ACCSP For-Hire Logbook Methodology and Technical Review

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Our vision is to be the principal source of fisheries-dependent information on the Atlantic coast through the cooperation of all program partners.

ACCSP For-hire Methodology & Technical Review: Status Update

- Feb, 2023: Submission for MRIP certification
  - See PDF Attachment
- Jun, 2023: MRIP & Consultant review with ACCSP Chairs
- Oct, 2023: Consultant review report
- Jan, 2024: ACCSP Chairs, MRIP & Consultant update
- Mar, 2024: RecTech Meeting, design updates
- **TBD, 2024: Data analyses & design updates**
- **TBD: Resubmission for MRIP certification review**

For-hire Methodology & Technical Review:

- Why ACCSP design?
- Goals / Overview
- MRIP Certification Process
- Historical Perspective
- For-hire logbook design highlights
- Technical review status
- Next steps

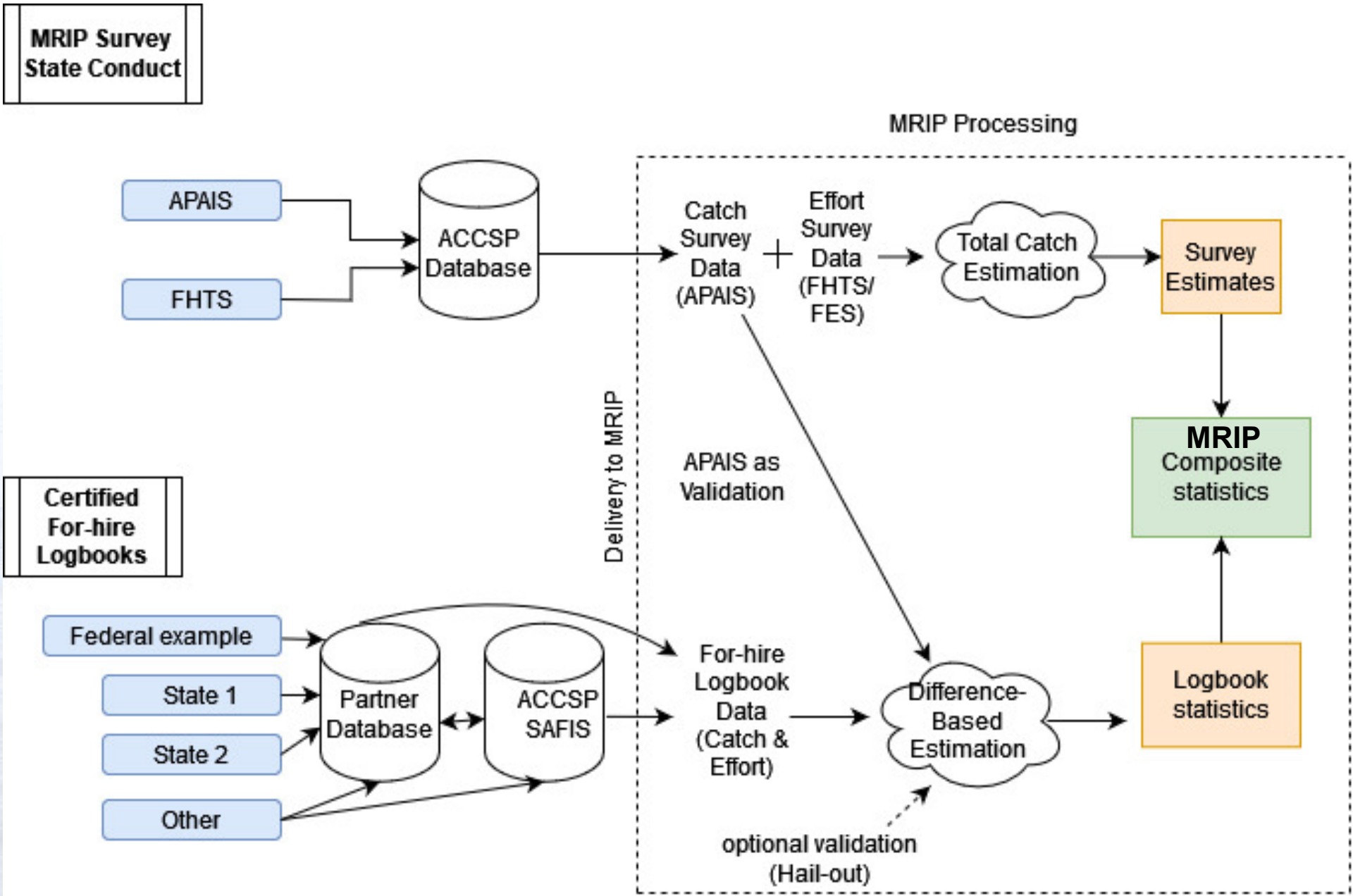
Why ACCSP Design?

