

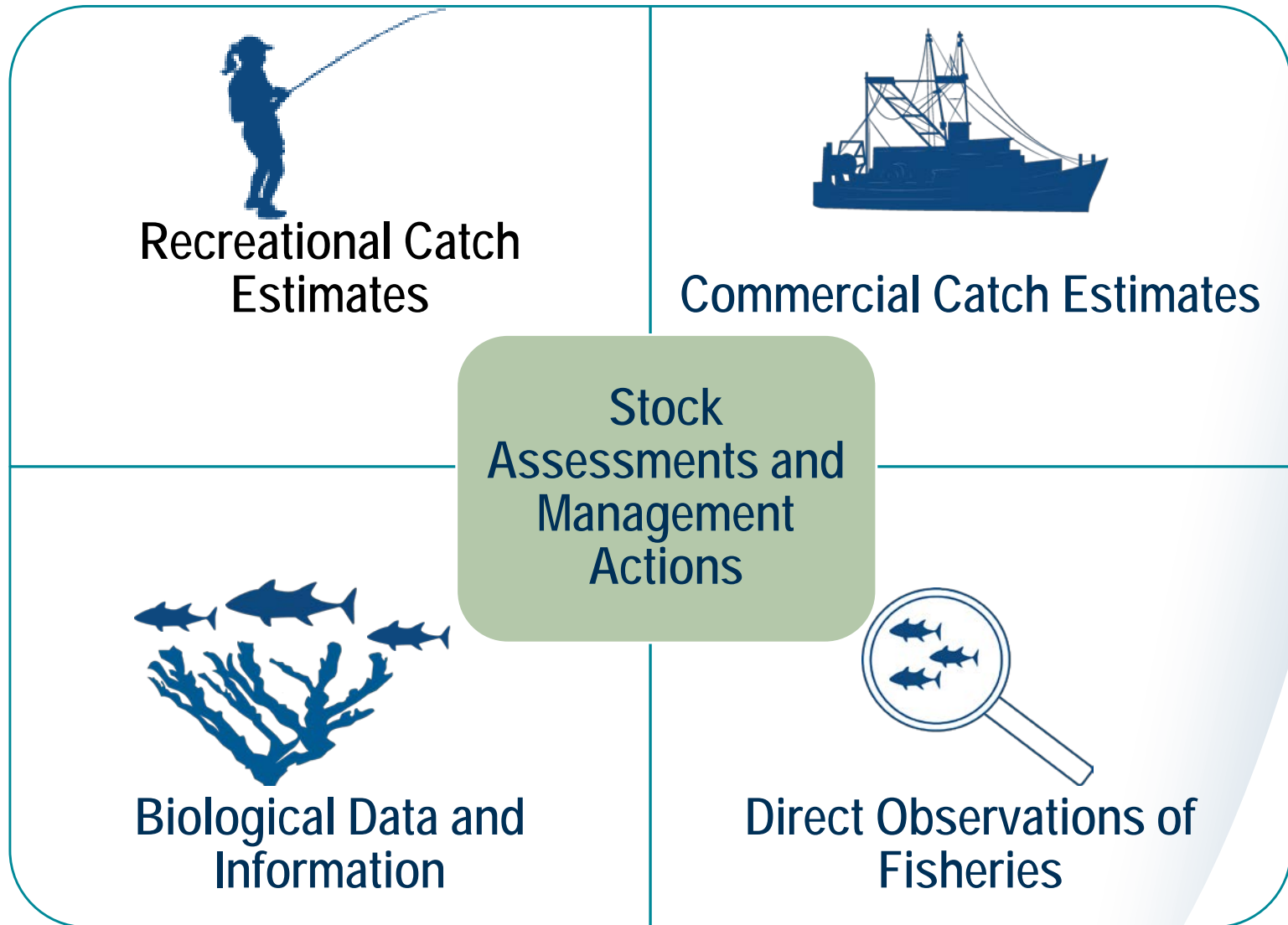


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New Council Member Training

Marine Recreational Information Program



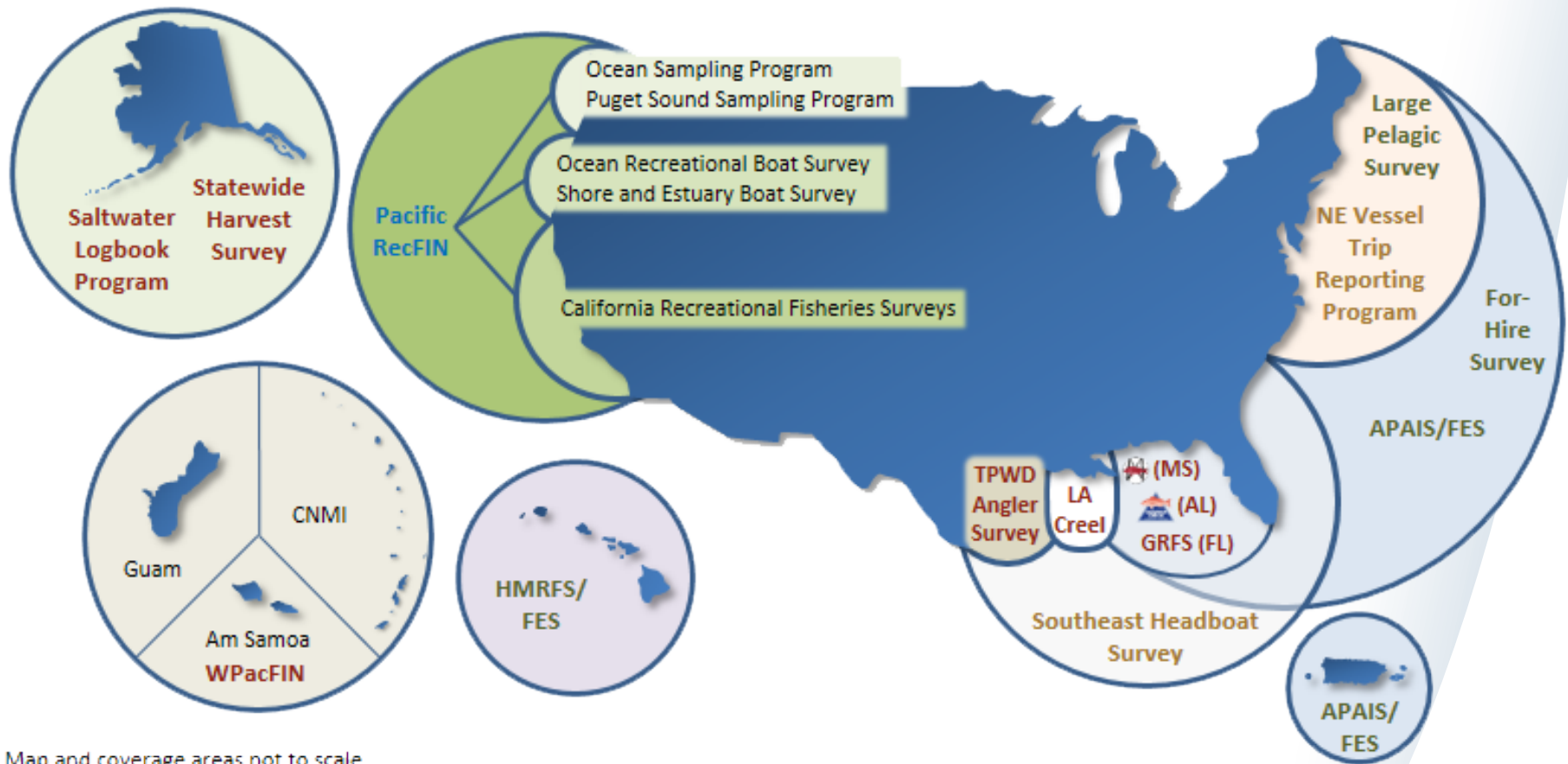


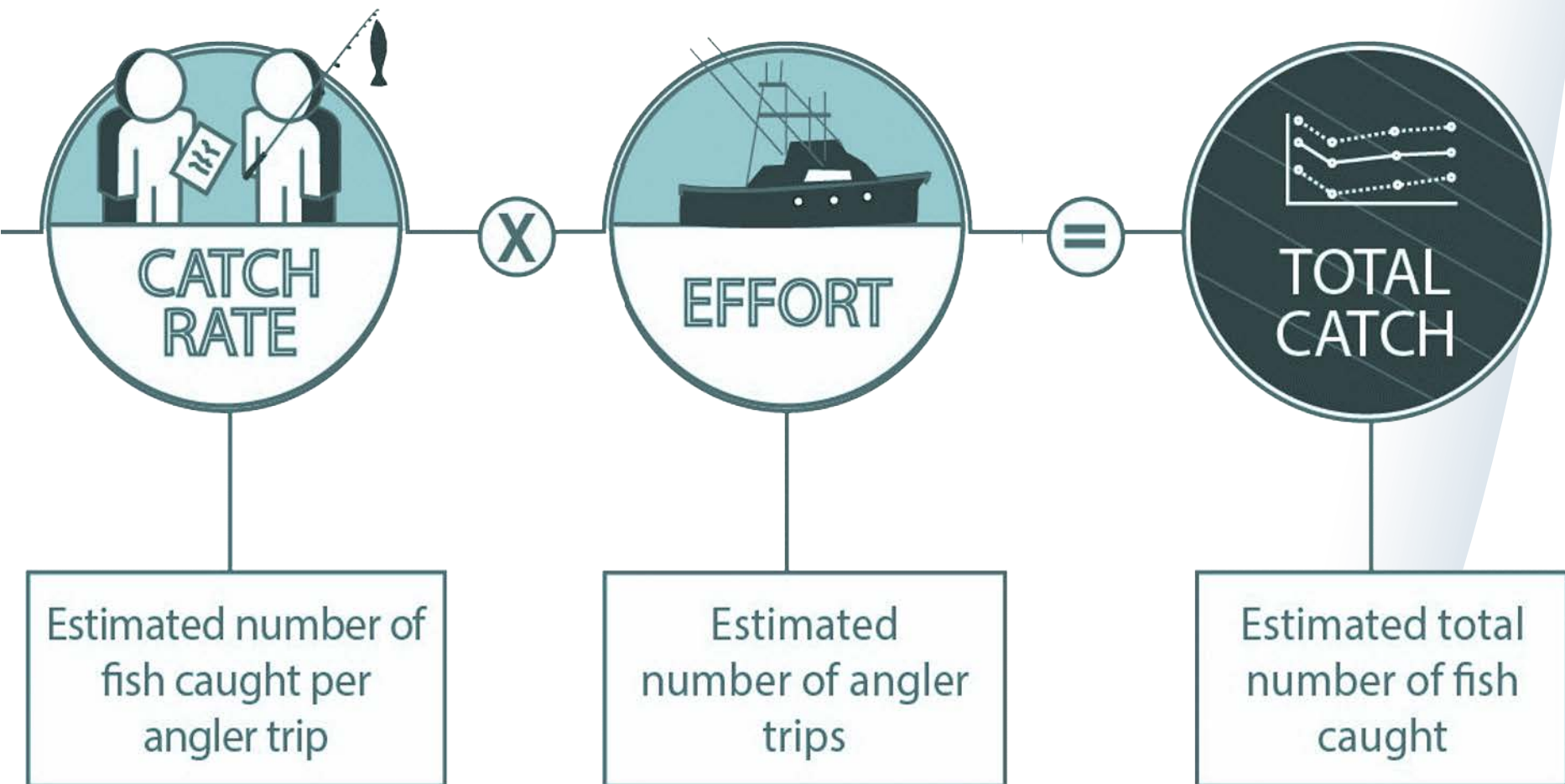
The Marine Recreational Information Program is a **state-regional-federal partnership** that develops, improves, and coordinates **a network of surveys** to measure how many trips saltwater anglers take and how many fish they catch.



