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Office of Science  
and Technology

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Marine  
Recreational  
Information  
Program

# An Introduction to the Marine Recreational Information Program

**MRIP 101 10/19/23**

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Fisheries Statistics Division Chief  
Fisheries Statistics Division

# Introduction to MRIP

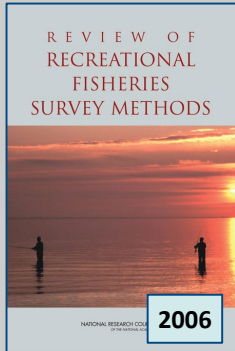
- The **state-regional-federal partnership** that develops, improves, and implements a **national network of recreational fishing surveys** to estimate **total recreational catch**
- Built on a **collaborative approach** toward:
  - Producing **regionally consistent** recreational catch and effort data to track year-to-year and **long-term patterns in fishing activity covering many species**
  - Providing critical **support to states and regional partners** to meet regional data needs, including access to **technical resources, expert statistical support, and funding**



Credit: C. Baez

# Evolution of Recreational Data Collection

## Marine Recreational Fisheries Statistics Survey

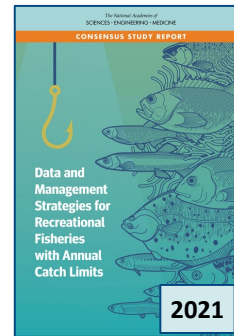


“Both onsite and offsite [MRFSS sampling methods] suffer from **weaknesses** that may lead to biases in catch and effort estimation.”

## Marine Recreational Information Program



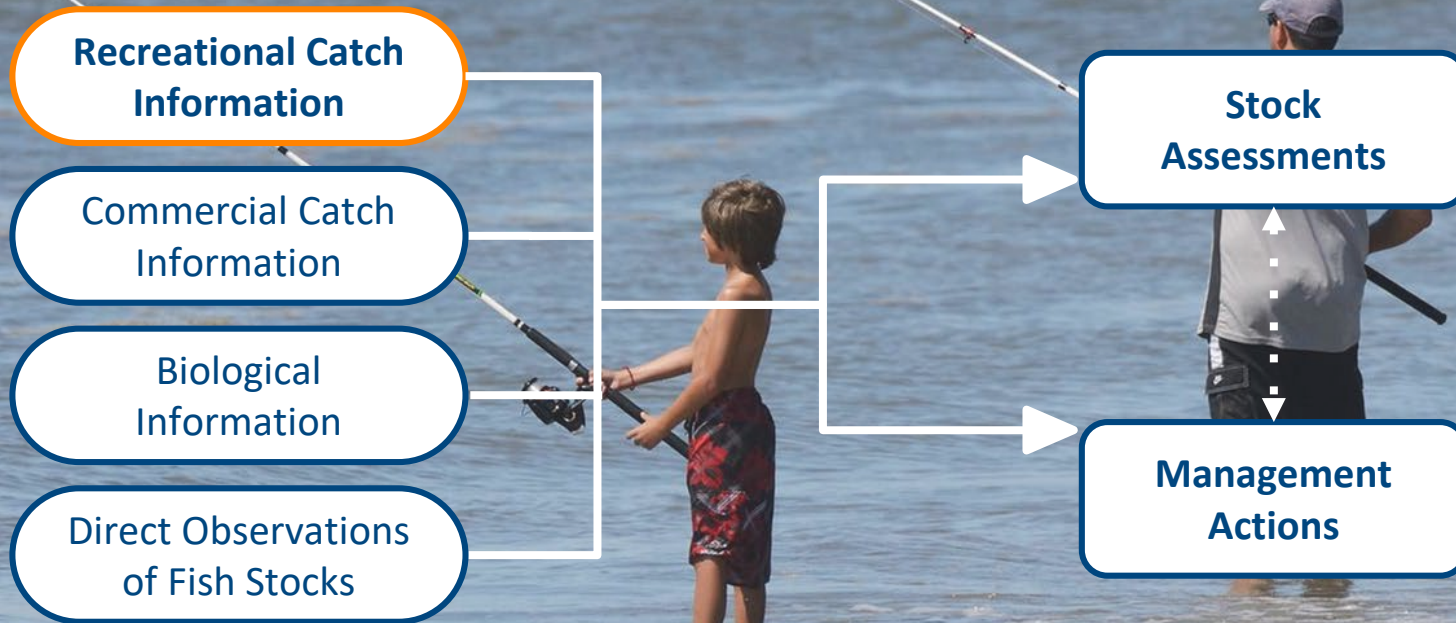
...Vast improvements from MRFSS using state-of-the-art survey designs...



