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Marine  
Recreational  
Information  
Program

# MRIP Data User Seminar: FES Queries and Custom Domain Analyses

Rob Andrews  
June 21, 2022

# Overview

- FES Design Overview
- FES Queries
- FES Public-Use Data
- FES Custom Queries

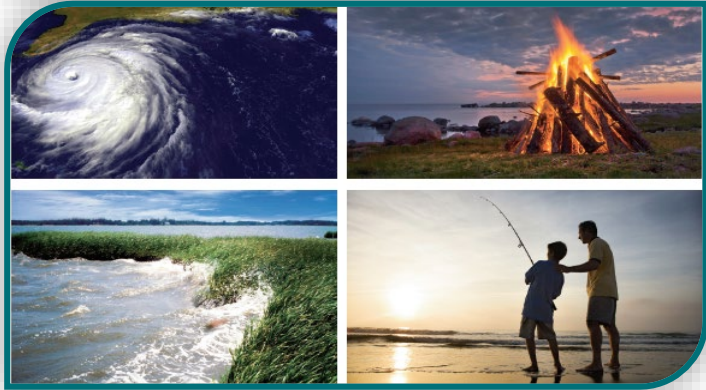


# FES Design



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# FES Overview

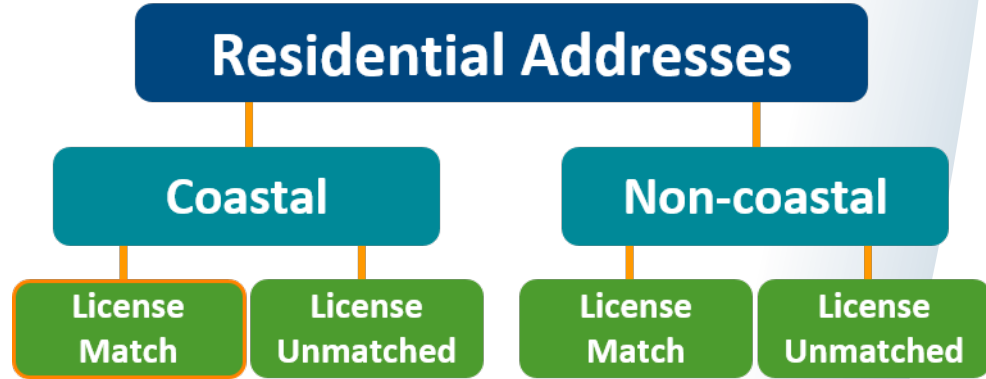


- **Self-administered household mail survey** that includes household and individual person-level questions
- Sample frame: a comprehensive directory of **residential addresses verified and updated by USPS**
- Used to estimate in-state **private boat and shore mode** effort estimates for **resident anglers (2018-present)**



# FES Design: Stratification & Sample Selection

- Time
  - 6 2-Month Waves
- Space
  - State
  - Sub-state regions  
(Coastal, Non-Coastal)
- State Saltwater Fishing License Match Status
- Samples selected using equal selection probabilities within strata



# FES Design: Data Collection

- Mailings administered near the end of each 2-month wave
- Generally follows [Dillman Approach for Mail Surveys](#)



# FES Sample Weighting

- Household Sample Base Weight
- Non-response adjustment
- Ratio adjustments
  - Demographic Control Totals from U.S. Census Bureau
  - Raking Ratio, Post-stratification
- Weight trimming

$$w_B = 1 / \pi_{psu} = N_h / n_h$$

$$w_{BR} = w_B / \text{response rate}_R$$

$$w_{BRP} = w_{BR} * \frac{C}{\hat{C}}$$

$$w_{BRPT} = w_{BRP} * \text{trimming factor}$$



# FES Effort Estimation

- Estimate effort as weighted sum of trips reported by sampled households
- Estimates are produced by wave, state and fishing mode (SH and PR)
- Estimates are for **resident** angler trips

$$\hat{T} = \sum w_{BRPT} t_i$$



# FES Resource Links

- [Survey Design and Statistical Methods](#)
  - FES Section 3
- [Annual Report](#)
- [Outreach Information](#)

