Public Preferences for Spotted Seatrout Management in Louisiana

Preliminary Report

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Prepared by:

Rex Caffey[1], Jack Isaacs[2], Jason Adriance[3], Steve Midway[4],
Harry Blanchet[3], Maryam Tabarestani[2], Christian Winslow[3] and David Smith[4]

[1]LSU Agricultural Center and Louisiana Sea Grant College Program
[2] Socioeconomic Research and Development, Louisiana Department of Wildlife and Fisheries
[3] Office of Fisheries, Louisiana Department of Wildlife and Fisheries
[4]LSU Department of Oceanography and Coastal Sciences

SYNPOSIS

A stock assessment of Spotted Seatrout conducted by LDWF in 2019 indicates that the species has been overfished in six of the past 10 years, is currently undergoing overfishing, and is in need of regulatory action to recover the stock from its current condition. In January 2020, the Louisiana Wildlife and Fisheries Commission directed LDWF to conduct a survey of coastal anglers to collect public input on management options for stock recovery. Information was obtained from 3,594 respondents using three methods: electronic polling at public meetings, an email survey distributed to a random sample of license-holders, and an open-access web survey.

A review of results across the three modes indicates the presence of two primary groups: average anglers (email survey) and avid anglers (public meetings and web survey). In general, avid anglers reported fishing approximately twice as much as average anglers, had more diverse motivations for fishing; greater degrees of species specialization; and a higher average catch. Furthermore, avid anglers expressed greater levels of concern over conservation-related issues related to release mortality, regional fishing trends, and the overall status of Spotted Seatrout stock health coast-wide.

In terms of general preferences for management, a majority of both average and avid anglers were supportive of the idea that Spotted Seatrout recovery might require regulatory changes featuring a decrease in the creel limit, an increase in the minimum size limit, or the use of slot-based management. Both average anglers and avid anglers were generally opposed, however, to the use of seasonal closures as a strategy for Spotted Seatrout stock recovery.

A 5-point attitudinal scale (*Strongly Oppose, Slightly Oppose, Unsure, Slightly Support, Strongly Support*) was used to gauge respondent preferences for a series of five specific regulatory strategies. Each of these strategies were developed to meet the Department's stated goal of a five-year recovery through a 20% annual reduction in harvested fish. Two specific strategies emerged as preferred scenarios for future management.

The *Creel & Size III* option (15 fish, 13.5" minimum) and *Creel & Size I* option (12 fish, 13" minimum) were ranked first and second by survey respondents. Net preference (percent supported minus percent opposed) for the two options was estimated at 16.43% or 7.74%, respectively. These numbers, while modest, reflect a potential area of consensus amongst average and avid anglers.

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BACKGROUND

Spotted Seatrout (*Cynoscion nebulosus*) is the most frequently harvested estuarine species in the United States, with more than 60 million fish caught in 2018 by coastal anglers (NMFS 2020). The fish is a primary driver of recreational effort in the Gulf of Mexico region, and in Louisiana in particular. Data from the Louisiana Recreational Creel (LA Creel) survey of the Louisiana Department of Wildlife and Fisheries (LDWF) indicate that Spotted Seatrout comprised 54% of the total recreational catch by number of coastal species in 2018 (LDWF LA Creel 2019 data, unpublished).

Recreational harvest of Spotted Seatrout in Louisiana was first regulated in 1977, with the implementation of a 50 fish daily creel and two-day possession limit. In 1984, a combined limit of 50 Spotted Seatrout and Red Drum was instituted with a one-day possession limit. A minimum size limit of 12 inches (total length) was enacted in 1987, followed by a daily creel reduction to 25 fish per angler in 1988 (Blanchet et al. 2001). Possession limits were later refined in 1998 and 2018. Basin-specific management was first enacted in Southwestern Louisiana in 2004, and later revised in 2006 for a slot-based regulation extending from the Texas border to the Mermentau River (including Sabine and Calcasieu Lakes). For the remainder of the state, however, creel and size limits for Spotted Seatrout have remained unchanged for the past 32 years.

A recent stock assessment of Spotted Seatrout completed by LDWF in 2019 concluded that: the species has been overfished since 2014; overfishing has occurred in six of the past 10 years and is currently occurring; the proportion of female fish age three and older has been declining for nearly a decade; and, reproductive biomass is currently at the lowest levels recorded for the species in assessment history. The assessment further indicates that despite recent decreases in catch, overall fishing effort for Spotted Seatrout continues to increase (West, J., Zhang, X. and J. Adriance 2019).[1]

Findings of the assessment were presented to the Louisiana Wildlife and Fisheries Commission (LWFC) in September 2019. A follow-up presentation to the Commission in January 2020 included a range of regulatory options that would achieve the Department's goal of a 20% reduction in annual harvest for a five-year target recovery of spawning stock biomass. Regulatory proposals for reaching that goal included reduced creel limits, increased size limits, combinations of creel and size limit changes, and slot-based management (West et al. 2019). The Commission instructed the Department to conduct public outreach and to collect stakeholder feedback on the management options through a survey process.

[1] Summary findings and terminology from the 2019 stock assessment of Spotted Seatrout are available at: www.wlf.louisiana.gov/page/spotted-seatrout

METHODS

In the first quarter of 2020, a team of representatives from LDWF, LSU, and Louisiana Sea Grant met bi-weekly at the departmental headquarters in Baton Rouge. The team had three primary objectives. The first objective involved converting the technical findings of the recent stock assessment into a public outreach presentation of suitable length and clarity for lay audiences. The second objective involved designing a series of audience polling questions (to be integrated within the outreach presentation) to obtain public input on Spotted Seatrout management options. The third objective involved developing email and web surveys to collect similar information from the broader population of Louisiana's coastal anglers.

Public Meetings

A public outreach presentation based on the Department's 2019 Spotted Seatrout stock assessment was developed for delivery at eight public scoping meetings held statewide in February 2020. Meeting locations and times were advertised through electronic and printed media, television and radio, and via direct email messaging of the LDWF eNewsletter (Table 1). The one-hour long presentation was delivered by a Departmental biologist and included basic information on Spotted Seatrout biology, recreational sampling, landing trends, stock status, recovery targets, and potential management scenarios.

Embedded throughout the presentation was a series of 22 audience-polling questions. These interactive questions were built on a multiple-choice format and included 11 baseline i pertaining to audience demographics, angling avidity, fishing locations, target species, license types, and perceptions of stock health. An additional five questions utilized an attitudinal scale to assess the general levels of support or opposition for commonly used strategies for fisheries management (i.e. creel reductions, minimum size increases, slot-based management, season closures, and support for statewide regulatory consistency). The final six questions measured audience preferences for specific regulatory scenarios that would achieve the five-year recovery target and 20% reduction in annual harvest. Those scenarios included:

1. "Creel change only" option (10 fish, 12" minimum size)
2. "Size change only" option (25 fish, 14" minimum size)
3. "Creel and size" option (12 fish, 13" minimum size)
4. "Slot +1" option (12 fish, 13"– 20" slot, with 1 larger than 20")
5. "Basic Slot" option (12 fish, 13"– 20" slot)
6. "More restrictive" option (non-specified, more restrictive than 1–5)

Audience polling was conducted using hand-held electronic transmitters (clickers) obtained from Turning Technologies, Inc. Each clicker featured a 10-answer keypad (A, B, C, D, E, F, G, H, I and/or J), an LCD vote confirmation screen, and a 200-foot radio frequency transmission range. Following each of the 22 poll questions, the aggregated results of audience voting were displayed on screen. At the conclusion of

the presentation, an additional hour was provided for public questions and comments. Data collected from each public meeting by Louisiana Sea Grant staff and stored for later analysis in Turning-Point software (ver. 4.18). The final outreach presentation with embedded polling questions is included as Appendix C.

Table 1. Schedule and locations of public meetings

Location	Date	Time	Venue
Houma, LA	February 10, 2020	6:00 PM	North Branch Library, 4130 West Park Avenue
Baton Rouge, LA	February 12, 2020	6:00 PM	LDWF Headquarters, Herring Room, 2000 Quail Drive
Lafayette, LA	February 13, 2020	6:00 PM	Lafayette Council Chambers, 705 West University Avenue
Metairie, LA	February 19, 2020	6:00 PM	East Bank Regional Library, 4747 West Napoleon Avenue
Slidell, LA	February 20, 2020	6:00 PM	Slidell Municipal Auditorium, 2056 Second Street
Lake Charles, LA	February 26, 2020	6:00 PM	Calcasieu Parish Extension Office, 7101 Gulf Highway
Alexandria, LA	February 27, 2020	6:00 PM	Rapides Parish Extension Office, 300 Grady Britt Drive
Ruston, LA	February 29, 2020	1:00 PM	Lincoln Parish Library, 910 North Trenton Street

Email Survey

In parallel with the public meetings, another version of the audience polling questions was in development as a separate, stand-alone survey. The version included 20 of the original 22 questions featured at the public scoping meetings - including the 11 respondent baseline questions and the five questions gauging the acceptability general management strategies. Based on input obtained during public scoping process, two of the original management options were eliminated and replaced with a new option. The final email survey solicited public preferences for five specific management scenarios:

1. “Creel change only” option (10 fish, 12” minimum size)
2. “Size change only” option (25 fish, 14” minimum size)
3. “Creel & size I” option (12 fish, 13” minimum size)
4. “Creel & size II” option (12 fish, 13”- 20” slot, with 1 fish larger than 20”)
5. “Creel & size III” option (15 fish, 13.5” minimum size)

A companion set of questions was included for each of these scenarios in an attempt to measure potential changes in respondent effort (change in annual number of trips) for a given policy change. This question required the use of numerical data entry, an option not available on the clicker-based polls. The survey was programmed using the Qualtrics software (ver. 3.20) under a license held by Louisiana State University. The platform allows for conditional logic formatting, prevention of duplicate responses, and conversion features that allow for participation on personal computers or smartphones. The survey was approved by the LSU Institutional Review Board in March 2020. Originally slated for late March 2020, the survey was delayed due to the COVID-19 outbreak. On May 20, 2020 the survey was distributed to a

random sample of 11,000 email addresses.[2] These contacts were drawn from LDWF license records of 283,350 Louisiana resident anglers that held saltwater fishing privileges from July 2019 through March 2020. Reminder emails were sent to non-responding contacts on May 28 and June 4. The email survey remained open for four weeks and was closed on June 30th. The final survey can be found in Appendix B.

