested and discarded fish at the angler trip level, and collect length and weight measurements from harvested fish. A lingering priority identified by GulfFIN is improved data on recreational discards. Currently in the APAIS, CPUE information for discarded catch is based on angler recall of the number of each species released by each angler on each trip. Fish that are not legal to harvest make up a significant proportion of recreational catch (all or a majority for some highly regulated species), and the accuracy of recall at the dock is currently unknown. Significant concern exists as to whether current APAIS methods produce a truly accurate accounting of discards. Furthermore, dockside intercept surveys are inadequate for collecting information on the size and condition of fish released at sea, which are critical data needs for stock assessments. These issues have not been addressed in any of the pilot studies or statistical evaluations conducted to date through MRIP. A workshop was held in 2017 focused on discussing issues related to the collection of discarded catch. Several recommendations proposed testing to validate the accuracy of self-reported discard data collected through APAIS (<https://www.gsmfc.org/publications/GSMFC%20Number%20275.pdf>).

2. MRIP For-Hire Telephone Survey (FHS)

This component of the MRIP General Survey is focused specifically on estimating the numbers of angler trips in the charter boat fishing mode. The FHS was implemented in the Gulf of Mexico in 2000 in response to criticism that the traditional Coastal Household Telephone Survey (CHTS) was inadequate as a method of obtaining fishing effort information for for-hire anglers, a large proportion of which did not reside in coastal counties sampled in the CHTS. This method has resulted in improved effort estimates for charter mode fishing in the region, which has improved overall precision of catch estimates for the charter fleet which encompasses federally permitted vessels, inshore guide boats, and vessels that operate in state waters only. However, non-response rates in the FHS have steadily increased over time. We now observe non-response rates ranging from 10% in Alabama, 40% in Mississippi and near 60% in some regions of Florida.

The FHS was MRIP certified in early 2023 with a minor methodological change - instead of using supplemental dockside sampling to identify reporting errors, the new method will rely on statistical best practices and quality checks to identify reporting errors. The funding previously used for the FHS dockside sampling component will ultimately be reallocated to evaluate potential sources of bias in the FHS design and the MRIP general survey more broadly, and to increase sample sizes for the Access Point Angler Intercept Survey. However, the revised version of the survey is not yet being implemented until the impacts of the methodological change on the estimates can be considered and evaluated, and transition plan can be developed and implemented. Ideally, MRIP hopes to transition to the certified FHS alongside other for-hire data collection improvements to limit any potential disruptions to stock assessment and management processes.

3. *MRIP Fishing Effort Survey (FES)*

Fishing effort data for shore mode and private boat mode angling has historically been collected through the Coastal Household Telephone Survey (CHTS). In 2018 NOAA Fisheries adopted the Fishing Effort Survey (FES) as the new method for effort data collection for shore and private boat trips. The FES is a mail survey that utilizes state recreational saltwater fishing license databases to target registered anglers and the U.S. Postal Service address database to distribute surveys to unregistered anglers. The FES estimates state-level effort as the sum of angler-trips reported by responding households, weighted to represent the full state population, for private boat and shore modes separately. This survey is conducted in Florida, Alabama, and Mississippi.

Numerous studies have been conducted to improve the FES, including evaluating an alternative electronic reporting design, examining potential for bias (specifically non-response and recall bias) in the estimates, and examining methods to improve the timeliness of FES estimates. The alternative electronic reporting study involved testing a “push-to-web” design, with a mailing that encouraged (or “pushed”) recipients to complete an online questionnaire before a paper questionnaire was provided. The pilot “push-to-web” design was found to not be as effective as the current design, as it resulted in decreased response rates and reduced timeliness of data collection. All non-response research to-date suggest that non-response bias in the FES is minimal – the survey’s statistical weighting procedures account for all variables that have been found to correlate with both fishing activity and response propensity to minimize impacts of non-response. Further, two experimental non-response follow-up studies and a simulation study suggest non-response in the FES has little impact on the estimates. However, initial research into reporting error suggested question order may drive the potential for recall bias in the FES estimates, which warrants further study and is a high priority for MRIP to evaluate and address. An initial pilot has also been completed examining alternative FES designs that collect data in one-month waves rather than two-month waves, the goal of which would be to minimize potential for recall bias as well as improve timeliness of FES estimates. Furthering this work is another high priority for MRIP.

