# Results of an Online Survey of Louisiana Residents with Recreational Saltwater Fishing Privileges

Soliciting Views of Proposed Changes in the Daily Creel Limit for Spotted Seatrout

Louisiana Department of Wildlife and Fisheries
Office of Fisheries

April 2018

# Results of an Online Survey of Louisiana Saltwater Anglers Concerning Spotted Trout Creel Limits

EXECUTIVE SUMMARY

The Louisiana Department of Wildlife and Fisheries Office of Fisheries conducted on-line surveys of individuals with saltwater fishing privileges to determine the level of opposition to or support for a potential reduction in the daily limit for spotted seatrout from 25 to 15 fish statewide.

For a matter as complex as changing the daily limit for a popular species like the spotted seatrout, how one asks the question can be a tricky matter for the researcher. Providing more relevant information may make the respondents more informed – but can also bias their responses one way or the other. To judge the sensitivity of responses to the framing of the question, this project posed the question in three different ways:

- Short Version – Described the current daily limit & a proposal to lower it to 15 fish statewide
- Long Version 1 – Described the current daily limit & a proposal to lower it to 15 fish statewide, explained that some people wanted to lower the limit, and said recent L.D.W.F. stock assessments did not indicate a biological need to do so; and
- Long Version 2 - Described the current daily limit & a proposal to lower it to 15 fish statewide, explained the some people *in the scientific & recreational angling communities* wanted to lower the limit, and said *2014* L.D.W.F. stock assessments did not indicate a biological need to do so

The survey was sent by e-mail to a total of 4,594 individuals with saltwater fishing privileges, each of whom received a link to an online questionnaire with one of the three versions of the question. About 25 percent responded. The respondents said they fished for seatrout in Louisiana (about 64 percent of all respondents) were asked for their opinions about the proposed limit change.

Though there were statistically significant differences among the three different versions, under no version did an opinion of support or an opinion of opposition claim a majority position:

- Strong or moderate *support* ranged from 30 to 37 percent (Table A)
- Strong or moderate *opposition* ranged from 34.9 to 40 percent
- Twenty to 26.4 percent *neither* supported *nor* opposed changing the limit.

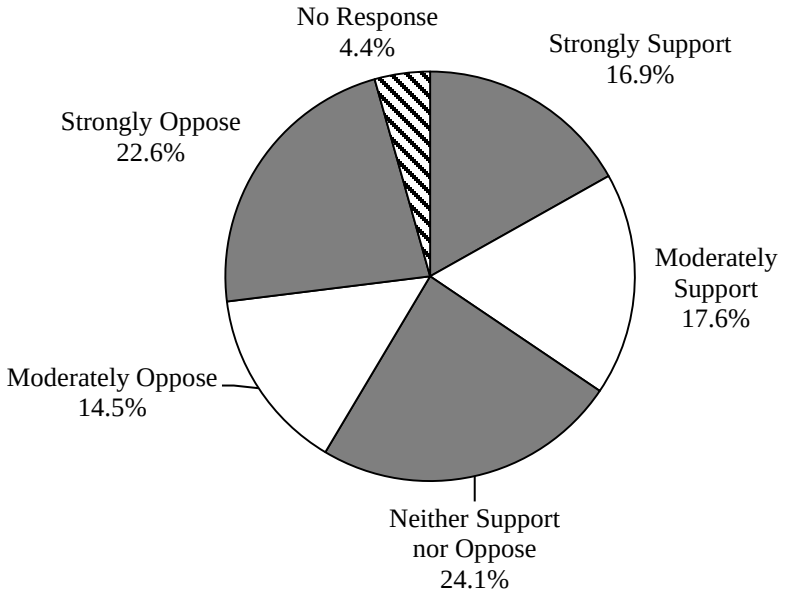
**Table A. "To What Extent Do You Support or Oppose Lowering the Daily Limit for Seatrout from 25 to 15 Fish per Angler Statewide?"**

| | Short Version | | Long Version 1 | | Long Version 2 | |
|---|---|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** | **Number** | **Percent** |
| Strongly Support | 56 | 20.2% | 46 | 16.3% | 33 | 13.6% |
| Moderately Support | 47 | 17.0% | 54 | 19.5% | 40 | 16.5% |
| Neither Support nor Oppose | 72 | 26.0% | 57 | 20.2% | 64 | 26.4% |
| Moderately Oppose | 25 | 9.0% | 52 | 18.4% | 39 | 16.1% |
| Strongly Oppose | 69 | 25.9% | 61 | 21.6% | 51 | 21.1% |
| No Response | 8 | 2.9% | 12 | 4.3% | 15 | 6.2% |

Of all seatrout-fishing respondents combined (regardless of which version of the question they answered):

- Just over one-third (34.5 percent) moderately or strongly *supported* lowering the daily limit for spotted seatrout from 25 fish to 15 fish.
- 37 percent strongly or moderately *opposed* lowering the limit
- Almost one quarter (24.1 percent) *neither* supported *nor* opposed lowering the limit.

**Figure A. Support for or Opposition to Lowering the Daily Limit of Spotted Seatrout from 25 to 15 Fish per Angler Statewide among Respondents to L.D.W.F. Surveys of Saltwater Anglers**



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## Introduction

In January 2018 the Louisiana Department of Wildlife and Fisheries (L.D.W.F. or the Department) in response to stakeholders' concerns conducted an on-line survey of residents with saltwater fishing privileges centered on a proposed reduction in the daily creel limit for spotted seatrout. The perceptions of anglers on this matter was deemed especially helpful to fisheries managers because of the species' popularity among saltwater anglers.

The spotted seatrout (*Cynoscion nebulosus*), also called speckled trout or specks, is one of the most commonly targeted and harvested saltwater fish species in Louisiana. The L.D.W.F. La Creel Survey estimates that Louisiana anglers caught 4.4 million speckled seatrout during nearly two million trips in 2016. A 2009 survey of resident anglers found that 84.6 percent of the respondents who fished in saltwater had caught and kept spotted seatrout at some point in the 12 months prior to the survey (Ogunyinka and Lavergne, 2009).

The daily creel limit for spotted seatrout is 25 fish per angler for most of Louisiana except for a section of the southwestern corner of the state. A limit of 15 fish per day was adopted in 2006 for portions of Calcasieu and Cameron parishes in response to local initiatives.

In 2017 a number of individuals with interests in saltwater angling in Louisiana approached the L.D.W.F. Office of Fisheries to express their support for a proposition to lower the creel limit for spotted seatrout across Louisiana in order to safeguard the resource statewide. Though L.D.W.F. research did not illustrate a biological need to lower the creel limit, the Department - recognizing the importance of public opinion in guiding fisheries management - believed that a broad assessment of anglers' perceptions on this matter was in order.

Historically the L.D.W.F. has employed a variety of methods to monitor the activities, behavior, preferences, and perspectives of its stakeholders. Mail surveys have been used to examine activities of commercial and recreational fishermen, hunters, bird watchers, and seafood dealers. Telephone surveys have been used to estimate anglers' use of oyster reefs as recreational fishing sites and to study language proficiency among the Department's users. In-person surveys have been used to analyze the seafood dealing and processing sectors. The on-going La Creel survey routinely uses a combination of in-person intercept surveys and e-mail and telephone surveys to estimate recreational fishing activity on a weekly basis.

Recently the L.D.W.F. has used e-mail contacts and internet-based questionnaires to assess its users' perspectives on a variety of fisheries management issues, notably a series of polls of saltwater anglers who fish in offshore waters. All fishermen who wish to fish for offshore species in waters off Louisiana must acquire a complimentary Recreational Offshore Landings Permit (R.O.L.P.) on the L.D.W.F. website. During this process, most provide an e-mail address, creating an extensive record of contact information for potential survey subjects. Surveys of this subpopulation of saltwater anglers have informed the

Department, the Louisiana Wildlife and Fisheries Commission, the National Marine Fisheries Service, and the general public of their views on a variety of matters, notably red snapper management issues.

The R.O.L.P. e-mail database might not serve as an appropriate sample to assess anglers' views on the management of spotted seatrout, a species seldom caught in waters where more offshore species are targeted. Another source, the Department's recreational license database, contains a record of potential anglers' e-mail address that might be more suitable for this purpose. Though the process of obtaining a recreational license does not entail the mandatory use of the internet (a process which is more likely to result in an individual's proffering an e-mail address), many license holders do voluntarily provide their e-mail addresses when acquiring a license. An examination of the records for a variety of licenses granting saltwater fishing privileges in license year 2017 demonstrated that 33.8 percent of these license holders provided e-mail contact information. The Department thus has the capacity to contact tens of thousands of its users via e-mail.

Potential biases exist in using e-mail alone as a method of contacting survey subjects, mainly because those who provide e-mail address may somehow vary systematically from those who do not. The method is advantageous, however, in its relatively low cost and the speed of implementation and analysis. The L.D.W.F. Office of Fisheries, weighing the costs and benefits of alternative survey methods, decided that an e-mail survey was most appropriate for the task of assessing anglers' perspectives on lowering daily creel limits for spotted seatrout across Louisiana.

*Survey Population*

The L.D.W.F. Socioeconomic Research and Development Section obtained from the L.D.W.F. Licensing Section anonymous records of all Louisiana residents who acquired any of the several licenses that grant recreational saltwater fishing privileges from the beginning of the current license year (June 1, 2017) through December, 2017: resident saltwater licenses, resident hook and line licenses, senior hunt and fish licenses, Sportsman's Paradise licenses, student saltwater fishing licenses, three licenses reserved for people with current or former military licenses (resident and non-resident military saltwater[1], resident Louisiana National Guard hunt and fish, and resident/native retired military hunt and fish licenses), and two licenses for individuals with special needs (Louisiana disabled saltwater licenses and hunt/fish disabled licenses) . It also acquired the records of all individuals 16 years old or older who purchased any of three lifetime licenses with saltwater fishing privileges between June 1, 2012 and December 2017: lifetime hunting and fishing licenses, lifetime fishing licenses, and senior lifetime hunting and fishing licenses. Records included the recreational license number, gender, age, ZIP code, license type, and e-mail address where available.

The majority (54.6 percent) of this population of resident saltwater fishing privilege holders had resident saltwater fishing licenses (Table 1). One third (33.6 percent) held resident senior hunt and fish licenses. About 2.5 percent purchased Sportsman's Paradise Licenses, 4.4 percent acquired licenses available to students, retired or active military, members, or special need licenses, and 4.5 percent held some form of lifetime license.

[1] Records of resident and non-resident military license holders with ZIP codes outside Louisiana were excluded from the sample.

**Table 1. Number of Individuals Holding Specified Licenses with Saltwater Fishing Privileges**

| License Type | License Holders | Provided E-Mail Address | |
|---|---|---|---|
| Resident Saltwater Fishing License | 179,606 | 79,365 | 44.2% |
| Resident Hook and Line Licenses | 5,100 | 3,078 | 60.4% |
| Louisiana Sportsman's Paradise License | 8,354 | 4,614 | 55.2% |
| Resident Senior Hunt & Fish License | 110,677 | 20,894 | 18.9% |
| Military Licenses* | 1,948 | 675 | 34.7% |
| Special Needs Licenses¶ | 7,242 | 1,653 | 22.8% |
| Student Fishing Licenses | 112 | 60 | 53.6% |
| Lifetime Hunting & Fishing License | 8,976 | 4,669 | 52.0% |
| Lifetime Fishing License | 1,276 | 628 | 49.2% |
| Lifetime Senior Hunting & Fishing License | 5,692 | 2,115 | 37.2% |

*Military licenses include resident & non-resident military saltwater licenses, resident Louisiana National Guard hunt and fish, and resident/native retired military hunt and fish licenses.

¶ Special needs licenses include Louisiana disabled saltwater licenses and hunt/fish disabled licenses.

Almost three quarters of those with saltwater fishing privileges were male (74.7 percent) (Table 2). The average age was 50 years. The median was 53 years old. Three-eighths (37.8 percent) were sixty years or older.

