



# Fishing Effort Survey 2019 Annual Report

## **Acknowledgments**

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## 1. Design Overview

Administered by the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration, United States Department of Commerce, the Fishing Effort Survey (FES) is a cross-sectional, self-administered mail survey used to estimate recreational saltwater fishing prevalence and effort in coastal states along the Atlantic coast, Gulf of Mexico and Hawaii. The FES utilizes an “engaging” approach designed to encourage participation of anglers and non-anglers by broadening the scope of inquiries to include both fishing and non-fishing questions. Household-level priming questions ask respondents about different types of outdoor activities and household characteristics while person-level questions, collected for up to five household members, obtain information about individual demographic characteristics and recreational saltwater shore and private boat fishing effort during the previous two and 12 months (Appendix A). In 2019, the FES was administered in 16 states along the Atlantic Coast and Gulf of Mexico, as well as Hawaii (Table 1). The survey is administered for six, independent two-month reference waves beginning with wave 1 (January/February) and ending with wave 6 (November/December).

## 2. Sampling Methodology

Recreational saltwater fishing data are collected for all household members. Consequently, each household receiving a survey represents a sampling unit. The FES utilizes address-based samples (ABS) within coastal states to collect information about recent recreational saltwater fishing activity. The sample frame is derived from the USPS Computerized Delivery Sequence File (CDS) and includes all full-time (non-seasonal), residential addresses, with the exceptions of group quarters and PO boxes that are not flagged as the only way to get mail. Within each coastal state, sampling is stratified by sub-state region, which is defined by geographic proximity to the coast. Generally, counties with borders that are within 25 miles of the coast are in the “coastal” stratum and all other counties are in the “non-coastal” stratum. Rhode Island, Connecticut, Delaware, Florida and Hawaii are not geographically stratified due to relatively consistent fishing rates among counties. The designation of coastal counties in North Carolina, South Carolina, Georgia, Alabama, and Mississippi changes throughout the year to reflect seasonal changes in fishing activity. Coastal county designation by state and wave for 2019 are provided in Appendix B.

Because angling households represent a relatively rare component of the general population, the ABS frame is supplemented by matching addresses on the CDS to lists of licensed saltwater anglers in each state. State license lists are derived from the National Saltwater Angler Registry (NSAR) and include all anglers licensed to participate in saltwater fishing in the study area between the beginning of each wave and the time the lists are compiled, approximately one month prior to the end of the wave. Augmenting the ABS sample frame with fishing license information creates additional strata (license matched and unmatched) and allows households with and without licensed anglers to be sampled at different rates.

The sample size for each state and wave is targeted to produce estimates of fishing effort with coefficients of variation of 0.20. Within each state, stratum sample sizes are initially determined using the Neyman allocation approach (e.g. Wright 2014) where the sample is distributed among strata in proportion to the product of the population size and the standard

deviation. The goal of Neyman allocation is to maximize the precision of estimates for a fixed sample size. Standard deviations are based upon historical FES data and estimates. Following the initial allocation, base weights are reviewed, and sample may be manually re-distributed among strata to reduce extreme weights. Sample may also be re-distributed to maximize the probability of detecting fishing activity. Table 1 provides final sample sizes by wave and state for the 2019 FES.

**Table 1. Sample size by state and wave during 2019**

State	Survey Wave						Total
	1	2	3	4	5	6	
AL	4,955	2,819	2,743	2,767	4,348	2,661	20,293
CT	.	10,097	3,222	1,384	2,144	4,630	21,477
DE	.	5,670	2,718	1,850	2,011	3,266	15,515
FL	1,152	2,879	2,984	2,419	2,848	2,330	14,612
GA	.	15,622	5,469	5,501	5,493	2,617	34,702
HI	1,800	1,800	1,800	1,800	1,800	1,800	10,800
ME	.	.	3,326	1,712	3,790	.	8,828
MD	.	7,103	2,575	1,876	3,198	3,773	18,525
MA	.	8,857	2,826	1,470	2,975	7,442	23,570
MS	3,503	3,445	3,064	1,873	3,989	3,412	19,286
NH	.	.	3,341	2,359	4,095	.	9,795
NJ	.	10,202	2,844	2,274	2,528	3,959	21,807
NY	.	10,982	4,898	3,616	3,657	5,229	28,382
NC	6,301	4,259	2,897	5,343	2,687	2,357	23,844
RI	.	5,786	1,837	1,622	3,163	5,128	17,536
SC	.	3,972	5,187	1,799	1,791	2,262	15,011
VA	.	6,428	4,060	2,401	4,511	3,346	20,746
<b>Total</b>	17,711	99,921	55,791	42,066	55,028	54,212	324,729

### 3. Data Collection

FES data collection begins with an initial survey mailing one week prior to the end of each reference wave to ensure survey materials are received as close to the end of the wave as possible. This initial mailing, delivered by regular, first class mail, includes a cover letter stating the purpose of the survey, a survey questionnaire, business reply envelope (BRE), and a \$2 prepaid cash incentive.

One week after the initial mailing, a follow-up, thank you and reminder postcard is delivered via regular first class mail to all sampled addresses.

Three weeks after the initial survey mailing, a final mailing is delivered to all addresses that have not yet responded to the survey. The follow-up includes a nonresponse conversion letter, a second questionnaire, and a pre-paid return envelope. As with prior mailings, the follow-up is delivered via first class mail. All FES supporting materials are available in Appendix C.

Data collection for each reference wave is terminated thirteen weeks after the initial survey mailing. Questionnaires returned after thirteen weeks are scanned but are not committed to the final survey datasets. The complete data collection schedule for 2019 is provided in Table 2.

**Table 2. Data collection schedule for the 2019 FES**

Task/Event	Reference Period					
	Wave 1, 2019	Wave 2, 2019	Wave 3, 2019	Wave 4, 2019	Wave 5, 2019	Wave 6, 2019
Wave begins	1/1/2019	3/1/2019	5/1/2019	7/1/2019	9/1/2019	11/1/2019
Initial survey mailing	2/22/2019	4/24/2019	6/24/2019	8/26/2019	10/25/2019	12/26/2019
Wave ends	2/28/2019	4/30/2019	6/30/2019	8/31/2019	10/31/2019	12/31/2019
Postcard reminder mailing	3/1/2019	5/1/2019	7/1/2019	9/2/2019	11/1/2019	1/2/2020
Follow-up mailing	3/15/2019	5/15/2019	7/15/2019	9/16/2019	11/15/2019	1/16/2020
Preliminary wave data files	3/28/2019	5/28/2019	7/29/2019	9/30/2019	11/28/2019	1/28/2020
Final wave data files	5/28/2019	7/29/2019	9/30/2019	11/28/2019	1/28/2020	3/30/2020

## 4. Data Processing

During the 13 week data collection window, all surveys received by the FES data collection contractor are sorted by response status (e.g. complete, refusal) or return status designated by the Postal service (e.g. postal return with no new address, postal return with new address, type of undeliverable) and categorized by mailing. Return rates by state, sub-state region, and license match for each wave may be found in Appendix D.

Returned questionnaires are electronically scanned and, in the case of multiple returns by a household, only the first return is accepted to minimize recall bias. The total number of scanned pages is matched to the number of pages per survey to ensure no pages are missed, and the contrast and brightness is adjusted to provide a clear image. After scanned images are generated, a classification and optical character recognition (OCR) process converts the scanned images to an initial survey dataset. Several rounds of verification are then performed during which all open ended questions are manually entered.

Following verification, data are committed to a dataset, and PDFs of each survey are created. Preliminary data processing identifies missing responses, instances where a respondent marked more options than should have been marked, and recodes observations to inapplicable or missing based upon the number of reported household members relative to the number of individual person sections containing information. An initial survey disposition is assigned using a combination of standardized USPS codes, for undeliverable surveys and postal returns, and classifications of survey completeness.

Data from each reference wave are delivered to NOAA on two separate occasions as preliminary and final data sets. Preliminary data are delivered approximately four weeks after the end of the wave and include data received up to three weeks after the conclusion of the reference wave. Final data are delivered thirteen weeks after the end of the reference wave and include all data collected up to 12 weeks after completion of the wave. Preliminary data generally includes 70-80% of all returned surveys and is used to produce preliminary estimates of recreational saltwater fishing effort (Table 3). Upon delivery of final data, estimates are updated to minimize variance by including data captured over the entire 12 week sample collection.