4. *Florida’s State Reef Fish Survey (SRFS)*

The SRFS was implemented on the Gulf coast of Florida in May 2015 and expanded statewide in July 2020. It is a specialized recreational fishing survey, certified by MRIP, which provides more precise estimates of private boat effort and catch for a suite of reef fish species on the Gulf and Atlantic coasts of Florida. Estimates are currently used to set recreational fishing seasons for Red Snapper in adjacent state and federal waters and track the state’s allocation of the regional ACL, and more recently for assessing and managing the Gag stock in the eastern Gulf that is concentrated primarily off Florida’s western coast. The survey uses angler intercept data collected through the APAIS, combined with additional assignments (drawn with the APAIS sample) that target reef fish trips to estimate CPUE at the angler trip level. A complementary mail survey of state saltwater fishing license holders with the State Reef Fish Angler designation directly estimates targeted fishing effort for reef fishes. That State Reef Fish Angler designation is required to legally harvest certain types of reef fishes from a private boat. Under-coverage attributed to fishing effort by unlicensed anglers without the special reef fish designation is accounted for in the APAIS and supplemental intercept surveys.

5. Alabama's Snapper Check Program

The Alabama Marine Resources Division (AMRD) monitors Alabama's recreational landings of Gray Triggerfish, Greater Amberjack, and Red Snapper through the mandatory Snapper Check Program (SCP). Vessel owner/operators (private and for-hire) landing any of these reef fish species in the state are required to cooperate. SCP reports may be submitted electronically via a smartphone application or online. A separate dockside survey of both private and for-hire charter boat modes is conducted by AMRD staff at randomly selected sites with fishing activity to gather biological data on landed reef fish species. Vessel level data collected through the dockside survey are compared to SCP landing reports to estimate the proportion of vessels with reef fish that did not have a landing report, and adjust landings accordingly. A key feature of the SCP is that it improves timeliness of harvest estimates providing management opportunities to maximize the number of days the season can remain open while maintaining harvest below the annual catch limit. Since 2018, AMRD (ADCNR) has used the SCP to manage the private recreational Red Snapper sector in Alabama.

6. Mississippi's Tails n' Scales Mandatory Red Snapper Reporting Program

All recreational and charter for-hire vessels landing Red Snapper in Mississippi are required to use the Tails n' Scales (TnS) electronic reporting system regardless of harvest area (federal waters, Mississippi state waters, or adjacent states' waters, etc.). One angler per vessel per trip is required to possess a trip authorization number from the reporting system when harvesting Red Snapper. Reporting options include TnS mobile application available on Apple App Store and Google Play Store, or online website. Pre-trip information collected from anglers includes angler name, vessel identification number, launch site, and trip start time to generate a system issued authorization number. Post-trip reporting includes number of Red Snapper harvested, number of Red Snapper released, number of anglers, if Red Snapper were targeted, and habitat type primarily fished (artificial reef, oil & gas platform, or natural bottom). Data on gray triggerfish and greater amberjack are requested when their harvest seasons coincide with Mississippi Red Snapper openings. Validations are conducted using access site surveys in which MDMR staff are assigned to interview Red Snapper anglers landing at public-access ramps. These validations allow MDMR staff to record the number of fish harvested, reported fish discarded, the number of anglers onboard the vessel, habitat fished, landing site, and to validate compliance by recording the trip authorization number. These surveys also supply MDMR with opportunities to conduct biological sampling (to collect length, weight, sex, and otoliths) of Red Snapper. Validation survey data is used to inform the landings estimation system, with near real-time quota monitoring possible.