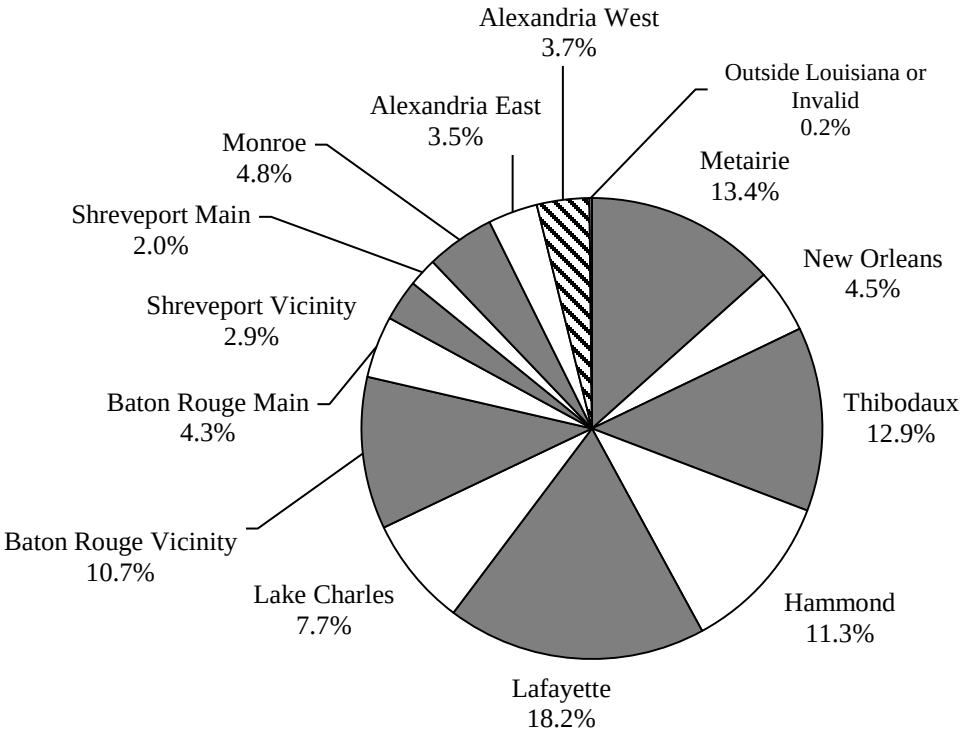
Based on the license holders' ZIP codes, the places of residence were grouped by U.S. Postal Service's Sectional Center Facility (S.C.F.) code (the first three digits of the ZIP code.) Twenty-nine percent resided in the southeastern S.C.F. of Metairie, Hammond, or New Orleans. Fifteen percent were in Baton Rouge or the surrounding area. Thirty-one percent lived in the Thibodaux or Lafayette S.C.F. in south central Louisiana and 7.7 percent in the Lake Charles S.C.F. Almost 17 percent lived in the S.C.F. in central or northern Louisiana.

Among all individuals who held these licenses with saltwater fishing privileges, 35.8 percent provided e-mail addresses. The rate of e-mail provision varied notably across license types, ranging from 18.9 percent of senior hunt and fish license holders to 60.4 percent of hook and line license holders.

**Table 2. Characteristics of Individuals with Saltwater Fishing Privileges**

| Gender | | | Age | |
|---|---|---|---|---|
| **Male** | **Female** | **Unidentified** | **Average** | **Median** |
| 245,908 | 75,756 | 7,319 | 50.0 | 53 |
| 74.7% | 23.0% | 2.2% | | |

**Figure 1. Percentage of Individuals Holding Selected Licenses with Saltwater Fishing Privileges Residing within Specified Sectional Center Facility**




**Characteristics of Individuals Who Provided E-Mail Addresses**

The sample of individuals who provided e-mail addresses was similar to the population of saltwater fishing privilege holders in gender composition. Twenty-two percent were female and 75.9 percent were male. With an average and median age of 45 years old, those who provided e-mail addresses tended to be younger than those who did not. Less than 23 percent were 60 years or older.

Over one-third of those who provided e-mail addresses resided in the Metairie, New Orleans, or Hammond S.C.F. in southeastern Louisiana (Figure 3). Almost one-fifth (19.1 percent) lived in Baton Rouge or its vicinity. Just under 30 percent lived in Lafayette or Thibodaux S.C.F. in central southern Louisiana and 6.3 percent resided in the Lake Charles S.C.F. in the southwest. Just over one in ten (10.5 percent) resided in central or northern Louisiana.

Over two-thirds (67.4 percent) of the 117,751 individuals who provided e-mail addresses held resident saltwater licenses. Nearly 18 percent had senior hunt and fish licenses and about four percent held Sportsman's Paradise licenses (Figure 2). About six percent held some type of lifetime license.

**Figure 2. Percentage of Individuals with Saltwater Fishing Privileges Who Provided E-Mail Addresses by License Type**

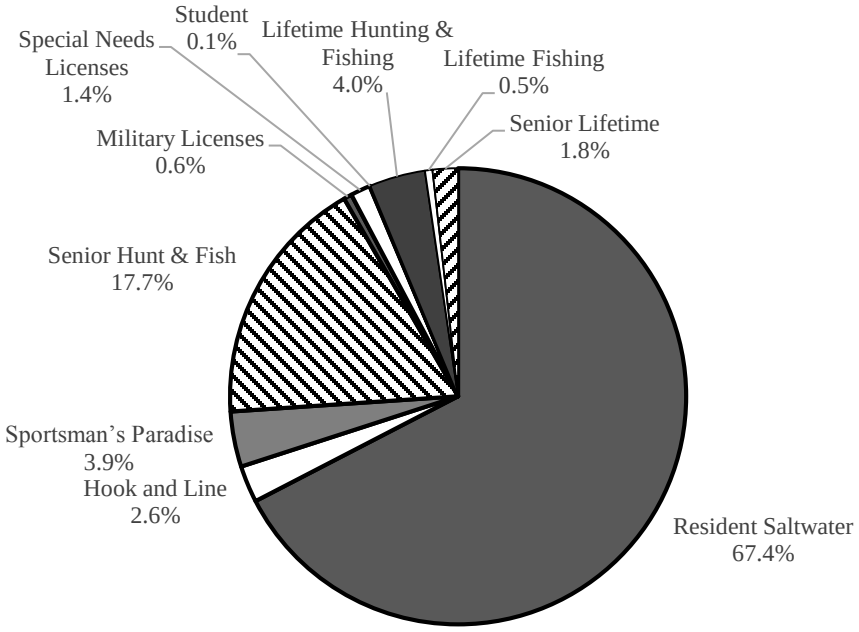
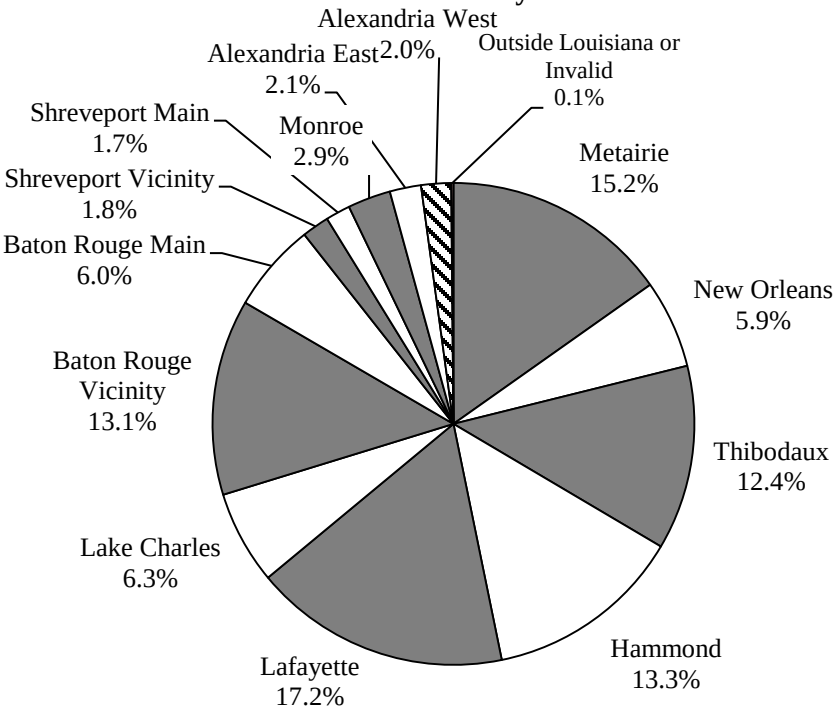



**Figure 3. Percentage of Individuals with Saltwater Fishing Privileges Who Provided E-Mail Addresses Residing within Specified Sectional Center Facility**



*Survey Instrument*

L.D.W.F. fisheries managers consulted with staff from the L.D.W.F. Socioeconomic Research and Development Section to devise an on-line survey instrument to assess resident anglers' preferences in respect to a hypothetical change in seatrout creel limits. The questionnaire included questions regarding demographic variables, general recreational fishing, activities specific to spotted seatrout, and the central question soliciting respondents' support for or opposition to lowering the daily creel limit from 25 to 15 fish per fisherman.

The wording of this central question and the supporting explanatory details was a matter of some sensitivity. Many anglers may likely find the information about Department's stock assessment to be relevant to the formation of their opinions of the proposed regulatory change. Nevertheless, reviewers of an early draft of this questionnaire were concerned that an extensive explanation of the Department's findings might potentially contribute to bias in the survey responses.

To gauge the potential influence of the wording of the central question, this survey deployed a split sample. Half of the sample would receive the "short version" of the questionnaire with no explanation of the Department's analysis of the seatrout stock and half would receive the "long version" with a synopsis of the perspective of those who feel there is a need to change the limit and a brief description of the Department's conclusions regarding the biological need for a lower limit based on recent stock assessments. (See Box 1 on page 17.)

*Survey Administration*

In December 2017, a sample of three percent of the residents with licenses granting saltwater privileges who provided e-mail addresses was selected for inclusion in the L.D.W.F. Saltwater Angler Survey. Two subsamples were drawn randomly from within this initial draw, one to receive the short version and the other to receive the long version of the questionnaire. After deleting duplicate e-mail addresses, samples of 1,598 for the short version and 1,610 for the long version of the questionnaire were chosen.

On January 12, 2018, initial invitations to participate in the survey were sent in the form of e-mail messages with a link to an on-line questionnaire on the Survey Monkey platform. A reminder message was sent on January 18, 2018. On January 21, 2018, a final reminder was sent with a notification of the impending closure of the survey. The survey was closed at 9:00 a.m. on January 23, 2018.

Thirty-one messages from the short version sample and 21 from the long version were "bounced" (Table 3). These were treated as non-deliverable and removed to create adjusted samples of 1,525 for the short version sample, 1,554 and for the long version sample and thus for a combined sample of 3,079.

The combined sample had 782 responses, 389 from the short version and 393 from the long version. The raw response rate for the combined sample was 25.4 percent.

**Table 3. Survey Recipients and Respondents of the L.D.W.F. Saltwater Angler Survey**

| | Short Version | Long Version | Combined |
|---|---|---|---|
| Number of Recipients | 1,598 | 1,610 | 3,208 |
| Number of "Bounced" Messages | 73 | 56 | 129 |
| Adjusted Number of Recipients: | 1,525 | 1,554 | 3,079 |
| | | | |
| Respondents | 389 | 393 | 782 |
| Raw Response Rate | 25.5% | 25.3% | 25.4% |
| | | | |
| Number Who Opened the E-Mail | 977 | 935 | 1,912 |
| Number Who Did Not Open the E-Mail | 517 | 598 | 1,115 |
| Number Who Clicked through the Questionnaire | 420 | 432 | 852 |

For the combined sample, 1,912 opened the e-mail message and 852 opened the questionnaire ("clicked through it"). About 41 percent of those who opened the message and 91.2 percent of those who clicked through it submitted a response.

**Age and Residence of Survey Respondents**

The average age of a short version respondent was 49.7 years old, not significantly different from the average (51.5 years old) among long version respondents (Table 4). Among the combined sample, the average age was 50.6 years old. (Henceforth, in the interest of brevity, the text will discuss only the descriptive statistics for the combined sample except when there are notable differences between the subsamples. Statistics for each subsample are presented in tables throughout the report.)

About 8.5 percent of the combined sample was younger than 30 years old (Figure 4). Sixteen percent were in their 30's, 18.6 percent in their 40's, and 25.5 percent in their 50's. About 31.3 percent were 60 or older, larger than the percentage of the sample of e-mail providers in this cohort (23 percent) but smaller than the share of the population (37.8 percent).

Thirty-four percent of the respondents resided in the portions of southeastern Louisiana within the Hammond, Metairie, and New Orleans S.C.F. (Figure 5). Approximately 19 percent lived in Baton Rouge or its vicinity. Just over a quarter (26.2 percent) lived in the Lafayette or Thibodaux S.C.F. in central southern Louisiana and 5.1 percent in the Lake Charles S.C.F. in southwestern Louisiana. Almost 11 percent lived in central or north Louisiana.

