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Recreational Data in Stock Assessments

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Outline

- MRIP data & stock assessments
- “Off-label” MRIP data use
- Thoughts about MRIP standards and workflow

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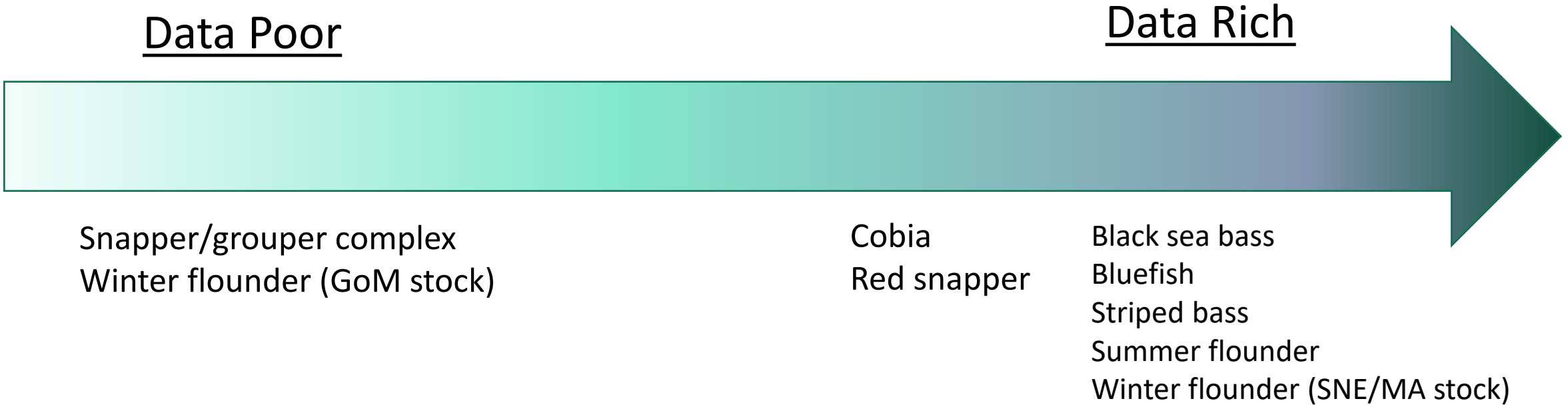
Stock Assessments

- Not one single type of stock assessment model



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MRIP Data in Stock Assessments

- Total catch
  - Harvest: Type A + Type B1
  - Release mortalities: Type B2, multiplied by a release mortality rate
  - Depending on model could be in numbers or weight

→Tells the model about the scale of the population

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MRIP Data in Stock Assessments

- Length frequencies
  - Harvest
  - Release mortalities
    - Type 9
    - Supplemental data (e.g., angler logbooks, volunteer tagging programs, etc.)
  - Converted to age frequencies using age and length data collected from state and federal sampling programs

→ Tells the model about cohort strength and survival over time

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MRIP Data in Stock Assessments

- Most models use:
  - Annual time-step
  - Total recreational removals (harvest + dead releases)
  - Coastwide scale

- But we often work with the MRIP data on a finer scale to develop the catch-at-age

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MRIP Data in Stock Assessments

- PSEs: statistical catch-at-age models can use PSE information to inform the model about uncertainty in the observed total catch

- But there is a limit to how much uncertainty the model can take and still converge
  - Have to scale the actual PSEs down for some species
  - Still informative about relative uncertainty over time