7. LA Creel Program

The Louisiana Recreational Creel Survey (LA Creel) was fully implemented on January 1, 2014 as a replacement for the MRIP General Survey in Louisiana. The LA Creel survey endeavors to aid in the management of Louisiana's valuable fishery resources by providing recreational fishery information about the rate of harvest of this resource, and participation in the harvest of this resource. The LA Creel survey is based on a complemented survey design, where an on-site access-point survey is combined with off-site telephone surveys in order to calculate total landings estimates for fish species across different recreational fishing activities. The access

point survey is primarily used to estimate harvest rates (harvest per angler trip or harvest per charter trip) and the telephone survey is primarily used to estimate total effort (total number of angler or charter trips). Total landings estimates for a certain period of time / region / mode of fishing are simply the product of the harvest rate and total effort values. LA Creel has already taken steps to address the issue of more timely catch and effort estimates. LA Creel is able to produce estimates as frequently as weekly when necessary. LA Creel is also collecting discard data through angler recall for a suite of federally and state managed species but is interested in exploring alternative methods. LA Creel was designed to increase the speed with which harvest data can be compiled into landings summaries, create a flexible design able to quickly respond to changing needs, provide information on Louisiana area-specific harvest for all species landed by anglers, and maximize survey efficiency while minimizing burden on anglers.

8. Texas Parks and Wildlife Creel Survey

Texas Parks and Wildlife Department (TPWD) has been conducting on-site, trip-ending interviews of anglers at coastal boat-access sites since 1974. This survey is primarily designed to estimate daytime fishing pressure (effort in man-hours), landings (number of fish harvested), catch rates (harvest per unit effort as an indicator of resource availability or fishing success), species composition, and size composition (mean lengths and mean weights of fish harvested) for sport-boat anglers (private and guided) on trips in Texas marine waters (inshore, TTS and EEZ). Secondly, the survey also provides residential origin, species sought, trip satisfaction, gear and bait usage of sport-boat anglers. Surveys are conducted year-round and are stratified by 8 bay systems, 2 seasons (May 15-Nov 20 and Nov 21-May 14) and day type (weekend and weekday), n= 1,122 survey-days. Landings and effort estimates have been routinely provided to GSMFC and NMFS since the 1980's. Additionally, since 2016, TPWD has worked with Harte Research Institute to provide iSnapper to Texas anglers. This web-based and phone app reporting system allowed anglers to report both their Red Snapper and other offshore species catches along with discard data by trip, in which discard data, at minimum, included species and count. Additional creel surveys were conducted across the coast in order to validate data reported through the iSnapper app.

9. Gulf For-Hire At-Sea Observer Programs

The Gulf States Marine Fisheries Commission is supporting state-managed at-sea observer programs and is working to help expand data collection standards across state agencies in the Gulf of Mexico (GoM). State agencies participating in the Gulf For-hire At-sea Observer Program are: Florida Fish and Wildlife Conservation Commission (FWC), Alabama Department of Conservation and Natural Resources, and Mississippi Department of Marine Resources. Gulf FIN supported at-sea observer surveys on for-hire headboat vessels in FL, AL and MS from 2005-2007. Since 2009 FL has worked to improve data collection and expand observer coverage, through a mix of grant and state funds, that now includes coastwide coverage of both charter and headboat fleets. In recent years, AL and MS have implemented similar programs and GSMFC initiated a coordinated effort in April 2022 to ensure data among the state-led programs are standardized and compatible. Having consistent standards for data collection is important because these surveys provide the only sources of data available in the GoM on size, release condition, release method, and mortality for recreational discards across subregions of the Gulf. When for-hire trips are available, fisheries biologists board randomly-selected cooperating

vessels to collect data and directly observe fish as they are being caught by anglers and harvested or discarded at-sea. Fish are identified to species, measured, and information on how each fish was captured and released is recorded. Regulatory discards are also tagged prior to release, and subsequent recapture data is recorded and used to estimate discard mortality measured directly from within the fishery. Some goals of the program are to understand the use and trends of various release practices, such as newly required fish descender devices, in the GoM and how they may affect discard survival and mortality for recreational reef fish. This information has also been useful in the past in filling important data gaps for assessing federally-managed stocks in the GoM.

