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Office of Science  
and Technology

Fisheries Statistics  
Division

Marine  
Recreational  
Information  
Program

# An Introduction to the Marine Recreational Information Program MREP Fisheries Southeast Management Workshop

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Branch Chief  
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# Outline

- Program Overview
  - Who we are
  - What we do
  - How we support fisheries management
- Recreational catch estimates
- Continuous improvement process for recreational data



Image: R. Jarvis



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# 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**



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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**



**Puget Sound Sampling Program<sup>6</sup>**  
**Ocean Sampling Program<sup>6</sup>**

**Ocean Recreational Boat Survey<sup>6</sup>**  
**Shore and Estuary Boat Survey<sup>6</sup>**

**CA Recreational Fisheries Survey<sup>6</sup>**



**Coastal Creel Survey<sup>6</sup>**

**LA Creel<sup>6</sup>**

**Tails n' Scales<sup>6</sup>**

**Snapper Check<sup>6</sup>**

**HMS Catch Card Program<sup>6</sup>**  
**Additional LPS Biological Sampling<sup>1</sup>**

**HMS Catch Card Program<sup>6</sup>**



**Large Pelagics Survey<sup>1</sup>**

**Access Point Angler Intercept Survey<sup>1</sup>**

**Fishing Effort Survey<sup>1</sup>**

**For-Hire Survey<sup>1</sup>**

**Southeast Region Headboat Survey<sup>3</sup>**

**State Reef Fish Survey<sup>6</sup>**

## 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*

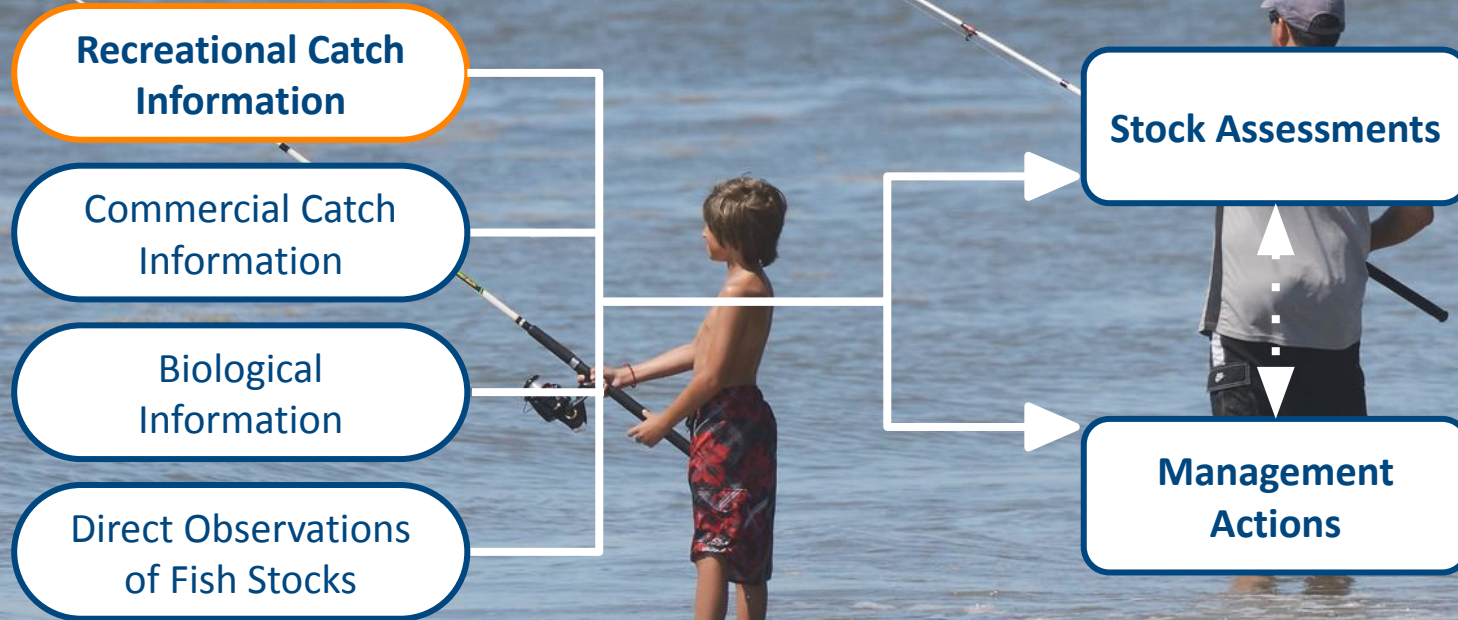
**Large Pelagics Survey**  
ME to VA



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

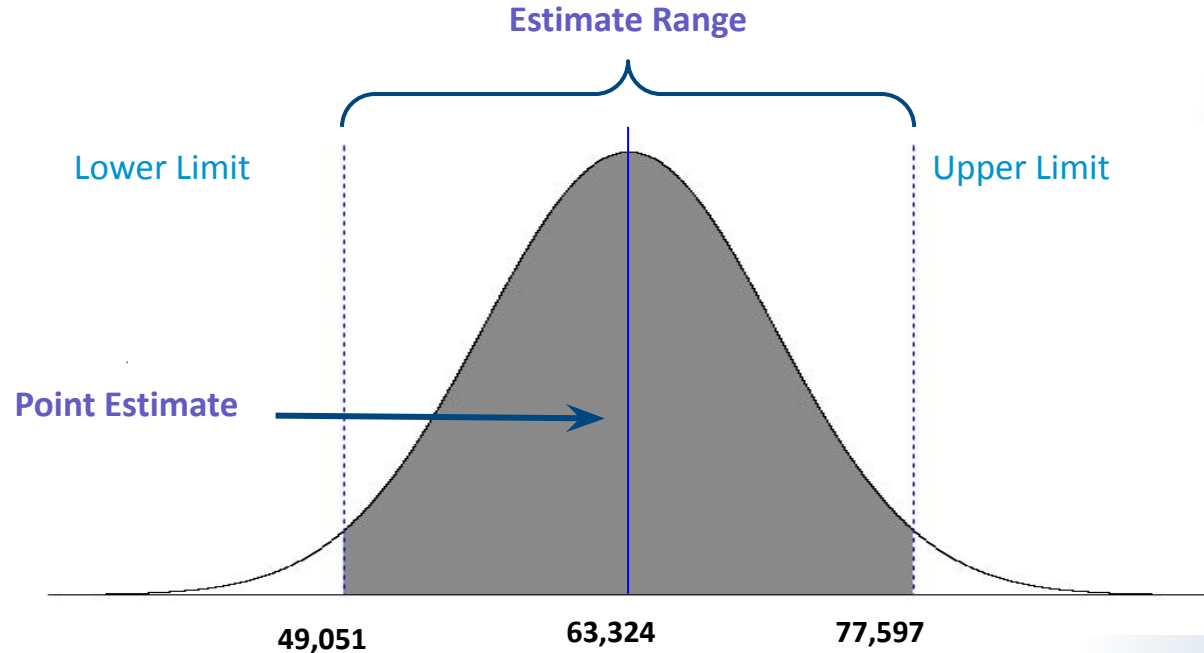
\*These state surveys operate independently from NOAA Fisheries and do not receive agency funding.

# Our Role in Science and Management



# Characteristics of an Estimate

- **Point estimate = our best estimate, or the midpoint of the full estimate range derived from the survey data**



