

Survey on the Awareness and Effectiveness of the Mississippi Delta Fish Consumption Advisory

DELTA FISH ADVISOR

KEY FOR FISH BELOW

		BUFFALO
DO NOT EAT ANY BUFFALO FISH FROM ROEBUCK		
		BUFFALO GAR CARP LARGE CATFISH
DO NOT EAT MORE THAN TWO MEALS PER MONTH OF THESE FISH		
		DRUM BREAM SMALL CATFISH LARGEMOUTH BASS
NO LIMIT ON THESE FISH		

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DELTA FISH ADVISORY
June 2001

Map of the Mississippi Delta region showing various water bodies and advisory zones.

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Survey on the Awareness and Effectiveness of the Mississippi Delta Fish Consumption Advisory

Office of Water, Office of Science and Technology
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

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EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA), Office of Water, Office of Science and Technology designed and conducted a survey for assessing the awareness and effectiveness of the Mississippi Delta Fish Consumption Advisory issued by the Mississippi Department of Environmental Quality (MDEQ) in 2001. The recommended study design for the survey is detailed in a previous report (U.S. EPA, 2007). This report describes the data collection and analysis procedures for the survey and presents the survey findings.

The state-issued Mississippi Delta advisory recommends that people should not eat more than two meals a month of wild-caught buffalo fish, carp, gar, and large catfish (> 22 inches) and should not eat any buffalo fish from Roebuck Lake (located in Leflore County). MDEQ initiated an extensive outreach campaign in 2001 to promote awareness of the advisory by conducting a public media campaign, distributing letters and posters to stores, posting signs at fishing access points, and mailing letters and brochures to churches in the Delta area. MDEQ is still implementing some aspects of the risk communication outreach campaign, including publishing advisories in the Mississippi Department of Wildlife, Fisheries and Parks' (MDWFP's) regulations brochure, posting information on the MDEQ Web site, and maintaining signs at boat ramps and fishing areas.

The study used two types of surveys to collect data to evaluate awareness and effectiveness of the Mississippi Delta fish advisory: (1) an on-the-bank intercept survey to collect data from anglers at waterbodies included in the advisory, and (2) a household survey to collect data from anglers and households who consume wild-caught fish from the Mississippi Delta. The two types of surveys were conducted in four counties in the Mississippi Delta: Coahoma, Holmes, Leflore, and Washington. Only the part of Holmes County that is within the advisory area was included in the survey. An on-the-bank intercept survey greatly increases the likelihood of reaching anglers in the advisory area, and a household survey provides coverage of nonanglers who consume wild-caught fish. Combining the results of the two surveys allows inferences to be made for the four-county area.

A total of 1,017 interviews were completed: 413 on-the-bank interviews and 604 household interviews. The response rate was 95 percent for the on-the-bank survey and 85 percent for the household survey.

The key findings from the survey are summarized below.

Twenty-eight percent of all respondents and 46% of anglers reported being aware of a warning or advisory about eating wild-caught fish from the Mississippi Delta. The level of awareness of the fish advisory varied for the different subpopulations examined in the study, suggesting that the advisory may reach some populations more effectively than others. Seven percent of respondents aware of the advisory correctly described the advisory recommendations and another 44 percent had some knowledge of the advisory (e.g., could name the fish species in the advisory).

Most respondents had heard about the advisory from signs posted at affected waterbodies (49 percent for aided awareness) and through media such as television news or talk shows (43 percent) or radio news or talk shows (15 percent). Few respondents learned about the advisory from the MDEQ brochure (16 percent), the MDEQ toll-free help-line (17 percent), or the Internet (9 percent). For respondents who used these information sources, most reported finding them very useful.

Consumption of the fish species identified in the advisory was not widespread. Few respondents reported that their households eat carp (5 percent) or gar (6 percent), and less than a third of respondents reported that their households eat wild-caught large catfish (>22 inches) (26 percent) or buffalo fish (31 percent).

Few respondents exceeded the advisory recommendations of two meals per month of carp, gar, large catfish, and buffalo fish. Ten percent of respondents who consume wild-caught fish from the Mississippi Delta consumed more than the advisory recommendations during the past year. No respondents reported consuming buffalo fish from Roebuck Lake, although 19 percent did not know the source of the buffalo fish they consumed.

Respondents reported limited changes in fishing practices since learning about the advisory. Changes respondents made in their fishing practices included fishing for different types of fish (20 percent of respondents), fishing less often (15 percent), and fishing at different locations or waterbodies (13 percent). Sixty-seven percent of respondents did not make any changes in their fishing practices as a result of the advisory. This may be because they were already following the advisory recommendations or do not fish for or eat the fish included in the advisory.

Respondents reported some changes in fish consumption practices since learning about the advisory. Since learning about the advisory, 33 percent of buffalo fish consumers reported that they stopped eating buffalo fish, and 54 percent reported eating less buffalo fish.

Since learning about the advisory, 52 percent of large catfish (> 22 inches) consumers reported that they stopped eating large catfish, and 33 percent reported eating less large catfish. Few respondents ate carp or gar before the advisory.

Respondents reported limited changes in fish preparation and cooking practices since learning about the advisory. Six percent of respondents reported changing how they prepare or cook fish as a result of the fish advisory. The most common change reported was frying fish less often or using a different cooking method than frying, such as broiling, baking, or grilling.

The outreach campaign informed anglers about the fish advisory and resulted in some behavior changes. The outreach campaign implemented by MDEQ in 2001 initially used a variety of mechanisms to inform people about the fish advisory, including sign postings, brochures, and the mass media. Currently, outreach is limited to publishing advisories in the MDWFP regulations brochure, posting information on the MDEQ Web site, and maintaining signs at boat ramps and fishing areas. The survey results suggest that the campaign has increased awareness of the advisory. Forty-six percent of the anglers in the four country area surveyed were aware of the Delta advisory, with lower awareness (18 percent) among nonanglers who consume wild-caught fish from the Mississippi Delta. Among all respondents, awareness of the advisory was 28 percent. The survey results suggest that MDEQ's outreach campaign is more effective at reaching anglers than nonanglers with information on the advisory; this may be due in part to the signs posted at boat ramps and fishing areas and to a smaller extent to the MDWFP fishing regulations brochure that is distributed to all licensed anglers, although 49 percent of anglers in this study did not have a current fishing license.

The survey results suggest that some respondents (33–54 percent) stopped eating or ate less wild-caught large catfish (>22 inches) or buffalo fish since learning about the advisory (few respondents ate carp or gar before the advisory). However, respondents reported limited changes in their fishing practices and fish preparation and cooking practices since learning about the advisory. Only 10 percent of respondents were found to eat more than the recommended two fish meals per month of wild-caught fish from the Delta area, which would increase their health risks from consuming dichlorodiphenyltrichloroethane (DDT) and toxaphene contaminated fish. This finding is encouraging because about a third of respondents reported eating buffalo fish or wild-caught large catfish (>22 inches).

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SECTION 1 INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Office of Water, Office of Science and Technology designed and conducted a survey for assessing the awareness and effectiveness of the Mississippi Delta Fish Consumption Advisory issued in 2001 by the Mississippi Department of Environmental Quality (MDEQ) for wild-caught fish. The recommended study design for the survey was developed by an EPA workgroup and is detailed in a previous report—*Recommended Study Design for a Survey to Evaluate the Effectiveness of Mississippi Delta Fish Advisories* (U.S. EPA, 2007). The current report is a follow-up to that original study and describes the data collection and analysis procedures for the survey and presents the survey findings. The remainder of this section provides background on the Mississippi Delta Fish Consumption Advisory and the contaminants that resulted in issuance of the advisory, and discusses the purpose and objectives of the study.

1.1 Background

Throughout the Mississippi Delta, fishing has long been an important part of life and the social culture of the region, and most people eat the fish they catch. Unfortunately, beginning in the 1950s, organochlorine pesticide use expanded rapidly to include a wide variety of agricultural and silvicultural uses, as well as vector control applications for mosquitoes. Dichlorodiphenyltrichloroethane (DDT), like several other organochlorine pesticides, was popular due to its effectiveness, long residual persistence, relatively low acute mammalian toxicity, and low cost (*Farm Chemicals Handbook*, 1989). One of the undesirable characteristics of organochlorine pesticides is that once these compounds enter streams, rivers, and lakes, they typically bioconcentrate in the tissues of aquatic organisms; bioaccumulate up the food chain; and concentrate in the tissues of fish, fish-eating birds, and fish-eating mammals, including humans. Two organochlorine pesticides, DDT and toxaphene, were heavily used in the Delta region for many years as insecticides, primarily on cotton (Ford and Hill, 1990; 1991).

DDT was widely used in agriculture to control a variety of insects, such as the pink boll worm on cotton, the codling moth on deciduous fruit, the Colorado potato beetle, and the European corn borer (*Farm Chemicals Handbook*, 1989). In silviculture, DDT was used to eradicate forest pests, such as the gypsy moth and spruce budworm, and was also used extensively in mosquito control programs. For these agricultural, silvicultural, and vector control applications, DDT was often applied by broadcast spraying from airplanes over extensive land

areas. All uses of DDT were cancelled in the United States after 1972, with the exception of emergency public health uses for control of vector-borne disease (U.S. EPA, 1972).

The widespread use of DDT in agriculture, silviculture, and as a vector control agent resulted in widespread detection of DDT in fish tissue nationally. Monitoring of fish harvested from Delta lakes from the 1970s through the 1990s by the State of Mississippi (MDEQ,2001) and the U.S. Fish and Wildlife Service (FWS) (Schmitt, Zajicek, and Peterman, 1990) revealed high concentrations of DDT. Some of the highest concentrations of DDT measured in the United States have been detected in fish harvested from Mississippi Delta waterbodies in the Yazoo River Basin (Schmitt, Zajicek, and Peterman, 1990). Nationally, the geometric mean concentrations of total DDT detected as part of the FWS National Contaminant Biomonitoring Program (NCBP) were greatest (>5 ppm), as they had been in all previous NCBP study years (Schmitt, Ludke, and Walsh 1981; Schmitt et al. 1983; Schmitt, Zajicek and Ribick, 1985), in fish samples from a station on the Yazoo River near Redwood, Miss. (this station is located within the Mississippi Delta fish advisory area designated by the state in 2001). Almost 15 years after the ban on most uses of DDT, EPA's National Study of Chemical Residues in Fish conducted from 1986 to 1989 found detectable residues of dichlorodiphenyldichloroethylene (DDE), the major breakdown product of DDT, at 99 percent of 388 sites tested nationwide (U.S. EPA, 1992).

Historically, toxaphene was released to the environment mainly from use as an agricultural insecticide used extensively on all major insect pests of cotton (*Farm Chemicals Handbook*, 1989; IARC, 1979). In addition, toxaphene was used as a piscicide for rough fish in the 1950s and 1960s in the United States, and was the replacement pesticide for many uses of DDT after the use of DDT was severely restricted in 1972 (Saleh, 1991). Partly because of the 1972 ban on using DDT, toxaphene was for many years the most heavily used pesticide in the United States (Grayson, 1981; Saleh, 1991). In 1974, 85 percent of the 20 million kg of toxaphene used in the United States was applied to cotton. In 1982, EPA restricted the use of toxaphene in the United States to its use as a pesticide on livestock and to control grasshopper and army worm infestations on cotton, corn, and small grains (in emergency situations only) (U.S. EPA, 1982). After 1990, the pesticide registrations for all toxaphene formulations were cancelled in the United States and all U.S. territories (U.S. EPA, 1990).

Monitoring of tissue from fish species harvested from Delta area waterbodies from the 1970s through the 1990s by the State of Mississippi (MDEQ,2001) and the FWS revealed that, like total DDT, concentrations of toxaphene in some fish species were very high (Schmitt, Zajicek, and Peterman, 1990). Some of the highest concentrations of toxaphene measured in the

United States have been detected in fish harvested from Mississippi Delta waterbodies in the Yazoo River Basin (Schmitt, Zajicek, and Peterman, 1990). Schmitt, Zajicek, and Peterman (1990) reported that in all FWS NCBP studies except the 1978–1979 study, the maximum toxaphene concentrations were detected at a station on the Yazoo River near Redwood, Miss.

To address some of the concerns revealed by the State of Mississippi and FWS NCBP fish studies, Henry Folmar of MDEQ and Jeff Bigler of EPA met several times in 1999 to discuss the development of a cooperative effort to conduct an extensive study of chemical contaminant concentrations in fish throughout the Delta area and to determine whether existing fish consumption recommendations issued by the State of Mississippi were adequately protecting sport and subsistence consumers of fish harvested from Delta waters.

As a result of those meetings, EPA issued a cooperative agreement to MDEQ in 2000 to evaluate the following:

- Concentrations of DDT and toxaphene in edible fish tissues from selected Delta sites.
- Potential human health risks associated with eating Delta fish.
- The need for revising fish consumption advisories in the Delta area.

The Mississippi Delta fish tissue study was initiated by MDEQ in 2000 and completed in 2001. Study results reported by the State of Mississippi to the EPA's National Listing of Fish Advisories (NLFA) database (U.S. EPA, 2008) indicated that concentrations of DDT and toxaphene exceeded levels of concern set by the State of Mississippi at all study sites and for several fish species sampled (MDEQ, 2001). Further, the State determined that, based on the results of the fish tissue study, a regional Mississippi Delta fish consumption advisory was warranted for several species of fish. In June 2001, MDEQ issued a Regional Mississippi Delta Fish Advisory that extended from Memphis, Tenn., to Vicksburg, Miss. (see Figure 1-1). The regional Mississippi Delta advisory does not apply to the Mississippi River or its associated oxbow lakes located west of the Mississippi River levee. The state-issued regional Mississippi Delta fish advisory recommends that people should not eat more than two meals per month of wild-caught buffalo fish, carp, gar, and large catfish (> 22 inches) from waterbodies in the regional Delta advisory area and should not eat any buffalo fish from Roebuck Lake (located in Leflore County).

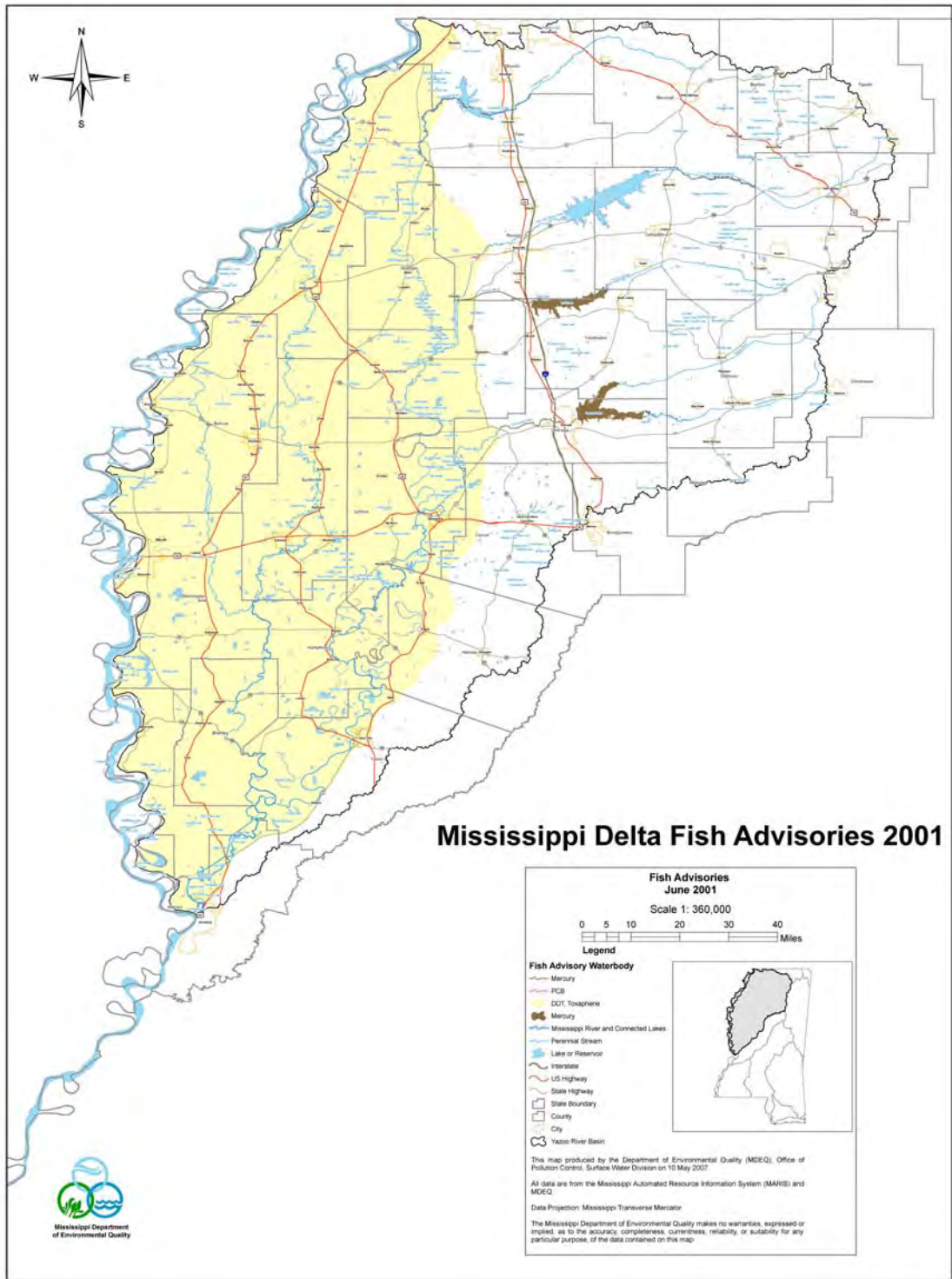


Figure 1-1. Areas covered by the Mississippi Delta fish consumption advisory.

To inform Delta residents about the advisory, MDEQ initiated an extensive outreach campaign in 2001 and implemented the campaign almost immediately. The implementation strategy included a public media campaign involving news conferences, news releases, staged sampling demonstration photo opportunities, radio and television spots on morning shows, call-in shows on gospel and blues radio stations, distribution of letters and posters to stores, and door-to-door canvassing in some Mississippi Delta communities. MDEQ also posted signs at fishing access points, such as boat ramps, as well as at commercial fish sales outlets and tackle shops throughout the Delta. MDEQ mailed letters and brochures to 1,400 churches; distributed 16,000 coloring books; and placed posters (see Figure 1-2) and brochures at Women, Infants, and Children (WIC) offices, libraries, and other locations in the Delta. They distributed these outreach materials to Delta residents in both English and Spanish. Currently, MDEQ is still implementing various aspects of the outreach campaign, such as posting signs at affected waterbodies and boat ramps, posting information on the MDEQ Web site, and distributing fishing regulation brochures published by the Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP) to all licensed fishers.

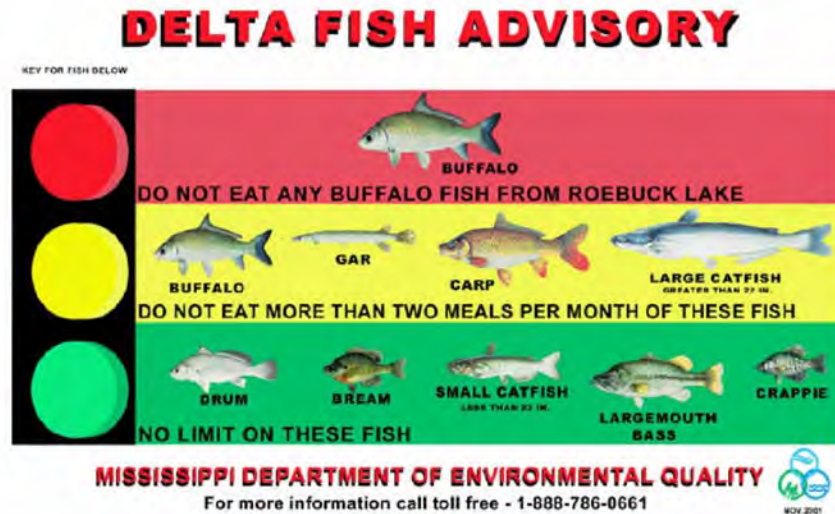


Figure 1-2. Poster used in the Mississippi Delta fish consumption advisory outreach campaign.

1.2 Purpose and Objectives

The purpose of the survey was to assess the awareness and effectiveness of the existing Mississippi Delta Fish Consumption Advisory issued by MDEQ. Specifically, the survey collected information to address the following objectives:

1. Determine the extent to which Delta sport and subsistence fishers and their families are aware of the advisory and its recommendations.

2. Determine the extent to which Delta sport and subsistence fishers and their families have changed their fish consumption behaviors as a result of the Delta advisory.
3. Document specific behavior changes, such as amount of fish consumed, methods of fish preparation and cooking, species or sizes of fish consumed and avoided, and other parameters.

The study included two types of survey: (1) an on-the-bank intercept survey to collect data from anglers at waterbodies included in the advisory, and (2) a household survey to collect data from anglers and households who consume wild-caught fish from the Mississippi Delta. Data collection took place in four counties in the Mississippi Delta: Coahoma, Holmes, Leflore, and Washington. Only the part of Holmes County that is within the Delta advisory area was included in the survey. The on-the-bank intercept survey greatly increases the likelihood of reaching anglers in the advisory area, and the household survey provides coverage of nonanglers who consume wild-caught fish. Combining the results of these two surveys allows inferences to be made for the four-county area. Appendix A shows the locations of the four counties in Mississippi encompassed in this study.

1.3 EPA Workgroup

EPA convened a workgroup as part of this study to provide input on the survey instrument, the survey methodology, and analysis of the survey data. Table 1-1 provides a list of the workgroup members, their affiliations, their areas of expertise, and their roles on the study. Jeff Bigler, EPA's National Fish and Wildlife Contamination Program Manager, and Henry Folmar, Advisory Program Manager from MDEQ, served as co-chairs of the workgroup.

1.4 Report Organization

The remainder of the report is organized as follows: Section 2 describes the survey instrument development and testing procedures; Section 3 describes the sample selection procedures; Section 4 describes the data collection procedures; Section 5 describes the data processing, weighting, and analysis procedures; Section 6 presents the results of the on-the-bank and household surveys; and Section 7 concludes the report with a summary of key findings.

Table 1-1. EPA Mississippi Delta Fish Advisory Survey Workgroup Members

Workgroup Member	Area of Expertise and Role
Jeff Bigler, EPA	Served as co-chair of the workgroup and overall EPA manager for the project. Is also National Program Manager for EPA’s National Fish and Wildlife Contamination Program and National Technical Expert on assessing health risks and benefits of fish consumption.
Henry Folmar, MDEQ	Served as co-chair of the workgroup and MDEQ Advisory Program Manager.
Amy Lando, Food and Drug Administration (FDA)	Consumer studies specialist, including experience with focus group testing and survey research. Technical advisor for the project. Assisted in refining the survey instrument and methodology and reviewing the data analysis plan.
Samantha Fontenelle, EPA	Environmental Protection Specialist working on recreational water quality criteria development and fish issues. Served as a technical reviewer.
Sheryl Cates, RTI International	Specializes in consumer behavior research, risk communication, and survey research. Led the development of the survey instrument and methodology for review by the workgroup, managed the data collection for the survey, developed analysis plan for the survey data.
Catherine Viator, RTI International	Specializes in data collection for economic analysis of the food and aquaculture industries. Assisted in developing the survey instrument and methodology for review by the workgroup, led the second round of cognitive interview testing, and conducted the interviewer training.
Pat Cunningham, RTI International	Coauthored national guidance on assessing chemical contaminant data for use in fish advisories, including fish sampling and analysis and risk assessment and fish consumption limits; authored report on advisories in Puerto Rico; active in fish advisory community for 20 years. Provided expertise on state fish consumption advisories.
Garry Lucas, MDWFP	Fisheries biologist in the Mississippi Delta area who identified and provided directions to waterbodies included in the survey.
Nathan Aycock, MDWFP	Fisheries biologist in the Mississippi Delta area who identified and provided directions to waterbodies in the advisory area at which trained interviewers conducted the surveys included in the survey.

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SECTION 2

SURVEY INSTRUMENT DEVELOPMENT AND TESTING PROCEDURES

The survey instrument collected information to address the three objectives summarized in Section 1.2 of this report. This section describes the survey instrument development and testing procedures. Appendix B provides a copy of the final survey instrument

2.1 Survey Instrument Design

The design of the survey instrument is detailed in a previous report (U.S. EPA, 2007). EPA led the development of the draft survey instrument with assistance from the following EPA workgroup members: Sheryl Cates, Catherine Viator, and Joanna Burger, Ph.D. (survey specialists), Pat Cunningham, Ph.D. (fish advisory specialist), and Steven Bradbard, Ph.D. (Food and Drug Administration [FDA] consumer studies specialist). Figure 2-1 illustrates the approach used to develop the survey instrument, which included two rounds of cognitive interviews and a pretest. Table 2-1 identifies the types of information collected in the survey.

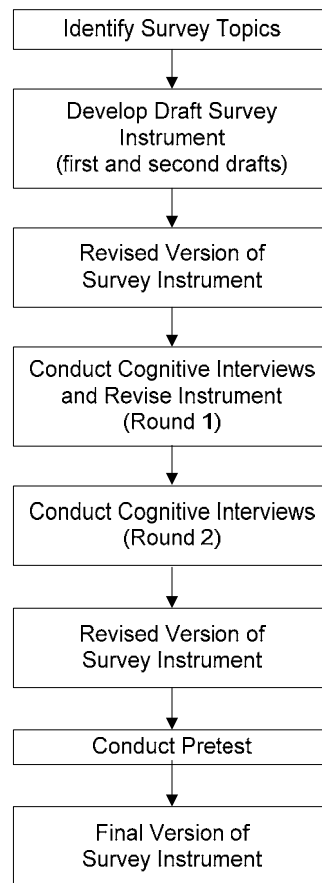


Figure 2-1. Methodology used to develop the survey instrument.

Table 2-1. Types of Information Collected in the Mississippi Delta Fish Advisory Survey

-
-
- A. Fishing Practices
 - Frequency and reasons for fishing
 - Dependency on fishing as a food source
 - Result of fishing (give away, trade, consume)
 - B. Fish Consumption Practices
 - Frequency of wild-caught fish consumption
 - Quantity of fish consumed per meal
 - Method of fish preparation and cooking
 - C. Determine Awareness of the Delta Fish Advisory
 - Perception of safety of consuming wild-caught fish from the Mississippi Delta
 - Awareness of Delta fish advisory
 - D. Attitudes toward Delta Fish Advisory—Respondents Not Aware of Advisory
 - Importance and likelihood of following advisory
 - Preferences for best sources of information about the advisory
 - E. Awareness of and Attitudes toward the Delta Fish Advisory—Respondents Aware of the Advisory
 - Source of information on the advisory
 - Usefulness of state-issued brochure, toll-free hotline, and Web site
 - Importance of following advisory recommendations
 - F. Self-Reported Changes in Fishing Practices—Respondents Aware of Advisory
 - Changes in frequency and location of fishing in the Mississippi Delta
 - Changes in species of fish that are caught
 - G. Self-Reported Changes in Fish Consumption—Respondents Aware of Advisory
 - Changes in amount or size of wild-caught fish consumed from the Mississippi Delta
 - Substitutes for fish consumption
 - Changes in the method of preparing and cooking wild-caught fish
 - Changes in fish consumption practices for pregnant women and children
 - Frequency of following advisory recommendations
 - H. Demographics
 - Gender, race, marital status, level of education, and household income
 - Possession of Mississippi sport fishing license
 - I. Awareness of National Advisory on Mercury in Fish and Shellfish
 - Perceptions of health benefits and risks of seafood consumption
 - Awareness of types of seafood posing mercury risks to consumers
 - Awareness of population groups included in mercury advisory
-
-

2.2 Cognitive Interviews

The purpose of the cognitive interviews was to identify any questions that were difficult or confusing to respondents, to identify any terminology that was unclear to respondents, and to assess whether respondents interpreted the questions as intended. Instrument testing included two rounds of cognitive interviews conducted in May 2007 and March 2009. In the first round of cognitive interviews, members of the workgroup who live in the advisory area identified and

recruited individuals to participate in the cognitive interviews. The study team conducted nine cognitive interviews, each lasting about an hour. The interviewees included five male and four female respondents, of which two were Caucasian and seven were African American. Survey specialists revised the survey instrument based on the findings from the cognitive interviews.

EPA, in cooperation with FDA, conducted a second round of cognitive interviews. MDEQ helped to recruit residents of the advisory area to participate in the interviews. The interviews took place at a local hotel in Greenwood, Miss. Respondents received a \$50 cash honorarium. Respondents completed the questionnaire and then the interviewer asked a series of questions using a prepared debriefing guide. Survey specialists conducted eight cognitive interviews, each lasting about 50 minutes. The interviewees included six male and two female respondents, of which two were Caucasian and six were African American.

Overall, most respondents found the survey interesting and relatively easy to complete. Some of the questions were difficult, redundant, or not conversational in tone, so these questions were revised or deleted. Some questions on attitudes and perceptions of the advisory were not properly worded if the respondent was not aware of the advisory. Thus, the survey instrument was revised to include separate sections for respondents who were aware or were not aware of the advisory and to tailor the wording of the questions as appropriate.