The program produces “critically important” data unlikely to be replaced for monitoring and assessing council-managed stocks.



# Our Role in Fisheries Science and Management



# Survey Design and Data Collection



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# Saltwater Recreational Fishing Data Collection Programs

NOAA Fisheries' Marine Recreational Information Program works with state and regional partners to develop, implement, and continually improve a national network of recreational fishing surveys used to estimate total recreational fishing catch. These estimates help scientists and managers assess the health of our fish stocks and set rules to keep them sustainable.

[Learn more at countmyfish.noaa.gov](http://countmyfish.noaa.gov)

Saltwater Sport Fish Charter/Guide Logbook Program<sup>6</sup>

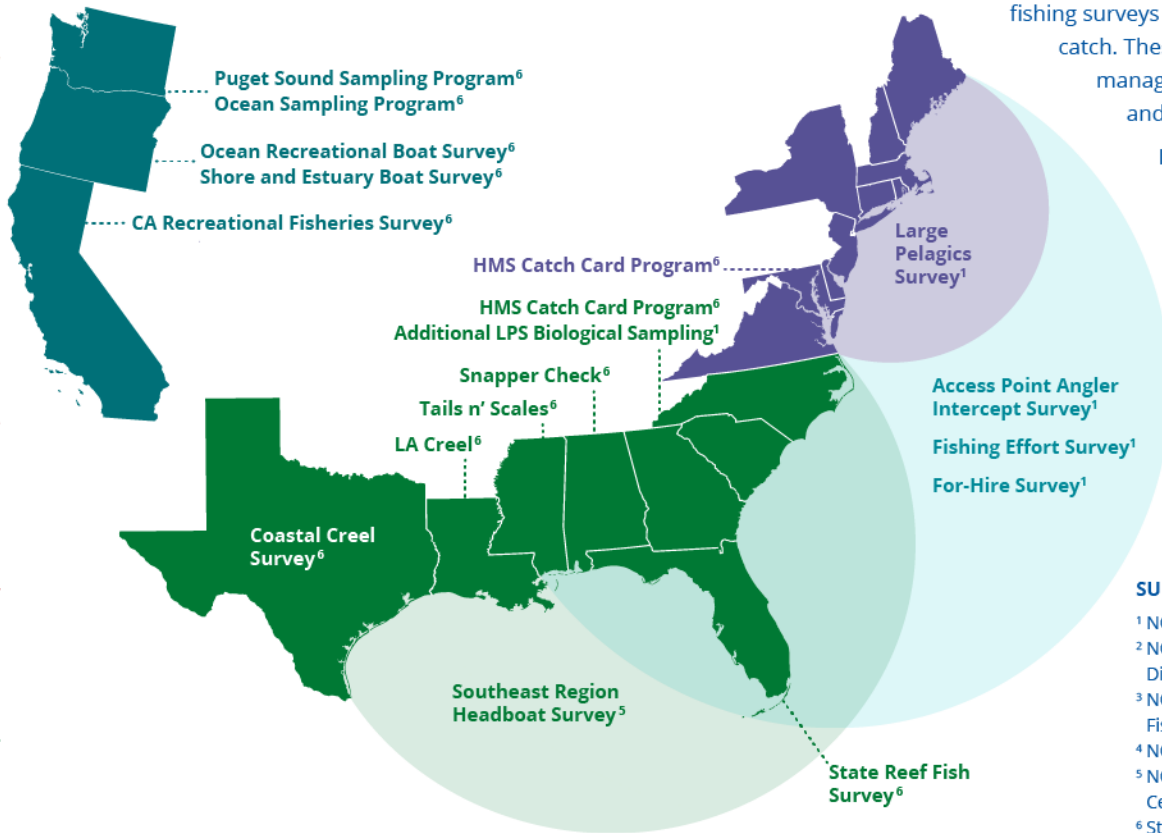
AK Sport Fishing Survey<sup>6</sup>  
Port Sampling Projects<sup>6</sup>