Web Survey

Given the high level of interest in Spotted Seatrout management, a third version of the questionnaire was developed to allow participation from an even broader range of anglers. An open-access (non-random), web version of the email survey was developed for anyone interested in participating. On June 9, 2020 a link to the web survey was posted on the LDWF website. Availability of the web survey was advertised through electronic and printed media, television and radio, and via direct email messaging of the LDWF eNewsletter. The web survey remained open for three weeks and was closed on June 30th.

RESULTS AND DISCUSSION

Taken together, the three modes of data collection accounted for the input of 3,594 individuals.[3] Seventeen percent of responses came from the eight *Public Meetings*, in which 628 respondents participated in interactive polling. Forty percent of the responses came from the *Email* Survey, in which 1,417 respondents participated, with 89% submitting fully completed surveys. Of the original 11,000 email contacts, 776 were invalid, resulting in an effective distribution of 10,224 and a response rate of 14%. The total number of fully completed email surveys (n=1259) is more than three times the minimum number of observations required for the estimated population (N=283,350) at a marginal sampling error rate of 5% (Dillman 2007). Finally, forty-three percent of the study data came from the *Web Survey*, in which 1,549 individuals provided useable responses, with 92% submitting completed surveys.

The spatial distribution of respondents by survey mode is provided in Figures 1 and 2. The following sections provide aggregated data for each mode under the headings of respondent characteristics, harvest levels and concerns, and general and specific preferences for management. Response numbers for individual questions vary given the non-mandatory aspect of individual questions and the use of data from partially completed surveys. For a more a detailed accounting of survey responses by question, see Appendix A. A compilation of public comments is provided in Appendix D.

[2] Sample size based on previous response rates and the minimum observations needed for representative surveying.
[3] This total does not included emails and online comments submitted LDWF via their Spotted Seatrout Hot Topic website: https://fs30.formsite.com/Jfroeba/b3xb0kyaew/index.html

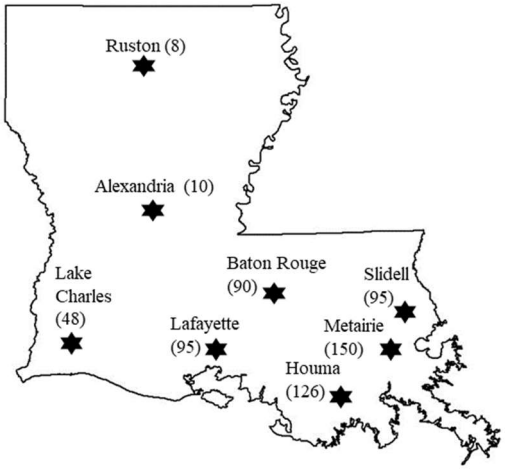

Figure 1. Location and polling participants for public meetings held in February 2020

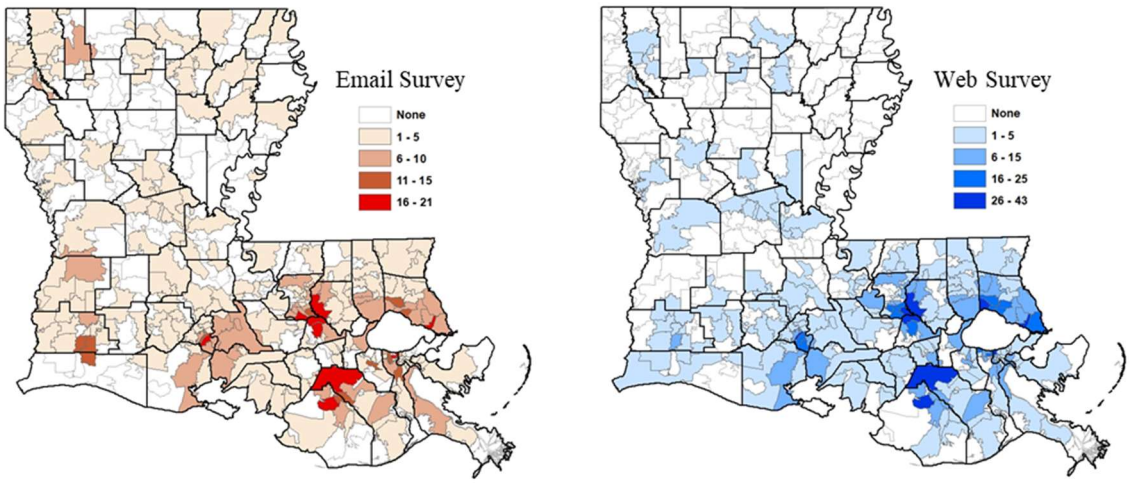

Figure 2. Resident location of survey respondents by ZIP Code. Dark black lines denote parishes and gray lines denote ZIP Codes

Respondent Characteristics

Table 2 provides a basic depiction of survey respondents in terms of age, avidity, and motivation for coastal fishing. The typical respondent that attended one of the eight public meetings was 57 years of age, made 31 coastal fishing trips annually, and fished primarily to relax (33%), enjoy nature (23%) and to get fish to eat (21%). Furthermore, public meeting attendees cited the "other" category at a much higher rate (15%) than the email and web respondents (2%), a difference likely driven by a higher proportion of public meeting attendees working within the charter-fishing sector.

Email survey respondents were slightly younger on average (51 years) and less active in terms of annual number of fishing trips (16 per year). Their motivations for coastal fishing ranked fishing for food as the largest single factor (40%), followed by relaxation (33%) and enjoying nature (20%). Web survey respondents had the youngest average age (48 years), averaged 27 trips per year, and food (43%), relaxation (30%) and nature (19%) were the top three motivations for coastal fishing. While the ages and motivations of respondents from these three modes are somewhat similar, their levels of avidity (as indicated by annual trips) are notably different. Self-selected respondents (meeting attendees and web survey) are clearly more avid, taking 40–48% more trips annually than the randomly selected email respondents.

The higher proportion of charter sector attendees at public meetings is evident in the various license types held by respondents (Table 3). Charter guides comprised 14% of respondents at public meetings, compared to only 1–2% in the email and web surveys. Furthermore, the basic saltwater license was held by approximately two-thirds of the email and web survey participants, versus only 43% of public meeting attendees. This difference likely reflects the older age of public meeting attendees, as evidenced by their 41% incidence of having a "senior" license, compared to email survey (22%) and web survey (16%) respondents. Some of these attendees likely held Lifetime licenses, a category that was not delineated as a separate category during the polling conducted at public meetings.

Respondents were asked to indicate their primary area of coastal fishing by selecting one of five coastal basins on a map (Table 4). Not surprisingly, the basins near larger coastal cities were most frequently selected. For example, "East of the Mississippi River", an area which comprises the coastal waters surrounding New Orleans, accounted for 33–37% of trips. Similarly, the Terrebonne-Timbalier basin, dominated by anglers from the Houma region, accounted for 26–33% of trips. Considerably less respondents reported fishing primarily in the Calcasieu-Sabine basin (7–13%) and even fewer (4–8%) reported fishing primarily in the Vermillion/Cote Blanche basin. This central region, while home to the coastal cities of Morgan City, New Iberia, and Lafayette, is heavily influenced by the Atchafalaya River and generally experiences lower overall salinity than observed in other basins.

