



# Fishing Effort Survey 2018 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 and Gulf of Mexico. 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 on individual demographics and recreational saltwater shore and private boat fishing effort during the previous two and 12 months (Appendix A). In 2018, 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 at the household level, therefore 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 consists of all residential addresses within coastal states serviced by the United States Postal Service (USPS) and is derived from the USPS Computerized Delivery Sequence File (CDS). 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. However, all counties in Rhode Island, Connecticut, Delaware, Hawaii, and Florida are considered coastal for the purposes of this study, and the designation of coastal counties in North Carolina, South Carolina, Georgia, Alabama, Mississippi and Louisiana changes throughout the year. Coastal county designation by state and wave for 2018 can be found 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 2018 FES.

**Table 1. Sample size by state and wave during 2018**

State	Survey Wave						Total
	1	2	3	4	5	6	
AL	4,536	1,897	1,989	2,310	2,910	2,662	16,304
CT	.	6,163	2,579	1,508	1,915	6,646	18,811
DE	.	5,404	2,479	1,977	1,848	5,462	17,170
FL	1,181	1,321	1,313	1,309	1,585	1,423	8,132
GA	.	8,457	3,545	5,071	3,557	3,225	23,855
HI	1,800	1,800	1,800	1,800	1,800	1,800	10,800
ME	.	.	4,191	2,175	4,141	.	10,507
MD	.	4,885	2,585	2,027	2,677	4,607	16,781
MA	.	5,376	2,771	1,648	2,658	6,196	18,649
MS	2,665	2,413	1,681	1,507	2,366	3,230	13,862
NH	.	.	3,152	2,387	3,722	.	9,261
NJ	.	6,507	2,213	2,222	2,130	3,953	17,025
NY	.	6,576	4,320	3,369	2,841	5,642	22,748
NC	6,386	3,447	2,414	5,159	2,292	3,331	23,029
RI	.	4,580	1,672	1,922	3,216	7,179	18,569
SC	.	3,473	2,987	2,299	1,718	3,437	13,914
VA	.	5,352	3,636	2,908	5,091	3,935	20,922
<b>Total</b>	16,568	67,651	45,327	41,598	46,467	62,728	280,339

### 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, a post-paid return envelope, and a \$2 cash incentive.

One week after the initial mailing, a follow-up, thank you and reminder postcard is mailed out via regular first class mail to all sampled addresses. For addresses matched to a landline telephone number in the NSAR, an automated voice message is also delivered as a reminder to complete and return the questionnaire.

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 survey 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 all waves during 2018 can be found in Table 2.

**Table 2. Data collection schedule for the FES during 2018**

Task/Event	Reference Period					
	Wave 1, 2018	Wave 2, 2018	Wave 3, 2018	Wave 4, 2018	Wave 5, 2018	Wave 6, 2018
Wave begins	1/1/2018	3/1/2018	5/1/2018	7/1/2018	9/1/2018	11/1/2018
Initial survey mailing	2/22/2018	4/24/2018	6/25/2018	8/27/2018	10/25/2018	12/26/2018
Wave ends	2/28/2018	4/30/2018	7/1/2018	8/31/2018	10/31/2018	12/31/2018
Postcard reminder mailing	3/1/2018	5/1/2018	7/2/2018	9/3/2018	11/1/2018	1/2/2019
Follow-up mailing	3/15/2018	5/15/2018	7/16/2018	9/17/2018	11/15/2018	1/16/2019
Preliminary wave data files	3/28/2018	5/28/2018	7/30/2018	9/28/2018	11/30/2018	1/28/2019
Final wave data files	5/28/2018	7/30/2018	9/28/2018	11/30/2018	1/28/2019	3/28/2019

#### 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 greater than 75% 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 2018.**

