The Marine Recreational Information Program (MRIP)

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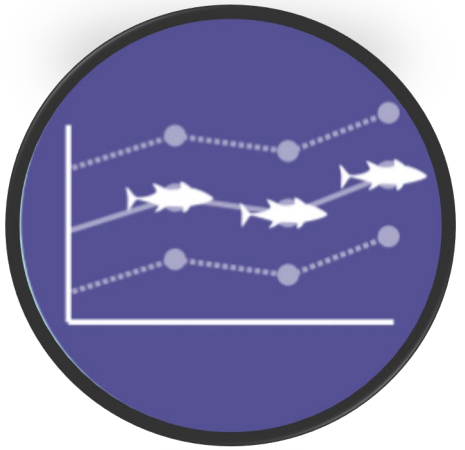
North Carolina Division of Marine Fisheries

License & Statistics: Coastal Angling Program

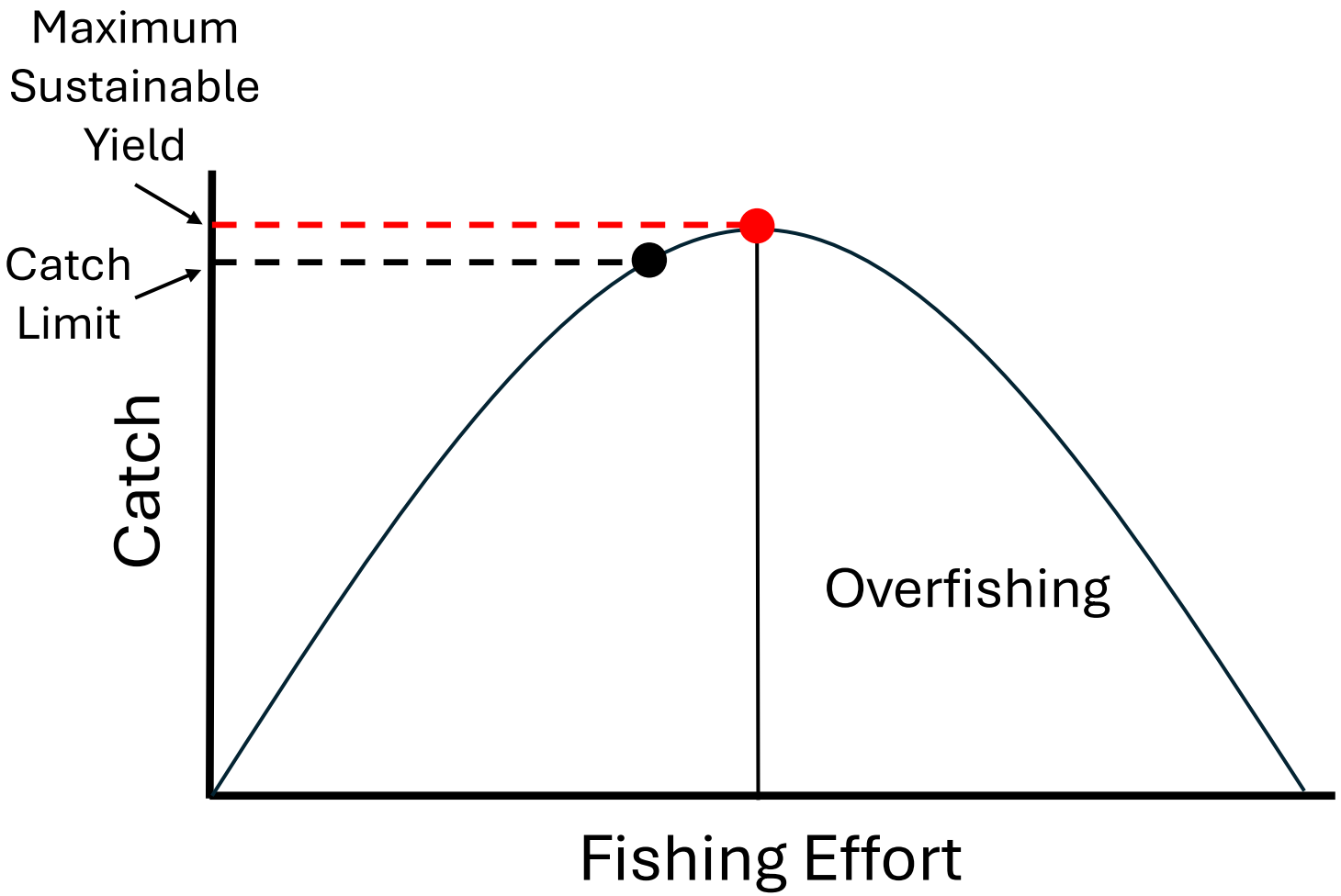
The Coastal Angling Program (CAP)

- CAP includes:
  - Marine Recreational Information Program (MRIP)
  - Anadromous Creel Survey (CSMA and ASMA)
  - Recreational Saltwater Activity Mail Survey



- Objective for today: Introduction to MRIP

Why is MRIP needed?



