NOAA FISHERIES
SEFSC

Incorporating Discards into Management
Part 1: discard data collection and estimation

Fishery Statistics Division

NOAA Fisheries
Southeast Fisheries Science Center

September 14, 2026

Topics

Commercial

- Discard Data Collection Programs
- Discard Estimation Processes

Recreational

- Discard Data Collection Programs
- Discard Estimation Processes

Data Collection and Estimation in other regions

GoA, HMS, GARFO,WCRO, AKRO

Observer Program Differences Between SE and Other Regions

Coastal Fisheries (Commercial) Discard Logbook Program

- Implemented in August 2001
- A 20 percent sample of the vessels with a Gulf reef fish, South Atlantic snapper/grouper, King Mackerel, Spanish Mackerel, Dolphin/Wahoo, or shark permit
- Vessels self-report discard information for the selected year, including species, quantity, disposition, and reason for discarding

Commercial Discard Logbook Caveats

- In 2024, SEFSC analysts compared discard logbook and observer reported discards and determined the high rate of “no discard interactions” made the discard logbook less reliable than other sources (when available)
  - On average 75% of discard reports using vertical line, troll line, gill net, or bottom longline gear declare “no discard interactions”
  - Data quality also suffers from lack of reporting accountability and recall bias affecting late report submissions
- As a result, analysts have employed the observer methodology when data are available to better estimate the true frequency of zero discard trips

Commercial Fisheries Covered by the Southeast Observer Program (SEFOP)

- Two South Atlantic fisheries are currently covered by the SEFOP:
    1. Snapper/Grouper (covers VL and BLL gear) - started in 2018
        a. VL: 2-4% (avg ~2%) coverage (seadays)(2022-25)
            i. Gulf: 2.5-3.5% (avg ~ 3%) same time period
        b. BLL: 1-5% (avg ~3.5%) coverage (seadays)(2022-25)
            i. Gulf: 4-6% (avg ~ 5%) same time period
    2. Shrimp (South Atlantic Penaeid + Rock Shrimp) - started in 2008
        a. SPA: 0.5 - 1% (tow hours)(2021-25)
            i. Gulf (SPGM): 1-2% (tow hours)(2022-24)
        b. RSLA: 5% (tow hours)(2021-25) - fluctuates greatly
- Dolphin/Wahoo: incidentally observed by pelagic observers
- CMP fishery: incidentally observed in reef fishery
- King mackerel Gillnet observer coverage (Q2-2024) and Shark Bottom Longline observer coverage (2021) discontinued due to funding (the only shark fishery coverage is obtained by the Shark Research Fishery, which is required for any trips landing sandbar sharks).

South Atlantic Commercial Observer Data Caveats

- Dedicated funding for observer coverage of the snapper/grouper fishery only began in 2018 with increased coverage rates starting in 2022.
- Temporal selection periods may not align with fishing seasons
- Many trips are day trips (minimum number of seadays needed for an observer is three)
- Smaller boats that take multi-day, overnight trips generally cannot be observed for safety reasons (e.g. lack of bunk space for the observer)
- Shrimp observer program has low coverage (<1%) due to compliance issues (e.g. vessel took trip without notifying the program) and rock shrimp coverage is highly inconsistent.
  - Only certain species recorded in species characterization process (changed in 2025, all reef-fish and sharks are now identified))
- Federal Shrimp fleet lacks a standardized effort data collection like the Gulf (only trip tickets for SATL)

Commercial Discard Estimation Methodologies

1. Reef-Standard Observer Methodology
   - 1st used: Gray Triggerfish (S82)
   - Uses methodologies developed for Gulf reef from Smith et al. 2018
   - Utilized in: Red Grouper (S86), Red Snapper (S90), Yellowtail Snapper FL Keys region (S96), Black Sea Bass vertical line (S108)
2. Reef-Data-Limited Observer Methodology
   - 1st used: Tilefish (S89)
   - Very simple methodology
   - Utilized in: Blueline Tilefish (S92) and Yellowtail Snapper SE FL region (S96)
3. Discard Logbook Methodology:
   - Reserved for gears not well observed
   - Last used: Black Sea Bass trap (S108)
4. Shrimp: Delta GLM approach
   - Last Used: Spanish Mackerel (S78)
   - Different methodology than Gulf because Gulf has more effort data sources (i.e. cELB and ALGS)

Final products are total annual estimated discards (live + dead) by gear and subregion.