**Table 3. Number and percentage of total surveys included in preliminary and final data by state during 2019.**

State	Prelim.		Final*	
	%	N	%	N
AL	74.09	4,716	25.91	1,649
CT	71.01	4,957	28.99	2,024
DE	72.81	3,779	27.19	1,411
FL	73.03	3,265	26.97	1,206
GA	69.64	6,522	30.36	2,843
HI	68.80	2,774	31.20	1,258
MA	69.66	5,294	30.34	2,306
MD	73.58	4,173	26.42	1,498
ME	79.74	2,589	20.26	658
MS	75.47	4,756	24.53	1,546
NC	76.63	6,165	23.37	1,880
NH	78.55	2,651	21.45	724
NJ	69.66	4,388	30.34	1,911
NY	67.06	4,749	32.94	2,333
RI	69.56	4,006	30.44	1,753
SC	78.32	4,105	21.68	1,136
VA	76.50	5,129	23.50	1,576
<b>Total</b>	72.76	74,018	27.24	27,712

\* Final data are additional surveys that were not yet received in the preliminary data

Following the data collection period for each wave, a check-in process verifies the presence and formatting of all variables, confirms responses are within acceptable ranges, and compares response distributions for each survey measure to historical data to identify large-scale inconsistencies relative to the time-series.

Once data validity is confirmed, item nonresponse (missing data) and illogical responses (extra data) are examined. Identifying missing (nonresponse) and extra (illogical) responses requires a determination of the expected number of individual residents within each household. This is achieved by comparing the reported number of household members to the count of individual household residents for whom information is provided. A person is enumerated if any effort question (Q15 and/or Q16) and at least one demographic question (Q11-Q14) are completed (Appendix A). Item response and illogical response are then placed into one of five categories:

- 1) Complete – household and person-level items are complete and consistent
- 2) Missing people – the count of responding persons is fewer than the reported number of household members
- 3) Extra people – the count of responding persons is greater than the reported number of household members
- 4) Extra information – the count of responding persons equals the reported number of household members, but there are demographic or effort responses present for at least one uncounted person
- 5) Missing household members – the number of reported household members is missing or zero

Surveys containing item nonresponse and illogical response are examined via an automated process which attempts to match the number of people responding to the number of reported household members. The automated process ranks individual person sections from complete to blank and, using imputation and automatic edits, additively retains the most complete to less complete people, while also removing extra information, until the sum of counted persons matches the number of reported household members or the number of household members is adjusted to match additional people that responded. This process maximizes the completeness of individual person sections within a survey while minimizing the number of edits. Any nonresponse or illogical response that cannot be resolved by automated processing is flagged for manual examination.

Imputation is the process of assigning values to missing data (item nonresponse). A common imputation in the FES results when an individual reports complete demographic information but fails to check the “did not fish” box and reports no value for shore or private boat effort. In this scenario, the count of people is often less than the number of reported household members, and it is assumed that effort questions were intentionally left blank because questions about fishing activity were not applicable to the respondent. As a result, zeros are imputed for missing effort which results in the correct number of people relative to the reported number of household members and reconciles item nonresponse.

Automatic edits work in reverse of imputation and serve to eliminate extra responses or adjust existing responses that are illogical. A common automatic edit occurs when all person sections (five) are completed regardless of the reported number of people in the household. The result is that the count of completed person sections exceeds the reported number of household members. Extra people are often identifiable as duplicates, containing the same age and gender as other household members. Any duplicate people greater than the number of reported

household members are automatically edited to inapplicable if their removal allows the number of people to equal the number of reported household members.

Once data are corrected for missing and illogical values, all surveys, including those previously flagged for manual review by automated processing, are examined via logic checks for contradictory, nonsensical, and unlikely/extreme values and flagged for manual review upon failure. During manual review changes may be made to the survey disposition, number of household members, demographic information, and saltwater fishing effort. Scanned images of surveys flagged for manual review are compared directly to coded data to ensure anomalous values are not the result of poor handwriting that resulted in scanning errors. Surveys flagged via logic checks for large amounts of reported effort or effort with contradictory information (e.g. checked the shore or boat did not fish box but reported non-zero effort) undergo a critical but conservative review.

Edits applied during automated or manual processing are documented through the creation of unique identifier variables. Original, unedited, values are also retained to maintain accountability and permit comparisons between edited and original values. Overall, 12.45% of eligible surveys returned during 2019 received some form of data edit. Edit rates across waves were consistently below 15% ranging from 11.37% to 13.69% (Table 4).

**Table 4. FES survey edit rates by wave during 2019**

Survey Wave	Not Edited		Data Edit	
	N	%	N	%
1	5,058	86.33	801	13.67
2	27,130	87.97	3,709	12.03
3	15,370	88.63	1,972	11.37
4	11,370	88.00	1,550	12.00
5	14,650	87.00	2,189	13.00
6	14,737	86.31	2,337	13.69
<b>Total</b>	<b>88,315</b>	<b>87.55</b>	<b>12,558</b>	<b>12.45</b>

Following automated and manual data processing, a final review of data is completed to identify surveys that are unlikely to be representative of other households within the stratum. Total two month saltwater shore and private boat effort within a household are examined relative to other households during each reference wave and relative to the time series to identify data that are non-representative. For example, a household may be identified as non-representative if it is hundreds of miles from the coast, does not contain a licensed angler, and reported dozens of saltwater private boat trips. The non-representative examination is based on expert review and assigned sparingly. A total of 112 households (0.09%) were identified as non-representative during 2019; rates were consistently low across waves ranging from 0.04% to 0.14% (Table 5). Survey weights for households deemed non-representative were adjusted to be self-representative (assigned a final weight of 1) and residual weights were re-distributed among other sampled addresses within the same stratum.

**Table 5. Non-representative surveys during 2019**

Survey Wave	Not Edited		Non-Representative	
	N	%	N	%
1	5,851	99.86	8	0.14
2	30,804	99.89	35	0.11
3	17,325	99.90	17	0.10
4	12,904	99.88	16	0.12
5	16,832	99.96	7	0.04
6	17,062	99.93	12	0.07
<b>Total</b>	100,778	99.91	95	0.09

## 5. Response Rates

After data processing, unit response rates were calculated using the American Association for Public Opinion Research (AAPOR) Response Rate 2 (RR2) calculation for unnamed mail surveys which excludes ineligible samples from the sample total. Response rates were calculated as

$$RR2 = \frac{(I + P)}{(I + P) + (R + NC + O) + (UH + UO)}$$

where I and P are the number of eligible interviews containing complete (I) and partially complete (P) surveys,  
R, NC, and O are the number of eligible non-interviews including refusals (R), non-contacts (NC), and Other (O) and,  
UH and UO are the number of unknown eligible surveys including housing occupancy (UH) or other unknowns (UO).

The overall, weighted, unit response rate during 2019 was 31.18% (Table 7). By wave, weighted response rates fluctuated slightly ranging from 29.60% during wave five to 33.03% during wave one (Table 6).

**Table 6. Weighted response rates by wave during 2019**

Survey Wave	Response		Unknown Eligibility		Other*		Total
	N	Weighted %	N	Weighted %	N	Weighted %	
1	5,853	33.03	10,315	66.44	69	0.53	16,237
2	30,818	31.98	62,482	67.65	297	0.37	93,597
3	17,323	31.33	34,403	68.35	151	0.32	51,877
4	12,908	30.40	26,534	69.21	150	0.39	39,592
5	16,825	29.60	34,400	70.10	136	0.30	51,361
6	17,056	31.30	33,612	68.40	175	0.31	50,843
<b>Total</b>	100,783	31.18	201,746	68.47	978	0.35	303,507

\* Includes nonresponse and removed surveys

Across states, weighted response rates varied substantially ranging from 26.51% in Georgia to 39.96% in Maine (Table 7).