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Recreational Fishing Survey Coverage





NOAA Surveys



Access Point Angler Intercept Survey (APAIS)



Fishing Effort Survey (FES)



For-Hire Surveys (FHS, NEVTR, SRHS)




Large Pelagics Survey (LPS)



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To collect data from members of a population, we need a **survey design**.

We also need to know who all the members of that population are - this requires a comprehensive **list frame**.

An aerial photograph of a marina filled with numerous small boats, likely sailboats or motorboats, docked in neat rows along wooden piers. The water is a deep blue-green color. The boats are mostly white with various colored accents. The piers are made of light-colored wood and run parallel to each other, creating a grid-like pattern for the boats.

Census
Collects data from the whole
population



Sample

Collects data from a subset of the population, where the probability of sampling a particular unit can be known or unknown.

General Limitations

All approaches are susceptible to **non-sampling error**.

- Undercoverage
- Response and non-response error
- Mistakes made while recording data

Methods that collect data from a sample of a population are also susceptible to **sampling error**.

Census

Strengths

- If complete, **not** susceptible to sampling error.
- Data will include detailed information from subgroups within the population.

Limitations

- Expensive, labor intensive, and time consuming.
- Susceptible to non-sampling error (e.g., undercounting, response error).



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Non-Probability Sampling

Strengths

- Convenient and inexpensive, compared to other methods.

Limitations

- Susceptible to non-sampling and sampling error.
- Impossible to determine extent of sampling error or “representativeness” of sample.
- Considered “design biased.”

Probability Sampling

Strengths

- Cost-effective; less time consuming than a census.
- Sampling error can be estimated; precision can be quantified.
- Considered “design unbiased,” and the standard for conducting large-scale government surveys.

Limitations

- Can be difficult to implement in practice (but statistical techniques are available to help).
- Susceptible to non-sampling and sampling error (but statistical techniques are available to help).

Probability Sampling: A Recognized Standard

Probability sampling is based on well-established **probability theory**, and allows us to efficiently produce scientifically sound estimates.

Survey statisticians have demonstrated through **simulations and real-world applications** that this method produces **unbiased estimates**.



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Reducing Potential for Bias

- Pilot testing
- Maximize response rates
- Weighting samples
- Following quality assurance and quality control procedures



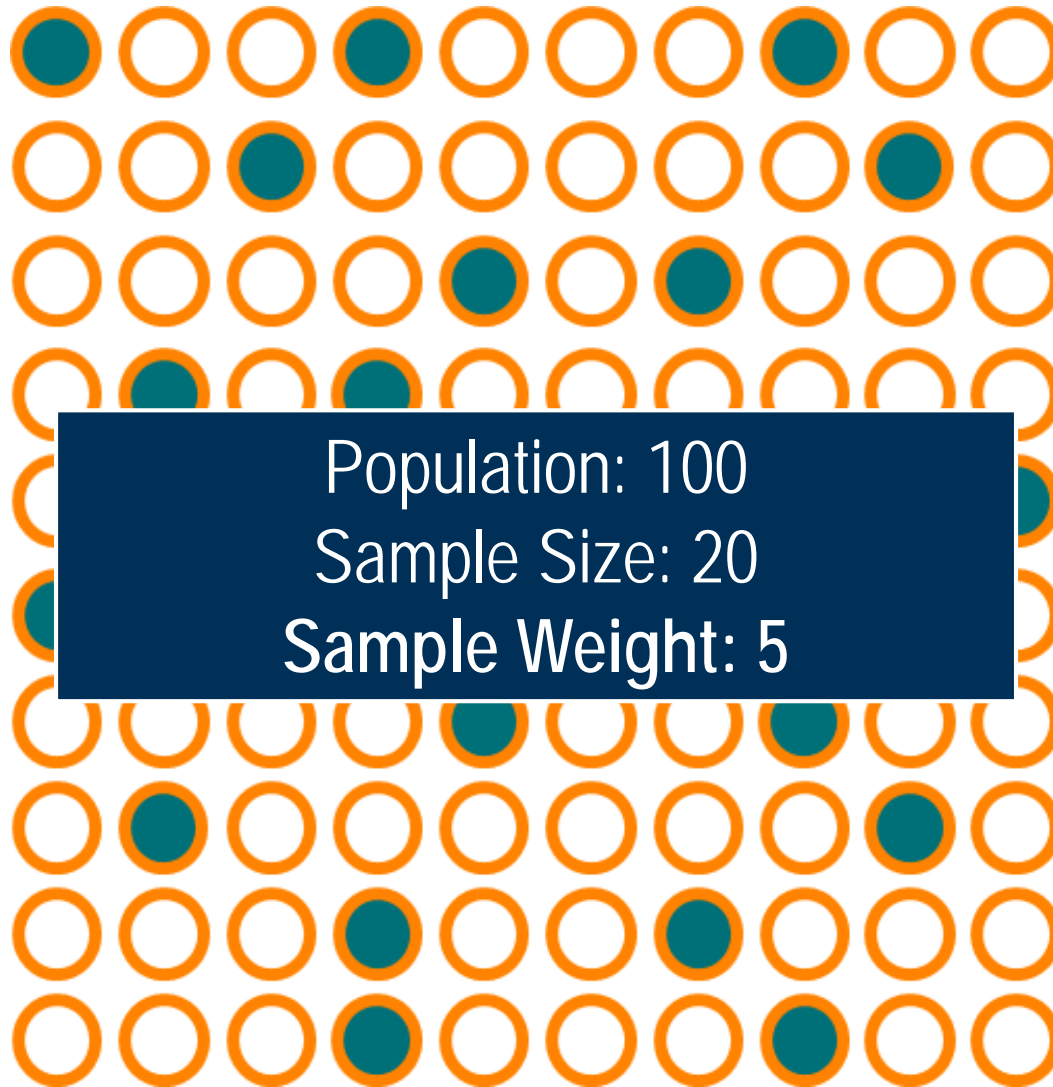
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Weighted Estimation