- Inclusive development across state and federal agencies
- Allow for variable implementation dates by program
- Standardize base design for regional compatibility
- Allow for optional extensions by program
- Adaptation of MRIP General Survey

For-hire Methodology & Technical Review: Goals and Objectives

- More fully utilize For-hire logbooks in MRIP catch statistics
- Maintain compatible designs
  - Include vessels within a state with different reporting requirements
  - Compatible catch statistics for neighboring states
- Design program for Certification **ONCE**
  - Allow flexibility for phased implementation as logbook programs adopt MRIP certified design requirements

Integrated Design with APAIS & FHS



MRIP Design Certification

Why needed:

MSA National Standard 2 requirements for best available scientific information
Information Quality Act – ensuring quality, objectivity, utility, and integrity of disseminated information

What can be certified:

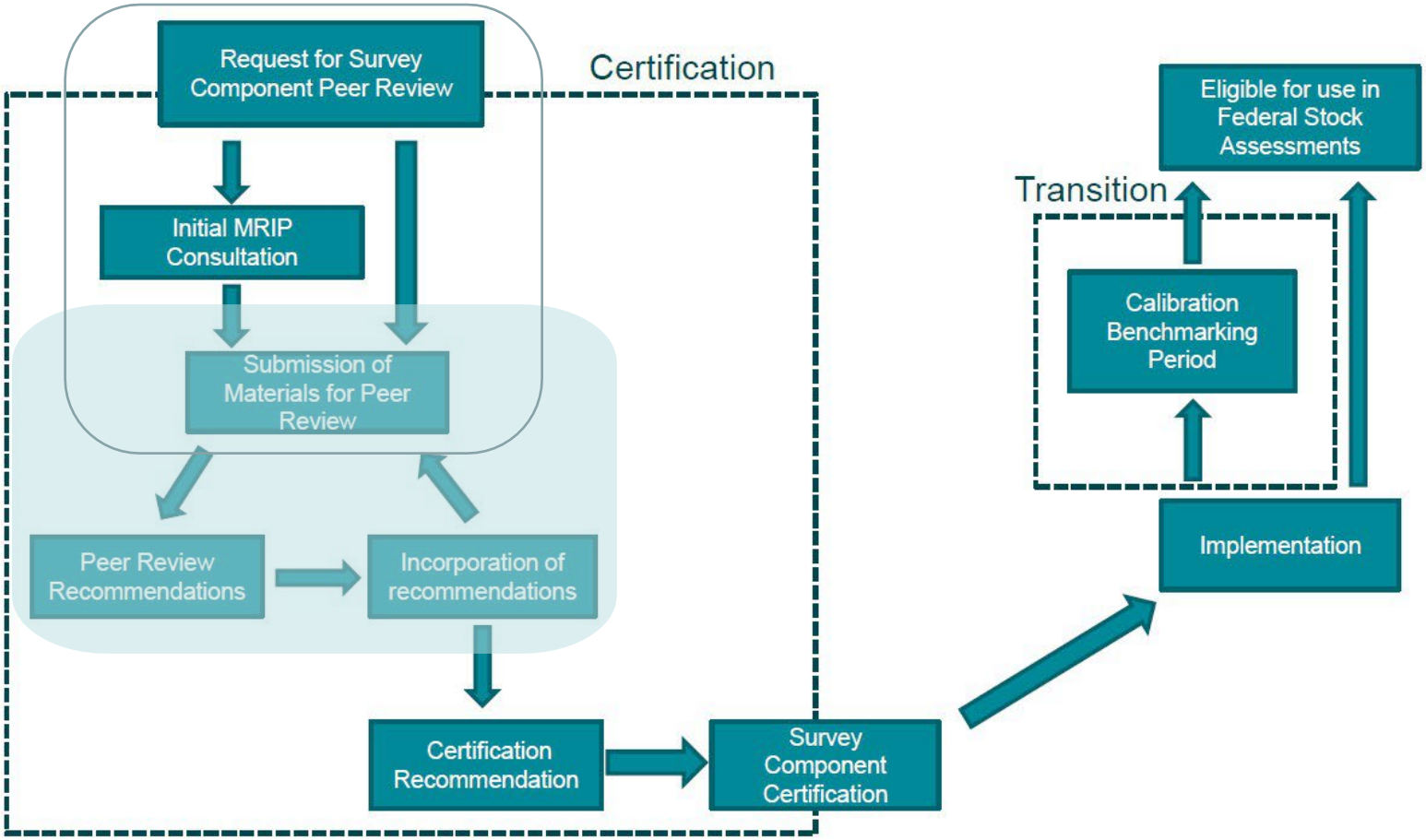
New or replacement survey and estimation designs / methods
Modifications or recommended improvements to existing methods