**Table 7. Weighted response rates by state during 2019**

State	Response		Unknown Eligibility		Other*		Total
	N	Weighted %	N	Weighted %	N	Weighted %	
AL	6,315	31.24	12,106	68.44	52	0.33	18,473
CT	6,908	31.66	13,185	67.99	75	0.35	20,168
DE	5,150	34.48	9,497	65.24	41	0.28	14,688
FL	4,422	31.78	9,034	67.82	50	0.40	13,506
GA	9,282	26.51	22,738	73.25	85	0.24	32,105
HI	3,994	39.80	6,003	59.79	41	0.41	10,038
MA	7,522	32.68	14,731	66.93	79	0.39	22,332
MD	5,615	31.63	11,730	68.01	59	0.36	17,404
ME	3,228	39.96	4,876	59.83	19	0.21	8,123
MS	6,247	31.09	11,299	68.58	57	0.33	17,603
NC	7,975	33.40	14,118	66.31	71	0.29	22,164
NH	3,355	36.30	5,977	63.50	21	0.20	9,353
NJ	6,224	28.38	14,308	71.24	78	0.38	20,610
NY	6,984	28.01	19,867	71.62	99	0.37	26,950
RI	5,718	33.89	10,796	65.84	44	0.27	16,558
SC	5,201	33.93	8,604	65.78	40	0.29	13,845
VA	6,643	34.40	12,877	65.20	67	0.40	19,587
<b>Total</b>	100,783	31.18	201,746	68.47	978	0.35	303,507

\* Includes nonresponse and removed surveys

Item response rates are also evaluated to provide insight into the way respondents interpret individual questions. Unusually high nonresponse rates for individual questions (items) can help illuminate issues with question interpretation and content sensitivity. Item response rates during 2019 were high at over 93% for all household and person level questions (Table 8).

**Table 8. Response rates by question (item) during 2019**

Question	Response		Nonresponse		Multiple Response	
	N	%	N	%	N	%
<b>Weather</b>	100,651	99.87	132	0.13	.	0.00
<b>Evac</b>	100,456	99.68	319	0.32	8	0.01
<b>Warning</b>	99,563	98.79	1,140	1.13	80	0.08
<b>Beach Flag</b>	100,488	99.71	280	0.28	15	0.01
<b>Fresh Fish</b>	100,451	99.67	319	0.32	13	0.01
<b>Salt Fish</b>	100,464	99.68	298	0.30	21	0.02
<b>HH Phone</b>	98,701	97.93	485	0.48	1,597	1.58
<b>HH Description</b>	99,607	98.83	1,068	1.06	108	0.11
<b>HH Years</b>	100,163	99.38	610	0.61	10	0.01
<b>HH Members</b>	100,698	99.92	85	0.08	.	0.00
<b>Age</b>	231,506	94.92	12,395	5.08	.	0.00
<b>Gender</b>	234,570	96.17	9,121	3.74	210	0.09
<b>Origin</b>	229,435	94.07	14,414	5.91	52	0.02
<b>Race</b>	229,114	93.94	14,787	6.06	.	0.00
<b>Boat Trips</b>	228,354	93.63	15,547	6.37	.	0.00
<b>Shore Trip</b>	229,700	94.18	14,201	5.82	.	0.00
<b>Total</b>	2,383,921	96.47	85,201	3.45	2,114	0.09

## 6. Weighting

After data processing, sample weights for each survey are calculated in stages. In the first stage, base weights ( $w_i$ ) for each sampled address within a given stratum are calculated as the inverse of the inclusion probabilities

$$w_i = \frac{1}{\pi_i}$$

where  $\pi_i$  is the probability that unit  $i$  is included in the sample.

In the second stage, base weights are adjusted to compensate for unit nonresponse (e.g. when households fail to mail back the completed survey). The sample is partitioned into nonresponse adjustment cells, or weighting classes, by state, sub-state region (coastal or non-coastal), license match (matched or unmatched), and boat ownership registration (e.g. whether a

sampled address could be matched to state boater registration list). The base weights of the respondents in each adjustment cell ( $w_{ci,r}$ ) are then divided by the response rate for that cell ( $\hat{\phi}_c$ ) to calculate the adjusted weight ( $w_{ci}^*$ )

$$w_{ci}^* = \frac{w_{ci,r}}{\hat{\phi}_c}$$

where  $\hat{\phi}_c = \frac{\sum w_{ci,r}}{\sum w_{ci,r} + \sum w_{ci,nr}}$ ,

$\sum w_{ci,r}$  is the sum of the base weights of each respondent within adjustment cell  $c$ , and  $\sum w_{ci,nr}$  is the sum of the base weights of each nonrespondent within adjustment cell  $c$ .

During the third stage, nonresponse adjusted weights are post-stratified to account for incomplete coverage of the target population. Post-stratification is commonly used to make respondent data conform to target population totals from other sources independent from the survey (Brick and Kalton 1996). The most recent estimates of the number of residential households available from the American Community Survey (United States Census Bureau 2016) are used as population control totals. Nonresponse adjusted weights are post-stratified to household-level control totals within coastal and non-coastal strata (as defined at the time of sampling for each wave). The resulting post-stratified weight ( $w_{hi}^*$ ) of address  $i$  in stratum  $h$  is calculated as

$$w_{hi}^* = w_{ci}^* \left( \frac{H_h}{\hat{H}_h} \right)$$

where the adjustment factor is equal to the ratio of the control total ( $H_h$ , from the American Community Survey) to the estimated total based upon the sum of nonresponse adjusted weights ( $\hat{H}_h$ ).

Following these three weighting adjustments, a final weight trimming process is applied to mitigate the impacts of extreme values on the precision of survey estimates. Highly variable weights can result in large sampling variances, so it is often desirable to minimize the frequency and size of extreme weights. There is a tradeoff, however, between increasing precision and biasing estimates through weight trimming procedures. The Estimated Mean Square Error (MSE) Trimming procedure allows for evaluating various trimming levels to identify an optimal level that minimizes the estimated mean square error of an estimate (i.e. minimizes the sum of sampling variance and the square of the estimated bias, Potter 1990; Potter 1988). The MSE for various levels of trimming ( $\widehat{MSE}(\hat{T}_t)$ ) is estimated as

$$\widehat{MSE}(\hat{T}_t) = (\hat{T}_t - \hat{T})^2 - V(\hat{T}) + 2[V(\hat{T}_t)V(\hat{T})]^{1/2}$$

where  $\hat{T}$  is the effort estimate using untrimmed weights,  $\hat{T}_t$  is the effort estimate using trimmed weights, and  $V(\hat{T})$  and  $V(\hat{T}_t)$  are the estimated variance of  $\hat{T}$  and  $\hat{T}_t$  respectively.

The automated procedure is carried out by repeatedly reducing maximum weighted values by increments of 5% and redistributing excess weights among untrimmed sample cases. The  $\widehat{MSE}(\hat{T}_t)$  is estimated for each incremental adjustment until the minimum value is identified, indicating that the optimal level of trimming has been reached. Trimming is performed separately for each fishing mode resulting in two final survey weights, one for private boat fishing and one for shore fishing.

## 7. Estimates

After weights are finalized, total shore and private boat fishing effort by residents of coastal states are estimated as weighted sums. Correction factors to account for fishing effort by residents of non-coastal states are derived from the complementary Access Point Angler Intercept Survey (APAIS).

Upon completion of the review and estimation processes, estimates of recreational saltwater fishing effort are available, first for preliminary data and updated with final, within 45 days of the end of the reference wave. Current and prior year estimates can be found: <https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index>

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## **Appendix A. Questionnaire**

**HOUSEHOLD MEMBER 4**

- 11** What is this person's gender?  
 Male  
 Female
- 12** How old is this person?  
*If less than 1 year, mark 0 years*  
  Age in years
- 13** Is this person of Hispanic, Latino, or Spanish origin?  
 Yes, of Hispanic origin  
 No, not of Hispanic origin
- 14** What is this person's race? Mark one or more boxes.  
 White  
 Black, African-American  
 Asian  
 American Indian or Alaska Native  
 Native Hawaiian or other Pacific Islander

Please think only about recreational saltwater fishing in North Carolina.

- 15** How many days did this person go recreational saltwater fishing from the SHORE in North Carolina?

*The shore includes docks, bridges, causeways, beaches, banks, or any other shore-based place or area. Do not include freshwater fishing.*

- Did not recreational saltwater fish from shore in last 12 months → **Go to question 16**
- 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

- 16** How many days did this person go recreational saltwater fishing from a private or rental BOAT that returned to shore in North Carolina?