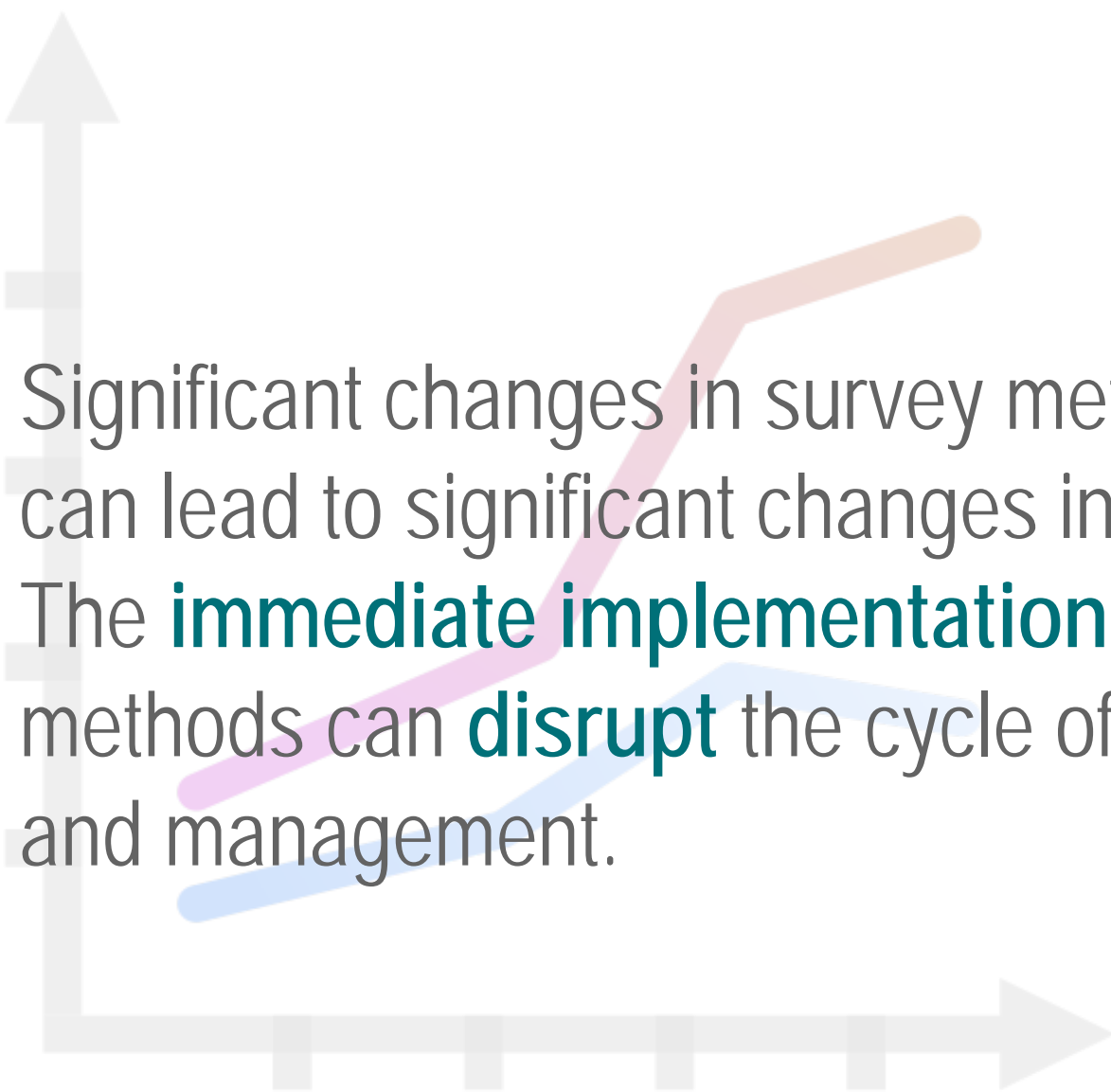
Weighting ensures each sampled unit is **properly represented** in a final estimate.

It allows us to account for the fact that **not all sample frame members are surveyed**, some fishing sites are more likely to be selected as a sample location, and **some anglers are more likely to participate** in a fishing survey.