**Table 4. Age of Respondents to the L.D.W.F. Saltwater Angler Survey**

| All Respondents | | | | | |
|---|---|---|---|---|---|
| **Number** | **Average** | | **Median** | | |
| 748 | 50.6 | | 52.5 | | |
| **Short Version Respondents** | | | **Long Version Respondents** | | |
| **Number** | **Average** | **Median** | **Number** | **Average** | **Median** |
| 371 | 49.7 | 51 | 377 | 51.5 | 53 |

**Figure 4. Age of Respondents to the L.D.W.F. Saltwater Angler Survey**

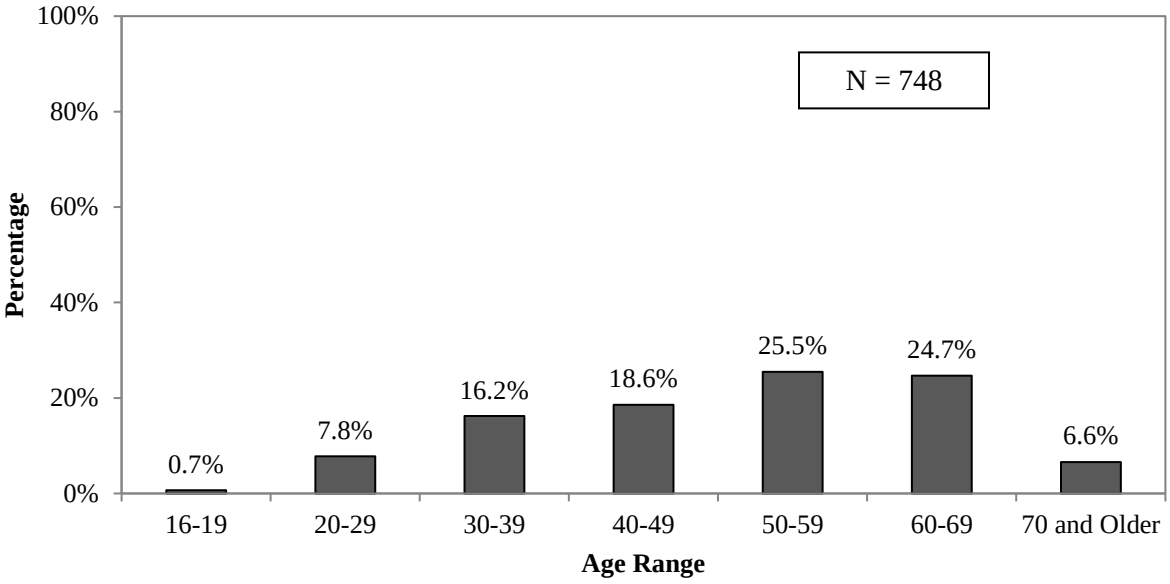



**Figure 5. Percentage of All Respondents Residing in Specified Sectional Center Facility**

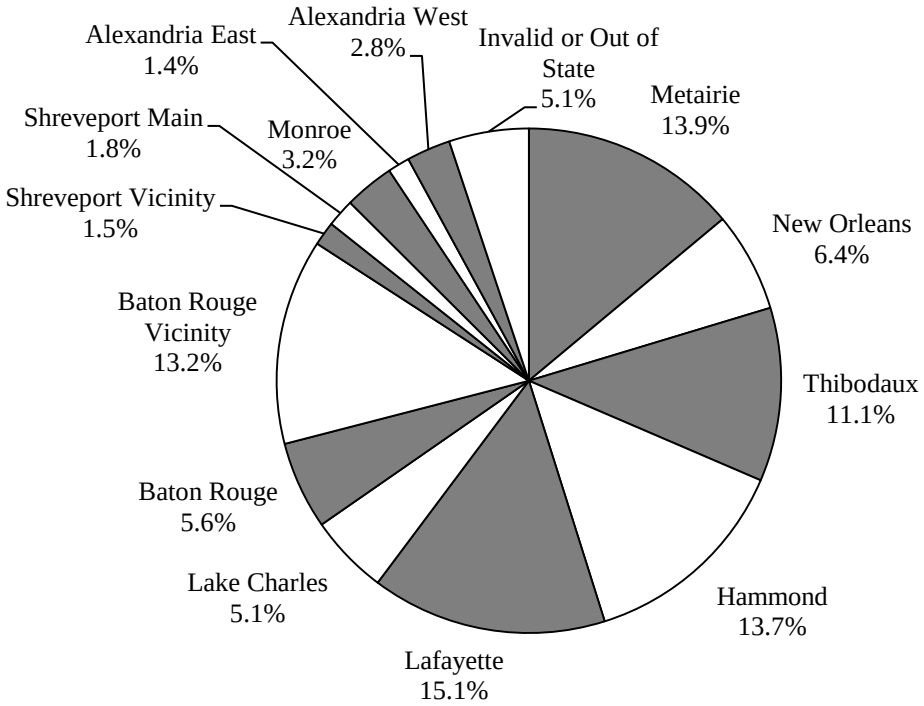


**Table 5. Number of Respondents by U.S. Postal Service's Sectional Center Facility**

| | Short Version Respondents | | Long Version Respondents | |
|---|---|---|---|---|
| **Sectional Center Facility** | **Number** | **Percent** | **Number** | **Percent** |
| Metairie | 58 | 14.9% | 51 | 13.0% |
| New Orleans | 22 | 5.7% | 28 | 7.1% |
| Thibodaux | 48 | 12.3% | 39 | 9.9% |
| Hammond | 51 | 13.1% | 56 | 14.3% |
| Lake Charles | 62 | 15.9% | 56 | 14.3% |
| Lafayette | 22 | 5.7% | 18 | 4.6% |
| Baton Rouge Main | 19 | 4.9% | 25 | 6.4% |
| Baton Rouge Vicinity | 42 | 10.8% | 61 | 15.5% |
| Shreveport Main | 6 | 1.5% | 6 | 1.5% |
| Shreveport Vicinity | 5 | 1.3% | 9 | 2.3% |
| Monroe | 14 | 3.6% | 11 | 2.8% |
| Alexandria East | 7 | 1.8% | 4 | 1.0% |
| Alexandria West | 13 | 3.3% | 9 | 2.3% |
| Invalid or Out of State | 20 | 5.2% | 20 | 5.1% |

**Recreational Fishing Activities of Survey Respondents**

For the combined sample of respondents, the average number of freshwater fishing days in 2017 was 13.9 and the median was three (Table 6). Over one-third (37.3 percent) fished in freshwater for zero days, one quarter for one to nine days, and 14.8 percent for 10 to 19 days (Figure 6). Among those who fished for at least one day in freshwater in 2017, the average was 22.2 days and the median was 10 days.

The average number of days fished in saltwater in 2017 among all respondents was 15.4 with a median of seven days. Twenty-three percent fished no days in saltwater, 29.9 percent fished for one to nine days, 17.7 percent for 10 to 19 days, and 13.5 percent for 20 to 29 days. Among those who fished at least once in saltwater in 2017, the average was 20.0 saltwater days with a median of 12 days.

Almost 30 percent (29.5 percent) fished in saltwater in 2017 but zero days in freshwater. Approximately one-sixth (15.7 percent) fished in freshwater but not in saltwater in 2017.

Very few respondents (2.4 percent) described themselves as owners or captains of charter boats or head boat (Figure 7). The great majority could be classified as private fishermen.

**Table 6. Days Fished in Freshwater or Saltwater by Respondents to the L.D.W.F. Saltwater Angler Survey**

| All Respondents | | | | | | |
|---|---|---|---|---|---|---|
| | **Number** | | **Average** | | **Median** | |
| Freshwater Days | 773 | | 13.9 | | 3 | |
| Saltwater Days | 773 | | 15.4 | | 7 | |
| | **Short Version Respondents** | | | **Long Version Respondents** | | |
| | **Number** | **Average** | **Median** | **Number** | **Average** | **Median** |
| Freshwater Days | 384 | 15.9 | 4 | 389 | 11.9 | 3 |
| Saltwater Days | 384 | 15.2 | 7 | 389 | 15.5 | 7 |

**Figure 6. Number of Fishing Days in 2017 by Respondents to the L.D.W.F. Saltwater Angler Survey**

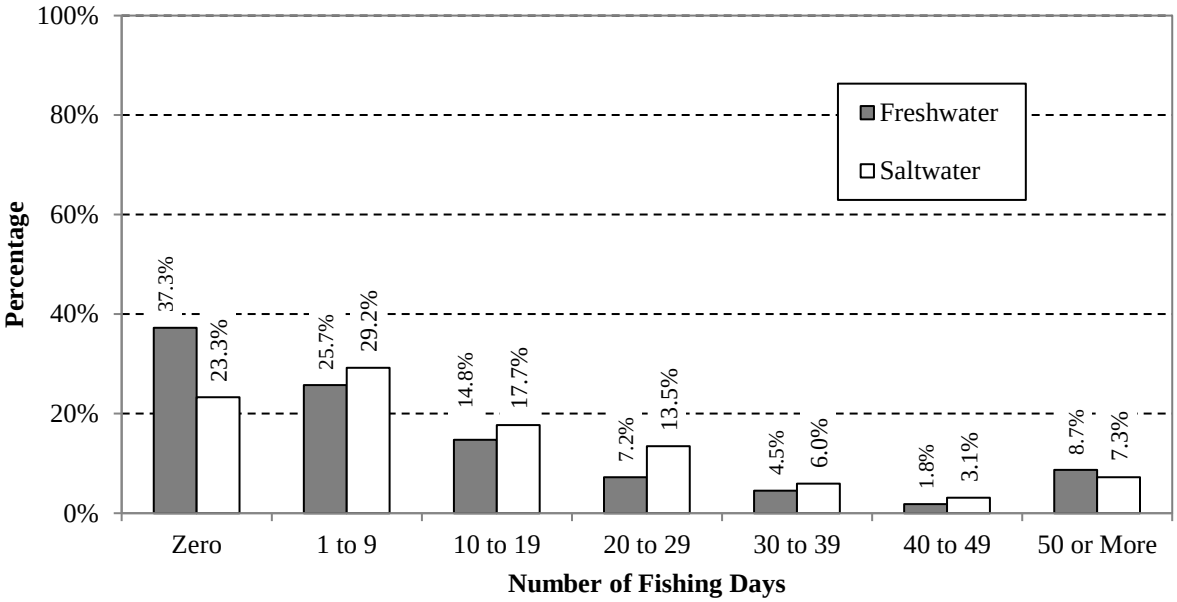



**Figure 7. L.D.W.F. Saltwater Angler Survey Respondents' Status as Owner or Captain of Charter or Head Boats**

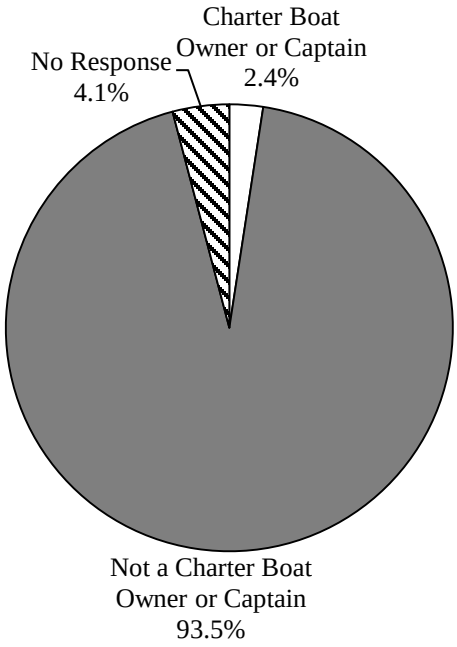


**Table 7. Number of Responses to the Question, "Do You Operate a Charter Boat or Head Boat?"**

| | Short Version Respondents | | Long Version Respondents | |
|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** |
| Yes | 9 | 2.3% | 10 | 2.5% |
| No | 366 | 94.1% | 365 | 92.9% |
| No Response | 14 | 2.6% | 18 | 4.6% |

**Reported Utilization of Artificial Reefs**

About 15 percent of all respondents reporting fishing over an artificial reef not including oyster reefs at some point in 2017 (Figure 8). Three-quarters said they did not and 8.8 percent did not know whether they fished over artificial reefs.

Among those who fished least one day in saltwater, 19.1 percent fished over an artificial reef. Among saltwater anglers who did not fish in freshwater, the percentage who fished over artificial reefs was 18.6 percent.