Table 2. Age, avidity and motivations of survey respondents

Survey Mode	*n*	Age (years)	Trips (#/year)	Primary motivations for fishing: Get fish to eat	To relax	To enjoy nature	To build skill	To socialize	Other
Public meetings	617	53	31	21%	33%	23%	4%	4%	15%
Email survey	1170	51	16	40%	33%	20%	1%	4%	2%
Web survey	1514	48	27	43%	30%	19%	3%	3%	2%

Table 3. License types held by survey respondents

Survey Mode	*n*	Basic Fishing	Saltwater Fishing	Any "Senior" License	Any Other Special Category	Charter Boat Guide	Any Non-Resident License	Lifetime with Saltwater	None of the Above
Public meetings	620	32%	43%	41%	25%	14%	3%	-	1%
Email survey	1160	65%	67%	22%	5%	1%	1%	18%	0%
Web survey	1514	57%	66%	16%	4%	2%	3%	29%	1%

Table 4. Primary fishing regions of survey respondents

Survey Mode	*n*	Calcasieu Sabine	Vermilion Cote Blanche	Terrebonne Timbalier	Barataria	East of Miss. River	N/A
Public meetings	617	11%	6%	33%	16%	33%	1%
Email survey	1170	13%	8%	26%	22%	27%	5%
Web survey	1514	7%	4%	31%	21%	37%	0%

Harvest Levels and Concerns

Table 5 depicts the primary target species of coastal anglers across the three survey modes. Given this question allowed for multiple responses, the answers are reported as frequencies. Consistent with the Department's LA Creel survey data, the top three most frequently cited target species were Spotted Seatrout (76–92%), Red Drum (62–76%) and Flounder (26%). Random respondents (email survey) appeared to be slightly less specialized than non-random respondents, exhibiting the lowest response frequency for the "anything I can catch" category (25%) and the highest response frequency for Spotted Seatrout (76%).

In terms of Spotted Seatrout catch, respondents to both the email and web surveys reported an average catch per angler per trip of five to10 fish (Table 6). Public meeting respondents had higher average catch per angler per trip (11–15 fish), perhaps driven by their higher avidity. When asked about release mortality of Spotted Seatrout, email and web respondents most commonly estimated that rate as 5–10%. This level is similar to mortality rates observed in regional research studies, and similar to the 10% rate assumed for the Department's recent stock assessment. Several attendees that commented on this issue at public meetings, stated that much higher rates are common in cases of poor handling, warmer water temperatures, use of live bait, and in the presences of predators (e.g. dolphins, pelicans, sharks). Indeed, these more avid anglers averaged a slightly higher release mortality estimate of 11–15%.

When asked about the status of Spotted Seatrout in their primary fishing region, 26% of email respondents selected "I don't know", compared to only 4% and 8% of the public meeting attendees and web survey respondents. Only 36% of email respondents indicated that fishing for Spotted Seatrout had "gotten worse" in their primary region, compared to 57% and 49% of public meeting attendees and web survey respondents. These results appear to indicate a higher familiarity with the status of the fishery among self-selected respondents.

Combined concern for Spotted Seatrout status (slight to extreme) totaled 90-95% across all modes (Table 7). Email respondents indicated the lowest level of "Extreme Concern" (26%) followed by web survey respondents (29%). Given the extra time for respondent interaction, this question was posed twice during the public meetings – once at the beginning of the outreach presentation (pre-info) and once afterwards (post-info). The intent was to examine any changes in the overall levels of concern that might result from hearing more detailed findings from the recent stock assessment. The "extremely concerned" category saw an average 15% increase after information was provided with a rise from 40% pre-info to 55% post-info. This post-information shift towards extreme concern was observed at all eight public meetings (see Appendix A.11 and A.12).

Table 5. Target species of survey respondents

Survey Mode	*n*	Spotted Seatrout	Red Drum	Black Drum	Sheepshead	Flounder	Other	Anything I can catch
Public meetings	620	86%	62%	17%	18%	26%	10%	22%
Email survey	1160	76%	69%	14%	13%	26%	8%	25%
Web survey	1514	92%	76%	17%	21%	29%	6%	16%

Table 6. Harvest rate, release mortality and perceived status of Spotted Seatrout

				Regional status of Spotted Seatrout in last 5 years:			
Survey Mode	*n*	Spotted Seatrout per trip	Estimated. release mortality	I don't know	Has improved	Stayed the same	Gotten worse
Public meetings	625	11-15	11-15%	4%	5%	33%	57%
Email survey	1156	5-10	5-10%	26%	7%	31%	36%
Web survey	1498	5-10	5-10%	8%	9%	34%	49%

Table 7. Coast-wide concern over Spotted Seatrout stocks

Survey Mode	*n*	Not at all concerned	Slightly concerned	Somewhat concerned	Moderately concerned	Extremely concerned	Combined Concern
Public meetings (pre-info)	628	7%	9%	17%	28%	40%	93%
Public meetings (post-info)	626	5%	4%	14%	21%	55%	95%
Email survey	1200	9%	14%	26%	25%	26%	91%
Web survey	1400	10%	17%	20%	24%	29%	90%

General Preferences for Management

A series of five attitudinal questions was used to examine levels of support or opposition for the use of general management applications for Spotted Seatrout recovery. For open-access fisheries, there are a limited number of regulatory tools available to fisheries managers in the short run[4]. Beyond restrictions on access and gear (typically implemented through licensing), there are three basic regulatory controls: creel limits, size limits, and seasonal closures. General preferences for these controls was measured using a five-point attitudinal scale (i.e. *Strongly Oppose, Slightly Oppose, Unsure, Slightly Support, Strongly Support*). Table 8 displays summary estimates for each of these questions, with "net preference" (combined support minus combined opposition) depicted by survey mode in the panels of Figure 3. For more a more detailed list of responses by question, see Tables A.13–A.17 of Appendix A.

Creel reductions

More than any other strategy, respondents across all survey modes supported the concept of creel reductions for Spotted Seatrout recovery. Combined support for the approach (*Strongly support* and *Slightly support*) ranged from 63% to 72%, with net preference ranging from 44% to 53%. Several respondents noted the state's current creel limit (25 fish) stands in contrast to that of neighboring Gulf States (5–15 fish). Others cited the relatively high productivity of Louisiana's coastal habitat as a rationale for maintaining the current creel. Numerous respondents commented that they would be willing to support some level of creel reduction in light of declining habitat and increasing fishing pressure.

Size increases

Respondent support for increasing the minimum size of Spotted Seatrout was less prominent, though still net positive. Combined support for the strategy across all survey modes ranged from 51% to 53% with combined opposition (*Strongly oppose* and *Slightly oppose*) ranging from 32% to 40%. Net preferences ranged from 12% to 19%. Some respondents expressed concerns over the state's current minimum size (12") in comparison to that of neighboring states. In the past decade, Texas, Mississippi, Alabama and Florida have implemented a 15" minimum recreational size limit on the species in an effort to conserve spawning biomass. It was noted that a transition period would be required for the current stock, primarily composed of year zero to one age fish, to reach a new minimum size for legal harvest. The length of this period would be a function of the size increase. Concerns were raised about increased mortality of regulatory discards and the ability of anglers to harvest legal fish if too large of a size increase were to be implemented.

[4] *Open access* is used here in contrast to limited access privilege fisheries that use variations of quota-based management. *Short-run* is used in contrast to more long-term approaches (e.g. habitat restoration).

Slot-based management

Slot-based management is a variant of size management that uses both minimum and maximum sizes in combination with various creel allowances within and above a given size range. The approach is used statewide with other recreational species (Largemouth Bass, Red Drum, Black Drum), but for Spotted Seatrout it has only been used in special regulations enacted for parts of Cameron and Calcasieu Parish. Net preferences for the option were positive, but small across all survey modes (2–10%). Slot-based management resulted in the highest overall levels of respondent uncertainty—especially among email survey respondents, more than a third (37%) of whom indicated they were unsure about the strategy.

Season closures

Seasonal access regulations are commonly used in Louisiana for state and federal management of wildlife and for all federally managed fisheries. Beyond emergency[5] conservation measures, however, seasonal regulations have not traditionally been utilized for state-managed fisheries. Given that history, it is not surprising that net preferences for season closures were substantially negative across all survey modes. Perhaps due to their increased avidity, public meeting attendees and web survey respondents expressed the most opposition, with net preferences of -49% to -53%, compared to email respondents of -20%. Economic considerations are of particular concern with this option, given the revenue losses that might accrue to fishing-related businesses under shortened seasons (e.g. charters, marinas, lodging, and other retail).

Regulatory consistency

Survey respondents were asked their opinion on the prospect of having a single set of regulations across the Louisiana coast for Spotted Seatrout management. Email and web survey respondents, which comprised 80% of total study responses, had strong net preferences of 51% and 31%, respectively, for a single set of regulations. Conversely, net preferences were slightly negative for public meeting attendees (-0.5%), with a plurality of opposition (42%) averaged across all meetings. One exception to that opposition was observed in the only region that currently has its own, area-specific regulation. Most attendees from the Lake Charles meeting favored the notion - expressing a combined support of 58% and a net preference of 31% in favor of a single set of regulations coast wide for Spotted Seatrout management (Appendix C, Table C.17). The ultimate resolution of this question hinges not only on public preference, but also on factors related to biological need, compliance efficacy and the capacity of monitoring and enforcement.

[5] Temporary closures due to environmental impacts (severe freezes, oil spills, etc.)