What is MRIP?

The Access Point Angler Intercept Survey (APAIS)

The Fishing Effort Survey (FES)

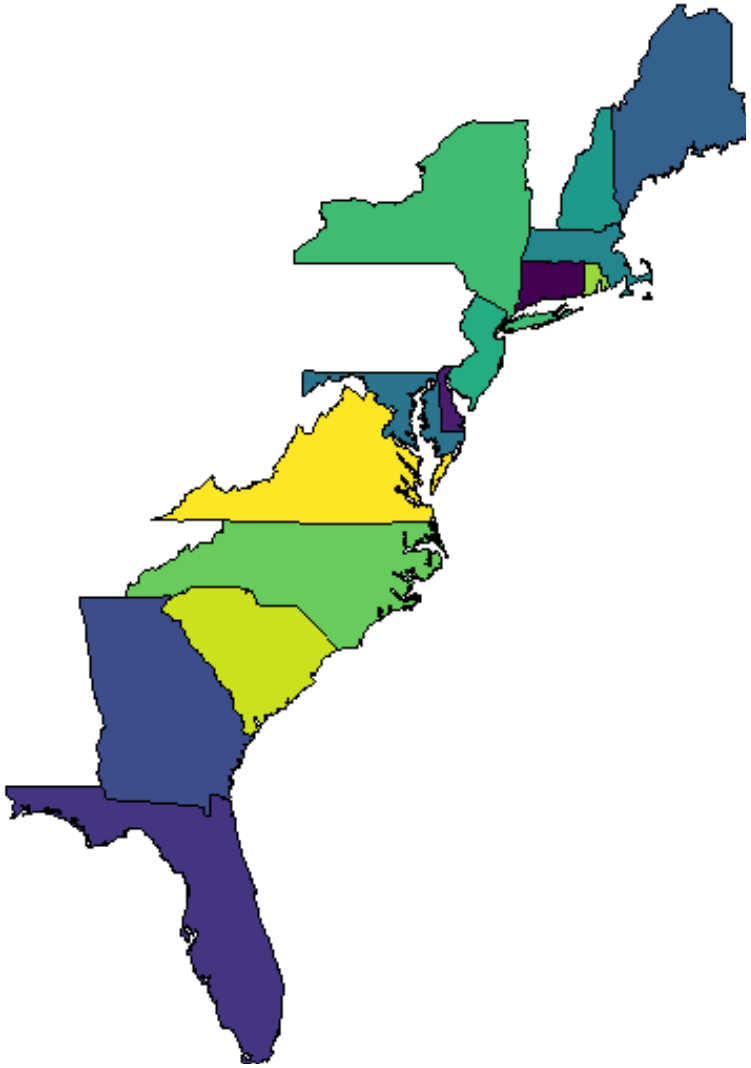
The For-Hire Survey (FHS)

The Large Pelagics Survey (LPS)

Comparable Estimates of Catch & Effort


30

How are site assignments made?



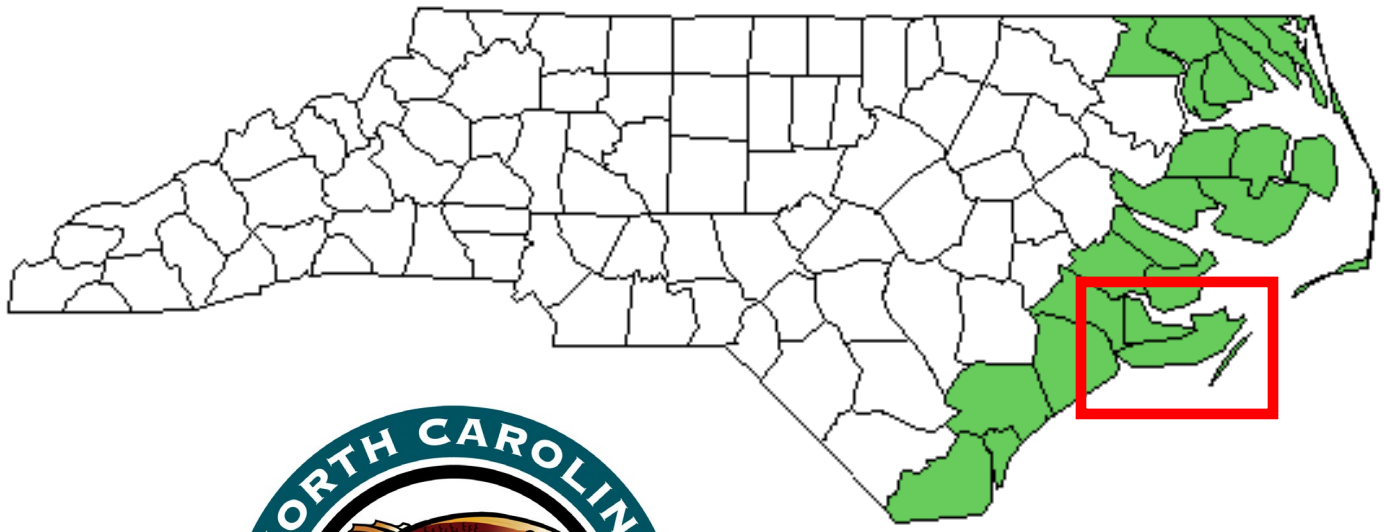
Wave 3 (May-June) 2023 Atlantic Coast Totals