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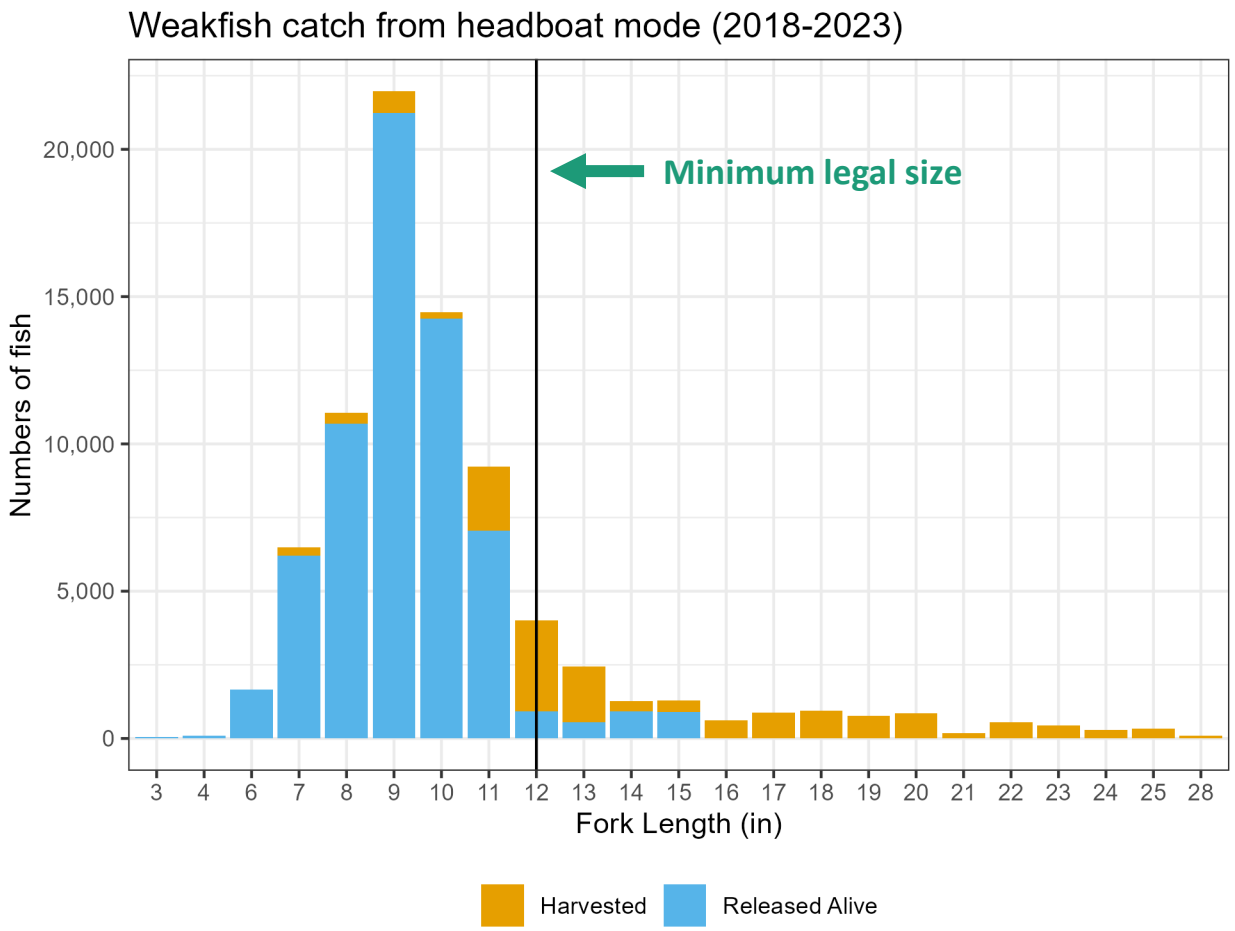
MRIP Data in Stock Assessments

- Harvest + live releases catch-at-age developed separately

- Size limits and angler preferences often result in different size compositions or different trends of harvested fish vs. fish that are released alive