2.3 Pretest

In September 2009, survey specialists worked with study field interviewers to conduct a pretest of the survey instrument. The pretest included 10 residents of Coahoma County (near Moon Lake) with five on-the-bank interviews and five household interviews. Of the 10 pretest participants, nine were male and one was female. Seven participants were Caucasian and three were African American. Participants' age, education level, employment level, and household income varied.

The field interviewers for the full-scale data collection effort conducted the pretest interviews, familiarizing them with the questionnaire. The field interviewers worked in pairs, as they did for the full-scale data collection. The interviewers administered the questionnaire as if it were the full-scale survey and then used a debriefing guide to lead the respondent in a discussion to identify questions or terms that were difficult to understand or confusing.

The interview took an average of 18 minutes to complete; the minimum time was 14 minutes and the maximum time was 20 minutes. The survey instrument required minimal

changes based on the findings of the pretest: some of the response options were collapsed and reordered to facilitate easier recording by interviewers, and some response options were added.

Appendix B provides a copy of the final survey instrument. Appendix C provides a copy of additional materials used during the interviews, including the informed consent form, a map of the Mississippi Delta indicating the advisory area, a portion size aid (for answering questions on amount of fish consumed), pictures of the fish species included in the advisory, cards that respondents were instructed to refer to during the interview, and a picture illustrating the advisory.

SECTION 3

SAMPLE DESIGN

This section describes the sample design for the on-the-bank and household surveys. The target population for the survey included the following four counties within the advisory area: Coahoma, Holmes, Leflore, and Washington. Only the part of Holmes County that is within the advisory area was included in the survey. These counties were purposively selected to include a mix of rural and nonrural areas and areas with major water resources affected by the advisory (e.g., Roebuck Lake, Moon Lake, Lake Washington, and Bee Lake). Appendix A provides maps of the four counties within the Delta advisory area.

3.1 On-the-Bank Survey

The primary advantage of an on-the-bank survey or intercept survey is that it greatly increases the likelihood of reaching individuals fishing in the advisory area who might consume the fish species identified in the advisory. The study used a probability-based design so that inferences could be drawn to the population of all anglers in the four-county survey area. Using a multistage sampling approach, fishing access points were selected first, and then days and time windows were selected for each access point. All anglers present at the selected fishing access points were approached by the interviewers.

3.1.1 Frame

The sampling universe contained 61 unique waterbodies. Two fisheries biologists from MDWFP subjectively assigned an interview potential of very low, low, moderate, or high to each waterbody based on their knowledge of the waterbodies. Waterbodies with unknown interview potential were assigned a potential of “low.” Waterbodies assigned an interview potential of “very low” (21 waterbodies) were removed from the frame to increase the efficiency and cost effectiveness of the data collection. Additionally, six waterbodies were removed because they were not open to the public. Thus, the final frame for the survey consisted of 34 distinct waterbodies.

A measure of size was constructed for each waterbody by first calculating the shoreline length in kilometers. Lake shorelines were measured by the circumference of the lake. River shorelines were measured by the length of the river within the advisory area multiplied by two (to account for both sides). Rivers with shoreline lengths longer than 50 km were truncated to 50 km. The shoreline length was then multiplied by the interview potential (1 = low, 2 = moderate, 4 = high) to get the final measure of size used for the sample selection.

3.1.2 Sample Selection

Probability-proportional-to-size systematic sampling was used to select the main and reserve samples. After a random starting point, systematic sampling selects units at a fixed interval throughout the sampling frame. Before selection, the frame was sorted by interview potential, waterbody type, and county, and a systematic sample of 20 waterbodies was selected with probabilities proportional to the measure of size. This approach incorporates stratification and thus ensures correct representation of the sample by interview potential, waterbody type, and county. Some waterbodies had measures of size larger than the skip interval of the systematic sample. Those waterbodies were therefore selected with certainty and, in some cases, more than once, resulting in a sample of 16 unique waterbodies. One of the larger waterbodies, Lake Tchula, was contaminated after a recent hurricane, and there is little fishing activity there as a result; therefore, a similar lake, Lake Jackson, was selected as an additional sample unit. A reserve sample of two rivers and two lakes was selected from the remaining 18 units in the frame. The entire reserve sample was ultimately used because of limited or no fishing activity at some sampled waterbodies. Table 3-1 lists the sampled waterbodies for the on-the-bank survey.

3.2 Household Survey

3.2.1 Target Population and the Address-Based Sampling Frame

The target population for the household survey consisted of all adults in households in the four-county area of the Mississippi Delta regional fish advisory. To be eligible for the survey, an adult household member must have either fished in the Mississippi Delta in the past year or consumed wild-caught fish from the Mississippi Delta in the past year. A household-level sampling frame based on an address-based sampling (ABS) frame was used to draw the sample for the household survey.

The primary elements of an ABS frame are residential mailing addresses that are made available to the public by the U.S. Postal Service through a nonexclusive license agreement with qualified private companies. The addresses are based on the Delivery Sequence File, a computerized file containing all delivery point addresses serviced by the Postal Service except general delivery addresses.

Table 3-1. Waterbodies Sampled in the On-the-Bank Survey

Waterbody Name	County	Waterbody Type	Interview Potential^a	Shoreline Length (km)^b	Measure of Size^c
Brushy Lake	Washington	Lake	Unknown	2.30	2.30
Yazoo Pass	Coahoma	River	Low	45.03	45.03
Black Creek	Holmes	River	Low	50.00	50.00
Minter City Oil Mill	Leflore	River	Low	15.96	15.96
Yalobusha River	Leflore	River	Low	50.00	50.00
Old River	Washington	River	Unknown	40.90	40.90
Steele Bayou	Washington	River	Low	32.80	32.80
Tchula	Holmes	Lake	Moderate	48.64	97.28
Sidon Cutoff	Leflore	Lake	Moderate	14.67	29.34
Big Sunflower	Washington	River	Moderate	50.00	100.00
Deer Creek	Washington	River	Moderate	50.00	100.00
Moon Lake	Coahoma	Lake	High	27.51	110.06
Bee Lake	Holmes	Lake	High	48.91	195.65
Horseshoe Lake	Holmes	Lake	High	45.04	180.14
Round Lake	Leflore	Lake	High	14.50	58.00
Lake Jackson	Washington	Lake	Moderate	19.55	39.10
Reserve Sample					
Roundaway Lake	Coahoma	Lake	Moderate	4.49	8.98
Blue Lake	Leflore	Lake	Moderate	14.63	29.26
Tallahatchie	Leflore	River	Low	50.00	50.00
Parker Bayou	Holmes	River	Low	5.74	5.74

^a Two fisheries biologists from the MDWFP subjectively assigned an interview potential of very low, low, moderate, or high based on their knowledge of the waterbodies. Waterbodies with unknown interview potential were assigned an interview potential of “low.”

^b Lake shorelines were measured by the circumference of the lake. River shorelines were measured by the length of the river within the advisory area multiplied by two. Rivers with shoreline lengths longer than 50 km were truncated to 50 km.

^c The measure of size was used in the systematic sampling, with measure of size equal to the shoreline length times the interview potential (1 = low, 2 = moderate, 4 = high).

Although it is not unreasonable to assume that virtually every household in the United States has a mailing address, not all mailing addresses are suitable for in-person household surveys, because interviewers must be able to locate a mailing address “on the ground.” Households with city-style mailing addresses are considered locatable for in-person household

surveys and constitute the vast majority of elements on an ABS frame. Households with mailing addresses that are not locatable include those with simplified rural addresses and households that only receive mail through residential post office boxes. Currently, estimation techniques of ABS coverage in specific areas are not very reliable. However, in an effort to provide some coverage estimates, the ratio of locatable mailing addresses (LMAs) was calculated from the ABS sampling frame to the estimated total number of households acquired from the 2009 GeoLytics demographic estimates. GeoLytics is a provider of Census, demographic, and geographic data for academic and business researchers. The estimated household coverage of the ABS frame was approximately 89 percent using this ratio. The primary sources of undercoverage for an ABS frame are new housing construction and households with noncity-style mailing addresses. In addition, sampling designs using clusters not defined by postal geography (e.g., postal carrier routes or ZIP codes) are subject to undercoverage introduced by the incorrect geocoding of addresses into Census geographies (e.g., Census block groups [CBGs]).

3.2.2 Sample Allocation and Selection

Each of the CBGs on the sampling frame was classified into 10 income categories based on the deciles of CBG median household income and using the 2009 GeoLytics demographic estimates. The deciles were then collapsed into three income categories that served as the sampling strata: low = \leq \$19,939, medium = \$19,940–\$30,769, and high = \geq \$30,770.

A base sample of 36 CBGs was selected. To focus the sample on areas with concentrations of lower income households, 15 percent more CBGs were allocated to the low-income stratum than would have been in a proportional allocation. The remainder of the sample was proportionally allocated to the medium- and high-income strata.

Using the number of LMAs as the measure of size, probability-proportional-to-size systematic sampling was used to select the sample of 36 CBGs. After a random starting point, systematic sampling selects units at a fixed interval throughout the sampling frame. Before selection, the sample was sorted by county to control for the geographic distribution of the sample and obtain a reasonably even sample across the four counties.

In the second stage, a systematic sample of 1,951 city-style addresses across the 36 selected CBGs was selected for screening and interview. The low-income stratum was slightly oversampled by about 11.5 percent.

As a final step, the selected CBG sample was randomly split into two replicates or subsamples (A and B) within the medium- and high-income strata. Replicate A was released for

interviewing from the outset, while Replicate B was kept in reserve to be drawn on only if needed. Ultimately, it was not necessary to use Replicate B. Table 3-2 shows the household survey sampling frame and sample distribution by county and income strata.

During survey administration, selected households were screened for eligibility. To be eligible for the survey, an adult household member must have either fished in the Mississippi Delta in the past year or consumed wild-caught fish from the Mississippi Delta in the past year.

Table 3-2. Household Survey Sampling Frame and Sample Distribution by County and Income Strata^a

County (ZIP Code)	CBG Income Strata	Frame		Sample		Sample Replicate A		Sample Replicate B	
		CBG	LMA	CBG	LMA	CBG	LMA	CBG	LMA
Coahoma (28027)	Low	13	4,028	4	174	4	174	0	0
	Medium	8	2,219	2	80	1	35	1	45
	High	7	3,344	2	121	1	61	1	60
Holmes (28051)	Low	7	2,618	2	113	2	113	0	0
	Medium	6	2,905	2	105	1	64	1	41
	High	1	309	0	0	0	0	0	0
Leflore (28083)	Low	12	6,135	5	265	5	265	0	0
	Medium	9	3,132	2	113	1	54	1	59
	High	10	3,760	2	136	1	31	1	105
Washington (28151)	Low	21	6,151	5	265	5	265	0	0
	Medium	17	5,963	4	215	3	193	1	22
	High	23	10,107	6	364	4	270	2	94
Total		134	50,671	36	1,951	28	1,525	8	426

^aLow income = ≤ \$19,939; Medium income = \$19,940–\$30,769; High income = ≥ \$30,770

Notes:

CBG = Census block group

LMA = locatable mailing addresses

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SECTION 4

SURVEY ADMINISTRATION PROCEDURES

This section describes the data collection procedures for the on-the-bank survey and the household survey and provides the response rate for the survey. The data collection procedures were reviewed and approved by the U.S. Office of Management and Budget and RTI International and FDA Institutional Review Boards.

4.1 Interviewer Training

Field data collectors collected the data in two-person interviewing teams that were assigned to specific counties for the data collection effort. Survey specialists conducted an in-person training session with contracted interviewers to provide information on the informed consent procedures, recruitment and interviewing procedures, and procedures for submitting completed interviews and forms. Interviewers conducted mock interviews to practice administering the survey instrument. Interviewers received a field manual that contained maps, handouts, and other materials needed for the data collection effort.

4.2 Data Collection Procedures for the On-the-Bank Survey

Field interviewers conducted the on-the-bank interviews in October 2009. Survey specialists developed protocols and forms to assist the interviewers, with the goal of spreading the interviews across the different waterbodies and access points,¹ across days of the week (weekday versus weekend), and throughout the day to ensure the inclusion of the widest possible cross section of the angler population and to avoid introducing any biases.

Potential access points for each waterbody were identified using Google Maps and other resources. MDWFP staff reviewed the list of access points and provided directions to each waterbody. Before the start of data collection, interviewers checked the accuracy of the list of access points and added and removed access points as appropriate. Interviewers visited each access point at least four times during the data collection period, varying the day of the week and the time of day.

Interviewers used a weekly scheduling form to record the waterbodies they planned to visit each day during the data collection period. Interviewers visited all assigned waterbodies each week, and for each week of data collection, interviewers varied the day that they visited

¹ Access points include parking lots and other entrances to the fishing areas, where anglers arrive by car to put their boat into the water or walk to the fishing area.

each waterbody. Interviewers recorded the time that they actually spent at each waterbody and access point on a daily schedule form.

Interviewers dressed casually and began the interview with a conversation about fishing to “break the ice” so that respondents would feel at ease and be more willing to cooperate. To be eligible for the survey, an individual had to be at least 18 years of age, reside in one of the four target counties, and not have previously participated in the survey. If eligible, the interviewer administered the informed consent form for the study. Appendix C provides a copy of the informed consent form. After the participant signed the form, the interviewer proceeded with the interview.

4.3 Data Collection Procedures for the Household Survey

Field interviewers conducted the household interviews from November 6 through December 6, 2009. Interviewing was limited to weekends because more people are home on weekends than during the week, thus increasing the cost-effectiveness of the data collection. As with the on-the-bank survey, survey specialists developed a system of procedures and forms to assist the interviewers. To maintain confidentiality, each sampled household was assigned a unique identification number. Interviewers used a household log sheet that included a sample identification number and the address of the sampled household to screen for eligibility. If the household was eligible, the interview was administered and the responses recorded on a questionnaire with the sample identification number. Thus, identifying information was kept separate from the survey responses.

To begin the interview, the interviewer first determined the eligibility of the household. To be eligible for the survey, a household member must have either fished in the Mississippi Delta in the past year or consumed wild-caught fish from the Mississippi Delta in the past year. Individuals who participated in the on-the-bank survey were not eligible. If the household was eligible, the interviewer used a specific process to select which adult in the household to interview. The process guided interviewers to select the adult in the household who fished most often and the adult in the household who prepared and cooked fish most often. If this resulted in two different household members, the interviewer selected the member with the most recent birthday. The interviewer then administered the informed consent form for the study and proceeded with the interview.

4.4 Survey Response

Table 4-1 shows the final disposition of the sample and the eligibility and response rates by survey mode and county. Field interviewers completed a total of 1,017 interviews—413 on-the-bank interviews and 604 household interviews.

The response rate was calculated using the American Association for Public Opinion Research, Response Rate 3 (AAPOR, RR3) (see http://www.aapor.org/Standard_Definitions/1818.htm). AAPOR RR3 is a measure of response rate that accounts for the proportion of cases with unknown eligibility that are actually eligible.

The formula for calculating AAPOR RR 3 is as follows:

$$RR3 = \frac{I}{(I+P) + (R + NC+O) + e(UH + UO)}$$

where

I = complete interview

P = partial interview

R = refusal and break-off

NC = noncontact

O = other

e = estimate of eligibility (see below)

UH = unknown if household/occupied

UO = unknown, other.

The estimate of eligibility (e) is based on the proportion of eligible households or anglers among all those for which a definitive determination of status was obtained (a very conservative estimate). The formula for calculating e is as follows:

$$e = \frac{I + P + ENI}{I + P + ENI + NE}$$

where

ENI = eligibles, noninterviews

NE = not eligible.

The value of e (estimate of eligibility) was 93 percent for the on-the-bank survey and 75 percent for the household survey.

The RR3 was 95 percent for the on-the bank survey and 85 percent for the household survey, exceeding the target response rate of 60 percent.

Table 4-1. Disposition Summary for the On-the-Bank and Household Surveys

	On-the-Bank (number of anglers)					Household (number of households)				
	Coahoma	Holmes	Leflore	Washington	Total	Coahoma	Holmes	Leflore	Washington	Total
Completed Interviews	61	98	114	140	413	106	72	141	285	604
Refusals	3	0	2	9	14	7	1	2	34	44
Unknown Eligibility										
Not attempted or worked	NA	NA	NA	NA	NA	0	0	1	3	4
Unable to reach/unsafe area	NA	NA	NA	NA	NA	1	1	21	2	25
Unable to locate address	NA	NA	NA	NA	NA	2	0	0	3	5
Refused to answer screening questions	0	4	2	2	8	6	6	13	28	53
Total unknown eligibility	0	4	2	2	8	9	7	35	36	87
Ineligibles										
Not a housing unit	NA	NA	NA	NA	NA	3	0	4	3	10
Vacant housing unit	NA	NA	NA	NA	NA	17	3	8	25	53
Household does not fish and household does not eat fish	NA	NA	NA	NA	NA	14	16	35	88	153
Other	NA	NA	NA	NA	NA	4	0	0	1	5
< 18 years old	5	0	3	2	10	NA	NA	NA	NA	NA
Does not live in one of four counties	5	10	2	7	24	NA	NA	NA	NA	NA
Total ineligible	10	10	5	9	34	38	19	47	117	221
Total Sample	74	112	123	160	469	160	99	225	472	956
Eligibility Rate (%)	86	91	96	94	93	75	79	75	73	75
Response Rate 2 (%)	95	96	97	93	95	87	90	79	80	82
Response Rate 3 (%)	95	96	97	93	95	89	92	83	83	85

NA = not applicable.

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SECTION 5

DATA PROCESSING AND ANALYSIS PROCEDURES

This section describes the procedures used to prepare the analysis data set, the weighting procedures, and the data analysis procedures for the survey.

5.1 Data Processing Procedures

Trained data entry staff keyed the survey data into an electronic database. Responses to the open-ended questions were not coded. Quality assurance/quality control verification was performed on 25 percent of the cases entered, and all data entry errors were resolved.

Data editing included checking for errors and inconsistencies in responses. Survey analysts made edits to the final analysis data set using the following criteria:

- Investigate and address responses that fall outside a specified range.
- Recode responses to categorical questions that correspond to a valid response.
- Check for consistency, such as the sum of categories matches the reported total, or logical responses to different questions.
- Check for contradictory responses and incorrect flows through prescribed question skip patterns.
- Check for omission or duplication of records; several missing items in a row can indicate that one or more pages in the survey were not keyed or other errors in the data entry process.

EPA maintains the edited, final analysis data set and a separate data set that includes the original value of the data items prior to editing, the reason for the change in the data, the identity of the person making the change, and the date that the change was made, thus creating a complete audit trail.

5.2 Weighting Procedures

Statisticians developed survey weights to account for the sample selection process and to adjust for deviations from sample design, such as variable nonresponse. The survey weights can be used to infer estimates at the population level with measurable levels of sampling precision. Three sets of survey weights were developed: one for the on-the-bank survey, one for the household survey, and one that combines the data from the two surveys. Appendix D describes

the weighting procedures in greater detail. The three sets of survey weights were appended to the final analysis data set. The combined survey weights were used to prepare the weighted survey tabulations and the analyses presented in this report.

5.3 Analysis Procedures

Appendix E provides weighted tabulations for each survey question for anglers, nonanglers, and all respondents. Proportions were computed for questions in which respondents could select one or more responses from a list of responses. Respondents who were instructed to skip a question because it did not apply were excluded from the calculation of proportions. Respondents who did not answer a question (i.e., item nonresponse) were included in the denominator in the calculation of proportions. Means were computed for questions that required a numeric response from respondents.

Analyses of specific questions were conducted to address the three survey research objectives. Bivariate analyses were conducted for specific questions to compare responses by specific demographics and other characteristics, including respondent type (angler vs. nonangler), importance of fishing as a food source for family (Question 6) (as a proxy for subsistence anglers), county, gender, education level, and race. A chi-square test was performed for the relationships between the variables of interest and the demographic and other variables. All analyses were conducted using SAS, a statistical analysis software tool (SAS, 2008), using the combined survey weights.

SECTION 6

SURVEY RESULTS

This section presents the results of the on-the-bank and household surveys. The characteristics of respondents are presented, followed by the survey results. The results are organized to address the study's three research objectives:

1. Determine the extent to which Delta sport and subsistence fishers and their families are aware of the advisory and its recommendations.
2. Determine the extent to which Delta sport and subsistence fishers and their families have changed their fish consumption behaviors as a result of the Delta fish advisory.
3. Document specific behavior changes, such as amount of fish consumed, methods of fish preparation or cooking, species and size of fish consumed and avoided, and other parameters.

6.1 Characteristics of Respondents

Table 6-1 provides demographic information on respondents. Of the 1,017 respondents, 585 were anglers (413 completed the on-the-bank survey and 172 completed the household survey) and 432 were nonanglers. Forty-seven percent of all respondents were male, 38 percent had some education beyond high school, 69 percent were African American, 39 percent were married, 42 percent were employed full time, and 38 percent had an annual household income less than \$20,000. Twenty-eight percent of anglers consider fishing an important source of food for their family. Seventy-nine percent of respondents (49 percent of anglers) did not have a current Mississippi fishing license. Statistically significant differences between anglers and nonanglers were observed for gender ($p < 0.0001$), race ($p < 0.0001$), marital status ($p = 0.0387$), income ($p = 0.0230$), and county ($p = 0.0030$).

Table 6-1. Demographic Characteristics of Survey Respondents

		Anglers (n = 585)	Nonanglers (n = 432)	All Respondents (n = 1,017)
		%	%	%
Gender***	Male	72	32	47
	Female	28	68	53
Education ^a	Less than high school	35	27	30
	High school diploma	25	36	32
	More than high school	41	37	38
Hispanic	Yes	1	1	1
	No	99	99	99
Race***	Caucasian	44	23	31
	African American	56	77	69
Marital Status*	Single	36	39	38
	Married	45	36	39
	Divorced/separated	9	7	8
	Widowed	6	10	9
	Living with partner	4	7	6
Employment Status	Employed full time	43	41	42
	Employed part time	10	11	11
	Unemployed	15	16	16
	Not working for other reasons	33	31	32
Current Miss. Fishing License	Yes	48	3	20
	No	49	97	79
Importance of Fishing as a Food Source for Family	Not at all/a little bit	72	NA	NA
	Somewhat/a lot	28	NA	NA
Income*	Less than \$9,999	15	17	16
	\$10,000–19,999	18	24	22
	\$20,000–29,999	14	15	14
	\$30,000–39,999	14	8	10
	\$40,000–49,999	7	8	7
	\$50,000 or more	10	4	7
	Don't know/refused	21	26	24

(continued)

Table 6-1. Demographic Characteristics of Survey Respondents (continued)

		Anglers (n = 585)	Nonanglers (n = 432)	All Respondents (n = 1,017)
		%	%	%
County ^b **	Coahoma	17	18	18
	Holmes	14	11	12
	Leflore	39	27	31
	Washington	30	44	39

Notes: Totals may not sum to 100 percent because of rounding.

NA = not asked

^a One respondent did not answer the education question and was thus excluded from the bivariate analysis.

^b For the household survey, county is the county of residence. For the on-the-bank survey, county is the county in which the interview was conducted.

* = Difference between anglers and nonanglers was statistically significant at $p < 0.05$.

** = Difference between anglers and nonanglers was statistically significant at $p < 0.01$.

*** = Difference between anglers and nonanglers was statistically significant at $p < 0.0001$.

Awareness of a Delta Fish Advisory (Question 17). Twenty-eight percent of all respondents reported being aware of a warning or advisory about eating wild-caught fish from the Mississippi Delta (Figure 6-1). Awareness of an advisory was higher among anglers (46 percent) than among nonanglers (18 percent) ($p < 0.0001$). Awareness was higher in Coahoma County (45 percent) than in the other three counties included in the study (14–30 percent) ($p = 0.0002$). Awareness was higher among males (40 percent) than females (18 percent) ($p < 0.0001$). Awareness increased with level of education and ranged from 20 percent for individuals with less than a high school education to 36 percent for individuals with more than a high school education ($p = 0.0050$). Awareness was higher among Caucasians (38 percent) than among African Americans (24 percent) ($p = 0.0027$). Awareness was higher among anglers who did not consider fishing an important source of food (52 percent) than among anglers who rely on fishing as a food source (32 percent) ($p = 0.0030$).

Knowledge of the Delta Fish Advisory (Questions 25 and 33). To determine knowledge about the Mississippi Delta advisory for buffalo fish, carp, gar, and large catfish, interviewers asked respondents who reported being aware of the advisory what the advisory recommends about eating fish.

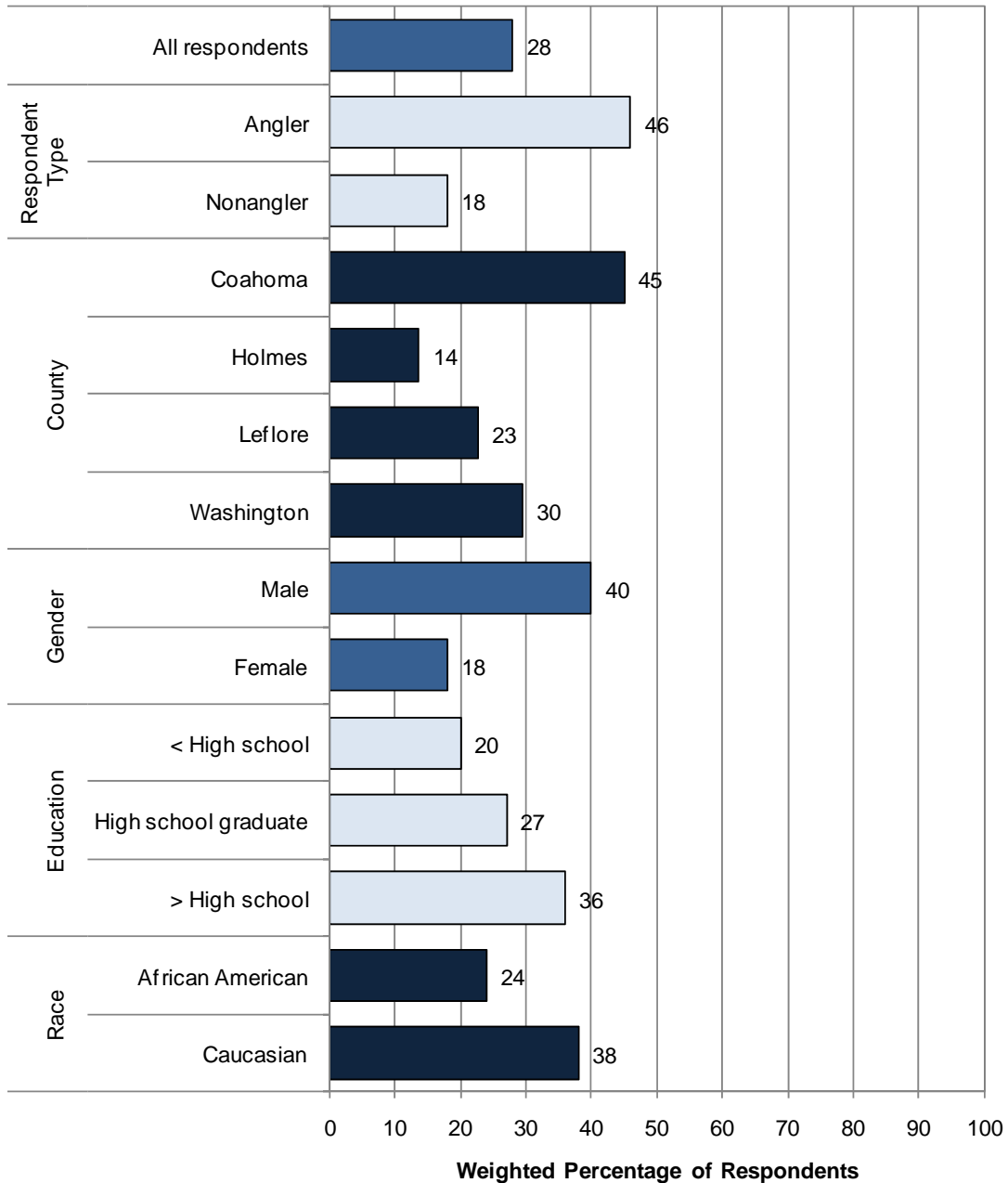


Figure 6-1. Awareness of warnings/advisories about eating wild-caught fish from the Mississippi Delta by subpopulation (n = 1,017).

Question 17: Are you aware of any warnings or advisories about eating wild-caught fish from the Mississippi Delta? [IF RESPONDENT IS NOT SURE OR CANNOT RECALL: These advisories were first issued in 2001–2002. The advisory recommends that you don't eat too much of certain fish because of chemicals in the fish.]

The question was open ended, and interviewers recorded the responses using a set of precodes. As shown in Figure 6-2, 7 percent of aware respondents were very knowledgeable: that is, they correctly described the advisory recommendations (do not eat more than two meals a month of buffalo fish, carp, gar, and large catfish and do not eat any buffalo fish from Roebuck Lake). Forty-four percent of aware respondents were somewhat knowledgeable: that is, they mentioned at least one of the fish in the advisory or Roebuck Lake. Twenty-nine percent of aware respondents were not very knowledgeable: that is, they only knew not to eat fish over a certain size or not to eat too much of certain fish. Twenty percent of aware respondents could not explain the advisory recommendations.