10. Southeast Region Headboat Survey (SRHS)

The Southeast Region Headboat Survey (SRHS) is administered by NMFS Southeast Fishery Science Center (SEFSC) at the NOAA Beaufort Laboratory. This survey began operations in the Gulf of Mexico in 1986 and focuses on producing landings and effort estimates from the headboat fishery as well as providing age and length data used in stock assessments. Headboats in the Gulf of Mexico are defined as for-hire vessels with a capacity for carrying 15 or more passengers that primarily charge anglers “by the head”. There are two components to this survey, a dockside intercept program to obtain biological samples, and a self-reported logbook that provides daily catch records from each fishing trip. The SRHS has been collecting logbook data electronically since 2013 and is currently investigating dockside validation methods to verify these data.

11. GulfFIN Biological Sampling Program

GulfFIN has funded biological data collection for federal and state managed species since 2002. This sampling has been limited to the Gulf of Mexico, with no funding available for implementation on the Atlantic coast of Florida. Currently, state partners are collecting additional lengths, weights, and ageing structures from priority managed species in the Gulf. Previously, due to funding constraints, staff collected opportunistic or targeted samples as time permitted. However, in recent years all states have transitioned to a more scientifically rigid random site selection process that will help states more representatively sample the recreational fishery. Samples collected through this Program represent the bulk of available information on the age composition of recreationally landed species in the Gulf of Mexico, and GulfFIN routinely provides age and length data to SEDAR for federal and regional stock assessments.

12. Florida Atlantic Coast Red Snapper Harvest Survey

During years when a recreational mini-season is allowed for red snapper in the South Atlantic, FWC conducts a specialized survey to improve precision around landings estimates for the pulse fishery. For private boat mode, effort is estimated by monitoring vessel activity through ocean egress points, and CPUE is measured through a separate dockside intercept survey. Additional staff are also assigned to collect biological samples from intercepted parties. For charter mode, vessels selected for the MRIP For-Hire Telephone Survey are also interviewed about red snapper trips. FHTS sampling is augmented with additional for-hire vessels selected and only interviewed about red snapper trips. Landings estimates have been used in stock assessments and to account for ACLs, and length and age compositions have contributed to stock

assessments. Since 2021, fin clips have also been collected for an ongoing close-kin mark-recapture study led by the University of Florida to estimate the absolute abundance of Red Snapper in the South Atlantic stock.

GulfFIN Priorities

The GulfFIN Committee met in March 2022 to determine a prioritized list of regionally important data needs. A workgroup of recreational survey state and federal program managers was formed to start the review process and determine initial priorities. Extensive discussions during in-person and virtual meetings resulted in the following prioritized list:

- 1. Improved timeliness of recreational catch and effort estimates**
- 2. Improved- recreational fishery discard data**
- 3. Biological Data Collection**
- 4. Transition plan for For-Hire data collection methods**
- 5. Inclusive and Transparent Process for Review of Recreational Estimates and Treatment of Outliers; and**
- 6. Additional methods for collecting spatial data**

Each priority is described below in more detail to provide justification for the regional importance along with the approach for implementation and the estimated annual costs. Some of these priorities will require new methods that have yet to be developed and tested. The goal would be to develop new methods collaboratively through GulfFIN that promotes opportunities for state/federal science and management discussions.