Red Drum total harvest • Inland • Charter Boat • South Atlantic • 2021



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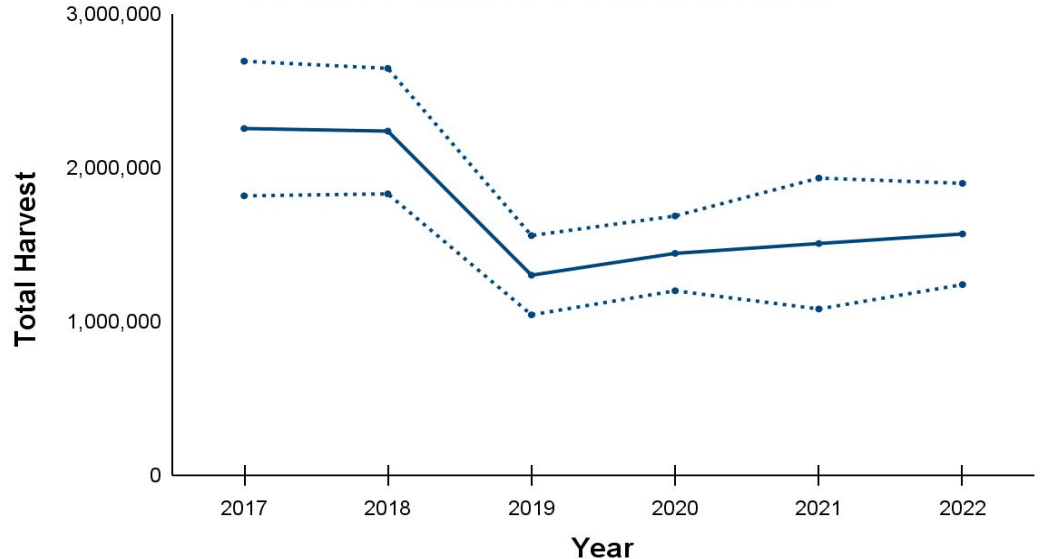
# Interpreting an Estimate

*Recreational fishing is challenging to sample, and there will always be some level of uncertainty*

- We publish the **precision** of each point estimate as an indicator of its quality.

**The Higher the Percent Standard Error, or PSE,** the more variation in the underlying survey data, which means there is more uncertainty in the point estimate.

## South Atlantic Red Drum



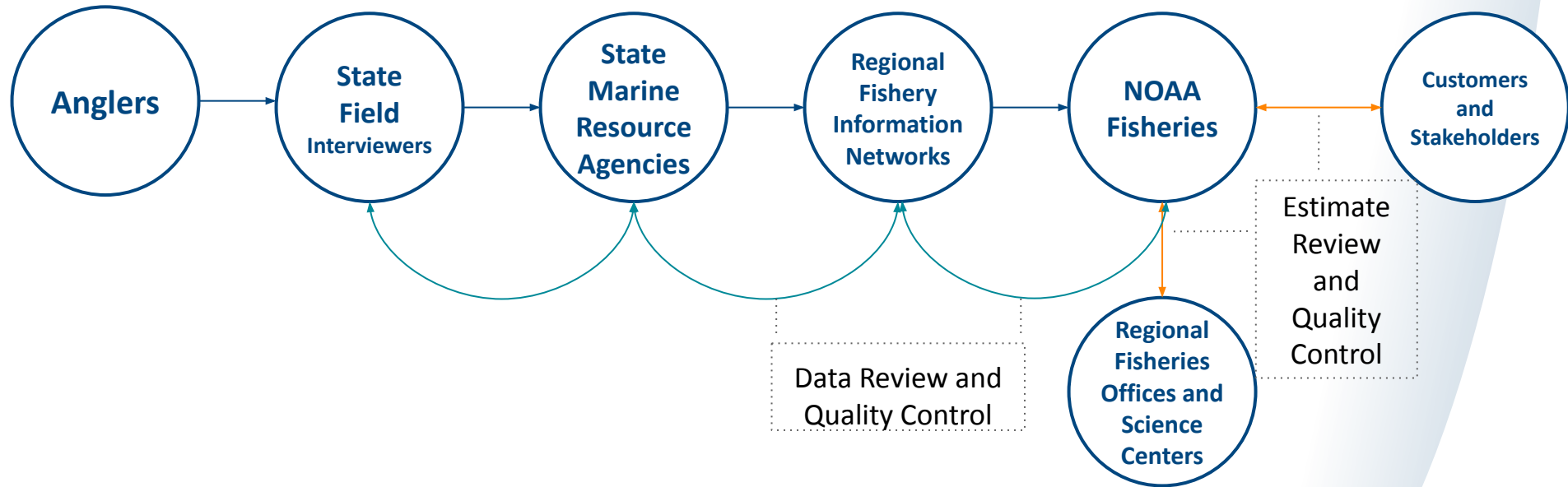
*Dotted lines represent the upper and lower limits within the estimate range. The bold line is the point estimate over time (best estimate). PSEs in graph range from 8.6-14.4%*