Commercial Discard Estimation Methods

Usage by fishery

- Snapper-Grouper:
  - Standard Observer Methodology
  - Data-limited Observer Methodology
  - Standard Discard Logbook Methodology
- Shrimp Bycatch:
  - Delta-GLM approach
- Dolphin-Wahoo:
  - No methodology
  - Reported discards from HMS Logbooks
- Coastal Migratory Pelagics:
  - Data-limited Observer Methodology

Recreational discard data collection

MRIP- Data Collection

- Atlantic Coast- 1981+
- Recreational discards estimated from data collected by independent but complementary MRIP surveys
  - Catch data collected through dockside angler interviews in the Access Point Angler Intercept Survey (APAIS)
  - Effort data collected from telephone interviews designed to sample and estimate the recreational fishing activities of selected for-hire operators

Recreational discard data collection

Southeast Headboat Survey Logbook

- SRHS Discard Data Collection started in 2004
  - started as released live and dead but transitioned to total released after a few years
- Self-reported on logbook paper forms, or electronic forms starting in 2013
- No port agent ad-hoc validation of species and catch as with landings
- Port agents collect weekly headboat activity information used to identify trips not reported

Recreational Discard Estimation Methods

Charter:

- MRIP

Headboat:

- SRHS logbook (NC-FL; 2008+)
- Proxy discards (NC-FL; 1981-2007)
- MRIP (ME-VA)

Southeast Headboat Survey Logbook - Estimation

- Estimation process by vessel, month, and species incorporates an expansion factor to estimate catch and discards from missing trips using species composition and catch/discards from reported trips
- Reported and estimated values are very similar for most vessels since about 2008 due to efforts to increase compliance rates to the current high level
- As with landings, uncertainty is calculated as a proxy CV based primarily on compliance rates. These CV's are typically weighted by subregion landings and/or discards.

Headboat Discard Proxies

- SRHS Discard Data Collection started in 2004
- Concerns of under-reporting in initial years (2004-2007) of data collection
- Generally, 2008 is the first year for which discard estimates are provided by SRHS logbooks. Proxy estimates needed for years prior.

Estimation of proxy SRHS discards based on scaling SRHS landings estimates (e.g., 1981-2007) by some assumed discard rate. Best practice is to calculate these discard rates from MRIP-Charterboat estimates (SEDAR-PW-07).

MRIP Discard Estimates

- Catch rates from dockside intercepts are combined with telephone effort estimates to estimate total discards from the for-hire modes

- Combined For-Hire mode (1981-1985 SATL; 1981-2003 NATL and MATL)
  - The SEFSC splits these for-hire estimates between charter and headboat based on ratios of mode-specific effort for each sub-region and state
  - MRIP SATL headboat mode is not used to avoid overlap with the SRHS

- Resulting For-Hire discard estimates used in South Atlantic assessments
  - Charter mode- Atlantic coast (ME-FL)
  - Headboat mode- NATL and MATL (ME-VA)

MRIP FHS Calibration

For-Hire Effort Estimation

- Georgia through Maine
  - Coastal Household Telephone Survey (CHTS) - 1981-2003
  - For-Hire Survey (FHS) - 2004+
- Florida transitioned from CHTS to FHS in 2000

For-hire discard estimates calibrated from CHTS to FHS units

- Generalized linear models fit to FHS estimated trips with CHTS estimated trips as a predictor, calculated for each sub-region by year, wave, state, and area-fished (SEDAR 64-RD-12)

How Do Other Regions/Fisheries Count Discards?

Gulf of America

Commercial VL and BLL

- Same coastal logbook is used for Gulf of America and South Atlantic. Discards are recorded by a 20% sample of vessels.
- In general, greater historical rates of observer coverage in the GoA than in the South Atlantic
- Allows most discard estimation processes in the Gulf to rely on observer information more so than the discard logbook

Shrimp

- Relies on observer data and effort estimated from cELBs for characterized species, proxy methods for others.

How Do Other Regions/Fisheries Count Discards?

Gulf of America

Recreational

- Same as in the South Atlantic for SRHS and MRIP
- Additional state data source: LA Creel (2016+ for some species)
- Proxy Discard Estimation methods for Texas Parks and Wildlife Department's creel survey as they do not collect discards
  - uses discard ratios from MRIP data in neighboring states

How Do Other Regions/Fisheries Count Discards?

HMS pelagic fleet

- Fleetwide logbook reporting of discards and protected species interactions
- Observer coverage
- Compliance monitoring with EM to ensure accurate reporting in IBQ fishery

How Do Other Regions/Fisheries Count Discards?

Greater Atlantic Regional Fisheries Office (GARFO)

- Similar to SE requirements, but requires 100% discard reporting on electronically submitted VTRs for commercial and for-hire vessels
- Use documented discards from observed commercial trips to develop discard correction factor to apply to the unobserved trips when calculating fleet wide discards

EM use

- A subset of vessels in the groundfish fishery have opted into an audit-based electronic monitoring program
- EM video is reviewed from a random selection of trips to develop a correction between EM-reviewed discards and VTR-reported discards used for quota monitoring in the Catch Accounting and Monitoring System (CAMS)

How Do Other Regions Count Discards?

West Coast Region (WCRO)

- West Coast Groundfish Trawl Rationalization Program:
- IFQ program for the shorebased trawl fleet (including whiting and non-whiting sectors) and cooperatives for the at-sea mothership and catcher/processor trawl fleets (whiting only)
  - Discards are monitored by either
    - Carrying an observer on 100% of trips
    - Maximized retention while carrying an electronic monitoring system and submitting discard logbooks
  - Offloads are monitored by certified shoreside catch monitors to track landed catch

How Do Other Regions Count Discards?

