Marine Recreational Information Program

Fishing Effort Survey Transition Update

John Foster
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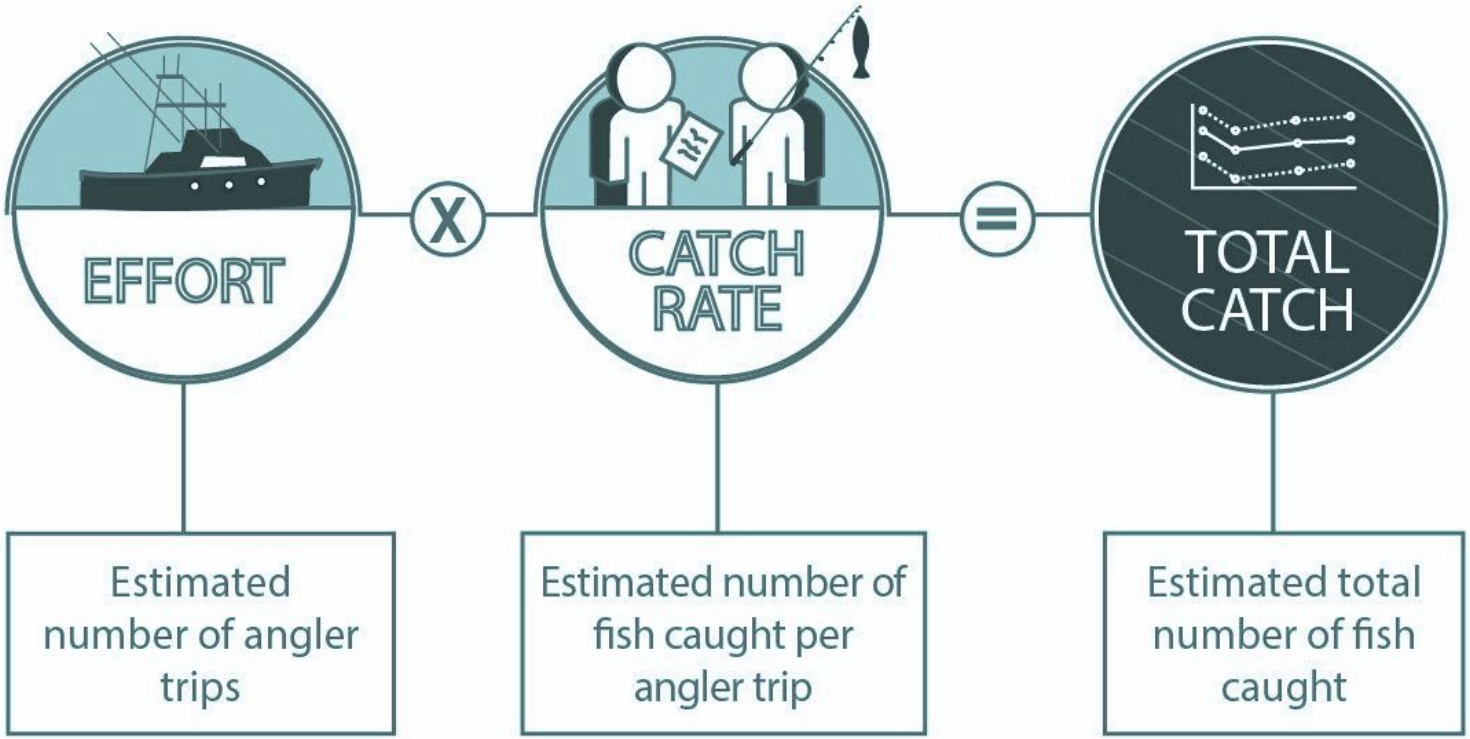
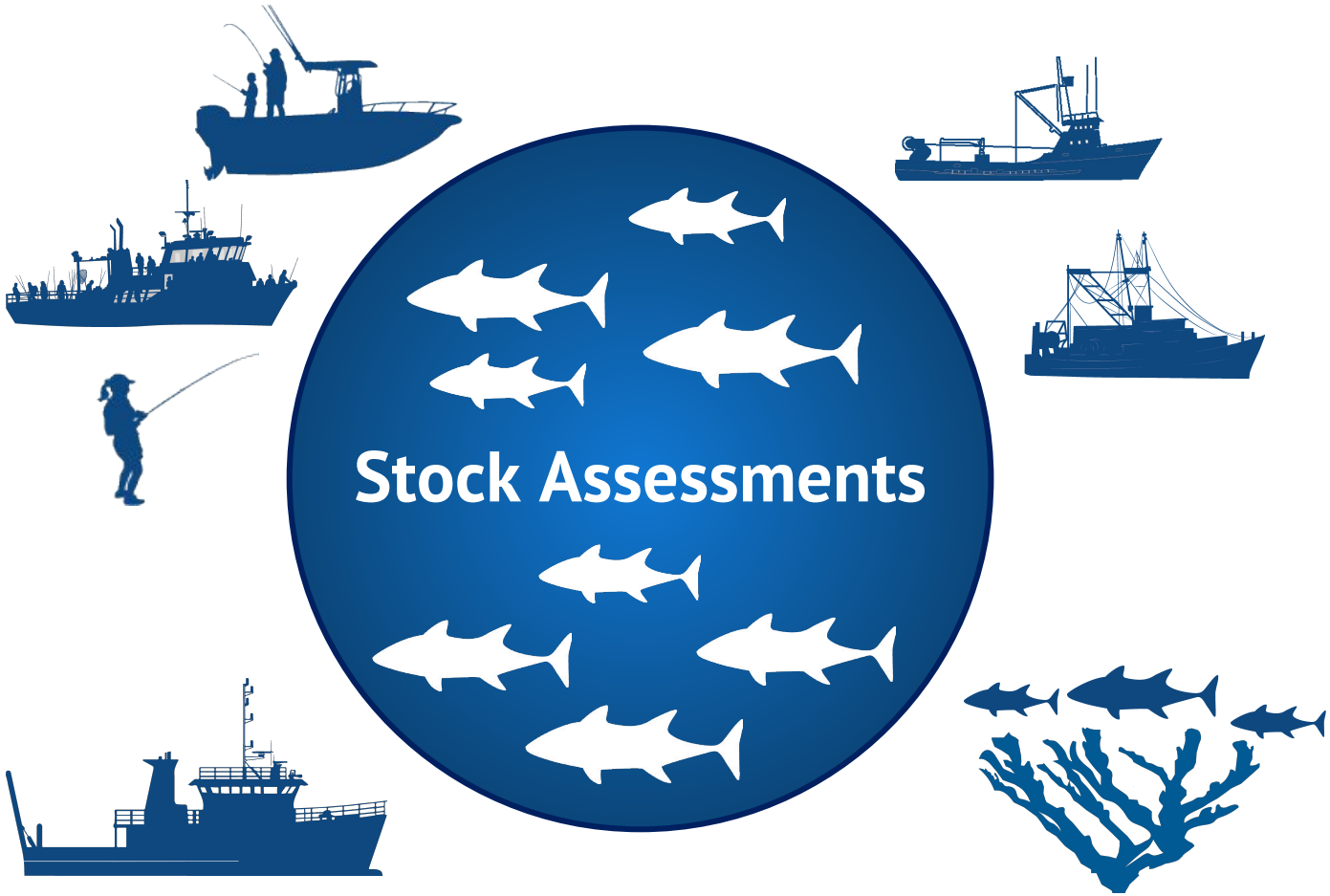
Estimating Total Recreational Catch