State	Prelim.		Final*	
	%	N	%	N
AL	79.74	4,248	20.26	1,079
CT	77.10	4,790	22.90	1,423
DE	76.49	4,453	23.51	1,369
FL	76.87	1,987	23.13	598
GA	78.96	5,253	21.04	1,400
HI	78.29	3,216	21.71	892
MA	75.63	4,778	24.37	1,540
MD	76.46	4,086	23.54	1,258
ME	82.46	3,173	17.54	675
MS	76.03	3,374	23.97	1,064
NC	80.62	6,367	19.38	1,531
NH	80.47	2,616	19.53	635
NJ	75.02	3,693	24.98	1,230
NY	72.40	4,123	27.60	1,572
RI	75.33	4,796	24.67	1,571
SC	79.93	3,894	20.07	978
VA	78.77	5,512	21.23	1,486
<b>Total</b>	77.61	70,359	22.39	20,301

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

Following the data collection period, a check-in process verifies the presence and formatting of all variables, confirms responses are within acceptable ranges, and compares response distributions for each individual reference wave 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 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 0

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 surveys are returned with more completed people sections than 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 a unique identifier variables. Original, unedited, values are also retained to maintain accountability and permit comparisons between edited and original values. Overall, 12.2% of eligible surveys returned during 2018 received some form of data edit. Edit rates across waves were consistently below 15% ranging from 11.04% to 13.28% (Table 4).

**Table 4. FES survey edit rates by wave during 2018**

Survey Wave	Not Edited		Data Edit	
	N	%	N	%
1	5,124	86.72	785	13.28
2	18,392	87.05	2,737	12.95
3	12,738	88.21	1,702	11.79
4	11,772	88.96	1,461	11.04
5	13,329	88.42	1,746	11.58
6	17,662	87.76	2,464	12.24
<b>Total</b>	<b>79,017</b>	<b>87.88</b>	<b>10,895</b>	<b>12.12</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 private boat trips. The non-representative examination is based on expert review and assigned sparingly. A total of 112 households (0.12%) were identified as non-representative during 2018; rates were consistently low across waves ranging from 0.05% to 0.20% (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 2018**

Survey Wave	Not Edited		Non-Representative	
	N	%	N	%
1	5,906	99.95	3	0.05
2	21,115	99.93	14	0.07
3	14,414	99.82	26	0.18
4	13,218	99.89	15	0.11
5	15,045	99.80	30	0.20
6	20,102	99.88	24	0.12
<b>Total</b>	<b>89,800</b>	<b>99.88</b>	<b>112</b>	<b>0.12</b>

## 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 2018 was 31.69% (Table 7). By wave, weighted response rates fluctuated slightly ranging from 30.70% during wave five to 34.90% during wave one (Table 6).

**Table 6. Weighted response rates by wave during 2018**

Survey Wave	Response		Unknown Eligibility		Other*		Total
	N	Weighted %	N	Weighted %	N	Weighted %	
1	5,908	34.90	9,234	64.81	53	0.29	15,195
2	21,112	31.22	42,554	68.45	233	0.33	63,899
3	14,426	31.57	28,313	68.04	149	0.39	42,888
4	13,221	31.81	25,541	67.82	141	0.37	38,903
5	15,058	30.70	28,453	68.92	157	0.38	43,668

Survey Wave	Response		Unknown Eligibility		Other*		Total
	N	Weighted %	N	Weighted %	N	Weighted %	
6	20,105	31.69	38,556	67.93	194	0.38	58,855
<b>Total</b>	89,830	31.69	172,651	67.94	927	0.36	263,408

\* Includes nonresponse and removed surveys

Across states, weighted response rates varied substantially ranging from 27.19% in Georgia to over 40% in Hawaii (Table 7).

**Table 7. Weighted response rates by state during 2018**

State	Response		Unknown Eligibility		Other*		Total
	N	Weighted %	N	Weighted %	N	Weighted %	
AL	5,294	30.67	9,599	68.98	48	0.35	14,941
CT	6,152	32.12	11,533	67.51	68	0.38	17,753
DE	5,763	34.13	10,398	65.41	67	0.46	16,228
FL	2,567	33.35	4,932	66.28	22	0.37	7,521
GA	6,594	27.19	15,579	72.51	62	0.30	22,235
HI	4,075	40.47	5,951	59.10	43	0.43	10,069
MA	6,262	33.09	11,486	66.57	58	0.34	17,806
MD	5,276	32.12	10,502	67.45	67	0.43	15,845
ME	3,818	39.62	5,780	60.03	30	0.35	9,628
MS	4,398	29.40	8,287	70.29	45	0.31	12,730
NC	7,851	34.61	13,566	65.13	67	0.26	21,484
NH	3,229	35.87	5,607	63.82	24	0.32	8,860
NJ	4,874	28.13	11,207	71.53	55	0.33	16,136
NY	5,603	28.16	16,057	71.47	94	0.37	21,754
RI	6,322	35.15	11,202	64.56	50	0.28	17,574
SC	4,833	33.66	8,137	65.99	43	0.35	13,013
VA	6,919	34.95	12,828	64.48	84	0.57	19,831
<b>Total</b>	89,830	31.69	172,651	67.94	927	0.36	263,408