**Figure 8. L.D.W.F. Saltwater Angler Survey Respondents Who Reported Fishing over Artificial Reefs in 2017**

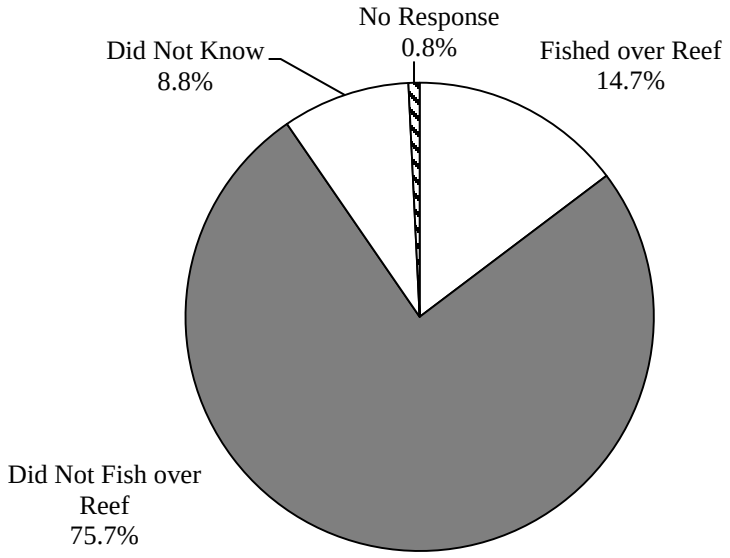


**Table 8. Number of Responses to the Question, "Did You Fish over an Artificial Reef in 2017, Not Including Oyster Reefs?"**

| | Short Version Respondents | | Long Version Respondents | |
|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** |
| Yes | 62 | 15.9% | 53 | 13.5% |
| No | 291 | 74.8% | 301 | 76.6% |
| I Don't Know | 32 | 8.2% | 37 | 9.4% |
| No Response | 4 | 1.0% | 2 | 0.5% |

**Respondents Who Fished for Spotted Seatrout**

A majority of respondents reported fishing for spotted seatrout in Louisiana (Figure 9). The question was framed without reference to a particular year to allow those who may routinely fish for spotted seatrout but were unable to so in 2017 to identify themselves as anglers who pursue the species. All those who said they fished for seatrout were labeled "seatrout-targeting respondents" and were asked a series of questions pertaining to seatrout fishing and management.

**Figure 9. Percentage of L.D.W.F. Saltwater Angler Survey Respondents Who Reported Fishing for Spotted Seatrout in Louisiana**

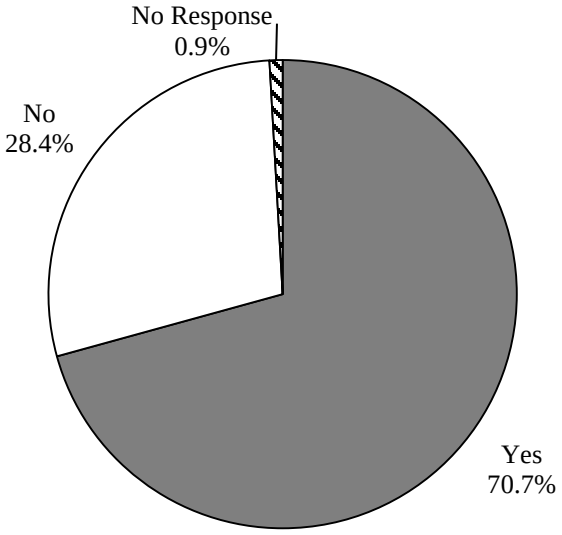



**Table 9. Number of Responses to the Question, "Do You Fish for Spotted Seatrout in Louisiana?"**

| | Short Version Respondents | | Long Version Respondents | |
|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** |
| Yes | 273 | 70.2% | 276 | 70.2% |
| No | 112 | 28.8% | 111 | 28.2% |
| No Response | 4 | 1.0% | 6 | 1.5% |

**Areas in Which Seatrout-Fishing Respondents Fished for Spotted Seatrout**

Seatrout fishing respondents were asked to indicate in which of six specific coastal water basins they fished for spotted seatrout. The Terrebonne/Timbalier Basin was used as seatrout grounds by the largest number of seatrout-fishing respondents (Figure 10). The Pontchartrain Basin (East of the River) was used by 23.9 percent seatrout-fishing respondents and the Barataria Basin by 21.9 percent.

A large number marked the "other" selection. To reduce the cognitive burden on the survey subjects and to facilitate the timely compilation of the survey data, the questionnaire did not ask respondents to specify the other water bodies in which they fished. It is likely that many of the respondents who marked the "other" selection fished at specific sites that fall within the basins named in the questionnaire.

The average seatrout-fishing respondent fished for seatrout in 1.3 of the selected basins. Nearly two-thirds (66.2 percent) fished in a single basin, 22 percent in any two, and 7.1 percent in any three or four different basins. About 4.5 percent marked none.

**Figure 10. Areas Where Spotted Seatrout iby Seatrout-Fishing Respondents Reported Fishing for Spotted Seatrout**

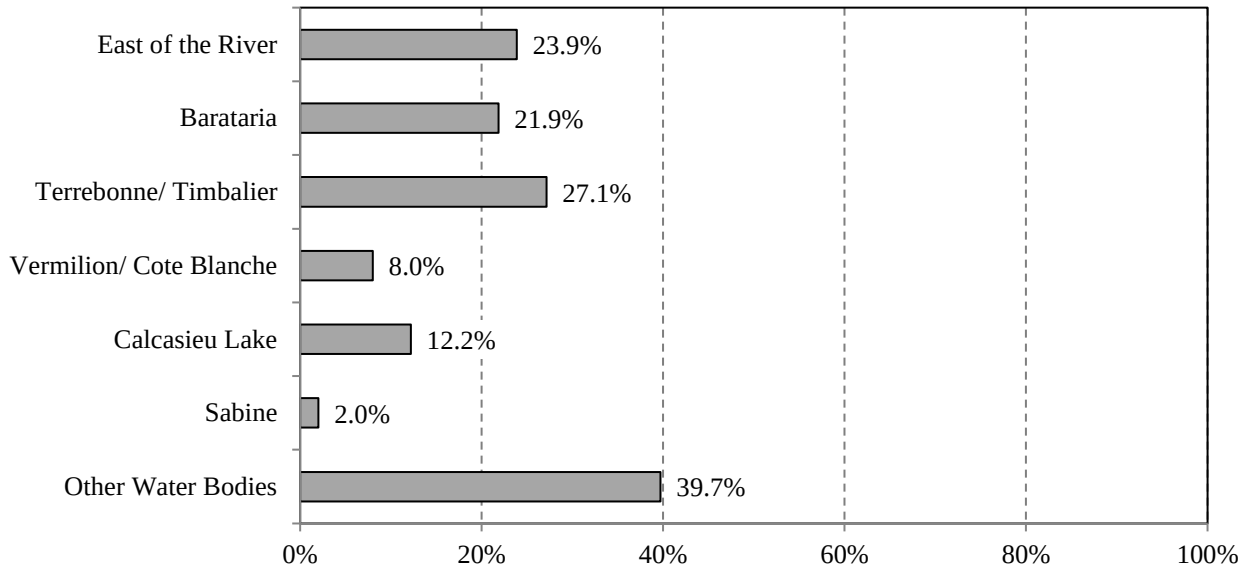



**Table 10. Number of Responses to the Question, "In Which of These Areas Do You Fish for Spotted Seatrout?"**

| | Short Version Respondents | | Long Version Respondents | |
|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** |
| East of the River (Pontchartrain) | 65 | 23.5% | 67 | 23.8% |
| Barataria | 54 | 19.5% | 67 | 23.8% |
| Terrebonne/Timbalier | 69 | 24.9% | 81 | 28.7% |
| Vermilion/Cote Blanche | 21 | 7.6% | 24 | 8.5% |
| Calcasieu Lake | 39 | 14.1% | 29 | 10.3% |
| Sabine | 4 | 1..4% | 7 | 2.5% |
| Other Water Bodies | 123 | 44.4% | 97 | 34.4% |

About 40 percent of those who fished for seatrout "east of the river" in the Pontchartrain Basin reported fishing only in that basin. Over one-quarter (26.5 percent) of these also fished in Barataria and 15.2 percent also fished in the Terrebonne/Timbalier area.

Over one-third (34.7 percent) of those who fished for seatrout in the Barataria Basin fished for them exclusively in that area. Twenty-nine percent of them also fished "east of the river", 26.5 percent in the Terrebonne/Timbalier Basin, and 6.6 percent in the Vermilion Basin.

The majority (60.7 percent) of those who used in the Terrebonne/Timbalier Basin for seatrout fishing did so entirely in that area. Over one-fifth (21.3 percent) also fished in the Barataria Basin and 13.3 percent in the Pontchartrain Basin. Six percent or less also fished in the Calcasieu or Vermilion basins.

Of those who fished in the Calcasieu Basin for seatrout, 45.6 percent did so only in that basin. Forty-two percent of those who fished in Vermilion/Cote Blanche did so only in that area.

**Perceived Change in Spotted Seatrout Fishing among Seatrout-Fishing Respondents**

The questionnaire asked respondents to report whether they believed if the seatrout fishing in the area where they fished had improved, stayed the same, or grown worse. The intent of this item was to devise a measure of respondents' general impressions of changes in their fishing experiences that might be useful in later analyses. This variable is imprecise, lacking a specific benchmark for comparison, a single, comprehensible standard suitable for such a diverse population being difficult to devise.

The majority (58.7 percent) of all seatrout-fishing respondents said the fishing had not changed in the areas where they fished for spotted seatrout (Figure 11). About 15 percent thought it had improved and 22.8 percent thought that it had worsened.

For exploratory purposes, this research categorized seatrout-fishing respondents by the number of days they reported to have fished in saltwater in 2017 to examine possible differences in the perception of changes in seatrout fishing among those with differing levels of saltwater fishing activity. Inferences from these results to the overall population might not be appropriate because the sample was not drawn using this characteristic as a stratification parameter. The first of these "saltwater fishing frequency categories" included 239 anglers who fished in saltwater for less than the sample median number of days among seatrout-fishing respondents (that is, one to 11 days). The second category consisted of 127 respondents who engaged in saltwater fishing for 12 days (the subsample median) to 20 days (just below the subsample average). The third category contained 161 anglers who fished in saltwater for 21 days or more in 2017.

Over two-thirds of the respondents who fished in saltwater for one to 11 days said they noticed no change in seatrout fishing, compared to 48.8 percent of those with 12 to 20 days and 52.8 percent of those with 21 or more days (Table 11A). About 19 percent of those with one to 11 days of saltwater fishing thought the fishing had grown worse while 30.7 percent of those with 12 to 20 days of saltwater fishing said the same.

**Figure 11. L.D.W.F. Saltwater Angler Survey Respondents' Perceptions of Change in Seatrout Fishing in the Area Where They Fish**

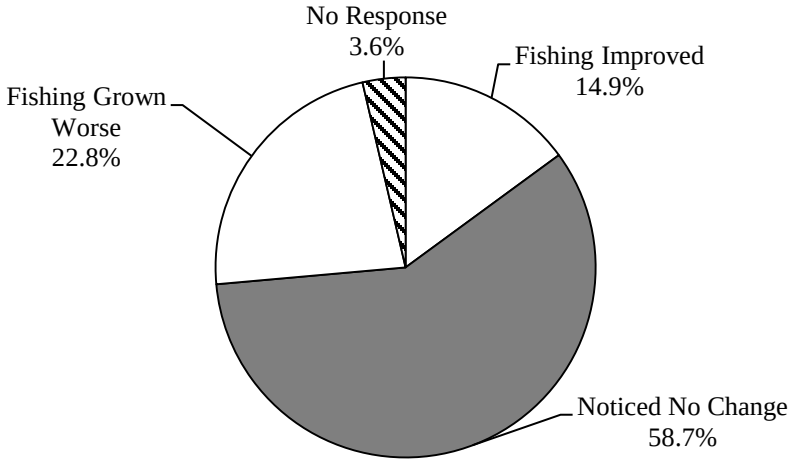



**Table 11. Number of Responses to the Question, "Have You Noticed a Change in Seatrout Fishing in the Area Where You Live?"**

| | Short Version Respondents | | Long Version Respondents | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| Yes, It Has Improved | 46 | 16.6% | 38 | 13.4% |
| No, It Seems about the Same | 148 | 53.4% | 178 | 63.1% |
| Yes, It Has Grown Worse | 73 | 26.4% | 53 | 18.8% |
| No Response | 10 | 3.6% | 13 | 4.6% |

**Table 11A. Respondents' Assessments of the Perceived Change in Seatrout Fishing by Saltwater Fishing Frequency Category**

| Number of Saltwater Fishing Days in 2017 | 1 to 11 Days | | 12 to 20 Days | | 21 Days or More | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| Yes, It Has Improved | 23 | 9.6% | 21 | 16.5% | 36 | 22.4% |
| No, It Seems about the Same | 161 | 67.4% | 62 | 48.8% | 85 | 52.8% |
| Yes, It Has Grown Worse | 45 | 18.8% | 39 | 30.7% | 37 | 23.0% |
| No Response | 10 | 4.2% | 5 | 3.9% | 3 | 1.9% |

The percentage of those with one to 11 days of saltwater fishing in 2017 who believed that the fishing had improved (9.6 percent) was less than half the share who held this opinion among respondents who fished for 21 days or more (22.4 percent). The root cause of the difference could not be identified with the available data and sampling procedures.