*Do not include freshwater trips or trips where a paid captain or crew helped locate and catch fish.*

- Did not recreational saltwater fish from private boat in last 12 months
- Number of days saltwater boat fishing in January and February of 2018
- Number of days saltwater boat fishing in last 12 months, including January and February

**If you have more people in your household, continue to Household Member 5. If you have answered for all people in your household, please return your survey.**

**HOUSEHOLD MEMBER 5**

- 11** What is this person's gender?  
 Male  
 Female
- 12** How old is this person?  
*If less than 1 year, mark 0 years*  
  Age in years
- 13** Is this person of Hispanic, Latino, or Spanish origin?  
 Yes, of Hispanic origin  
 No, not of Hispanic origin
- 14** What is this person's race? Mark one or more boxes.  
 White  
 Black, African-American  
 Asian  
 American Indian or Alaska Native  
 Native Hawaiian or other Pacific Islander

Please think only about recreational saltwater fishing in North Carolina.

- 15** How many days did this person go recreational saltwater fishing from the SHORE in North Carolina?

*The shore includes docks, bridges, causeways, beaches, banks, or any other shore-based place or area. Do not include freshwater fishing.*

- Did not recreational saltwater fish from shore in last 12 months → **Go to question 16**
- 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

- 16** How many days did this person go recreational saltwater fishing from a private or rental BOAT that returned to shore in North Carolina?

*Do not include freshwater trips or trips where a paid captain or crew helped locate and catch fish.*

- Did not recreational saltwater fish from private boat in last 12 months
- Number of days saltwater boat fishing in January and February of 2018
- Number of days saltwater boat fishing in last 12 months, including January and February

**Please return your survey in the enclosed postage-paid envelope.**  
 RTI International  
 5265 Capital Boulevard, Raleigh NC 27690-1652



99999923

# North Carolina

## Weather and Outdoor Activity Survey



Public reporting burden for this collection of information is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Rob Andrews, NOAA Fisheries Service, 1315 East-West Hwy., Silver Spring, MD 20910.

No personally identifiable information will be collected through this survey. Responses will only be associated with a unique, randomly assigned identification code. Any public release of survey data will be without identification as to its source or in aggregate statistical form. All survey data will be stored on secured, password protected servers, and all transfer of survey data will utilize secure file transfer protocols.



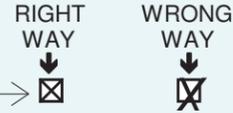
This survey should be filled out by an adult member of the household. Complete and return this form even if no one in your household participates in any of these activities.

↓ **START HERE**

Please carefully follow the steps below when completing this survey.

**Example**

- Use only a blue or black ink pen that does not blot the paper
- Make solid marks inside the response boxes
- Do not make other marks on the survey



**1** How do members of this household obtain information about the weather, including current weather conditions, forecasts, and warnings? Mark all that apply.

- Television
- Radio
- Newspaper
- Internet
- Other

**2** During the past 12 months, has anyone in this household had to evacuate or seek shelter due to a severe weather event, such as a tornado, hurricane, or thunderstorm?

- Yes
- No

**3** In your area, how often do the advanced warnings you get for severe weather events allow you enough time to prepare properly?

- All the Time
- Some of the time
- Rarely
- Never

**4** During the past 12 months, has anyone in this household visited a public beach, national seashore, coastal state park, or other coastal nature reserve or protected area?

- Yes
- No

**5** During the past 12 months, has anyone in this household been freshwater fishing in North Carolina?

- Yes
- No

**6** During the past 12 months, has anyone in this household been saltwater fishing in North Carolina?

- Yes
- No

**7** Which of the following best describes how your household receives telephone calls?

- All are received on cell phones
- Most are received on cell phones
- Some are received on cell phones and some on landline phones
- Most are received on landline phones
- All are received on landline phones
- No calls are received on cell phones or landline phones

**8** Which of the following best describes this house, apartment, or mobile home?

- Owned with a mortgage or loan
- Owned (without a mortgage)
- Rented
- Occupied without payment or rent

**9** How long have you lived at this address?

- 1 year or less
- Less than 5 years, more than 1 year
- 5 years or more

**10** How many people, including all adults and children, live in this household?

Number of people

**Please answer the next section for each member of your household, starting with yourself. Please answer for all people in your home, including people who fish and people who do not fish.**

**If you have more than 5 people living at this address, answer for the oldest members of the household.**

**Please use the calendars to help answer questions 15 and 16.**

January							February						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6				1	2	3	
7	8	9	10	11	12	13	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28			

**HOUSEHOLD MEMBER 1 (YOU)**

**11** What is your gender?

- Male
- Female

**12** How old are you?

*If less than 1 year, mark 0 years*

Age in years

**13** Are you of Hispanic, Latino, or Spanish origin?

- Yes, of Hispanic origin
- No, not of Hispanic origin

**14** What is your race? Mark one or more boxes.

- White
- Black, African-American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander

**Please think only about recreational saltwater fishing in North Carolina.**

**15** How many days did you go recreational saltwater fishing from the SHORE in North Carolina?

*The shore includes docks, bridges, causeways, beaches, banks, or any other shore-based place or area. Do not include freshwater fishing.*

Did not recreational saltwater fish from shore in last 12 months → **Go to question 16**

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

**16** How many days did you go recreational saltwater fishing from a private or rental BOAT that returned to shore in North Carolina?

*Do not include freshwater trips or trips where a paid captain or crew helped locate and catch fish.*

Did not recreational saltwater fish from private boat in last 12 months

Number of days saltwater boat fishing in January and February of 2018

Number of days saltwater boat fishing in last 12 months, including January and February

**If you have more people in your household, continue to Household Member 2. If you have answered for all people in your household, please return your survey.**

**HOUSEHOLD MEMBER 2**

**11** What is this person's gender?

- Male
- Female

**12** How old is this person?

*If less than 1 year, mark 0 years*

Age in years

**13** Is this person of Hispanic, Latino, or Spanish origin?

- Yes, of Hispanic origin
- No, not of Hispanic origin

**14** What is this person's race? Mark one or more boxes.

- White
- Black, African-American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander

**Please think only about recreational saltwater fishing in North Carolina.**

**15** How many days did this person go recreational saltwater fishing from the SHORE in North Carolina?

*The shore includes docks, bridges, causeways, beaches, banks, or any other shore-based place or area. Do not include freshwater fishing.*

Did not recreational saltwater fish from shore in last 12 months → **Go to question 16**

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

**16** How many days did this person go recreational saltwater fishing from a private or rental BOAT that returned to shore in North Carolina?

*Do not include freshwater trips or trips where a paid captain or crew helped locate and catch fish.*

Did not recreational saltwater fish from private boat in last 12 months

Number of days saltwater boat fishing in January and February of 2018

Number of days saltwater boat fishing in last 12 months, including January and February

**If you have more people in your household, continue to Household Member 3. If you have answered for all people in your household, please return your survey.**

**HOUSEHOLD MEMBER 3**

**11** What is this person's gender?

- Male
- Female

**12** How old is this person?

*If less than 1 year, mark 0 years*

Age in years

**13** Is this person of Hispanic, Latino, or Spanish origin?

- Yes, of Hispanic origin
- No, not of Hispanic origin

**14** What is this person's race? Mark one or more boxes.

- White
- Black, African-American
- Asian
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander

**Please think only about recreational saltwater fishing in North Carolina.**

**15** How many days did this person go recreational saltwater fishing from the SHORE in North Carolina?

*The shore includes docks, bridges, causeways, beaches, banks, or any other shore-based place or area. Do not include freshwater fishing.*

Did not recreational saltwater fish from shore in last 12 months → **Go to question 16**

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

**16** How many days did this person go recreational saltwater fishing from a private or rental BOAT that returned to shore in North Carolina?