\* 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 2018 were high at over 90% for all household and person level questions (Table 8).

**Table 8. Response rates by question (item) during 2018**

Question	Response		Nonresponse		Multiple Response	
	N	%	N	%	N	%
<b>Weather</b>	89,693	99.85	137	0.15	.	0.00
<b>Evac</b>	89,558	99.70	260	0.29	12	0.01
<b>Warning</b>	88,721	98.77	1,036	1.15	73	0.08
<b>Beach Flag</b>	89,565	99.70	254	0.28	11	0.01
<b>Fresh Fish</b>	89,500	99.63	300	0.33	30	0.03
<b>Salt Fish</b>	89,506	99.64	296	0.33	28	0.03
<b>HH Phone</b>	87,685	97.61	595	0.66	1,550	1.73
<b>HH Description</b>	88,791	98.84	920	1.02	119	0.13
<b>HH Years</b>	89,265	99.37	550	0.61	15	0.02
<b>HH Members</b>	89,764	99.93	66	0.07	.	0.00
<b>Age</b>	206,854	95.04	10,788	4.96	.	0.00
<b>Gender</b>	209,290	96.16	8,132	3.74	220	0.10
<b>Origin</b>	204,946	94.17	12,648	5.81	48	0.02
<b>Race</b>	204,798	94.10	12,844	5.90	.	0.00
<b>Boat Trips</b>	203,995	93.73	13,647	6.27	.	0.00
<b>Shore Trip</b>	205,194	94.28	12,448	5.72	.	0.00
<b>Total</b>	2,127,125	96.51	74,921	3.40	2,106	0.10

## 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 ( $\hat{\theta}_c$ ) to calculate the adjusted weight ( $w_{ci}^*$ )

$$w_{ci}^* = \frac{w_{ci.r}}{\hat{\varnothing}_c}$$

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

$\sum w_{ci.r}$  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 ( $\overline{MSE}(\hat{T}_t)$ ) is estimated as

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

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  $\overline{MSE}(\hat{T}_t)$  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.

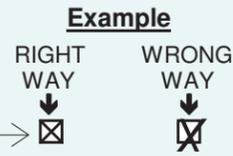


This survey should be filled out by an adult member of the household. Complete and return this form even if no one in your household participates in any of these activities.

↓ **START HERE**

Please carefully follow the steps below when completing this survey.

- 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  
2018**

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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.



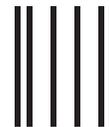
**National Oceanic and Atmospheric Administration**

c/o RTI International (0216268.000.003)

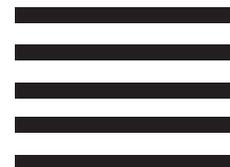
5265 Capital Boulevard

Raleigh, NC 27616-2925





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UNITED STATES



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FIRST-CLASS MAIL PERMIT NO. 405 RALEIGH, NC

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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QBRM pieces that are non-automation compatible and/or contain the incorrect ZIP+4 code are ineligible for QBRM prices and will be charged the non-QBRM High Volume postage and fees.