HI Marine Recreational Fishing Survey<sup>1</sup>

Fishing Effort Survey<sup>1</sup>

Guam, CNMI, and American Samoa Creel Surveys<sup>6</sup>

Surveys Pending in Puerto Rico and USVI



## PERMIT-BASED PROGRAMS

Atlantic HMS Landings and Tournament Reports<sup>2</sup>


Greater Atlantic For-Hire Electronic Vessel Trip Reports<sup>3</sup>

Southeast For-Hire Integrated Electronic Reporting Program<sup>4</sup>

## SURVEY ADMINISTRATOR


- <sup>1</sup> NOAA Fisheries Office of Science and Technology
- <sup>2</sup> NOAA Fisheries Atlantic HMS Management Division
- <sup>3</sup> NOAA Fisheries Greater Atlantic Regional Fisheries Office
- <sup>4</sup> NOAA Fisheries Southeast Regional Office
- <sup>5</sup> NOAA Fisheries Southeast Fisheries Science Center
- <sup>6</sup> State/Territorial Agency

# Data Collection Programs



*Estimates catch-per-trip*

**Access Point Angler Intercept Survey**  
ME to MS and HI



*Estimates private angler fishing trips*

**Fishing Effort Survey**  
ME to MS and HI

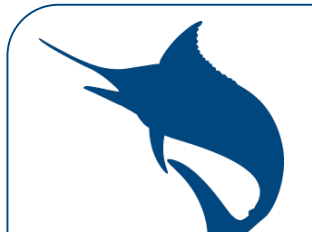


**General State Surveys**  
CA, OR, WA, LA, TX\*, AK\*



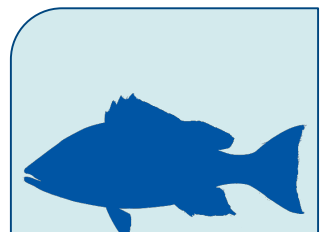
*Estimates for-hire fishing trips*

**For-Hire Surveys**  
ME to TX



*Estimates private and for-hire large pelagic catch and fishing trips*

**Large Pelagics Survey**  
ME to VA

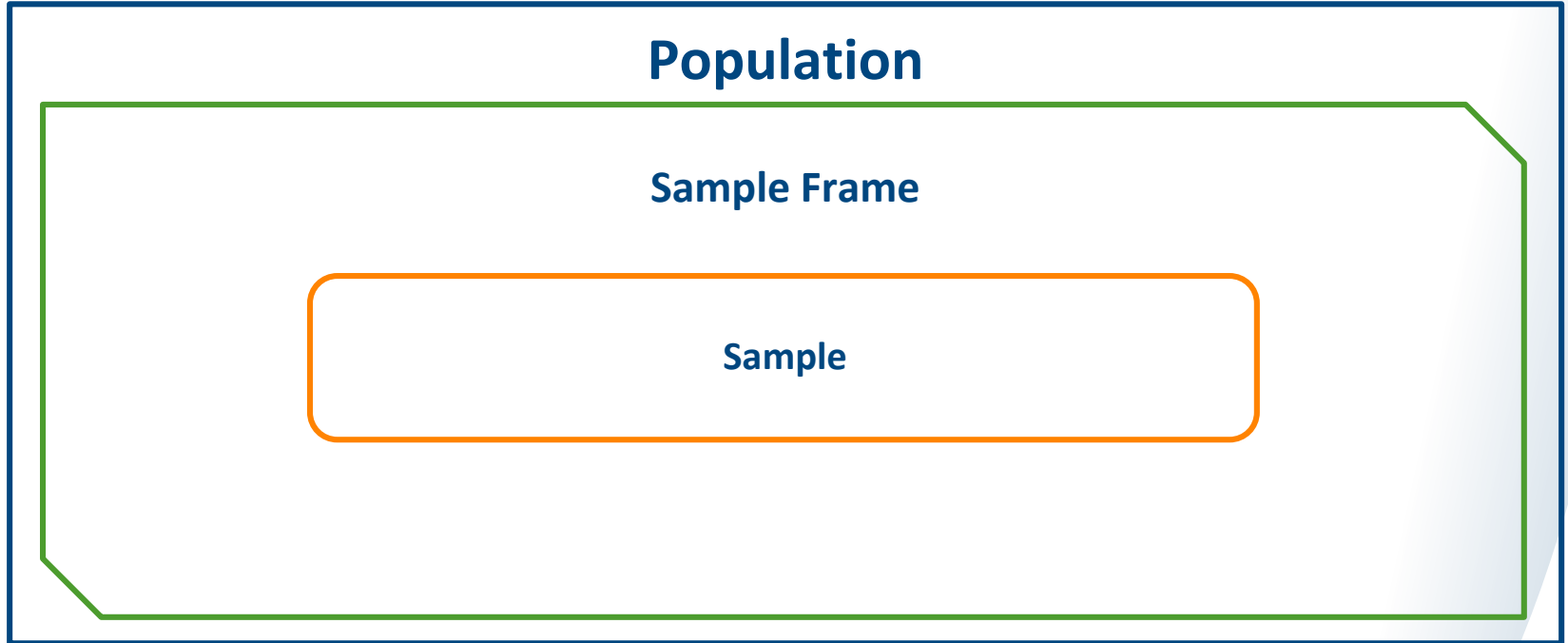


**Specialized State Surveys**  
MS, AL, FL

\*These state surveys operate independently from NOAA Fisheries and do not receive agency funding.