*Do not include freshwater trips or trips where a paid captain or crew helped locate and catch fish.*

Did not recreational saltwater fish from private boat in last 12 months

Number of days saltwater boat fishing in January and February of 2018

Number of days saltwater boat fishing in last 12 months, including January and February

**If you have more people in your household, continue to Household Member 4. If you have answered for all people in your household, please return your survey.**

**Appendix B. Coastal Designations by County for Each State Sampled During  
2019**

*The SAS System*

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**State Counties**

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<b>AL</b>	Baldwin, Clarke**, Escambia**, Mobile, Monroe, Washington**
<b>CT*</b>	All Counties
<b>DE*</b>	All Counties
<b>FL</b>	All Counties
<b>GA*</b>	Appling**, Brantley, Bryan, Bulloch**, Camden, Charlton, Chatham, Effingham, Evans**, Glynn, Liberty, Long, Mc Intosh, Pierce**, Screven**, Tattnall**, Ware**, Wayne
<b>HI</b>	All Counties
<b>MA*</b>	Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk
<b>MD*</b>	Anne Arundel, Baltimore, Baltimore City, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Howard, Kent, Montgomery, Prince Georges, Queen Annes, Somerset, St Marys, Talbot, Wicomico, Worcester
<b>ME*</b>	Androscoggin, Cumberland, Hancock, Kennebec, Knox, Lincoln, Penobscot, Sagadahoc, Waldo, Washington, York
<b>MS</b>	Forrest**, George, Greene**, Hancock, Harrison, Jackson, Pearl River, Perry**, Stone
<b>NC</b>	Beaufort, Bertie, Bladen, Brunswick, Camden, Carteret, Chowan, Columbus, Craven, Cumberland**, Currituck, Dare, Duplin, Durham**, Edgecombe, Franklin**, Gates, Granville**, Greene, Halifax, Harnett**, Hertford, Hoke**, Hyde, Johnston**, Jones, Lenoir, Martin, Moore**, Nash**, New Hanover, Northampton, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Richmond**, Robeson, Sampson, Scotland**, Tyrrell, Vance**, Wake**, Warren**, Washington, Wayne, Wilson
<b>NH*</b>	Hillsborough, Merrimack, Rockingham, Strafford
<b>NJ*</b>	Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Union
<b>NY*</b>	Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester
<b>RI*</b>	All Counties
<b>SC*</b>	Allendale**, Bamberg**, Beaufort, Berkeley, Charleston, Clarendon**, Colleton, Dillon**, Dorchester, Florence, Georgetown, Hampton, Horry, Jasper, Marion, Orangeburg**, Williamsburg
<b>VA*</b>	Accomack, Caroline, Charles City, Chesapeake City, Chesterfield, Colonial Heights City, Dinwiddie, Essex, Fredericksburg City, Gloucester, Hampton City, Hanover, Henrico, Hopewell City, Isle Of Wight, James City, King And Queen, King George, King William, Lancaster, Mathews, Middlesex, New Kent, Newport News City, Norfolk City, Northampton, Northumberland, Petersburg City, Poquoson, Portsmouth City, Prince George, Prince William, Richmond, Richmond City, Southampton, Spotsylvania, Stafford, Suffolk City, Surry, Sussex, Virginia Beach City, Westmoreland, Williamsburg City, York

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\* State is not sampled every wave; \*\* County is only considered coastal for waves 3 - 5

## **Appendix C. Survey Supporting Materials**



0010050 P05 T00073 \*\*\*\*\*5-DIGIT 36526

ALABAMA RESIDENT



October 25, 2018

Dear Alabama Resident,

I am writing to ask for your help in a study that RTI International is conducting on behalf of the National Oceanic and Atmospheric Administration (NOAA). This survey asks questions about severe weather and outdoor activities. The results will be used to learn more about the environment and help improve the quality of marine and coastal resources.

For this study to be accurate, we need all households who receive this short survey to complete it and send it back. Your address was randomly picked from a list of addresses in Alabama, and we can't replace you with someone else. Your responses will help all residents of Alabama have their voices heard.

This survey asks about many outdoor activities. Some people enjoy many of these activities, while others aren't interested in these activities. **It is very important that your household complete the survey, even if no one participates in these activities.**

This survey should be completed by an adult living at this address. We have included a small gift as a way of saying thank you for your help.

This is a voluntary survey, and your responses are confidential and will only be used in combination with answers from other households. If you have any questions or comments about this study, we will be happy to talk to you. Please call 1-877-212-7229.

Thank you very much for your help with this important study. Please return your finished survey to RTI International using the enclosed postage-paid envelope.

Yours sincerely,

Dave Van Voorhees  
Chief, Fisheries Statistics Division  
NOAA Fisheries Office of Science & Technology

No personally identifiable information will be collected through this survey. Any public release of survey data will be without identification as to its source or in aggregate statistical form.

0010050



## Commonly Asked Questions

- **How did you get my address?**  
Your address was randomly selected from all addresses in Alabama. You and your household represent many other households in your part of Alabama.
- **Nobody in my household participates in outdoor recreational activities. Should I still complete the survey?**  
Yes. It is important that everyone who receives this short questionnaire complete it and return it. For the results of the study to be accurate, we need basic information about all households who received the survey – regardless of whether they participate in outdoor recreational activities.
- **Why can't you interview another household instead of mine?**  
We can't select another household. For the results to be accurate, we need all households who receive this short questionnaire to complete it and send it back.
- **How much time will this survey take?**  
On average, it should take less than five minutes to complete, including reviewing instructions, and answering the questions.
- **Who is sponsoring the survey?**  
This study is being sponsored by the National Oceanic and Atmospheric Administration (NOAA). NOAA's mission is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social, and environmental needs.
- **How will the information I provide be used?**  
This survey collects information about how outdoor and marine resources in Alabama are used and will help us better manage these resources for the future.

Your answers are completely confidential and will be used only for this study in accordance with the Privacy Act of 1974. Call RTI International, toll-free, at 1-877-212-7229 with questions about this survey.



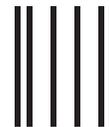
**National Oceanic and Atmospheric Administration**

c/o RTI International (0216268.000.003)

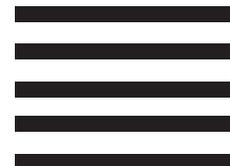
5265 Capital Boulevard

Raleigh, NC 27616-2925





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UNITED STATES



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POSTAGE WILL BE PAID BY ADDRESSEE



**National Oceanic and Atmospheric Administration  
c/o RTI International (0216268.000.003)  
5265 Capital Boulevard  
Raleigh, NC 27616-2925**

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## Alabama Weather and Outdoor Activity Survey

c/o RTI International (0216268.000.003)

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PERMIT #6

0002810 P03 T00003 \*\*\*\*\*ALL FOR AADC 365

ALABAMA RESIDENT



November 1, 2018

Last week we sent your household a Alabama Weather and Outdoor Activity Survey that RTI International is conducting on behalf of the National Oceanic and Atmospheric Administration (NOAA). If you have already completed and returned the survey, please accept our sincere thanks. If not, I hope you will do so today. It should take no more than 5 to 10 minutes to fill out the survey.

RTI International and NOAA are conducting this study to learn more about outdoor activities and natural resources in Alabama. Your responses are very important to us. Please know that your answers are completely confidential and will be used only for this study in accordance with the Privacy Act of 1974

If you did not receive the survey or need another copy, please call RTI International toll-free at 1-877-212-7229.



Dave Van Voorhees  
Chief, Fisheries and Statistics Division  
NOAA Fisheries Office of Science & Technology





E0250-FW5-0001200 P01 T00009 \*\*\*\*\*3-DIGIT 359  
ALABAMA RESIDENT



November 15, 2018

Dear Alabama Resident,

A few weeks ago we sent a survey to your household on severe weather events and outdoor activities. RTI International is conducting this study on behalf of the National Oceanic and Atmospheric Administration (NOAA). If you have already returned the survey, we thank you. If you have not returned it, we ask you to please complete the enclosed survey and return it in the postage-paid envelope as soon as possible.

Your completed survey will help our understanding of the environment and coastal resources in the state of Alabama.

Your address was randomly selected from a list of all addresses in Alabama. For this study to be accurate, we need **all** households who receive this short survey to fill it out and send it back – whether or not you participate in outdoor activities. The survey should be completed by an adult member of the household.

We are very grateful for your help. If you have any questions or comments, we will be happy to talk with you. Please call 1-877-212-7229.

Yours sincerely,

Dave Van Voorhees  
Chief, Fisheries Statistics Division  
NOAA Fisheries Office of Science & Technology

No personally identifiable information will be collected through this survey. Any public release of survey data will be without identification as to its source or in aggregate statistical form.

