

Types of Fisheries Data



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Florida Fish and Wildlife Conservation Commission
Fish and Wildlife Research Institute

This presentation gives a brief overview and discussion of the types of fisheries data that are used in stock assessments.

Types of Fisheries Data



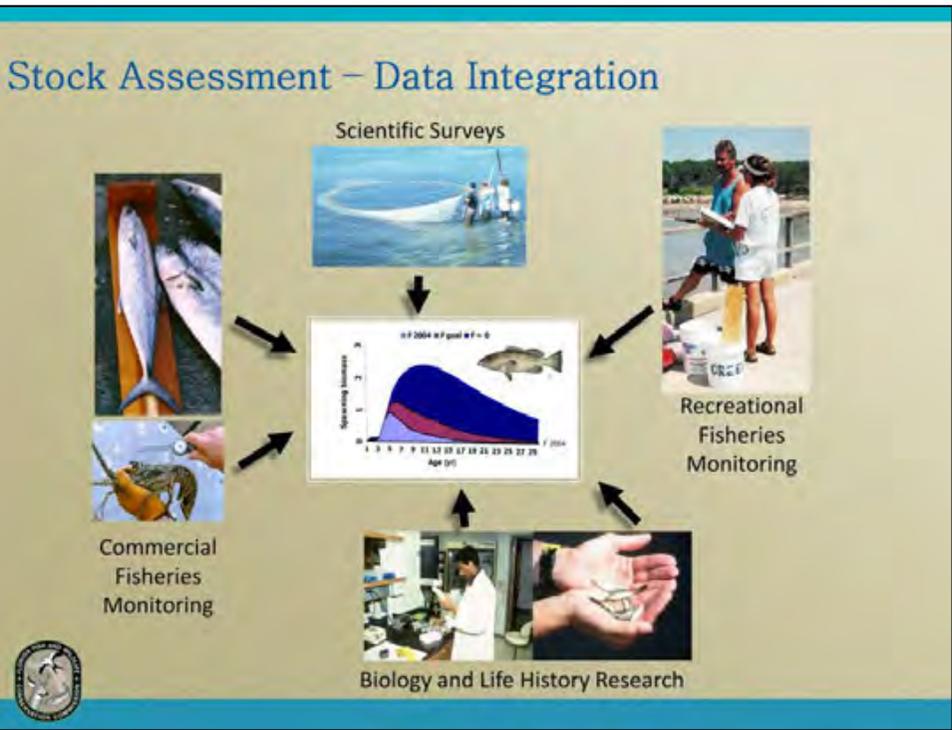
- Fishery-Dependent: are derived from the commercial or recreational fisheries.



- Fishery-Independent: are collected directly by scientists, i.e., derived from activities that do not involve the commercial or recreational fisheries.



Fisheries data can be subdivided into fisheries-dependent and fisheries-independent. Fishery-dependent data are derived from the fishing process itself and are collected through such avenues as self-reporting, onboard observers, portside surveys, telephone surveys or vessel-monitoring systems. Fishery-independent data are derived from activities that do not involve the commercial or recreational harvest of fish, such as trawl, seine or video research surveys and some tagging experiments, etc. Stock assessments generally require data on catch, relative abundance and the life history of the species in question. Both fishery-dependent and fishery-independent data can help fulfill these needs.



A complete stock assessment contains a vast array of information on both the fish population and the fishery itself. The assessment process integrates multiple types of fisheries data to evaluate the status of fisheries stocks.