Among those aware of the advisory (anglers and nonanglers), level of knowledge about the advisory did not vary by respondent type, gender, or race, but did vary by county ($p < 0.0001$) and education level ($p = 0.0063$). Ninety-two percent of respondents from Holmes County, 91 percent from Washington County, and 70 percent from Coahoma and Leflore Counties had at least some knowledge of the advisory. Eighty-seven percent of respondents with more than a high school education, 69 percent of respondents with a high school education, and 79 percent of respondents with less than a high school education had at least some knowledge of the advisory. Among angler respondents aware of the advisory, knowledge about the advisory did not vary by importance of fishing as a food source.

Seventy-five percent of respondents who were aware of the advisory believed that the advisory is still in effect, 24 percent did not know, and 1 percent believed the advisory is no longer in effect.

Information Sources for Learning about the Delta Fish Advisory (Question 32 and Questions 34–40). The questionnaire used unaided (Question 32) and aided questions (Questions 34–40) to collect information on how aware respondents ($n = 305$) heard about the advisory. The unaided question was an open-ended question that asked how the respondent heard or learned about the advisory. The aided questions asked respondents whether they saw signs, received a brochure, or heard about the advisory through the various dissemination methods used in the outreach campaign.

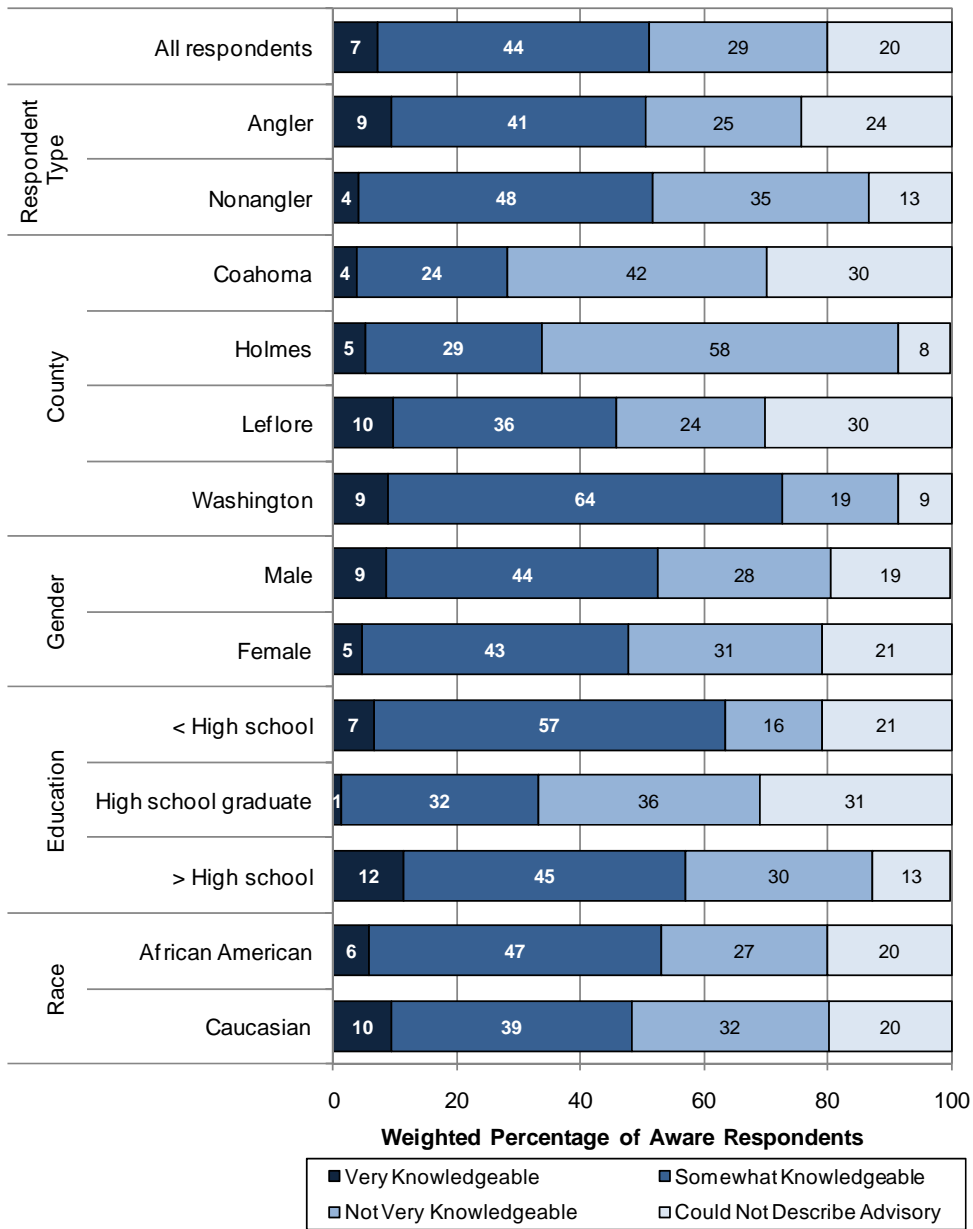


Figure 6-2. Level of knowledge about the Delta fish advisory among those aware, by subpopulation (n = 305).

Notes:

Very knowledgeable = correctly described the advisory recommendations (do not eat more than two meals a month of buffalo fish, carp, gar, and large catfish and do not eat any buffalo fish from Roebuck Lake).
 Somewhat knowledgeable = mentioned at least one of the species of fish in the advisory or Roebuck Lake.
 Not very knowledgeable = knew not to eat fish over a certain size or not to eat too much of certain fish.
 Totals may not sum to 100 percent because of rounding.

Question 25: To the best of your knowledge, tell me what the advisory recommends about eating fish.

Figure 6-3 shows the results for unaided awareness. Respondents heard about the advisory from a variety of sources. Among anglers and nonanglers, most had heard about the advisory from signs posted at waterbodies in the Mississippi Delta area (36 percent). Not surprisingly, the majority of anglers heard about the advisory through sign postings at local waterbodies (55 percent). Other information sources on the advisory included the following: television news or talk shows (25 percent), family or friends (20 percent), radio news or talk shows (11 percent), and churches (6 percent). Five percent or less of respondents heard about the advisory from the other sources asked about in the survey. Sixteen percent of respondents could not recall how they heard about the advisory.

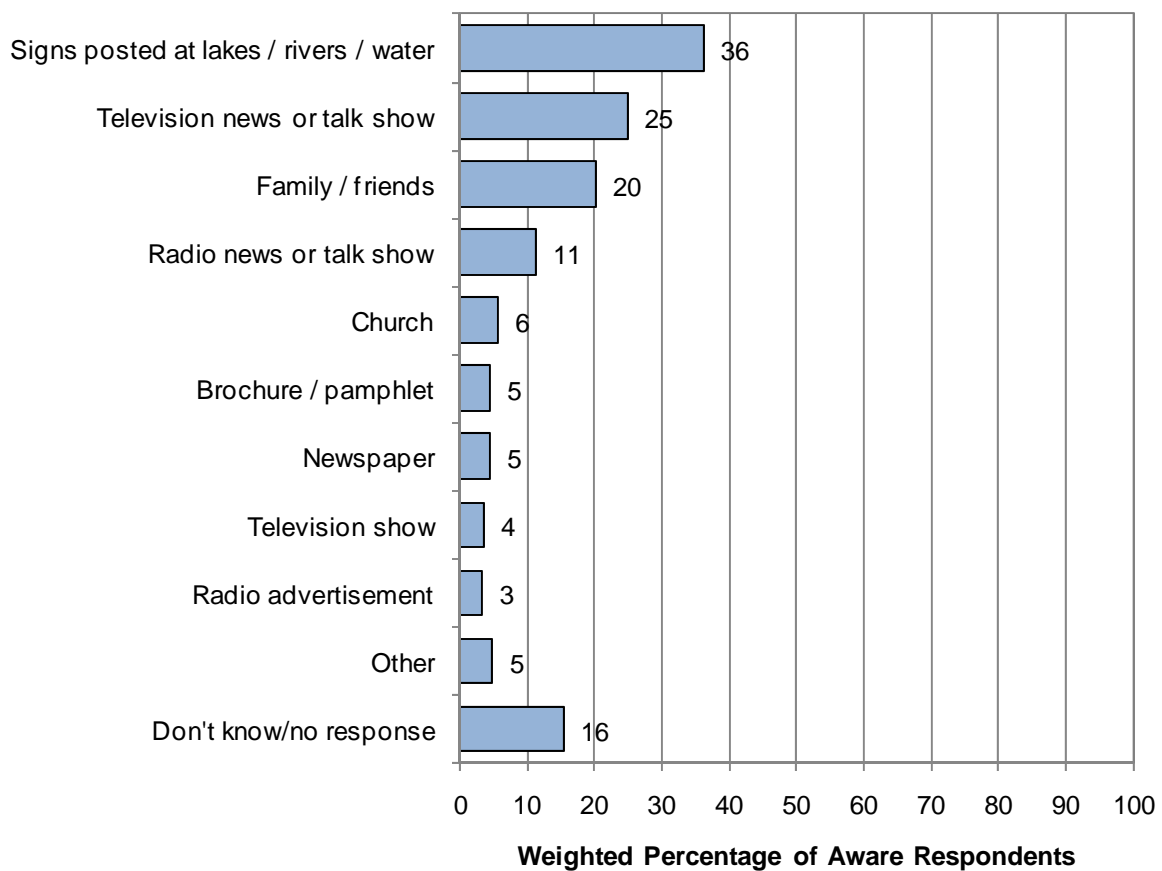


Figure 6-3. Awareness of Delta fish advisory from each information source (unaided awareness) (n = 305).

Note: Multiple responses allowed.

Question 32: How did you hear or learn about the advisory?

Figure 6-4 shows the results for aided awareness. The aided awareness results are higher compared to the unaided results, because respondents were prompted about specific mechanisms used to inform residents and other individuals about the advisory (Questions 34–40).

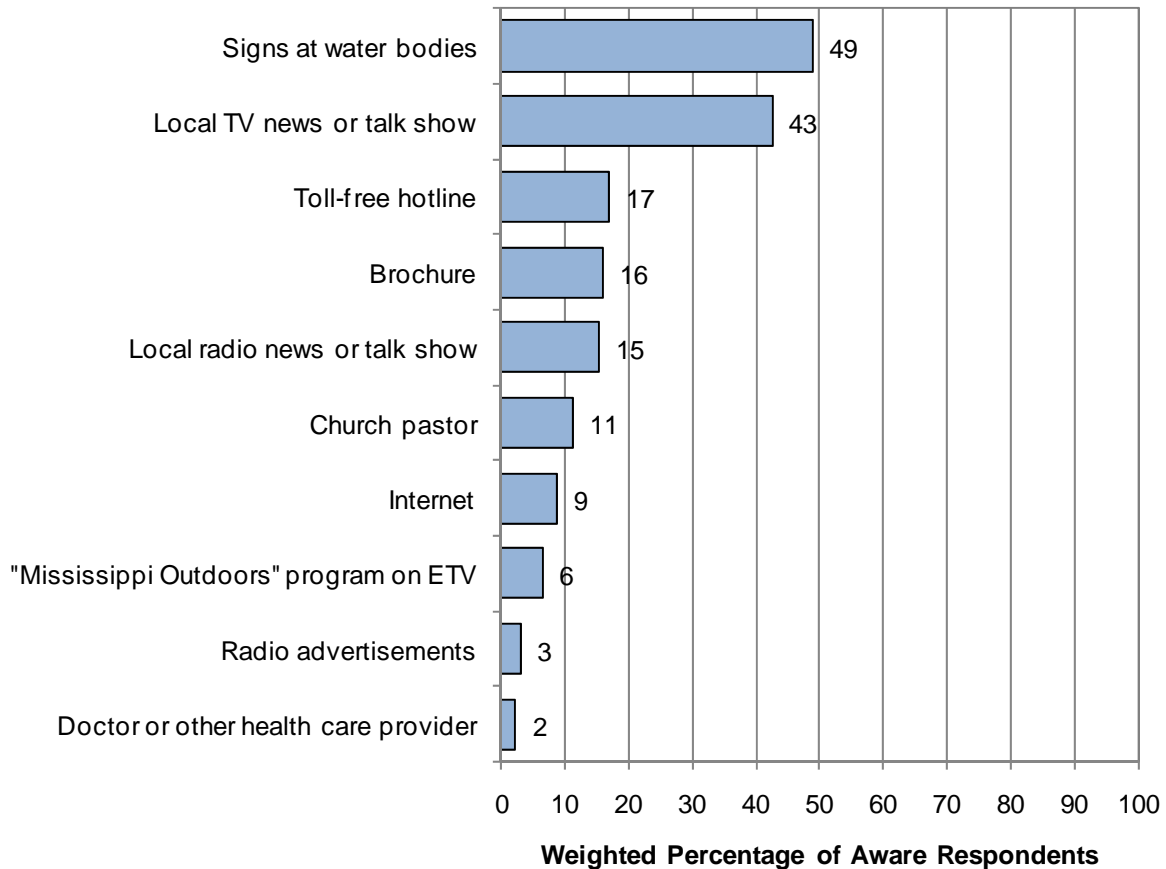


Figure 6-4. Awareness of Delta fish advisory from each information source (aided awareness) (n = 305).

Note: Questions 34–40 were used to assess aided awareness. Each question asks about awareness of a certain aspect of the campaign with yes/no as the response options. For example, Question 34 asks “Have you seen signs posted about the advisory at places where you fish?” See Appendix A for a copy of the survey instrument.

- **Awareness of Delta Fish Advisory through Sign Postings.** MDEQ posted signs at fishing access points, such as boat ramps, as well as at commercial fish sales outlets and tackle shops throughout the Delta. MDEQ continues to maintain the signs posted at boat ramps and fishing areas. Forty-nine percent of respondents recalled seeing signs about the advisory at places where they fish.

- **Awareness of Delta Fish Advisory through the Media.** The public media campaign implemented by MDEQ included news conferences, news releases, staged sampling demonstration photo opportunities, radio and television spots on morning shows, and call-in shows on gospel and blues radio stations. Forty-three percent of respondents heard about the advisory on the local television news or news talk show; 15 percent heard about the advisory on the local radio news or news talk show; 6 percent heard about the advisory on the “Mississippi Outdoors” program on ETV, the Mississippi public television station; and 3 percent heard a radio advertisement about the advisory.

- **Awareness and Usefulness of Delta Fish Advisory Brochure.** The MDEQ brochure explains the advisory details, shows a map of the advisory area, and includes pictures of the types of fish that have consumption limits and the types of fish with no consumption limits. Sixteen percent of aware respondents (n = 41) recalled receiving a brochure about the advisory. Most respondents got the brochure from a park ranger (23 percent), at church (19 percent), or from a fish market (15 percent). For respondents who received a brochure, 77 percent described the brochure as very useful, 20 percent described it as somewhat useful, and 3 percent did not read the brochure.

- **Awareness and Usefulness of Toll-Free Delta Fish Advisory Hotline.** Seventeen percent of aware respondents (n = 43) knew about the toll-free fish advisory hotline. Of these, five called the fish advisory hotline and described the information received as “very useful.”

- **Awareness and Usefulness of Information about the Delta Fish Advisory on the Internet.** Nine percent of aware respondents (n = 13) looked for information about the advisory online. These respondents describe the information they found as “very useful” or “somewhat useful.”

- **Awareness of Delta Fish Advisory through Local Churches.** MDEQ mailed letters and brochures to 1,400 churches in the advisory area. Eleven percent of aware respondents recalled that their church pastor talked about the advisory.

Preferred Information Sources for Receiving Delta Fish Advisory Information (Questions 24 and 41). Survey respondents were asked to identify the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi

Delta. The responses are presented in Figure 6-5 for anglers and nonanglers. Among anglers, the most preferred information sources were television (71 percent) and signs posted at local waterbodies (53 percent). Among nonanglers, the most preferred information sources were television (84 percent) and radio (34 percent). Few respondents identified signs (posted at bait shops and/or fish markets) (7–14 percent), newspapers or magazines (13–18 percent), direct mailings (7–14 percent), and the Internet (4–6 percent) as preferred information sources.

6.2 Changes in Fish Consumption as a Result of the Delta Fish Advisory

The study used a retrospective study design. The questionnaire collected information on fish consumption during the past year from all respondents and information on self-reported changes in fish consumption and behavior since learning about the advisory from respondents aware of the advisory.

Consumption of Advisory Fish Species during the Past Year (Questions 9–13). The questionnaire collected information on whether the respondent or other household members consumed fish included in the advisory (buffalo fish, gar, carp, and catfish > 22 inches) and buffalo fish from Roebuck Lake during the past year, and if so, the frequency of consumption. Respondents were instructed to include only wild-caught fish in their responses (i.e., exclude pond-raised fish) and to report the number of times fish covered by the advisory was consumed during the past week, month, or year. For reporting purposes, the responses were converted to number of times per month. The questionnaire collected frequency of consumption for each household member. Because the survey weights are at the respondent level rather than the household level, only the respondent data for consumption are presented. Figure 6-6 shows the weighted percentage of respondents whose household consumed fish species from the advisory. Table 6-2 shows the mean number of times per month (range) the respondent consumed those fish, and for those respondents who reported consuming those fish, the weighted percentage of respondents who consumed more than the recommended two meals per month, both for only those respondents who consumed the advisory fish species and for all respondents who consumed wild-caught fish. Results are shown for consumption of each of the four species included in the advisory and for consumption of *any* of the four fish species. Additionally, results are shown for respondents aware of the advisory, respondents unaware of the advisory, and all respondents; statistically significant differences are noted below.

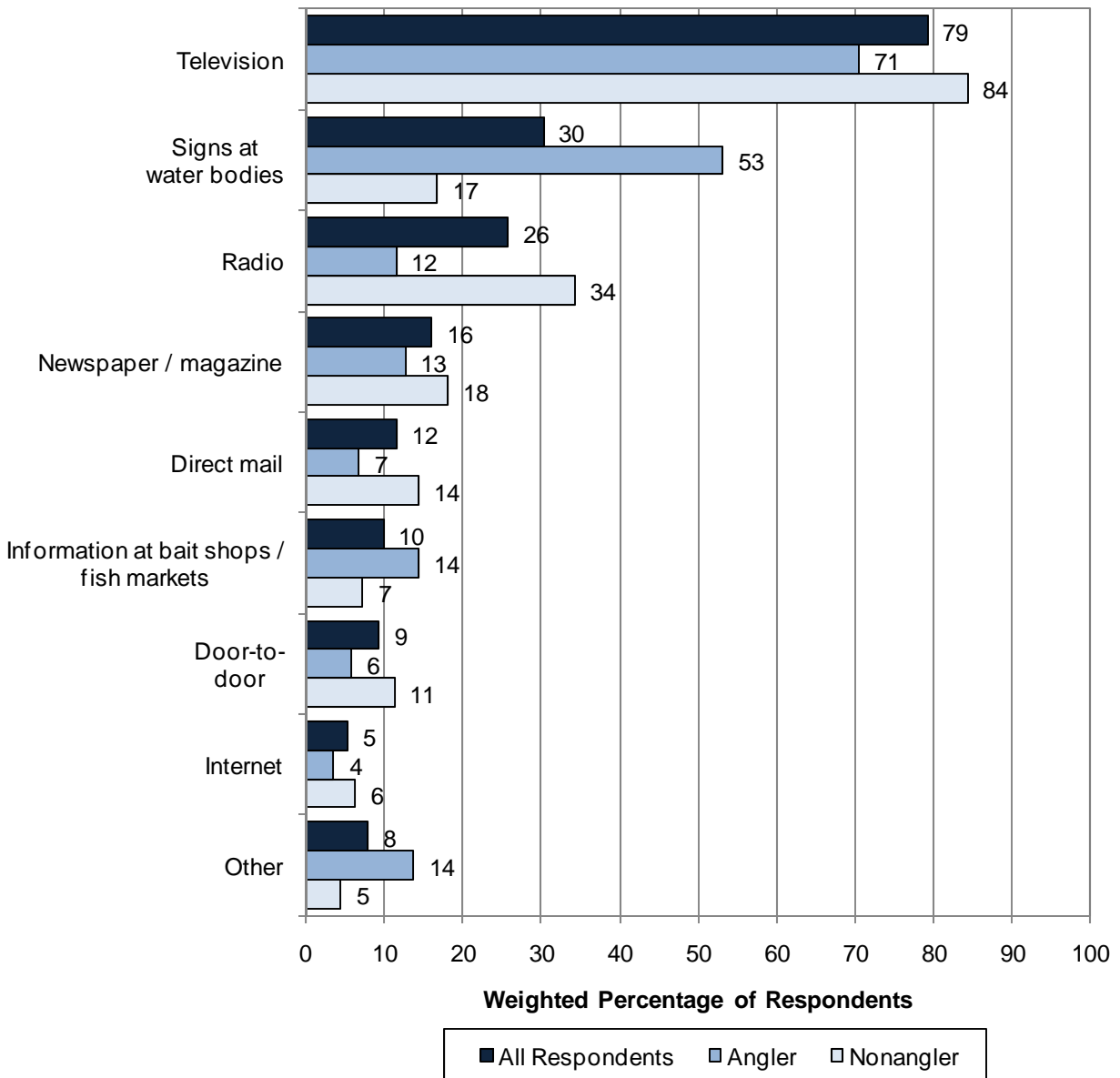


Figure 6-5. Preferred Information sources for receiving fish advisory information by respondent type (n = 1,017, angler respondents n = 585, nonangler respondents n = 432).

Note: Respondents selected up to two information sources.

Questions 24 and 41: What would you say are the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi Delta? (The same question was asked of respondents not aware of the advisory [Question 24) and respondents aware of the advisory (Question 41).

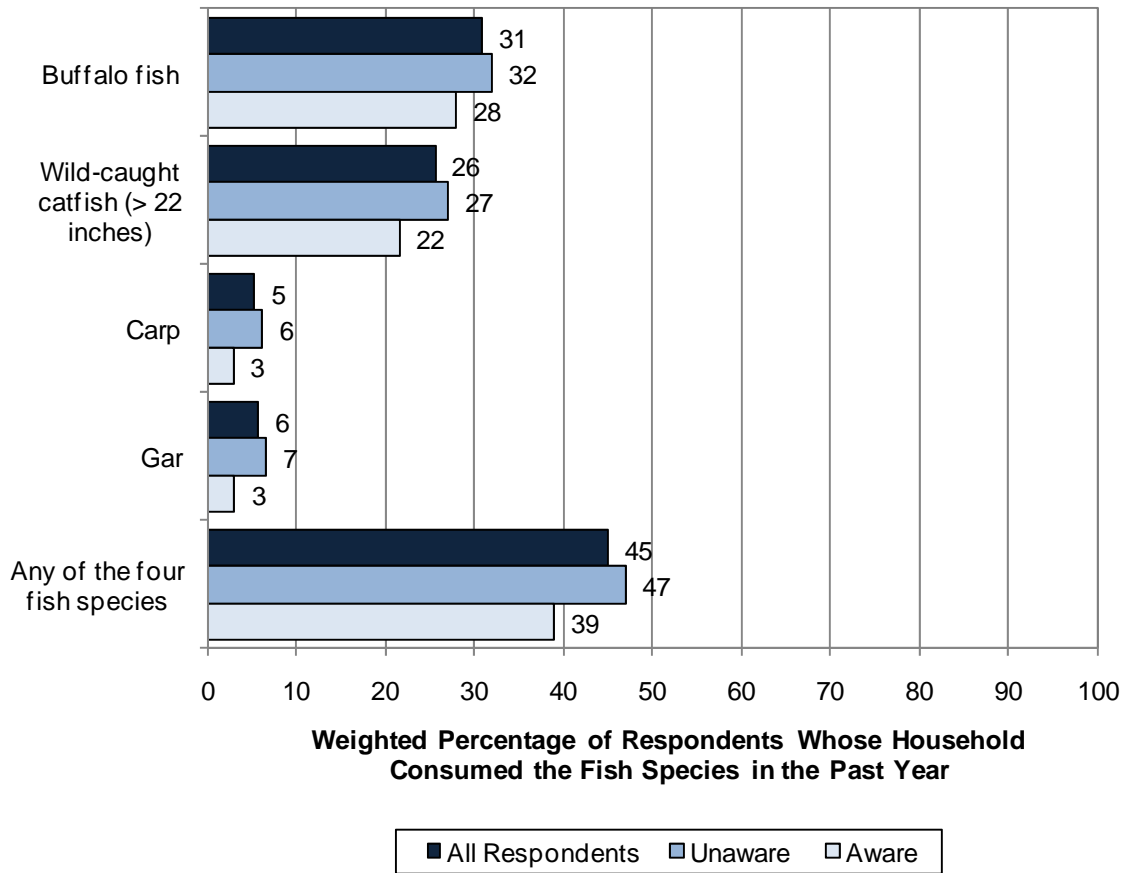


Figure 6-6. Reported consumption of fish identified in the Delta fish advisory by aware vs. unaware of the advisory (all respondents n = 1,004, unaware respondents n = 706, aware respondents n = 298).

Questions 9–13: Did you or others in your household eat (fish type) in the past year? What is the average number of times (fish type) is consumed per month? (These questions were asked for each fish type in the advisory).

Table 6-2. Consumption Frequency for Fish Identified in the Advisory by Aware vs. Unaware of the Advisory (Questions 9–13)

	Aware Respondents			Unaware Respondents			All Respondents		
	Number of Respondents Who Consumed the Fish	Number of Times Consumed Per Month Weighted Mean (Range)	Weighted Percentage of Respondents Who Consumed in Excess of the Advisory Recommendations ^a	Number of Respondents Who Consumed the Fish	Number of Times Consumed Per Month Weighted Mean (Range)	Weighted Percentage of Respondents Who Consumed in Excess of the Advisory Recommendations ^a	Number of Respondents Who Consumed the Fish	Number of Times Consumed Per Month Weighted Mean (Range)	Weighted Percentage of Respondents Who Consumed in Excess of the Advisory Recommendations ^a
Buffalo fish	84	0.9 (0.08–12.00)	1.4	274	0.9 (0.08–16.00)	2.1	358	0.9 (0.08–16.00)	1.9
Wild-caught catfish (> 22 inches)	81	1.2 (0.08–12.00)	2.0	208	1.3 (0.08– 8.00)	4.4	289	1.3 (0.08–12.00)	3.8
Carp	17	0.9 (0.08–2.00)	0.0	58	0.6 (0.08–4.00)	0.1	75	0.7 (0.08–4.00)	0.1
Gar	19	0.7 (0.08–4.00)	0.0	63	0.7 (0.08–4.00)	0.2	82	0.7 (0.08–4.00)	0.1
Any of the four fish species	122	1.5 (0.08–16.00)	6.5	362	1.5 (0.08–20.00)	10.6	484	1.5 (0.08–20.00)	9.5

^a Weighted percentage is for respondents who reported consuming any wild-caught fish from the Mississippi Delta during the past year.

- **Buffalo Fish Consumption.** Thirty-one percent of respondents reported that their household consumed buffalo fish during the past year (n = 358). The prevalence of buffalo fish consumption was 32 percent among respondents unaware of the advisory and 28 percent among aware respondents (difference not significant). On average, buffalo fish was consumed 0.9 times per month by respondents aware and unaware of the advisory. Two percent of wild-caught fish consumers exceeded the advisory recommendations for consumption of buffalo fish (more than two meals a month). No respondents reported consuming buffalo fish from Roebuck Lake, and 19 percent did not know where the buffalo fish they consumed were caught.
- **Wild-Caught Large Catfish (> 22 inches) Consumption.** Twenty-six percent of respondents (n = 289) reported that their household consumed large catfish during the past year. The prevalence of large catfish consumption was 27 percent among respondents unaware of the advisory and 22 percent among aware respondents (difference not significant). On average, large catfish was consumed 1.2 times per month by respondents aware of the advisory and 1.3 times per month by respondents unaware of the advisory. Four percent of wild-caught fish consumers exceeded the advisory recommendations for consumption of large catfish (more than two meals a month).
- **Carp Consumption.** Five percent of respondents (n = 75) reported that their household consumed carp during the past year. The prevalence of carp consumption was higher among respondents unaware of the advisory than among aware respondents (6 percent vs. 3 percent, p = 0.0074). On average, carp was consumed 0.9 times per month by respondents aware of the advisory and 0.6 times per month by respondents unaware of the advisory. Less than 1 percent of wild-caught fish consumers exceeded the advisory recommendations for consumption of carp (more than two meals a month).
- **Gar Consumption.** Six percent of respondents (n = 82) reported that their household consumed gar during the past year. The prevalence of gar consumption was higher among respondents unaware of the advisory than among aware respondents (7 percent vs. 3 percent, p = 0.0181). On average, gar was consumed 0.7 times per month by respondents aware and unaware of the advisory. Less than 1 percent of wild-caught fish consumers exceeded the advisory recommendations for consumption of gar (more than two meals a month).