1. Improved timeliness of recreational catch and effort estimates

Currently, recreational estimates from the MRIP general survey are produced after two-month sampling periods. Annual estimates of catch and effort are often not available until March or April of the following year. GulfFIN believes that improving the timeliness of recreational catch and effort estimates could provide several benefits. First, several federally managed species are being managed with Annual Catch Limits (ACLs) and having more timely estimates of removals helps fishery managers better predict when seasons need to be closed (i.e. before landings exceed the ACL). In the for-hire fishery this could be extremely important as it could provide longer-term business planning capabilities. Also, having more timely estimates could help reduce gaps or buffers set between ACLs and Annual Catch Targets (ACTs), essentially allowing anglers to harvest more fish by reducing uncertainty in landings. NOAA Fisheries OST has already completed a study looking at comparing recall error in the FES using one and two-month waves (Andrews, W.R., K.J. Papacostas, and J. Foster. 2018. A comparison of recall error in recreational fisheries surveys with one- and two-month reference period. North American Journal of Fisheries Management 38:1284-2198.). Andrews et al. (2018) discerned that, while there was no significant difference in effort estimates between a one and two-month recall period, multiple reference periods (months) in a single survey may reduce bias for one-month estimates by limiting telescoping or reporting trips outside the intended month being sampled. In determining tradeoffs of effort survey design, Andrews et al. (2018) recommend

consideration be given to estimate precision, sampling requirements to support different levels of resolution, and also the impact of increased sampling on survey costs. We recognize that moving to one-month waves could require increases in sample sizes to maintain adequate precision of monthly estimates. An analysis and evaluation of state field staff capacity and cost implications is necessary before deciding on sample sizes. Currently, APAIS and FHS data collection is processed in a timely fashion that would facilitate monthly recreational estimates. GulfFIN would be in favor of MRIP investigating and potentially transitioning towards producing fishing effort and catch estimates on a monthly frequency. Monthly estimates along with shorter lag time for annual estimates would provide fishery managers more timely information for making sound management decisions. A shorter recall period would also potentially improve accuracy in responses to the FES.

Expected costs: At a minimum GulfFIN recommends continuing to provide the increased funding of \$880k to support current APAIS sample sizes included with the \$900k in Modernizing Recreational Fisheries Management Act (MFA) funding. If it is determined that increased APAIS sample sizes would be needed to support monthly estimates, state partners will need to develop budgets to support the proposed increases in sampling assignments. The increased cost of monthly FES surveys for producing monthly estimates at the desired precision level should also be considered. Estimated costs for all recreational survey work supported through GulfFIN in 2024 is \$5.5M and that does not include additional research priorities exploring drivers for differences between different surveys.

2. Improved Recreational Discard/Release Data

In response to stock declines, fishery managers have taken regulatory steps to reduce harvest in the recreational sector, including increased size limits and reduced bag limits, and recreational fishing seasons have been reduced to ensure harvest levels do not exceed management targets. This approach results in more recreational catch that is released at sea, which is therefore unavailable for direct observation in dockside surveys. Data needs for stock assessment include accurate and precise estimates of numbers of fish discarded, the size distribution of discards (particularly for age-based assessments), the depth distribution of discarding, proportions of discards caught with circle hooks and/or vented prior to release, and reliable estimates for the proportion of recreational discards that suffer mortality following release.

The magnitude of discarded fish is difficult to quantify with precision, due largely to the fact that discards are not available to inspect at the dock and anglers may be unable to accurately recall the species and numbers released after the trip has ended. Surveys in Florida through Louisiana currently rely on dockside angler interviews to estimate catch rates for released fish and produce estimates of the number of discards. Information on released catch is not collected in the Texas Creel Survey; thus no estimates of the number of discards are available for this portion of the Gulf. At-sea observer surveys on for-hire charter and headboat vessels in Florida provide information on the size and condition of released fish, the methods for capture or handling, and the depth of capture; all of which are important statistics for estimating fisheries removals attributed to discards. Similar surveys have recently been implemented in Alabama and Mississippi, and the Gulf States Marine Fisheries Commission has worked with all three states to develop standards to ensure data will be compatible for use in regional stock assessments. However, estimating this parameter continues to be an ongoing data need in the western Gulf. In