Reference:

https://www.fisheries.noaa.gov/recreational-fishing-data/transitioning-new-recreational-fishing-survey-designs#certification

Status: June 2024

Certification Process



FH logbook methods: Historical Perspective

- 2016 SC pilot test of logbooks with APAIS as dockside components:
  - Suggested move from paper to electronic
  - Novel matching of logbooks to dockside
  - Resulted in higher estimates with tighter PSEs when logbooks combined with APAIS
  - Results apply broadly to Atlantic States
    - APAIS sampling waves 2-6, fishing effort peak W3-5
    - Mid-size state scalable to large states
  - SC FH logbooks since 1993
  - States without logbooks require compatible data collection

FH logbook methods: Historical Perspective

- 2019 APAIS transition to tablet data collection
  - Direct linkage of For-hire vessel identifiers allowed for trip matching application to GARFO VTR data set
- 2019-2023
  - Modern Fish Act increased APAIS site assignments
    - $900k/year (~30% increase, ~2,100 assignments)
    - Allocation by length of season & species diversity
  - ACCSP Recreational Technical Committee (RTC) developed design to balance statistical rigor with impacts to fishing industry and agency staff
- 2023 ACCSP submitted documentation to MRIP

Current For-hire Logbook Programs:

- **GARFO Vessel Trip Reporting For-Hire Logbooks**
- **Maryland Charter Fisheries Logbook**
- Southeast For-hire Integrated Electronic Reporting (SEFHIER)
- Massachusetts
- Rhode Island
- New York
- South Carolina

Current programs do not match proposed design

Opportunity for consistent approach

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For-hire Logbooks: Core Design Vessel Frame

- Frame
  - Vessels with permits associated with certified design
- Method of separating between one of two frames based on NOAA MRIP Vessel Directory Permits:
  - List of for-hire vessels by state
  - Federal GARFO/HMS permits matched to vessels
  - Vessels are unique, identified as being eligible/active
  - Can be used to define:
    - Logbook frame for certified permits
    - Survey (current FHS/APAIS) for all others

For-hire Logbooks: Core Design Vessel Frame

- Frame Determination
  - Distinct vessels can only be a part of a single frame each two-month Wave
    - Eligibility can change each Wave (i.e., permit expires)
    - Intent to maximize coverage and participation
    - Potential for data or process lags (unknown scale)
  - Process to identify permits and update vessel information currently exists
    - Database connections for federal permits
    - State staff maintain VsD via online application

Vessel Frame Size – Wave 4 Charter

State	Active, Eligible Charter - Wave 4 Example			
	For-hire Vessels in VsD (Survey Frame)	For-hire Vessels in VsD w/ GARFO Permit	For-hire Vessels in VsD (Adjusted Survey Frame)	Percent Reduction
MAINE	149	20	129	13%
NEW HAMPSHIRE	60	18	42	30%
MASSACHUSETTS	899	130	769	14%
RHODE ISLAND	147	34	113	23%
CONNECTICUT	97	9	88	9%
NEW YORK	373	61	312	16%
NEW JERSEY	449	101	348	22%
DELAWARE	49	15	34	31%
MARYLAND	605	36	569	6%
VIRGINIA	181	37	144	20%
NORTH CAROLINA	1132	9	1123	1%
SOUTH CAROLINA	581	0	581	0%
GEORGIA	197	0	197	0%