# From a Sample to an Estimate

*Data flow from the Access Point Angler Intercept Survey*



Check out [Estimation Methods Overview](#)



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# Common Potential Sources of Error

Factors that can affect precision:

- Small sample sizes
- Large variation in observations, or extreme observations

Factors that can affect scaling of the estimates:

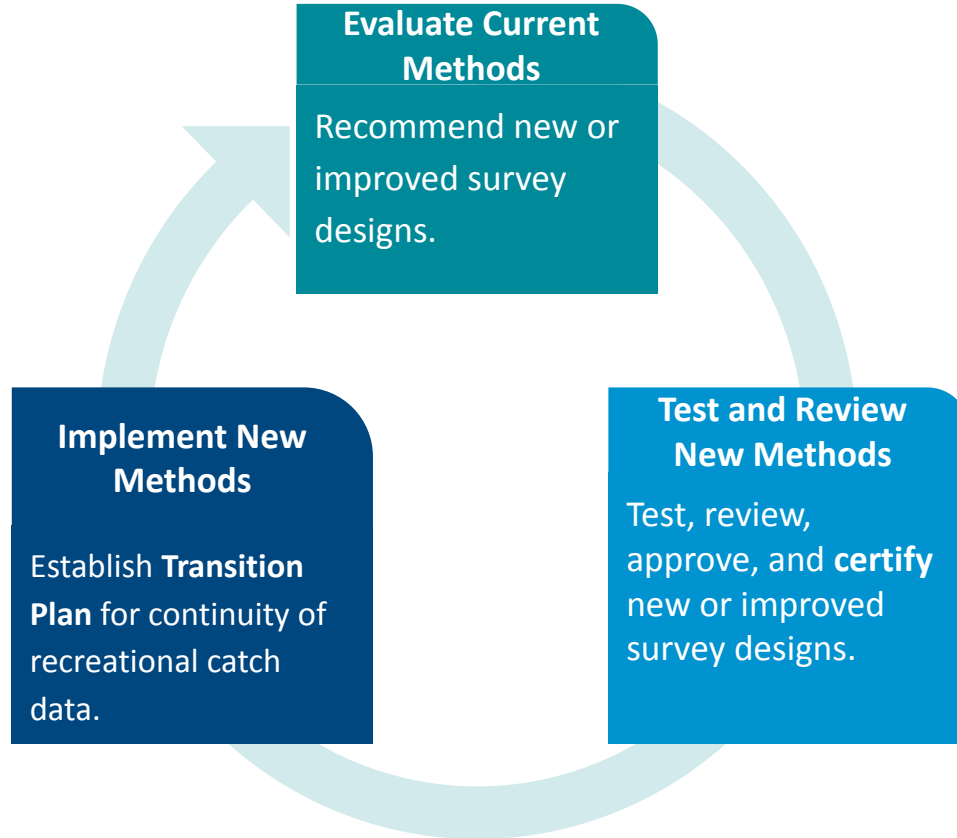
- Reporting error - misreporting of information
- Non-response error - when individuals who don't respond to a survey differ from those who do respond
- Coverage error – not adequately covering the population through sampling

*Statistical methods can help account for these, but there will always be some level of error and uncertainty; working to understand, quantify, and address it is foundational for scientific progress and continuous improvement of methods.*