Sample Weighting

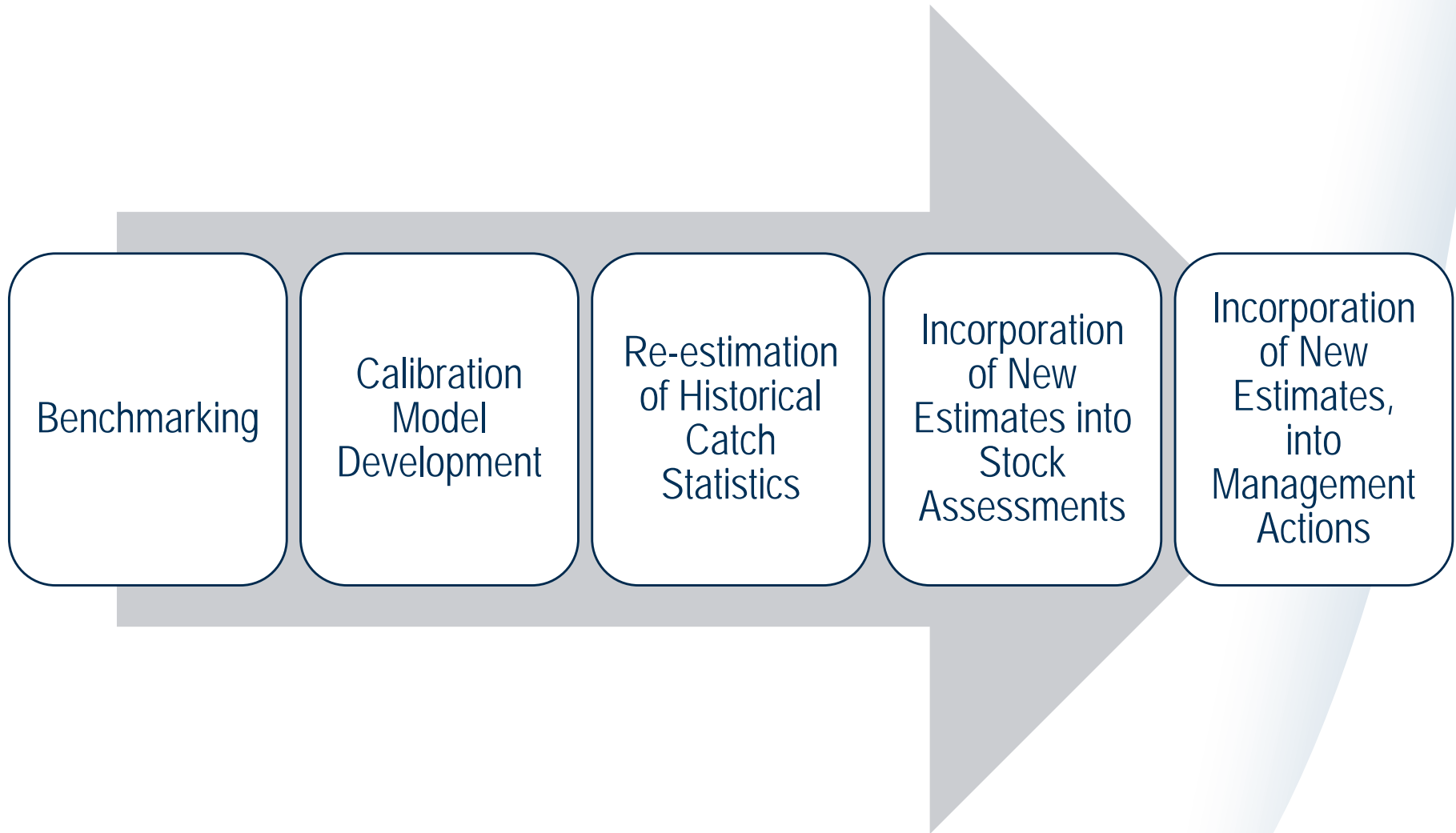


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Significant changes in survey methods can lead to significant changes in estimates. The **immediate implementation** of new methods can **disrupt** the cycle of science and management.

The Transition Process





Stock assessors need estimates that are **comparable across the historical time series.**

Managers need estimates that are **comparable to existing catch limits.**

The **transition** process **establishes continuity** between datasets generated by old and new surveys.



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Calibration is a technical process that places old estimates and new estimates into the same "currency."

- Nobody wants to have to calibrate but it is necessary to preserve a time series.



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MRIP Transitions: FES

Our sample frame is **more representative**.

Our surveys can get into the **right hands**.

Our survey mode gives respondents **more time** to provide more complete answers.

Our design is meant to **maximize response rates**.

Our design is meant to **help respondents recall** their trips.



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MRIP Transitions: APAIS

Newly developed, standardized sampling protocols are strictly adhered to by field samplers.