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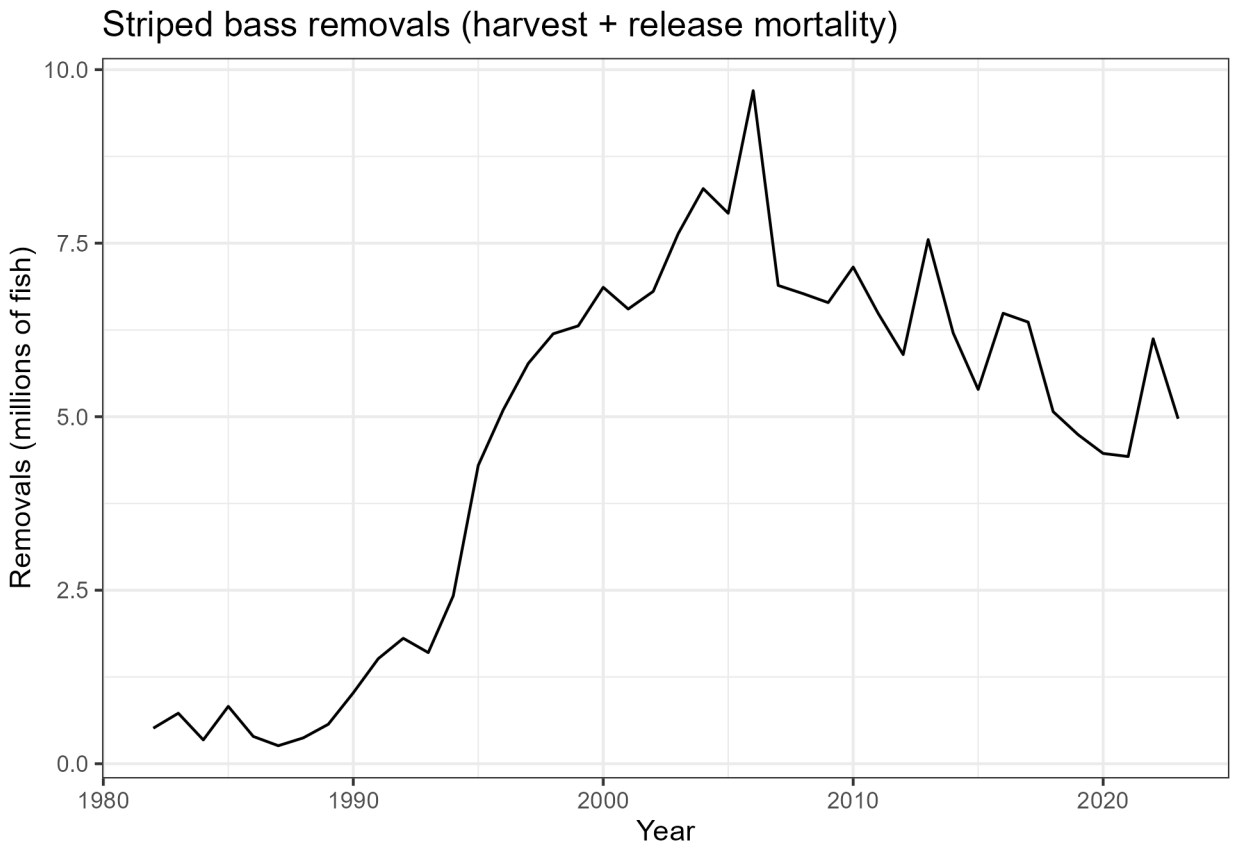