# Sample Frame





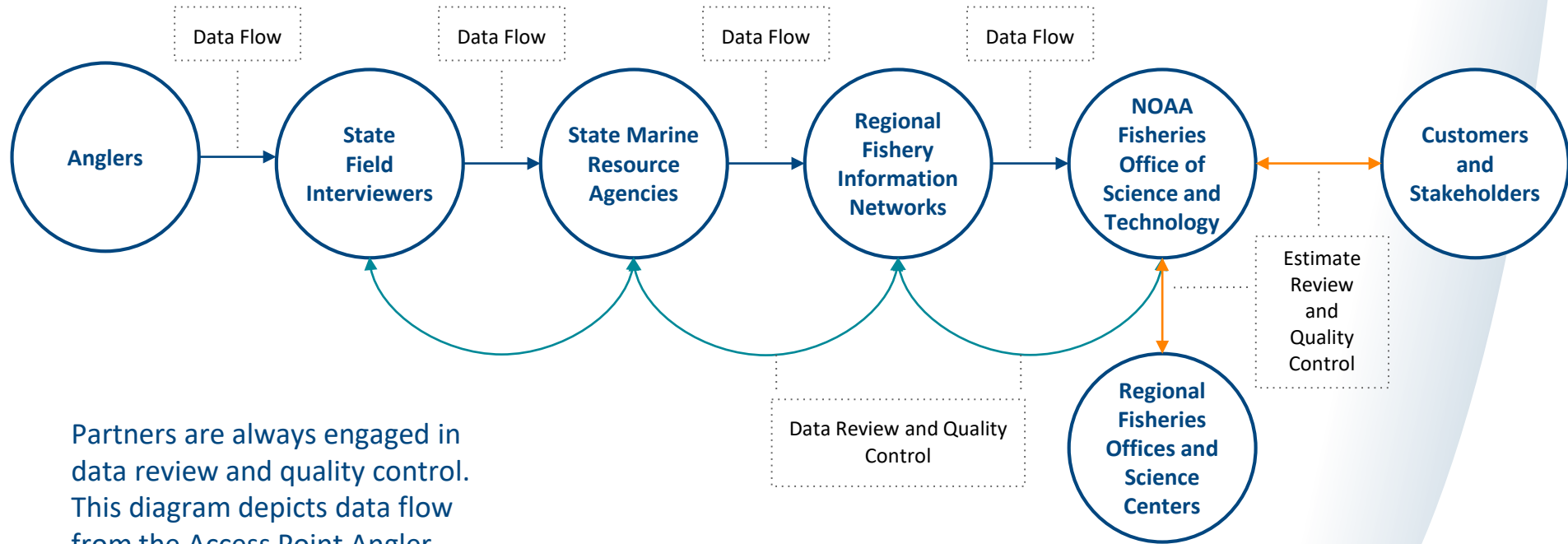
# Probability-Based Sample Surveys

- Data are collected from a **randomly selected sample** of a target population
- Statistical **weighting** ensures each sampled unit is **representative** of the broader population
- The standard for conducting large-scale government surveys
- Allow us to draw conclusions about the full recreational fishing community without having to collect information from each member of that community



Credit: NOAA Fisheries

# From a Sample to an Estimate



Partners are always engaged in data review and quality control. This diagram depicts data flow from the Access Point Angler Intercept Survey.