689 unique sites

2,117 site visits

19,826 interviews

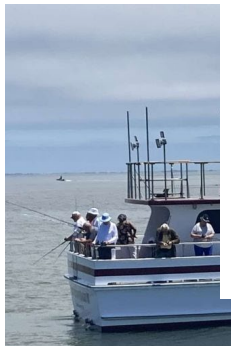
How are site assignments made?



Wave 3 (May-June)
2023 North Carolina Totals

74 unique sites

268 site visits

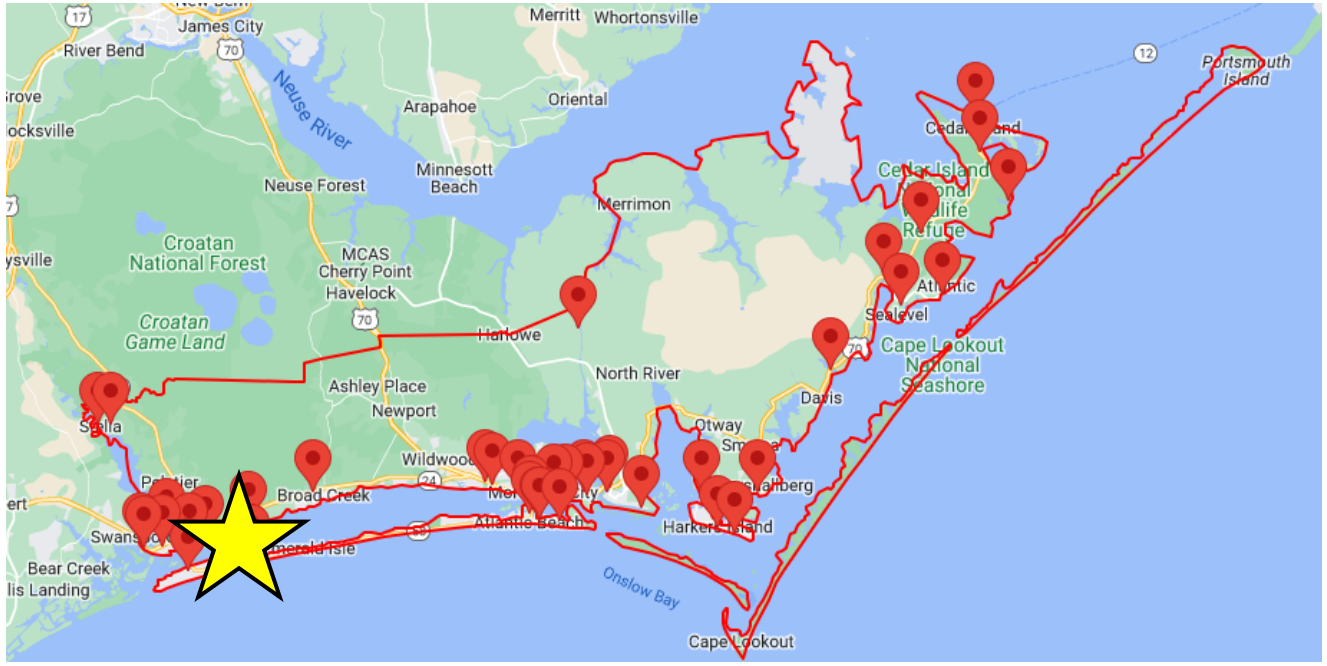


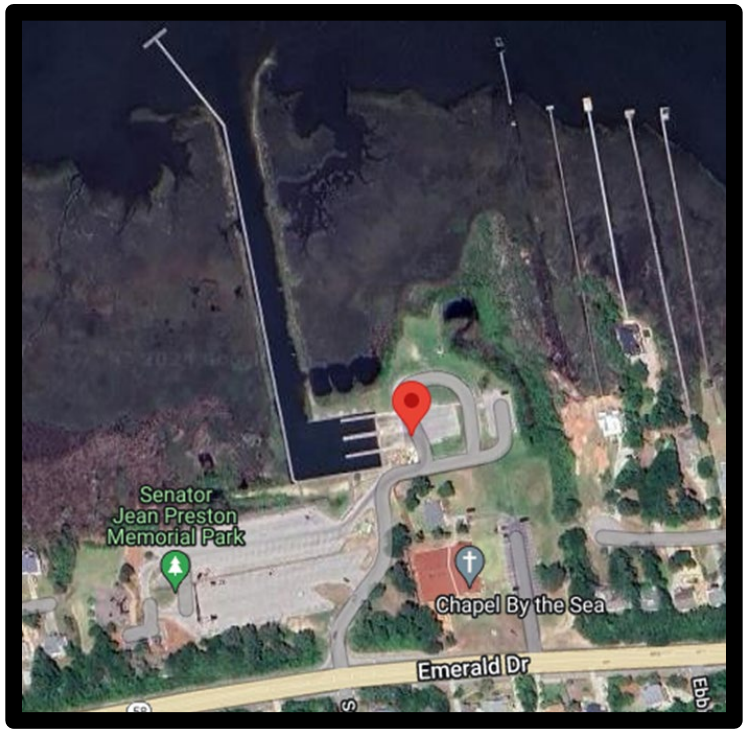
3,196 interviews

Site assignment

Emerald Isle Ramp, Carteret Co.,