- Note data based on GARFO permits
- SEFHIER permitted boats not included here

Vessel Frame Size – Wave 4 Headboat

State	Active, Eligible Headboat - Wave 4 Example			
	For-hire Vessels in VsD (Survey Frame)	For-hire Vessels in VsD w/ GARFO Permit	For-hire Vessels in VsD (Adjusted Survey Frame)	Percent Reduction
MAINE	7	3	4	43%
NEW HAMPSHIRE	9	8	1	89%
MASSACHUSETTS	39	14	25	36%
RHODE ISLAND	7	5	2	71%
CONNECTICUT	8	4	4	50%
NEW YORK	69	36	33	52%
NEW JERSEY	26	18	8	69%
DELAWARE	9	6	3	67%
MARYLAND	12	3	9	25%
VIRGINIA	6	3	3	50%
NORTH CAROLINA	22	0	22	0%
SOUTH CAROLINA	12	0	12	0%
GEORGIA	1	0	1	0%

For-hire Logbooks: Core Design Components

- Trip Logbook Timing
  - Start logbook before trip
  - Device records trip start/stop times
  - Completion time before offload
  - Submission time (send trip report via internet)
    - 48-hours after end of fishing week (initially)
- Observational independence
  - Timing intended to assure completion of logbooks before potential dockside interviews

For-hire Logbooks: Core Design Components

- Vessels in logbook frame have every for-hire trip recorded
- Electronic data collection only
  - Paper forms allowed as on vessel back-up (must submit electronically as soon as technical issues resolved)
- Data collected via dynamic interface (e.g., application-based on electronic device)
- Quality Assurance
  - Logical flow to questions, only present what's required
  - Time stamps not editable by user
  - Data cannot be edited once submitted

For-hire Logbooks: Core Design Components

- Did Not Fish (DNF) reports required
  - Avoid assumption of inactivity
  - Maintains signed record to evaluate compliance
- Reporting Compliance
  - Accountability for missed reports + non-compliance
    - Measured monthly
    - 75% compliance rate with accounting for non-reporting
  - Non-compliance
    - After three consecutive Waves of noncompliance → access to permit next year restricted

For-hire Logbooks: Core Design Components

- Quality Control
  - At-entry and submission data checks provide instant feedback upon transmission to partner database
  - Data checked via standardized, automated post-processing
    - Error/outlier programs and/or analyses
  - Data reviewable and actionable edits possible
    - Actions taken recorded and stored
  - Errors, edits and non-response communicated to data collector

For-hire Logbooks: Optional Design

- Hail-outs (vessel declarations)
  - Help with compliance when combined with DNF reports
  - Help if/when enforcement intercept a vessel mid-trip

  - Unknown balance of impact to operations vs benefit to ACCSP, Agency Partners, technical review