## Alabama Weather and Outdoor Activity Survey

c/o RTI International (0216268.000.003)

5265 Capital Boulevard  
Raleigh, NC 27616-2925

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U.S. POSTAGE

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CLAYSBURG, PA  
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, 2018**

<b>Wave 1</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>AL</b>	<b>Coastal</b>	<b>Match</b>	280	573	48.9
		<b>Unmatch</b>	780	2,359	33.1
	<b>Non-Coastal</b>	<b>Match</b>	29	69	42.0
		<b>Unmatch</b>	446	1,535	29.1
<b>FL</b>	<b>Coastal</b>	<b>Match</b>	104	299	34.8
		<b>Unmatch</b>	276	882	31.3
<b>HI</b>	<b>Coastal</b>	<b>Match</b>	396	671	59.0
		<b>Unmatch</b>	707	1,800	39.3
<b>MS</b>	<b>Coastal</b>	<b>Match</b>	317	1,058	30.0
		<b>Unmatch</b>	253	868	29.1
	<b>Non-Coastal</b>	<b>Match</b>	38	68	55.9
		<b>Unmatch</b>	253	868	29.1
<b>NC</b>	<b>Coastal</b>	<b>Match</b>	566	1,142	49.6
		<b>Unmatch</b>	747	2,502	29.9
	<b>Non-Coastal</b>	<b>Match</b>	255	541	47.1
		<b>Unmatch</b>	718	2,201	32.6

<b>Wave 2</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>AL</b>	<b>Coastal</b>	<b>Match</b>	221	544	40.6
		<b>Unmatch</b>	255	768	33.2
	<b>Non-Coastal</b>	<b>Match</b>	62	167	37.1
		<b>Unmatch</b>	117	418	28.0
<b>CT</b>	<b>Coastal</b>	<b>Match</b>	570	1,166	48.9
		<b>Unmatch</b>	1,476	4,997	29.5
<b>DE</b>	<b>Coastal</b>	<b>Match</b>	396	1,000	39.6
		<b>Unmatch</b>	1,394	4,404	31.7
<b>FL</b>	<b>Coastal</b>	<b>Match</b>	150	399	37.6
		<b>Unmatch</b>	269	922	29.2
<b>GA</b>	<b>Coastal</b>	<b>Match</b>	305	744	41.0
		<b>Unmatch</b>	668	2,420	27.6
	<b>Non-Coastal</b>	<b>Match</b>	144	418	34.4
		<b>Unmatch</b>	1,211	4,875	24.8
<b>HI</b>	<b>Coastal</b>	<b>Unmatch</b>	721	1,800	40.1
		<b>Match</b>	415	762	54.5
<b>MA</b>	<b>Coastal</b>	<b>Unmatch</b>	1,279	4,156	30.8
		<b>Match</b>	68	119	57.1
	<b>Non-Coastal</b>	<b>Unmatch</b>	107	339	31.6
		<b>Match</b>	370	964	38.4
<b>MD</b>	<b>Coastal</b>	<b>Unmatch</b>	1,094	3,753	29.2
		<b>Match</b>	27	74	36.5
	<b>Non-Coastal</b>	<b>Unmatch</b>	28	94	29.8
		<b>Match</b>	171	417	41.0
<b>MS</b>	<b>Coastal</b>	<b>Unmatch</b>	154	480	32.1
		<b>Match</b>	142	340	41.8
	<b>Non-Coastal</b>	<b>Unmatch</b>	318	1,176	27.0
		<b>Match</b>	356	899	39.6
<b>NC</b>	<b>Coastal</b>	<b>Unmatch</b>	400	1,360	29.4
		<b>Match</b>	205	506	40.5
	<b>Non-Coastal</b>	<b>Unmatch</b>	221	682	32.4
		<b>Match</b>	118	234	50.4
<b>NJ</b>	<b>Coastal</b>	<b>Unmatch</b>	1,554	5,805	26.8
		<b>Match</b>	14	32	43.8
	<b>Non-Coastal</b>	<b>Unmatch</b>	163	436	37.4
		<b>Match</b>			

<b>Wave 2</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>NY</b>	<b>Coastal</b>	<b>Match</b>	87	292	29.8
		<b>Unmatch</b>	1,291	5,630	22.9
	<b>Non-Coastal</b>	<b>Match</b>	112	319	35.1
		<b>Unmatch</b>	107	335	31.9
<b>RI</b>	<b>Coastal</b>	<b>Match</b>	265	632	41.9
		<b>Unmatch</b>	1,338	3,948	33.9
<b>SC</b>	<b>Coastal</b>	<b>Match</b>	397	937	42.4
		<b>Unmatch</b>	373	1,192	31.3
	<b>Non-Coastal</b>	<b>Match</b>	140	323	43.3
		<b>Unmatch</b>	309	1,021	30.3
<b>VA</b>	<b>Coastal</b>	<b>Match</b>	359	899	39.9
		<b>Unmatch</b>	973	3,214	30.3
	<b>Non-Coastal</b>	<b>Match</b>	38	95	40.0
		<b>Unmatch</b>	371	1,144	32.4