Sat June 3rd 2023 8am:2pm

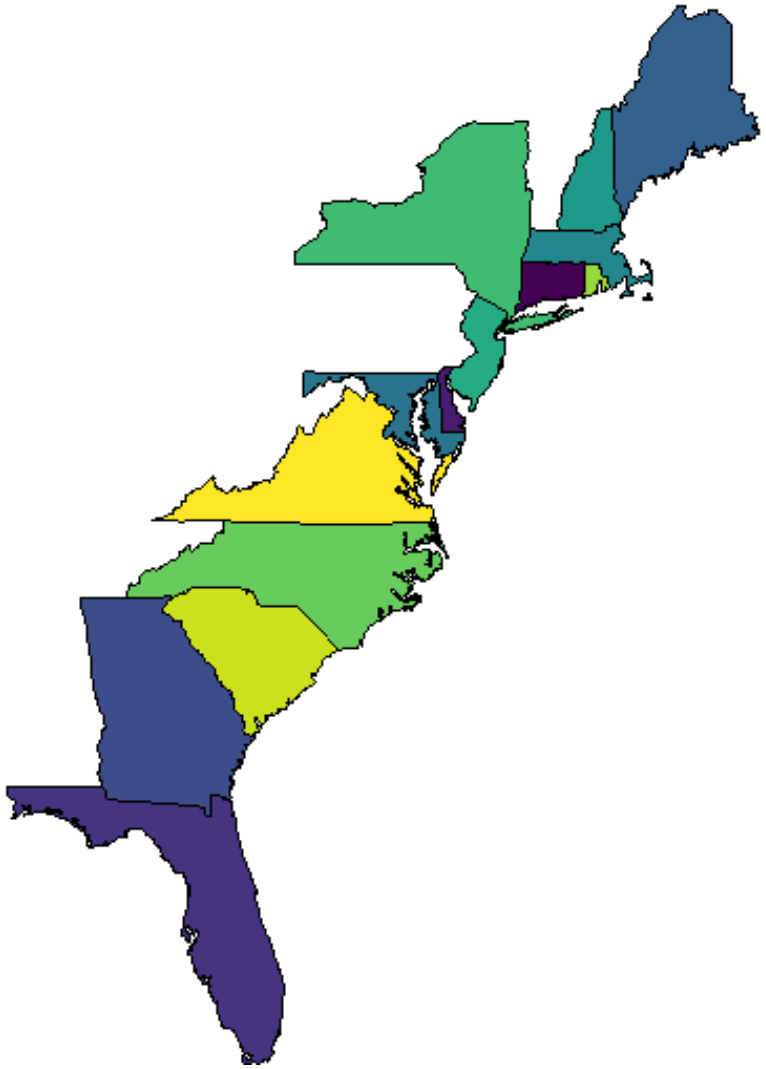




What is the chance a given angler will be interviewed?

- Estimated 15,795,750 recreational fishing trips in NC in 2023
- CAP conducted 13,522 interviews in 2023
- Thus, 1 out of every 1,168 fishing trips in NC would be interviewed

How is the data stored and processed?