Table 8. Preferences for general management options in Spotted Seatrout recovery

General Management Option Survey Mode	***n***	**Unsure**	**Support*** (combined)	**Oppose*** (combined)	**Net Preference**
Decreasing creel limits					
Public meetings	627	8%	72%	20%	53%
Email survey	1100	19%	63%	18%	44%
Web survey	1468	6%	72%	22%	50%
Increasing minimum size					
Public meetings	626	7%	55%	38%	17%
Email survey	1100	17%	51%	32%	19%
Web survey	1468	8%	52%	40%	12%
Slot-based management					
Public meetings	626	12%	48%	40%	8%
Email survey	1100	37%	37%	27%	10%
Web survey	1468	20%	41%	39%	2%
Season closures					
Public meetings	625	10%	20%	70%	-49%
Email survey	1100	18%	31%	51%	-20%
Web survey	1468	10%	19%	72%	-53%
Same regulations coast-wide					
Public meetings	616	17%	41%	42%	-0.5%
Email survey	1010	22%	64%	14%	51%
Web survey	1346	18%	56%	26%	31%

* Combination of *slightly* and *strongly*

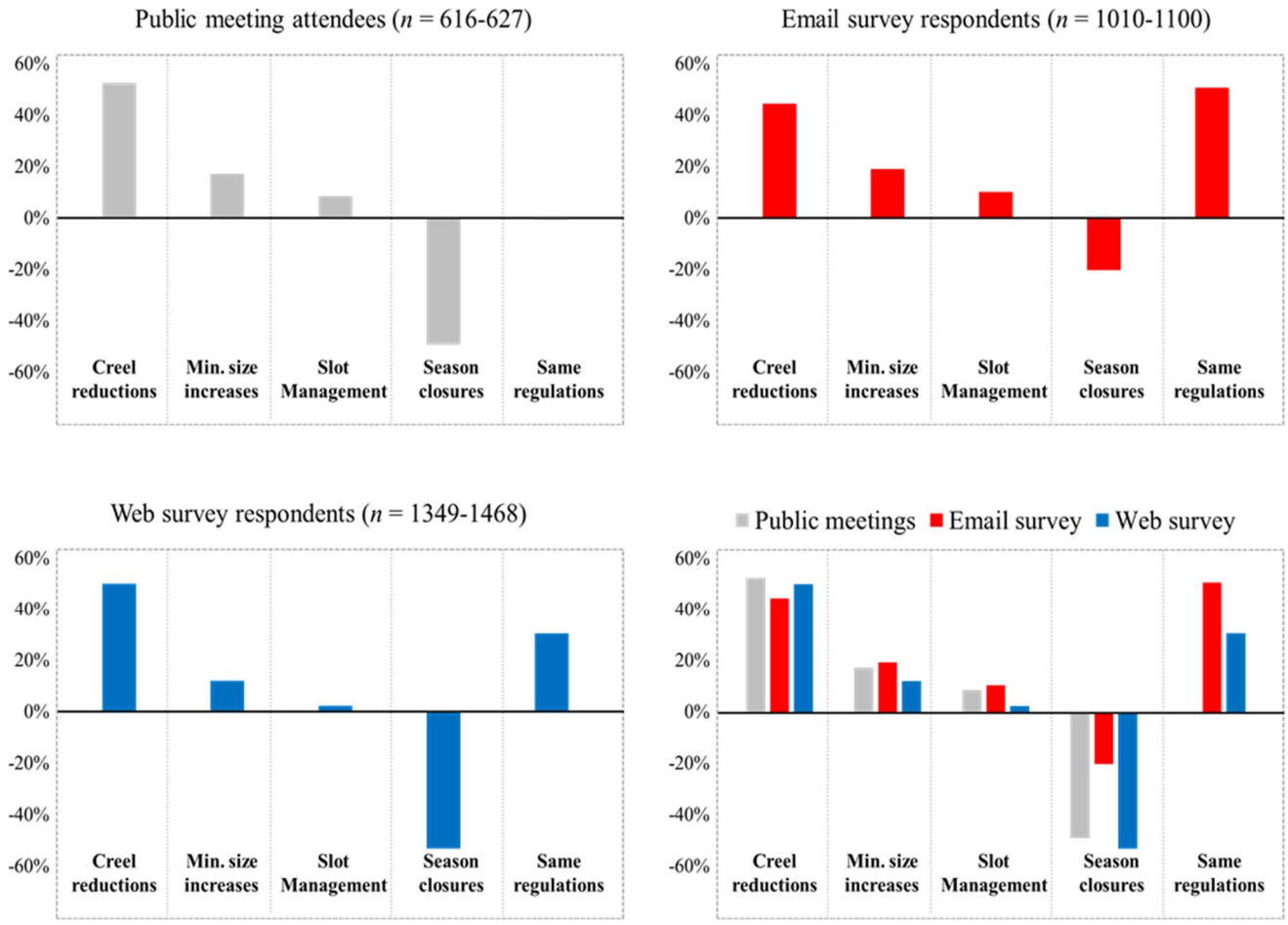

Figure 3. Net preferences for general management options in Spotted Seatrout recovery

Specific Preferences for Management

A follow-up series of attitudinal questions was used to examine levels of support or opposition for the use of specific management strategies for Spotted Seatrout recovery. As mentioned in *Methods*, feedback obtained during the public scoping meetings was used to condense and refine a list of five specific strategies for consideration. Each of the strategies was derived to meet the Department's stated goal of a five-year recovery based on a 20% annual reduction in harvested fish under current levels of effort. Participants were reminded that any feasible strategy for stock recovery must consider biological efficacy, management practicality, economic implications and expected recovery time.

Preferences for specific strategies were obtained using the previously described attitudinal scale. For the email and web surveys, an additional question was included to assess potential changes in a respondent's expected effort for a given management option. Table 9 displays summaries for each of these questions, with net preferences (combined support-combined opposition) depicted by survey mode in the panels of Figure 4. For a more detailed list of responses by question, see Tables A.18–A.22 of Appendix A.

Creel change only *(10 fish, 12" minimum size)*

Under the "Creel change only" option, the Department's five-year recovery goal could be achieved by leaving the current minimum size at 12 inches, and reducing the creel limit from 25 to 10 fish. When queried about this approach, the strong support previously expressed for the general concept of creel reductions was substantially reduced or reversed. Net preferences from email respondents, previously at a strong 44% for using creel reductions as a management tool, fell to 15% under the *Creel change only* strategy. Moreover, the 53% and 50% positive net preferences from public meeting attendees and web survey respondents was reversed under the *Creel change only* to negative net preferences of -43% and -8%, respectively. The opposition reflected in these responses is likely a reaction to the magnitude of the proposed change, a 60% reduction in the daily creel compared to current regulations.

When asked about changes in expected effort for any specific option, approximately half of the respondents in each of the email and web surveys revised their annual trip estimates downward. Web respondents were more likely to state larger reductions than email respondents were. The *Creel change only* option resulted in -7.9% to -12.2% adjustments in future expected trips for email and web surveys, respectively.[6]

[6] Expected trips is an experimental area of research referred to as "contingent effort" and may not be a reliable indicator of future economic impact. The number of trips taken in a given year is also dependent on a variety of other factors, including weather, personal finances, and available time. Additional research is required to fully explore this estimate. Its use here is simply to examine initial differences in magnitude between random (email survey) and non-random (web survey) respondents under different regulatory options.

Size change only *(25 fish, 14" minimum size)*

Under a "Size change only" option, the Department's five-year recovery goal could potentially be met by leaving the current creel limit at 25 fish, and increasing the minimum size from 12 inches to 14 inches. When queried about this strategy, respondents expressed less opposition than seen with the *Creel change only* option. Net preferences from public meeting attendees and email respondents— previously at 17% and 19% for size limits as a general management tool— fell to 4% and 12% (respectively) under the specific regulations of the Size *change only* option. Web survey respondents fell even further, with an average a net preference of -4% for this strategy.

As previously mentioned, numerous respondents commented that a transition period would be required to reach legal harvest size for any increases in minimum size. For a size increase from 12 to 14 inches, such a transition period could last up to 12 months or longer. It is possible that less avid anglers from the email survey were not fully aware of this adjustment period and/or were more focused on the continued prospect of a 25 fish creel. This factor could partially explain why email survey respondents indicated a relatively small change in expected effort (-4.8%) under this management options.[7]

Creel & Size I *(12 fish, 13" minimum size)*

The "Creel & Size I" option would allow for the Department's five-year recovery goal by reducing the creel limit from 25 to 12 fish and increasing the minimum size from 12 inches to 13 inches. Public meeting attendees had a net preference of -9% for this strategy, with higher opposition noted at meetings in Houma, Baton Rouge and Lafayette (Table A. 20). Conversely, survey respondents had net preferences of 15% (email survey) and 9% (web survey). Adjusted across all respondents in the email survey and web survey, the option yielded an -7.7% to -12.4% change (respectively) in future expected trips.

Creel & Size II *(12 fish, 13"- 20" slot, with 1fish larger than 20")*

The "Creel & Size II" would allow for the Department's five-year recovery goal by requiring a legal size slot of 13 to 20 inches, with only one fish of a 12-fish creel allowed in excess of 20 inches. Given the previously described uncertainty about slot-based management, and the fact that this option is a more restrictive version of the previous one, it is not surprising that net preferences were negative in all three survey modes (-26% for public meetings, -2% for email survey respondents, and -7% for web survey respondents). This option also resulted in the largest single reduction in expected trips for any of the five specific management options (-14.6% for web survey respondents).

[7] Amongst email survey respondents, the *Size change only* option yielded no statistical difference between *pre* and *post* regulation estimates of annual trips (α=0.05).