Assessing the Health of Fish Stocks

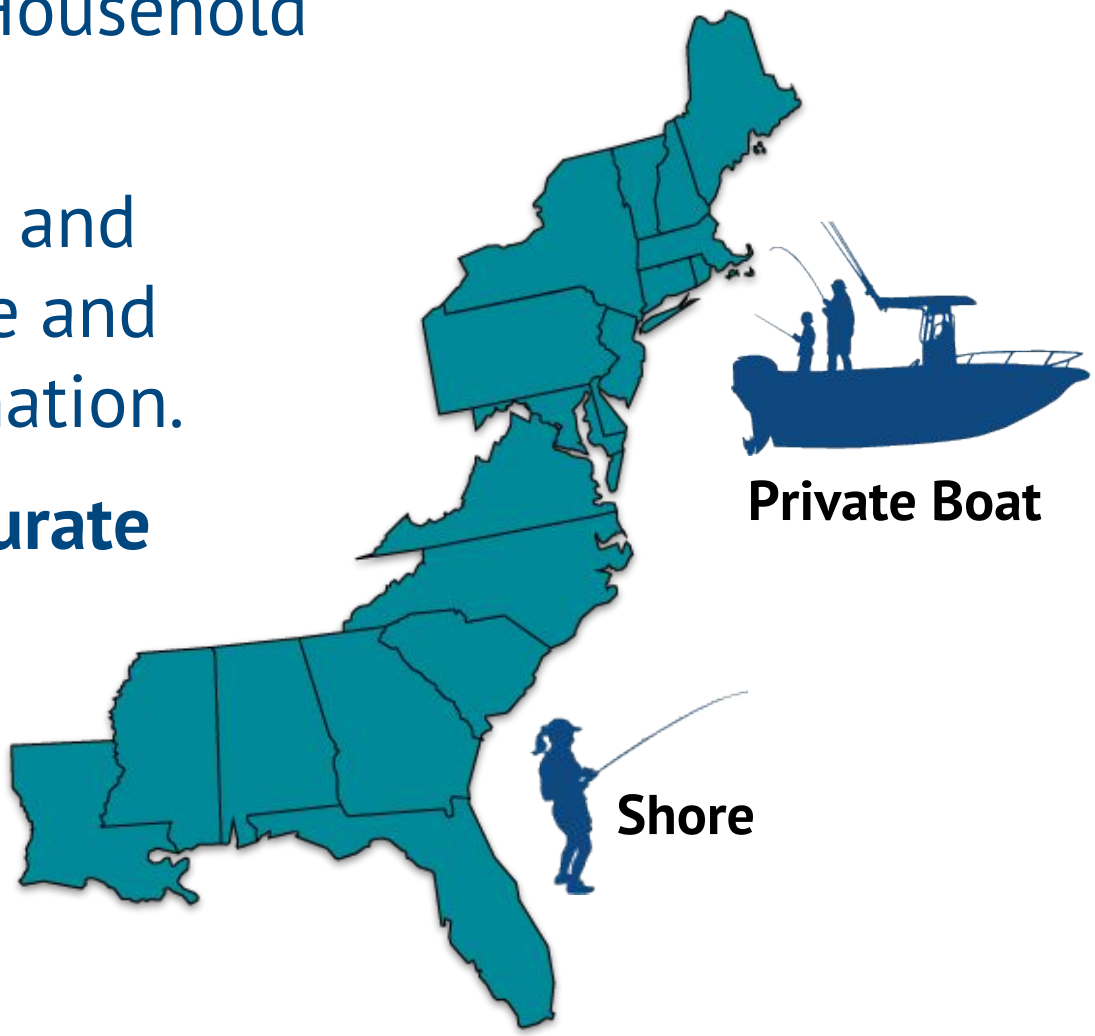


Coastal Household Telephone Survey

- CHTS estimated shore and private boat fishing effort on Atlantic and Gulf coasts prior to 2018.
- Landline random-digit-dial telephone survey.
- Susceptible to non-sampling errors:
  - Poor coverage.
  - Declining response rates.
  - Inaccurate reporting of fishing activity.
- Inefficient for reaching anglers.
- **Ended** December 31, 2017.

Fishing Effort Survey

- Replaces Coastal Household Telephone Survey.
- Uses USPS records and state-based license and registration information.
- Provides **more accurate** estimates.