Quality Control (QC)

Assessment of data for errors & perform necessary corrections

Data Processing

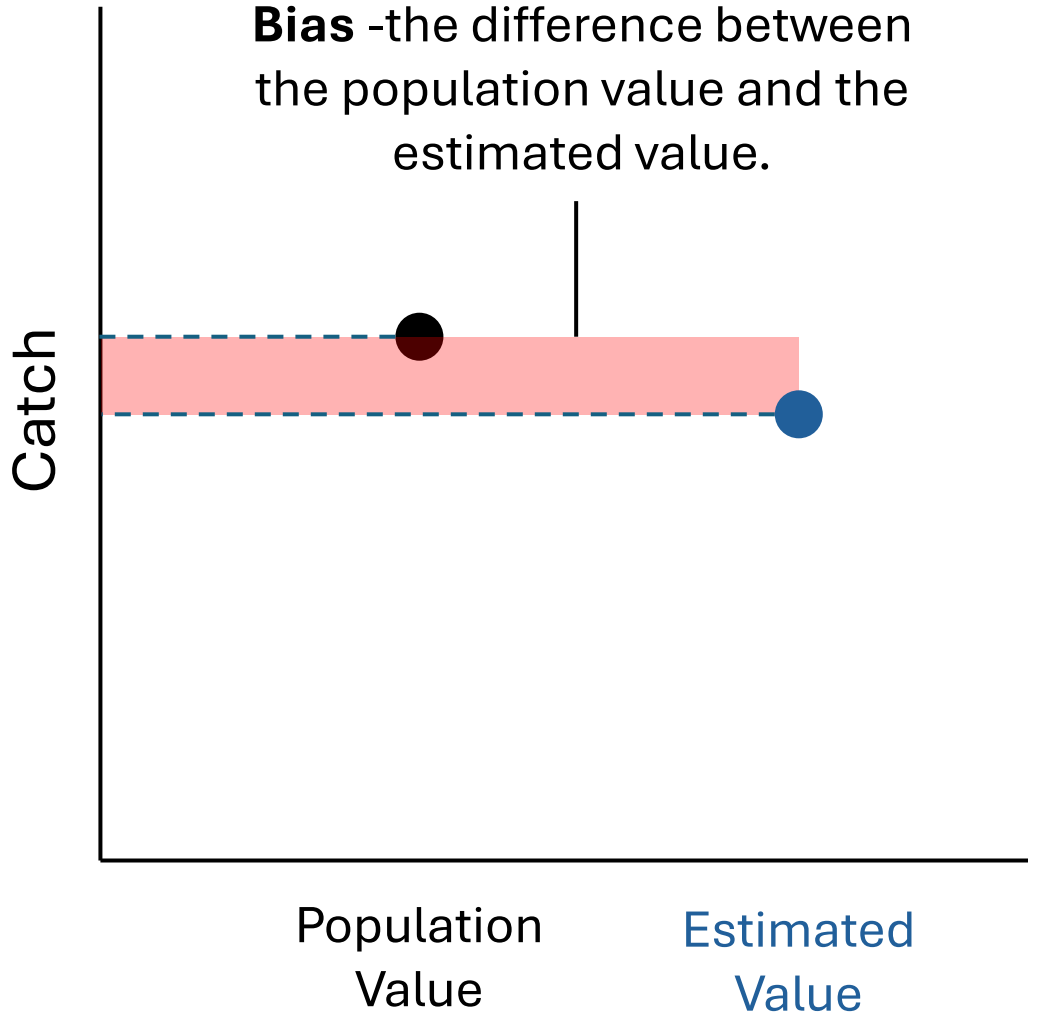
Data are organized and prepared for analysis.

Weighted fishing effort is calculated.

Atlantic Coastal Cooperative Statistics Program

Weighted fishing effort

- Sampling bias – is a described source of bias affecting surveys
- Happens when sampled anglers are not representative of the overall fishing population
- Sampling bias can be accounted for by applying a numeric adjustment, referred to as **weighting**



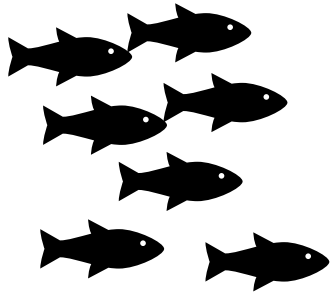
Weighted fishing effort

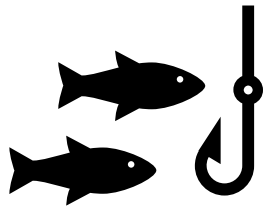
Weight	Definition
Stage 1 weights	Adjusts for differing probability that some sites are selected over others.
Stage 2 weights	Adjusts for the time duration of the site visit.
Stage 3 weights	Adjusts for the proportion of interviews completed. Calculation differs depending on mode.
Final weights	= Stage 1 weights X Stage 2 weights X Stage 3 weights

Weighted fishing effort

- How do you go from a few fish to this big number for the year?
- **Weighted effort** expands **catch** to **total catch**