0001200



## Commonly Asked Questions

- **How did you get my address?**  
Your address was randomly selected from all addresses in Alabama. You and your household represent many other households in your part of Alabama.
- **Nobody in my household participates in outdoor recreational activities. Should I still complete the survey?**  
Yes. It is important that everyone who receives this short questionnaire complete it and return it. For the results of the study to be accurate, we need basic information about all households who received the survey – regardless of whether they participate in outdoor recreational activities.
- **Why can't you interview another household instead of mine?**  
We can't select another household. For the results to be accurate, we need all households who receive this short questionnaire to complete it and send it back.
- **How much time will this survey take?**  
On average, it should take less than five minutes to complete, including reviewing instructions, and answering the questions.
- **Who is sponsoring the survey?**  
This study is being sponsored by the National Oceanic and Atmospheric Administration (NOAA). NOAA's mission is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social, and environmental needs.
- **How will the information I provide be used?**  
This survey collects information about how outdoor and marine resources in Alabama are used and will help us better manage these resources for the future.

Your answers are completely confidential and will be used only for this study in accordance with the Privacy Act of 1974. Call RTI International, toll-free, at 1-877-212-7229 with questions about this survey.

**Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019**

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

Wave 1		Returns	N	% Returned	
AL	Coastal	Match	270	624	43.3
		Unmatch	897	2,851	31.5
	Non-Coastal	Match	34	73	46.6
		Unmatch	415	1,407	29.5
FL	Coastal	Match	86	266	32.3
		Unmatch	280	886	31.6
HI	Coastal	Unmatch	685	1,800	38.1
MS	Coastal	Match	124	227	54.6
		Unmatch	558	1,734	32.2
	Non-Coastal	Match	22	38	57.9
		Unmatch	386	1,504	25.7
NC	Coastal	Match	474	1,049	45.2
		Unmatch	839	2,588	32.4
	Non-Coastal	Match	173	428	40.4
		Unmatch	675	2,236	30.2

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

		Wave 2	Returns	N	% Returned
AL	Coastal	Match	229	567	40.4
		Unmatch	459	1,420	32.3
	Non-Coastal	Match	61	154	39.6
		Unmatch	196	678	28.9
CT	Coastal	Match	415	791	52.5
		Unmatch	2,954	9,306	31.7
DE	Coastal	Match	537	1,385	38.8
		Unmatch	1,390	4,285	32.4
FL	Coastal	Match	277	732	37.8
		Unmatch	664	2,147	30.9
GA	Coastal	Match	387	954	40.6
		Unmatch	939	3,502	26.8
	Non-Coastal	Match	348	1,038	33.5
		Unmatch	2,565	10,128	25.3
HI	Coastal	Unmatch	618	1,800	34.3
		Match	187	351	53.3
MA	Coastal	Unmatch	2,465	7,912	31.2
		Match	45	91	49.5
	Non-Coastal	Unmatch	175	503	34.8
		Match	504	1,478	34.1
MD	Coastal	Unmatch	1,564	5,418	28.9
		Match	46	104	44.2
	Non-Coastal	Unmatch	38	103	36.9
		Match	449	815	55.1
MS	Coastal	Unmatch	206	626	32.9
		Match	257	491	52.3
	Non-Coastal	Unmatch	413	1,513	27.3
		Match	512	1,114	46.0
NC	Coastal	Unmatch	480	1,639	29.3
		Match	258	661	39.0
	Non-Coastal	Unmatch	252	845	29.8
		Match			

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

		Wave 2	Returns	N	% Returned
NJ	Coastal	Match	185	356	52.0
		Unmatch	2,505	9,213	27.2
	Non-Coastal	Match	22	41	53.7
		Unmatch	199	592	33.6
NY	Coastal	Match	194	557	34.8
		Unmatch	2,141	9,158	23.4
	Non-Coastal	Match	227	565	40.2
		Unmatch	235	702	33.5
RI	Coastal	Match	413	969	42.6
		Unmatch	1,596	4,817	33.1
SC	Coastal	Match	527	1,165	45.2
		Unmatch	420	1,358	30.9
	Non-Coastal	Match	137	315	43.5
		Unmatch	312	1,134	27.5
VA	Coastal	Match	486	1,200	40.5
		Unmatch	1,065	3,620	29.4
	Non-Coastal	Match	63	135	46.7
		Unmatch	487	1,473	33.1

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

		Wave 3	Returns	N	% Returned
AL	Coastal	Match	102	275	37.1
		Unmatch	357	1,231	29.0
	Non-Coastal	Match	18	63	28.6
		Unmatch	311	1,174	26.5
CT	Coastal	Match	302	696	43.4
		Unmatch	677	2,526	26.8
DE	Coastal	Match	202	542	37.3
		Unmatch	733	2,176	33.7
FL	Coastal	Match	310	862	36.0
		Unmatch	588	2,122	27.7
GA	Coastal	Match	263	759	34.7
		Unmatch	649	2,564	25.3
	Non-Coastal	Match	73	232	31.5
		Unmatch	490	1,914	25.6
HI	Coastal	Unmatch	671	1,800	37.3
		Match	110	266	41.4
MA	Coastal	Unmatch	692	2,331	29.7
		Match	30	53	56.6
	Non-Coastal	Unmatch	62	176	35.2
		Match	224	665	33.7
MD	Coastal	Unmatch	431	1,475	29.2
		Match	69	162	42.6
	Non-Coastal	Unmatch	105	273	38.5
		Match	151	387	39.0
ME	Coastal	Unmatch	998	2,813	35.5
		Match	24	44	54.5
	Non-Coastal	Unmatch	32	82	39.0
		Match	225	576	39.1
MS	Coastal	Unmatch	564	1,833	30.8
		Match	23	86	26.7
	Non-Coastal	Unmatch	170	569	29.9
		Match			

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

	Wave 3	Returns	N	% Returned	
NC	Coastal	Match	279	615	45.4
		Unmatch	432	1,343	32.2
	Non-Coastal	Match	181	409	44.3
		Unmatch	155	530	29.2
NH	Coastal	Match	180	469	38.4
		Unmatch	913	2,656	34.4
	Non-Coastal	Match	16	58	27.6
		Unmatch	57	158	36.1
NJ	Coastal	Match	117	283	41.3
		Unmatch	603	2,309	26.1
	Non-Coastal	Match	25	45	55.6
		Unmatch	63	207	30.4
NY	Coastal	Match	117	412	28.4
		Unmatch	752	3,627	20.7
	Non-Coastal	Match	54	166	32.5
		Unmatch	227	693	32.8
RI	Coastal	Match	124	377	32.9
		Unmatch	445	1,460	30.5
SC	Coastal	Match	367	859	42.7
		Unmatch	977	3,084	31.7
	Non-Coastal	Match	179	404	44.3
		Unmatch	238	840	28.3
VA	Coastal	Match	228	574	39.7
		Unmatch	895	3,001	29.8
	Non-Coastal	Match	56	126	44.4
		Unmatch	137	359	38.2

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

		Wave 4	Returns	N	% Returned
<b>AL</b>	<b>Coastal</b>	<b>Match</b>	227	550	41.3
		<b>Unmatch</b>	438	1,488	29.4
	<b>Non-Coastal</b>	<b>Match</b>	84	241	34.9
		<b>Unmatch</b>	145	488	29.7
<b>CT</b>	<b>Coastal</b>	<b>Match</b>	151	390	38.7
		<b>Unmatch</b>	296	994	29.8
<b>DE</b>	<b>Coastal</b>	<b>Match</b>	215	582	36.9
		<b>Unmatch</b>	402	1,268	31.7
<b>FL</b>	<b>Coastal</b>	<b>Match</b>	251	734	34.2
		<b>Unmatch</b>	434	1,685	25.8
<b>GA</b>	<b>Coastal</b>	<b>Match</b>	243	701	34.7
		<b>Unmatch</b>	332	1,302	25.5
	<b>Non-Coastal</b>	<b>Match</b>	150	436	34.4
		<b>Unmatch</b>	734	3,062	24.0
<b>HI</b>	<b>Coastal</b>	<b>Unmatch</b>	669	1,800	37.2
		<b>Match</b>	165	370	44.6
<b>MA</b>	<b>Coastal</b>	<b>Unmatch</b>	232	751	30.9
		<b>Match</b>	23	50	46.0
	<b>Non-Coastal</b>	<b>Unmatch</b>	92	299	30.8
		<b>Match</b>	148	465	31.8
<b>MD</b>	<b>Coastal</b>	<b>Unmatch</b>	352	1,230	28.6
		<b>Match</b>	21	51	41.2
	<b>Non-Coastal</b>	<b>Unmatch</b>	45	130	34.6
		<b>Match</b>	117	295	39.7
<b>ME</b>	<b>Coastal</b>	<b>Unmatch</b>	500	1,295	38.6
		<b>Match</b>	21	44	47.7
	<b>Non-Coastal</b>	<b>Unmatch</b>	25	78	32.1
		<b>Match</b>	139	287	48.4
<b>MS</b>	<b>Coastal</b>	<b>Unmatch</b>	259	856	30.3
		<b>Match</b>	43	98	43.9
	<b>Non-Coastal</b>	<b>Unmatch</b>	165	632	26.1
		<b>Match</b>			