Creel & Size III *(15 fish, 13.5" minimum size)*

As public scoping meetings progressed into late February 2020, attendees were increasingly requesting a 15-fish option.[8] Some of this demand might have derived from observing how Spotted Seatrout management has evolved in neighboring states.[9] Fisheries biologists from LDWF revisited the data and projections of the recent stock assessment and determined that the Department's recommended five-year recovery goal could be achieved with a 15 fish creel given appropriate changes to minimum size. The final list of specific options for the email and web surveys was revised to include the first four options from the public meetings and one new option: *Creel & Size III (15 fish, 13.5" minimum size)*.[10]

Response to the *Creel & Size III* management strategy resulted in the highest levels of net preference for any option across all survey modes. Combined support for the option was 50% in the email survey and 54% in the web survey, with net preferences of 17% and 16%. Adjusted across all respondents in the email and web surveys, the *Creel & Size III* option yielded an -8% to -12% change (respectively) in future expected trips. These reductions, while experimental[11], are similar to the estimated changes in trips resulting from the *Creel change only* option and the *Creel & Size I* option. As observed within all estimates of contingent effort, the stated reduction in trips for web survey respondents greatly exceeded the stated reduction in trips from email survey respondents.

Seventeen percent of email respondents indicated they were "unsure" about the *Creel & Size III* option, perhaps due to the half-inch increment specified in the minimum size of 13.5 inches. This acceptability of this increment was a topic of considerable discussion amongst the study team, but was deemed necessary for a 15-fish option to meet the biological imperative recommended by the Department. While uncommon, precedent exists for the use of half-inch increments in recreational fishing regulations in other states and for regulations on commercial fishing gear spacing in Louisiana.[12]

[8]Numerous public comments were submitted requesting a 15 fish bag at various size limits ranging from 12 to 15 inches, including slot limits

[9] Spotted Seatrout creel limits were reduced from 25 to 15 in Mississippi in 1996.

[10] Two of the original six options "*Basic slot*" and "*More restrictive*" were not included in the email and web surveys due to strong opposition expressed during the public meetings. See tables A.22 and A.23 for detailed responses on those options.

[11] See footnote 4.

[12] Delaware, Virginia and Maryland have a 16.5 inch TL minimum size for Summer Flounder

Table 9. Preferences for specific management options in Spotted Seatrout recovery

Specific Management Option Survey Mode	**Δ**	***n***	**Unsure**	**Support*** (combined)	**Oppose*** (combined)	**Net Preference**
Creel Change Only (10 fish, 12" minimum)						
Public meetings		610	6%	25%	69%	-43%
Email survey		1082	10%	52%	38%	15%
Web survey		1442	4%	44%	52%	-8%
Estimated trip adjustment (Email survey)†	-0.079**					
Estimated trip adjustment (Web survey)†	-0.122**					
Size Change Only (25 fish, 14" minimum)						
Public meetings		619	5%	49%	45%	4%
Email survey		1073	12%	50%	38%	12%
Web survey		1437	7%	45%	48%	-4%
Estimated trip adjustment (Email survey)†	-0.048					
Estimated trip adjustment (Web survey)†	-0.114**					
Creel & Size I (12 fish, 13" minimum)						
Public meetings		616	6%	43%	52%	-9%
Email survey		1063	15%	50%	35%	15%
Web survey		1428	6%	52%	42%	9%
Estimated trip adjustment (Email survey)†	-0.077**					
Estimated trip adjustment (Web survey)†	-0.124**					
Creel & Size II "Slot" (12 fish, 13"- 20", 1>20")						
Public meetings		614	2%	36%	62%	-26%
Email survey		1059	16%	41%	43%	-2%
Web survey		1422	7%	43%	50%	-7%
Estimated trip adjustment (Email survey)†	-0.076**					
Estimated trip adjustment (Web survey)†	-0.146**					
Creel & Size III (15 fish, 13.5" minimum)						
Public meetings		N/A	-	-	-	-
Email survey		1053	17%	50%	33%	17%
Web survey		1416	8%	54%	38%	16%
Estimated trip adjustment (Email survey)†	-0.081**					
Estimated trip adjustment (Web survey)†	-0.117**					

* Combination of *slightly* and *strongly*

† Weighted reduction based on stated changes in number of trips before and after proposed regulation

** Significant at α=0.05

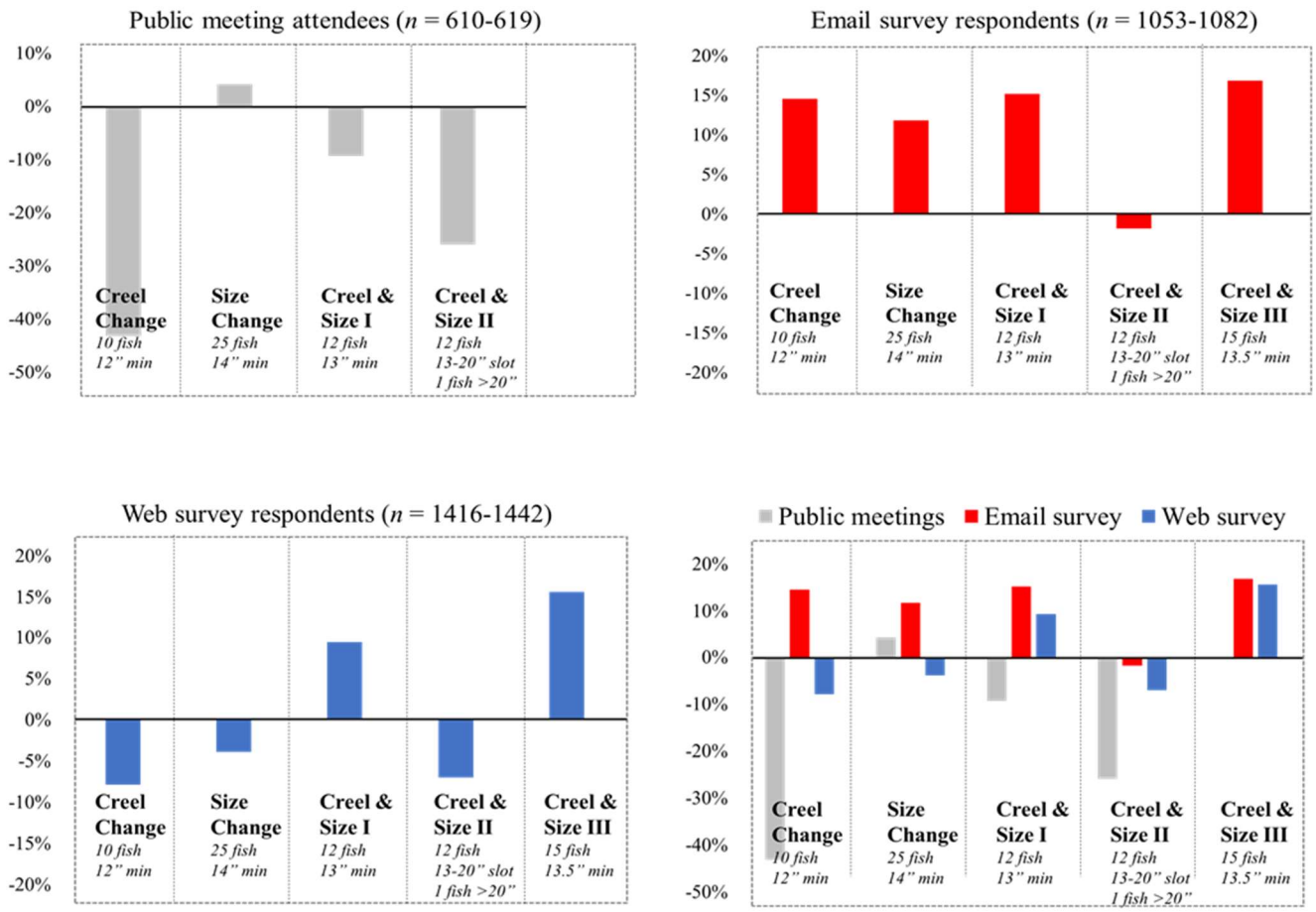

Figure 4. Net preferences for specific management options in Spotted Seatrout recovery

Ranking Management Options

Table 10 provides ordered rankings for specific management options by study mode. The *Creel & Size III* and *Creel & Size I* options were the first and second highest ranked, respectively. Figure 5 depicts ordered ranks and net preferences based on a pooling of all available preference data. The *Creel & Size III* option has an adjusted net preference of 16.43%, more than twice the second place option. While *Creel & Size III* generated the most support, it was not included in the public meetings. Its inclusion in the two surveys, however, was a result of requests at those meetings for a 15-fish option. Moreover, the email and web surveys account for a large majority (80%) of data collected in the study. Thus, even under conservative assumptions (e.g. neutrality of public meeting attendees), the *Creel & Size III* option is most favored. [13]

Table 10. Ranking of specific management options for the recovery of Spotted Seatrout

		Public	Email	Web	Pooled Data	
Option	**Description**	**Meetings**	**Survey**	**Survey**	**Rank**	**Net Preference***
Creel and Size III	15 fish, 13.5"	NA	1	1	1	16.43%
Creel and Size I	12 fish, 13"	2	2	2	2	7.74%
Size change only	25 fish, 14"	1	4	3	3	3.15%
Creel change only	10 fish, 12"	4	3	5	4	-7.10%
Creel and Size II	12 fish, 12-20", 1> 20"	3	5	4	5	-8.94%

* weighted

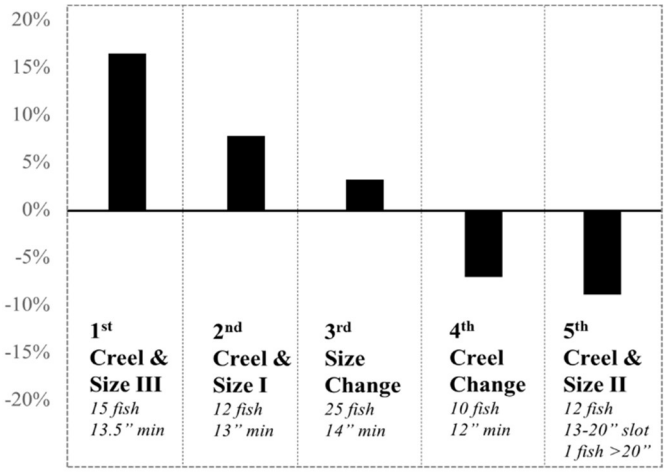

Figure 5. Pooled ranks and net preferences for Spotted Seatrout recovery options

[13] Assuming a net preference of zero (neutral) for the *Creel & Size III* option amongst public meeting attendees would yield an adjusted net preference of 13.17%.