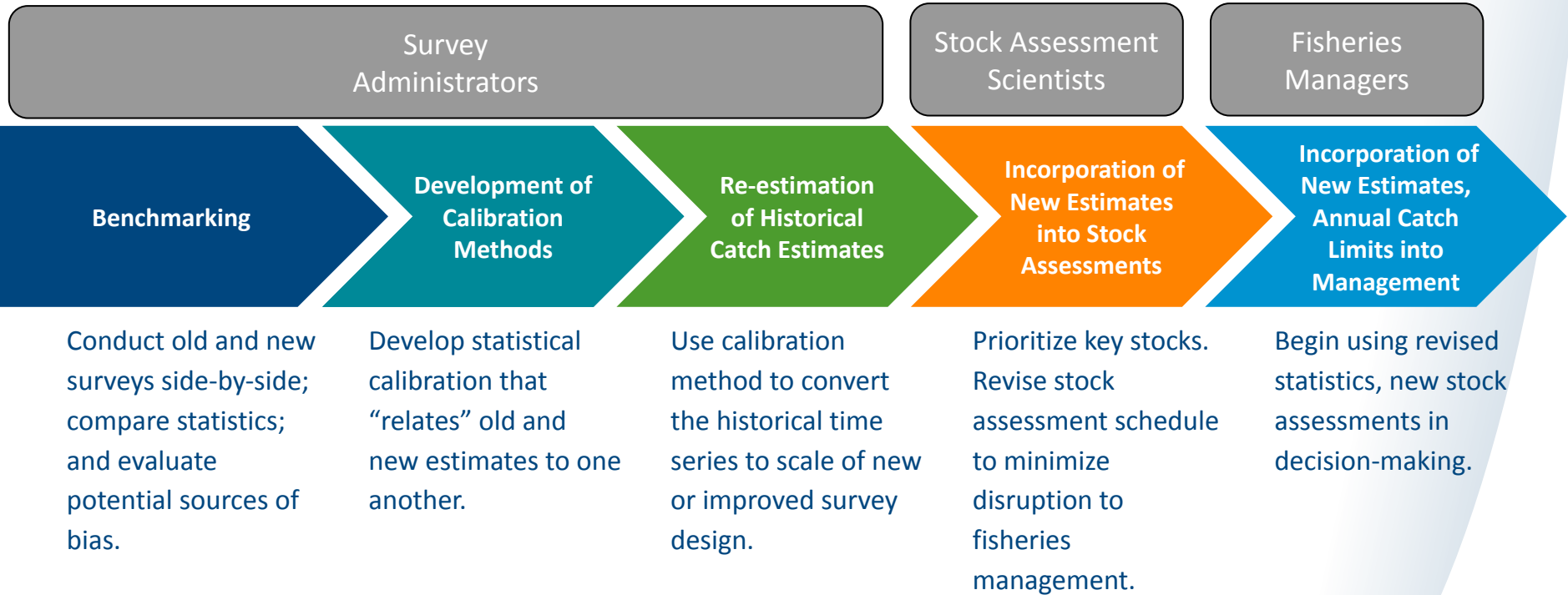
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# Continuous Survey Improvement Process



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# Transition Process for New or Improved Survey Designs

