What are the four basic kinds of fishery-dependent data that we collect?

Trip or Effort data

Catch data

Bycatch

Biological data

"Collect it and Forget it?" No.

Data Management is a large and frequently overlooked part of the job:

- Systems to receive and get data into database;

- Database design and management;

- QA/QC;

- Integration of data from different sources;

- Making data available to customers and stakeholders.

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Census Surveys: Count Everything

Census Surveys: Requirements

- Collect complete data from all participants resulting in a total <u>count</u> of the measured parameters

- General requirements:

  - Establish and maintain a complete list of the primary sampling unit (PSU)components;

  - Include all members of the PSU in the fishery;

  - Validate;

  - Enforceable and enforced.

Is a Census Always Complete (and Accurate)?

Sen. Chuck Schumer demands investigation into 2010 U.S. Census after fishy New York numbers
BY TINA MOORE / DAILY NEWS STAFF WRITER
SUNDAY, MARCH 27, 2011, 4:00 AM

Schumer: NY Census senseless
By CYNTHIA R. FAGEN
Posted: 12:20 AM, March 27, 2011
New York officials have reached a consensus on the Census: It's a mess.

No! So, we may need to employ statistical methods to correct for missing and misreported data. Validation is central to this.
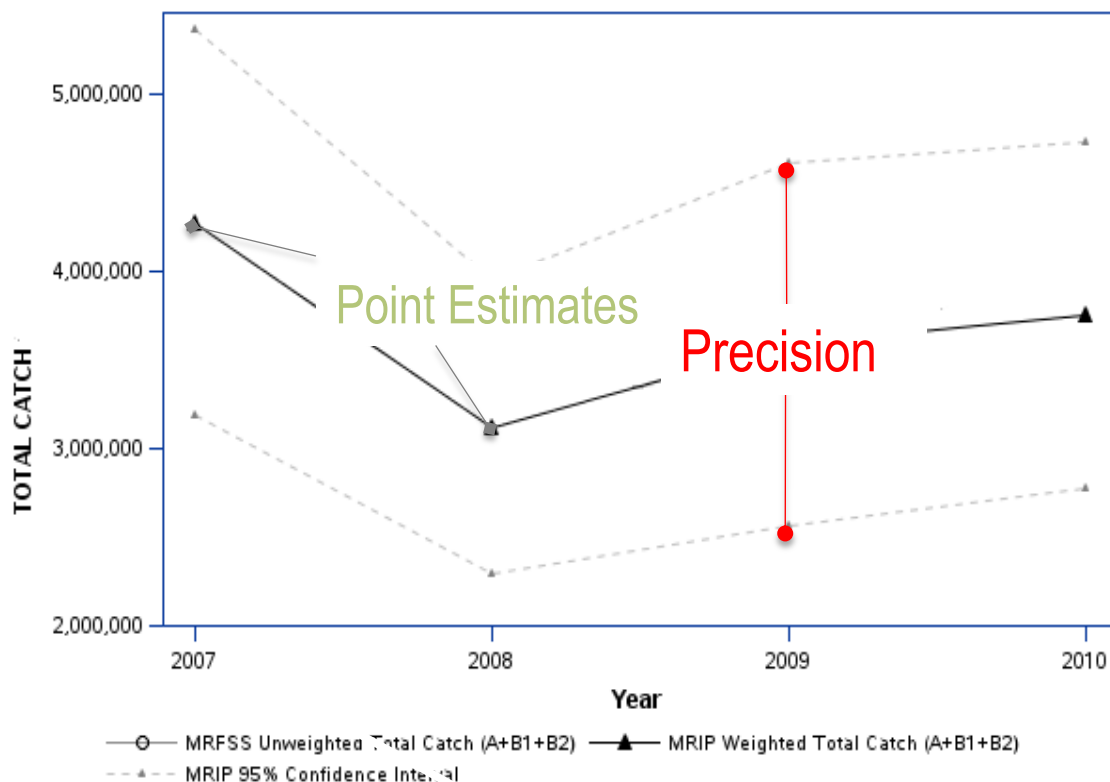
Sample Surveys