# Best Scientific Information Available (BSIA)

- Each region has a **BSIA framework**
  - NOAA Fisheries relies on input and advice from the **Fishery Management Council Scientific and Statistical Committees** and **established peer-review processes**
- **Multiple data streams** are considered in the development of management advice
  - **No single data source** is sufficient to define BSIA
  - Catch and Effort **long-term time-series consistency** is a central tenet of BSIA
  - Certain data sources may be appropriate for **one management application and not another**



# Recreational Catch Estimation



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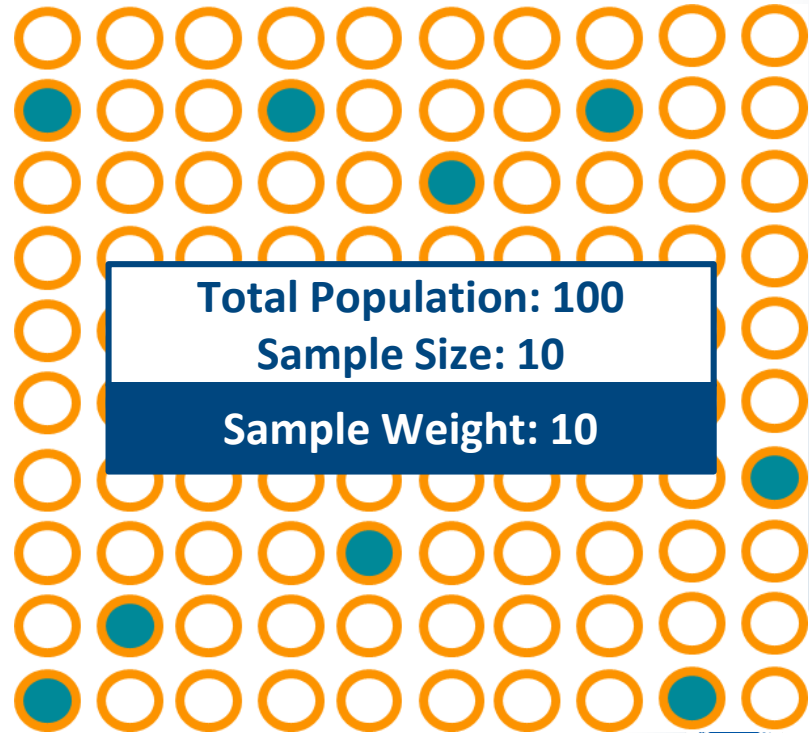
# Estimation



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# Weighted Estimation

- **Statistical weighting** ensures each sampled unit is properly represented in the final estimate
- This **standard statistical practice** allows us to draw inferences about an entire population



Learn more: [Estimation Methods Overview](#)



# Forming Domains

**Year**

—e.g., 2022

**Two-month Sampling Wave**

—e.g., Wave 4 (July-August)

**Geographic Sub-region**

—North, Middle, or South Atlantic; Gulf of Mexico

**State**

**Fishing Mode**

—Shore, Private/Rental Boat, For-Hire

**Area Fished**

—Inland, State Territorial Seas, or the Federal EEZ

**Species**

**Catch Type**

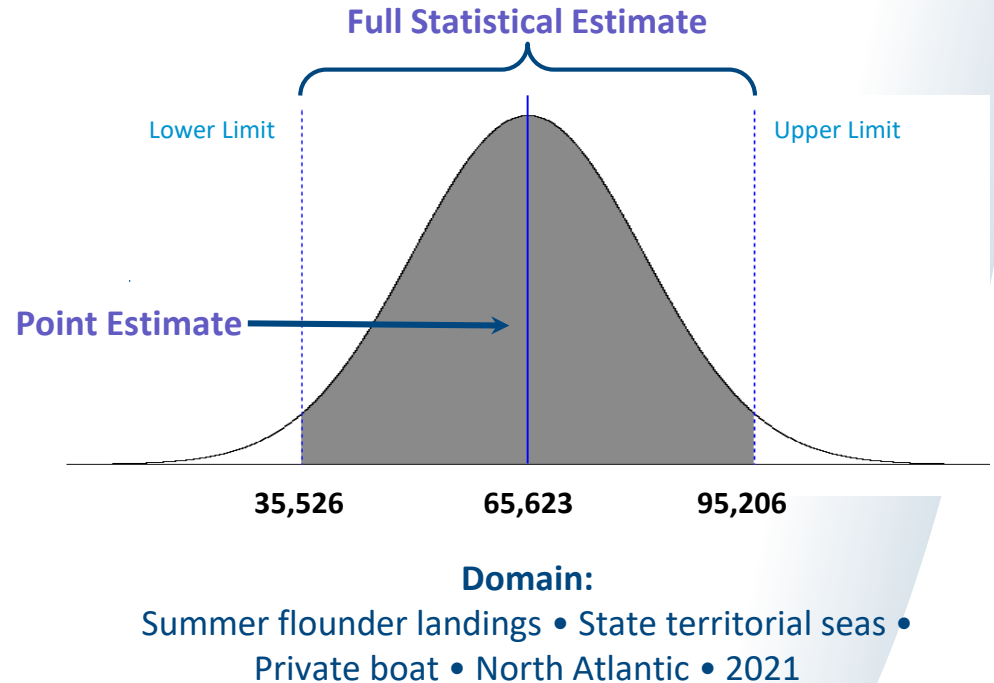
—Observed Harvest, Unobserved Harvest, Released Alive