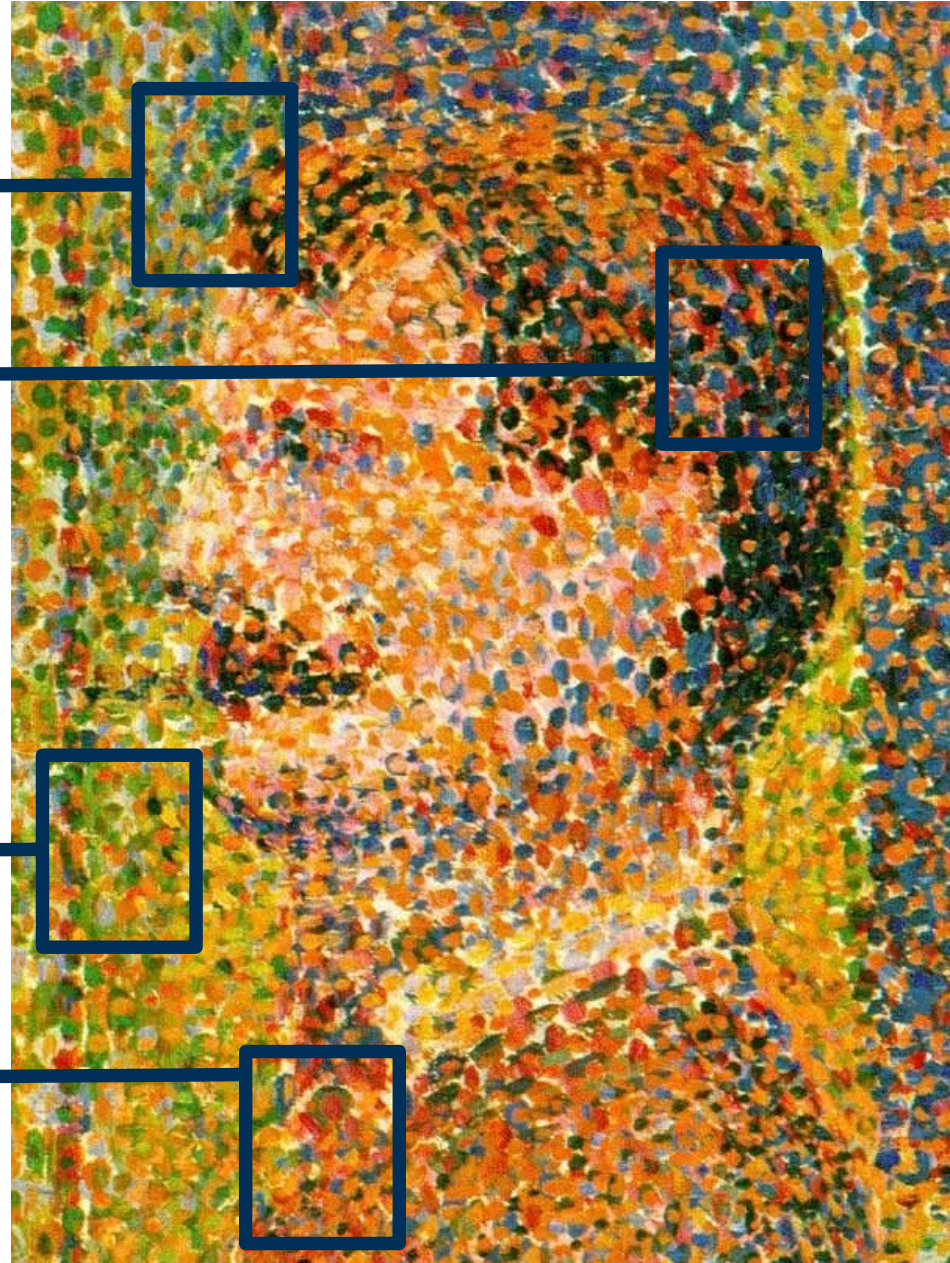
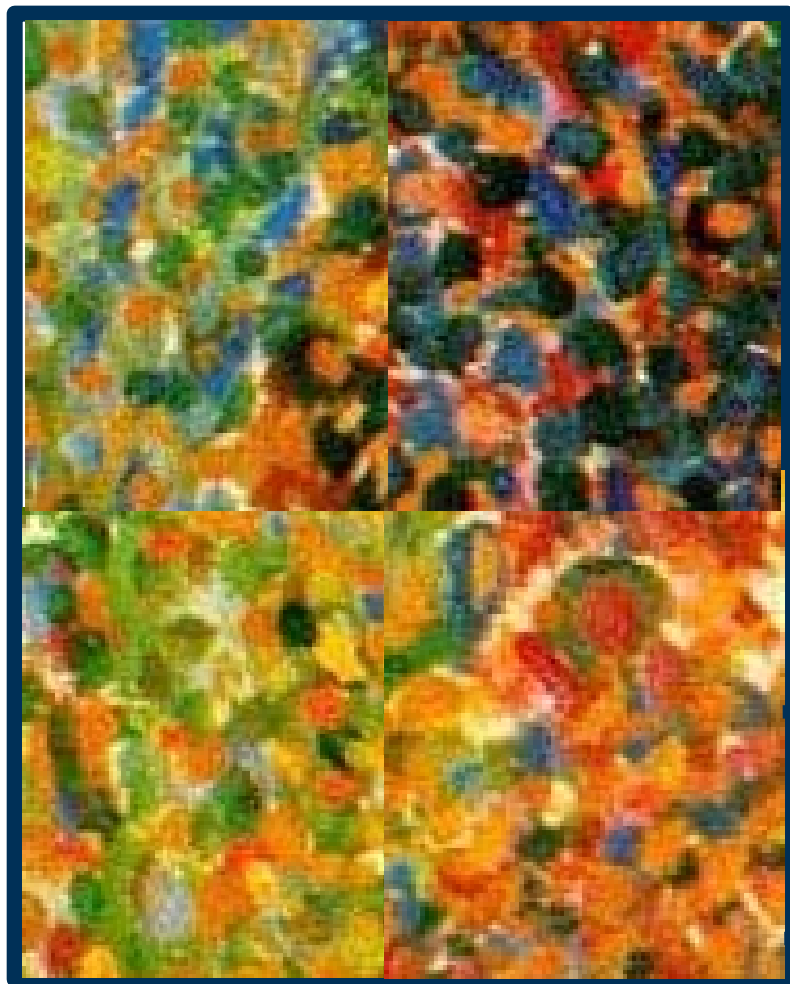
Assignments are informed by site characteristics and fishing activity.