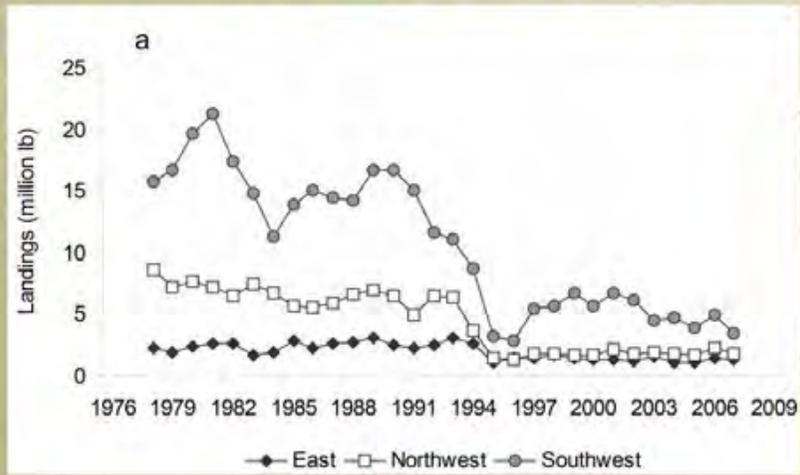
Commercial Fisheries Data Collection

- Marine Trip Ticket program --
census
- 1,200 licensed commercial dealers
- 15,000 licensed commercial fishers
- ~300,000 trip tickets submitted annually
- Sub-sampled for species id, lengths, weight, sex, age



FWC's Marine Trip Ticket Program, which collects information on commercial fisheries landings and effort, is coordinated with NMFS' trip information program (TIP). The Trip Ticket Program is a census of commercial fisheries in Florida, i.e., all licensed commercial dealers and fishers are required to report fisheries landings and fishing effort data.

Commercial Landings of Mullet in Florida (1978-2007)



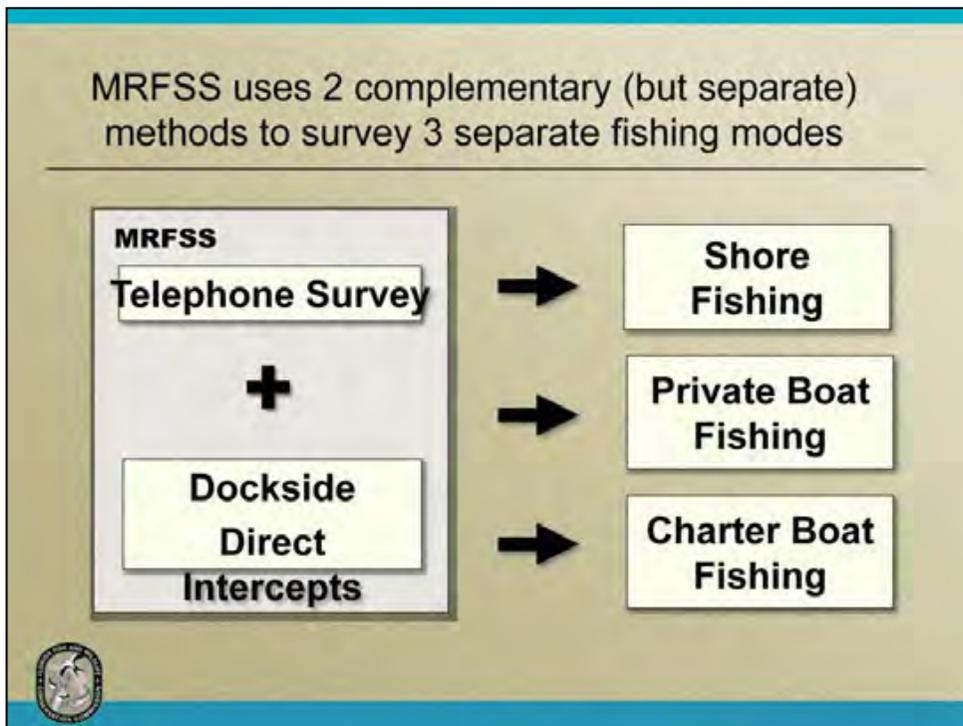
Commercial fisheries data such as those collected by FWC's Trip Ticket Program can provide assessment scientists and fisheries managers with a picture of how fisheries landings for a given species have changed over time or in different areas of the state.

Recreational Fisheries Data Collection

- MRFSS conducted by FWC with NOAA-NMFS funding and coordination -- survey
- 7.2 million marine anglers fishing in Florida
- 30 million fishing trips annually
- ~ 50,000 angler interviews conducted annually
- Sub-sampled for species id, lengths, weight, age



Data on the recreational harvest, number of fish caught and released and fishing effort (number of recreational fishing trips) is obtained through the Marine Recreational Fishery Statistics Survey (MRFSS). MRFSS is conducted by FWC scientists and field biologists with funding provided by a NOAA-NMFS grant. MRFSS is a statistically-designed survey that produces estimates of recreational fisheries catch and fishing effort from a sample of anglers.