- **Consumption of Any of the Four Fish Species.** Forty-five percent of respondents (n = 484) reported that their household consumed any of the four fish species during the past year. The prevalence of consumption of any of these four fish species was 47 percent for unaware respondents and 39 percent for aware respondents (difference not significant). On average, any of these four fish species were consumed 1.5 times per month by respondents aware and unaware of the advisory. Ten percent of wild-caught fish consumers exceeded the advisory recommendations for any of these four fish species (more than two meals a month).

Self-Reported Changes in Fish Consumption Since Learning about the Advisory (Questions 27 and 30). The questionnaire asked respondents who were aware of the advisory if they usually follow the advisory consumption recommendations (Figure 6-7). Ninety-one percent of aware respondents said that they usually follow the advisory recommendations. Compliance with the advisory did not vary by respondent type (anglers vs. nonanglers), the importance of fishing as a source of food (angler respondents), county, gender, education level, or race. For respondents who consume the fish in the advisory, 84 percent reported that it is “not a problem at all” to limit consumption of the fish included in the advisory (Figure 6-8).

6.3 Changes in Other Behaviors as a Result of the Delta Fish Advisory

Self-Reported Changes in Fishing Practices Since Learning about the Delta Fish Advisory (Questions 42, 43, 44, and 47). The questionnaire asked angler respondents who were aware of the advisory if they made any changes in their fishing practices since learning about the advisory, such as frequency of fishing, fishing locations, sizes of fish, or species of fish (Figures 6-9 through 6-12). Sixty-seven percent of aware respondents reported that they made no changes, 20 percent reported fishing for different types of fish, 15 percent reported fishing less often, and 13 percent reported fishing in different locations. Differences in responses were not observed with regard to gender, education, or race. Differences in responses were observed for county and the importance of fishing as a food source. Forty percent of anglers who consider fishing an important source of food reported fishing for different types of fish compared with 15 percent of anglers who do not consider fishing an importance source of food ($p = 0.0108$). Twenty-five percent of respondents who live in Washington County reported fishing in different places compared with 7 percent in the other counties ($p = 0.0060$), and 37 percent of respondents who live in Washington County reported fishing for different types of fish compared with 12 percent in the other counties ($p = 0.0018$).

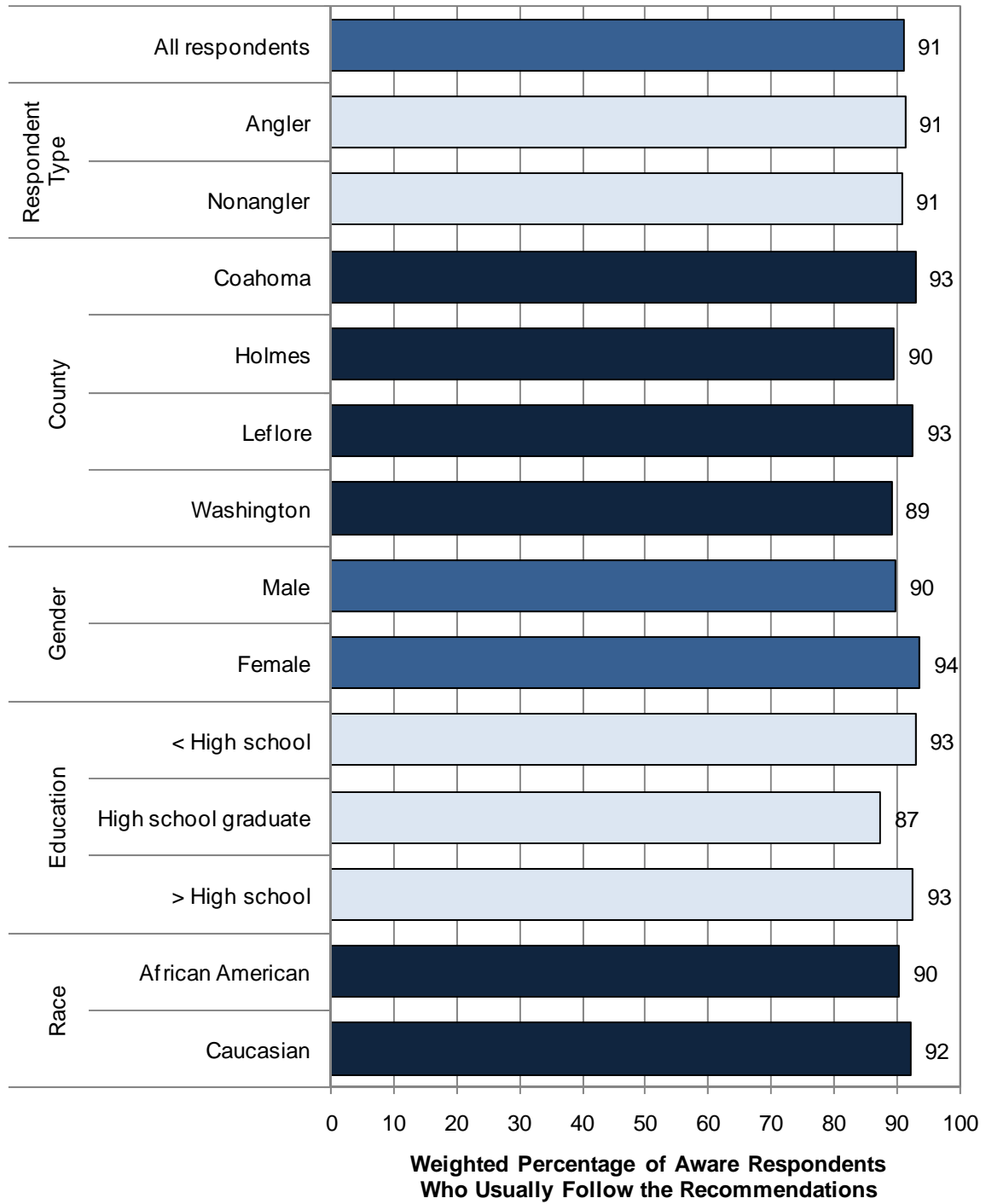


Figure 6-7. Self-reported adherence to the Delta fish advisory recommendations by subpopulation (n = 305).

Question 27: Do you usually follow the advisory recommendations?

Weighted Percentage of Aware Respondents

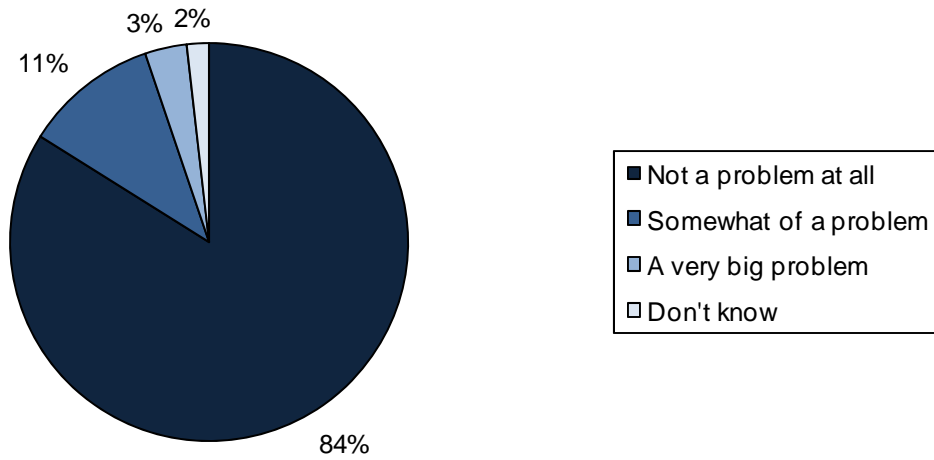


Figure 6-8. Level of difficulty for limiting consumption of fish species in the Delta fish advisory (n = 222).

Question 30: How difficult is it for you and your family to limit how much you eat of buffalo fish, carp, gar, and large catfish?

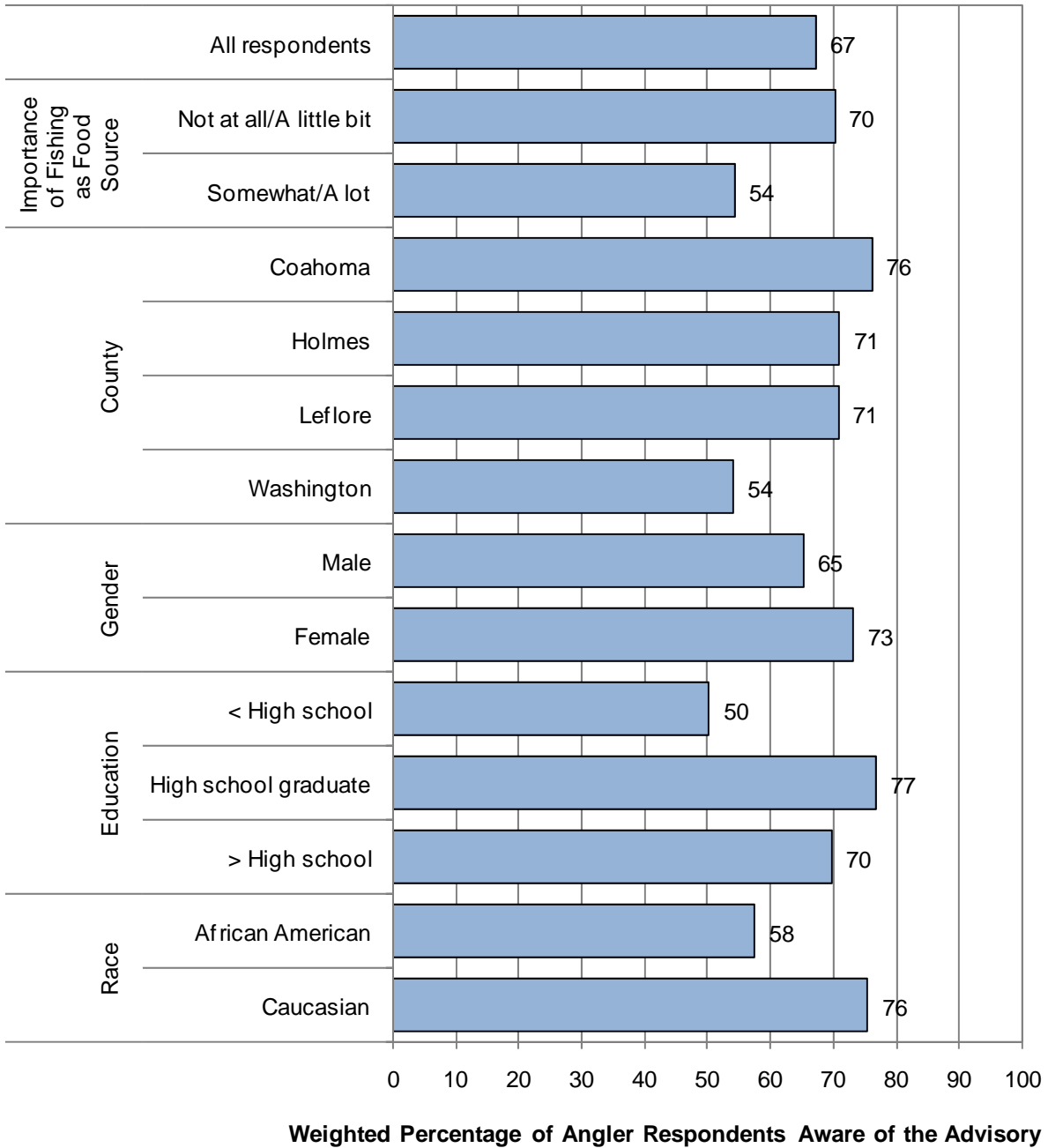


Figure 6-9. Self-reported changes in fishing practices since learning about the Delta fish advisory by subpopulation: No changes made (n = 241).

Question 42: After learning about the advisory, did you make any changes in your fishing practices, such as how often you fish, where you fish, or the types of fish that you catch?

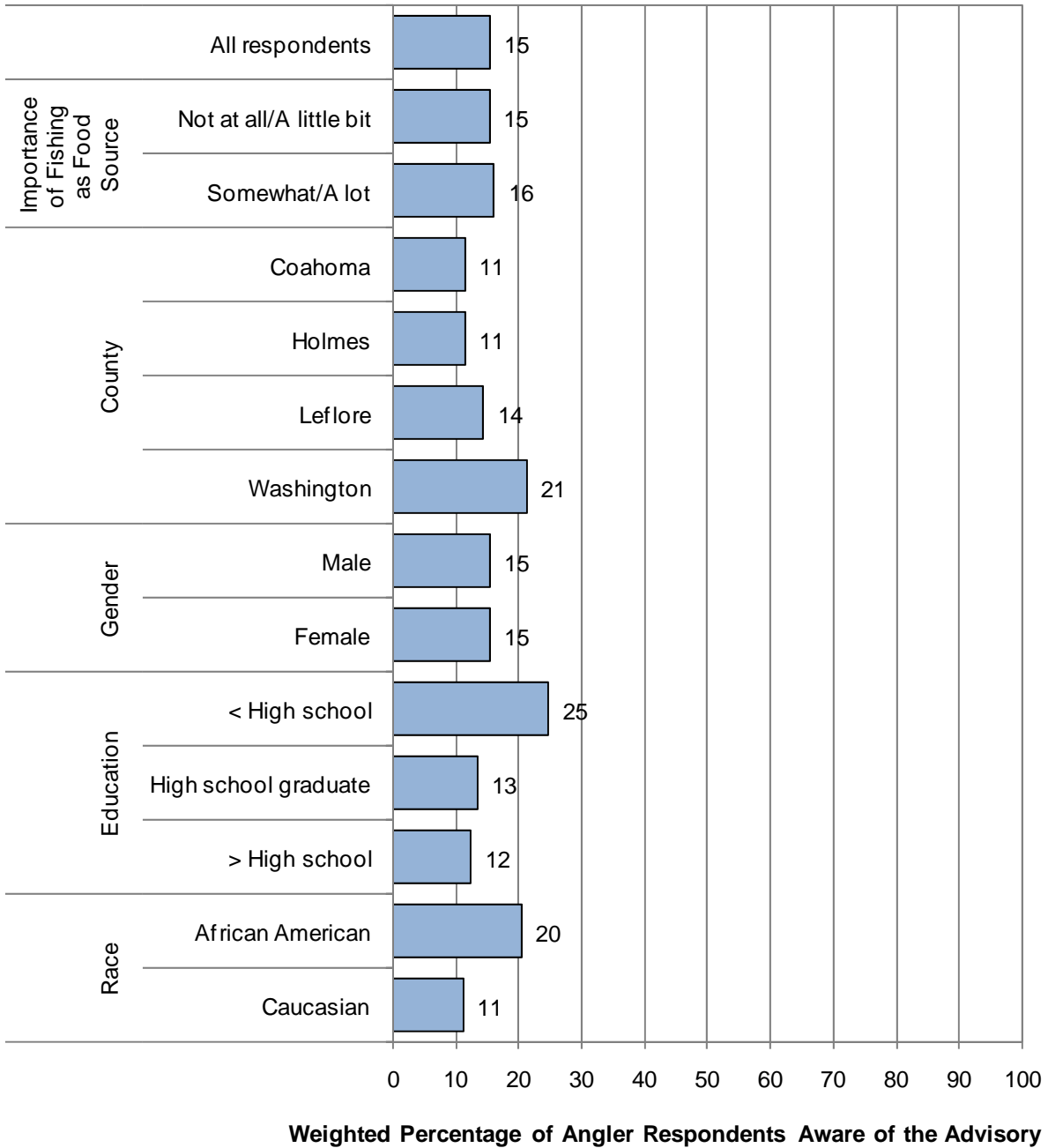


Figure 6-10. Self-reported changes in fishing practices since learning about the Delta fish advisory by subpopulation: Fish less often (n = 241).

Question 43: After learning about the advisory, did you change how often you usually fish in Mississippi Delta waters?

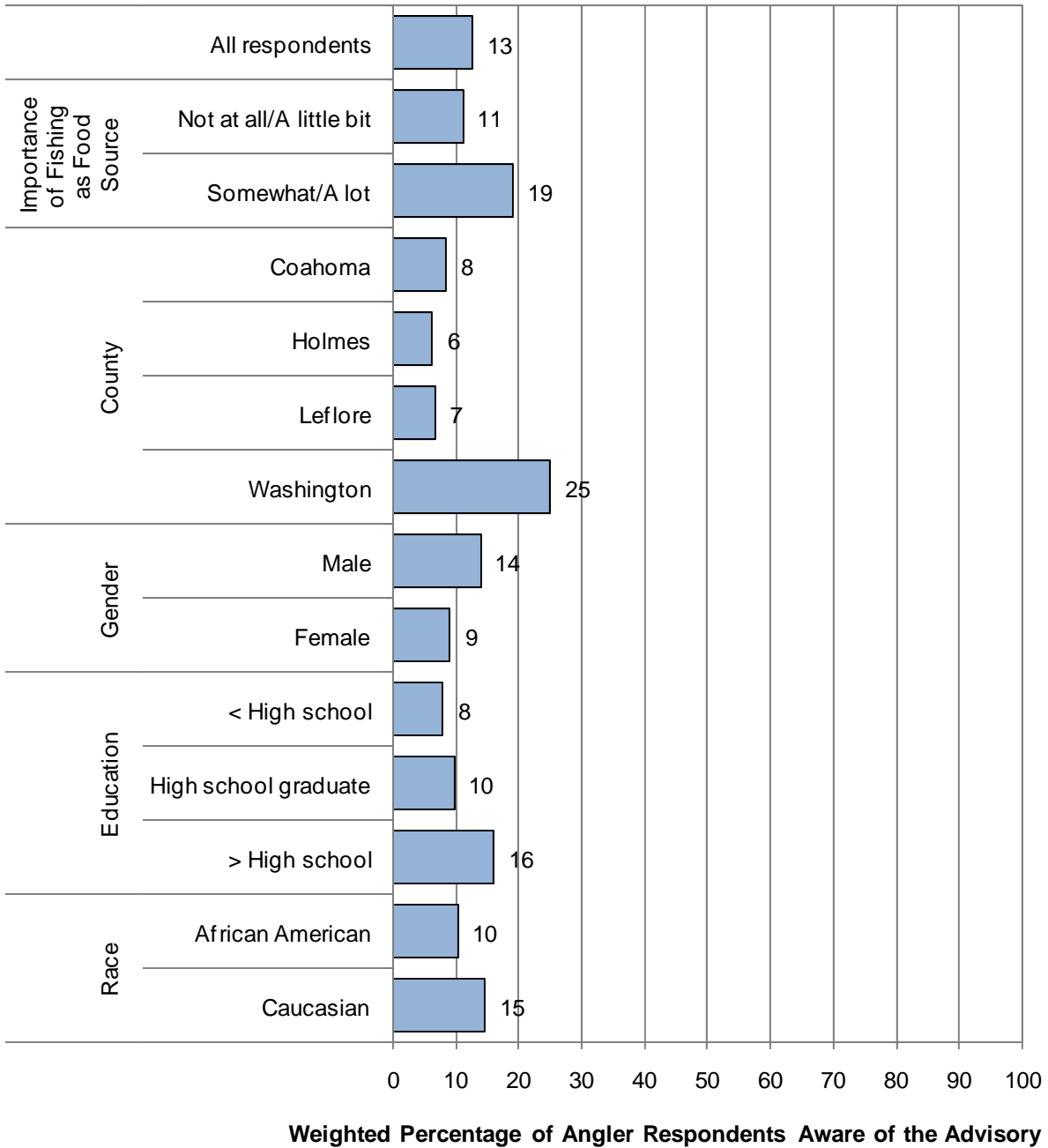


Figure 6-11. Self-reported changes in fishing practices since learning about the Delta fish advisory by subpopulation: Fish in different places (n = 241).

Question 44: After learning about the advisory, did you change the locations where you usually go fishing in the Mississippi Delta?

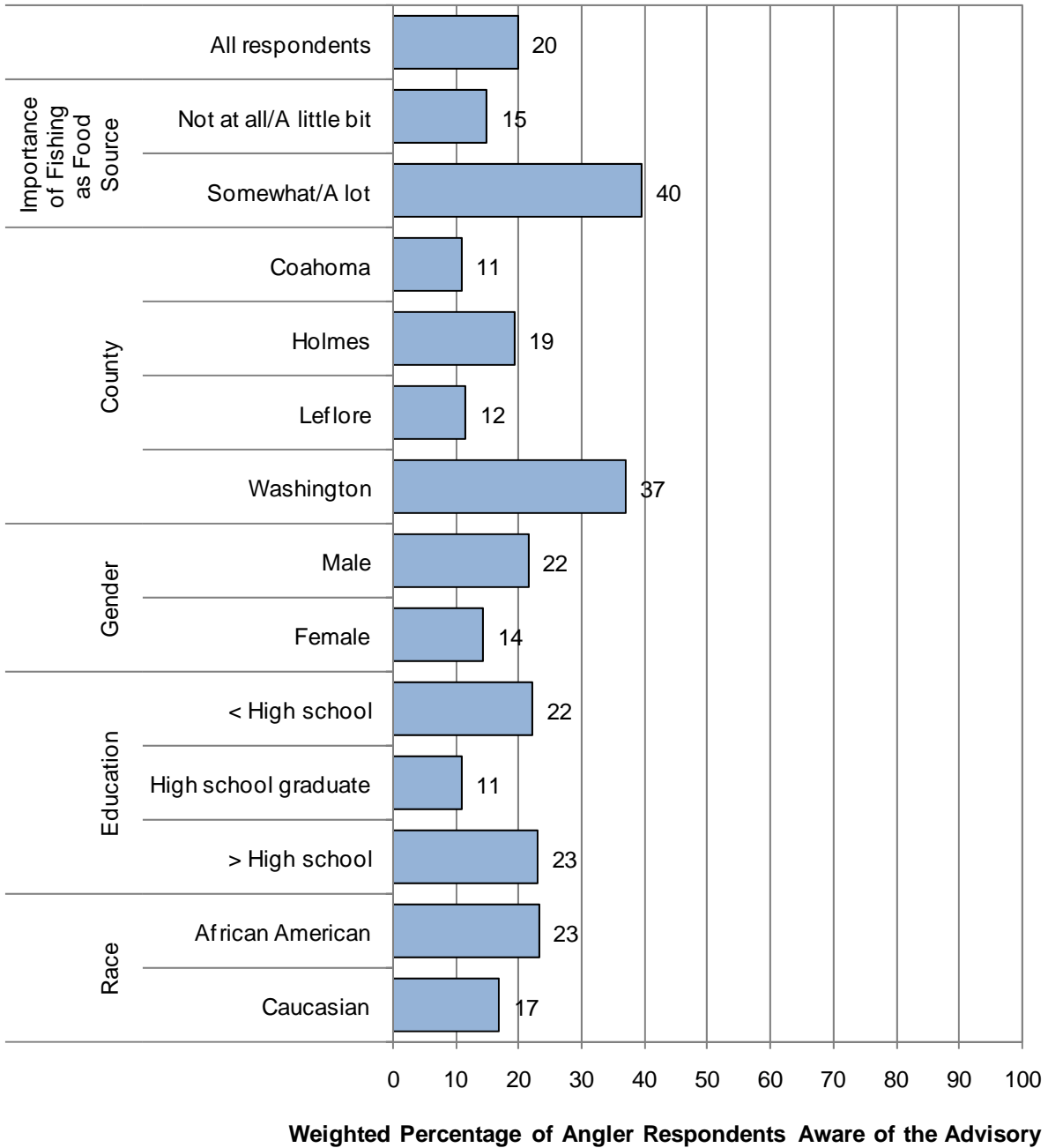


Figure 6-12. Self-reported changes in fishing practices since learning about the Delta fish advisory by subpopulation: Fish for different types of fish (n = 241).

Question 47: After learning about the advisory, did you make any changes in the types of fish that you usually fish for in the Mississippi Delta?

Changes in Fishing in Roebuck Lake (Questions 45 and 46). The advisory recommends not eating any buffalo fish from Roebuck Lake in Leflore County. Twenty-four percent of anglers who were aware of the advisory and reported making changes in their fishing practices fished in Roebuck Lake before the advisory was issued. After learning about the advisory, one respondent continued to fish in Roebuck Lake.

Self-Reported Changes in Fish Consumption Practices Since Learning about the Delta Fish Advisory (Questions 48–52). The questionnaire asked respondents whose households consumed wild-caught fish and who were aware of the advisory about the species of fish consumed before the advisory and whether they stopped eating or consumed less of these fish species since learning about the advisory (Figure 6-13). Some consumers of buffalo fish and large catfish (> 22 inches) reported changing their fish consumption behavior as a result of the advisory. Before the advisory, 39 percent of respondents ate buffalo fish (n = 117). Since learning about the advisory, 33 percent of buffalo fish consumers reported that they stopped eating this type of fish and 54 percent reported eating less buffalo fish. Before the advisory, 38 percent of respondents ate large catfish (n = 121). Since learning about the advisory, 52 percent of large catfish consumers reported that they stopped eating this type of fish and 33 percent reported eating less of this type of fish. Few respondents ate carp (n = 21) or gar (n = 23) before the advisory. Since learning about the advisory, about 80 percent of consumers of these fish reported that they stopped eating or ate less of these types of fish.

Larger fish are more likely to contain higher concentrations of contaminants such as DDT and toxaphene. Some respondents made changes in the size of fish consumed as a result of the advisory. Since learning about the advisory, 25 percent of aware respondents whose households eat wild-caught fish reported eating smaller fish and 9 percent reported eating smaller fish for some fish species and the same size fish for other species (Figure 6-14). The majority of these respondents reported eating smaller catfish (84 percent among those making a change).

Self-Reported Changes in Fish Preparation and Cooking Practices Since Learning about the Delta Advisory (Question 53). Methods used to prepare and cook fish can help reduce the risk of exposure to some lipophilic contaminants, such as DDT and toxaphene. Methods include removing the belly fat and skin and not frying the fish. Six percent of aware respondents whose households eat fish made changes in how they prepare or cook wild-caught fish since learning about the advisory (Figure 6-15). The most common changes were frying fish less often or broiling, baking, or grilling fish instead of frying.

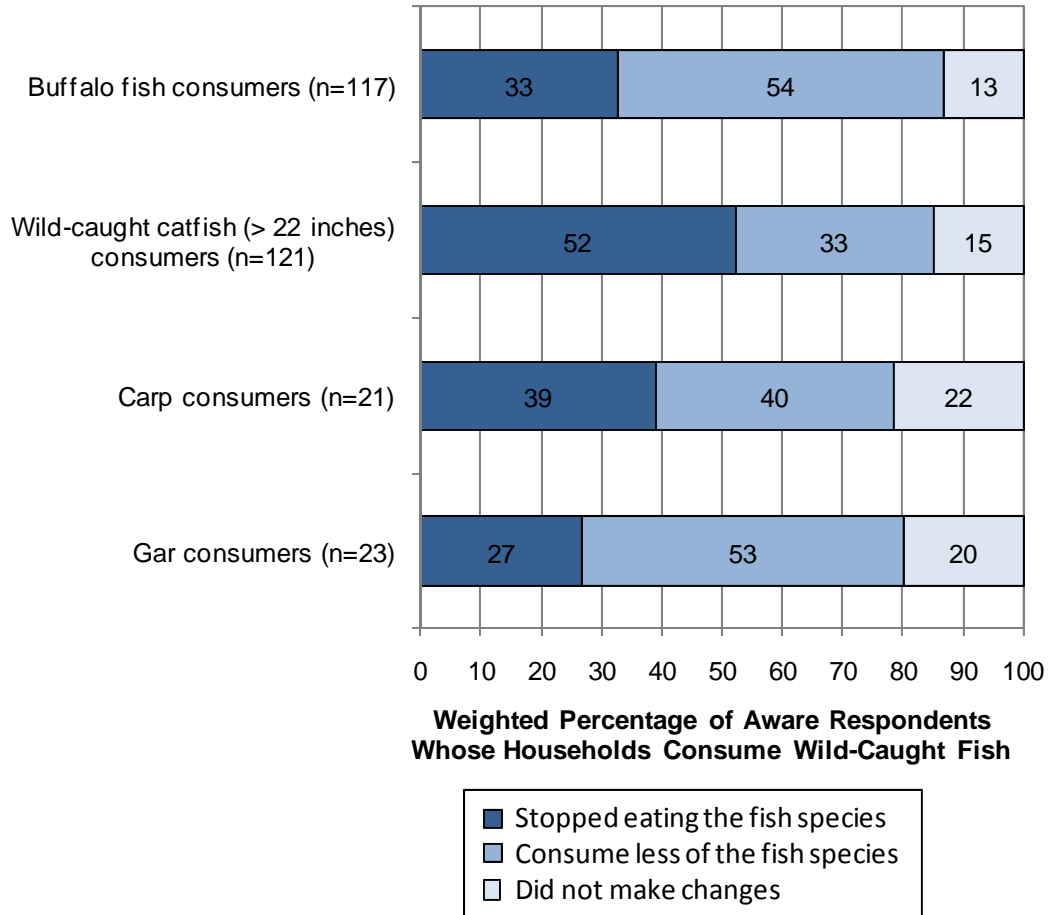


Figure 6-13. Self-reported changes in fish consumption practices since learning about the Delta fish advisory.