Dockside Survey: APAIS Design

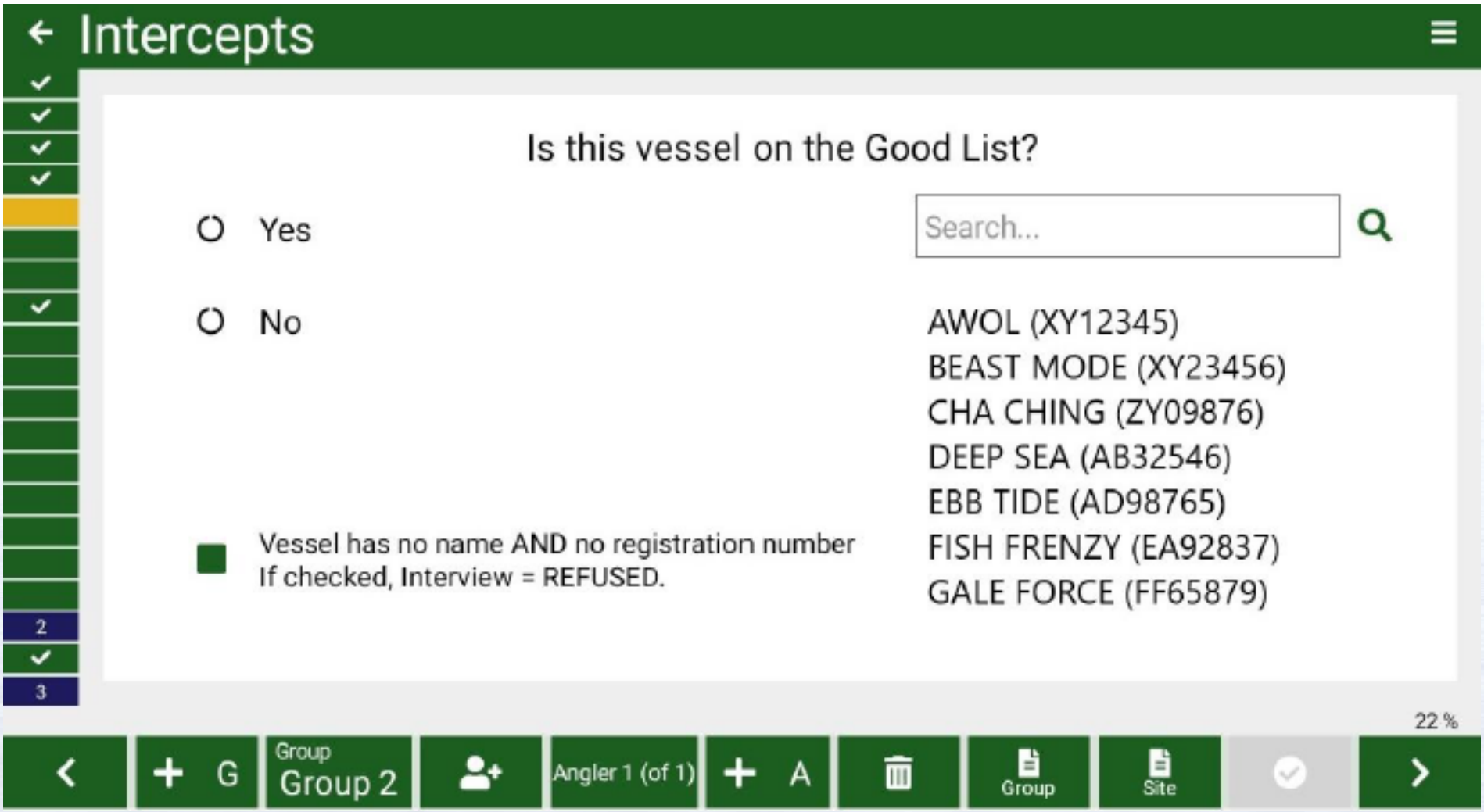
- Dockside survey of anglers
- Wave-level estimates
- State Staff Collects
  - Trip specifics (date, time, location, for-hire vessel information)
  - Effort (number of anglers, hours fished, gear)
  - Catch (harvested and discarded catch)

- Design changes – none identified

Dockside Survey: APAIS Design

- Conducted via tablet-based application
  - Automatically collects:
    - Date/time/GPS stamps of each interview
  - For-hire vessel information selected from link to current NOAA Vessel Directory database

Dockside Survey: APAIS Design



For-hire Logbooks: Dockside Intercepts

- Logbook information (e.g., date, start/stop times, etc.) validated via:
  - Independent dockside observations
    - Trip effort and catch
  - Used for:
    - Estimation process for matched trips with consistent effort and catch
    - Estimation of matched trips with differences in effort and catch (mis-reporting)
    - Estimation process to adjust difference in trips missing logbook reports (non-reporting)

Proposed Methodology of For-hire Logbook Catch & Effort Statistics: Trip Matching

- Improvements to APAIS and existing GARFO eVTR programs = better direct matching rate
  - Electronic data collection
  - Uses each state-wave vessel list to select vessel
  - Records name, state registration OR Coast guard num
  - Match by vessel, date, and location

Source Data for Matching

- 2019-2022 APAIS and federal (GARFO) VTR data
- Raw number of For-hire boat trips

	2019		2020		2021		2022	
State	VTR	APAIS	VTR	APAIS	VTR	APAIS	VTR	APAIS
ME	878	52	525	27	565	52	392	61
NH	1,154	123	1008	71	1396	129	1407	118
MA	2,521	341	2,322	248	2,343	248	2,431	248
RI	1,738	240	2,050	231	1,841	317	1,951	361
CT	1117	103	797	38	692	129	851	129
NY	6,714	282	5,771	221	6,060	304	5,567	253
NJ	6,752	225	6,050	53	6,273	244	6,811	314
DE	944	83	627	70	764	118	973	65
MD	717	279	548	149	707	344	790	178
VA	930	145	932	34	848	133	887	63
Total	23,465	1,873	20,630	1,142	21,489	2,018	22,060	1,790