Samplers conduct interviews during **all parts of the day**.

Samplers stay on-site for the duration of an assignment, even if activity is low.

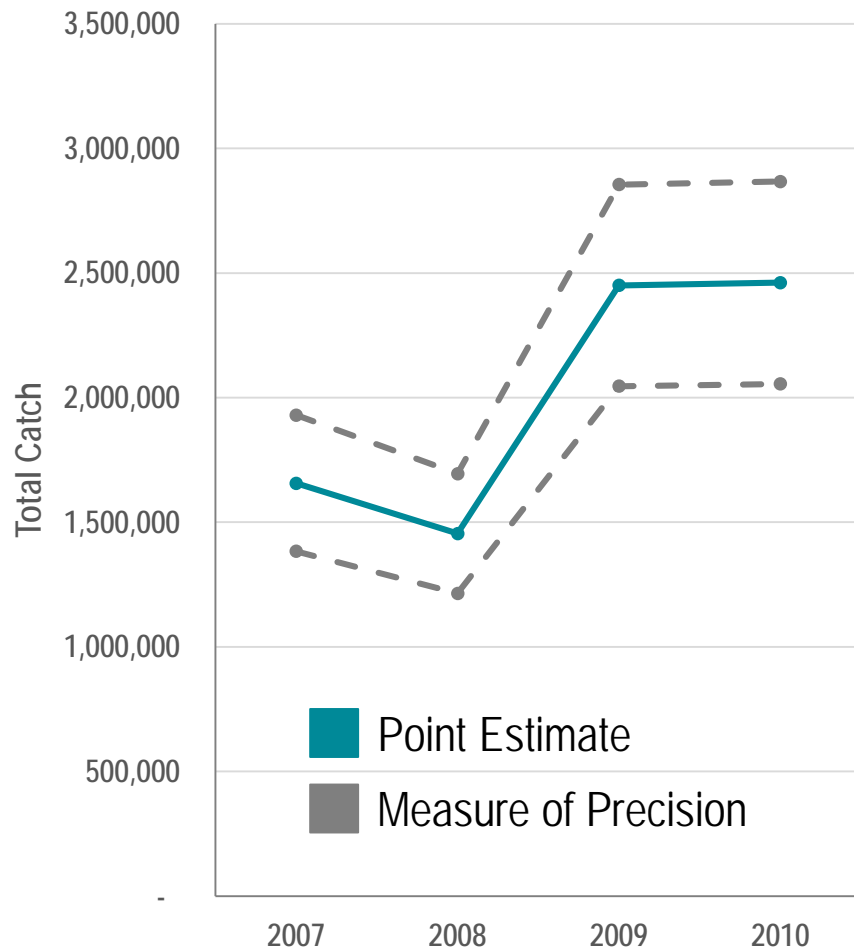


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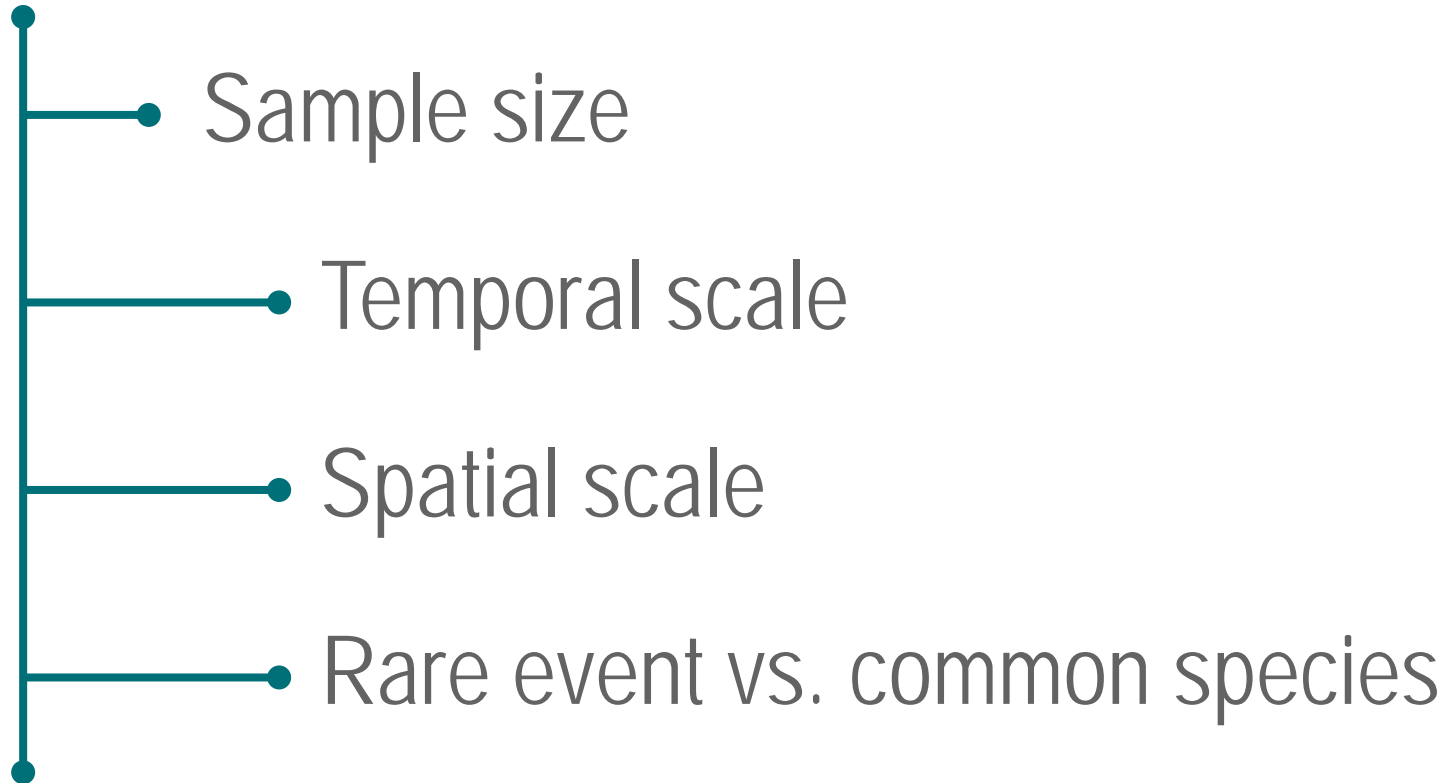
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Precision of An Estimate