Note: Results are for respondents who reported eating the fish species before the advisory, as shown by the n in parenthesis; totals may not sum to 100 percent because of rounding.

Question 48A:	Before learning about the advisory, did you eat any of the following types of fish?
Question 48B:	Since learning about the advisory, what types of wild-caught fish have you stopped eating?
Question 49:	Since learning about the advisory, what types of wild-caught fish do you eat less of now?

Weighted Percentage of Aware Respondents Whose Households Consume Wild-Caught Fish

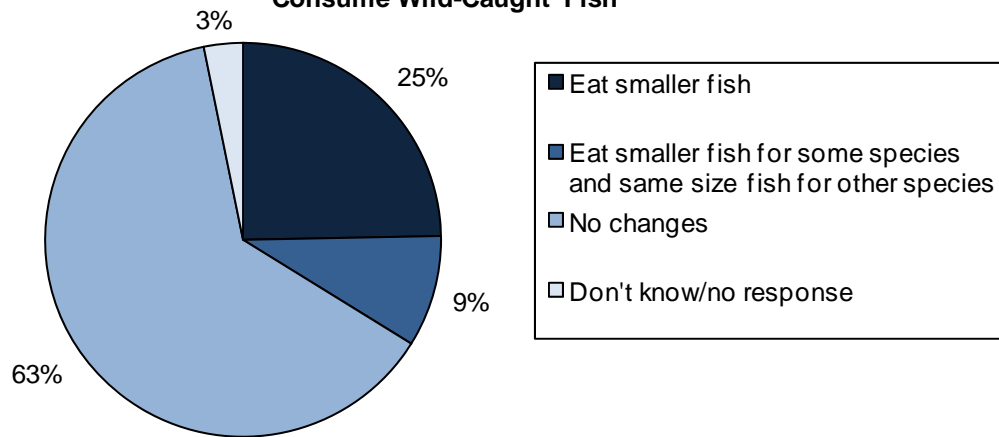


Figure 6-14. Self-reported changes in size of fish consumed since learning about the Delta fish advisory (n = 298).

Question 52: After learning about the advisory, did you change the size of wild-caught fish from the Mississippi Delta that you eat?

Weighted Percentage of Aware Respondents Whose Households Consume Wild-Caught Fish

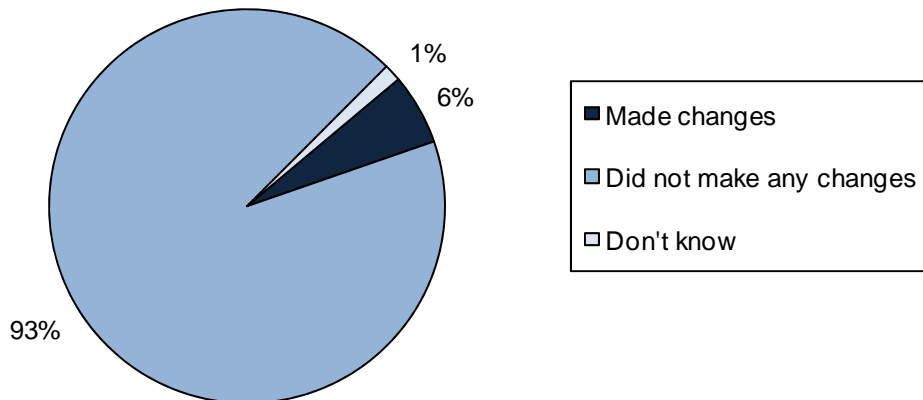


Figure 6-15. Self-reported changes in fish preparation and cooking practices since learning about the Delta fish advisory (n = 298).

Question 53: After learning about the advisory, did you make any changes in how you prepare or cook wild-caught fish from the Mississippi Delta?

Self-Reported Changes in Fish Preparation Practices for Young Children Since Learning about the Delta Fish Advisory (Question 54). Few respondents (3 percent) reported making changes in the types and amount of wild-caught fish prepared and cooked for children under the age of 7 (among respondents who prepare and cook fish for young children) (Figure 6-16).

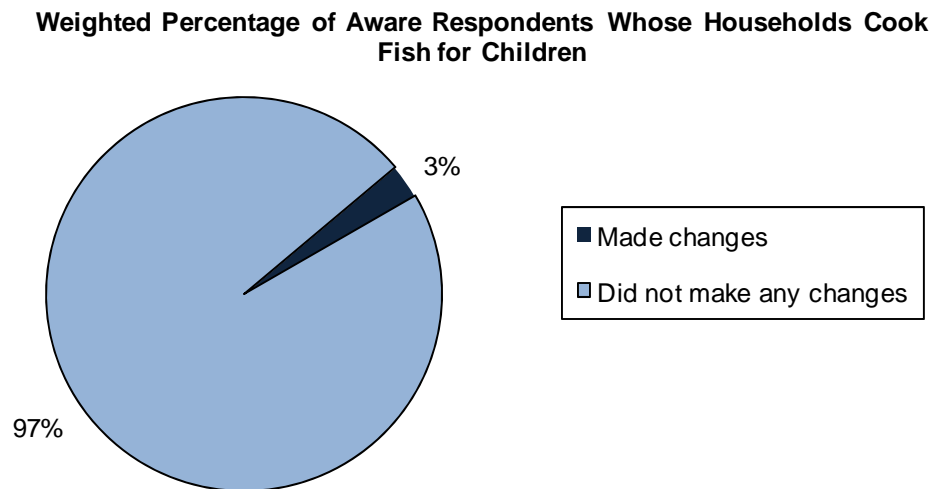


Figure 6-16. Self-reported changes in fish preparation practices for children under the age of 7 since learning about the Delta fish advisory (n = 144).

Question 54: After learning about the advisory, were any changes made in the types and amount of wild-caught fish or how fish was prepared and cooked for children under the age of 7?

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SECTION 7 CONCLUSION

EPA conducted on-the-bank and household surveys to collect information to assess the awareness and effectiveness of the existing Mississippi Delta Fish Consumption Advisory issued by MDEQ. The survey response was good, with response rates of 95 percent (n = 413) for the on-the-bank survey and 85 percent (n = 604) for the household survey. This section summarizes the key findings from the surveys.

Twenty-eight percent of all respondents and 46% of anglers reported being aware of a warning or advisory about eating wild-caught fish from the Mississippi Delta. The level of awareness of the advisory varied for the different subpopulations examined in the study, suggesting that the advisory may be more effective at reaching some populations than others. Awareness was significantly higher among Coahoma residents (45 percent), males (40 percent), and Caucasians (38 percent). Among anglers, awareness was significantly higher for angler respondents who did not consider fishing an important source of food (52 percent) compared with anglers who rely on fishing as a food source. Awareness increased with level of education and ranged from 20 percent for individuals with less than a high school education to 36 percent for individuals with more than a high school education. Higher awareness among Coahoma residents may be attributed to the close proximity of this county to Memphis, Tenn., which is closer to major media markets; thus they may have had greater exposure to the initial outreach campaign than other counties.

A review of the literature regarding the effectiveness of fish consumption advisories reveals mixed awareness rates. Awareness rates ranged from 8 to 81 percent and were higher among anglers with more fishing experience, anglers who fished on a regular basis, and more highly educated individuals (Anderson et al., 2004; Burger, Sanchez, and Gochfeld, 1998; Burger and Waishwell, 2001; Campbell et al., 2002; Gibson, 2005; Pflugh et al., 1999). Thus, the awareness for the Delta advisory is within the range of awareness reported in the literature.

Level of knowledge about the Delta advisory varied. Seven percent of respondents aware of the advisory correctly described all the advisory recommendations and 73 percent had a general understanding of the advisory; the remaining 20 percent could not explain any details of the advisory. For respondents aware of the advisory, 75 percent believed that the advisory was still in effect and 24 percent did not know.

Most respondents heard about the advisory from signs posted at affected waterbodies (49 percent for aided awareness) and through the media such as television news or talk shows (43 percent) or radio news or talk shows (15 percent). Few respondents learned about the advisory from the MDEQ brochure, the MDEQ toll-free help-line, or the MDEQ Web site. For respondents who used these information sources, most reported finding them very useful. Although television was identified as the most preferred information source for receiving information on fish advisories, less than half of respondents learned about the advisory through local TV news or talk shows. The survey findings suggest that sign postings are an effective mechanism for informing anglers about the fish advisory. Additional analysis could help broaden the understanding of the types of outreach methods that are most effective in achieving the desired risk reducing changes in both fishing practices and fish consumption behavior.

Consumption of the fish species identified in the advisory was not widespread. Few respondents reported that their households eat carp (5 percent) or gar (6 percent) and fewer than a third of respondents reported that their households eat wild-caught large catfish (>22 inches) (26 percent) or buffalo fish (31 percent).

Few respondents exceeded the advisory recommendations of two meals per month of carp, gar, large catfish, and buffalo fish. Ten percent of respondents who consume wild-caught fish from the Mississippi Delta had consumed more than the advisory recommendations during the past year. No respondents reported consuming buffalo fish from Roebuck Lake, although 19 percent did not know the source of the buffalo fish they consumed. Ninety-one percent of aware respondents reported that they usually follow the advisory recommendations, and 84 percent said it is not a problem at all to limit consumption of fish included in the advisory.

Respondents reported limited changes in fishing practices since learning about the advisory. Changes respondents made in their fishing practices included fishing for different types of fish (20 percent of respondents), fishing less often (15 percent), and fishing in different locations (13 percent). Sixty-seven percent of respondents did not make any changes in their fishing practices as a result of the advisory. This may be because they were already following the advisory recommendations or do not fish for or eat the fish included in the advisory. The prevalence of fishing for different types of fish was higher among respondents who consider fishing an important source of food (fishing for different types of fish). This difference might be because respondents who consider fishing an important source of food are more likely to eat the fish they catch.

Respondents reported some changes in fish consumption practices since learning about the advisory. Since learning about the advisory, 33 percent of buffalo fish consumers reported that they stopped eating buffalo fish and 54 percent reported eating less. Since learning about the advisory, 52 percent of large catfish (> 22 inches) consumers reported that they stopped eating large catfish and 33 percent reported eating less. Few respondents ate carp or gar before the advisory.

Respondents reported limited changes in fish preparation and cooking practices since learning about the advisory. Six percent of respondents reported changing how they prepare or cook fish as a result of the fish advisory. The most common change made was frying fish less often or using a different cooking method instead of frying.

The outreach campaign informed anglers about the fish advisory and resulted in some behavior changes. The outreach campaign implemented by MDEQ in 2001 initially used a variety of mechanisms to inform people about the fish advisory, including sign postings, brochures, and the mass media. Currently, outreach is limited to publishing advisories in the MDWFP regulations brochure, posting information on the MDEQ Web site, and maintaining signs at boat ramps and fishing areas. The survey results suggest that the campaign has increased awareness of the advisory. Forty-six percent of the anglers in the four country area surveyed were aware of the Delta advisory, with lower awareness (18 percent) among nonanglers who consume wild-caught fish from the Mississippi Delta. Among all respondents, awareness of the advisory was 28 percent. The survey results suggest that MDEQ's outreach campaign is more effective at reaching anglers than nonanglers with information on the advisory; this may be due in part to the signs posted at boat ramps and fishing areas and to a smaller extent to the MDWFP fishing regulations brochure that is distributed to all licensed anglers although 49 percent of anglers in this study did not have a current fishing license.

The survey results suggest that some respondents (33-54 percent) stopped eating or ate less wild-caught large catfish (>22 inches) or buffalo fish since learning about the advisory (few respondents ate carp or gar before the advisory). However, respondents reported limited changes in their fishing practices and fish preparation and cooking practices since learning about the advisory. Only 10 percent of respondents were found to eat more than the recommended two fish meals per month of wild-caught fish from the Delta area, which would increase their health risks from consuming DDT and toxaphene contaminated fish. This finding is encouraging since about a third of respondents reported eating buffalo fish or wild-caught large catfish (>22 inches).

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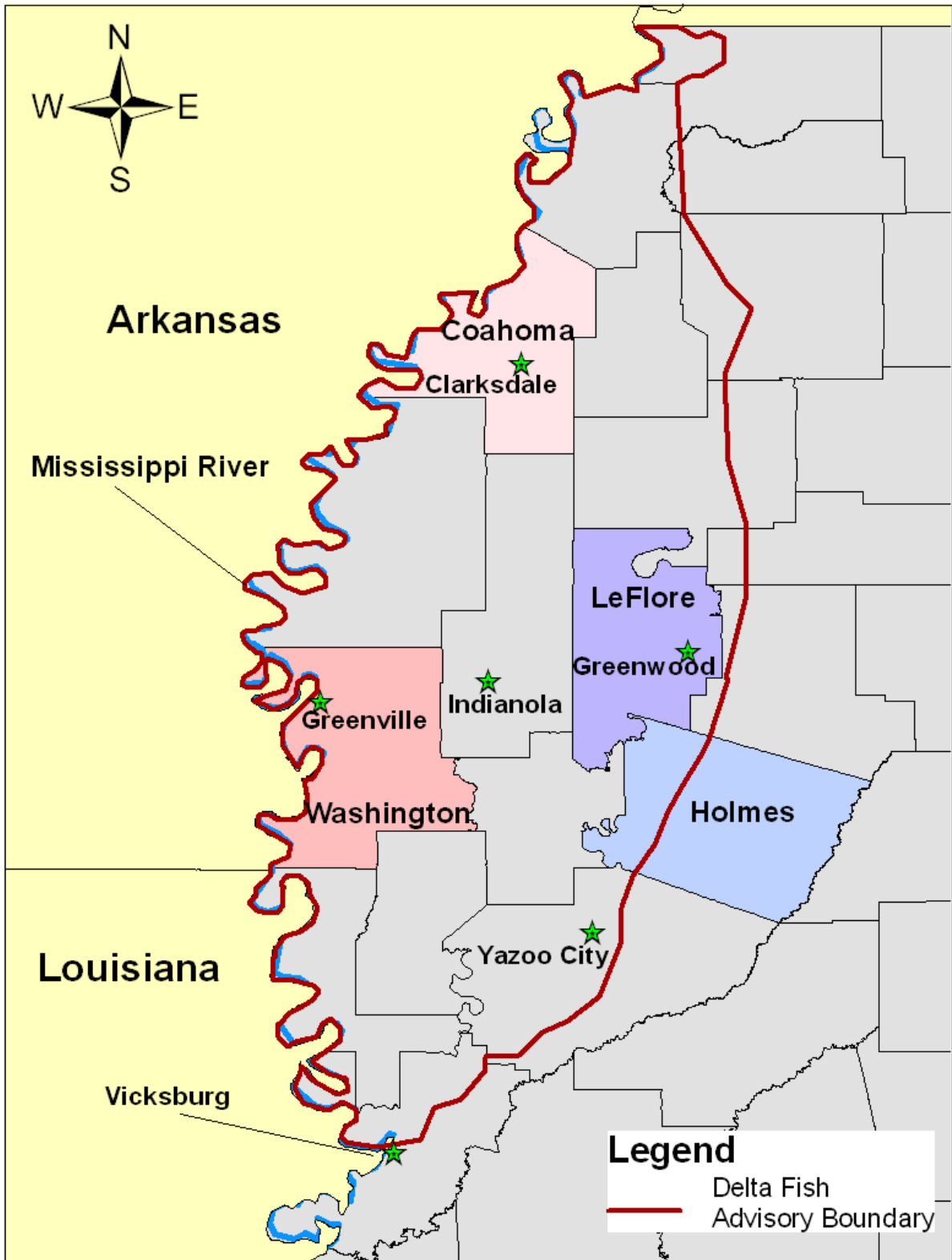
SECTION 8 REFERENCES

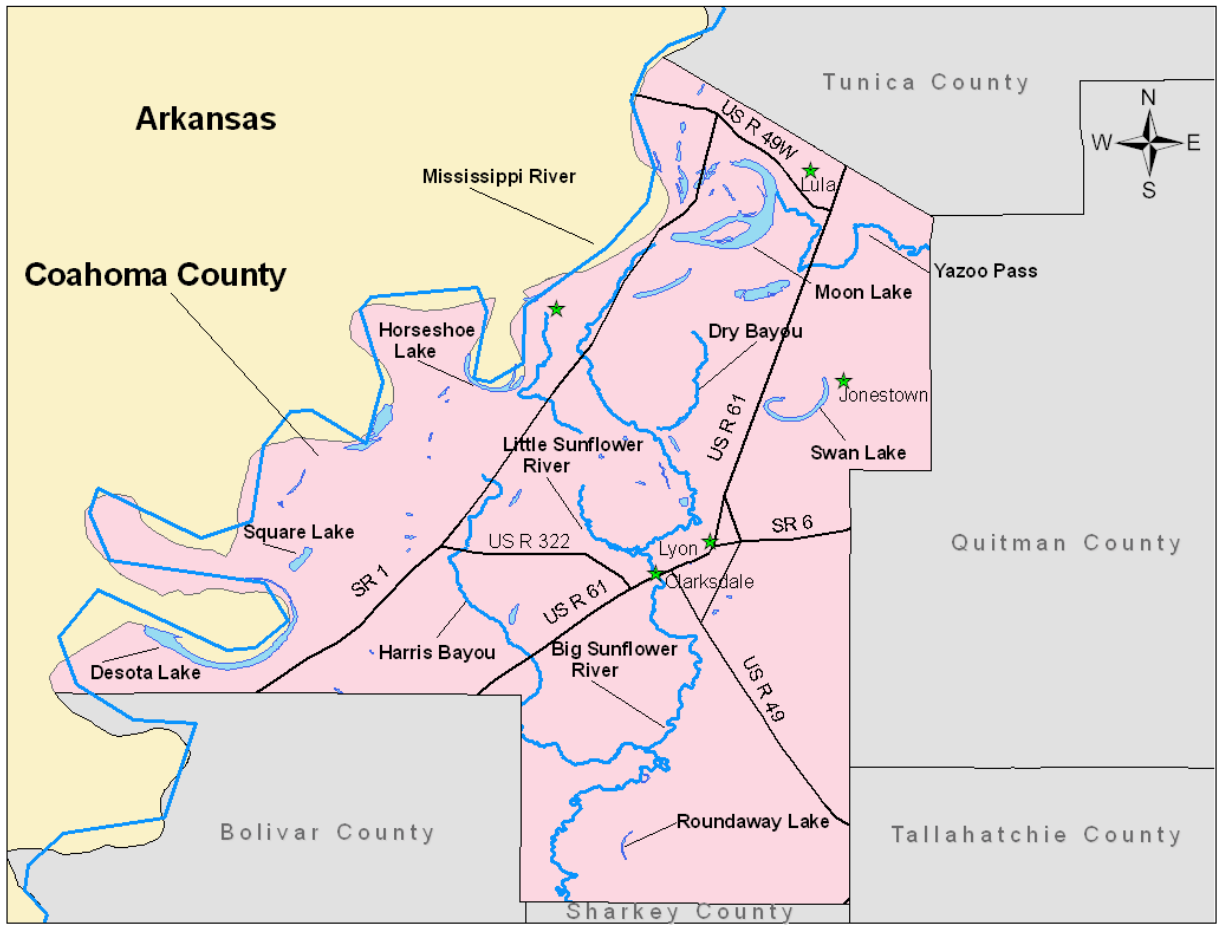
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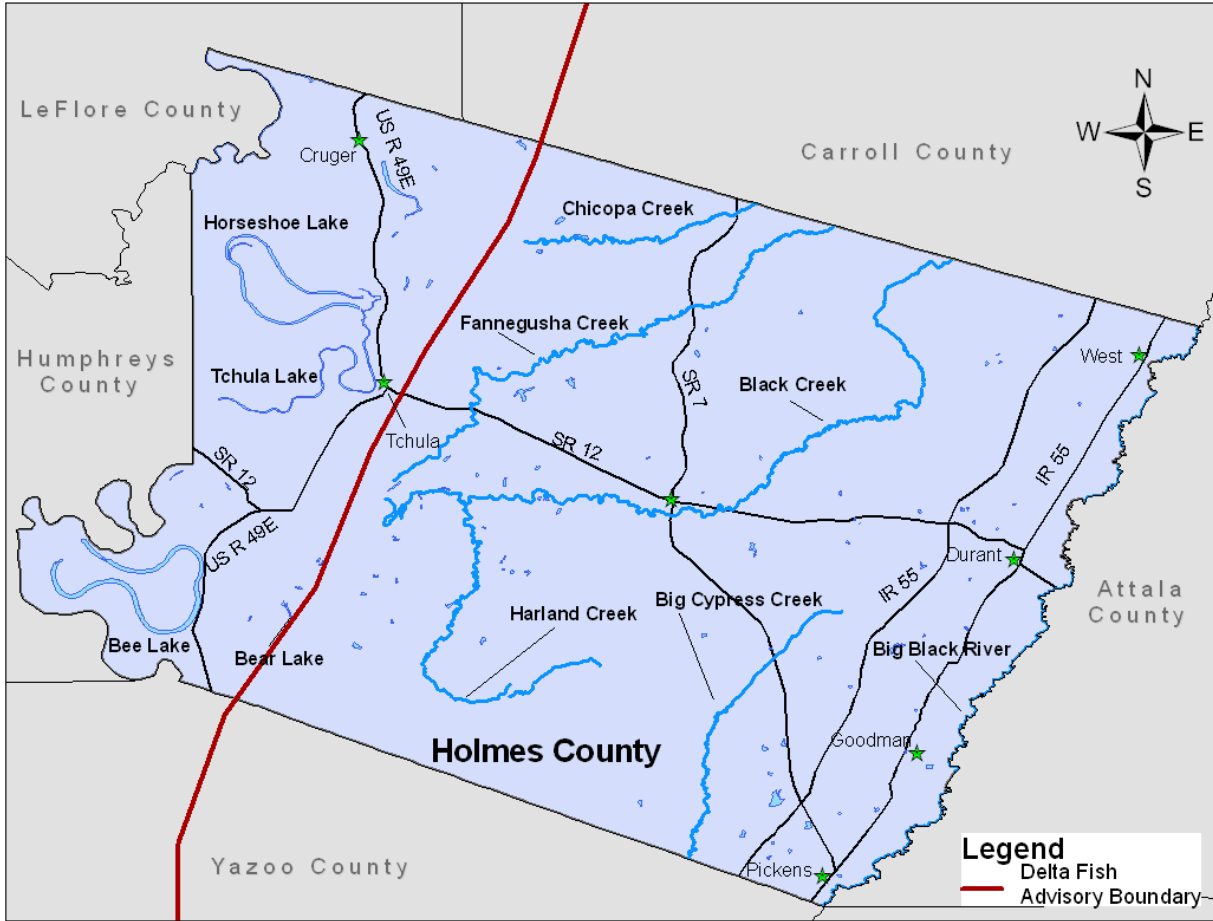
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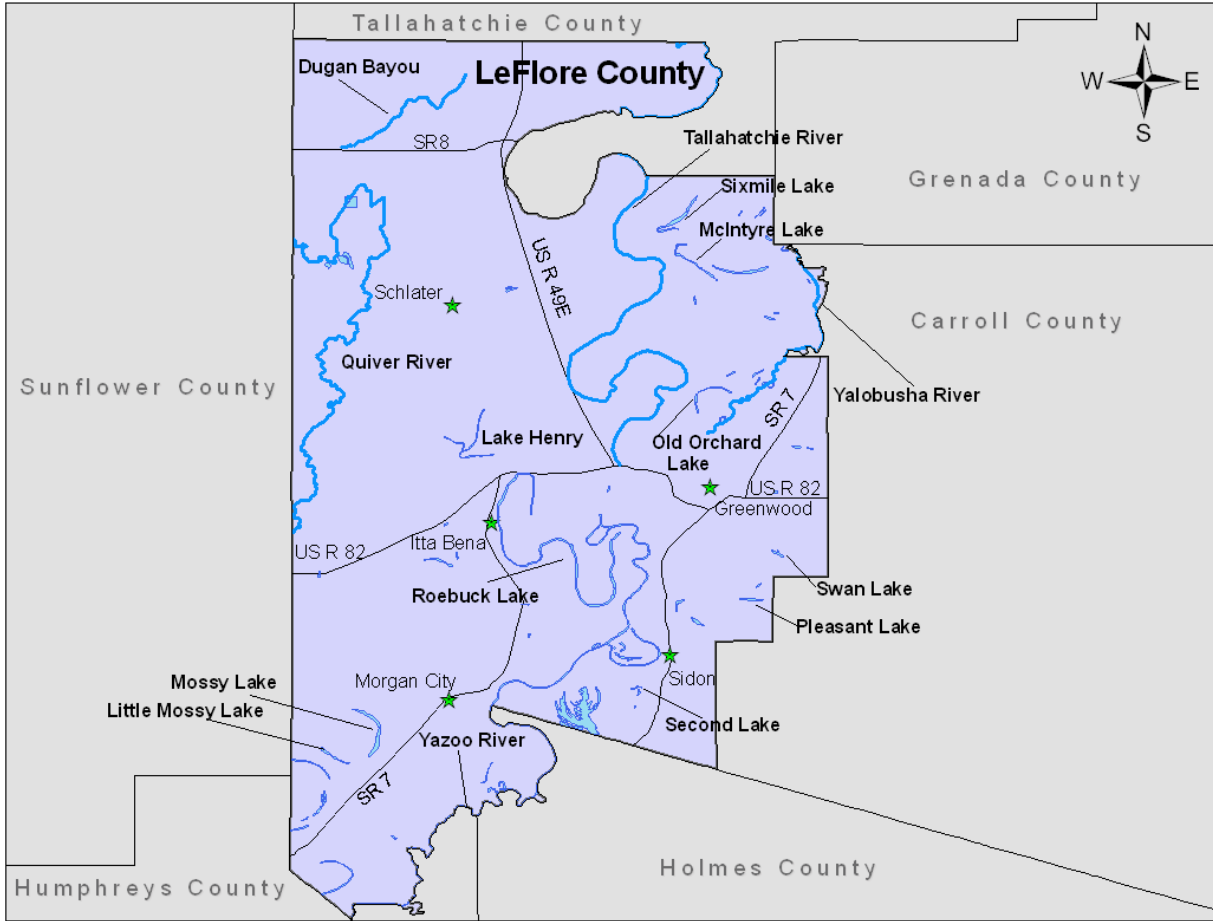
APPENDIX A:
MAPS OF THE FOUR COUNTIES INCLUDED IN THE SURVEY

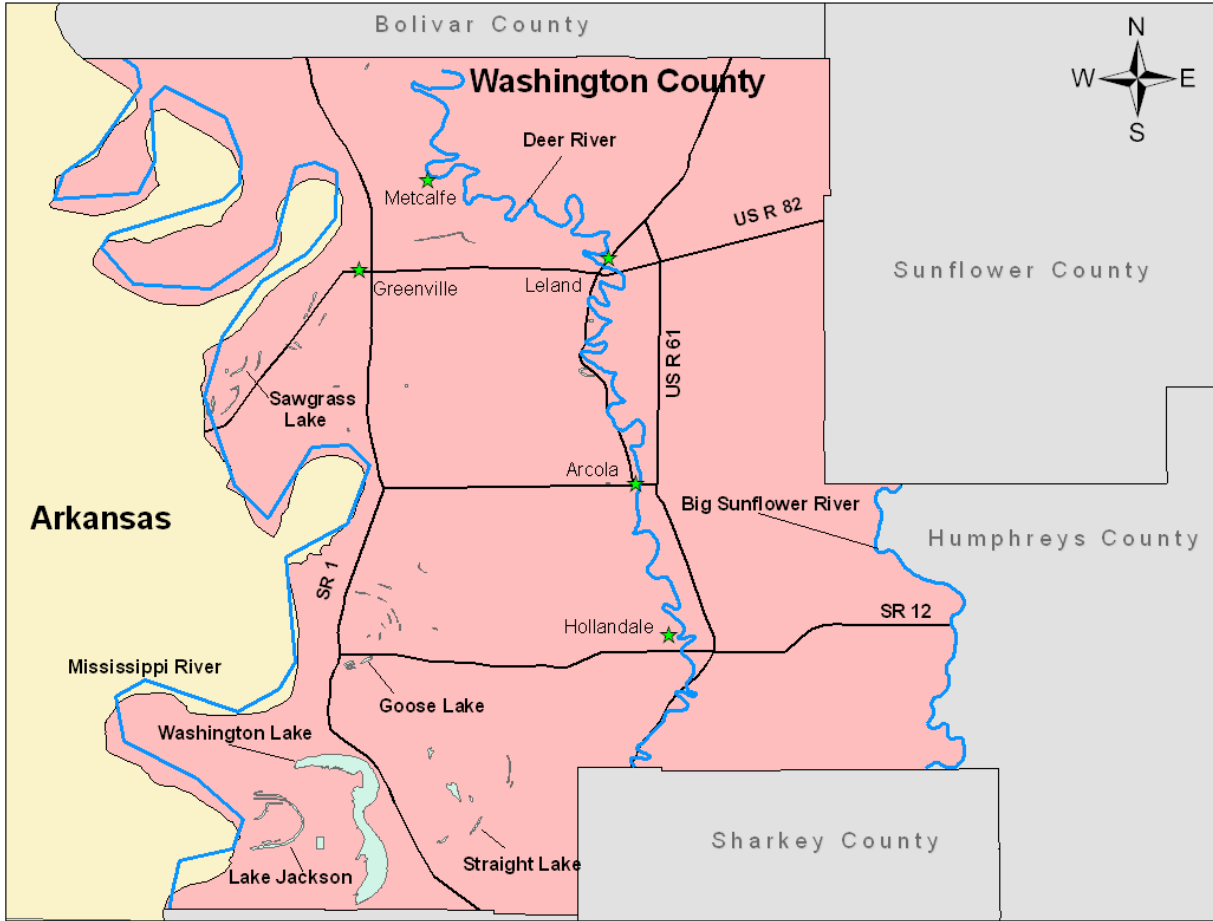
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APPENDIX B:
FINAL SURVEY INSTRUMENT

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On-the-Bank Survey

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Survey to Investigate Awareness of the Mississippi Delta Fish Advisory and the Relationship between the Advisory and Related Fishing Behaviors

ON-THE-BANK SURVEY (FINAL VERSION 10/1/09) OMB control number: 0910-0637

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0910-0637. The time required to complete this information collection is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Date: _____

Data Collection Team: _____

Water Body: _____

Access Point: _____

Code		
	If group, number of people in group aged 18 and older	
1	Eligible and agreed to participate	
2	Partial	
3	Eligible—Refusal	
6	Eligible—Language barrier	
11	Unk—Refused to complete screener	
20	Ineligible - Under 18 years	
21	Ineligible - Does not live in one of four counties	
22	Ineligible—Completed HH survey	
18	Ineligible—Other	
19	Other	
NOTES:		

INTRODUCTION

Hello. My name is _____ and I'm with _____.