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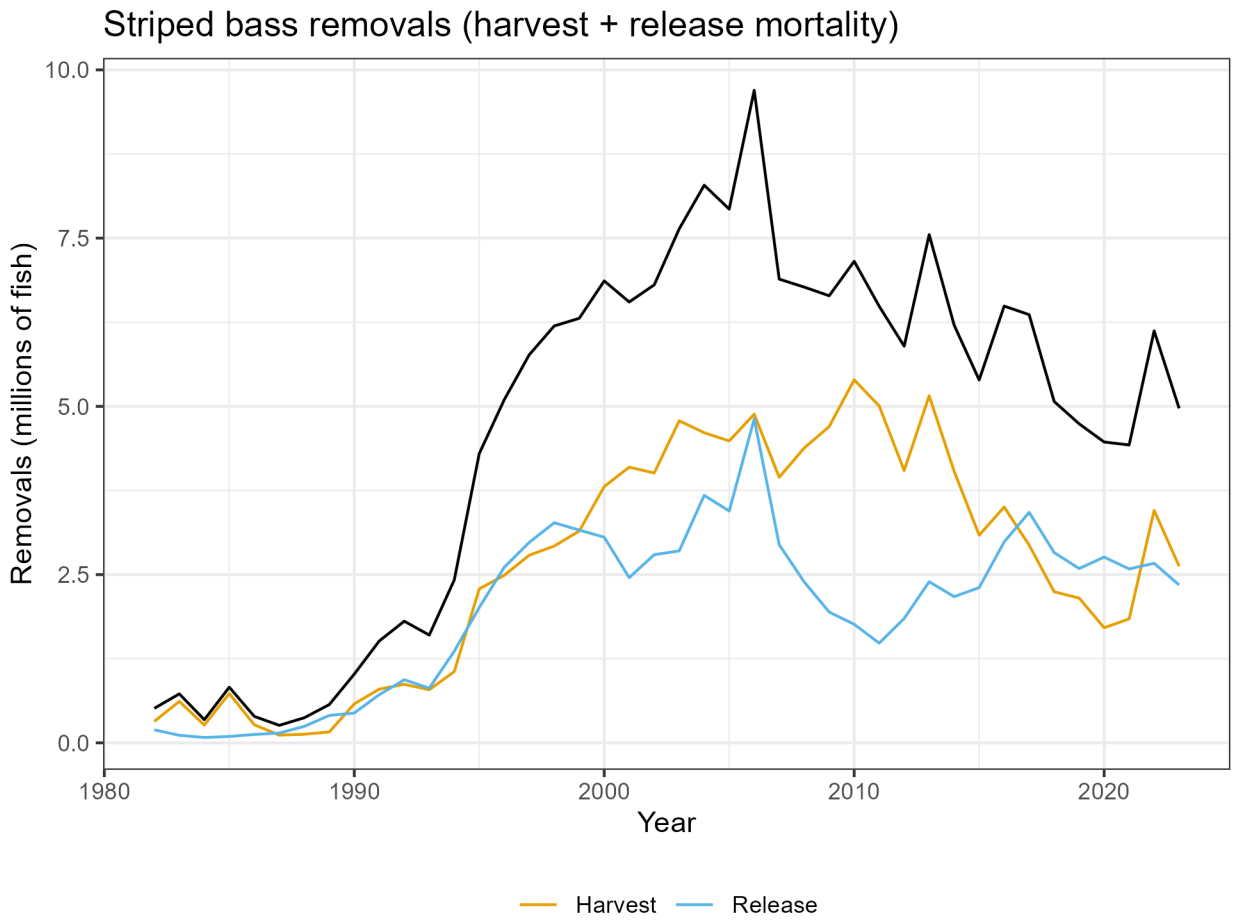

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MRIP Data in Stock Assessments

- Some species grow very quickly, especially at younger ages
  - A 12” fish caught in March may be from a different year-class than a 12” fish caught in October

- Some species have different growth rates across their range, with fish in the south growing faster or slower than fish in the north, even if they are all biologically one stock

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MRIP Data in Stock Assessments

- Develop separate age-length keys by region & season
  - Captures differences in growth rate, recruitment strength by region and season

- Develop separate harvest and release length frequencies by region and season
  - Pull the data by wave and state, then pool to create seasons and regions, e.g., for bluefish:
    - Waves 1-3 = early/spring season and Waves 4-6 = late/fall season
    - ME-VA=north, NC-FL = south

→Apply season/region ALKs to season/region LFs to develop catch-at-age

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MRIP Data in Stock Assessments

- Usually pool these stratified catch-at-age matrices back to a single annual, coastwide recreational catch-at-age matrix for input into the model

- Exceptions:
  - Model uses a seasonal time-step
  - Model uses “fleets-as-areas” approach (e.g., striped bass)
  - Species has multiple stocks along the Atlantic coast