# Statistical Uncertainty

- For every **point estimate** we produce, we also publish a **measure of uncertainty** to indicate how far each point estimate is likely to deviate from the actual population value
- Different ways to express:
  - Confidence intervals
  - Percent standard error
- Represents **sampling error inherent in all statistical surveys**



# Survey and Data Standards



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# Standards Overview

- Guide **design, improvement, quality** of **data** produced by our recreational fishing surveys
- **Shared use of single set of survey requirements, guidelines** helps promote data collection and distribution **consistency** across surveys **nationwide**
- **Reduce ambiguity and potential misinterpretation** of data to best inform **sustainable fisheries management**



Credit: L. Church/Flickr



# Implementation Timeline



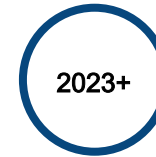
## Phased Implementation Begins in Late 2020

- Phased implementation helps provide adequate adaptation time for fisheries stock assessors and managers



## Implementation Continues

- Delivered presentations to regional FINs
- Published MRIP Data User Handbook
- Added preview query to Query Tool to support data users
- Hosted Data User Seminar Series



## Final Phase (Access and Information Management)

### Completed:

- Shift from producing estimates in 2-month waves to cumulative estimates, still produced every two months
- New fishing-year options added
- Delivered presentations to fisheries management councils and the Northeast Region Coordinating Council, among others
- Added additional fields in query tool to support precision standard

### Planned:

- Continue working with data users



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# Why are we now Producing Estimates Cumulatively?

- Aggregating data is a **common statistical approach** to increase sample sizes and smooth spikes/anomalies in data
- **More data** feeding into the estimates means there is a better chance of the **sample being representative** of the recreational fishing community's activities
- To produce **more reliable estimates** that improve in precision throughout year as a result of increased sample sizes
- Survey respondent raw data still publicly available, as needed, to customize estimates



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# Shift to Cumulative Estimates

## Estimates prior to 2023

	2-month "wave" estimates	Preliminary Data Available (Approx. Date)
Wave 1	January-February	April 15
Wave 2	March-April	June 15
Wave 3	May-June	August 15
Wave 4	July-August	October 15
Wave 5	September-October	December 15
Wave 6	November-December	February 15

## New Estimates

	Cumulative Estimates	Preliminary Data Available (Approx. Date)
Wave 1	January-February	April 15
Wave 2	January-April	June 15
Wave 3	January-June	August 15
Wave 4	January-August	October 15
Wave 5	January-October	December 15
Wave 6	January-December	February 15

*Cumulative estimates are still produced every two months*



# New Fishing Year Options

- **Cumulative estimates for:**
  - **March** fishing year (March 1–Feb. 28)
  - **May** fishing year (May 1–April 30)
  - **July** fishing year (July 1–June 30)
  - **September** fishing year (Sept. 1–Aug. 31)
  - **November** fishing year (Nov. 1–Oct. 31)
- *New fishing year options **reduce need for data users to produce their own custom estimates** for fisheries that don't align with the traditional calendar year; these were added based on customer feedback*





# Precision Standard

- Intent is to improve data use through flagging and/or masking **highly imprecise estimates** with a percent standard error above 50
  - Will not affect public access to survey respondent data (used to produce estimates)
- Estimates with a percent standard error exceeding 50 are typically not statistically different from zero
- **Full implementation delayed** to allow additional time to work with data users to prepare for the transition
  - Working with the Science Centers to develop guidance for handling highly imprecise estimates in stock assessments