SUMMARY AND CONCLUSIONS

As the primary target of coastal anglers, Spotted Seatrout play an important role in the recreational economy and culture of south Louisiana. The state's expansive estuarine habitat sustains the highest level of productivity for the species in the northern Gulf of Mexico region. That productivity has long-supported more liberal harvest than in neighboring states, with creel and size regulations remaining unchanged across most of the state during the past 32 years. The 2019 stock assessment conducted by LDWF indicates that Spotted Seatrout are currently overfished in Louisiana and in need of significant conservation measures. The Department has developed a series of regulatory options that would achieve its recommendation for a five-year stock recovery based on a 20% annual reduction in harvested fish. In January 2020, the Louisiana Wildlife and Fisheries Commission directed the Department to seek public input on these options through a survey of coastal anglers.

From February to June 2020, 3,594 individuals provided input on the issue via three separate processes: electronic polling conducted at public meetings (n=628), a survey distributed by email to a random sample of license-holders (n=1,417), and an open-access web survey (n=1,549). Each method included a standard list of questions for measuring a suite of angler characteristics and concerns about the fishery. Preferences for general and specific management options were solicited using a five-point attitudinal scale and reported as net preference (combined support minus combined opposition).

Although data was collected for a large number of diverse respondents, preliminary results indicate the presence of two distinct groups. Respondents to the random email survey represent the average angler, whose characteristics, concerns, and preferences embody that of the state's broader population of saltwater-licensed citizens. Self-selected respondents - public meeting attendees and web survey respondents - tend to reflect the viewpoints of more avid anglers. A review of major findings helps to illustrate the ways in which these two groups differ, and the ways in which they are similar.

Perhaps the most obvious difference is that at 27–31 trips per year, avid anglers are fishing nearly twice as much as average anglers (16 trips per year). This avidity is manifest through more diverse motivations for fishing, higher degrees of species specialization, higher average catch; and greater concern over conservation-related issues related to release mortality, regional fishing trends, and the status of Spotted Seatrout stocks coast-wide.

In terms of general preferences for management, however, average anglers and avid anglers appear to be more alike than different. Respondents across all three modes expressed similar opinions (direction and magnitude) on the generic tools of fisheries management. Public meeting attendees, email survey respondents, and web survey respondents were supportive of the possibility that a future regulation for

Spotted Seatrout might entail: a decrease in the creel limit (53%, 44%, 50%), an increase in the minimum size (17%, 19%, 12%) or the use of slot-based management (8%, 10%, 2%). Likewise, respondents across all three modes were similar in their opposition to the use of season closures as a strategy for Spotted Seatrout stock recovery (-49%, -20%, -53%). One exception to these similarities is the issue of regulatory consistency. Attendees at public meetings were slightly opposed (-0.5%) to the concept of having a single set of regulations for the Spotted Seatrout statewide. Conversely, web and email respondents were supportive of the measure, with net preferences ranging 31% to 51%.

Fewer similarities, however, were evident between average and avid anglers in response to specific regulations. The average respondent in the email survey was generally supportive of regulatory change, expressing positive net preferences for four out of five management strategies designed to achieve a five-year recovery of Spotted Seatrout. In contrast, net preferences were positive for only two of six specific options presented at the public meetings, and for only two of five options posed in the web survey. Furthermore, web survey respondents were more likely than email respondents to post larger reductions in their future expected trips under any given regulation.

Despite these differences, two specific regulations appear to have some potential as a basis for future management. The *Creel & Size I* option (12 fish, 13” minimum), while having net opposition amongst public meeting attendees (-9%), had net support among respondents of the email survey (15%) and web survey (9%). Given these two surveys account for 80% of all data collected, this option yields a pooled net preference of 7.74%. Moreover, public requests for a 15-fish option resulted in what would ultimately become an even higher preferred strategy. The *Creel & Size III* option (15 fish, 13.5” minimum) received a net preference of 17% in the email survey and 16% in the web survey. At 16.43%, the pooled preference for the *Creel & Size III is* more than twice that of the *Creel & Size I* option. While the magnitude of this net preference may appear modest, these numbers do reflect a degree of consensus amongst two large samples of average and avid anglers.

Finally, it is worth noting that other combinations of creel and size limits could be utilized to meet the biological imperatives for Spotted Seatrout recovery in Louisiana. Soliciting input on all possible combinations; however, is beyond the scope of this analysis. This study utilized the latest technology for real-time polling and electronic surveying to obtain a large amount of data. Further analysis of this data, although not likely to change the broader findings of this preliminary study, could help managers to better understand the connections between demographics, motivations and resource stewardship among angler subpopulations. The authors submit this report to the Louisiana Wildlife and Fisheries Commission in fulfillment of their request for public input and as a supplemental document for pending management decisions on Louisiana’s Spotted Seatrout fishery.

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APPENDICES

A. Composite data for Louisiana Spotted Seatrout public input assessment meetings and surveys, February–June, 2020.

B. Questionnaire used for Email survey and Web survey

C. Spotted Seatrout Stock Assessment and Public Polling Presentation

D. Public Comments

Appendix A. Composite data for Louisiana Spotted Seatrout public input assessment meetings and surveys, February-June, 2020.

A.1 Participation in nature-based activities (all that apply)	q	*n*	Fishing	Hunting	Boating	Skiing/Water Sports	Bird Watching	None of the above
Public meetings	N/A	-	-	-	-	-	-	-
Email survey	1	1208	98%	73%	84%	49%	21%	1%
Web survey	1	1542	100%	78%	87%	53%	23%	0%

A.2 Fished in Louisiana saltwater areas	q	*n*	Yes	No
Public meetings	N/A	-	-	-
Email survey	2	1208	95%	5%
Web survey	2	1542	100%	0%

A.3 Primary motivation for fishing	q	*n*	Fish to eat	Relaxation	Enjoy Nature	Build skill	Socialize	Other
Houma	2	126	32	38	20	2	3	31
Baton Rouge	2	90	15	36	25	5	5	4
Lafayette	2	95	25	29	28	5	6	2
Metarie	2	155	28	56	43	4	7	17
Slidell	2	90	17	28	16	5	2	22
Lake Charles	2	47	7	12	8	2	3	15
Alexandria	2	10	3	4	3	0	0	0
Ruston	2	7	1	2	2	0	1	1
Public meetings	2	620	21%	33%	23%	4%	4%	15%
Email survey	3	1170	40%	33%	20%	1%	4%	2%
Web survey	3	1514	43%	30%	19%	3%	3%	2%

A.4 Primary fishing area	q	*n*	Calcasieu Sabine	Vermillion Cote Blanche	Terrebonne Timbalier	Barataria	East of Miss. River	N/A
Houma	3	126	0	0	110	14	1	1
Baton Rouge	3	90	1	1	37	29	19	3
Lafayette	3	95	10	37	30	17	1	0
Metarie	3	155	0	0	20	35	99	1
Slidell	3	92	0	0	6	2	82	2
Lake Charles	3	47	47	0	0	0	0	0
Alexandria	3	10	3	1	0	4	1	1
Ruston	3	7	5	0	1	0	1	0
Public meetings	3	622	11%	6%	33%	16%	33%	1%
Email survey	4	1169	13%	8%	26%	22%	27%	5%
Web survey	4	1514	7%	4%	31%	21%	37%	0%

A.5 Number of trips per year	q	*n*	0	< 10	10-19	20-29	30-39	40-49	>=50	Average
Houma	4	126	1	10	21	19	13	12	50	35
Baton Rouge	4	89	0	16	27	14	11	7	14	25
Lafayette	4	93	0	11	21	21	14	12	14	25
Metarie	4	155	0	13	25	39	28	20	30	25
Slidell	4	90	1	7	20	14	10	6	32	35
Lake Charles	4	46	0	6	8	4	4	4	20	25
Alexandria	4	10	0	4	3	2	0	0	1	15
Ruston	4	8	0	4	1	2	1	0	0	15
Public meetings	4	617	0%	12%	20%	19%	13%	10%	26%	**31**
Email survey	5	1170	-	-	-	-	-	-	-	**16.26**
Web survey	5	1514	-	-	-	-	-	-	-	**26.94**