<p>Age in years [ ] [ ]</p> <p>Are you of Hispanic, Latino, or Spanish origin? <input type="checkbox"/> Yes, of Hispanic origin <input type="checkbox"/> No, not of Hispanic origin</p> <p>14 What is your race? Mark one or more boxes. <input type="checkbox"/> White <input type="checkbox"/> Black, African-American <input type="checkbox"/> Asian <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Native Hawaiian or other Pacific Islander</p> <p>Please think only about recreational <u>saltwater</u> fishing in <u>Maryland</u>.</p> <p>15 How many days did you go recreational <u>saltwater</u> fishing from the SHORE in <u>Maryland</u>? <i>The shore includes docks, bridges, causeways, beaches, banks, or any other shore-based place or area. Do not include freshwater fishing.</i> <input type="checkbox"/> Did not recreational saltwater fish from shore in last 12 months → <b>Go to question 16</b> Number of days saltwater shore fishing in January and February of 2018 [ ] [ ] Number of days saltwater shore fishing in last 12 months, including January and February [ ] [ ] [ ]</p> <p>16 How many days did you go recreational <u>saltwater</u> fishing from a private or rental BOAT that returned to shore in <u>Maryland</u>? <i>Do not include freshwater trips or trips where a paid captain or crew helped locate and catch fish.</i> <input type="checkbox"/> Did not recreational saltwater fish from private boat in last 12 months Number of days saltwater boat fishing in January and February of</p>	<p>Age in years [ ] [ ]</p> <p>15 Is this person of Hispanic, Latino, or Spanish origin? <input type="checkbox"/> Yes, of Hispanic origin <input type="checkbox"/> No, not of Hispanic origin</p> <p>14 What is this person's race? Mark one or more boxes. <input type="checkbox"/> White <input type="checkbox"/> Black, African-American <input type="checkbox"/> Asian <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Native Hawaiian or other Pacific Islander</p> <p>Please think only about recreational <u>saltwater</u> fishing in <u>Maryland</u>.</p> <p>15 How many days did this person go recreational <u>saltwater</u> fishing from the SHORE in <u>Maryland</u>? <i>The shore includes docks, bridges, causeways, beaches, banks, or any other shore-based place or area. Do not include freshwater fishing.</i> <input type="checkbox"/> Did not recreational saltwater fish from shore in last 12 months → <b>Go to question 16</b> Number of days saltwater shore fishing in January and February of 2018 [ ] [ ] Number of days saltwater shore fishing in last 12 months, including January and February [ ] [ ] [ ]</p> <p>16 How many days did this person go recreational <u>saltwater</u> fishing from a private or rental BOAT that returned to shore in <u>Maryland</u>? <i>Do not include freshwater trips or trips where a paid captain or crew helped locate and catch fish.</i> <input type="checkbox"/> Did not recreational saltwater fish from private boat in last 12 months Number of days saltwater boat fishing in January and February of</p>	<p>Age in years [ ] [ ]</p> <p>15 Is this person of Hispanic, Latino, or Spanish origin? <input type="checkbox"/> Yes, of Hispanic origin <input type="checkbox"/> No, not of Hispanic origin</p> <p>14 What is this person's race? Mark one or more boxes. <input type="checkbox"/> White <input type="checkbox"/> Black, African-American <input type="checkbox"/> Asian <input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Native Hawaiian or other Pacific Islander</p> <p>Please think only about recreational <u>saltwater</u> fishing in <u>Maryland</u>.</p> <p>15 How many days did this person go recreational <u>saltwater</u> fishing from the SHORE in <u>Maryland</u>? <i>The shore includes docks, bridges, causeways, beaches, banks, or any other shore-based place or area. Do not include freshwater fishing.</i> <input type="checkbox"/> Did not recreational saltwater fish from shore in last 12 months → <b>Go to question 16</b> Number of days saltwater shore fishing in January and February of 2018 [ ] [ ] Number of days saltwater shore fishing in last 12 months, including January and February [ ] [ ] [ ]</p> <p>16 How many days did this person go recreational <u>saltwater</u> fishing from a private or rental BOAT that returned to shore in <u>Maryland</u>? <i>Do not include freshwater trips or trips where a paid captain or crew helped locate and catch fish.</i> <input type="checkbox"/> Did not recreational saltwater fish from private boat in last 12 months Number of days saltwater boat fishing in January and February of</p>
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# FES Queries



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# Recreational Fisheries Statistics Queries