The MRFSS survey collects information on catch from onsite surveys and both catch and effort from phone surveys which contact residents in coastal counties using random dialing. The Telephone Survey randomly samples the human population to estimate the proportion of the total population that fishes. This survey collects effort data from all types of anglers not always accessible to us in the field, such as private access fishing and night fishing. The Dockside Direct Intercept survey allows samplers to get catch data immediately following a fishing trip, which provides: (1) short recall period for released catch, (2) direct inspection of harvest, (3) access to lengths, weights, and biological samples.

Florida Initiatives

- Goal: enhance Florida data collection programs while staying consistent with the broader national initiative (MRIP)
- Pilot #1: Highly Migratory Species (HMS):
 - Characterization of the For-Hire and Private angler components of Florida HMS Fishery
 - Telephone surveys of For-Hire captains and private anglers
 - Dockside intercepts of HMS trips
 - Produce better effort and catch estimates for HMS species



The Highly Migratory Species pilot study (funded by NOAA-NMFS) which included a telephone survey of permitted private boat anglers, conducted by FWC in South Florida in 2008-2009, helped to characterize the fishery for South Florida. Important findings included: the Automated Landings Reporting System (ALRS) is ineffective in obtaining catch information on swordfish and an enforced catch tag may be better. For most species, the Pilot study showed the precision of MRFSS catch estimates for HMS to be poor relative to the Private Angler Telephone Survey (PATS). Recommendations for data collection improvement are currently being made to the Marine Recreational Improvement Program (MRIP) Executive Steering Committee.

Florida Initiatives

- Pilot #2: FWC investing \$250,000 in SFR funds for improved regionalization of Florida (better spatial resolution)

⇒ Survey of private anglers going from 2 to 8 regions by



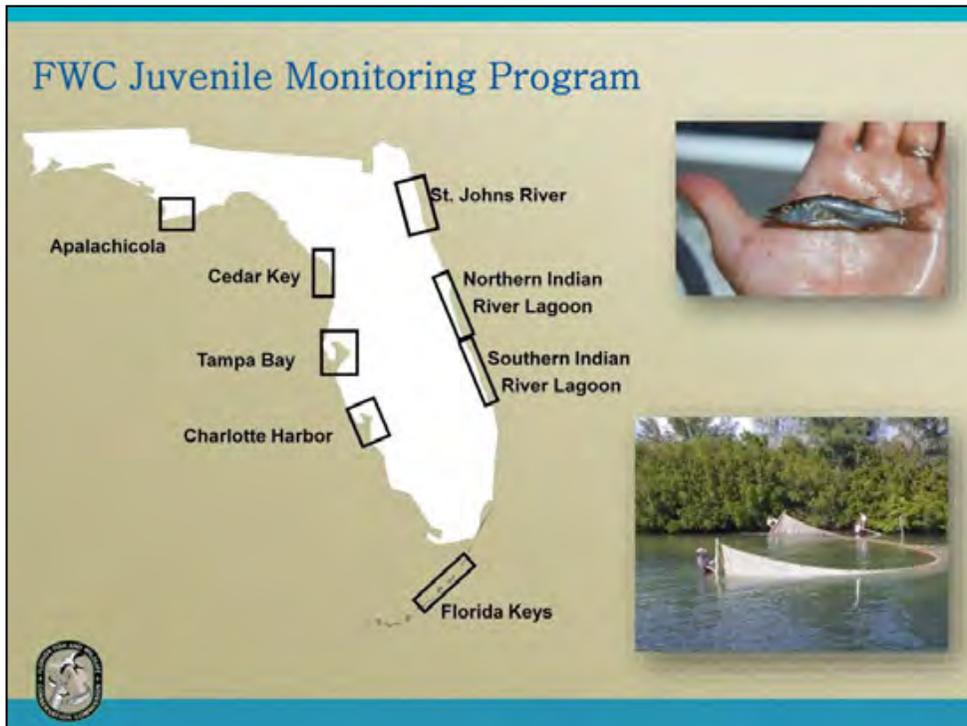
Another important pilot study being developed by FWC is looking at improvements in the spatial and temporal coverage of the surveys. This study, currently funded by the Sport Fish Restoration program (a federal grants program) outlines several scenarios for improvements to the spatial resolution of dockside sampling that will allow regional private angler catch estimates to be generated for Florida (i.e., better spatial resolution in catch and effort estimates than currently achieved by MRFSS). The study should also provide an estimate of cost for long-term implementation. The implementation of catch and effort surveys designed to produce regionalized estimates, angler license directory based sampling, and improved estimation procedures are critical components to the success of MRIP in Florida.