Within each basin, majorities of 53.8 percent to 62.2 percent said they thought seatrout fishing had stayed the same (Table 11B). Among respondents who fished in the Barataria Basin or Terrebonne-Timbalier Basin, the percentages seeing an improvement were larger than the percentages seeing a decline. In contrast, among those who fished in the Vermilion-Cote Blanche Basin, the Calcasieu Lake Basin, or "east of the river", the share perceiving a decline was larger than the share perceiving an improvement. Though these differences might be examined for exploratory purposes, inferences should not be drawn from these observed variations because the sample did not use the basins fished as a stratification parameter.

It was previously demonstrated that large numbers of respondents who fished for seatrout in a given basin also reported fishing in other basins. Consequently, an examination of the perceptions of the change in seatrout fishing among individuals who fished in only one basin more be more indicative of what people believe is happening within a specific area. Caution is advised in interpreting these data because the sample size are frequently rather small.

Of those who fished only "east of the river", 40.7 percent thought seatrout fishing in that area had stayed the same; 44.4 percent believed it had grown worse; and 14.8 percent said it had improved. Majorities of those who reported fishing for seatrout only in the Barataria Basin or the Terrebonne Basin believed that seatrout fishing in those areas had stayed the same (Table 11C). About a fifth of those who fish exclusively in either of these areas believed the fishing had improved and 14 to 15 percent thought it had grown worse.

In Table 11C, respondents who fished exclusively in the Calcasieu Lake or Sabine basins were combined into a single reporting category[2] to allow the examination of the patterns of responses from respondents whose seatrout-fishing activity was expended entirely in either of these southwestern areas in which daily limits of 15 fish per angler are already in place. Half of these respondents thought seatrout fishing had stayed the same; 11.1 percent saw it as improving; and 38.9 percent thought it had grown worse.

**Seatrout-Fishing Respondents' Preferences for Lowering Seatrout Creel Limit**

The central item in the question asked respondents to express their views on a hypothetical reduction in the daily creel limit for spotted seatrout. As previously mentioned, there were two different versions of this question, each submitted to distinct subsets of survey subjects, to examine the possible effects of the wording of the question on respondents' views of the proposal.

**Table 11B. Respondents' Assessments of the Perceived Change in Seatrout Fishing by Basin in Which They Fished for Spotted Seatrout**

| | East of the River | Barataria | Terrebonne - Timbalier | Vermilion – Cote Blanche | Calcasieu Lake |
|---|---|---|---|---|---|
| **Number** | 132 | 121 | 150 | 45 | 68 |
| It Has Improved | 17.4% | 23.1% | 21.3% | 11.1% | 11.8% |
| It Seems about the Same | 53.8% | 62.0% | 60.0% | 62.2% | 55.9% |
| It Has Grown Worse | 28.8% | 14.9% | 18.7% | 26.7% | 32.4% |
| The Sabine Basin was not included in this analysis because of the small size of the subsample (N = 11). | | | | | |

**Table 11C. Respondents' Assessments of the Perceived Change in Seatrout Fishing by Basin among Respondents Who Fished for Spotted Seatrout Only in the Specified Areas**

| | East of the River | Barataria | Terrebonne - Timbalier | Calcasieu Lake or Sabine |
|---|---|---|---|---|
| **Number** | 54 | 42 | 91 | 36 |
| It Has Improved | 14.8% | 26.2% | 23.1% | 11.1% |
| It Seems about the Same | 40.7% | 59.5% | 61.5% | 50.0% |
| It Has Grown Worse | 44.4% | 14.3% | 15.4% | 38.9% |
| The Vermilion-Cote Blanche Basin (N=19) was not included in this analysis because of the small size of the subsample. | | | | |

[2] The thirty-six respondents included 31 who fished for seatrout entirely in Calcasieu Lake, one who fished entirely in the Sabine Basin, and four who fished in both the Calcasieu Lake and Sabine basins but nowhere else in Louisiana.

The short version (Box 1) told respondents that "some recreational fishermen" proposed a statewide reduction in the daily creel limit from 25 fish to 15 fish per angler and asked them to identify the extent of their support or opposition on a five-point Likert scale. The long version featured the same introduction and question plus a 92-word outline that attempted to provide a balanced description of perspectives regarding the proposed creel limit change. Two-thirds of this exposition described the views of proponents of a lower limit, citing habitat loss, coastal erosion, and subsidence and mentioned the fact that other Gulf states recently tightened regulations on the species. The remainder of the exposition stated that the Department's recent assessments "did not indicate a biological need to reduce the limit." Prior to the administration of the survey, the text of both versions of the question was shared with stakeholders outside the Department to detect and correct phrasing that may be perceived as being inaccurate, misleading, or biased.

There was some concern that respondents to the long version might not be representative of the opinions of the population of saltwater anglers. Because of the prolonged explanation attached to the question, they may possess information regarding the issue that most anglers might not have.

*Survey Results*

Neither the short version nor the long version garnered a majority opinion on either side of the issue.

Thirty-seven percent of the short version of the questionnaire expressed moderate (17.0 percent) or strong (20.2 percent) support for the proposal to lower the creel limit for spotted seatrout statewide (Table 12). Thirty-five percent moderately (9.0 percent) or strongly (25.9 percent) opposed the matter. About one in four neither supported nor opposed it.

**Box 1. Wording of Alternative Versions of the Question Pertaining to the Proposed Change in Daily Seatrout Limits**

| Short Version | Long Version |
|---|---|
| The current daily limit for Spotted Seatrout for most of Louisiana is 25 fish per day, except for certain areas in southwest Louisiana. Some recreational fishermen have suggested lowering the limit to 15 fish per day statewide.<br><br>To what extent do you support or oppose lowering the daily limit of Spotted Seatrout from 25 to 15 fish per angler statewide? | The current daily limit for Spotted Seatrout for most of Louisiana is 25 fish per day, except for certain areas in southwest Louisiana. Some recreational fishermen have suggested lowering the limit to 15 fish per day statewide.<br><br>Some people are concerned that the coastal marsh habitat may soon be unable to produce and support the numbers of spotted seatrout we have seen in the past as more coastal wetlands are lost to erosion and subsidence. Other states in the Gulf have tightened their regulations on this species in recent years, lowering their limits and increasing the minimum size.<br><br>The most recent LDWF stock assessments of spotted seatrout and biological sampling data do not indicate a biological need to reduce the daily limit from 25 to 15 at this time.<br><br>To what extent do you support or oppose lowering the daily limit of Spotted Seatrout from 25 to 15 fish per angler statewide? |

**Table 12. Number of Responses to the Question, "To What Extent Do You Support or Oppose Lowering the Daily Limit for Seatrout from 25 to 15 Fish per Angler Statewide?"**

| | Short Version Respondents | | Long Version Respondents | |
|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** |
| Strongly Support | 56 | 20.2% | 46 | 16.3% |
| Moderately Support | 47 | 17.0% | 54 | 19.5% |
| Neither Support nor Oppose | 72 | 26.0% | 57 | 20.2% |
| Moderately Oppose | 25 | 9.0% | 52 | 18.4% |
| Strongly Oppose | 69 | 25.9% | 61 | 21.6% |
| No Response | 8 | 2.9% | 12 | 4.3% |

Among respondents to the long version, thirty-six percent supported the proposal moderately (19.5 percent) or strongly (16.3 percent). Forty percent moderately (18.4 percent) or strongly (21.6 percent) opposed it. One fifth neither supported nor opposed lowering the limit. The pattern of responses among long version respondents was significantly different ($\chi^2_{(\alpha = 0.05,\ df = 4)} = 13.17$) from the pattern seen among short version repondents.

Differences in the prevalence of specific responses were examined using odds ratio tests that compared the relative differences between the subsamples of the percentage of responses in one category over the percentage in another category. Respondents to the long version provided a relatively high number of "moderately oppose" responses in proportion to the number of "strongly oppose" responses, "neither support nor oppose" responses, and "strongly support" responses.

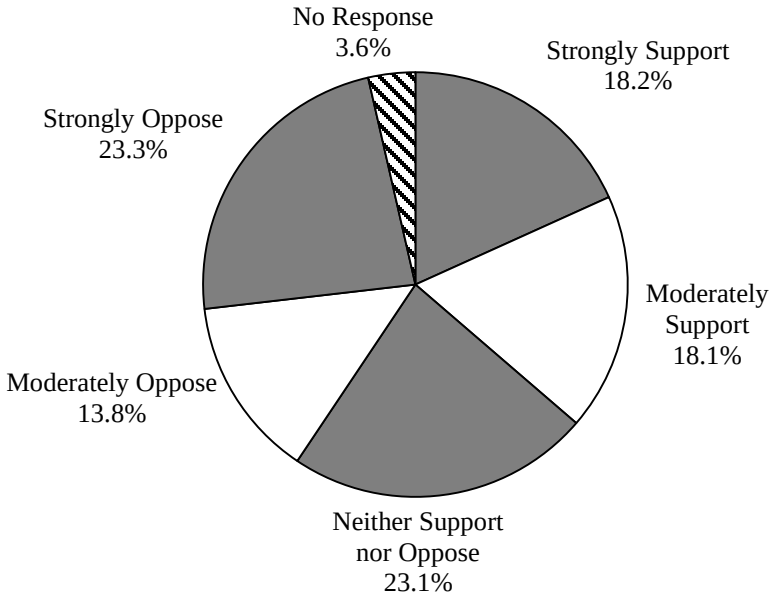
The additional information provided in the exposition included in the long version of the central question appears to be associated with an increase in the level of moderate opposition from respondents who participated in a survey administered at a particular time in early 2018. Under either configuration of the question, a position of opposition (moderately or strongly oppose) stands as a minority opinion. At the same time, levels of support - which are similar in both samples – are also in the minority.

Fairly large percentages neither supported nor opposed the change. It is possible that some of these individuals shift their views towards support or opposition as time goes by, more information becomes available, or conditions change. Whether these shifts would occur in a sufficient degree to tip the balance towards support or opposition cannot be determined.

**Patterns of Support or Opposition Expressed by Different Categories of Respondents**

This section combines the responses from both versions of the survey into a single sample (Figure 12) to examine differences in the level of support or opposition among different categories of respondents defined by their responses to survey questions regarding the number of saltwater fishing days in 2017, the basins in which they fished for seatrout, and their perceptions of changes in seatrout fishing. The statistics generated in this exercise are primarily for investigative purposes. Inferences from these survey results to the overall population might not be appropriate because none of these variables was used in the process of stratifying the sample drawn for the survey.

**Figure 12. L.D.W.F. Saltwater Angler Survey Respondents' Support for or Opposition to Lowering the Daily Limit of Spotted Seatrout from 25 to 15 Fish per Angler Statewide**




Moderate differences in the level of support or opposition were observed among seatrout-fishing respondents within the survey's saltwater fishing frequency categories (Table 12A). Strong or moderate support for lowering the daily creel limit was expressed by 32.3 percent of those who fished for one to 11 days, 35.8 percent of those who fished for 12 to 20 days, and 40.4 percent of those who fished for more than 20 days in saltwater in 2017. Strong or moderate opposition was cited by 37.3 percent of those who fished for one to 11 days, 40.1 percent of those who fished 12 to 20 days, and 37.9 percent of those who fished for 21 days or more.

Differences in the expressed levels of support for or opposition the proposal were seen among respondents who fished for spotted seatrout in different basins (Table 12B). Moderate or strong support for lowering the limit were expressed by pluralities of those who reported seatrout fishing "east of the river" (41.7 percent), in the Vermilion Basin (42.2 percent), or in Calcasieu Lake (47.2 percent). On the other hand, pluarlities of responents who fished in the other basins expressed some level of opposition.