2017 GSMFC held a workshop with state and federal partners to discuss ways to potentially improve collection and use of recreational discard data. The workshop report (<https://www.gsmfc.org/publications/GSMFC%20Number%20275.pdf>) recommended that direct observation by trained fisheries scientists is the best option for obtaining reliable discarded catch data but recognized direct observation is rarely possible. In lieu of direct observation, the workshop team suggested studies to validate self-reported discard data, evaluate the use of electronic reporting applications, assess the use of data from pre-trip, released catch cards, and possibly conduct a panel survey of anglers asking them to provide released catch data. The workshop also suggested utilizing existing datasets to compare released catch reports with observer data where available. To highlight the importance of Gulfwide discard monitoring, a meta-analysis of available studies for the recent Gulf Red Snapper SEDAR found that while discard mortality rate was not significantly higher in the western Gulf, the western Gulf did show seasonal differences in mortality, with an increased discard mortality rate in summer, likely due to stronger thermoclines in the depths that were studied (<https://sedarweb.org/documents/a-meta-analysis-of-red-snapper-lutjanus-campechanus-discard-mortality-in-the-gulf-of-mexico/>). Thus, the impact of discarding in the western Gulf during the summer fishing season may be an important additional source of mortality for this stock, even if the magnitude of discards is lower due to decreased recreational fishing pressure.

High priority data needs for discards in the Gulf region and Atlantic coast of Florida include:

- Methods to estimate the magnitude of discards in Texas;
- Methods to collect data on the size and condition, capture and handling methods, and depth of capture for discards in the western Gulf (Texas and Louisiana); and
- Methods to improve the accuracy and precision of estimates for discards throughout the region.

Expected costs: Unable to estimate at this time. With IRA funding received GulfFIN is planning another workshop in 2024 to explore increasing at-sea observer coverage in Florida, Alabama and Mississippi while attempting to expand the program into Louisiana and Texas. Estimated costs for that work are approximately \$1M annually. The workshop will also seek to explore methods for improving discard estimates in the private boat mode. Potential pilot surveys and costs for implementing might be developed from the workshop findings.

3. Biological Data Collection

Biological data from landed recreational catch is one of the most important annual data streams necessary for conducting age-based stock assessments. There is a lack of stable funding in the Gulf region to support stand-alone surveys that collect biological samples from landed fish necessary to evaluate the age, sex, and genetic structure of managed fish stocks. Funding for biological sampling is particularly limited for private boat, shore, and for-hire charter fishing modes. An effective biological sampling program in the region also require adequate funding for staff to catalogue and process the samples collected from all segments of the recreational fishery. An efficient approach that is helping to partially meet data needs in the region is to incorporate biological sampling into specialized surveys. Some examples of specialized surveys in the Gulf that have successfully accomplished biological sampling are the Southeast Region Headboat

Survey, the For-Hire At-Sea Observer Survey in Florida, and some of the state surveys focused on Red Snapper and other reef fishes. However, incorporating biological sampling has proven to be impractical for general surveys of all saltwater species, such as MRIP's APAIS and the Texas Creel Survey. Thus, stand-alone biological surveys are still needed to support assessment of nearshore stocks that are managed and assessed at the state and interjurisdictional level.

In prior years when funding was limited, biological sampling was opportunistic, often focused on a few select species, and private boat and shore modes were not well-represented in the samples. However, with increased funding in recent years, Gulf FIN has made great strides to more effectively collect representative samples across all managed species and recreational fishing modes. The program was recently expanded to include representative biological sampling in the western Gulf, which has filled important data gaps for both state and regional assessments. However, continued funding is highly uncertain and Gulf FIN stands to lose ground on the advances made in recent years.

To accomplish representative biological sampling of harvested fish across all recreational fishing modes throughout the Gulf, high priority data needs for biological sampling include:

- Continued support for dockside sampling in the Southeast Headboat Survey;
- Integrating biological sampling into existing specialized surveys wherever this is feasible;
- Stable funding for stand-alone biological surveys in states where integration into existing surveys is not possible (i.e. Texas);
- Stable funding for stand-alone biological surveys in states where specialized surveys do not sample state and interjurisdictional managed species; and
- Stable funding to support processing of samples collected through existing surveys that collect biological information.