<b>Wave 3</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>AL</b>	<b>Coastal</b>	<b>Match</b>	86	235	36.6
		<b>Unmatch</b>	238	849	28.0
	<b>Non-Coastal</b>	<b>Match</b>	25	75	33.3
		<b>Unmatch</b>	223	830	26.9
<b>CT</b>	<b>Coastal</b>	<b>Match</b>	242	582	41.6
		<b>Unmatch</b>	596	1,997	29.8
<b>DE</b>	<b>Coastal</b>	<b>Match</b>	181	411	44.0
		<b>Unmatch</b>	647	2,068	31.3
<b>FL</b>	<b>Coastal</b>	<b>Match</b>	137	381	36.0
		<b>Unmatch</b>	286	932	30.7
<b>GA</b>	<b>Coastal</b>	<b>Match</b>	176	494	35.6
		<b>Unmatch</b>	425	1,632	26.0
	<b>Non-Coastal</b>	<b>Match</b>	61	163	37.4
		<b>Unmatch</b>	340	1,256	27.1
<b>HI</b>	<b>Coastal</b>	<b>Unmatch</b>	671	1,800	37.3
		<b>Match</b>	77	193	39.9
<b>MA</b>	<b>Coastal</b>	<b>Unmatch</b>	693	2,266	30.6
		<b>Match</b>	16	41	39.0
	<b>Non-Coastal</b>	<b>Unmatch</b>	88	271	32.5
		<b>Match</b>	232	656	35.4
<b>MD</b>	<b>Coastal</b>	<b>Unmatch</b>	444	1,503	29.5
		<b>Match</b>	58	142	40.8
	<b>Non-Coastal</b>	<b>Unmatch</b>	82	284	28.9
		<b>Match</b>	70	208	33.7
<b>ME</b>	<b>Coastal</b>	<b>Unmatch</b>	1,406	3,873	36.3
		<b>Match</b>	20	40	50.0
	<b>Non-Coastal</b>	<b>Unmatch</b>	25	70	35.7
		<b>Match</b>	94	240	39.2
<b>MS</b>	<b>Coastal</b>	<b>Unmatch</b>	272	978	27.8
		<b>Match</b>	30	70	42.9
	<b>Non-Coastal</b>	<b>Unmatch</b>	84	393	21.4
		<b>Match</b>	197	472	41.7
<b>NC</b>	<b>Coastal</b>	<b>Unmatch</b>	360	1,214	29.7
		<b>Match</b>	125	304	41.1
	<b>Non-Coastal</b>	<b>Unmatch</b>	143	424	33.7
		<b>Match</b>			

<b>Wave 3</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>NH</b>	<b>Coastal</b>	<b>Match</b>	115	320	35.9
		<b>Unmatch</b>	905	2,515	36.0
	<b>Non-Coastal</b>	<b>Match</b>	25	60	41.7
		<b>Unmatch</b>	78	257	30.4
<b>NJ</b>	<b>Coastal</b>	<b>Match</b>	96	204	47.1
		<b>Unmatch</b>	442	1,786	24.7
	<b>Non-Coastal</b>	<b>Match</b>	15	32	46.9
		<b>Unmatch</b>	64	191	33.5
<b>NY</b>	<b>Coastal</b>	<b>Match</b>	118	338	34.9
		<b>Unmatch</b>	801	3,483	23.0
	<b>Non-Coastal</b>	<b>Match</b>	63	163	38.7
		<b>Unmatch</b>	104	336	31.0
<b>RI</b>	<b>Coastal</b>	<b>Match</b>	129	285	45.3
		<b>Unmatch</b>	458	1,387	33.0
<b>SC</b>	<b>Coastal</b>	<b>Match</b>	282	617	45.7
		<b>Unmatch</b>	463	1,512	30.6
	<b>Non-Coastal</b>	<b>Match</b>	127	288	44.1
		<b>Unmatch</b>	193	570	33.9
<b>VA</b>	<b>Coastal</b>	<b>Match</b>	168	411	40.9
		<b>Unmatch</b>	901	2,817	32.0
	<b>Non-Coastal</b>	<b>Match</b>	39	82	47.6
		<b>Unmatch</b>	123	326	37.7