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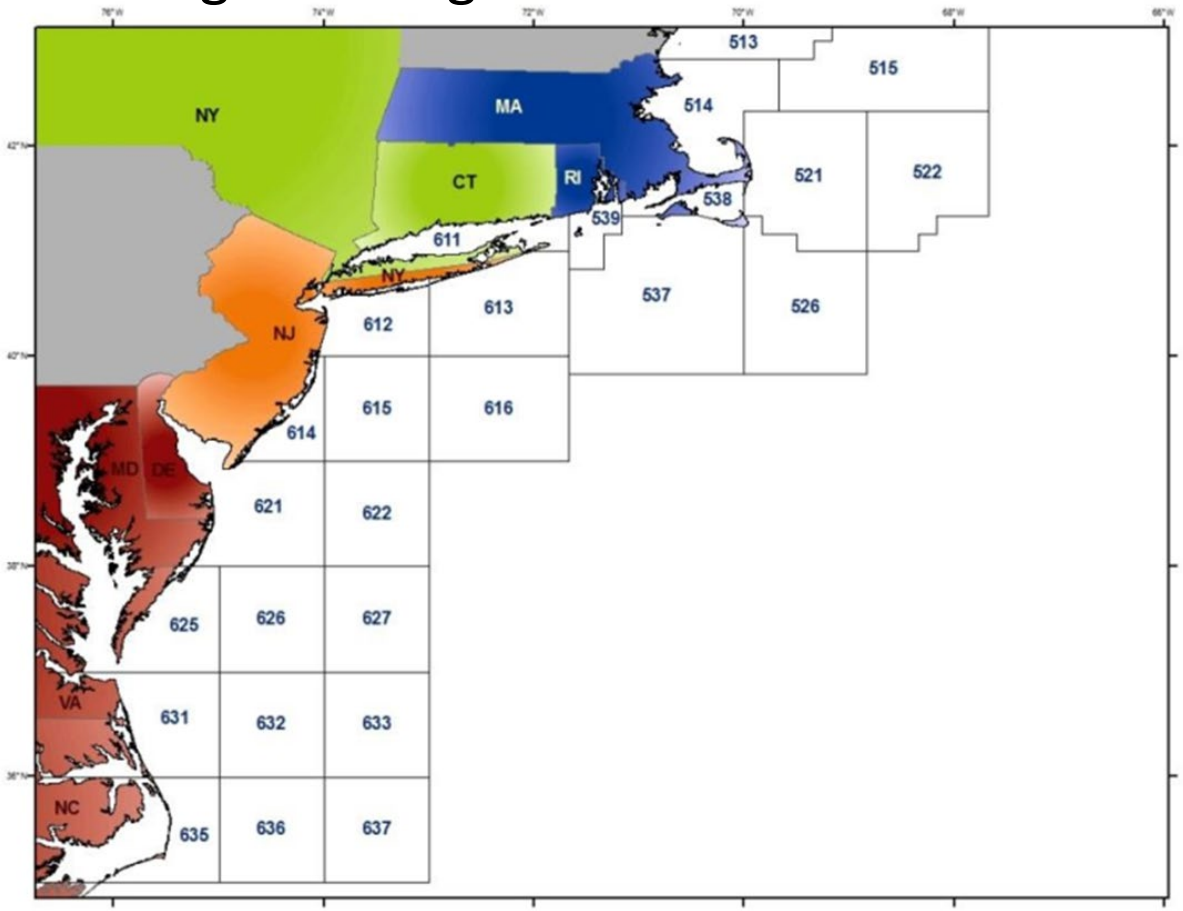
MRIP Data in Stock Assessments

- Tautog: 4 stocks
- Red drum: 2 stocks
  - NJ-NC (northern)
  - SC-FL (southern)
- Black sea bass: 2 stocks
  - Split at Cape Hatteras

Tautog stock regions



“Off-Label” Use of MRIP Data

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"Off-Label" Use of MRIP Data

- MRIP CPUE: use the raw intercept data to develop fishery-dependent indices of abundance

- Size- and bag-limit analyses, season analyses for management
  - How to set regulations to achieve a change in total catch