Expected Costs: \$1.3M as currently designed and implemented

4. Transition plan for For-Hire data collection methods

The FHS was recently peer reviewed, and an outcome of certification was the capability to eliminate the pre-validation portion of the survey (<https://www.fisheries.noaa.gov/recreational-fishing-data/transitioning-new-recreational-fishing-survey-designs#certified-survey-designs>). The peer review also recommended investigating whether additional variables available in the vessel list might improve nonresponse adjustments. A long-standing concern with the FHS in the Gulf has been the potential for biased estimates if response rates vary among vessels with and without federal permits. This issue was likely compounded in recent years when federally permitted charter vessels were required to additionally report all fishing activity through new mandatory logbook reporting requirements in the Gulf and South Atlantic. Unfortunately, this potential source of bias was not explored during the peer-review; however, a simple weighting approach could be used to account for variable response rates. Weighting by permit type may also facilitate the production of mode-specific estimates for federally permitted charter vessels that are needed to track separate ACLs for federal for-hire fleets.

In the Gulf of Mexico, federally permitted charter and headboat vessels are managed as a distinct sector with their own allocation for Red Snapper; however, the current for-hire monitoring systems in the region do not meet the needs for desired sector management options. NOAA Fisheries Southeast Region Office (SERO) implemented the Southeast For-Hire Integrated Electronic Reporting (SEFHIER) program that required daily trip-level electronic reporting and tracking with vessel monitoring systems (VMS) for the federally permitted for-hire charter and headboat fleets. The SEFHIER program was running concurrently with the FHTS during a benchmarking period, with an expectation that charter vessels with federal permits would eventually be moved out of the FHTS. The new program also required headboats to report daily, as opposed to weekly, through the Southeast Headboat Survey. However, a court ruling challenging the VMS component in early 2023 led NOAA to rescind the reporting requirement altogether for charter vessels and return to weekly reporting for headboats. NOAA and the Council are currently engaging in discussions on whether and how to revamp the reporting requirement for federal permitted vessels.

Prior to these recent developments there has been an ongoing need in the Gulf region to develop a comprehensive plan for collecting data from for-hire fleets. The process and length of time necessary for benchmarking and moving charter vessels with federal permits away from the FHTS was not defined, and reporting compliance was reportedly so low during the first year of benchmarking that the accuracy of catch reporting could not be evaluated. This raises the question whether VMS and hail-out and hail-in data provided by each vessel were useful for monitoring reporting compliance, and whether adequate resources were allocated to follow-up with vessel operators for timely submission of missing data. A future program should ensure that required components of reporting are both necessary and practical for managing compliance and accurately accounting for total effort and catch. GulfFIN recommends the following components are included in the Transition Plan for newly certified FHS methods that is currently being developed by NOAA Fisheries:

- Explore the need for estimates from the FHS to be appropriately weighted by mode (state charter versus federally permitted trips). This should be completed prior to producing and sharing re-calculated FHS estimates following the recent peer review and certification; and
- Develop new estimation procedures that allow for the production of separate estimates for state and federally permitted vessels.

Further, Gulf FIN recommends:

- A comprehensive plan for a new data collection system for federally permitted charter vessels be developed for the Gulf region. The development of this plan should be transparent and inclusive of input from the charter industry, state and regional fishery managers and data collection partners, and experienced professionals in the design and execution of fishery-dependent data collection programs.

Expected costs: Unable to estimate at this time.