**Table 12A. Support for or Oppose to Lowering the Daily Limit for Seatrout from 25 to 15 Fish by Saltwater Fishing Frequency Category**

| Number of Saltwater Fishing Days in 2017 | 1 to 11 Days | | 12 to 20 Days | | 21 Days or More | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| Strongly Support | 35 | 14.7% | 21 | 16.6% | 37 | 23.0% |
| Moderately Support | 42 | 17.6% | 24 | 18.9% | 28 | 17.4% |
| Neither Support nor Oppose | 65 | 27.2% | 26 | 20.5% | 32 | 19.9% |
| Moderately Oppose | 36 | 15.1% | 22 | 17.3% | 18 | 11.2% |
| Strongly Oppose | 53 | 22.2% | 29 | 22.8% | 43 | 26.7% |
| No Response | 8 | 3.3% | 5 | 3.9% | 3 | 1.9% |

**Table 12B. Respondents' Support for or Opposition to Lowering the Daily Creel Limit for Spotted Seatrout by Basin in Which They Fished for Spotted Seatrout**

| | East of the River | Barataria | Terrebonne - Timbalier | Vermilion – Cote Blanche | Calcasieu Lake |
|---|---|---|---|---|---|
| **Number** | 132 | 121 | 150 | 45 | 68 |
| Strongly Support | 22.0% | 17.4% | 20.7% | 24.4% | 30.9% |
| Moderately Support | 19.7% | 19.8% | 18.0% | 17.8% | 16.2% |
| Neither Support nor Oppose | 20.5% | 18.2% | 20.7% | 20.0% | 23.4% |
| Moderately Oppose | 20.5% | 19.8% | 13.3% | 8.9% | 10.3% |
| Strongly Oppose | 16.7% | 24.8% | 27.3% | 28.9% | 19.1% |
| No Response | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% |
| The Sabine Basin was not included in this analysis because of the small size of the subsample (N = 11). | | | | | |

A narrower measure of basin-level variaitions may be obtained by examining the patterns of responses among those who fished for seatrout exclusively within a single area (Table 12C). Of those who fished for seatrout entirely "east of the river", only in the Barataria Basin, or exclusively in the Terrebonne/Timbalier Basin, neither support nor opposition drew a majority opinion.

The majority (55.5 percent) of the 36 respondents who fished for spotted seatrout entirely in the Calcasieu Lake or Sabine basin strongly or moderately supported lowering the limit statewide, more than twice the percentage who strongly or moderately opposed it. It should be noted that the survey asked respondents for their views of a proposal to lower the limit statewide, not for their perspective of the efficacy of the current daily creel limits in the Calcasieu Lake or Sabine basins. Support for (or oppostion to) the former does not imply a similar view on the latter.

Differences in the level of support or opposition could be observed among respondents who held different perceptions of the change in spotted seatrout fishing in the area where they fished (Table 12D). Because this parameter was not used to stratify the survey sample, inferences from these results to the overall population might not be appropriate. Among respondents who thought the fishing had grown worse, a majority (55.5 percent) expressed some level of support for lowering the limit and only 29.4 percent expressed some level of opposition. The positions were reversed among those who thought the fishing had grown better. Of those who thought that fishing had improved, the share of respondents expressing some level of opposition (47.6 percent) was notably larger than the share expressing some level of support (28.6 percent).

**Table 12C. Support for or Opposition to Lowering the Daily Creel Limit for Spotted Seatrout by Basin among Respondents Who Fished for Spotted Seatrout Only in the Specified Basin**

| | East of the River | Barataria | Terrebonne - Timbalier | Calcasieu Lake or Sabine |
|---|---|---|---|---|
| **Number** | 54 | 42 | 91 | 36 |
| Strongly Support | 14.8% | 19.1% | 16.5% | 36.1% |
| Moderately Support | 25.9% | 19.1% | 17.6% | 19.4% |
| Neither Support nor Oppose | 22.2% | 21.4% | 25.3% | 22.2% |
| Moderately Oppose | 18.5% | 16.7% | 13.2% | 16.7% |
| Strongly Oppose | 15.8% | 23.8% | 27.5% | 5.6% |
| The Vermilion-Cote Blanche Basin (N=19) was not included in this analysis because of the small subsample size. | | | | |

**Table 12D. Support for or Opposition to Lowering the Daily Limit for Seatrout by Respondents' Perceptions of Change in Fishing for Seatrout Where They Fish**

| | Fishing Has Improved | | Fishing Seems about the Same | | Fishing Has Grown Worse | |
|---|---|---|---|---|---|---|
| | **Number** | **Percent** | **Number** | **Percent** | **Number** | **Percent** |
| Strongly Support | 12 | 14.3% | 43 | 13.2% | 45 | 35.7% |
| Moderately Support | 12 | 14.3% | 63 | 19.3% | 25 | 19.8% |
| Neither Support nor Oppose | 20 | 23.8% | 90 | 27.6% | 18 | 14.3% |
| Moderately Oppose | 9 | 10.7% | 54 | 16.6% | 14 | 11.1% |
| Strongly Oppose | 31 | 36.9% | 76 | 23.3% | 23 | 18.3% |
| No Response | 0 | 0.0% | 0 | 0.0% | 1 | 0.8% |

**Conclusion**

Among respondents to this survey there was no clear dominance of opinion regarding support for or opposition to lowering the daily seatrout creel limit from 25 to 15 fish per day statewide. A considerable percentage of respondents neither supported nor opposed the proposed change.

There was an observable difference between the patterns of responses expressed by those who received different versions of the survey. A somewhat higher percentage of long version respondents than short version respondents expressed moderate opposition to lowering the limit but even so the level of opposition remained below a majority.

The phrasing of the long version of the central question might affect the representativeness of the responses of this subsample. Individuals who read the accompanying exposition of salient information may by that very process be more knowledgeable on the topic than the overall population.

This survey summarizes the opinions of hundreds of Louisiana residents who took advantage of the opportunity to share their perspectives on this issue with the government agency that is charged with managing the state's public biotic resources. Though it offered a convenient, low-cost means of garnering the perspectives of the Department's stakeholders, the survey method employed in this effort (an internet-based survey using e-mail contact information) presents challenges in extrapolating from the survey sample to the population. The survey sample was drawn from a pool of license holders with available e-mail addresses who may not be representative of the overall population of residents with saltwater fishing privileges.

Those who participated in the survey may be different from the overall population in other ways. Beyond potential differences between survey respondents and non-respondent in education and household incomes, individuals with a strong interest in fishing, especially saltwater fishing, might have been more likely to take part in the survey than individuals with lesser interest. Further, individuals with an unfavorable opinion of the Louisiana Department of Wildlife and Fisheries may be less likely than others to respond to a survey administered by the agency for which they hold a critical view.

Finally, it is good to be aware that this survey represents a temporal measure of saltwater fishermen's perspectives at a particular time, early January 2018. Anglers' opinions may differ at different times as more information becomes available and discussion of the issue evolves.

**References**

Ogunyinka, Ebenezer, and David R. Lavergne. *2008 Louisiana Recreational Fisherman and Health Advisory Survey Report* (Baton Rouge, Louisiana: Louisiana Department of Wildlife and Fisheries) June, 2009.

## Addendum to a Report Summarizing the Results of Online Surveys of Louisiana Residents with Recreational Saltwater Fishing Privileges

### Introduction

The Louisiana Department of Wildlife and Fisheries (L.D.W.F. or the Department) conducted an on-line survey of residents with saltwater fishing privileges in January 2018 to assess their views of a proposed tightening of recreational harvest regulations for spotted seatrout (*Cynoscion nebulosus*). The survey featured a split sample, presenting half of the survey subjects with a short version of the central question with no explanatory text and half of the subjects with a long version with a two-paragraph exposition of different perspectives on the issue. The purpose of the split sample was to examine ways in which the provision of additional information might affect the patterns of expressed support for or opposition to lowering the daily creel limit from 25 to 15 fish per angler across the entire state of Louisiana.

The exposition included in the long version of the central question was constructed with an eye towards balance to avoid tilting responses one way or the other, that is, towards support and away from opposition or towards opposition and away from support. The wording was framed by L.D.W.F. staff, tested with stakeholders to detect phrasing that might be perceived as biased, and reworked as necessary. The text included statements describing why some people have proposed lowering the limit: namely, concerns that changing conditions that may have compromised the capacity of the coastal marsh to support seatrout production (Box 1). It also pointed out that other Gulf states have recently adopted tighter regulations on the species. The exposition closed with a statement that recent L.D.W.F. stock assessments did not demonstrate a biological need to reduce the daily limit at the time of the survey.

After the survey was launched was launched in January 2018, a small number of recipients called fisheries managers to express their opinion that the wording of the long version of the central question was biased, likely to steer respondents towards opposition to the proposed limit change. In response to their concerns, fisheries managers decided to launch a second survey using a revised version of the question, using wording from an earlier version that included more information than the original text of the long version.

The revised version of the long question (long version 2) differed from the original (long version 1) in three ways (Box 2). First, it inserted a seven-word prepositional phrase expanding on who was concerned about the future ability of the coastal marsh to support spotted seatrout numbers. (The language in long version 1 said "Some people are concerned …" Long version 2 stated "Some people in the scientific and recreational angling communities are concerned …") It was believed that this specification might help respondents better understand who held these views.

Second, long version 2 replaced the general description ("recent L.D.W.F. stock assessment") with a more precise specification ("the 2014 L.D.W.F. stock assessment.") The specification of the timing might help respondents in their judgment of the relevance or timeliness of the stock assessment. Third, long version 2 removed a prepositional phrase ("at this time") from the end of the statement about the Department's view of the biological need to reduce the limit.

**Box 2. Wording of Alternative Versions of the Question Pertaining to the Proposed Change in Daily Seatrout Limits**

| Short Version | Long Version 1 | Long Version 2 |
|---|---|---|
| The current daily limit for Spotted Seatrout for most of Louisiana is 25 fish per day, except for certain areas in southwest Louisiana. Some recreational fishermen have suggested lowering the limit to 15 fish per day statewide.<br><br>To what extent do you support or oppose lowering the daily limit of Spotted Seatrout from 25 to 15 fish per angler statewide? | The current daily limit for Spotted Seatrout for most of Louisiana is 25 fish per day, except for certain areas in southwest Louisiana. Some recreational fishermen have suggested lowering the limit to 15 fish per day statewide.<br><br>Some people are concerned that the coastal marsh habitat may soon be unable to produce and support the numbers of spotted seatrout we have seen in the past as more coastal wetlands are lost to erosion and subsidence. Other states in the Gulf have tightened their regulations on this species in recent years, lowering their limits and increasing the minimum size.<br><br>The most recent LDWF stock assessments of spotted seatrout and biological sampling data do not indicate a biological need to reduce the daily limit from 25 to 15 at this time. | The current daily limit for Spotted Seatrout for most of Louisiana is 25 fish per day, except for certain areas in southwest Louisiana. Some recreational fishermen have suggested lowering the limit to 15 fish per day statewide.<br><br>Some people **in the scientific and recreational angling communities** are concerned that the coastal marsh habitat may soon be unable to produce and support the numbers of spotted seatrout we have seen in the past as more coastal wetlands are lost to erosion and subsidence. Other states in the Gulf have tightened their regulations on this species in recent years, lowering their limits and increasing the minimum size.<br><br>The **2014** LDWF stock assessment of spotted seatrout and biological sampling data do not indicate a biological need to reduce the daily limit from 25 to 15.<br><br>To what extent do you support or oppose lowering the daily limit of Spotted Seatrout from 25 to 15 fish per angler statewide? |

*Survey Population*

The survey population in the revised L.D.W.F. Saltwater Angler Survey was identical to that included in the original survey: Louisiana residents with saltwater fishing privileges at the time of the survey. The L.D.W.F. Socioeconomic Research and Development Section obtained anonymous records if individuals with saltwater fishing privileges. This included individuals with any of several annual licenses[3] in the current license to date and individuals over 16 years of age who obtained any of the appropriate lifetime licenses[4] between June 1, 2012 and December 2017. Not all those with saltwater fishing privileges are actually saltwater anglers. Many with the legal right to fish in saltwater may not actually do so.

[3] Resident saltwater licenses, resident hook and line licenses, senior hunt and fish licenses, Sportsman's Paradise licenses, student saltwater fishing licenses, resident and non-resident military saltwater, resident Louisiana National Guard hunt and fish, and resident/native retired military hunt and fish licenses, Louisiana disabled saltwater licenses and hunt/fish disabled licenses.

[4] Lifetime hunting and fishing licenses, lifetime fishing licenses, and senior lifetime hunting and fishing licenses.