Total Catch = **Catch** X **Weighted Effort**





Number of fish caught per angler trip

Number of Fishing Trips

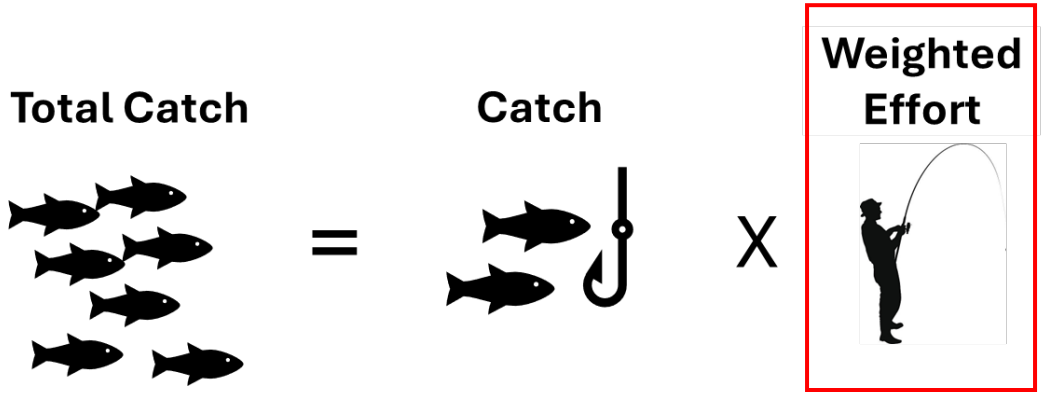
Weighted fishing effort

$$\left(\frac{Est.\,Fishing\ Effort}{Sum(Final\ Weights)}\right) \text{X}\ Final\ Weights = Weighted\ Effort$$

The NOAA FES pilot study

- NOAA pilot study looked for evidence of bias in the Fishing Effort Survey (FES).
- Findings: possible overestimation of fishing effort by up to 30-40%.
  - Highly variable depending on location/time/species
- The FES provides estimates of fishing effort used to rescale the final weights.

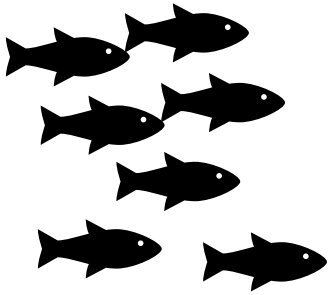
This does not mean that <u>total catch</u> is overestimated by 30-40%!



$$\left(\frac{Est.Fishing\ Effort}{Sum(Final\ Weights)}\right) \text{X}\ Final\ Weights = \boldsymbol{Weighted\ Effort}$$

How do we get estimates?

Total Catch



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Sum Across Interviews

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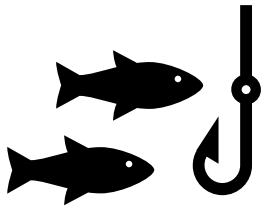
Catch



X

Weighted Effort

]

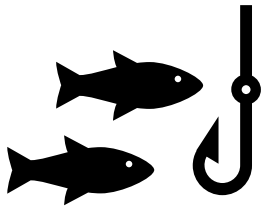
How do we get estimates?

- For our example:
  - Catch = 1 spotted seatrout
  - Weighted effort = 627.4573
  - Expanded weighted catch = 1 X 627.4573 = **627.4573**

Total Catch

= *Sum Across Interviews*

Catch



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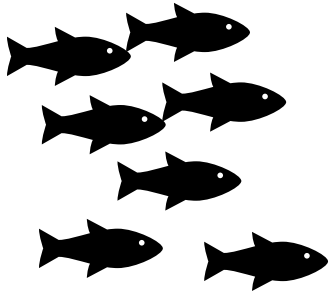
Weighted Effort

How do we get estimates?

Interview	Catch		Weighted Effort		Product	Running Total
1	4	X	1620.3	=	6481.4	6,481
2	1	X	19361.5	=	19361.5	25,843
3	3	X	1518.8	=	4556.4	30,399

Total Catch



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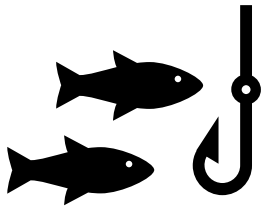
Sum Across Interviews

Catch



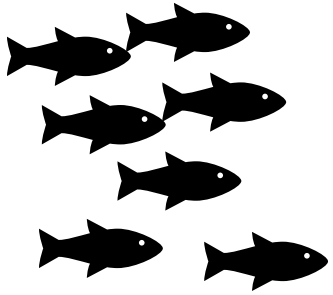
X

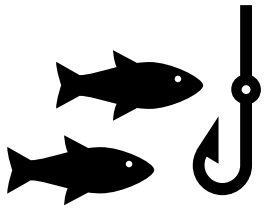
Weighted Effort

How do we get estimates?