<b>Wave 4</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>AL</b>	<b>Coastal</b>	<b>Match</b>	219	530	41.3
		<b>Unmatch</b>	351	1,146	30.6
	<b>Non-Coastal</b>	<b>Match</b>	73	192	38.0
		<b>Unmatch</b>	123	442	27.8
<b>CT</b>	<b>Coastal</b>	<b>Match</b>	173	444	39.0
		<b>Unmatch</b>	318	1,064	29.9
<b>DE</b>	<b>Coastal</b>	<b>Match</b>	196	499	39.3
		<b>Unmatch</b>	467	1,478	31.6
<b>FL</b>	<b>Coastal</b>	<b>Match</b>	158	396	39.9
		<b>Unmatch</b>	276	913	30.2
<b>GA</b>	<b>Coastal</b>	<b>Match</b>	281	685	41.0
		<b>Unmatch</b>	328	1,292	25.4
	<b>Non-Coastal</b>	<b>Match</b>	84	259	32.4
		<b>Unmatch</b>	712	2,835	25.1
<b>HI</b>	<b>Coastal</b>	<b>Unmatch</b>	698	1,800	38.8
<b>MA</b>	<b>Coastal</b>	<b>Match</b>	160	374	42.8
		<b>Unmatch</b>	291	933	31.2
	<b>Non-Coastal</b>	<b>Match</b>	18	38	47.4
		<b>Unmatch</b>	112	303	37.0
<b>MD</b>	<b>Coastal</b>	<b>Match</b>	184	487	37.8
		<b>Unmatch</b>	407	1,333	30.5
	<b>Non-Coastal</b>	<b>Match</b>	26	65	40.0
		<b>Unmatch</b>	51	142	35.9
<b>ME</b>	<b>Coastal</b>	<b>Match</b>	133	319	41.7
		<b>Unmatch</b>	644	1,716	37.5
	<b>Non-Coastal</b>	<b>Match</b>	18	39	46.2
		<b>Unmatch</b>	32	101	31.7
<b>MS</b>	<b>Coastal</b>	<b>Match</b>	118	270	43.7
		<b>Unmatch</b>	168	618	27.2
	<b>Non-Coastal</b>	<b>Match</b>	50	118	42.4
		<b>Unmatch</b>	135	501	26.9
<b>NC</b>	<b>Coastal</b>	<b>Match</b>	337	793	42.5
		<b>Unmatch</b>	1,087	3,748	29.0
	<b>Non-Coastal</b>	<b>Match</b>	58	142	40.8
		<b>Unmatch</b>	137	476	28.8

<b>Wave 4</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>NH</b>	<b>Coastal</b>	<b>Match</b>	125	332	37.7
		<b>Unmatch</b>	609	1,728	35.2
	<b>Non-Coastal</b>	<b>Match</b>	25	54	46.3
		<b>Unmatch</b>	91	273	33.3
<b>NJ</b>	<b>Coastal</b>	<b>Match</b>	102	224	45.5
		<b>Unmatch</b>	471	1,850	25.5
	<b>Non-Coastal</b>	<b>Match</b>	16	31	51.6
		<b>Unmatch</b>	37	117	31.6
<b>NY</b>	<b>Coastal</b>	<b>Match</b>	63	172	36.6
		<b>Unmatch</b>	623	2,796	22.3
	<b>Non-Coastal</b>	<b>Match</b>	28	81	34.6
		<b>Unmatch</b>	111	320	34.7
<b>RI</b>	<b>Coastal</b>	<b>Match</b>	95	237	40.1
		<b>Unmatch</b>	548	1,685	32.5
<b>SC</b>	<b>Coastal</b>	<b>Match</b>	330	725	45.5
		<b>Unmatch</b>	137	435	31.5
	<b>Non-Coastal</b>	<b>Match</b>	148	329	45.0
		<b>Unmatch</b>	230	810	28.4
<b>VA</b>	<b>Coastal</b>	<b>Match</b>	131	329	39.8
		<b>Unmatch</b>	609	1,931	31.5
	<b>Non-Coastal</b>	<b>Match</b>	46	132	34.8
		<b>Unmatch</b>	174	516	33.7