More Accurate Estimates

We're reaching more anglers.

Surveys get into the right hands.

Improved questionnaire.

More complete answers.

Three times the response rate.

Extensive Testing and Peer Review

"**The [FES] methodologies**, including the address-based sampling survey design, are **major improvements**."

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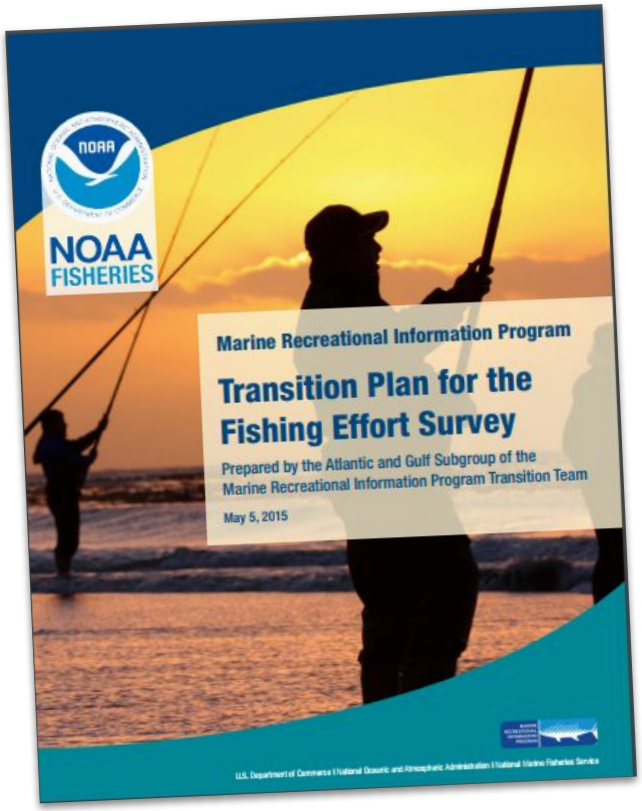
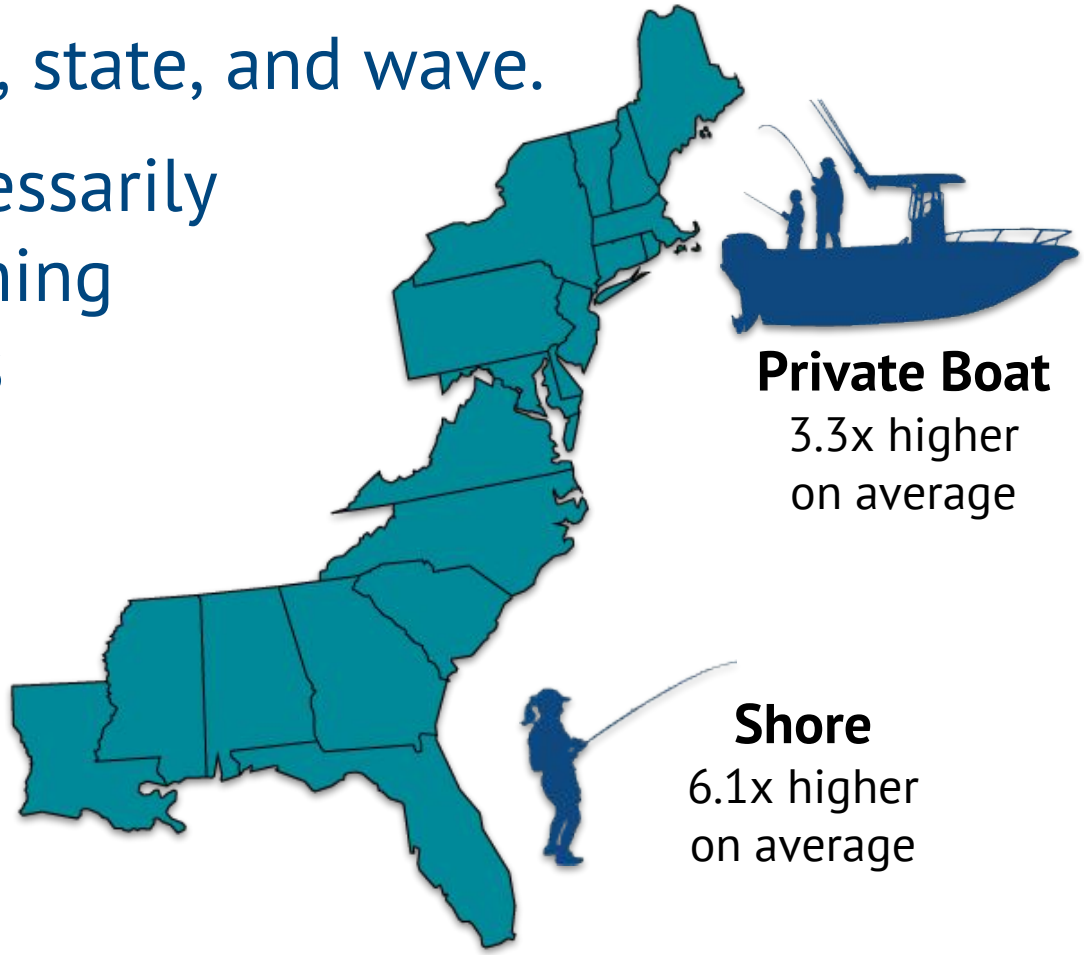
Implementing the FES