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

	Wave 4	Returns	N	% Returned	
NC	Coastal	Match	345	906	38.1
		Unmatch	1,081	3,869	27.9
	Non-Coastal	Match	65	139	46.8
		Unmatch	131	429	30.5
NH	Coastal	Match	137	341	40.2
		Unmatch	646	1,894	34.1
	Non-Coastal	Match	19	48	39.6
		Unmatch	27	76	35.5
NJ	Coastal	Match	110	248	44.4
		Unmatch	492	1,892	26.0
	Non-Coastal	Match	17	34	50.0
		Unmatch	32	100	32.0
NY	Coastal	Match	75	237	31.6
		Unmatch	606	2,778	21.8
	Non-Coastal	Match	28	69	40.6
		Unmatch	187	532	35.2
RI	Coastal	Match	103	291	35.4
		Unmatch	452	1,331	34.0
SC	Coastal	Match	247	597	41.4
		Unmatch	105	392	26.8
	Non-Coastal	Match	121	260	46.5
		Unmatch	160	550	29.1
VA	Coastal	Match	109	316	34.5
		Unmatch	473	1,610	29.4
	Non-Coastal	Match	34	82	41.5
		Unmatch	134	393	34.1

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

		Wave 5	Returns	N	% Returned
AL	Coastal	Match	212	468	45.3
		Unmatch	696	2,472	28.2
	Non-Coastal	Match	28	74	37.8
		Unmatch	335	1,334	25.1
CT	Coastal	Match	199	475	41.9
		Unmatch	464	1,669	27.8
DE	Coastal	Match	265	806	32.9
		Unmatch	382	1,205	31.7
FL	Coastal	Match	369	1,074	34.4
		Unmatch	488	1,774	27.5
GA	Coastal	Match	314	925	33.9
		Unmatch	375	1,517	24.7
	Non-Coastal	Match	170	520	32.7
		Unmatch	531	2,531	21.0
HI	Coastal	Unmatch	679	1,800	37.7
		Match	126	309	40.8
MA	Coastal	Unmatch	569	2,041	27.9
		Match	27	53	50.9
	Non-Coastal	Unmatch	171	572	29.9
		Match	180	453	39.7
MD	Coastal	Unmatch	666	2,315	28.8
		Match	16	37	43.2
	Non-Coastal	Unmatch	134	393	34.1
		Match	280	744	37.6
ME	Coastal	Unmatch	966	2,715	35.6
		Match	42	90	46.7
	Non-Coastal	Unmatch	91	241	37.8
		Match	280	686	40.8
MS	Coastal	Unmatch	500	1,702	29.4
		Match	47	120	39.2
	Non-Coastal	Unmatch	385	1,481	26.0
		Match			

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

		Wave 5	Returns	N	% Returned
NC	Coastal	Match	409	1,013	40.4
		Unmatch	222	835	26.6
	Non-Coastal	Match	108	285	37.9
		Unmatch	161	554	29.1
NH	Coastal	Match	230	652	35.3
		Unmatch	1,045	3,144	33.2
	Non-Coastal	Match	22	58	37.9
		Unmatch	83	241	34.4
NJ	Coastal	Match	193	427	45.2
		Unmatch	515	2,002	25.7
	Non-Coastal	Match	16	39	41.0
		Unmatch	20	60	33.3
NY	Coastal	Match	150	518	29.0
		Unmatch	511	2,469	20.7
	Non-Coastal	Match	14	36	38.9
		Unmatch	180	634	28.4
RI	Coastal	Match	217	657	33.0
		Unmatch	784	2,506	31.3
SC	Coastal	Match	289	713	40.5
		Unmatch	142	419	33.9
	Non-Coastal	Match	86	202	42.6
		Unmatch	132	457	28.9
VA	Coastal	Match	257	657	39.1
		Unmatch	624	2,222	28.1
	Non-Coastal	Match	115	294	39.1
		Unmatch	442	1,338	33.0

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

		Wave 6	Returns	N	% Returned
AL	Coastal	Match	150	370	40.5
		Unmatch	382	1,228	31.1
	Non-Coastal	Match	44	96	45.8
		Unmatch	275	967	28.4
CT	Coastal	Match	307	715	42.9
		Unmatch	1,216	3,915	31.1
DE	Coastal	Match	363	970	37.4
		Unmatch	701	2,296	30.5
FL	Coastal	Match	259	684	37.9
		Unmatch	465	1,646	28.3
GA	Coastal	Match	180	441	40.8
		Unmatch	311	1,047	29.7
	Non-Coastal	Match	150	399	37.6
		Unmatch	161	730	22.1
HI	Coastal	Unmatch	710	1,800	39.4
MA	Coastal	Match	592	1,383	42.8
		Unmatch	1,546	5,166	29.9
	Non-Coastal	Match	32	67	47.8
		Unmatch	259	826	31.4
MD	Coastal	Match	313	820	38.2
		Unmatch	712	2,650	26.9
	Non-Coastal	Match	21	50	42.0
		Unmatch	82	253	32.4
MS	Coastal	Match	128	247	51.8
		Unmatch	592	1,890	31.3
	Non-Coastal	Match	21	53	39.6
		Unmatch	346	1,222	28.3
NC	Coastal	Match	221	536	41.2
		Unmatch	298	950	31.4
	Non-Coastal	Match	134	317	42.3
		Unmatch	160	554	28.9

*Appendix D. Return Rates by Stratum for Waves 1 – 6, 2019*

		Wave 6	Returns	N	% Returned
NJ	Coastal	Match	175	355	49.3
		Unmatch	945	3,447	27.4
	Non-Coastal	Match	24	44	54.5
		Unmatch	41	113	36.3
NY	Coastal	Match	233	666	35.0
		Unmatch	919	3,917	23.5
	Non-Coastal	Match	46	110	41.8
		Unmatch	186	536	34.7
RI	Coastal	Match	212	576	36.8
		Unmatch	1,413	4,552	31.0
SC	Coastal	Match	305	718	42.5
		Unmatch	270	827	32.6
	Non-Coastal	Match	63	148	42.6
		Unmatch	164	569	28.8
VA	Coastal	Match	271	694	39.0
		Unmatch	712	2,314	30.8
	Non-Coastal	Match	19	46	41.3
		Unmatch	98	292	33.6

## **Appendix E. Codebook**

Source	Variable	Type	Length	Label
Sample	Hh_Id	Num	8	Unique household ID
Q1	Weather_Tv	Num	8	How do members of this household obtain information about the weather, including current weather conditions, forecasts, and warnings? Mark all that apply: television
Q1	Weather_Rad	Num	8	How do members of this household obtain information about the weather, including current weather conditions, forecasts, and warnings? Mark all that apply: radio
Q1	Weather_Np	Num	8	How do members of this household obtain information about the weather, including current weather conditions, forecasts, and warnings? Mark all that apply: newspaper
Q1	Weather_Web	Num	8	How do members of this household obtain information about the weather, including current weather conditions, forecasts, and warnings? Mark all that apply: internet
Q1	Weather_Oth	Num	8	How do members of this household obtain information about the weather, including current weather conditions, forecasts, and warnings? Mark all that apply: other
Q2	Evac	Num	8	During the past 12 months, has anyone in household had to evacuate or seek shelter due to a severe weather event, such as a tornado, hurricane, or thunderstorm?
Q3	Warning	Num	8	In your area, how often do the advanced warnings you get for severe weather events allow you enough time to prepare properly?
Q4	Beach_Flag	Num	8	During the past 12 months has anyone in household visit a public beach, national seashore, coastal state park, or other coastal nature reserve or protected area?
Q5	Fresh_Fish	Num	8	During the past 12 months, has anyone in this household been freshwater fishing in <State>?
Q6	Salt_Fish	Num	8	During the past 12 months, has anyone in this household been saltwater fishing in <State>?
Q7	Hh_Phn_1	Num	8	Which of the following best describes how your household receives telephone calls?
Q8	Hh_Desc	Num	8	Which of the following best describes this house, apartment, or mobile home?
Q9	Hh_Years	Num	8	How long have you lived at this address?
Q10	Hh_Members	Num	8	How many people, including all adults and children, live in this household?
Q11	Gender_P#	Num	8	What is your gender?
Q12	Age_P#	Num	8	How old are you?