<b>Wave 5</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>AL</b>	<b>Coastal</b>	<b>Match</b>	299	662	45.2
		<b>Unmatch</b>	399	1,398	28.5
	<b>Non-Coastal</b>	<b>Match</b>	74	164	45.1
		<b>Unmatch</b>	193	686	28.1
<b>CT</b>	<b>Coastal</b>	<b>Match</b>	178	374	47.6
		<b>Unmatch</b>	431	1,541	28.0
<b>DE</b>	<b>Coastal</b>	<b>Match</b>	290	728	39.8
		<b>Unmatch</b>	350	1,120	31.3
<b>FL</b>	<b>Coastal</b>	<b>Match</b>	185	522	35.4
		<b>Unmatch</b>	282	1,063	26.5
<b>GA</b>	<b>Coastal</b>	<b>Match</b>	315	867	36.3
		<b>Unmatch</b>	291	1,176	24.7
	<b>Non-Coastal</b>	<b>Match</b>	169	564	30.0
		<b>Unmatch</b>	229	950	24.1
<b>HI</b>	<b>Coastal</b>	<b>Unmatch</b>	636	1,800	35.3
<b>MA</b>	<b>Coastal</b>	<b>Match</b>	144	351	41.0
		<b>Unmatch</b>	594	1,892	31.4
	<b>Non-Coastal</b>	<b>Match</b>	19	52	36.5
		<b>Unmatch</b>	106	363	29.2
<b>MD</b>	<b>Coastal</b>	<b>Match</b>	170	474	35.9
		<b>Unmatch</b>	516	1,839	28.1
	<b>Non-Coastal</b>	<b>Match</b>	19	34	55.9
		<b>Unmatch</b>	118	330	35.8
<b>ME</b>	<b>Coastal</b>	<b>Match</b>	158	410	38.5
		<b>Unmatch</b>	1,191	3,306	36.0
	<b>Non-Coastal</b>	<b>Match</b>	39	115	33.9
		<b>Unmatch</b>	112	310	36.1
<b>MS</b>	<b>Coastal</b>	<b>Match</b>	288	648	44.4
		<b>Unmatch</b>	209	778	26.9
	<b>Non-Coastal</b>	<b>Match</b>	53	115	46.1
		<b>Unmatch</b>	229	825	27.8
<b>NC</b>	<b>Coastal</b>	<b>Match</b>	316	722	43.8
		<b>Unmatch</b>	254	813	31.2
	<b>Non-Coastal</b>	<b>Match</b>	103	223	46.2
		<b>Unmatch</b>	162	534	30.3

<b>Wave 5</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>NH</b>	<b>Coastal</b>	<b>Match</b>	227	538	42.2
		<b>Unmatch</b>	961	2,899	33.1
	<b>Non-Coastal</b>	<b>Match</b>	14	44	31.8
		<b>Unmatch</b>	76	241	31.5
<b>NJ</b>	<b>Coastal</b>	<b>Match</b>	172	336	51.2
		<b>Unmatch</b>	436	1,679	26.0
	<b>Non-Coastal</b>	<b>Match</b>	26	45	57.8
		<b>Unmatch</b>	22	70	31.4
<b>NY</b>	<b>Coastal</b>	<b>Match</b>	127	386	32.9
		<b>Unmatch</b>	472	2,032	23.2
	<b>Non-Coastal</b>	<b>Match</b>	17	39	43.6
		<b>Unmatch</b>	127	384	33.1
<b>RI</b>	<b>Coastal</b>	<b>Match</b>	221	532	41.5
		<b>Unmatch</b>	862	2,684	32.1
<b>SC</b>	<b>Coastal</b>	<b>Match</b>	255	636	40.1
		<b>Unmatch</b>	131	401	32.7
	<b>Non-Coastal</b>	<b>Match</b>	83	197	42.1
		<b>Unmatch</b>	120	484	24.8
<b>VA</b>	<b>Coastal</b>	<b>Match</b>	307	702	43.7
		<b>Unmatch</b>	759	2,476	30.7
	<b>Non-Coastal</b>	<b>Match</b>	115	265	43.4
		<b>Unmatch</b>	554	1,648	33.6