- Three-year Transition Plan.
- Developed by NOAA, states, councils, commissions.
  - ✓ Side-by-side benchmarking.
  - ✓ FES calibration model.
  - APAIS adjustments.
  - Re-estimation.
    - Stock assessments.
    - Management decisions.



Side-by-Side Benchmarking

- FES estimates are several times higher than CHTS.
  - Vary by mode, state, and wave.
  - Does not necessarily mean overfishing has been or is occurring.



Transitioning to New Surveys

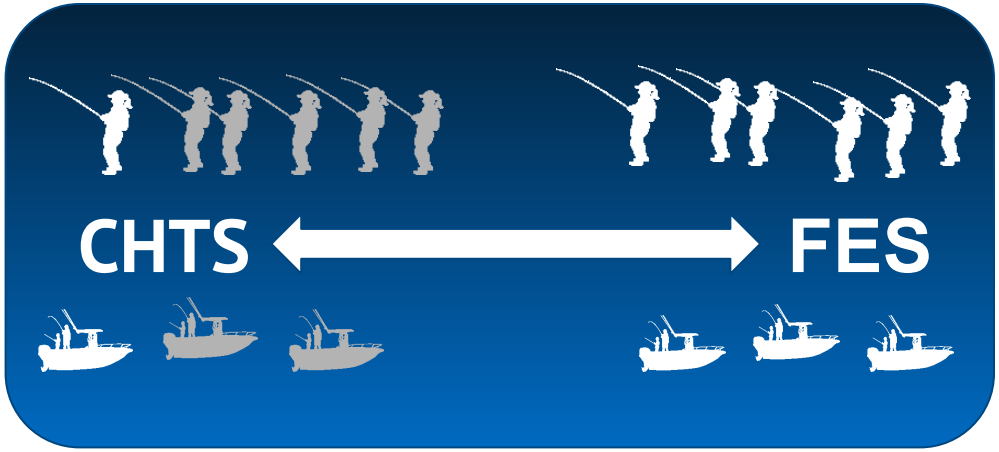
- Immediate implementation of the new FES would cause a major disruption.
  - Stock assessments and fisheries management rely on having a comparable time series of recreational catch statistics.
  - Calibration is needed to convert historical catch estimates into estimates compatible with new survey estimates.
  - We need numbers in the **same currency.**
- Calibrations are needed to account for both:
  - Legacy CHTS ➔ New FES.
  - Legacy APAIS ➔ New APAIS.