Q13	Origin_P#	Num	8	Are you of Hispanic, Latino, or Spanish origin?
Q14	Race_White_P#	Num	8	What is your race? Mark one or more boxes: White
Q14	Race_Black_P#	Num	8	What is your race? Mark one or more boxes: Black, African American
Q14	Race_Asian_P#	Num	8	What is your race? Mark one or more boxes: Asian
Q14	Race_Amind_P#	Num	8	What is your race? Mark one or more boxes: American Indian or Alaska Native
Q14	Race_Island_P#	Num	8	What is your race? Mark one or more boxes: Native Hawaiian or Other Pacific Islander
Q15	Shore_Flag_12_P#	Num	8	Did not recreational saltwater fish from shore in last 12 months
Q15	Shore_Trips_2_P#	Num	8	Number of days saltwater shore fishing in 2-month wave
Q15	Shore_Trips_12_P#	Num	8	Number of days saltwater shore fishing in last 12 months, including 2-month wave
Q16	Boat_Flag_12_P#	Num	8	Did not recreational saltwater fish from private boat in last 12 months
Q16	Boat_Trips_2_P#	Num	8	Number of days saltwater boat fishing in 2-month wave
Q16	Boat_Trips_12_P#	Num	8	Number of days saltwater boat fishing in last 12 months, including 2-month wave
Sample	Dispcode	Num	8	Final disposition of sample
Sample	Surv_Wave	Num	8	Wave of survey (Reference Wave)
Sample	Surv_Year	Num	8	Survey year (Reference Year)
Sample	Rec_Date	Num	8	Date questionnaire was received by contractor
Sample	Mail_Date	Num	8	Initial mailing date of questionnaire
Sample	Primaryaddress	Char	46	Sampled address (Primary)
Sample	Secondaryaddress	Char	12	Sampled address (Secondary)
Sample	Address_State_Fips	Num	8	State of residence
Sample	Address_County_Fips	Num	8	County of residence
Sample	Address_Zip	Num	8	Zip code of residence
Sample	Sub_State_Stratum_Code	Num	8	Stratum - Coastal/Non-coastal
Sample	Match_Flg	Num	8	Was the household address successfully matched to the license frame?
Sample	Abswt	Num	8	ABS base weight
Sample	Nrcell	Num	8	Nonresponse cell
Sample	Absnwt	Num	8	ABS nonreponse-adjusted weight
Sample	Abspswt	Num	8	ABS post-stratified weight (Final Weight)

<b>Variable</b>	<b>Values</b>
Hh_Id	Unique Value
Weather_Tv	1 = Yes 0 = No -3 = Missing
Weather_Rad	1 = Yes 0 = No -3 = Missing
Weather_Np	1 = Yes 0 = No -3 = Missing
Weather_Web	1 = Yes 0 = No -3 = Missing
Weather_Oth	1 = Yes 0 = No -3 = Missing
Evac	1 = Yes 0 = No -3 = Missing -5 = Multiple Response
Warning	1 = All The Time 2 = Some Of The Time 3 = Rarely 4 = Never -3 = Missing -5 = Multiple Response
Beach_Flag	1 = Yes 0 = No -3 = Missing -5 = Multiple Response
Fresh_Fish	1 = Yes 0 = No -3 = Missing -5 = Multiple Response
Salt_Fish	1 = Yes 0 = No -3 = Missing -5 = Multiple Response

Hh\_Phn\_1  
1 = All Are Received On Cell Phones  
2 = Most Are Received On Cell Phones  
3 = Some Are Received On Cell Phones And Some On Landline Phones  
4 = Most Are Received On Landline Phones  
5 = All Are Received On Landline Phones  
6 = No Calls Are Received On Cell Phones Or Landline Phones  
-3 = Missing  
-5 = Multiple Response

Hh\_Desc  
1 = Owned With A Mortgage Or Loan  
2 = Owned (Without A Mortgage)  
3 = Rented  
4 = Occupied Without Payment Or Rent  
-3 = Missing  
-5 = Multiple Response

Hh\_Years  
1 = 1 Year Or Less  
2 = Less Than 5 Years, More Than 1 Year  
3 = 5 Years Or More  
-3 = Missing  
-5 = Multiple Response

Hh\_Members  
Verbatim (Including 0)  
-3 = Missing

Gender\_P#  
1 = Male  
2 = Female  
-1 = Inapplicable  
-3 = Missing  
-5 = Multiple Response

Age\_P#  
Verbatim (Including 0)  
-1 = Inapplicable  
-3 = Missing

Origin\_P#  
1 = Yes  
0 = No  
-1 = Inapplicable  
-3 = Missing  
-5 = Multiple Response

Race\_White\_P#  
1 = Yes  
0 = No  
-1 = Inapplicable  
-3 = Missing

Race\_Black\_P#  
1 = Yes  
0 = No  
-1 = Inapplicable  
-3 = Missing

Race\_Asian\_P#  
1 = Yes  
0 = No  
-1 = Inapplicable  
-3 = Missing

Race_Amind_P#	1 = Yes 0 = No -1 = Inapplicable -3 = Missing
Race_Island_P#	1 = Yes 0 = No -1 = Inapplicable -3 = Missing
Shore_Flag_12_P#	0 = Did Check (Didn't Take Trips) 1 = Didn't Check (Took Trips) -1 = Inapplicable -3 = Missing
Shore_Trips_2_P#	Verbatim (Including 0) -1 = Inapplicable -3 = Missing
Shore_Trips_12_P#	Verbatim (Including 0) -1 = Inapplicable -3 = Missing
Boat_Flag_12_P#	0 = Did Check (Didn't Take Trips) 1 = Didn't Check (Took Trips) -1 = Inapplicable -3 = Missing
Boat_Trips_2_P#	Verbatim (Including 0) -1 = Inapplicable -3 = Missing
Boat_Trips_12_P#	Verbatim (Including 0) -1 = Inapplicable -3 = Missing
Dispcode	1 = 'Complete' 2 = 'Blank' 3 = 'Refusal' 4 = 'Pnd, Not Deliverable As Addressed' 6 = 'Deceased' 7 = 'Phone Refusal' 9 = 'Pnd, Moved No Address' 10 = 'Pnd, Vacant' 11 = 'Pnd, New Address Given' 12 = 'Ineligible' 13 = 'Unknown' 14 = 'Partial Complete' 99 = 'Deleted' (Assigned Only After Review)
Surv_Wave	1-6
Surv_Year	4- Digit Year
Rec_Date	Date
Mail_Date	Date
Primaryaddress	Value
Secondaryaddress	Value

Address\_State\_Fips 1 = Alabama  
9 = Connecticut  
10 = Delaware  
12 = Florida  
13 = Georgia  
15 = Hawaii  
22 = Louisiana  
23 = Maine  
24 = Maryland  
25 = Massachusetts  
28 = Mississippi  
33 = New Hampshire  
34 = New Jersey  
36 = New York  
37 = North Carolina  
42 = Pennsylvania  
44 = Rhode Island  
45 = South Carolina  
51 = Virginia

Address\_County\_Fips 3-Digit Fips Code

Address\_Zip 5-Digit Zip Code

Sub\_State\_Stratum\_Code 1 = Coastal

2 = Non-Coastal

Match\_Flg 1 = Yes

0 = No

Abswt Value

Nrcell Value

Absnwt Value

Abspswt Value