# New Fields added in Query Tool

Estimate Status	Year	Fishing Year	State	Common Name	Cumulative Through	PSE Total Catch (A+B1+B2)	Does Total Catch (A+B1+B2) Meet MRIP Standard	Is Total Catch (A+B1+B2) Significantly Different From 0	Total Catch (A+B1+B2)	Total Catch (A+B1+B2) Lower 95% Confidence Limit	Total Catch (A+B1+B2) Upper 95% Confidence Limit
FINAL	2021	Calendar Year (Jan 1 - Dec 31)	FLORIDA	BLACK SEA BASS	ANNUAL	25.6	YES	YES	613,571	305,706	921,437
FINAL	2021	Calendar Year (Jan 1 - Dec 31)	GEORGIA	BLACK SEA BASS	ANNUAL	23.6	YES	YES	1,148,696	617,355	1,680,037
FINAL	2021	Calendar Year (Jan 1 - Dec 31)	NORTH CAROLINA	BLACK SEA BASS	ANNUAL	10.7	YES	YES	2,223,514	1,757,198	2,689,829
FINAL	2021	Calendar Year (Jan 1 - Dec 31)	SOUTH CAROLINA	BLACK SEA BASS	ANNUAL	16.9	YES	YES	2,096,656	1,402,159	2,791,152
FINAL	2022	Calendar Year (Jan 1 - Dec 31)	FLORIDA	BLACK SEA BASS	ANNUAL	52.6	NO	NO	1,928,096	0	3,915,886
FINAL	2022	Calendar Year (Jan 1 - Dec 31)	GEORGIA	BLACK SEA BASS	ANNUAL	45.1	CAUTION	YES	1,350,462	156,708	2,544,216
FINAL	2022	Calendar Year (Jan 1 - Dec 31)	NORTH CAROLINA	BLACK SEA BASS	ANNUAL	16.8	YES	YES	4,827,420	3,237,847	6,416,993
FINAL	2022	Calendar Year (Jan 1 - Dec 31)	SOUTH CAROLINA	BLACK SEA BASS	ANNUAL	16.6	YES	YES	1,939,804	1,308,669	2,570,938

# Continuous Improvement



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# Survey Improvement

## Evaluate Methods

Continually evaluate existing methods through ongoing research. Recommend new or improved survey designs

## Develop and Test Methods

Test, review, approve, and **certify** new or improved survey designs

## Implement Methods

Establish a **Transition Plan** to describe how historical estimates will be placed into the units of the new survey design, ensuring a **consistent, long-term time series** of recreational catch

Note: Certification and transition are **formally adopted processes**.

Learn more: [Recreational Fishing Survey Design Certification](#)

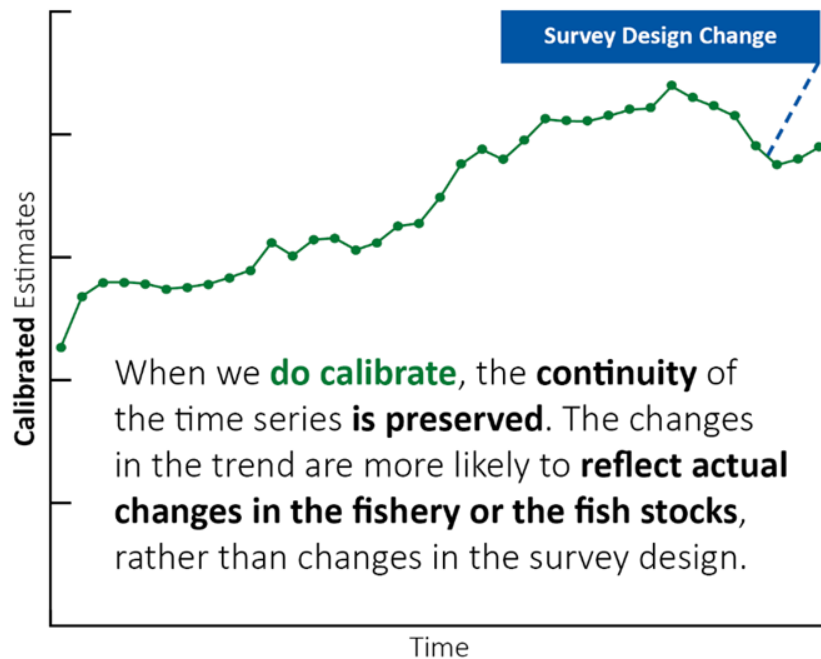
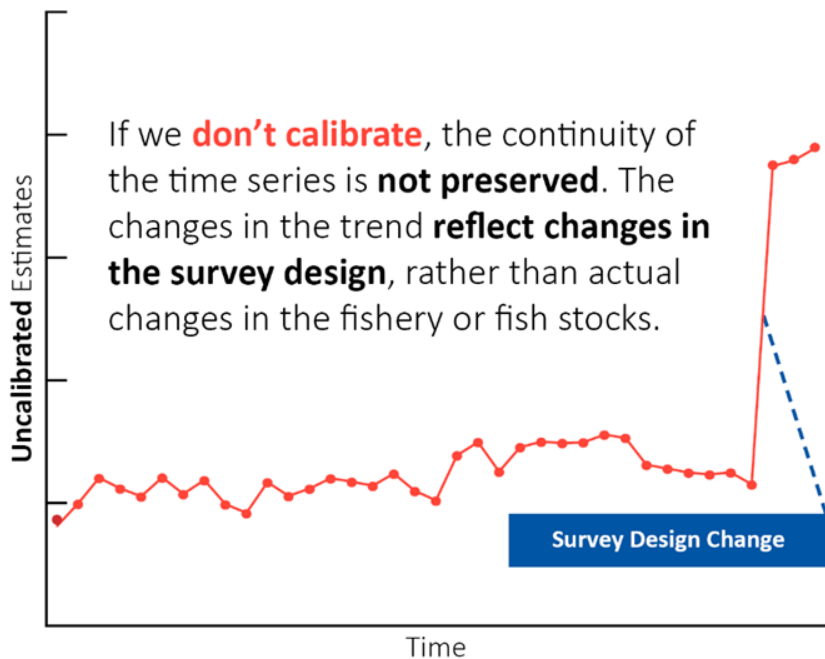