We are talking with people who fish in the Mississippi Delta as part of a study that we are conducting for the U.S. Food and Drug Administration and the Environmental Protection Agency. We plan to talk with about 1,000 individuals from different counties in the Delta. A summary of the study findings will be posted locally.

My questions will take about 15 to 20 minutes. All of the information you provide will be kept completely confidential. The study findings will be presented in summary form so that your name is not associated with your responses.

(IF THE GROUP HAS MORE THAN ONE PERSON)

For those of you 18 years old or older, I just need to know which one of you most recently had a birthday. **(ASSIST AS NEEDED BY ASKING FOR BIRTHDAYS. SELECT PERSON WITH MOST RECENT BIRTHDAY.)**

(IF THE GROUP HAS ONLY ONE PERSON)

E1. Are you at least 18 years old?

1. YES
2. NO **(TERMINATE)**

E1A. During October, did you complete a survey about fishing?

1. YES **(DESCRIBE – IF THIS SURVEY THEN TERMINATE)**
2. NO

(ASK SELECTED PERSON)

E2. Do you live in any of the following counties? **(READ LIST.)**

- | | |
|----------------------|-----------------|
| 1. Coahoma | 998. DON'T KNOW |
| 2. Holmes | 999. REFUSED |
| 3. Leflore | |
| 4. Washington | |
| 5. NONE OF THE ABOVE | |
- (TERMINATE-INELIGIBLE)**

E3. To the best of your knowledge, have you or anyone in your household eaten wild-caught fish from the Mississippi Delta in the past year? Please include wild-caught fish caught by you or others, including fish you buy. Do not include fish from the Mississippi River.

- | | |
|--------------------------|-----------------------------------|
| 1. YES (GO TO E5) | 998. DON'T KNOW (GO TO E5) |
| 2. NO | 999. REFUSED (GO TO E5) |

E4. Why don't you or members of your household eat wild-caught fish from the Mississippi Delta?

1. DON'T LIKE TASTE
2. NOT SAFE TO EAT
3. BECAUSE OF FISH ADVISORY
4. OTHER

998. DON'T KNOW
999. REFUSED

E5. Before we continue, I need you to read this form which provides information on the study. If you would like to take part in this study, please sign the form. If you prefer, I can read the form to you. **[GIVE RESPONDENT INFORMED CONSENT FORM TO READ OR READ TO RESPONDENT.]**

1. WANTS TO CONTINUE
2. NO **(CODE AS REFUSAL)**

A. FISHING PRACTICES

ALL RESPONDENTS COMPLETE THIS SECTION

Thank you for agreeing to participate in our study. I would like to begin by asking you some questions about fishing in the Mississippi Delta. For these questions, please do not include commercial fishing or fishing in commercial catfish ponds, or fishing in the Mississippi River.

1. About how many days have you been fishing in the Mississippi Delta area in the past month?

_____ days **(READ RESPONSE LIST ONLY IF NECESSARY.)**

- | | |
|-------------------------------|-------------------------------------|
| 1. NONE | 5. 10 TO 15, OR (GO TO Q.2) |
| 2. 1 TO 3, (GO TO Q.2) | 6. MORE THAN 15? (GO TO Q.2) |
| 3. 4 TO 6, (GO TO Q.2) | 998. DON'T KNOW |
| 4. 7 TO 9, (GO TO Q.2) | 999. REFUSED |

1A. About how many days have you been fishing in the Mississippi Delta area in the past year?

_____ days **(READ RESPONSE LIST ONLY IF NECESSARY.)**

- | | |
|------------|------------------|
| 1. 1 TO 3, | 4. 10 TO 15, OR |
| 2. 4 TO 6, | 5. MORE THAN 15? |
| 3. 7 TO 9, | 998. DON'T KNOW |
| | 999. REFUSED |

2. What are some of the reasons why you fish? **(SHOW CARD A AND CIRCLE ALL THAT APPLY.)**

- | | |
|--|-------------------------|
| 1. To provide food for my family | 8. Like to eat fish |
| 2. To reduce the amount of money spent on food | 9. OTHER, SPECIFY _____ |
| 3. To relax | 998. DON'T KNOW |
| 4. To spend time outdoors | 999. REFUSED |
| 5. To spend time with friends and/or family | |
| 6. Enjoy fishing | |
| 7. To sell the fish/earn money | |

3. When you fish, how often do you give away or trade the fish that you catch to other people? **Would you say...**

- | | |
|-------------------------|-----------------|
| 1. never, | 998. DON'T KNOW |
| 2. rarely, | 999. REFUSED |
| 3. some of the time, | |
| 4. most of the time, or | |
| 5. all of the time? | |

4. When you fish, how often do you eat the fish you catch? Would you say ...
- | | |
|-------------------------|-----------------|
| 1. never, | 998. DON'T KNOW |
| 2. rarely, | 999. REFUSED |
| 3. some of the time, | |
| 4. most of the time, or | |
| 5. all of the time? | |
5. When you fish, how often do other people in your household eat the fish you catch?
Would you say ...
- | | |
|-------------------------|-----------------|
| 1. never, | 998. DON'T KNOW |
| 2. rarely, | 999. REFUSED |
| 3. some of the time, | |
| 4. most of the time, or | |
| 5. all of the time? | |
6. How important are the fish that you catch as a source of food for your family? Would you say ...
- | | |
|------------------|-----------------|
| 1. not at all, | 998. DON'T KNOW |
| 2. a little bit, | 999. REFUSED |
| 3. somewhat, or | |
| 4. a lot? | |

B. FISH CONSUMPTION PRACTICES

COMPLETE THIS SECTION IF HH EATS FISH (E3 = 1)

Now I would like to ask you some questions about eating wild-caught fish from the Mississippi Delta. For these questions, please include wild-caught fish that you or family members catch, wild-caught fish that other people catch and give to you, and wild-caught fish that you buy. Do not include commercial pond-raised catfish or fish from the Mississippi River.

8. For you and each person in your household, please tell me the initials of that person starting with yourself, their age, whether they are male or female, about how many ounces of wild-caught fish they usually eat when served at a meal, and about how often they usually eat wild-caught fish from the Mississippi Delta. **IF HH MEMBER DOES NOT EAT FISH, ENTER ZERO FOR AMOUNT EATEN AND ASK Q8A.**

Persons in household <i>(enter initials)</i>	Age <i>(enter age)</i>	Gender <i>(circle one)</i>	Amount eaten in ounces per meal <i>(show card)</i>	Frequency of eating wild-caught fish		Children under 7: Age when began eating fish <i>(enter age)</i>
				<i>(enter number)</i>	<i>(circle one)</i>	
_____	_____	M F	_____	___ times per	week / month / year	_____
_____	_____	M F	_____	___ times per	week / month / year	_____
_____	_____	M F	_____	___ times per	week / month / year	_____
_____	_____	M F	_____	___ times per	week / month / year	_____
_____	_____	M F	_____	___ times per	week / month / year	_____

998. DON'T KNOW

999. REFUSED

IF A HOUSEHOLD MEMBER DOES NOT EAT FISH ASK FOLLOW-UP QUESTION:

8A. Why does he/she not eat fish?

Persons in household (<i>enter initials</i>)	Reason for not eating fish (<i>circle one</i>)				
	Don't like taste	Too young	Not safe	Because of advisory	Other
_____	01	02	03	04	05
_____	01	02	03	04	05
_____	01	02	03	04	05

9. Did you or others in your household eat gar in the past year? **(SHOW PICTURE.)**

1. YES 998. DON'T KNOW **(GO TO Q.10)**
 2. NO **(GO TO Q.10)** 999. REFUSED **(GO TO Q.10)**

9A. For you and each person in your household, please tell me the initials of that person and about how often they eat gar.

Persons in household (<i>enter initials</i>)	Frequency of eating	
	(<i>enter number</i>)	(<i>circle one</i>)
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year

998. DON'T KNOW
 999. REFUSED

10. Did you or others in your household eat carp in the past year? **(SHOW PICTURE.)**

1. YES 998. DON'T KNOW **(GO TO Q.11)**
 2. NO **(GO TO Q.11 ON PAGE 7)** 999. REFUSED **(GO TO Q.11)**

10A. For you and each person in your household, please tell me the initials of that person and about how often they eat carp.

Persons in household (<i>enter initials</i>)	Frequency of eating	
	(<i>enter number</i>)	(<i>circle one</i>)
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year

998. DON'T KNOW
 999. REFUSED

11. Did you or others in your household eat wild-caught catfish that are smaller than 22 inches in the past year? Do not include commercial pond-raised catfish. **(SHOW PICTURE.)**

- 1. YES
- 2. NO

- 998. DON'T KNOW
- 999. REFUSED

12. Did you or others in your household eat wild-caught catfish that are longer than 22 inches in the past year? Do not include pond-raised catfish.

- 1. YES
- 2. NO **(GO TO Q.13)**

- 998. DON'T KNOW **(GO TO Q.13)**
- 999. REFUSED **(GO TO Q.13)**

12A. For you and each person in your household, please tell me the initials of that person and about how often they eat large catfish.

Persons in household <i>(enter initials)</i>	Frequency of eating	
<i>(enter number)</i>	<i>(circle one)</i>	
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year

- 998. DON'T KNOW
- 999. REFUSED

13. Did you or others in your household eat buffalo fish in the past year? **(SHOW PICTURE.)**

- 1. YES
- 2. NO **(GO TO Q.14 ON PAGE 8)**

- 998. DON'T KNOW **(GO TO Q.14)**
- 999. REFUSED **(GO TO Q.14)**

13A. For you and each person in your household, please tell me the initials of that person, about how often they eat buffalo fish, and the name of the river or lake where the buffalo fish was caught.

Persons in household <i>(enter initials)</i>	Frequency of eating		Where did you or others catch the fish?
<i>(enter number)</i>	<i>(circle one)</i>		<i>(location)</i>
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____

- 998. DON'T KNOW
- 999. REFUSED

14. Now I would like to know how you usually prepare and cook each of the fish that we just talked about.

Type of fish	Do not eat <i>(check if No)</i>	Do you remove skin before cooking? <i>(circle one)</i>	Do you remove belly fat before cooking? <i>(circle one)</i>	Do you remove the head before cooking? <i>(circle one)</i>	Do you gut the fish and discard internal organs? <i>(circle one)</i>	Do you usually eat the fillet, a steak, or the whole fish? <i>(circle all that apply)</i>	How do you usually cook the fish? <i>(circle all that apply)</i>
Gar	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other
Carp	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other
Catfish (< 22 in)	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other
Catfish (> 22 in)	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other
Buffalo fish	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other

998. DON'T KNOW

999. REFUSED

C. DETERMINE IF RESPONDENT IS AWARE OF MISSISSIPPI DELTA ADVISORY

ALL RESPONDENTS COMPLETE THIS SECTION

15. How safe do you think it is to eat wild-caught buffalo fish, carp, gar, and large catfish from the Mississippi Delta, would you say that it is ...
- | | |
|----------------------|-----------------|
| 1. not very safe, | 998. DON'T KNOW |
| 2. somewhat safe, or | 999. REFUSED |
| 3. very safe? | |
16. How safe do you think it is to eat other types of wild-caught fish, those not previously mentioned, from the Mississippi Delta?
- | | |
|----------------------|-----------------|
| 1. not very safe, | 998. DON'T KNOW |
| 2. somewhat safe, or | 999. REFUSED |
| 3. very safe? | |
17. Are you aware of any warnings or advisories about eating wild-caught fish from the Mississippi Delta? **[IF RESPONDENT IS NOT SURE OR CANNOT RECALL:** These advisories were first issued in 2001–2002. The advisory recommends that you don't eat too much of certain fish because of chemicals in the fish.]
- | | |
|---|---|
| 1. YES (GO TO SECTION E ON PAGE 12) | 998. DON'T KNOW (COMPLETE SECTION D, THEN GO TO SECTION H) |
| 2. NO (COMPLETE SECTION D, THEN GO TO SECTION H) | 999. REFUSED (COMPLETE SECTION D, THEN GO TO SECTION H) |
| 3. I heard of an advisory a few years ago (GO TO SECTION E ON PAGE 12) | |

D. QUESTIONS FOR RESPONDENTS NOT AWARE OF ADVISORY

COMPLETE THIS SECTION IF Q.17 = 2, 998, OR 999

18. The advisory recommends that you should not eat any buffalo fish from Roebuck Lake and that you should not eat more than two meals a month of buffalo fish, carp, gar, and catfish greater than 22 inches from other Mississippi Delta waters. **(SHOW PICTURE OF ADVISORY. IF RESPONDENT NOW RECALLS ADVISORY, CHANGE ANSWER TO QUESTION 17 TO "YES" AND GO TO SECTION E.)**

How believable to you is the information in the advisory, would you say that it is ...

- | | |
|----------------------------|-----------------|
| 1. not very believable, | 998. DON'T KNOW |
| 2. somewhat believable, or | 999. REFUSED |
| 3. very believable? | |
19. In terms of protecting your health, how important do you think it is to follow the advisory's recommendations? Would you say...
- | | |
|---------------------------|-----------------|
| 1. not very important, | 998. DON'T KNOW |
| 2. somewhat important, or | 999. REFUSED |
| 3. very important? | |
20. How difficult would it be for you and your family to limit how much you eat of buffalo fish, carp, gar, and large catfish? Would you say...
- | | |
|---|-----------------|
| 1. not a problem at all, | 998. DON'T KNOW |
| 2. somewhat of a problem, or | 999. REFUSED |
| 3. a very big problem? | |
| 4. DO NOT EAT THESE FISH (GO TO Q.24 ON PAGE 11) | |
21. How likely are you to follow the advisory's recommendations? Would you say ...
- | | |
|------------------------|-----------------|
| 1. not very likely, | 998. DON'T KNOW |
| 2. somewhat likely, or | 999. REFUSED |
| 3. very likely? | |
22. Now that you know about the advisory, how concerned are you about eating wild-caught buffalo fish, carp, gar, and large catfish from the Mississippi Delta? Would you say...
- | | |
|---------------------------|-----------------|
| 1. not very concerned, | 998. DON'T KNOW |
| 2. somewhat concerned, or | 999. REFUSED |
| 3. very concerned? | |

23. In your opinion, if you or members of your household were to eat wild-caught buffalo fish, carp, gar, or large catfish from the Mississippi Delta, how likely is it that you or they would get sick? Would you say...
- | | |
|------------------------|-----------------|
| 1. not very likely, | 998. DON'T KNOW |
| 2. somewhat likely, or | 999. REFUSED |
| 3. very likely? | |
24. What would you say are the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi Delta? **(SHOW CARD B; CIRCLE ONLY TWO RESPONSES. READ CARD IF NECESSARY.)**
- | | |
|--|---|
| 1. Radio | 12. Post information and provide brochures at Women, Infant, and Children (WIC) clinics |
| 2. Television | 13. Post information and provide brochures at doctors' offices, hospitals, and clinics |
| 3. Newspaper | 14. Provide information through local churches |
| 4. Magazine | 15. Go door to door to provide information |
| 5. Post signs at lakes, rivers, and other water sources | 16. Fishing clubs |
| 6. Mail information to home | 17. OTHER, SPECIFY _____ |
| 7. Internet or Web site | |
| 8. Wildlife and fish expos | |
| 9. Health fairs | 998. DON'T KNOW |
| 10. Post information and provide brochures at bait shops | 999. REFUSED |
| 11. Post information and provide brochures at fish markets | |

GO TO SECTION H ON PAGE 20

E. QUESTIONS FOR RESPONDENTS AWARE OF ADVISORY

COMPLETE THIS SECTION IF Q.17 = 1 OR 3

25. To the best of your knowledge, tell me what the advisory recommends about eating fish. **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|--|---|
| 1. CANNOT EXPLAIN WHAT THE ADVISORY IS ABOUT | 9. DO NOT EAT MORE THAN TWO MEALS A MONTH OF BUFFALO FISH |
| 2. DO NOT EAT FISH OVER A CERTAIN SIZE | 10. DO NOT EAT MORE THAN TWO MEALS A MONTH OF CARP |
| 3. DO NOT EAT ANY BUFFALO FISH FROM ROEBUCK LAKE | 11. DO NOT EAT MORE THAN TWO MEALS A MONTH OF GAR |
| 4. DO NOT EAT TOO MUCH OF CERTAIN FISH | 12. DO NOT EAT MORE THAN TWO MEALS A MONTH OF LARGE CATFISH |
| 5. DO NOT EAT TOO MUCH BUFFALO FISH | 13. OTHER, SPECIFY _____ |
| 6. DO NOT EAT TOO MUCH CARP | _____ |
| 7. DO NOT EAT TOO MUCH GAR | 998. DON'T KNOW |
| 8. DO NOT EAT TOO MUCH LARGE CATFISH | 999. REFUSED |

The advisory recommends that you should not eat any buffalo fish from Roebuck Lake and that you should not eat more than two meals a month of buffalo fish, carp, gar, and catfish greater than 22 inches from other Mississippi Delta waters. **(SHOW PICTURE OF ADVISORY.)**

26. Are you aware of this particular advisory?

- | | |
|---|---|
| 1. YES | 998. DON'T KNOW (COMPLETE SECTION D, THEN GO TO SECTION H) |
| 2. NO (CHANGE ANSWER TO QUESTION 17 TO "NO" AND GO TO SECTION D, THEN GO TO SECTION H) | 999. REFUSED (COMPLETE SECTION D, THEN GO TO SECTION H) |

27. Do you usually follow the advisory recommendations?

- | | |
|--------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |

28. How believable to you is the information in the advisory, would you say that it is ...

- | | |
|----------------------------|-----------------|
| 1. not very believable, | 998. DON'T KNOW |
| 2. somewhat believable, or | 999. REFUSED |
| 3. very believable? | |

29. In terms of protecting your health, how important do you think it is to follow the advisory's recommendations? **Would you say...**
- | | |
|---------------------------|------------------------|
| 1. not very important, | 998. DON'T KNOW |
| 2. somewhat important, or | 999. REFUSED |
| 3. very important? | |
30. How difficult is it for you and your family to limit how much you eat of the fish in the advisory? **Would you say...**
- | | |
|--|------------------------|
| 1. not a problem at all, | 998. DON'T KNOW |
| 2. somewhat of a problem, or | 999. REFUSED |
| 3. a very big problem? | |
| 4. DO NOT EAT THESE FISH (GO TO Q.32) | |
31. In your opinion, if you or members of your household were to eat wild-caught buffalo fish, carp, gar, or large catfish from the Mississippi Delta, how likely is it that you or they would get sick? **Would you say...**
- | | |
|------------------------|------------------------|
| 1. not very likely, | 998. DON'T KNOW |
| 2. somewhat likely, or | 999. REFUSED |
| 3. very likely? | |
32. Please think about this advisory when answering the next questions. How did you hear or learn about the advisory? **(CIRCLE ALL THAT ARE MENTIONED.)**
- | | |
|---|--------------------------|
| 1. RADIO NEWS OR TALK SHOW | 7. BROCHURE / PAMPHLET |
| 2. RADIO ADVERTISEMENT | 8. CHURCH |
| 3. TELEVISION NEWS OR TALK SHOW | 9. FAMILY / FRIENDS |
| 4. TELEVISION SHOW | 10. OTHER, SPECIFY _____ |
| 5. NEWSPAPER | _____ |
| 6. SIGNS POSTED AT LAKES /RIVERS / WATER (CIRCLE "1" FOR 34) | 998. DON'T KNOW |
| | 999. REFUSED |
33. Do you believe the advisory is still in effect?
- | | |
|--------|------------------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |
34. Have you seen signs posted about the advisory at places where you fish?
- | | |
|--------------------------|-----------------------------|
| 1. YES | 4. RESPONDENT DOES NOT FISH |
| 2. NO | 998. DON'T KNOW |
| 3. YES, I USED TO SEE IT | 999. REFUSED |

35. Did you get a brochure or pamphlet about the advisory?
1. YES
 2. NO **(GO TO Q.36)**
 998. DON'T KNOW **(GO TO Q.36)**
 999. REFUSED **(GO TO Q.36)**

35A. Where did you get or who gave you the brochure or pamphlet? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|--|--------------------------|
| 1. HEALTH FAIR | 8. PARK RANGER |
| 2. COMMERCIAL FISHERMAN | 9. CHURCH |
| 3. BAIT SHOP | 10. FAMILY / FRIENDS |
| 4. WILDLIFE AND FISH EXPO | 11. OTHER, SPECIFY _____ |
| 5. FISH MARKET | _____ |
| 6. WIC CLINIC | 998. DON'T KNOW |
| 7. DOCTOR, HOSPITAL, OR OTHER HEALTH CARE PROVIDER | 999. REFUSED |

35B. How useful was the brochure or pamphlet? Would you say ...

- | | |
|------------------------|--------------------------|
| 1. not at all useful, | 4. DID NOT READ BROCHURE |
| 2. somewhat useful, or | 998. DON'T KNOW |
| 3. very useful? | 999. REFUSED |

36. Do you know about the toll-free hotline that you can call to get information on the advisory?

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.37) |
| 2. NO (GO TO Q.37) | 999. REFUSED (GO TO Q.37) |

36A. Have you called the advisory hotline?

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.37) |
| 2. NO (GO TO Q.37) | 999. REFUSED (GO TO Q.37) |

36B. How useful was the information you got from the advisory hotline? Would you say ...

- | | |
|------------------------|-----------------|
| 1. not at all useful, | 998. DON'T KNOW |
| 2. somewhat useful, or | 999. REFUSED |
| 3. very useful? | |

37. If you have Internet access, have you looked for any information about the advisory online?

- | | |
|---|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.38) |
| 2. NO (GO TO Q.38 ON PAGE 15) | 999. REFUSED (GO TO Q.38) |
| 3. DO NOT HAVE INTERNET ACCESS (GO TO Q.38 ON PAGE 15) | |

37A. How useful was the information you found online? Would you say ...

- | | |
|------------------------|-----------------|
| 1. not at all useful, | 998. DON'T KNOW |
| 2. somewhat useful, or | 999. REFUSED |
| 3. very useful? | |

38. Did your church pastor talk about the advisory at all?

- | | |
|-------------------------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |
| 3. DO NOT ATTEND CHURCH | |

39. Did your doctor or other health care provider talk with you about the advisory?

- | | |
|--------------------------------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |
| 3. HAVE NOT BEEN TO THE DOCTOR | |

40. Do you remember seeing or hearing information about the advisory on any of the following TV or radio programs? **(READ LIST AND CIRCLE ONE FOR EACH.)**

	Yes	No	Don't know	Refused
Local TV news or talk show	01	02	998	999
Mississippi Outdoors program on ETV	01	02	998	999
Local radio news or talk show	01	02	998	999
Radio advertisements	01	02	998	999

41. What would you say are the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi Delta? **(SHOW CARD B; CIRCLE ONLY TWO RESPONSES. READ CARD IF NECESSARY.)**

- | | |
|--|---|
| 1. Radio | 12. Post information and provide brochures at Women, Infant, and Children (WIC) clinics |
| 2. Television | 13. Post information and provide brochures at doctors' offices, hospitals, and clinics |
| 3. Newspaper | 14. Provide information through local churches |
| 4. Magazine | 15. Go door to door to provide information |
| 5. Post signs at lakes, rivers, and other water sources | 16. Fishing clubs |
| 6. Mail information to home | 17. OTHER, SPECIFY _____ |
| 7. Internet or Web site | |
| 8. Wildlife and fish expos | |
| 9. Health fairs | |
| 10. Post information and provide brochures at bait shops | 998. DON'T KNOW |
| 11. Post information and provide brochures at fish markets | 999. REFUSED |

F. SELF-REPORTED CHANGES IN FISHING PRACTICES

**COMPLETE THIS SECTION IF RESPONDENT IS AWARE OF ADVISORY
(Q.17 = 1 or 3)**

42. After learning about the advisory, did you make any changes in your fishing practices, such as how often you fish, where you fish, or the types of fish that you catch?
- | | |
|--------------------------------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO (GO TO SECTION G) | 999. REFUSED |
43. After learning about the advisory, did you change how often you usually fish in Mississippi Delta waters? Do you fish ...
- | | |
|--------------------------------------|-----------------|
| 1. more often, | 998. DON'T KNOW |
| 2. about the same amount of time, or | 999. REFUSED |
| 3. less often? | |
44. After learning about the advisory, did you change the locations where you usually go fishing in the Mississippi Delta? Do you fish ...
- | | |
|--------------------------|-----------------|
| 1. in the same places or | 998. DON'T KNOW |
| 2. in different places? | 999. REFUSED |
45. Before learning about the advisory, did you ever fish in Roebuck Lake in Leflore County? **(SHOW ON MAP, IF NECESSARY.)**
- | | |
|--------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |
46. Since learning about the advisory, have you fished in Roebuck Lake?
- | | |
|--------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |
47. After learning about the advisory, did you make any changes in the types of fish that you usually fish for in the Mississippi Delta? Do you fish ...
- | | |
|---|--|
| 1. for the same types of fish or (GO TO SECTION G) | 998. DON'T KNOW (GO TO SECTION G) |
| 2. different types of fish? | 999. REFUSED (GO TO SECTION G) |
- 47A. Tell me about the changes you made in the types of fish that you fish for in the Mississippi Delta. **(RECORD RESPONSE.)**
-
-

998. DON'T KNOW

999. REFUSED

G. SELF-REPORTED CHANGES IN FISHING CONSUMPTION

COMPLETE THIS SECTION IF HH EATS FISH (E3 =1) AND RESPONDENT IS AWARE OF ADVISORY (Q.17 = 1 or 3)

48A. Before learning about the advisory, did you eat any of the following types of fish?
(READ LIST AND CIRCLE IF YES.)

- | | |
|----------------------------------|-----------------|
| 1. Buffalo fish | 998. DON'T KNOW |
| 2. Carp | 999. REFUSED |
| 3. Gar | |
| 4. Catfish longer than 22 inches | |

48B. Since learning about the advisory, what types of wild-caught fish have you stopped eating? **(CIRCLE ALL THAT ARE MENTIONED.)** NOTE: IF RESPONDENT SAYS "CATFISH," PROBE: Any specific size of catfish?; IF RESPONDENT SAYS "BIG FISH," PROBE: Any specific type of fish?

- | | |
|--------------------------------|-------------------------|
| 1. BUFFALO | 6. SMALL CATFISH |
| 2. CARP | 7. OTHER, SPECIFY _____ |
| 3. GAR | _____ |
| 4. CATFISH | 8. NONE |
| 5. LARGE CATFISH (> 22 inches) | 998. DON'T KNOW |
| | 999. REFUSED |

49. Since learning about the advisory, what types of wild-caught fish do you eat less of now? **(CIRCLE ALL THAT ARE MENTIONED.)** NOTE: IF RESPONDENT SAYS "CATFISH," PROBE: Any specific size of catfish?; IF RESPONDENT SAYS "BIG FISH," PROBE: Any specific type of fish?