Examples of boat trip Matching Rates

% VTR trips matching APAIS for-hire trips

State	2019	2020	2021	2022
ME	1.5%	0.4%	1.4%	0.3%
NH	5.1%	3.3%	5.4%	7.3%
MA	2.9%	2.5%	2.2%	1.4%
RI	7.7%	6.8%	8.9%	9.1%
CT	3.8%	1.0%	4.0%	4.8%
NY	1.9%	1.6%	2.2%	2.7%
NJ	1.5%	0.2%	1.3%	1.9%
DE	3.7%	2.4%	2.5%	3.6%
MD	3.2%	0.5%	1.7%	1.3%
VA	6.2%	0.5%	2.6%	1.8%
Average	3.8%	1.9%	3.2%	3.4%

% APAIS for-hire trips matching VTR trips

State	2019	2020	2021	2022
ME	25.0%	7.4%	15.4%	1.6%
NH	48.0%	46.5%	58.1%	87.3%
MA	21.1%	23.0%	21.0%	13.7%
RI	55.8%	60.6%	51.4%	49.0%
CT	40.8%	21.1%	21.7%	31.8%
NY	45.7%	41.2%	43.8%	58.5%
NJ	45.8%	18.9%	33.6%	40.8%
DE	42.2%	21.4%	16.1%	53.8%
MD	8.2%	2.0%	3.5%	5.6%
VA	40.0%	14.7%	16.5%	25.4%
Average	37.3%	25.7%	28.1%	36.8%

Distinct Interview Use

- Each APAIS interview would be used ONCE, as either the:
  - MRIP general survey frame with FHTS effort

  OR
  - Logbook catch estimation frame

- ~30% reduction in FHS data from ME-VA for MRIP sampling months, by state

Logbook Catch/Effort Estimation Methodology

- Both effort and catch recorded from logbooks
  - Portion validated via dockside intercept to compare logbook data to intercepted trips and catch
  - Trips with both logbooks and dockside intercepts are integral to catch estimate for logbook frame
- Difference-based estimation (Breidt et al. 2017) preferred to ratio-based capture-recapture methodology
  - Less sensitive to small sample sizes
  - Preserved additivity across domains
    - Logbook estimates for all waves sum to annual total
    - Combined estimates = logbooks + surveys

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Terms of Reference: MRIP Certification

1. Survey design components must follow a formal probability sampling protocol with known inclusion probabilities at all stages and/or phases of sampling
2. Estimation methods appropriately weight the sample data to account for the sampling design and produce design-unbiased point estimates and variance estimates
3. Appropriate methods are in place to measure and/or correct for potential biases due to under-coverage, nonresponse, or response errors

Terms of Reference: MRIP Certification

4. Sensitivity of the accuracy of the survey to assumptions made about segments of the target population that are not covered by the survey frame is fully understood, and measures to reduce or limit that sensitivity are described

5. Sensitivity of the accuracy of the survey to other potential sources of non-sampling error is fully understood, and measures to reduce or limit that sensitivity are described

6. The sensitivity of the survey design to potential errors in implementation is documented and measures to evaluate, reduce or limit that sensitivity are described

For-hire Methodology Technical Review: Consultants Response

- ✓ Follows probability sampling design
- ✓ APAIS used for estimation AND validation
- ✓ Estimators appropriately weight sample data
- ✓ Estimators allow proper estimation of variance
- ✓ No new accuracy concerns beyond APAIS/FHTS
- ✓ Limited ability to measure and evaluate bias and non-sampling error at this time
- ✓ Many components same or similar to other certified MRIP designs

For-hire Methodology Technical Review: Action Items & next steps

- Did Not Fish (DNF) Reports

  RTC: Include as required
- Declarations (Hail-outs)

  RTC: Do not require, include as optional
- Vessel Frames (Logbook or Effort survey)

  RTC: Identify categories of vessels moving frames
- Use of APAIS as required estimation component

  RTC: Clarify tasks for data analysis (likely via contractor)
- Sampling months for APAIS and FHTS

  RTC: Considering addition of W1 (FHTS, APAIS)


why
when
who
where
what
why
QUESTIONS
how
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