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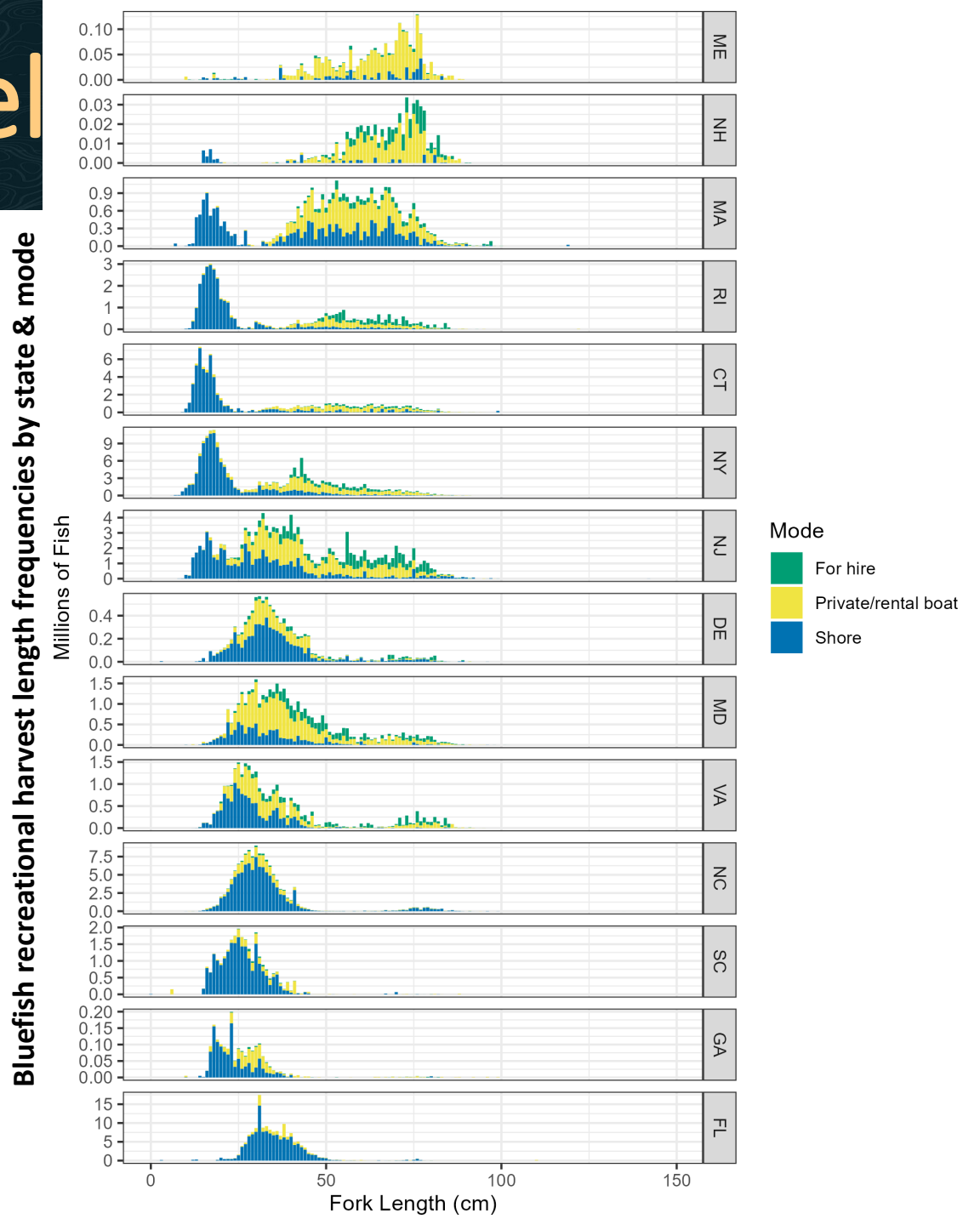
"Off-Label

- Size, bag, season analyses often done at a finer scale (region or state)
- Availability of fish, angler preference, fishery characteristics vary along the coast
- Want to tailor regs to work for all anglers equally