Precision can be presented as **percent standard error (PSE)**. The lower the PSE, the higher our confidence that an estimate is close to the actual population value.

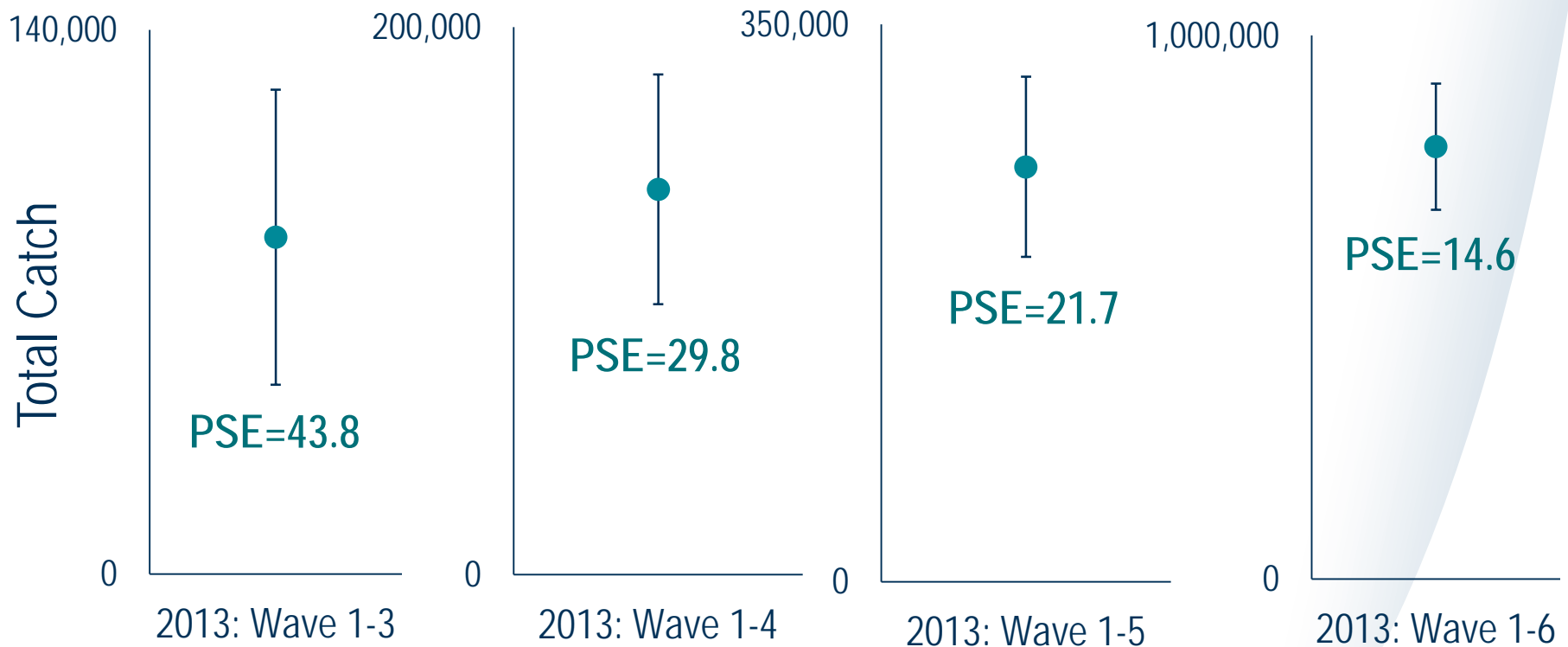
Factors Influencing Precision



To Improve Precision...

Increase sample size (temporal).

Cumulative Wave Estimates: 2013 Virginia Striped Bass



Data Use Considerations

- **Granularity.** At smaller sample sizes, our estimates may be imprecise.
- **Revisions.** Preliminary estimates may be revised before being published as final.
- **PSEs.** We urge caution as PSEs increase beyond 30%, and consider PSEs greater than 50% highly imprecise.



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Specialized Surveys Support State and Regional Management Needs



LA Creel (Louisiana)



Tails n' Scales (Mississippi)
and Snapper Check (Alabama)



Gulf Reef Fish Survey
(Florida)



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NOAA CERTIFICATION

involves a **thorough** review process that ensures the survey designs used to estimate catch across the nation's fisheries are **scientifically sound**.



National standards promote **data comparability**, **interoperability**, and **usefulness** across data collection programs, and support the **scientific foundation** of MRIP.



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While all surveys face limitations, we work to **improve data quality** through:

- The careful implementation and adherence to probability sampling protocols.
- The development of specialized surveys to address needs not met by our general surveys.
- The standardization of data collection methods and estimates.

Questions?

Contact richard.cody@noaa.gov or visit countmyfish.noaa.gov.



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