Florida Initiatives

- Pilot #3: Gulf of Mexico Reef Fisheries
 - Observers on charter vessels
 - Angler 'catch cards' for collection of catch and discard information
 - Monthly mail out to a sample of FL saltwater anglers
 - Focused on red snapper but getting data on multiple snappers and groupers
 - Produce better effort and catch estimates for reef fish species

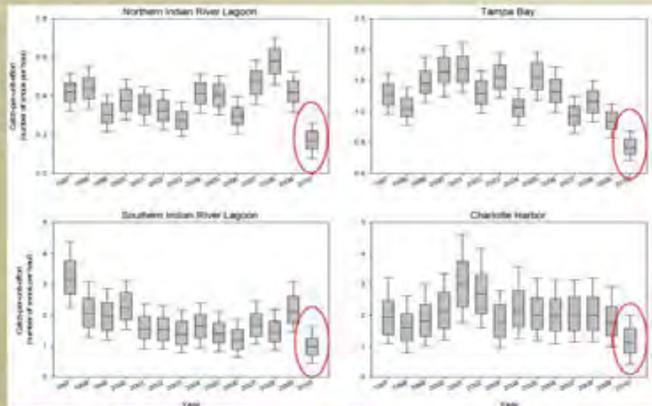


In tightly regulated fisheries the number of released fish can far outnumber the harvested portion of the catch and mortality of released fish has the potential to exceed harvest. Therefore, an important component of total fisheries removals is the latent mortality of released fish (discards). Recognizing the need for this type of information this study (funded by a Federal Congressional appropriation) provides direct measures of both harvested and discarded red snapper and associated reef fish species in the For-Hire and private boat sectors of the recreational fishery on the West Florida Shelf.



FWC-FWRI's Fisheries Independent Monitoring program (FIM) has a long term monitoring database on juvenile fish in estuarine nursery habitats that can be used to examine the impact of fish kills. The FIM program has collected monthly information on common snook abundance, distribution and size frequency using 183 meter haul seines in Tampa Bay and Charlotte Harbor since April 1996 and in the northern and southern Indian River Lagoon since January 1997.

FWC Juvenile Monitoring Program



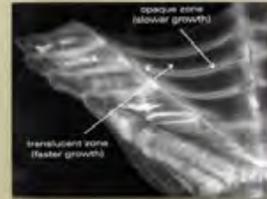
Annual catch rates for common snook collected with 183-m haul seines (January to June data only) in the Northern and Southern Indian River Lagoon, Tampa Bay, and Charlotte Harbor. The box represents the 25th to 75th percentile, the vertical line extends from the 10th to 90th percentiles, and the horizontal line indicates the median.



The impact of the 2010 cold kill event on juvenile snook in south Florida was assessed by reviewing annual indices of abundance in Tampa Bay, Charlotte Harbor, and the northern and southern portions of the Indian River Lagoon during the last 13 years. Results indicate that the average number of common snook caught per seine haul was lower than historic values in each of the four estuaries evaluated. These data helped FWC make important management decisions regarding snook stocks in Florida.

Biology and Life History Studies

- Tagging studies
- Fish age and growth
- Reproduction
- Feeding habits
- Release mortality



Results from tagging, mark-and-recapture and other studies typically fall under the category of fishery-independent data. Such studies may estimate the movement or migration rates between stocks, the natural mortality rate of the fish, the reproductive output of the fish, growth rates, maturity schedules (the percent of individuals mature at each age), and hooking or discard mortality rates. All of this information enhances stock assessment models.