5. Inclusive and Transparent Process for Review of Recreational Effort and Catch Estimates and Treatment of Outliers

Recreational catch and effort estimates generated from the APAIS, FHS, FES, and state surveys provide effort in numbers of angler trips and numbers or pounds of fish caught and harvested for most federal and state managed species in the GoM. In the past both state and federal partners were involved in reviewing the wave specific and annual estimates prior to being released to the public. In recent years NOAA Fisheries has been unable to include state project management staff in the review prior to releasing estimates through their public query tool. Furthermore, the current internal process for reviewing estimates, identifying potential outliers, and the treatment of outliers is neither documented or transparent. Getting state partners involved in a productive estimate review process is highly desired by state partners. It is not unusual to discover wave specific estimates for individual species that are unusually high or low and having an opportunity to investigate and understand the reasons for the changes in magnitude are important to state partners. The occurrence of large wave-level peaks in MRIP landings and discard estimates is often the result of a small number of intercepts with large sample weights that influence the overall estimate. Unfortunately, such outliers are often not recognized until a fishery closure is imminent, and there is a need for a timely, automated and objective process that is conducted on a routine schedule to identify potential outliers in MRIP sample weights and evaluate their influence on overall estimates so raw data can be corrected, if necessary, before estimates are used to project landings in-season or are otherwise published for use. Data collection partners should be informed and consulted throughout this process to verify data records, establish whether potential errors are being missed during the collection and submission of data, and help provide guidance on corrective measures. We request that NOAA Fisheries staff work with the Gulf FIN Committee to develop inclusive procedures for review of wave-level estimates that would include identifying a specific process for review and which species would be essential to include in that review.

Expected costs: May be supported through increased administrative program costs as this priority could be accomplished through an estimate review meeting annually. Meeting costs are already included as programmatic costs within our cooperative agreement and roughly an in-person meeting would cost \$25k at most.

6. Additional methods for collecting spatial data

As wind energy and aquaculture leasing projects in the Gulf of Mexico becomes ubiquitous, spatial data is essential for mitigating resource user conflicts. During recent BOEM assessments, fishery dependent spatial data was crucial in identifying areas of high use and impact. In addition, it became apparent during these assessments that there is a lack of spatial data available for recreational fisheries in the South Atlantic and Gulf of Mexico. This information is not only essential for assessing impacts of leasing large areas for wind energy or fish farms, but also in determining recommendations for compensation. Considering the level of fishing effort in the GoM, the lack of spatial data represents a significant gap in identifying the full scope of impacts and the equitable distribution of compensation. Figure 1 below gives an indication of the magnitude of estimate recreational fishing effort in the private boat mode.

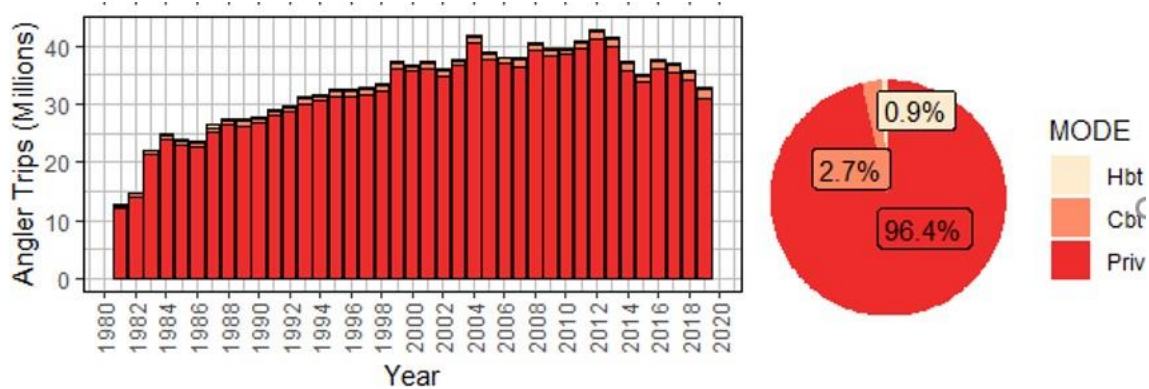


Figure 1. Total recreational fishing effort for Gulf of Mexico anglers in millions of angler trips (MRIP, SRHS, TPWD, and LA Creel).

<https://sedarweb.org/documents/sedar-74-gulf-of-mexico-data-workshop-report/>

Expected costs: Unable to estimate at this time.