A.6 Target species (all that apply)	q	*n*	Spotted Seatrout	Red drum	Black drum	Sheepshead	Flounder	Other	Anything I can catch
Houma	6	126	110	90	33	25	26	12	36
Baton Rouge	6	89	79	54	11	17	21	12	16
Lafayette	6	93	87	58	11	29	29	8	11
Metarie	6	155	117	86	27	17	20	10	51
Slidell	6	90	83	49	11	10	24	11	14
Lake Charles	6	47	43	38	7	8	33	7	5
Alexandria	6	12	9	6	1	2	3	1	0
Ruston	6	8	6	6	2	2	5	3	2
Public meetings	6	620	86%	62%	17%	18%	26%	10%	22%
Email survey	6	1160	76%	69%	14%	13%	26%	8%	25%
Web survey	6	1514	92%	76%	17%	21%	29%	6%	16%

A.7 License types are held (all that apply)	q	*n*	Basic Fishing	Saltwater Fishing	Any Senior License	Any Other Special Category	Charter Boat Guide	Any Non-Resident License	Lifetime w/saltwater fishing	None of the above
Houma	5	126	64	73	52	30	29	1	-	0
Baton Rouge	5	89	17	28	40	30	8	3	-	1
Lafayette	5	93	27	41	31	32	4	1	-	0
Metarie	5	155	46	65	73	20	15	3	-	1
Slidell	5	90	28	38	37	23	12	9	-	1
Lake Charles	5	47	17	20	16	15	17	1	-	1
Alexandria	5	12	2	2	4	4	0	0	-	0
Ruston	5	8	4	4	3	0	1	0	-	0
Public meetings	5	620	32%	43%	41%	25%	14%	3%	-	1%
Email survey	7	1160	65%	67%	22%	5%	1%	1%	18%	0%
Web survey	7	1514	57%	66%	16%	4%	2%	3%	29%	1%

A.8 Catch of SST/trip	q	*n*	None	< 5 fish	5-10 fish	11-15 fish	16-20 fish	21-24 fish	25 fish	average
Houma	9	125	4	14	37	27	20	14	9	
Baton Rouge	9	89	4	7	30	25	12	5	6	
Lafayette	9	96	1	13	19	31	19	8	5	
Metarie	9	155	6	17	46	44	20	15	7	
Slidell	9	94	3	14	33	19	11	4	10	
Lake Charles	9	48	1	11	23	9	2	0	2	
Alexandria	9	10	2	2	4	2	0	0	0	
Ruston	9	8	0	3	2	1	1	0	1	
Public meetings	9	625	3%	13%	31%	25%	14%	7%	6%	
Email survey	8	1156	28%	25%	18%	9%	2%	4%	15%	
Web survey	8	1498	21%	29%	24%	17%	3%	4%	2%	

A.9 Estimated release mortality of SST	q	*n*	< 5%	5-10%	11-15%	16-20%	21-25%	> 25%	No idea	None
Houma	16	126	27	25	14	7	10	33	10	-
Baton Rouge	16	89	16	19	23	10	6	12	3	-
Lafayette	16	97	18	23	23	8	9	8	8	-
Metarie	16	154	33	42	26	11	9	22	11	-
Slidell	16	95	22	38	14	5	5	9	2	-
Lake Charles	16	47	9	14	8	3	2	3	8	-
Alexandria	16	10	2	3	2	2	1	0	0	-
Ruston	16	8	3	1	1	0	0	0	3	-
Public meetings	16	626	21%	26%	18%	7%	7%	14%	7%	-
Email survey	9	1156	35%	13%	4%	4%	3%	6%	13%	21%
Web survey	9	1498	35%	20%	8%	8%	6%	9%	7%	7%

A.10 Perception of SST fishing in my region in the last 5 years	q	*n*	I don't know	Has improved	Stayed the same	Gotten worse
Houma	7	128	4	8	42	74
Baton Rouge	7	88	9	2	29	48
Lafayette	7	97	4	6	32	55
Metarie	7	153	5	3	37	108
Slidell	7	87	1	3	19	64
Lake Charles	7	47	4	6	35	4
Alexandria	7	10	0	3	5	2
Ruston	7	8	0	2	6	0
Public meetings	7	618	4%	5%	33%	57%
Email survey	10	1157	26%	7%	31%	36%
Web survey	10	1498	8%	9%	34%	49%

A.11 Concern about SST coastwide (pre-info)	q	*n*	Not at all concerned	Slightly concerned	Somewhat concerned	Moderately concerned	Extremely concerned
Houma	8	129	13	12	21	37	46
Baton Rouge	8	89	6	9	9	36	29
Lafayette	8	96	12	8	17	17	42
Metarie	8	155	2	14	36	47	56
Slidell	8	95	5	8	15	19	48
Lake Charles	8	46	3	4	6	9	24
Alexandria	8	10	1	0	2	4	3
Ruston	8	8	0	1	1	4	2
Public meetings	8	628	7%	9%	17%	28%	40%
Email survey	N/A						
Web survey	N/A						

A.12 Concern about SST coastwide (post-info)	q	*n*	Not at all concerned	Slightly concerned	Somewhat concerned	Moderately concerned	Extremely concerned
Houma	10	126	10	8	14	33	61
Baton Rouge	10	89	4	4	9	19	53
Lafayette	10	97	9	4	12	17	55
Metarie	10	155	2	5	24	42	82
Slidell	10	93	4	1	14	14	60
Lake Charles	10	48	5	3	4	6	30
Alexandria	10	10	0	1	11	3	5
Ruston	10	8	0	1	0	2	5
Public meetings	10	626	5%	4%	14%	21%	55%
Email survey	11	1128	9%	14%	26%	25%	26%
Web survey	11	1490	10%	17%	20%	24%	29%

A.13 Decreasing creel limits	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	11	123	70	26	6	7	14	78%	17%	61%
Baton Rouge	11	89	44	22	10	6	7	74%	15%	60%
Lafayette	11	98	40	23	10	15	10	64%	26%	39%
Metarie	11	157	79	27	18	17	16	68%	21%	46%
Slidell	11	95	56	19	2	4	14	79%	19%	60%
Lake Charles	11	47	22	10	2	3	10	68%	28%	40%
Alexandria	11	10	5	4	0	0	1	90%	10%	80%
Ruston	11	8	4	3	1	0	0	88%	0%	88%
Public meetings	11	627	51%	21%	8%	8%	11%	72%	20%	53%
Email survey	12	1100	39%	23%	19%	9%	9%	63%	18%	44%
Web survey	12	1468	45%	27%	6%	9%	13%	72%	22%	50%

A.14 Increasing minimum size	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	12	125	30	22	7	13	53	42%	53%	-11%
Baton Rouge	12	89	29	24	8	12	16	60%	31%	28%
Lafayette	12	97	22	30	8	10	27	54%	38%	15%
Metarie	12	155	51	37	14	15	38	57%	34%	23%
Slidell	12	95	36	18	4	14	23	57%	39%	18%
Lake Charles	12	47	21	10	3	3	10	66%	28%	38%
Alexandria	12	10	5	2	2	1	0	70%	10%	60%
Ruston	12	8	6	1	0	0	1	88%	13%	75%
Public meetings	12	626	32%	23%	7%	11%	27%	55%	38%	17%
Email survey	12	1100	24%	27%	17%	15%	17%	51%	32%	19%
Web survey	12	1468	28%	24%	8%	14%	26%	52%	40%	12%

A.15 Slot-based management	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	13	127	30	27	13	9	48	45%	45%	0%
Baton Rouge	13	88	17	22	17	12	20	44%	36%	8%
Lafayette	13	97	9	29	10	14	35	39%	51%	-11%
Metarie	13	155	39	37	18	18	43	49%	39%	10%
Slidell	13	94	33	21	10	11	19	57%	32%	26%
Lake Charles	13	47	16	15	5	4	7	66%	23%	43%
Alexandria	13	10	1	0	1	3	5	10%	80%	-70%
Ruston	13	8	3	3	1	0	1	75%	13%	63%
Public meetings	13	626	24%	25%	12%	11%	28%	48%	40%	8%
Email survey	12	1100	16%	21%	37%	11%	16%	37%	27%	10%
Web survey	12	1468	20%	21%	20%	12%	27%	41%	39%	2%

A.16 Season closures	q	*n*	Strongly Support	Slightly Support	Unsure	Strongly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	14	125	10	17	9	9	80	22%	71%	-50%
Baton Rouge	14	88	6	9	7	14	52	17%	75%	-58%
Lafayette	14	95	3	13	1	7	71	17%	82%	-65%
Metarie	14	156	20	23	19	12	82	28%	60%	-33%
Slidell	14	95	7	6	14	8	60	14%	72%	-58%
Lake Charles	14	48	3	5	9	1	30	17%	65%	-48%
Alexandria	14	10	0	1	1	1	6	10%	70%	-60%
Ruston	14	8	2	3	1	0	2	63%	25%	38%
Public meetings	14	625	8%	12%	10%	8%	61%	20%	70%	-49%
Email survey	12	1100	14%	17%	18%	13%	38%	31%	51%	-20%
Web survey	12	1468	8%	11%	10%	11%	61%	19%	72%	-53%