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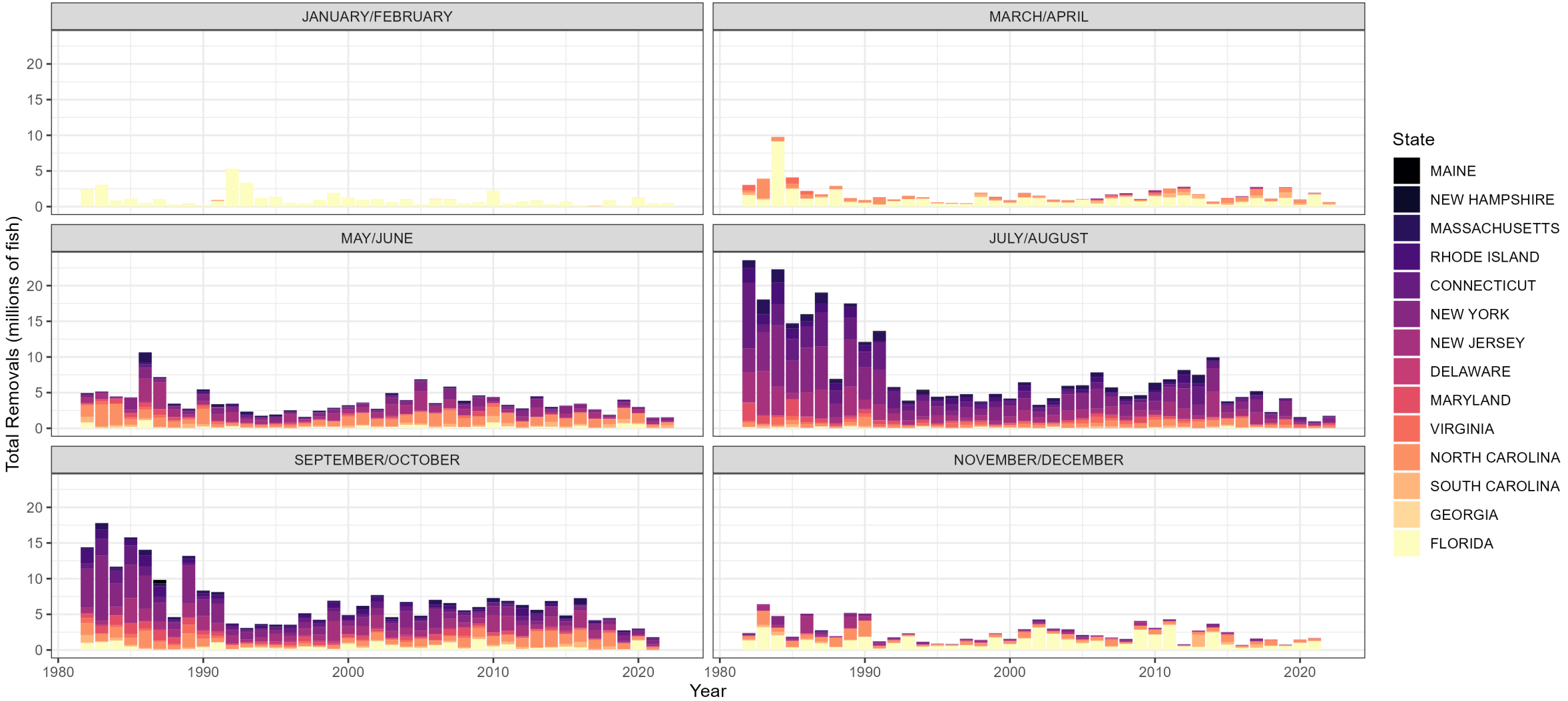
"Off-Label" Use of MRIP Data

Bluefish recreational removals by wave and state



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MRIP Standards & Assessment Workflow

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MRIP Standards and Workflow

- Trade-off in the scale at which we analyze the data
  - Finer scale: more realism in biology, fishery characteristics, etc.
  - Coarser/broader scale: more precision/less uncertainty in data

- We don’t use MRIP standards for PSE as a hard and fast rule, but they are taken into consideration as part of this trade-off analysis

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MRIP Standards and Workflow

- Currently, assessment scientists pull data from the online query tool at a fine scale and pool up to what they need

- Losing access to data that didn't meet the standards, e.g., wave-specific data or cells with high PSEs would make assessments more difficult

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MRIP Standards and Workflow

- To get the same data, we'd have to:
  - Make a custom data request (delays data gathering and processing, increased burden on MRIP staff)
  - Use the publicly available microdata (requires every scientist who works with recreational data to maintain an up-to-date copy of all MRIP data on their computer, reduces consistency and reproducibility of results)
- Solution(?): make data that don't meet the standards available to scientists via a log-in (e.g., ACCSP Data Warehouse)

Questions

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