FES Calibration Model

- Developed with MRIP consultants at Colorado State University and Westat.
- Application of small area estimation methods using Fay-Herriot Model (linear mixed effects model).
- Separate models for fishing modes.
  - Private boat.
  - Shore.
- Separate effects for states, waves, and states by waves.

FES Calibration Model

- Longer-term survey method effect (1981-2017).
  - Generally larger effect that adjusts the entire time series.
- Shorter-term wireless telephone household effect (2000-2017).
  - Generally smaller effect that adjusts recent years attenuating to no adjustment prior to 2000.
- Approach allows for calibrating to FES or CHTS series.



FES Calibration Model Peer Review

- June 27-29 Workshop held in Silver Spring, MD.
- Review Panel:
  - Chair: Paul Rago (MAFMC SSC)
  - 3 CIE Reviewers:
    - Cynthia Jones (Old Dominion Univ.)
    - Rob Hicks (College of William & Mary)
    - Ali Arab (Georgetown Univ.)
  - 3 Non-CIE Reviewers:
    - Patrick Sullivan (NEFMC SSC)
    - Fred Serchuk (SAFMC SSC)
    - Jason McNamee (ASMFC/Rhode Island DEM)
- Workshop was accessible by webinar and fully recorded.
  - Recordings and materials are on MRIP website.
- Reviewers unanimously endorsed the proposed FES/CHTS calibration model.

Key Recommendations from Peer Review

- Continue to evaluate model performance.
  - Test model assumptions.
  - Examine model sensitivity.
- Ensure robust outreach and communications efforts.

Access Point Angler Intercept Survey

- APAIS is a shore-side survey conducted by state agency staff to collect catch data on the Atlantic and Gulf coasts.
- APAIS data are used to estimate average angler catch rates (catch per angler trip) for different finfish species.
- MRIP implemented new APAIS sampling design in 2013.
- **Potential for bias has been greatly reduced.**
  - Strict adherence to formal probability sampling protocols.
  - Rigorous field procedures developed for samplers.
  - Expanded temporal coverage of daytime/nighttime fishing.
  - Site-time assignments completed without rescheduling.

Extensive Testing and Peer Review

"[The APAIS methods are] a **vast improvement** over the previous sampling and estimation procedures and reflect **state-of-the-art methods** in survey sampling."

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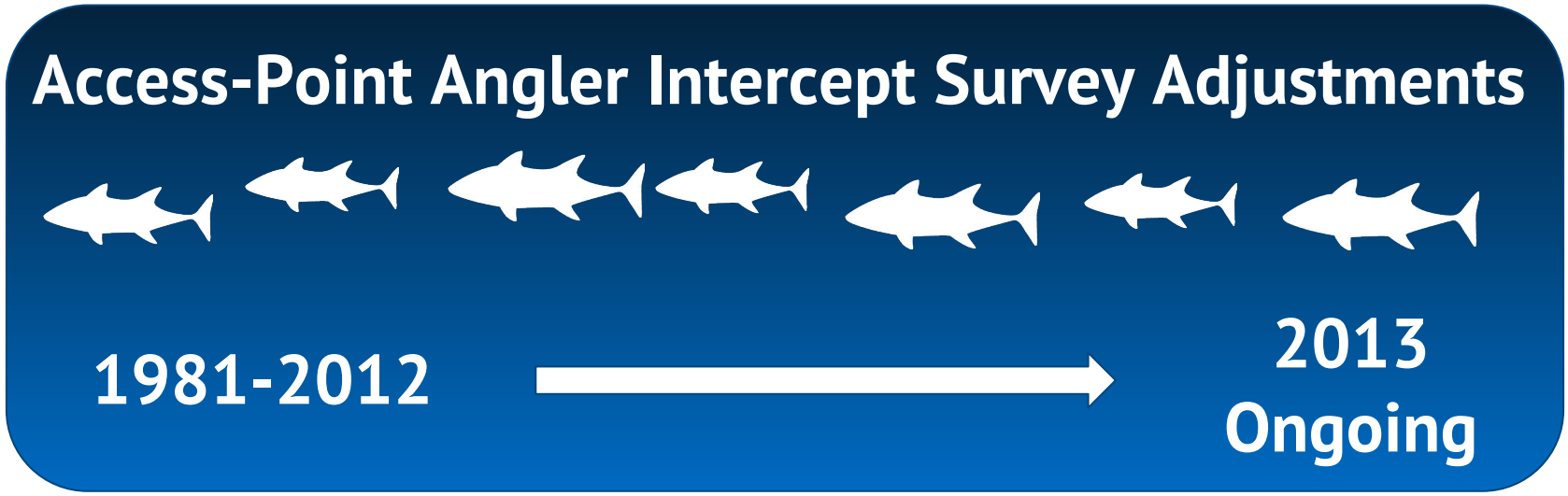
APAIS Calibration Model