A.17 Coastwide consistency in SST regulations	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	15	127	35	16	17	11	48	40%	46%	-6%
Baton Rouge	15	88	15	18	15	19	21	38%	45%	-8%
Lafayette	15	93	23	21	12	19	18	47%	40%	8%
Metarie	15	155	31	14	42	21	47	29%	44%	-15%
Slidell	15	87	25	15	12	11	24	46%	40%	6%
Lake Charles	15	48	21	7	7	1	12	58%	27%	31%
Alexandria	15	10	4	1	1	4	0	50%	40%	10%
Ruston	15	8	5	2	1	0	0	88%	0%	88%
Public meetings	15	616	26%	15%	17%	14%	28%	41%	42%	-0.5%
Email survey	13	1010	45%	19%	22%	6%	7%	64%	14%	51%
Web survey	13	1346	38%	18%	18%	11%	15%	56%	26%	31%

A.18 Creel Change Only (10 fish, 12" minimum)	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	17	124	15	17	5	29	58	26%	70%	-44%
Baton Rouge	17	89	7	16	9	19	38	26%	64%	-38%
Lafayette	17	93	5	13	3	15	57	19%	77%	-58%
Metarie	17	146	12	21	9	23	81	23%	71%	-49%
Slidell	17	93	10	14	3	18	48	26%	71%	-45%
Lake Charles	17	47	8	11	5	6	17	40%	49%	-9%
Alexandria	17	10	1	1	1	4	3	20%	70%	-0.5
Ruston	17	8	1	3	1	1	1	50%	25%	0.25
Public meetings	17	610	10%	16%	6%	19%	50%	25%	69%	-43%
Email survey	14	1082	27%	25%	10%	14%	23%	52%	38%	15%
Web survey	14	1442	22%	22%	4%	17%	35%	44%	52%	-8%

Stated change in the annual number of trips under this option	q	*n*	New est. of trips	Original est. of trips	Adjusted trips	Percent change
Trips per year (Email survey)	15	459	13.23	16.26	14.97	-7.9%
Trips per year (Web survey)	15	724	20.37	26.94	23.64	-12.2%

A.19 Size Change Only (25 fish, 14" minimum)	q	n	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	18	126	24	26	3	14	59	40%	58%	-18%
Baton Rouge	18	90	20	31	8	14	17	57%	34%	22%
Lafayette	18	92	22	28	7	16	19	54%	38%	16%
Metarie	18	150	43	35	6	19	47	52%	44%	8%
Slidell	18	95	30	15	2	19	29	47%	51%	-3%
Lake Charles	18	48	12	9	6	6	15	44%	44%	0%
Alexandria	18	10	3	2	1	2	2	50%	40%	0.1
Ruston	18	8	3	3	0	1	1	75%	25%	0.5
Public meetings	18	619	26%	24%	5%	15%	31%	49%	45%	4%
Email survey	16	1073	21%	29%	12%	18%	20%	50%	38%	12%
Web survey	16	1437	17%	28%	7%	18%	31%	45%	48%	-4%

Stated change in the annual number of trips under this option	q	*n*	New est. of trips	Original est. of trips	Adjusted trips	Percent change
Trips per year (Email survey)	15	436	14.35	16.26	15.48	-4.8%
Trips per year (Web survey)	15	696	20.59	26.94	23.86	-11.4%

A.20 Creel & Size I (12 fish, 13" minimum)	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	19	124	25	27	3	11	58	42%	56%	-14%
Baton Rouge	19	90	10	20	7	19	34	33%	59%	-26%
Lafayette	19	93	12	21	9	17	34	35%	55%	-19%
Metarie	19	149	23	44	7	14	61	45%	50%	-5%
Slidell	19	96	30	16	6	8	36	48%	46%	2%
Lake Charles	19	46	10	14	1	6	15	52%	46%	7%
Alexandria	19	10	2	4	1	2	1	60%	30%	0.3
Ruston	19	8	3	1	1	1	2	50%	38%	0.125
Public meetings	19	616	19%	24%	6%	13%	39%	43%	52%	-9%
Email survey	18	1063	20%	30%	15%	15%	20%	50%	35%	15%
Web survey	18	1428	20%	31%	6%	15%	27%	52%	42%	9%

Stated change in the annual number of trips under this option	q	*n*	New est. of trips	Original est. of trips	Adjusted trips	Percent change
Trips per year (Email survey)	15	401	12.93	16.26	15.00	-7.7%
Trips per year (Web survey)	15	654	19.66	26.94	23.61	-12.4%

A.21 Creel & Size II "Slot +1" (12 fish, 13" - 20", with 1>20")	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	21	123	15	25	0	14	69	33%	67%	-35%
Baton Rouge	21	88	12	16	3	17	40	32%	65%	-33%
Lafayette	21	95	8	19	3	14	51	28%	68%	-40%
Metarie	21	148	20	30	2	20	76	34%	65%	-31%
Slidell	21	95	24	19	1	9	42	45%	54%	-8%
Lake Charles	21	47	11	16	1	6	13	57%	40%	17%
Alexandria	21	10	1	1	0	3	5	20%	80%	-60%
Ruston	21	8	2	3	1	0	2	63%	25%	38%
Public meetings	21	614	15%	21%	2%	14%	49%	36%	62%	-26%
Email survey	20	1059	18%	23%	16%	17%	26%	41%	43%	-2%
Web survey	20	1422	20%	23%	7%	15%	35%	43%	50%	-7%

Stated change in the annual number of trips under this option	q	*n*	New est. of trips	Original est. of trips	Adjusted trips	Percent change
Trips per year (Email survey)	15	377	12.81	16.26	15.03	-7.6%
Trips per year (Web survey)	15	636	18.13	26.94	23.00	-14.6%

A.22 Creel & Size III (15 fish, 13.5" minimum)	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Public meetings	N/A	-	-	-	-	-	-	-	-	-
Email survey	22	1053	24%	26%	17%	15%	18%	50%	33%	17%
Web survey	22	1416	25%	29%	8%	15%	24%	54%	38%	16%

Stated change in the annual number of trips under this option	q	*n*	New est. of trips	Original est. of trips	Adjusted trips	Percent change
Trips per year (Email survey)	15	363	12.44	16.26	14.94	-8.1%
Trips per year (Web survey)	15	615	19.68	26.94	23.79	-11.7%

A.23 Creel & Size - Basic Slot (12 fish, 13" - 20")	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	20	121	8	18	2	12	81	21%	77%	-55%
Baton Rouge	20	91	3	14	8	18	48	19%	73%	-54%
Lafayette	20	91	3	17	3	14	54	22%	75%	-53%
Metarie	20	146	9	19	6	18	94	19%	77%	-58%
Slidell	20	92	13	9	2	13	55	24%	74%	-50%
Lake Charles	20	47	2	6	3	6	30	17%	77%	-60%
Alexandria	20	10	1	1	0	3	4	20%	70%	-50%
Ruston	20	8	1	3	1	0	3	50%	38%	13%
Public meetings	20	606	7%	14%	4%	14%	61%	21%	75%	-54%
Email survey	N/A									
Web survey	N/A									

A.24 More Restrictive Option	q	*n*	Strongly Support	Slightly Support	Unsure	Slightly Oppose	Strongly Oppose	Support (combined)	Oppose (combined)	Net Preference
Houma	22	124	20	9	13	8	74	23%	66%	-43%
Baton Rouge	22	90	11	11	16	4	48	24%	58%	-33%
Lafayette	22	89	5	3	4	7	70	9%	87%	-78%
Metarie	22	148	16	8	13	12	99	16%	75%	-59%
Slidell	22	96	11	11	2	3	69	23%	75%	-52%
Lake Charles	22	49	8	3	9	5	24	22%	59%	-37%
Alexandria	22	10	1	1	1	1	6	20%	70%	-50%
Ruston	22	8	2	1	0	1	4	38%	63%	-25%
Public meetings	22	614	12%	8%	9%	7%	64%	20%	71%	-51%
Email survey	N/A									
Web survey	N/A									

A.25 Education	q	*n*	Prefer not to answer	Some grade school	Some high School	High school graduate or equivalent	Some college	Bachelor's degree	Advanced degree
Public meetings	N/A	-	-	-	-	-	-	-	-
Email survey	24	1043	1%	0%	1%	16%	34%	30%	17%
Web survey	24	1400	1%	0%	1%	11%	28%	38%	21%

A.26 Age	q	*n*	Under 20	20-29	30-39	40-49	50-59	Over 60	Average
Houma	1	127	3	3	8	19	28	66	55
Baton Rouge	1	90	0	4	7	7	15	57	55
Lafayette	1	92	6	4	7	11	18	46	55
Metarie	1	153	1	3	2	15	27	105	45
Slidell	1	89	1	2	3	6	25	52	55
Lake Charles	1	47	0	1	4	7	14	21	55
Alexandria	1	10	0	0	1	1	3	5	55
Ruston	1	6	0	0	0	1	3	2	55
Public meetings	1	614	2%	3%	5%	11%	22%	58%	53
Email survey	25	1033	-	-	-	-	-	-	51
Web survey	25	1392	-	-	-	-	-	-	48