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# Why Calibrate?

To maintain continuity between two sets of estimates:  
the historical time series and the estimates  
produced by a new survey design



# Support to State, Regional Partners



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# Support to Meet Regional Needs

- **Inventory and prioritize** recreational fishing data collection priorities identified by regional partners in their Regional Implementation Plans to receive NOAA Fisheries' support and funding
- Provide **guidance and consistency** through adherence to Survey and Data Standards
- Annual MFA funding allocations to **meet regional needs**
- **State survey certification**—facilitated by NOAA Fisheries through a peer-review process to certify the survey is a valid design in producing key estimates. Certified state surveys are prioritized to receive NOAA Fisheries' funding
- Ongoing **technical support**





# Program Challenges and FES Path Forward



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# Program Challenges

- **Competing needs** of stock assessments and management
  - Long-term stock-level trend information (assessments)
  - Fine-scale quota monitoring below the stock-level (e.g., for in-season management)
- Ensuring **compatibility and comparability** across different data collection programs (state-regional-federal)
- **Transitioning** to new or improved survey designs while minimizing disruptions to management



# Fishing Effort Survey Follow-up Study

- Revised design to be administered concurrently with current FES over full course of 2024 (**larger sample size over longer duration from pilot study**)
- New study design is informed by results of two previous pilot studies (one month sampling waves, question order change)
- Revised design includes **changing the order of questions and also increasing the administration of the survey** from every two months to monthly
  - Study will determine **combined effects**, which allows for a more efficient transition/calibration process
  - **Monthly sampling** is a priority of our partners and will produce **more frequent estimates and a shorter respondent recall** period that may also minimize reporting error



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# FES Pilot Study Key Points

- One of several studies to evaluate potential sources of bias in Fishing Effort Survey
- Revising order of questions in pilot resulted in **fewer observed reporting errors/illogical responses**
- Resulting **effort estimates lower for shore and private boat** than estimates produced from current design
- **Limitations:** Conducted over 6 months, smaller sample size than full FES administration, [results varied by state and fishing mode](#)



Credit: C. Baez

# Follow-up Study and Next Steps

- Existing FES calibration **will be updated** to account for revised design
  - Calibration update work has started and will continue as needed into 2024 and 2025 pending results from the 2024 follow-up study
- Full implementation of an improved FES design would occur **no earlier than 2026** and would be dependent on:
  - Successful completion of the follow-up study and calibration updates
  - Favorable technical peer review and updated FES Transition Plan developed in coordination with partners on the MRIP Transition Team
  - Fully calibrated historic time series of catch and effort estimates



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# Resources



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# Resources for Council Members

## MRIP Organizational Framework

- [MRIP Teams](#)

## Guiding Documents

- [2017-2022 MRIP Strategic Plan](#)
- [Multi-Year Regional Implementation Plans](#)
- [Annual Implementation Plan](#) (FY24 plan forthcoming)

## Recreational Data

- [An Introduction to MRIP Data](#)

## Statistical Methods

- [Survey Statistics Overview](#)
- [Estimation Overview](#)
- [Statistical Calibration Overview](#)





# Questions?

[Fisheries.MRIP@noaa.gov](mailto:Fisheries.MRIP@noaa.gov)  
[countmyfish.noaa.gov](http://countmyfish.noaa.gov)



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