"Sampling public opinion is like sampling *soup*: One spoonful can reflect the taste of the whole pot if the *soup* is *well-stirred*." — *George Gallup*.
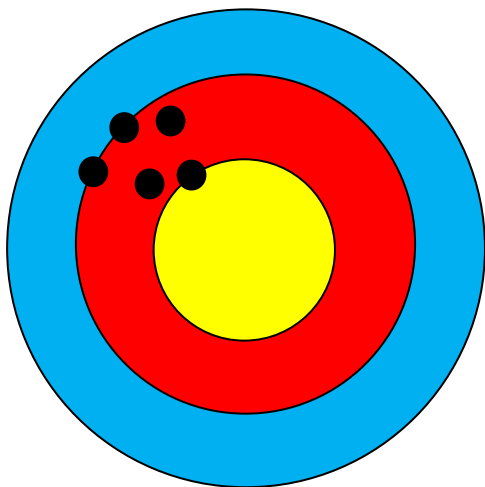
Sample Surveys: Requirements

- Collect data from a sample of the components of a fishery and expand to an <u>estimate</u> of the total.

- The estimate has two parts: Point estimate and margin of error.

- In general, the sample <u>must be representative</u> of the entire population (probability-based or PPS).

- Untested assumptions introduce potential for bias.

- Assumptions should be tested, bias measured if possible.

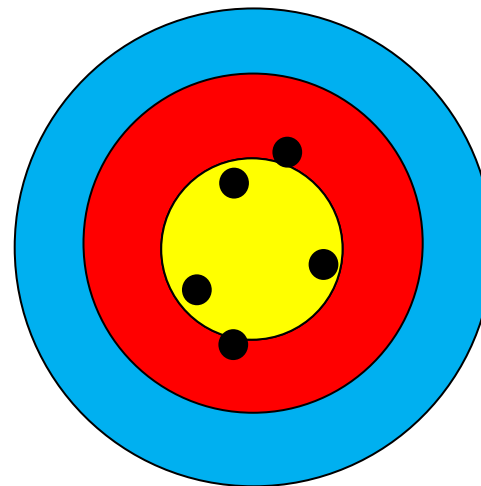NOAA FISHERIES

Anatomy of an Estimate

Removing potential bias affects both the **point estimate** and its associated measure of **precision**, expressed either as the Percent Standard Error (PSE) or graphically as the Confidence Interval.
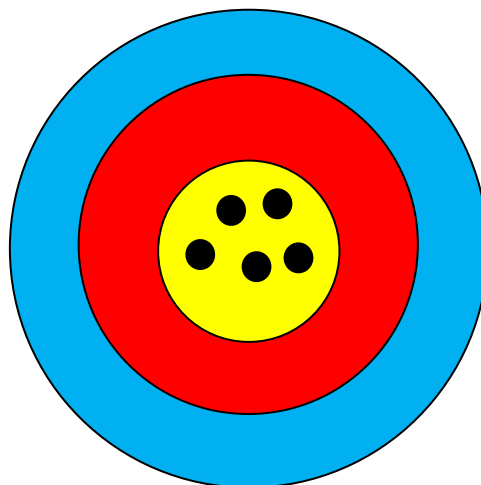
The Effect of BIAS

Precise, but inaccurate

More accurate; Not precise

Precise and accurate

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To Improve Precision.....

Increase Sample Size:

Summer Flounder Landings 2007 - 2011

Atlantic Coast Annual		Virginia Annual		Virginia May-June	
Total Harvest (A+B1)	PSE	Total Harvest (A+B1)	PSE	Total Harvest (A+B1)	PSE
3,108,974	6.0	397,041	12.0	146,492	17.7
2,362,303	9.1	260,221	18.1	128,936	29.7
1,829,579	6.8	289,075	18.5	117,149	33.1
1,510,707	7.5	260,050	15.2	85,991	22.3
1,847,156	7.7	317,674	19.0	149,367	34.