- Developed with independent consultants.
- Peer review workshop March 20-22, 2018.
- Accounts for survey design improvements implemented in 2013.

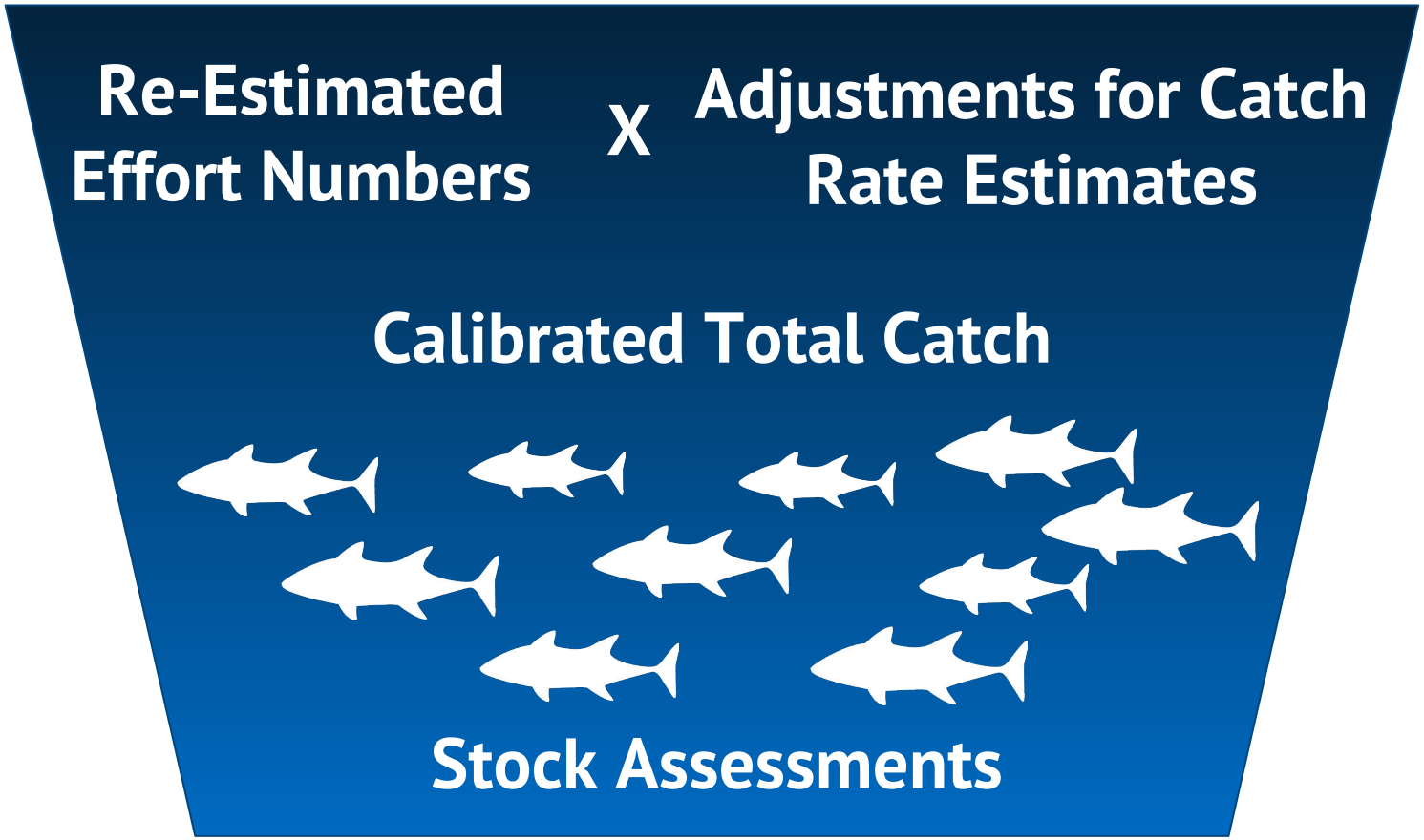


APAIS Calibration Model Peer Review

- March 20-22 workshop held in Silver Spring, MD.
- Review Panel:
  - Chair: Mike Murphy (FWC, retired)
  - 3 CIE Reviewers:
    - John Whitehead (Appalachian State Univ.)
    - Jim Chromy (RTI International, retired)
    - Mary Christman (MCC Statistical Consulting, LLC)
  - 3 Non-CIE Reviewers:
    - Paul Rago (MAFMC SSC)
    - Caroline Belcher (SAFMC SSC)
    - Matt Cieri (NEFMC SSC)
- Workshop was accessible by webinar and fully recorded.
  - Recordings and materials will be available on MRIP website.

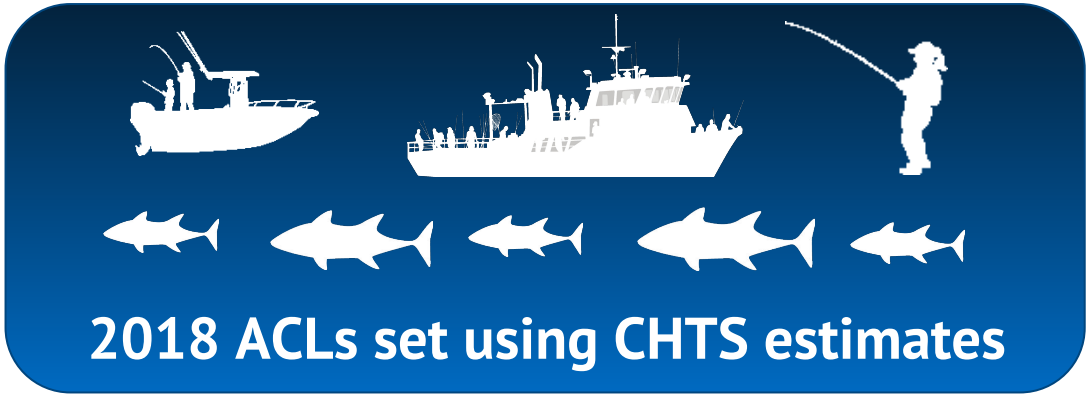
Re-Estimation

- Will be completed July 1, 2018.



FES and Recreational Fishing

2018 Annual Catch Limits



FES ⟷ CHTS

Calibration model converts both directions

What's Next

2018

- Revised total effort and total catch estimates available July 1 for use in planned stock assessments.

2019

- Preliminary management changes may be made for re-assessed stocks.
- Calibrated statistics incorporated into additional stock assessments.

2020

- Based on new stock assessments, management changes could occur for a number of species.

Communications and Outreach

Collaborative approach

- Ensure partners, data users, and other stakeholders are **fully informed** and **engaged in** the transition to the FES.

Who we're reaching

- Councils and commissions.
- Recreational fishermen.
- Commercial fishermen.
- NGOs.

How we're reaching them

- Presentations and webinars.
- New council member training.
- MREP and IFISSH.
- Saltwater fishing shows.
- Web content.
- Fact sheets and handouts.
- Recreational fishing summit.
- Spring and summer road show.

NOAA FISHERIES

What have you heard?

What do you need?