Alaska Region (AKRO)

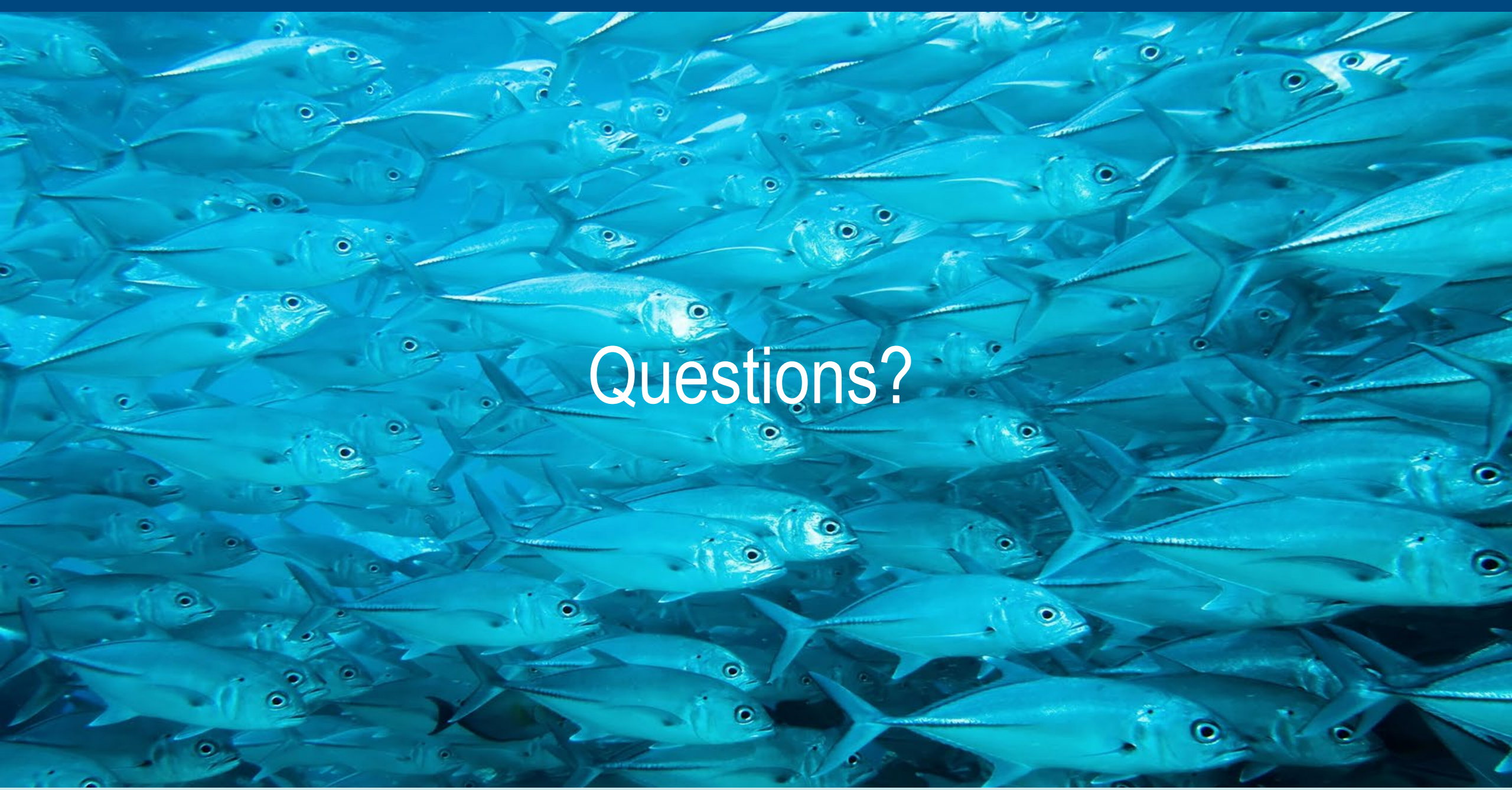
- Catch Accounting System:
  - Relies on both observer data and landings information to generate estimates of total groundfish catch, including at-sea discards, as well as estimates of prohibited species catch and other non-groundfish bycatch
  - Landings data feed updated every half hour and observer data feed updates the system nightly.

Differences between SE and Observer Programs in Other Regions

- In general, observer programs collect much of the same information across the United States
- Sampling designs and coverage can be different depending on the fishery
  - Observer coverage rates - in the Southeast a majority of coverage is <3% of effort with exception of pelagic (~10%), much higher in other regions
  - More integrated data collection in other regions-difficulty in connecting logbooks/trip tickets with observer data in the SE

Examples:

1. Northeast Fisheries Science Center (NEFSC) :
   - mix of funding sources (including industry).
   - (coverage rates 5-63% in various fisheries per NOP FY2022 Annual Report)
2. Northwest Fisheries Science Center (NWFSC) :
   - mix of funding sources (including industry)
   - EM fleet and observed fleet (coverage rates: 23-100%)
3. Alaska Fisheries Science Center (AKFSC)
   - Industry funded
   - EM fleet and observed fleet (coverage rates 15-100%)


Questions?