- | | |
|--------------------------------|-------------------------|
| 1. BUFFALO | 6. SMALL CATFISH |
| 2. CARP | 7. OTHER, SPECIFY _____ |
| 3. GAR | _____ |
| 4. CATFISH | 8. NONE |
| 5. LARGE CATFISH (> 22 inches) | 998. DON'T KNOW |
| | 999. REFUSED |

SKIP Q. 50 IF Q.48 AND Q.49 = 8

50. Since you cut back or stopped eating certain wild-caught fish, what are you eating instead? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|--|---|
| 1. EAT OTHER TYPES OF FISH / DRUM / BREEM / LARGE MOUTH BASS / CRAPPIE / FISH THAT ARE NOT IN THE ADVISORY | 5. HAVE LESS FOOD TO EAT NOW |
| 2. EAT FARM / POND-RAISED CATFISH INSTEAD | 6. BUY AND EAT CHICKEN INSTEAD |
| 3. BUY FISH FROM FISH MARKET OR GROCERY STORE INSTEAD | 7. BUY AND EAT BEEF / PORK / MEAT INSTEAD |
| 4. EAT SMALLER FISH INSTEAD | 8. OTHER, SPECIFY _____
_____ |
| | 998. DON'T KNOW |
| | 999. REFUSED |

51. Since learning about the advisory, what types of wild-caught fish do you eat more of now? **(CIRCLE ALL THAT ARE MENTIONED.)** NOTE: IF RESPONDENT SAYS "CATFISH," PROBE: Any specific size of catfish?; IF RESPONDENT SAYS "BIG FISH," PROBE: Any specific type of fish?

- | | |
|--------------------------------|----------------------------------|
| 1. BUFFALO | 6. SMALL CATFISH |
| 2. CARP | 7. OTHER, SPECIFY _____
_____ |
| 3. GAR | 8. NONE |
| 4. CATFISH | 998. DON'T KNOW |
| 5. LARGE CATFISH (> 22 inches) | 999. REFUSED |

52. After learning about the advisory, did you change the size of wild-caught fish from the Mississippi Delta that you eat?

- | | |
|--------------------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.53) |
| 2. NO (GO TO Q.53 ON PAGE 19) | 999. REFUSED (GO TO Q.53) |

52A. After learning about the advisory, do you usually eat ...

- | | |
|---|-------------------------------------|
| 1. larger fish, (GO TO Q.53 ON PAGE 19) | 998. DON'T KNOW (GO TO Q.53) |
| 3. smaller fish, or | 999. REFUSED (GO TO Q.53) |
| 4. smaller-sized fish for some types of fish and the same size for other types of fish? | |

52B. For what types of fish do you eat smaller-sized fish? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|------------|-------------------------|
| 1. BUFFALO | 7. LARGE MOUTH BASS |
| 2. CARP | 8. CRAPPIE |
| 3. GAR | 9. OTHER, SPECIFY _____ |
| 4. CATFISH | _____ |
| 5. DRUM | 998. DON'T KNOW |
| 6. BREAM | 999. REFUSED |

53. After learning about the advisory, did you make any changes in how you prepare or cook wild-caught fish from the Mississippi Delta?

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.54) |
| 2. NO (GO TO Q.54) | 999. REFUSED (GO TO Q.54) |

53A. Which of the following changes did you make? **(SHOW CARD C WITH LIST; CIRCLE ALL THAT APPLY.)**

- | | |
|--|---|
| 1. Started removing skin from fish before cooking | 5. Stopped making fish stew or soup |
| 2. Started removing belly fat from fish before cooking | 6. Started broiling, baking, or grilling fish instead of frying |
| 3. Started eating fillets instead of whole fish | 7. OTHER, SPECIFY _____ |
| 4. Stopped frying fish or fry fish less often | _____ |
| | 998. DON'T KNOW |
| | 999. REFUSED |

54. After learning about the advisory, were any changes made in the types and amount of wild-caught fish or how fish was prepared and cooked for children under the age of 7?

- | | |
|--|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.55) |
| 2. NO (GO TO Q.55 ON PAGE 20) | 999. REFUSED (GO TO Q.55) |
| 3. DO NOT PREPARE AND COOK FISH FOR CHILDREN (GO TO Q.55) | |

54A. What kind of changes were made? **(RECORD RESPONSE.)**

998. DON'T KNOW
999. REFUSED

H. DEMOGRAPHICS

ALL RESPONDENTS COMPLETE THIS SECTION
--

Now I would like to ask you a few questions about yourself. Remember, all the information you provide will be kept completely confidential.

55. RECORD GENDER.

- | | |
|-----------|-----------------|
| 1. MALE | 998. DON'T KNOW |
| 2. FEMALE | 999. REFUSED |

55A. What is your age?

_____ **(READ RESPONSE LIST ONLY IF NECESSARY.)**

- | | |
|-------------|-----------------|
| 1. 18 to 24 | 5. 55 to 64 |
| 2. 25 to 34 | 6. 65 to 74 |
| 3. 35 to 44 | 7. 75 or older |
| 4. 45 to 54 | 998. DON'T KNOW |
| | 999. REFUSED |

56. What is the highest level of education that you have completed?

- | | |
|--|--------------------------|
| 1. 5 TH GRADE OR LESS | 7. 4-YEAR COLLEGE DEGREE |
| 2. 6 TH TO 8 TH GRADE | 8. ADVANCED DEGREE |
| 3. 9 TH TO 11 TH GRADE | 998. DON'T KNOW |
| 4. HIGH SCHOOL DIPLOMA OR GED | 999. REFUSED |
| 5. SOME COLLEGE | |
| 6. 2-YEAR COLLEGE DEGREE | |

57. **RECORD ETHNICITY; IF NECESSARY ASK QUESTION**

Are you Hispanic or Latino?

- | | |
|--------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |

58. **RECORD RACE; IF NECESSARY ASK QUESTION AND SHOW CARD D**

What is your race?

- | | |
|--|-----------------|
| 1. White | 998. DON'T KNOW |
| 2. Black or African American | 999. REFUSED |
| 3. Asian | |
| 4. Native Hawaiian or other Pacific Islander | |
| 5. American Indian or Alaska Native | |

59. What is your marital status?
- | | |
|-------------------------|------------------------|
| 1. SINGLE | 5. LIVING WITH PARTNER |
| 2. MARRIED | 998. DON'T KNOW |
| 3. DIVORCED / SEPARATED | 999. REFUSED |
| 4. WIDOWED | |
60. Including yourself, how many people 18 years of age or older live in your household?
- | | |
|------|------------------------|
| 1. 1 | 4. 4 |
| 2. 2 | 5. 5 OR MORE |
| 3. 3 | 998. DON'T KNOW |
| | 999. REFUSED |
61. How many people under 18 years of age live in your household?
- | | |
|-----------------------------|------------------------|
| 1. None (GO TO Q.62) | 5. 4 |
| 2. 1 | 6. 5 OR MORE |
| 3. 2 | 998. DON'T KNOW |
| 4. 3 | 999. REFUSED |
- 61A. How many people under 5 years of age live in your household?
- | | |
|---------|------------------------|
| 1. None | 5. 4 |
| 2. 1 | 6. 5 OR MORE |
| 3. 2 | 998. DON'T KNOW |
| 4. 3 | 999. REFUSED |
62. Which of the following **best** describes your work status? Are you ...
- | | |
|------------------------|-------------------------|
| 1. employed full time, | 8. OTHER, SPECIFY _____ |
| 2. employed part time, | _____ |
| 3. unemployed, | 998. DON'T KNOW |
| 4. retired, | 999. REFUSED |
| 5. disabled, | |
| 6. a student, or | |
| 7. a homemaker? | |
63. Do you have a current sport fishing license for the state of Mississippi? Do not include commercial fishing licenses.
- | | |
|--------|------------------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |
- 63A. Do you have a working phone number for your household, either a regular phone or cell phone?
- | | |
|--------|------------------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |

64. What was your total household income in 2008 before taxes? Include income from all persons living in your house. **(SHOW CARD E. CIRCLE ONE. IF RESPONDENT IS RELUCTANT TO RESPOND REMIND HIM / HER THAT THE INFORMATION WILL BE KEPT CONFIDENTIAL AND ONLY USED FOR ANALYSIS PURPOSES.)**

1. less than \$9,999
2. \$10,000–19,999
3. \$20,000–29,999
4. \$30,000–39,999

5. \$40,000–49,999
6. \$50,000 or more
998. DON'T KNOW
999. REFUSED

I. AWARENESS OF NATIONAL ADVISORY ON MERCURY IN FISH AND SHELLFISH

ALL RESPONDENTS COMPLETE THIS SECTION
--

We're almost done with the interview. My last questions are about fish and shellfish in general, not necessarily those caught in the Mississippi Delta. By fish and shellfish, I mean all types of fish and shellfish including tuna fish, fish sticks, shrimp, oysters, crab, and so on.

65. Have you heard anything about it being healthy to eat fish and shellfish?

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.66) |
| 2. NO (GO TO Q.66) | 999. REFUSED (GO TO Q.66) |

65A. What health benefits have you heard of? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|--------------------------------------|---------------------------------|
| 1. GENERALLY HEALTHY / NUTRITIOUS | 8. ANTIOXIDANT / GOOD FOR SKIN |
| 2. LOW FAT | 9. PROVIDES VITAMINS / MINERALS |
| 3. BRAIN FOOD | 10. HIGH PROTEIN |
| 4. HEART HEALTHY | 11. OIL / FISH OIL |
| 5. OMEGA-3 FATTY ACIDS | 12. OTHER, SPECIFY _____ |
| 6. CHOLESTEROL LOWERING | _____ |
| 7. LOW CALORIE / AIDS IN WEIGHT LOSS | 998. DON'T KNOW |
| | 999. REFUSED |

66. Have you heard of any health problems from eating fish or shellfish, other than the Mississippi Delta advisory that we've already talked about?

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.67) |
| 2. NO (GO TO Q.67) | 999. REFUSED (GO TO Q.67) |

66A. What health problems have you heard of? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|---|-----------------------------|
| 1. MERCURY / METHYL MERCURY (GO TO Q.67A ON PAGE 24) | 8. PESTICIDES |
| 2. PCBs | 9. CHEMICALS |
| 3. DIOXIN | 10. POLLUTION/CONTAMINATION |
| 4. VIBRIO | 11. FOOD POISONING |
| 5. HEPATITIS | 12. OTHER, SPECIFY _____ |
| 6. GERMS / PARASITES / BACTERIA | _____ |
| 7. ALLERGIES | 998. DON'T KNOW |
| | 999. REFUSED |

67. Have you heard anything about mercury as a problem in some fish or shellfish?

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (END SURVEY) |
| 2. NO (END SURVEY) | 999. REFUSED (END SURVEY) |

67A. What kinds of fish or shellfish have mercury problems? **(IF RESPONDENT ANSWERS "TUNA," PROBE FOR TYPE. CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|---------------------------------|--------------------------|
| 1. GENERAL TUNA | 9. TILE FISH |
| 2. TUNA STEAK | 10. SALMON |
| 3. CANNED TUNA | 11. SHELLFISH |
| 4. ALBACORE OR CHUNK WHITE TUNA | 12. ANY LARGE FISH |
| 5. LIGHT TUNA | 13. OTHER, SPECIFY _____ |
| 6. SWORDFISH | _____ |
| 7. SHARK | 998. DON'T KNOW |
| 8. KING MACKEREL | 999. REFUSED |

67B. Have you heard of any particular group of people who are advised to be especially careful not to eat too much fish or shellfish that might have mercury?

- | | |
|--------------------|------------------------------|
| 1. YES | 998. DON'T KNOW (END SURVEY) |
| 2. NO (END SURVEY) | 999. REFUSED (END SURVEY) |

67C. Which group of people should not eat too much fish or shellfish that might have mercury? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|--|-------------------------|
| 1. PREGNANT WOMEN OR WOMEN WHO MIGHT BECOME PREGNANT | 4. OTHER, SPECIFY _____ |
| 2. NURSING MOTHERS | _____ |
| 3. YOUNG CHILDREN | 998. DON'T KNOW |
| | 999. REFUSED |

Thank you for completing the survey!
Give respondent information on the advisories.

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Household Survey

[This page intentionally left blank.]

Survey to Investigate Awareness of the Mississippi Delta Fish Advisory and the Relationship between the Advisory and Related Fishing Behaviors

HOUSEHOLD SURVEY -- household log/screener

Put label here

Date: _____

Data collection team: _____

Initials of Person to Interview _____

Contact	Date	Time	Result	Code
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Final Disposition Codes

1	Interview Complete	11	Unk—Refused to complete screener
2	Partial	12	Ineligible—Not a housing unit
3	Eligible—Refusal	13	Ineligible—Vacant housing unit
4	Eligible—No one at residence	14	Ineligible—Completed OTB survey
5	Eligible—Respondent away/unavailable	15	Ineligible—HH does not fish
6	Eligible—Language barrier	16	Ineligible—HH does not eat fish
7	Unk—Unknown if housing unit	17	Ineligible—HH does not fish AND HH does not eat fish
8	Unk—Not attempted or worked	18	Ineligible—Other
9	Unk—Unable to reach/unsafe area	19	Other
10	Unk—Unable to locate address	99	Screening complete

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Introduction

Hello. My name is _____ and I'm with Three States Interviewing Service. We are talking with people who fish or eat fish caught in the Mississippi Delta as part of a study that we are conducting for the U.S. Food and Drug Administration and the Environmental Protection Agency. Your household was randomly selected to participate in this study. We plan to talk with about 1,000 individuals from different counties in the Delta. A summary of the study findings will be posted locally.

My questions will take about 15 to 20 minutes. All of the information you provide will be kept completely confidential. The study findings will be presented in summary form so that your name is not associated with your responses.

Before we begin, I need to ask you a few questions to see if you qualify for the study.

E1. Have you or anyone in your household been fishing anywhere in the Mississippi Delta area in the past year? Do not include fishing for commercial purposes or fishing in commercial catfish ponds. **(SHOW MAP.)** The Delta area includes the area from the levee on the west to the hills on the east. It does not include the Mississippi River.

- | | |
|----------------------------------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO (GO TO QUESTION E3) | 999. REFUSED |

E2. Did you or anyone in your household fish in any of the following counties in October of this year? **(READ LIST.)**

- | | |
|---|-----------------|
| 1. Coahoma | 998. DON'T KNOW |
| 2. Holmes | 999. REFUSED |
| 3. Leflore | |
| 4. Washington | |
| 5. NONE OF THE ABOVE (GO TO QUESTION E4) | |

E3. To the best of your knowledge, did you or anyone in your household complete an interview in October about fishing in the Delta? The interview would have been conducted at a local river or lake.

- | | |
|--------------------------------------|-----------------|
| 1. YES (TERMINATE-INELIGIBLE) | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |

E4. To the best of your knowledge, have you or anyone in your household eaten wild-caught fish from the Mississippi Delta in the past year? The Delta area includes the area from the levee on the west to the hills on the east. It does not include the Mississippi River. **(SHOW MAP IF NECESSARY)** Please include wild-caught fish caught by you or others, including fish you buy.

1. YES
2. NO

998. DON'T KNOW
999. REFUSED

I. Determine Eligibility

IF QUESTION E1 = 1 OR QUESTION E4 = 1

ELIGIBLE → Great! You qualify for the study. I hope that your household will participate.

IF QUESTION E1 = 2 AND QUESTION E4 = 2 (HOUSEHOLD DOES NOT FISH OR DOES NOT EAT FISH)

NOT ELIGIBLE → I'm sorry. You do not qualify for the study. Thank you for your time and have a nice day.

II. If Eligible, Select Individual in Household to Complete Survey

IF QUESTION E1 = 1

May I please speak with the adult (18 years old or older) in this household who fishes most often for wild-caught fish from the Mississippi Delta? **(IF NOT AVAILABLE, SCHEDULE FOLLOW-UP APPOINTMENT.)**

IF QUESTION E4 = 1

May I please speak with the adult in this household who prepares and cooks most of the wild-caught fish that is eaten by your family? **(IF NOT AVAILABLE, SCHEDULE FOLLOW-UP APPOINTMENT.)**

IF QUESTION E1 AND E4 = 1

Please give me the initials of the person who fishes most often for wild-caught fish and the initials of the person who prepares and cooks most of the wild caught fish that is eaten by your family.

Fishes most often: _____

Cooks most of fish: _____

IF SAME PERSON: GO TO E.5 AND START INTERVIEW.

IF DIFFERENT PEOPLE: I just need to know which person has the most recent birthday. **(ASSIST AS NEEDED BY ASKING FOR BIRTHDAYS. SELECT PERSON WITH MOST RECENT BIRTHDAY. IF NOT AVAILABLE, SCHEDULE FOLLOW-UP APPOINTMENT.)**

Survey to Investigate Awareness of the Mississippi Delta Fish Advisory and the Relationship between the Advisory and Related Fishing Behaviors

HOUSEHOLD SURVEY (FINAL VERSION 10/1/09)

OMB control number: 0910-0637

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0910-0637. The time required to complete this information collection is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Date: _____

Data Collection Team: _____

Household fishes: **YES** **NO**

Household eats fish: **YES** **NO**

Contact	Date	Time	Result	Code
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Final Disposition Codes

1	Interview Complete	11	Unk—Refused to complete screener
2	Partial	12	Ineligible—Not a housing unit
3	Eligible—Refusal	13	Ineligible—Vacant housing unit
4	Eligible—No one at residence	14	Ineligible—Completed OTB survey
5	Eligible—Respondent away/unavailable	15	Ineligible—HH does not fish
6	Eligible—Language barrier	16	Ineligible—HH does not eat fish
7	Unk—Unknown if housing unit	17	Ineligible—HH does not fish AND HH does not eat fish
8	Unk—Not attempted or worked	18	Ineligible—Other
9	Unk—Unable to reach/unsafe area	19	Other
10	Unk—Unable to locate address	99	Screening complete

INTRODUCTION: SAME PERSON WHO DID SCREENING

E.5 Before we continue, I need you to read this form which provides information on the study. If you would like to take part in this study, please sign the form. If you prefer, I can read the form to you. **[GIVE RESPONDENT INFORMED CONSENT FORM TO READ OR READ TO RESPONDENT.]**

1. WANTS TO CONTINUE
2. NO **(CODE AS REFUSAL)**

INTRODUCTION: DIFFERENT PERSON

Hello. My name is _____ and I'm with _____
_____. We are talking with people who fish in the Mississippi Delta as part of a study that we are conducting for the U.S. Food and Drug Administration and the Environmental Protection Agency. Your household was randomly selected to participate in this study. We plan to talk with about 1,000 individuals from different counties in the Delta. A summary of the study findings will be posted locally.

My questions will take about 15 to 20 minutes. All of the information you provide will be kept completely confidential. The study findings will be presented in summary form so that your name is not associated with your responses.

E.5 Before we continue, I need you to read this form which provides information on the study. If you would like to take part in this study, please sign the form. If you prefer, I can read the form to you. **[GIVE RESPONDENT INFORMED CONSENT FORM TO READ OR READ TO RESPONDENT.]**

1. WANTS TO CONTINUE
2. NO **(CODE AS REFUSAL)**

A. FISHING PRACTICES

COMPLETE THIS SECTION IF HH FISHES (E1 = 1)

Thank you for agreeing to participate in our study. I would like to begin by asking you some questions about fishing in the Mississippi Delta. For these questions, please do not include commercial fishing or fishing in commercial catfish ponds, or fishing in the Mississippi River.

1. About how many days have you been fishing in the Mississippi Delta area in the past month?

_____ days **(READ RESPONSE LIST ONLY IF NECESSARY.)**

- | | |
|-------------------------------|------------------------------|
| 1. NONE | 5. 10 TO 15, OR (GO TO Q.2) |
| 2. 1 TO 3, (GO TO Q.2) | 6. MORE THAN 15? (GO TO Q.2) |
| 3. 4 TO 6, (GO TO Q.2) | 998. DON'T KNOW |
| 4. 7 TO 9, (GO TO Q.2) | 999. REFUSED |

- 1A. About how many days have you been fishing in the Mississippi Delta area in the past year?

_____ days **(READ RESPONSE LIST ONLY IF NECESSARY.)**

- | | |
|------------|------------------------|
| 1. 1 TO 3, | 4. 10 TO 15, OR |
| 2. 4 TO 6, | 5. MORE THAN 15? |
| 3. 7 TO 9, | 998. DON'T KNOW |
| | 999. REFUSED |

2. What are some of the reasons why you fish? **(SHOW CARD A AND CIRCLE ALL THAT APPLY.)**

- | | |
|--|-------------------------|
| 1. To provide food for my family | 8. Like to eat fish |
| 2. To reduce the amount of money spent on food | 9. OTHER, SPECIFY _____ |
| 3. To relax | _____ |
| 4. To spend time outdoors | 998. DON'T KNOW |
| 5. To spend time with friends and/or family | 999. REFUSED |
| 6. Enjoy fishing | |
| 7. To sell the fish/earn money | |

3. When you fish, how often do you give away or trade the fish that you catch to other people? **Would you say...**
- | | |
|-------------------------|------------------------|
| 1. never, | 998. DON'T KNOW |
| 2. rarely, | 999. REFUSED |
| 3. some of the time, | |
| 4. most of the time, or | |
| 5. all of the time? | |
4. **When you fish, how often do you eat the fish you catch? Would you say ...**
- | | |
|-------------------------|------------------------|
| 1. never, | 998. DON'T KNOW |
| 2. rarely, | 999. REFUSED |
| 3. some of the time, | |
| 4. most of the time, or | |
| 5. all of the time? | |
5. When you fish, how often do other people in your household eat the fish you catch? **Would you say ...**
- | | |
|-------------------------|------------------------|
| 1. never, | 998. DON'T KNOW |
| 2. rarely, | 999. REFUSED |
| 3. some of the time, | |
| 4. most of the time, or | |
| 5. all of the time? | |
6. How important are the fish that you catch as a source of food for your family? **Would you say ...**
- | | |
|------------------|------------------------|
| 1. not at all, | 998. DON'T KNOW |
| 2. a little bit, | 999. REFUSED |
| 3. somewhat, or | |
| 4. a lot? | |

B. FISH CONSUMPTION PRACTICES

COMPLETE THIS SECTION IF HH EATS FISH (E4 = 1)

Now I would like to ask you some questions about eating wild-caught fish from the Mississippi Delta. For these questions, please include wild-caught fish that you or family members catch, wild-caught fish that other people catch and give to you, and wild-caught fish that you buy. Do not include commercial pond-raised catfish or fish from the Mississippi River.

8. For you and each person in your household, please tell me the initials of that person starting with yourself, their age, whether they are male or female, about how many ounces of wild-caught fish they usually eat when served at a meal, and about how often they usually eat wild-caught fish from the Mississippi Delta. **IF HH MEMBER DOES NOT EAT FISH, ENTER ZERO FOR AMOUNT EATEN AND ASK Q8A.**

Persons in household <i>(enter initials)</i>	Age <i>(enter age)</i>	Gender <i>(circle one)</i>	Amount eaten in ounces per meal <i>(show card)</i>	Frequency of eating wild-caught fish <i>(enter number) (circle one)</i>		Children under 7: Age when began eating fish <i>(enter age)</i>
_____	_____	M F	_____	___	times per week / month / year	_____
_____	_____	M F	_____	___	times per week / month / year	_____
_____	_____	M F	_____	___	times per week / month / year	_____
_____	_____	M F	_____	___	times per week / month / year	_____
_____	_____	M F	_____	___	times per week / month / year	_____

998. DON'T KNOW

999. REFUSED

IF A HOUSEHOLD MEMBER DOES NOT EAT FISH ASK FOLLOW-UP QUESTION:

8A. Why does he/she not eat fish?

Persons in household (<i>enter initials</i>)	Reason for not eating fish (<i>circle one</i>)				
	Don't like taste	Too young	Not safe	Because of advisory	Other
_____	01	02	03	04	05
_____	01	02	03	04	05
_____	01	02	03	04	05

9. Did you or others in your household eat gar in the past year? **(SHOW PICTURE.)**

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.10) |
| 2. NO (GO TO Q.10) | 999. REFUSED (GO TO Q.10) |

9A. For you and each person in your household, please tell me the initials of that person and about how often they eat gar.

Persons in household (<i>enter initials</i>)	Frequency of eating	
	(<i>enter number</i>)	(<i>circle one</i>)
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year

998. DON'T KNOW
999. REFUSED

10. Did you or others in your household eat carp in the past year? **(SHOW PICTURE.)**

- | | |
|-------------------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.11) |
| 2. NO (GO TO Q.11 ON PAGE 6) | 999. REFUSED (GO TO Q.11) |

10A. For you and each person in your household, please tell me the initials of that person and about how often they eat carp.

Persons in household <i>(enter initials)</i>	Frequency of eating <i>(enter number)</i>	<i>(circle one)</i>
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year

998. DON'T KNOW

999. REFUSED

11. Did you or others in your household eat wild-caught catfish that are smaller than 22 inches in the past year? Do not include commercial pond-raised catfish. **(SHOW PICTURE.)**

1. YES

998. DON'T KNOW

2. NO

999. REFUSED

12. Did you or others in your household eat wild-caught catfish that are longer than 22 inches in the past year? Do not include pond-raised catfish.

1. YES

998. DON'T KNOW **(GO TO Q.13)**

2. NO **(GO TO Q.13)**

999. REFUSED **(GO TO Q.13)**

12A. For you and each person in your household, please tell me the initials of that person and about how often they eat large catfish.

Persons in household <i>(enter initials)</i>	Frequency of eating <i>(enter number)</i>	<i>(circle one)</i>
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year
_____	_____ times per	week / month / year

998. DON'T KNOW

999. REFUSED

13. Did you or others in your household eat buffalo fish in the past year? **(SHOW PICTURE.)**

1. YES

998. DON'T KNOW **(GO TO Q.14)**

2. NO **(GO TO Q.14 ON PAGE 7)**

999. REFUSED **(GO TO Q.14)**

- 13A. For you and each person in your household, please tell me the initials of that person, about how often they eat buffalo fish, and the name of the river or lake where the buffalo fish was caught.

Persons in household <i>(enter initials)</i>	Frequency of eating		Where did you or others catch the fish? <i>(location)</i>
	<i>(enter number)</i>	<i>(circle one)</i>	
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____
_____	_____ times per	week / month / year	_____

998. DON'T KNOW

999. REFUSED

14. Now I would like to know how you usually prepare and cook each of the fish that we just talked about.

Type of fish	Do not eat <i>(check if No)</i>	Do you remove skin before cooking? <i>(circle one)</i>	Do you remove belly fat before cooking? <i>(circle one)</i>	Do you remove the head before cooking? <i>(circle one)</i>	Do you gut the fish and discard internal organs? <i>(circle one)</i>	Do you usually eat the fillet, a steak, or the whole fish? <i>(circle all that apply)</i>	How do you usually cook the fish? <i>(circle all that apply)</i>
Gar	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other
Carp	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other
Catfish (< 22 in)	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other
Catfish (> 22 in)	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other
Buffalo fish	<input type="checkbox"/>	Y or N	Y or N	Y or N	Y or N	Fillet Steak Whole fish	Fry / Grill Soup / Stew Broil / Bake Other

998. DON'T KNOW

999. REFUSED

C. DETERMINE IF RESPONDENT IS AWARE OF MISSISSIPPI DELTA ADVISORY

ALL RESPONDENTS COMPLETE THIS SECTION

15. How safe do you think it is to eat wild-caught buffalo fish, carp, gar, and large catfish from the Mississippi Delta, would you say that it is ...
- | | |
|----------------------|-----------------|
| 1. not very safe, | 998. DON'T KNOW |
| 2. somewhat safe, or | 999. REFUSED |
| 3. very safe? | |
16. How safe do you think it is to eat other types of wild-caught fish, those not previously mentioned, from the Mississippi Delta?
- | | |
|----------------------|-----------------|
| 1. not very safe, | 998. DON'T KNOW |
| 2. somewhat safe, or | 999. REFUSED |
| 3. very safe? | |
17. Are you aware of any warnings or advisories about eating wild-caught fish from the Mississippi Delta? **[IF RESPONDENT IS NOT SURE OR CANNOT RECALL:** These advisories were first issued in 2001–2002. The advisory recommends that you don't eat too much of certain fish because of chemicals in the fish.]
- | | |
|---|---|
| 1. YES (GO TO SECTION E ON PAGE 11) | 998. DON'T KNOW (COMPLETE SECTION D, THEN GO TO SECTION H) |
| 2. NO (COMPLETE SECTION D, THEN GO TO SECTION H) | 999. REFUSED (COMPLETE SECTION D, THEN GO TO SECTION H) |
| 3. I heard of an advisory a few years ago (GO TO SECTION E ON PAGE 11) | |

D. QUESTIONS FOR RESPONDENTS NOT AWARE OF ADVISORY

COMPLETE THIS SECTION IF Q.17 = 2, 998, OR 999

18. The advisory recommends that you should not eat any buffalo fish from Roebuck Lake and that you should not eat more than two meals a month of buffalo fish, carp, gar, and catfish greater than 22 inches from other Mississippi Delta waters. **(SHOW PICTURE OF ADVISORY. IF RESPONDENT NOW RECALLS ADVISORY, CHANGE ANSWER TO QUESTION 17 TO "YES" AND GO TO SECTION E.)**

How believable to you is the information in the advisory, would you say that it is ...