Interview	Catch		Weighted Effort		Product	Running Total
1098	1	X	129.5	=	129.5	**5,569,693**

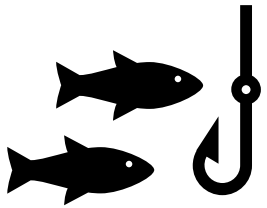
Total Catch = ***Sum Across Interviews*** [**Catch** × **Weighted Effort**]





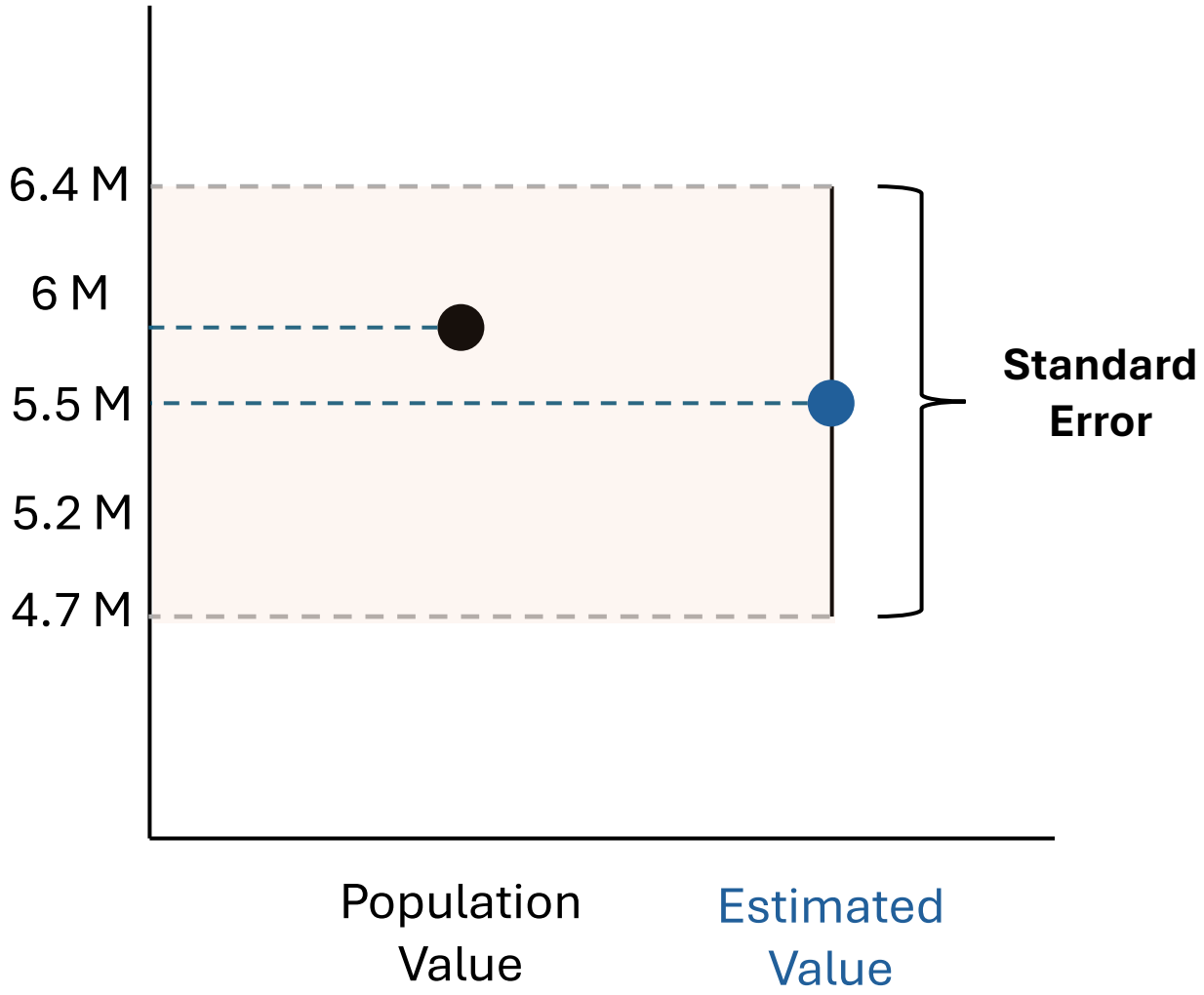
How do we get estimates?

Spotted Seatrout 2023 NC
Total Catch
5,569,693

Total Catch = ***Sum Across Interviews*** [**Catch**  X  **Weighted Effort**]