Three-quarters of the population with saltwater fishing privileges was male. The average age was 50 years old. Three in eight were 60 years old or older. Twenty-nine percent resided in the Metairie, Hammond, or New Orleans area[5]. Fifteen percent were in Baton Rouge or the surrounding area. Thirty-one percent lived in the Thibodaux or Lafayette area and 7.7 percent in southwest Louisiana (the Lake Charles area). About 17 percent lived in central or northern Louisiana.

About 36 percent of saltwater fishing privilege holders provided e-mail addressed to the Department. The average age among these individuals (45 years old) was somewhat younger than the average age of the overall population of persons with saltwater fishing privilege. A disproportionately large share held resident saltwater fishing licenses and a smaller share held senior hunt and fish licenses. Compared to the population, a relatively large share resided in the Hammond, Metairie, or New Orleans areas and a relatively small share lived in central or north Louisiana.

*Revised Survey Instrument and Administration*

The survey instrument deployed in the revised survey was identical to that used in the original version except for the wording of the expository material accompanying the central question soliciting survey subjects' views of the proposed reduction in the daily creel limit for spotted seatrout.

In January 2018, the L.D.W.F. Socioeconomic Research and Development Section drew a sample of 1,567 individuals with resident saltwater fishing privileges who had not been included in the sample drawn for the original survey. The timing of the survey was intended to mimic that of the original, being open for the same number of calendar days, weekdays, and weekend days. The initial e-mail invitation, like the original survey, was sent on a Friday (January 26). Reminder messages were sent the following Thursday (February 1) and a final message was dispatched on a Sunday (February 4, 2018) with a notice of the impending closure on the following Tuesday (February 6).

Fifty-two messages were bounced (Table 13) and treated as non-deliverable to reduce the adjusted sample size to 1,515. Over half of the recipients (852) opened the e-mail message. Under half of these (410) "clicked through the questionnaire", that is, followed the link from the message to the on-line questionnaire. Three hundred sixty responded to the survey for a raw response rate of 23.8 percent.

**Age and Residence of Survey Respondents**

The average age of a respondent to the revised survey was 49.8 years old (Table 4), not significantly different from the average age of respondents to the original survey. About six percent was younger than 30 years old (Figure 13). One fifth were in their 30's, another fifth were in their 40's, and 26.4 percent in their 50's. Over one quarter were 60 or older.

[5] Areas were defined by the Sectional Center Facility appropriate to the licensees' ZIP codes.

Twenty-seven percent of the respondents resided in the portions of the Hammond, Metairie, or New Orleans areas. (Figure 14). About a fifth lived in the Baton Rouge area. Almost 11 percent lived in central or north Louisiana.

**Recreational Fishing Activities of Survey Respondents**

The average number of days spent fishing in freshwater by revised survey respondents in 2017 was 14.9 (Table 15), not significantly different from the average among original survey respondents. One-third fished in freshwater for zero days, 27.0 percent for one to nine days, and 16.2 percent for 10 to 19 days (Figure 15).

The average number of saltwater fishing days in 2017 among revised sample respondents was 12.8 days, not significantly different from the average in the original survey. One quarter fished no days in saltwater, one third fished for one to nine days, 19.0 percent for 10 to 19 days, and 8.4 percent for 20 to 29 days.

Less than two percent of the revised survey respondents (1.7 percent) described themselves as owners or captains of charter boats or head boat (Figure 16). Thus most are considered to be private fishermen.

**Table 13. Survey Recipients and Respondents of the L.D.W.F. Revised Saltwater Angler Survey**

| | |
|---|---|
| Number of Recipients | 1,567 |
| Number of "Bounced" Messages | 52 |
| Adjusted Number of Recipients: | 1,515 |
| | |
| Respondents | 360 |
| Raw Response Rate | 23.8% |
| | |
| Number Who Opened the E-Mail | 852 |
| Number Who Did Not Open the E-Mail | 631 |
| Number Who Opted Out of This and Future Surveys | 32 |
| Number Who Clicked through the Questionnaire | 410 |

**Table 14. Age of Respondents to the L.D.W.F. Revised Saltwater Angler Survey**

| Number | Average | Median |
|---|---|---|
| 337 | 49.8 | 51 |

**Figure 13. Age of Respondents to the L.D.W.F. Revised Saltwater Angler Survey**

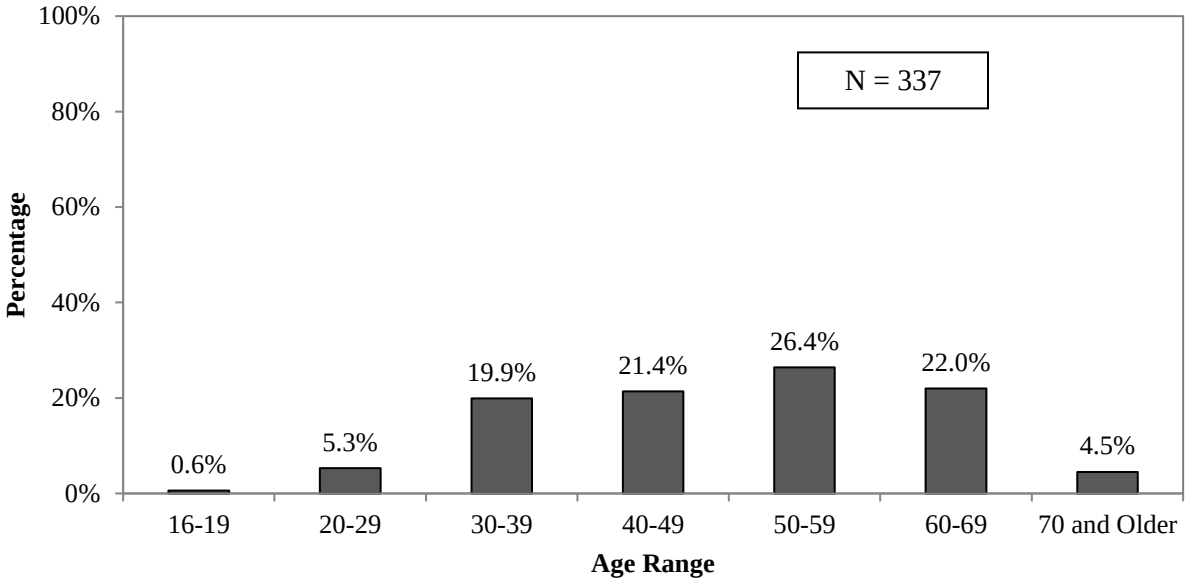



**Figure 14. Percentage of Respondents Residing within Specified Sectional Center Facility**

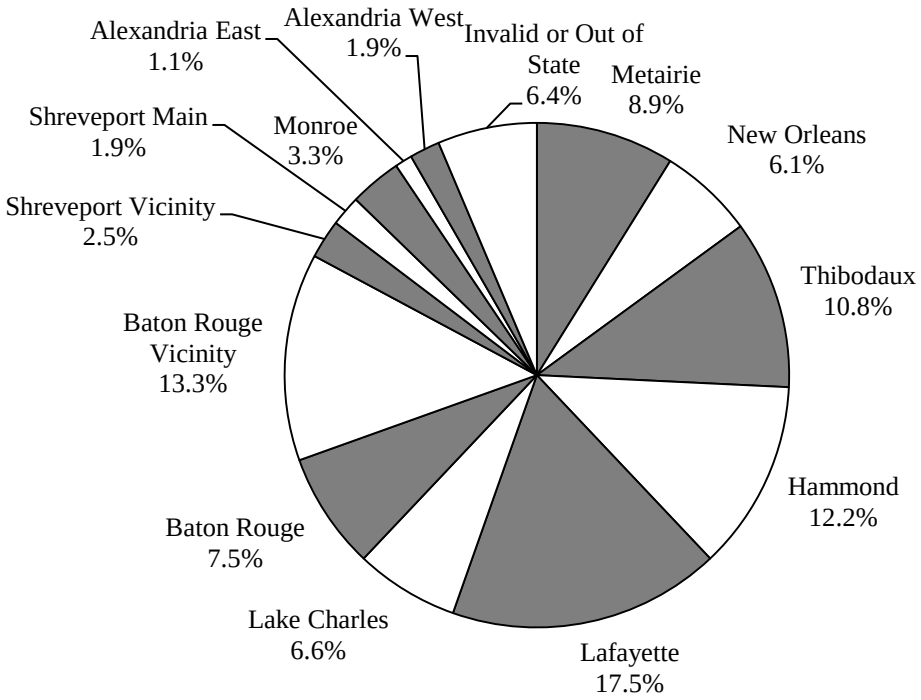
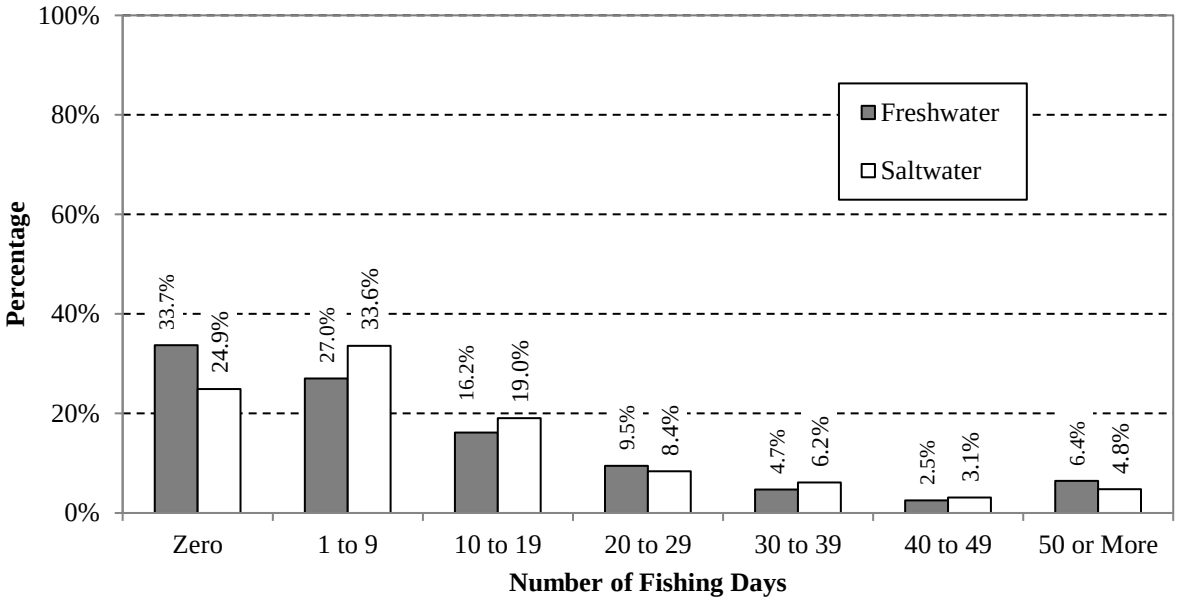


**Table 15. Days Fished in Freshwater or Saltwater by Respondents to the L.D.W.F. Revised Saltwater Angler Survey**

| | Number | Average | Median |
|---|---|---|---|
| Freshwater Days | 359 | 14.9 | 5 |
| Saltwater Days | 357 | 12.8 | 5 |

**Figure 15. Number of Fishing Days in 2017 by Respondents to the L.D.W.F. Revised Saltwater Angler Survey**




**Reported Utilization of Artificial Reefs**

About 10 percent of revised sample respondents reporting fishing over an artificial reef not including oyster reefs at some point in 2017 (Figure 17). Three-quarters said they did not and 10.4 percent did not know whether they fished over artificial reefs.

**Respondents Who Fished for Spotted Seatrout**

About two-thirds of revised survey respodents said they fished for spotted seatrourt in Louisiana, somewhat but not significantly less than the portion of the original sample who did so. These were labeled "seatrout-targeting respondents" and were asked a series of questions pertaining to seatrout fishing and management.