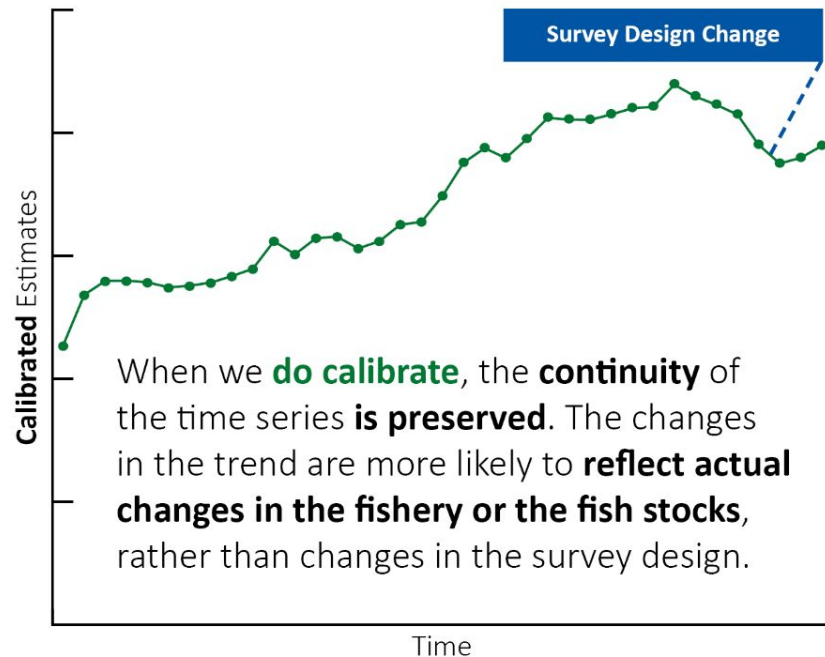
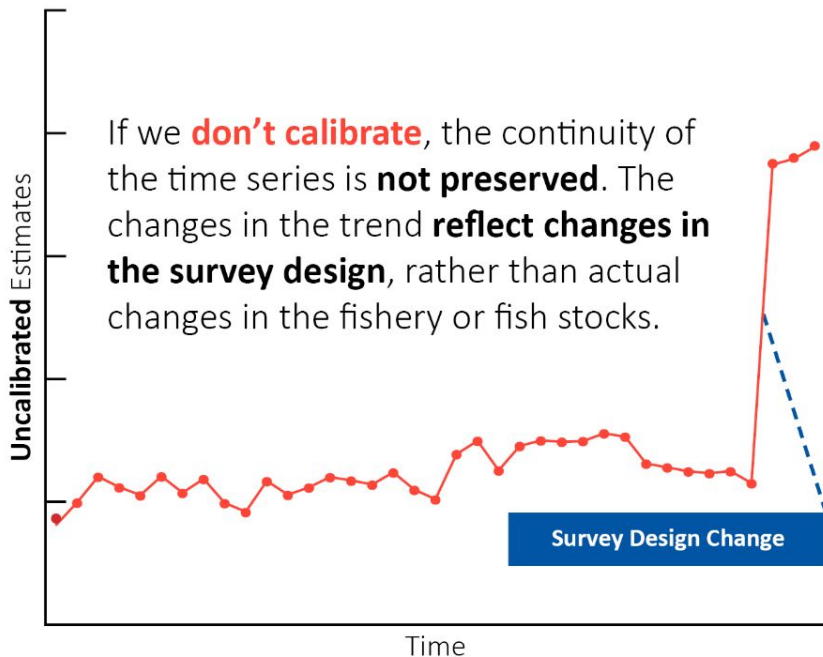


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# Why Calibrate?

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



# Transition Plan for Gulf State Surveys

- Established in 2022 by a team of state, regional, and federal partners
- Multi-year plan to best incorporate recreational fishing data from Gulf state-led surveys into the federal stock assessment and management process
- **Why it's necessary:** Gulf states use different statistical methods from one another to produce more timely, precise estimates on a smaller scale. This means it's not possible to directly compare their estimates
- **The Transition Plan will:**
  - Inform survey improvements
  - Increase the accuracy of state and federal recreational fisheries statistics
  - Minimize differences between data series and reconcile differences in estimates produced
  - Assist fisheries managers in following a consistent approach in the evaluation of all available recreational fishing data



# Support to Meet Regional Partner 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** promote **consistency and best practices** through NOAA Fisheries' 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 state-led survey is a valid design in producing key estimates. Certified state surveys are prioritized to receive NOAA Fisheries' funding
- Ongoing **technical support**



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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



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# Continuous Improvement Example: Fishing Effort Survey Pilot Study

- One of several studies to evaluate potential sources of bias in Fishing Effort Survey - survey used to estimate fishing trips from shore and private boats
- 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



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# 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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# What's Next?

- Research to make improvements to the Fishing Effort Survey and our other large-scale surveys
- Working with Gulf state and regional partners to adapt and collaboratively implement our Transition Plan
- Assessing ways to produce more precise and timely catch and effort estimates with available resources
- Re-envisioning the state-regional-federal recreational data collection partnership:
  - Supporting state and regional partners to meet their unique regional recreational fishing data needs
  - Working with partners on how to become more adaptive in our fisheries assessment and management processes, in light of continuous survey improvements and data uncertainty



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# Questions?



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