<b>Wave 6</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>AL</b>	<b>Coastal</b>	<b>Match</b>	259	638	40.6
		<b>Unmatch</b>	388	1,363	28.5
	<b>Non-Coastal</b>	<b>Match</b>	48	104	46.2
		<b>Unmatch</b>	139	557	25.0
<b>CT</b>	<b>Coastal</b>	<b>Match</b>	406	919	44.2
		<b>Unmatch</b>	1,823	5,727	31.8
<b>DE</b>	<b>Coastal</b>	<b>Match</b>	567	1,314	43.2
		<b>Unmatch</b>	1,334	4,148	32.2
<b>FL</b>	<b>Coastal</b>	<b>Match</b>	184	520	35.4
		<b>Unmatch</b>	278	903	30.8
<b>GA</b>	<b>Coastal</b>	<b>Match</b>	200	490	40.8
		<b>Unmatch</b>	352	1,439	24.5
	<b>Non-Coastal</b>	<b>Match</b>	145	411	35.3
		<b>Unmatch</b>	217	885	24.5
<b>HI</b>	<b>Coastal</b>	<b>Unmatch</b>	675	1,800	37.5
		<b>Match</b>	703	1,577	44.6
<b>MA</b>	<b>Coastal</b>	<b>Unmatch</b>	1,069	3,558	30.0
		<b>Match</b>	51	121	42.1
	<b>Non-Coastal</b>	<b>Unmatch</b>	308	940	32.8
		<b>Match</b>	466	1,280	36.4
<b>MD</b>	<b>Coastal</b>	<b>Unmatch</b>	886	2,883	30.7
		<b>Match</b>	20	49	40.8
	<b>Non-Coastal</b>	<b>Unmatch</b>	146	395	37.0
		<b>Match</b>	83	188	44.1
<b>MS</b>	<b>Coastal</b>	<b>Unmatch</b>	478	1,638	29.2
		<b>Match</b>	22	50	44.0
	<b>Non-Coastal</b>	<b>Unmatch</b>	335	1,354	24.7
		<b>Match</b>	325	742	43.8
<b>NC</b>	<b>Coastal</b>	<b>Unmatch</b>	470	1,547	30.4
		<b>Match</b>	90	213	42.3
	<b>Non-Coastal</b>	<b>Unmatch</b>	266	829	32.1
		<b>Match</b>	159	352	45.2
<b>NJ</b>	<b>Coastal</b>	<b>Unmatch</b>	948	3,418	27.7
		<b>Match</b>	28	63	44.4
	<b>Non-Coastal</b>	<b>Unmatch</b>	40	120	33.3
		<b>Match</b>			

<b>Wave 6</b>		<b>Returns</b>	<b>N</b>	<b>% Returned</b>	
<b>NY</b>	<b>Coastal</b>	<b>Match</b>	257	734	35.0
		<b>Unmatch</b>	1,049	4,462	23.5
	<b>Non-Coastal</b>	<b>Match</b>	8	30	26.7
		<b>Unmatch</b>	130	416	31.3
<b>RI</b>	<b>Coastal</b>	<b>Match</b>	255	611	41.7
		<b>Unmatch</b>	2,196	6,568	33.4
<b>SC</b>	<b>Coastal</b>	<b>Match</b>	426	981	43.4
		<b>Unmatch</b>	384	1,286	29.9
	<b>Non-Coastal</b>	<b>Match</b>	69	159	43.4
		<b>Unmatch</b>	275	1,011	27.2
<b>VA</b>	<b>Coastal</b>	<b>Match</b>	193	489	39.5
		<b>Unmatch</b>	1,006	3,104	32.4
	<b>Non-Coastal</b>	<b>Match</b>	16	38	42.1
		<b>Unmatch</b>	116	304	38.2

## **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