## Guidance for Data Users

Fisheries analysts and stock assessors are encouraged to download the [MRIP Data User Handbook](#) for detailed information about downloading, exporting, querying, and performing custom analyses of our recreational fishing data. In addition, the **2021-2022 MRIP Data User Seminar Series** addresses best practices for accessing, analyzing, and using recreational fishing data. Register for and/or watch recordings of these training sessions using the links below:

- [Introduction to MRIP Data](#) (Oct. 26, 2021)
- [Statistical Methods and Procedures](#) (Nov. 30, 2021)
- [MRIP Query Tool](#) (Jan. 25, 2022)
- [Custom Domain Analyses](#) (Part One: Feb. 22, 2022) (Part Two: March 31, 2022)
- [FES Queries and Custom Domain Analyses](#) (June 21, 2022)
- [Using Large Pelagics Survey Data](#) (Date and Event Link TBD)

## Recent Updates

Your Feedback

For a full list of updates, please see our [Estimate Updates](#) page.

### Catch Data

Select a Catch Query ▾

Goto Query

### Effort Data

Select an Effort Query ▾

- Select an Effort Query Time Series
- Preview of Data Standards Directed Trip
- FES Distributions**
- Calibration Comparisons
- MRFSS/MRIP Comparisons
- LPS Time Series

Goto Query

### National Summary Query

Goto Query



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# Query Examples



# Public-use Datasets



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# Resource Links

- [MRIP Data Downloads](#)
- [Data User Handbook](#)
- [Survey Datasets \(SAS, CSV\)](#): Trip, catch, size, household and person
- [Read Me for Datasets and Template Programs \(.DOC\)](#)
- [Dataset Variables \(Data Dictionary\) \(.XLS\)](#)



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# Key Fields for Estimation

- Sample Design
  - stratum\_ID, HH\_ID, person\_ID
  - final\_wt
- Estimation Domain Definition
  - User-selected (e.g., year, st, wave, demographic fields)
- Estimate Variables (survey measures)
  - User-selected (e.g., boat\_trips, shore\_trips, demographic variables)



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# Household Datasets

- Household demographic characteristics and measures of household shore and boat fishing
- One record for each responding household (HH\_ID unique identifier)
- Design fields: year, wave, st, stratum\_ID
- Weighting fields: household tenure, type of phone service, # household members
- Responses to “warm up questions” (salt\_fish, fresh\_fish, beach\_flag, etc.)
- Number of household shore and boat trips during wave
- Final survey weight - average of shore and boat weights



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# Final Weight (Example)

- Shore trips
  - Trips = 10
  - Shore weight = 200
  - Weighted trips =  $200 * 10 = 2,000$
  
- Boat trips
  - Trips=5
  - Boat weight = 180
  - Weighted trips = 900
  
- Average weight =  $(200 + 180) / 2 = 190$
- Adjusted shore trips =  $2,000 / 190 = 10.53$
- Adjusted boat trips =  $900 / 190 = 4.73$



# Person Datasets

- Individual household member demographic characteristics and shore and boat fishing measures
- One record for each household member (person\_ID unique identifier)
- Design fields: year, wave, st, stratum\_ID, HH\_ID
- Demographic characteristics: age, gender, race/ethnicity
- Number of shore and boat trips during wave
- Final survey weight - average of shore and boat weights



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# FES Effort Estimation

- Estimate effort as weighted sum of trips reported by sampled households
- Estimation Domains
  - State
  - Year, 2-month Wave (Jan/Feb, Mar/Apr,...)
  - Phone status, age, gender, etc...
- State resident in-state fishing effort - estimates will be different from “standard” effort queries
  - Include APAIS adjustment to account for non-resident effort

$$\hat{T} = \sum w_{BRPT} t_i$$

# Template Program



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# Resource Links

- [Template Programs](#)
- [Read Me for Datasets and Template Programs \(.DOC\)](#)
- [Applied Survey Data Analysis](#)



# Examples

- SAS
  - Custom geographic domains
  - Custom demographic domains



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# Domain Estimation Considerations

- [Data User Handbook](#): Section 5.1 General Guidance: Consideration for Domain Analysis
- Domains are not limited to survey design strata
- Available data generally won't support very small temporal or spatial domains
  - Data gaps and small sample sizes
  - No magic number for sample size, more is always better
- Always check precision of estimates (CV, PSE)
  - If estimates are imprecise (e.g.,  $PSE > 50$  or  $CV > 0.5$ ) consider collapsing or broadening domain definitions



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