**Figure 16. L.D.W.F. Revised Saltwater Angler Survey Respondents' Status as Owner or Captain of Charter or Head Boats**

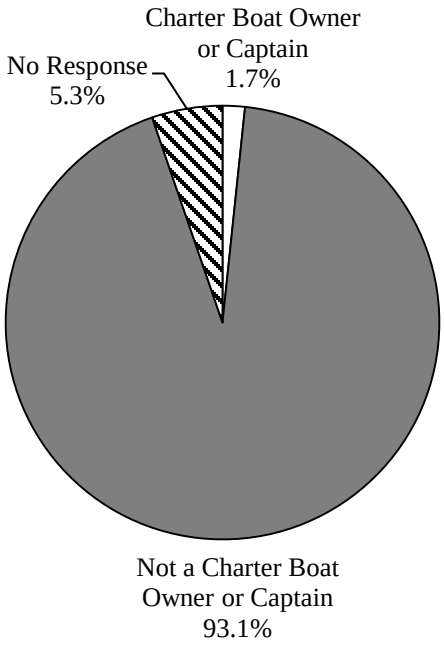



**Figure 17. L.D.W.F. Revised Saltwater Angler Survey Respondents Who Reported Fishing over Artificial Reefs in 2017**

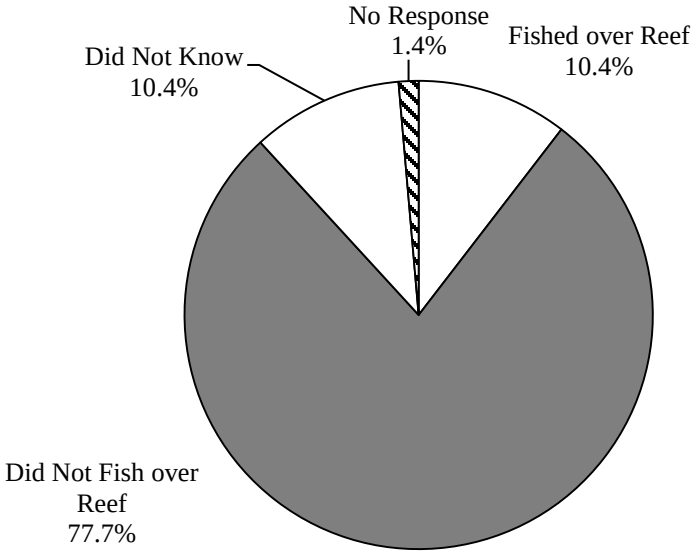
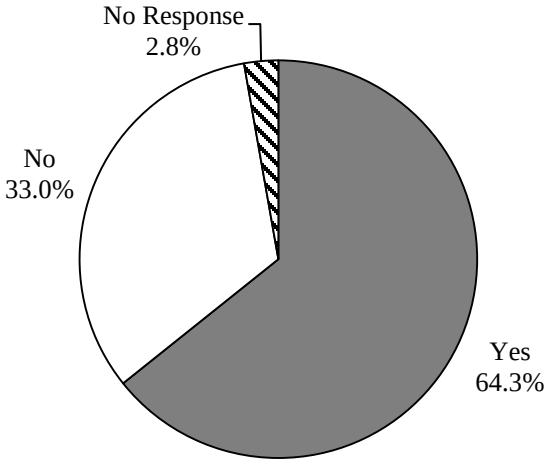


**Figure 18. Percentage of L.D.W.F. Revised Saltwater Angler Survey Respondents Who Reported Fishing for Spotted Seatrout in Louisiana**

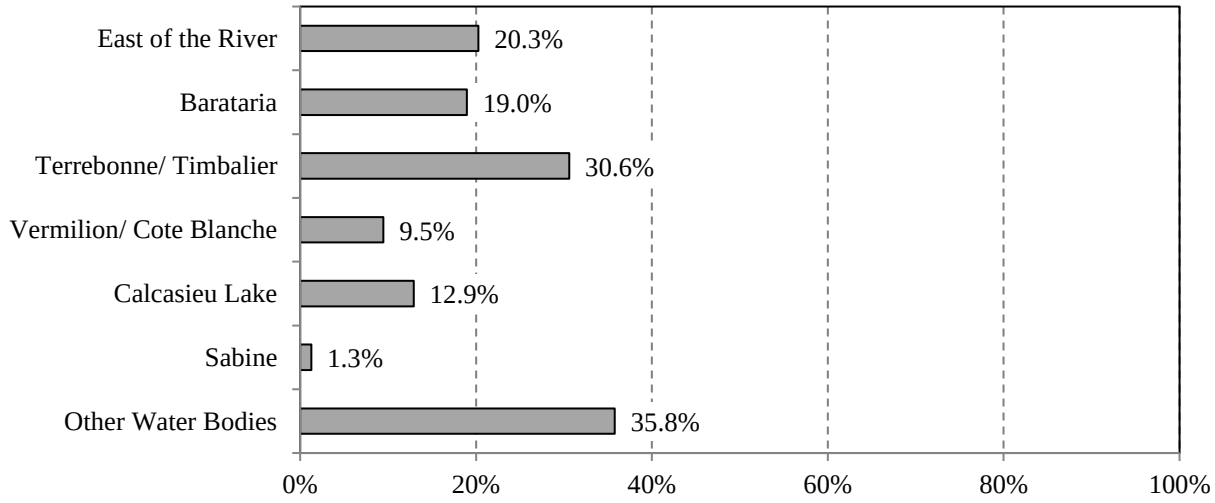



**Areas in Which Seatrout-Fishing Respondents Fished for Spotted Seatrout**

The Terrebonne/Timbalier Basin, cited by 30.6 percent, was the basin most commonly used by seatrout-fishing respondents as seatrout fishing grounds (Figure 19). One fifth fished for seatrout in the area "east of the river" (also called the Pontchartrain Basin) and 19.0 percent used the Barataria Basin. About 13 percent fished in the Lake Calcasieu Basin and about 10 percent in the Vermilion/Cote Blanche Basin.

About one-third marked the "other water bodies" alternative. A large number of these "other" locations were probably situated within the six basins though the respondents were unaware of it.

**Figure 19. Areas Where Spotted Seatrout by Seatrout-Fishing Respondents Reported Fishing for Spotted Seatrout**



**Perceived Change in Spotted Seatrout Fishing among Seatrout-Fishing Respondents**

Respondents were asked to judge subjectively whether the seatrout fishing in the area where they fished had improved, stayed the same, or worsened in recent years. The pattern of responses by revised survey respondents was similar to that for the original survey. The majority noticed no change in the fishery (Figure 20). More perceived a worsening (18.5 percent) than an improvement (13.4 percent).

**Seatrout-Fishing Respondents' Preferences for Lowering Seatrout Creel Limit**

The Revised Saltwater Angler Survey asked respondents to express their views of a hypothetical statewide change in the daily creel limit for spotted seatrout using the long version of the central question in the revised survey (long version 2) (Box 2). Revised survey respondents did not demonstrate a majority opinion either for or against the proposed tightening of recreational harvest regulations. About 30 percent moderately (13.6 percent) or strongly (16.3 percent) supported lowering the statewide limit from 25 to 15 seatrout per angler (Figure 21). About 37 percent moderately (16.1 percent) or strongly (21.1 percent) opposed it. Approximately one quarter (26.4 percent) neither supported nor opposed it.

*Comparisons with Alternatively Worded Questions in the Original Survey*

The purpose of the Revised Saltwater Angler Survey was to examine whether the responses to the long version of the central question in the revised survey (long version 2) differed from the responses to the long form in the original survey (long version 1) (Box 1). About 36 percent of the respondents to long version 1 moderately (19.5 percent) or strongly (16.3 percent) supported lowering the limit statewide (Table 16). Forty percent moderately (18.4 percent) or strongly (21.6 percent) opposed this proposed tightening of recreational harvest regulations. One-fifth neither supported nor opposed it. The pattern of responses to the long version 1 was not significantly different ($\chi^2_{(\alpha = 0.05,\ df = 4)} = 3.69$) from the pattern or responses to the long version 2.

**Figure 20. L.D.W.F. Revised Saltwater Angler Survey Respondents' Perceptions of Change in Seatrout Fishing in the Area Where They Fish**

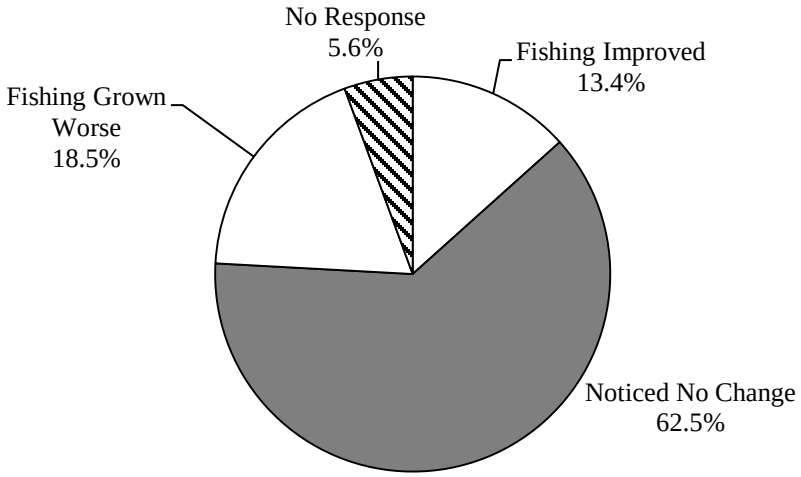


**Figure 21. L.D.W.F. Revised Saltwater Angler Survey Respondents' Support for or Opposition to Lowering the Daily Limit of Spotted Seatrout from 25 to 15 Fish per Angler Statewide**

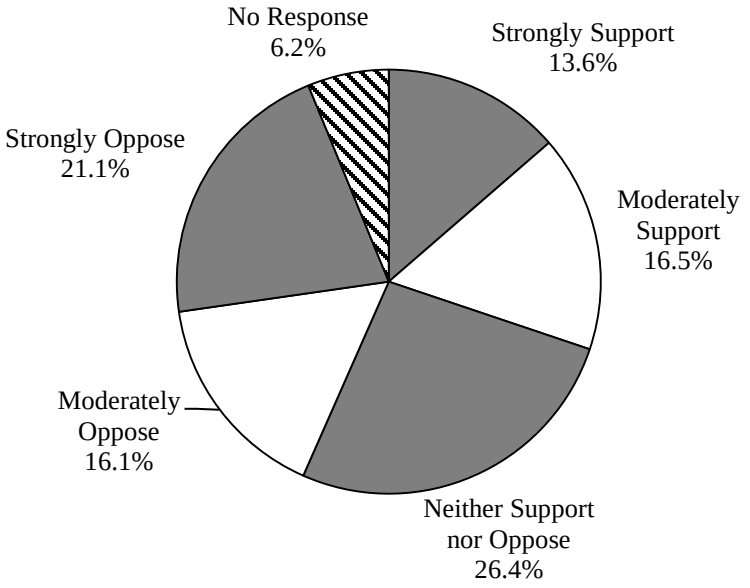



**Table 16. Number of Responses from the Central Survey Question by Respondents to the Original Survey and the Revised Survey**

| "To What Extent Do You Support or Oppose Lowering the Daily Limit for Seatrout from 25 to 15 Fish per Angler Statewide?" | Original Survey | | | | Revised Survey | |
|---|---|---|---|---|---|---|
| | Short Version Respondents | | Long Version 1 Respondents | | Long Version 2 Respondents | |
| | Number | Percent | Number | Percent | Number | Percent |
| Strongly Support | 56 | 20.2% | 46 | 16.3% | 33 | 13.6% |
| Moderately Support | 47 | 17.0% | 54 | 19.5% | 40 | 16.5% |
| Neither Support nor Oppose | 72 | 26.0% | 57 | 20.2% | 64 | 26.4% |
| Moderately Oppose | 25 | 9.0% | 52 | 18.4% | 39 | 16.1% |
| Strongly Oppose | 69 | 25.9% | 61 | 21.6% | 51 | 21.1% |
| No Response | 8 | 2.9% | 12 | 4.3% | 15 | 6.2% |

Responses to long version 2 in the revised survey were also compared to those from the short form of the question in the original survey which no expository information about the issue. About 37 percent the respondents to this short version moderately (17.0 percent) or strongly (20.2 percent) suppported the proposed change and about 35 percent moderately (9.0 percent) or strongly (25.9 percent) opposed it. Twenty-six percent neither supported nor opposed it. The pattern of responses to the short version in the original survey was not significantly different ($\chi^2_{(\alpha = 0.05,\ df = 4)} = 9.25$) from the responses to long question 2.

In one way, the revised survey was different from the original survey. Though it did not differ from the revised form of the long question, the pattern of responses to the short version did demonstrate a significant difference ($\chi^2_{(\alpha = 0.05,\ df = 4)} = 13.17$) from the pattern of responses to long version 1.

**Addendum Conclusion**

The revised survey revealed little difference in the levels of support for or opposition to the proposed statewide change in the creel limit for seatrout. The alteration in the wording appeared to have little effect on the pattern of respondents' answers. The survey also suggested that there was little change in stakeholders' opinions on this matter during the two weeks between the original and the revised survey.