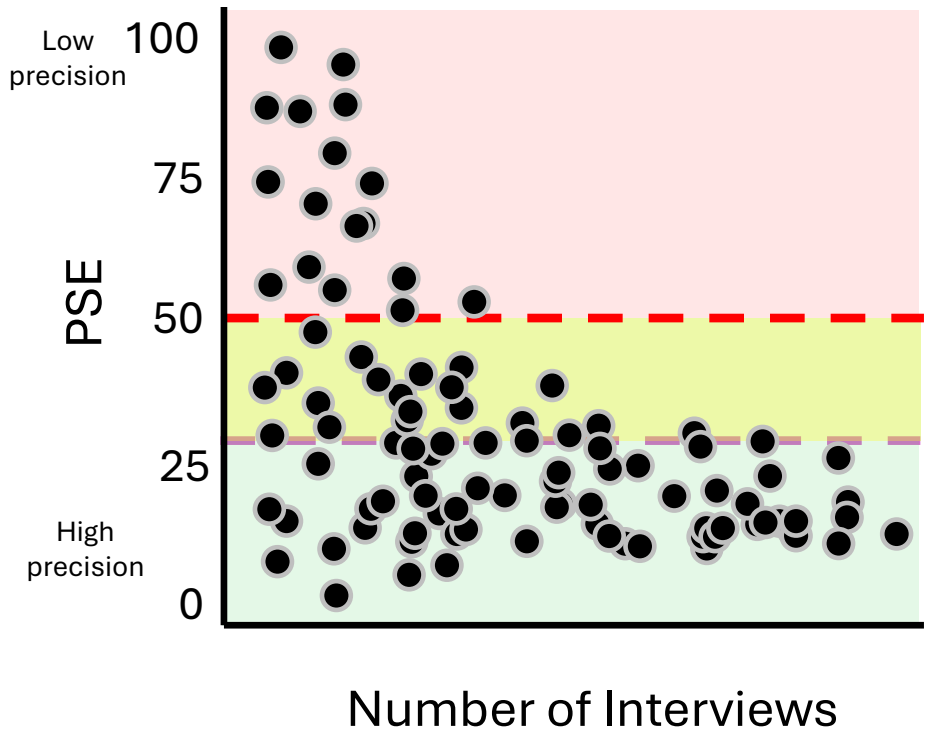
How do we get estimates?

- Standard error
  - Represents variation around the estimate.
  - Values are above and below the estimate.
- Increasing the number of interviews improves precision.



How do we get estimates?

- Percent standard error (PSE)
  - Standard error as a % of the estimate
  - The lower the PSE the more precise the estimate.
  - Recommendations:
    - PSE <= to 30 = precise estimates
    - 30 < PSE < 50 = marginal estimate
    - > 50 = imprecise estimate



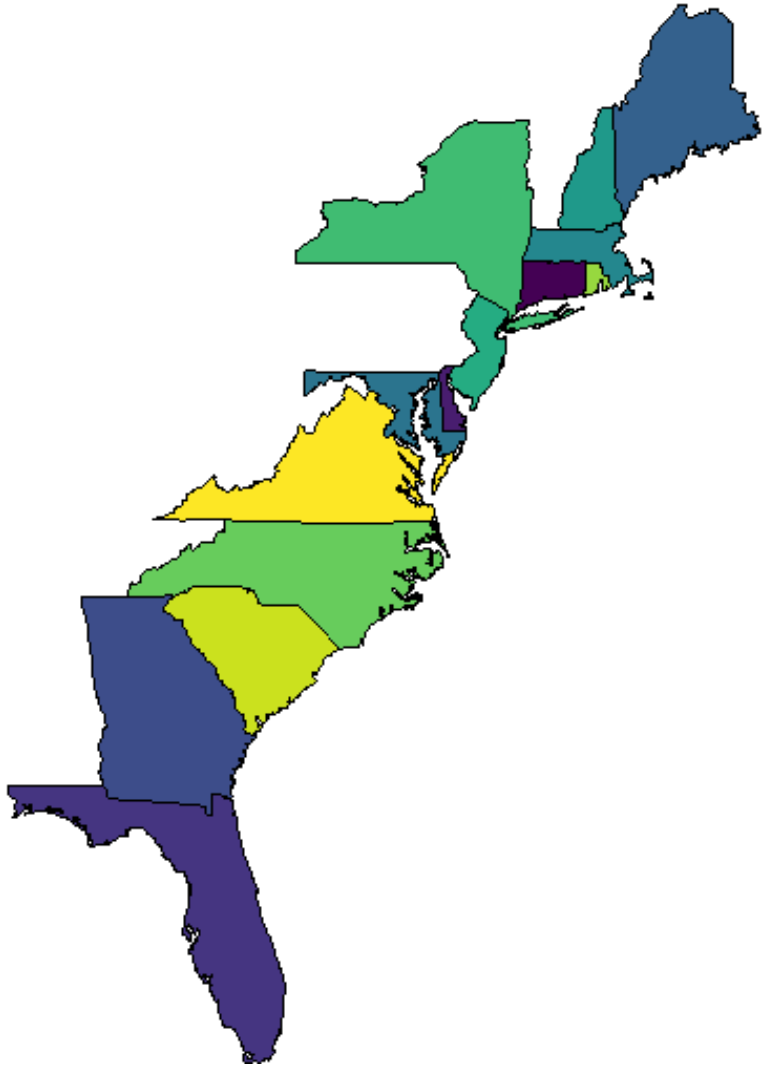
Spotted Seatrout - North Carolina - 2023

Total Catch = 5,569,693

Standard Error: ± 839,209

PSE = 14

How can we improve estimates?



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Questions?

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