- | | |
|----------------------------|-----------------|
| 1. not very believable, | 998. DON'T KNOW |
| 2. somewhat believable, or | 999. REFUSED |
| 3. very believable? | |
19. In terms of protecting your health, how important do you think it is to follow the advisory's recommendations? Would you say...
- | | |
|---------------------------|-----------------|
| 1. not very important, | 998. DON'T KNOW |
| 2. somewhat important, or | 999. REFUSED |
| 3. very important? | |
20. How difficult would it be for you and your family to limit how much you eat of buffalo fish, carp, gar, and large catfish? Would you say...
- | | |
|---|-----------------|
| 1. not a problem at all, | 998. DON'T KNOW |
| 2. somewhat of a problem, or | 999. REFUSED |
| 3. a very big problem? | |
| 4. DO NOT EAT THESE FISH (GO TO Q.24 ON PAGE 10) | |
21. How likely are you to follow the advisory's recommendations? Would you say ...
- | | |
|------------------------|-----------------|
| 1. not very likely, | 998. DON'T KNOW |
| 2. somewhat likely, or | 999. REFUSED |
| 3. very likely? | |
22. Now that you know about the advisory, how concerned are you about eating wild-caught buffalo fish, carp, gar, and large catfish from the Mississippi Delta? Would you say...
- | | |
|---------------------------|-----------------|
| 1. not very concerned, | 998. DON'T KNOW |
| 2. somewhat concerned, or | 999. REFUSED |
| 3. very concerned? | |

23. In your opinion, if you or members of your household were to eat wild-caught buffalo fish, carp, gar, or large catfish from the Mississippi Delta, how likely is it that you or they would get sick? Would you say...

1. not very likely,
2. somewhat likely, or
3. very likely?

998. DON'T KNOW

999. REFUSED

24. What would you say are the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi Delta? **(SHOW CARD B; CIRCLE ONLY TWO RESPONSES. READ CARD IF NECESSARY.)**

1. Radio
2. Television
3. Newspaper
4. Magazine
5. Post signs at lakes, rivers, and other water sources
6. Mail information to home
7. Internet or Web site
8. Wildlife and fish expos
9. Health fairs
10. Post information and provide brochures at bait shops
11. Post information and provide brochures at fish markets

12. Post information and provide brochures at Women, Infant, and Children (WIC) clinics

13. Post information and provide brochures at doctors' offices, hospitals, and clinics

14. Provide information through local churches

15. Go door to door to provide information

16. Fishing clubs

17. OTHER, SPECIFY _____

998. DON'T KNOW

999. REFUSED

GO TO SECTION H ON PAGE 19

E. QUESTIONS FOR RESPONDENTS AWARE OF ADVISORY

COMPLETE THIS SECTION IF Q.17 = 1 OR 3

25. To the best of your knowledge, tell me what the advisory recommends about eating fish. **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|--|---|
| 1. CANNOT EXPLAIN WHAT THE ADVISORY IS ABOUT | 9. DO NOT EAT MORE THAN TWO MEALS A MONTH OF BUFFALO FISH |
| 2. DO NOT EAT FISH OVER A CERTAIN SIZE | 10. DO NOT EAT MORE THAN TWO MEALS A MONTH OF CARP |
| 3. DO NOT EAT ANY BUFFALO FISH FROM ROEBUCK LAKE | 11. DO NOT EAT MORE THAN TWO MEALS A MONTH OF GAR |
| 4. DO NOT EAT TOO MUCH OF CERTAIN FISH | 12. DO NOT EAT MORE THAN TWO MEALS A MONTH OF LARGE CATFISH |
| 5. DO NOT EAT TOO MUCH BUFFALO FISH | 13. OTHER, SPECIFY _____ |
| 6. DO NOT EAT TOO MUCH CARP | _____ |
| 7. DO NOT EAT TOO MUCH GAR | 998. DON'T KNOW |
| 8. DO NOT EAT TOO MUCH LARGE CATFISH | 999. REFUSED |

The advisory recommends that you should not eat any buffalo fish from Roebuck Lake and that you should not eat more than two meals a month of buffalo fish, carp, gar, and catfish greater than 22 inches from other Mississippi Delta waters. **(SHOW PICTURE OF ADVISORY.)**

26. Are you aware of this particular advisory?

- | | |
|---|---|
| 1. YES | 998. DON'T KNOW (COMPLETE SECTION D, THEN GO TO SECTION H) |
| 2. NO (CHANGE ANSWER TO QUESTION 17 TO "NO" AND GO TO SECTION D, THEN GO TO SECTION H) | 999. REFUSED (COMPLETE SECTION D, THEN GO TO SECTION H) |

27. Do you usually follow the advisory recommendations?

- | | |
|--------|------------------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |

28. How believable to you is the information in the advisory, would you say that it is ...

- | | |
|----------------------------|------------------------|
| 1. not very believable, | 998. DON'T KNOW |
| 2. somewhat believable, or | 999. REFUSED |
| 3. very believable? | |

29. In terms of protecting your health, how important do you think it is to follow the advisory's recommendations? Would you say...
- | | |
|---------------------------|-----------------|
| 1. not very important, | 998. DON'T KNOW |
| 2. somewhat important, or | 999. REFUSED |
| 3. very important? | |
30. How difficult is it for you and your family to limit how much you eat of the fish in the advisory? Would you say...
- | | |
|--|-----------------|
| 1. not a problem at all, | 998. DON'T KNOW |
| 2. somewhat of a problem, or | 999. REFUSED |
| 3. a very big problem? | |
| 4. DO NOT EAT THESE FISH (GO TO Q.32) | |
31. In your opinion, if you or members of your household were to eat wild-caught buffalo fish, carp, gar, or large catfish from the Mississippi Delta, how likely is it that you or they would get sick? Would you say...
- | | |
|------------------------|-----------------|
| 1. not very likely, | 998. DON'T KNOW |
| 2. somewhat likely, or | 999. REFUSED |
| 3. very likely? | |
32. Please think about this advisory when answering the next questions. How did you hear or learn about the advisory? (**CIRCLE ALL THAT ARE MENTIONED.**)
- | | |
|---|--------------------------|
| 1. RADIO NEWS OR TALK SHOW | 7. BROCHURE / PAMPHLET |
| 2. RADIO ADVERTISEMENT | 8. CHURCH |
| 3. TELEVISION NEWS OR TALK SHOW | 9. FAMILY / FRIENDS |
| 4. TELEVISION SHOW | 10. OTHER, SPECIFY _____ |
| 5. NEWSPAPER | _____ |
| 6. SIGNS POSTED AT LAKES /RIVERS / WATER (CIRCLE "1" FOR 34) | 998. DON'T KNOW |
| | 999. REFUSED |
33. Do you believe the advisory is still in effect?
- | | |
|--------|-----------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |
34. Have you seen signs posted about the advisory at places where you fish?
- | | |
|--------------------------|-----------------------------|
| 1. YES | 4. RESPONDENT DOES NOT FISH |
| 2. NO | 998. DON'T KNOW |
| 3. YES, I USED TO SEE IT | 999. REFUSED |

35. Did you get a brochure or pamphlet about the advisory?
- 1. YES
 - 2. NO **(GO TO Q.36)**
 - 998. DON'T KNOW **(GO TO Q.36)**
 - 999. REFUSED **(GO TO Q.36)**

35A. Where did you get or who gave you the brochure or pamphlet? **(CIRCLE ALL THAT ARE MENTIONED.)**

- 1. HEALTH FAIR
 - 2. COMMERCIAL FISHERMAN
 - 3. BAIT SHOP
 - 4. WILDLIFE AND FISH EXPO
 - 5. FISH MARKET
 - 6. WIC CLINIC
 - 7. DOCTOR, HOSPITAL, OR OTHER HEALTH CARE PROVIDER
 - 8. PARK RANGER
 - 9. CHURCH
 - 10. FAMILY / FRIENDS
 - 11. OTHER, SPECIFY _____
998. DON'T KNOW
999. REFUSED

35B. How useful was the brochure or pamphlet? Would you say ...

- 1. not at all useful,
- 2. somewhat useful, or
- 3. very useful?
- 4. DID NOT READ BROCHURE
- 998. DON'T KNOW
- 999. REFUSED

36. Do you know about the toll-free hotline that you can call to get information on the advisory?

- 1. YES
- 2. NO **(GO TO Q.37)**
- 998. DON'T KNOW **(GO TO Q.37)**
- 999. REFUSED **(GO TO Q.37)**

36A. Have you called the advisory hotline?

- 1. YES
- 2. NO **(GO TO Q.37)**
- 998. DON'T KNOW **(GO TO Q.37)**
- 999. REFUSED **(GO TO Q.37)**

36B. How useful was the information you got from the advisory hotline? Would you say ...

- 1. not at all useful,
- 2. somewhat useful, or
- 3. very useful?
- 998. DON'T KNOW
- 999. REFUSED

37. If you have Internet access, have you looked for any information about the advisory online?

- 1. YES
- 2. NO **(GO TO Q.38 ON PAGE 14)**
- 3. DO NOT HAVE INTERNET ACCESS **(GO TO Q.38 ON PAGE 14)**
- 998. DON'T KNOW **(GO TO Q.38)**
- 999. REFUSED **(GO TO Q.38)**

37A. How useful was the information you found online? Would you say ...

- 1. not at all useful, 998. DON'T KNOW
- 2. somewhat useful, or 999. REFUSED
- 3. very useful?

38. Did your church pastor talk about the advisory at all?

- 1. YES 998. DON'T KNOW
- 2. NO 999. REFUSED
- 3. DO NOT ATTEND CHURCH

39. Did your doctor or other health care provider talk with you about the advisory?

- 1. YES 998. DON'T KNOW
- 2. NO 999. REFUSED
- 3. HAVE NOT BEEN TO THE DOCTOR

40. Do you remember seeing or hearing information about the advisory on any of the following TV or radio programs? **(READ LIST AND CIRCLE ONE FOR EACH.)**

	Yes	No	Don't know	Refused
Local TV news or talk show	01	02	998	999
Mississippi Outdoors program on ETV	01	02	998	999
Local radio news or talk show	01	02	998	999
Radio advertisements	01	02	998	999

41. What would you say are the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi Delta? **(SHOW CARD B; CIRCLE ONLY TWO RESPONSES. READ CARD IF NECESSARY.)**

- 1. Radio
 - 2. Television
 - 3. Newspaper
 - 4. Magazine
 - 5. Post signs at lakes, rivers, and other water sources
 - 6. Mail information to home
 - 7. Internet or Web site
 - 8. Wildlife and fish expos
 - 9. Health fairs
 - 10. Post information and provide brochures at bait shops
 - 11. Post information and provide brochures at fish markets
 - 12. Post information and provide brochures at Women, Infant, and Children (WIC) clinics
 - 13. Post information and provide brochures at doctors' offices, hospitals, and clinics
 - 14. Provide information through local churches
 - 15. Go door to door to provide information
 - 16. Fishing clubs
 - 17. OTHER, SPECIFY _____
998. DON'T KNOW
999. REFUSED

F. SELF-REPORTED CHANGES IN FISHING PRACTICES

COMPLETE THIS SECTION IF HH FISHES (E1=1) AND RESPONDENT IS AWARE OF ADVISORY (Q.17 = 1 or 3)

42. After learning about the advisory, did you make any changes in your fishing practices, such as how often you fish, where you fish, or the types of fish that you catch?
1. YES 998. DON'T KNOW
2. NO (**GO TO SECTION G**) 999. REFUSED
43. After learning about the advisory, did you change how often you usually fish in Mississippi Delta waters? Do you fish ...
1. more often, 998. DON'T KNOW
2. about the same amount of time, or 999. REFUSED
3. less often?
44. After learning about the advisory, did you change the locations where you usually go fishing in the Mississippi Delta? Do you fish ...
1. in the same places or 998. DON'T KNOW
2. in different places? 999. REFUSED
45. Before learning about the advisory, did you ever fish in Roebuck Lake in Leflore County? (**SHOW ON MAP, IF NECESSARY.**)
1. YES 998. DON'T KNOW
2. NO 999. REFUSED
46. Since learning about the advisory, have you fished in Roebuck Lake?
1. YES 998. DON'T KNOW
2. NO 999. REFUSED
47. After learning about the advisory, did you make any changes in the types of fish that you usually fish for in the Mississippi Delta? Do you fish ...
1. for the same types of fish or (**GO TO SECTION G**) 998. DON'T KNOW (**GO TO SECTION G**)
2. different types of fish? 999. REFUSED (**GO TO SECTION G**)
- 47A. Tell me about the changes you made in the types of fish that you fish for in the Mississippi Delta. (**RECORD RESPONSE.**)

998. DON'T KNOW
999. REFUSED

G. SELF-REPORTED CHANGES IN FISHING CONSUMPTION

COMPLETE THIS SECTION IF HH EATS FISH (E4 =1) AND RESPONDENT IS AWARE OF ADVISORY (Q.17 = 1 or 3)

48A. Before learning about the advisory, did you eat any of the following types of fish?
(READ LIST AND CIRCLE IF YES.)

- | | |
|----------------------------------|-----------------|
| 1. Buffalo fish | 998. DON'T KNOW |
| 2. Carp | 999. REFUSED |
| 3. Gar | |
| 4. Catfish longer than 22 inches | |

48B. Since learning about the advisory, what types of wild-caught fish have you stopped eating? **(CIRCLE ALL THAT ARE MENTIONED.)** NOTE: IF RESPONDENT SAYS "CATFISH," PROBE: Any specific size of catfish?; IF RESPONDENT SAYS "BIG FISH," PROBE: Any specific type of fish?

- | | |
|--------------------------------|-------------------------|
| 1. BUFFALO | 6. SMALL CATFISH |
| 2. CARP | 7. OTHER, SPECIFY _____ |
| 3. GAR | _____ |
| 4. CATFISH | 8. NONE |
| 5. LARGE CATFISH (> 22 inches) | 998. DON'T KNOW |
| | 999. REFUSED |

49. Since learning about the advisory, what types of wild-caught fish do you eat less of now? **(CIRCLE ALL THAT ARE MENTIONED.)** NOTE: IF RESPONDENT SAYS "CATFISH," PROBE: Any specific size of catfish?; IF RESPONDENT SAYS "BIG FISH," PROBE: Any specific type of fish?

- | | |
|--------------------------------|-------------------------|
| 1. BUFFALO | 6. SMALL CATFISH |
| 2. CARP | 7. OTHER, SPECIFY _____ |
| 3. GAR | _____ |
| 4. CATFISH | 8. NONE |
| 5. LARGE CATFISH (> 22 inches) | 998. DON'T KNOW |
| | 999. REFUSED |

SKIP Q. 50 IF Q.48 AND Q.49 = 8

50. Since you cut back or stopped eating certain wild-caught fish, what are you eating instead? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|--|---|
| 1. EAT OTHER TYPES OF FISH / DRUM / BREEM / LARGE MOUTH BASS / CRAPPIE / FISH THAT ARE NOT IN THE ADVISORY | 5. HAVE LESS FOOD TO EAT NOW |
| 2. EAT FARM / POND-RAISED CATFISH INSTEAD | 6. BUY AND EAT CHICKEN INSTEAD |
| 3. BUY FISH FROM FISH MARKET OR GROCERY STORE INSTEAD | 7. BUY AND EAT BEEF / PORK / MEAT INSTEAD |
| 4. EAT SMALLER FISH INSTEAD | 8. OTHER, SPECIFY _____ |
| | 998. DON'T KNOW |
| | 999. REFUSED |

51. Since learning about the advisory, what types of wild-caught fish do you eat more of now? **(CIRCLE ALL THAT ARE MENTIONED.)** NOTE: IF RESPONDENT SAYS "CATFISH," PROBE: Any specific size of catfish?; IF RESPONDENT SAYS "BIG FISH," PROBE: Any specific type of fish?

- | | |
|--------------------------------|-------------------------|
| 1. BUFFALO | 6. SMALL CATFISH |
| 2. CARP | 7. OTHER, SPECIFY _____ |
| 3. GAR | 8. NONE |
| 4. CATFISH | 998. DON'T KNOW |
| 5. LARGE CATFISH (> 22 inches) | 999. REFUSED |

52. After learning about the advisory, did you change the size of wild-caught fish from the Mississippi Delta that you eat?

- | | |
|--------------------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.53) |
| 2. NO (GO TO Q.53 ON PAGE 18) | 999. REFUSED (GO TO Q.53) |

52A. After learning about the advisory, do you usually eat ...

- | | |
|---|-------------------------------------|
| 1. larger fish, (GO TO Q.53 ON PAGE 18) | 998. DON'T KNOW (GO TO Q.53) |
| 3. smaller fish, or | 999. REFUSED (GO TO Q.53) |
| 4. smaller-sized fish for some types of fish and the same size for other types of fish? | |

52B. For what types of fish do you eat smaller-sized fish? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|------------|-------------------------|
| 1. BUFFALO | 7. LARGE MOUTH BASS |
| 2. CARP | 8. CRAPPIE |
| 3. GAR | 9. OTHER, SPECIFY _____ |
| 4. CATFISH | _____ |
| 5. DRUM | 998. DON'T KNOW |
| 6. BREAM | 999. REFUSED |

53. After learning about the advisory, did you make any changes in how you prepare or cook wild-caught fish from the Mississippi Delta?

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.54) |
| 2. NO (GO TO Q.54) | 999. REFUSED (GO TO Q.54) |

53A. Which of the following changes did you make? **(SHOW CARD C WITH LIST; CIRCLE ALL THAT APPLY.)**

- | | |
|--|---|
| 1. Started removing skin from fish before cooking | 5. Stopped making fish stew or soup |
| 2. Started removing belly fat from fish before cooking | 6. Started broiling, baking, or grilling fish instead of frying |
| 3. Started eating fillets instead of whole fish | 7. OTHER, SPECIFY _____ |
| 4. Stopped frying fish or fry fish less often | _____ |
| | 998. DON'T KNOW |
| | 999. REFUSED |

54. After learning about the advisory, were any changes made in the types and amount of wild-caught fish or how fish was prepared and cooked for children under the age of 7?

- | | |
|--|-------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.55) |
| 2. NO (GO TO Q.55 ON PAGE 19) | 999. REFUSED (GO TO Q.55) |
| 3. DO NOT PREPARE AND COOK FISH FOR CHILDREN (GO TO Q.55) | |

54A. What kind of changes were made? **(RECORD RESPONSE.)**

998. DON'T KNOW
999. REFUSED

H. DEMOGRAPHICS

ALL RESPONDENTS COMPLETE THIS SECTION
--

Now I would like to ask you a few questions about yourself. Remember, all the information you provide will be kept completely confidential.

55. RECORD GENDER.

1. MALE
2. FEMALE

998. DON'T KNOW

999. REFUSED

55A. What is your age?

_____ **(READ RESPONSE LIST ONLY IF NECESSARY.)**

1. 18 to 24
2. 25 to 34
3. 35 to 44
4. 45 to 54

5. 55 to 64

6. 65 to 74

7. 75 or older

998. DON'T KNOW

999. REFUSED

56. What is the highest level of education that you have completed?

1. 5TH GRADE OR LESS
2. 6TH TO 8TH GRADE
3. 9TH TO 11TH GRADE
4. HIGH SCHOOL DIPLOMA OR GED
5. SOME COLLEGE
6. 2-YEAR COLLEGE DEGREE

7. 4-YEAR COLLEGE DEGREE

8. ADVANCED DEGREE

998. DON'T KNOW

999. REFUSED

57. **RECORD ETHNICITY; IF NECESSARY ASK QUESTION**

Are you Hispanic or Latino?

1. YES
2. NO

998. DON'T KNOW

999. REFUSED

58. **RECORD RACE; IF NECESSARY ASK QUESTION AND SHOW CARD D**

What is your race?

1. White
2. Black or African American
3. Asian
4. Native Hawaiian or other Pacific Islander
5. American Indian or Alaska Native

998. DON'T KNOW

999. REFUSED

59. What is your marital status?
- | | |
|-------------------------|------------------------|
| 1. SINGLE | 5. LIVING WITH PARTNER |
| 2. MARRIED | 998. DON'T KNOW |
| 3. DIVORCED / SEPARATED | 999. REFUSED |
| 4. WIDOWED | |
60. Including yourself, how many people 18 years of age or older live in your household?
- | | |
|------|------------------------|
| 1. 1 | 4. 4 |
| 2. 2 | 5. 5 OR MORE |
| 3. 3 | 998. DON'T KNOW |
| | 999. REFUSED |
61. How many people under 18 years of age live in your household?
- | | |
|-----------------------------|------------------------|
| 1. None (GO TO Q.62) | 5. 4 |
| 2. 1 | 6. 5 OR MORE |
| 3. 2 | 998. DON'T KNOW |
| 4. 3 | 999. REFUSED |
- 61A. How many people under 5 years of age live in your household?
- | | |
|---------|------------------------|
| 1. None | 5. 4 |
| 2. 1 | 6. 5 OR MORE |
| 3. 2 | 998. DON'T KNOW |
| 4. 3 | 999. REFUSED |
62. Which of the following best describes your work status? Are you ...
- | | |
|------------------------|-------------------------|
| 1. employed full time, | 8. OTHER, SPECIFY _____ |
| 2. employed part time, | _____ |
| 3. unemployed, | 998. DON'T KNOW |
| 4. retired, | 999. REFUSED |
| 5. disabled, | |
| 6. a student, or | |
| 7. a homemaker? | |
63. Do you have a current sport fishing license for the state of Mississippi? Do not include commercial fishing licenses.
- | | |
|--------|------------------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |
- 63A. Do you have a working phone number for your household, either a regular phone or cell phone?
- | | |
|--------|------------------------|
| 1. YES | 998. DON'T KNOW |
| 2. NO | 999. REFUSED |

64. What was your total household income in 2008 before taxes? Include income from all persons living in your house. **(SHOW CARD E. CIRCLE ONE. IF RESPONDENT IS RELUCTANT TO RESPOND REMIND HIM / HER THAT THE INFORMATION WILL BE KEPT CONFIDENTIAL AND ONLY USED FOR ANALYSIS PURPOSES.)**

1. less than \$9,999

2. \$10,000–19,999

3. \$20,000–29,999

4. \$30,000–39,999

5. \$40,000–49,999

6. \$50,000 or more

998. DON'T KNOW

999. REFUSED

I. AWARENESS OF NATIONAL ADVISORY ON MERCURY IN FISH AND SHELLFISH

ALL RESPONDENTS COMPLETE THIS SECTION

We're almost done with the interview. My last questions are about fish and shellfish in general, not necessarily those caught in the Mississippi Delta. By fish and shellfish, I mean all types of fish and shellfish including tuna fish, fish sticks, shrimp, oysters, crab, and so on.

65. Have you heard anything about it being healthy to eat fish and shellfish?

- | | |
|-----------------------------|---------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.66) |
| 2. NO (GO TO Q.66) | 999. REFUSED (GO TO Q.66) |

65A. What health benefits have you heard of? (**CIRCLE ALL THAT ARE MENTIONED.**)

- | | |
|--------------------------------------|---------------------------------|
| 1. GENERALLY HEALTHY / NUTRITIOUS | 8. ANTIOXIDANT / GOOD FOR SKIN |
| 2. LOW FAT | 9. PROVIDES VITAMINS / MINERALS |
| 3. BRAIN FOOD | 10. HIGH PROTEIN |
| 4. HEART HEALTHY | 11. OIL / FISH OIL |
| 5. OMEGA-3 FATTY ACIDS | 12. OTHER, SPECIFY _____ |
| 6. CHOLESTEROL LOWERING | _____ |
| 7. LOW CALORIE / AIDS IN WEIGHT LOSS | 998. DON'T KNOW |
| | 999. REFUSED |

66. Have you heard of any health problems from eating fish or shellfish, other than the Mississippi Delta advisory that we've already talked about?

- | | |
|-----------------------------|---------------------------------------|
| 1. YES | 998. DON'T KNOW (GO TO Q.67) |
| 2. NO (GO TO Q.67) | 999. REFUSED (GO TO Q.67) |

66A. What health problems have you heard of? (**CIRCLE ALL THAT ARE MENTIONED.**)

- | | |
|---|-----------------------------|
| 1. MERCURY / METHYL MERCURY (GO TO Q.67A ON PAGE 23) | 8. PESTICIDES |
| 2. PCBs | 9. CHEMICALS |
| 3. DIOXIN | 10. POLLUTION/CONTAMINATION |
| 4. VIBRIO | 11. FOOD POISONING |
| 5. HEPATITIS | 12. OTHER, SPECIFY _____ |
| 6. GERMS / PARASITES / BACTERIA | _____ |
| 7. ALLERGIES | 998. DON'T KNOW |
| | 999. REFUSED |

67. Have you heard anything about mercury as a problem in some fish or shellfish?

- | | |
|-----------------------------|---------------------------------------|
| 1. YES | 998. DON'T KNOW (END SURVEY) |
| 2. NO (END SURVEY) | 999. REFUSED (END SURVEY) |

67A. What kinds of fish or shellfish have mercury problems? **(IF RESPONDENT ANSWERS "TUNA," PROBE FOR TYPE. CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|---------------------------------|--------------------------|
| 1. GENERAL TUNA | 9. TILE FISH |
| 2. TUNA STEAK | 10. SALMON |
| 3. CANNED TUNA | 11. SHELLFISH |
| 4. ALBACORE OR CHUNK WHITE TUNA | 12. ANY LARGE FISH |
| 5. LIGHT TUNA | 13. OTHER, SPECIFY _____ |
| 6. SWORDFISH | _____ |
| 7. SHARK | 998. DON'T KNOW |
| 8. KING MACKEREL | 999. REFUSED |

67B. Have you heard of any particular group of people who are advised to be especially careful not to eat too much fish or shellfish that might have mercury?

- | | |
|---------------------------|-------------------------------------|
| 1. YES | 998. DON'T KNOW (END SURVEY) |
| 2. NO (END SURVEY) | 999. REFUSED (END SURVEY) |

67C. Which group of people should not eat too much fish or shellfish that might have mercury? **(CIRCLE ALL THAT ARE MENTIONED.)**

- | | |
|--|-------------------------|
| 1. PREGNANT WOMEN OR WOMEN WHO MIGHT BECOME PREGNANT | 4. OTHER, SPECIFY _____ |
| 2. NURSING MOTHERS | _____ |
| 3. YOUNG CHILDREN | 998. DON'T KNOW |
| | 999. REFUSED |

***Thank you for completing the survey!
Give respondent information on the advisories.***

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**APPENDIX C:
SURVEY MATERIALS**

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Informed Consent Form
Consent to Participate in RTI Research

Introduction

You are being asked to take part in a research study. Before you decide if you want to take part in this study, you need to read this Informed Consent form so that you understand what the study is about and what you will be asked to do. This form also tells you who can be in the study, the risks and benefits of the study, how we will protect your information, and who you can call if you have questions. Please ask the interviewer to explain anything you don't understand before you make your decision.

Purpose

This research study is being conducted by the Mississippi Department of Environmental Quality (MDEQ), the U.S. Environmental Protection Agency (EPA) and the U.S. Food and Drug Administration (FDA). Contractor support is being provided by RTI International and Three States Interviewing Service under a contract with EPA. You are one of about 1,000 adults who will take part in this study.

Procedures

If you agree to participate, you will be asked to take part in an interview about your fishing and fish consumption practices.

Study Duration

The interview will take about 15 to 20 minutes.

Possible Risks or Discomforts

You can refuse to answer any question or you may take a break at any time during the interview.

Benefits

There are no direct benefits to you from participating in this study. Your survey answers will help EPA improve future fish consumption advisories.

Payment for Participation

You will not be paid to take part in this study.

Confidentiality

Many precautions have been taken to protect your information. Your name will be not be attached to your survey responses. Other personal information like your address will be stored separately from the answers you provide during the interview. If the results of this study are presented at scientific meetings or published in scientific journals, no information will be included that could identify you or your answers personally.

The Institutional Review Boards (IRBs) at FDA and RTI International have reviewed this research. An IRB is a group of people who are responsible for assuring that the rights of participants in research are protected. The IRB may review the records of your participation in this research to assure that proper procedures were followed. A representative of the IRB may contact you for information about your experience with this research. This representative will be given your name, but will not be given any of your confidential study data. If you wish, you may refuse to answer any questions this person may ask.

Informed Consent Form

Future Contacts

We will not contact you in the future.

Your Rights

Your decision to take part in this research study is completely voluntary. You can refuse any part of the study and you can stop participating at any time. You can refuse to answer any question. If you decide to participate and later change your mind, you will not be contacted again or asked for further information.

Your Questions

If you have any questions about the study, you may call Sheryl Cates of RTI at 1-800-334-8571, extension 26810, Amy Lando of FDA at 301-436-1996, or Jeff Bigler of EPA at 202-566-0389. If you have any questions about your rights as a study participant, you may call RTI's Office of Research Protection at 1-866-214-2043.

Your signature (or mark) below indicates that you have been read (or been read) the information provided above, have received answers to your questions, and have freely decided to take part in this research. By agreeing to take part in this research, you are not giving up any of your legal rights.

Date

Signature (or Mark) of Participant

Printed Name of Participant

If the participant is unable to read this form, a witness must sign here:

Note: the witness should not be the person who obtains consent.

I was present while this consent document was read to the above research participant. The participant was given an opportunity to ask questions about being in this study and I believe that he/she has agreed to take part in the research.

Date

Signature of Witness

Printed Name of Witness

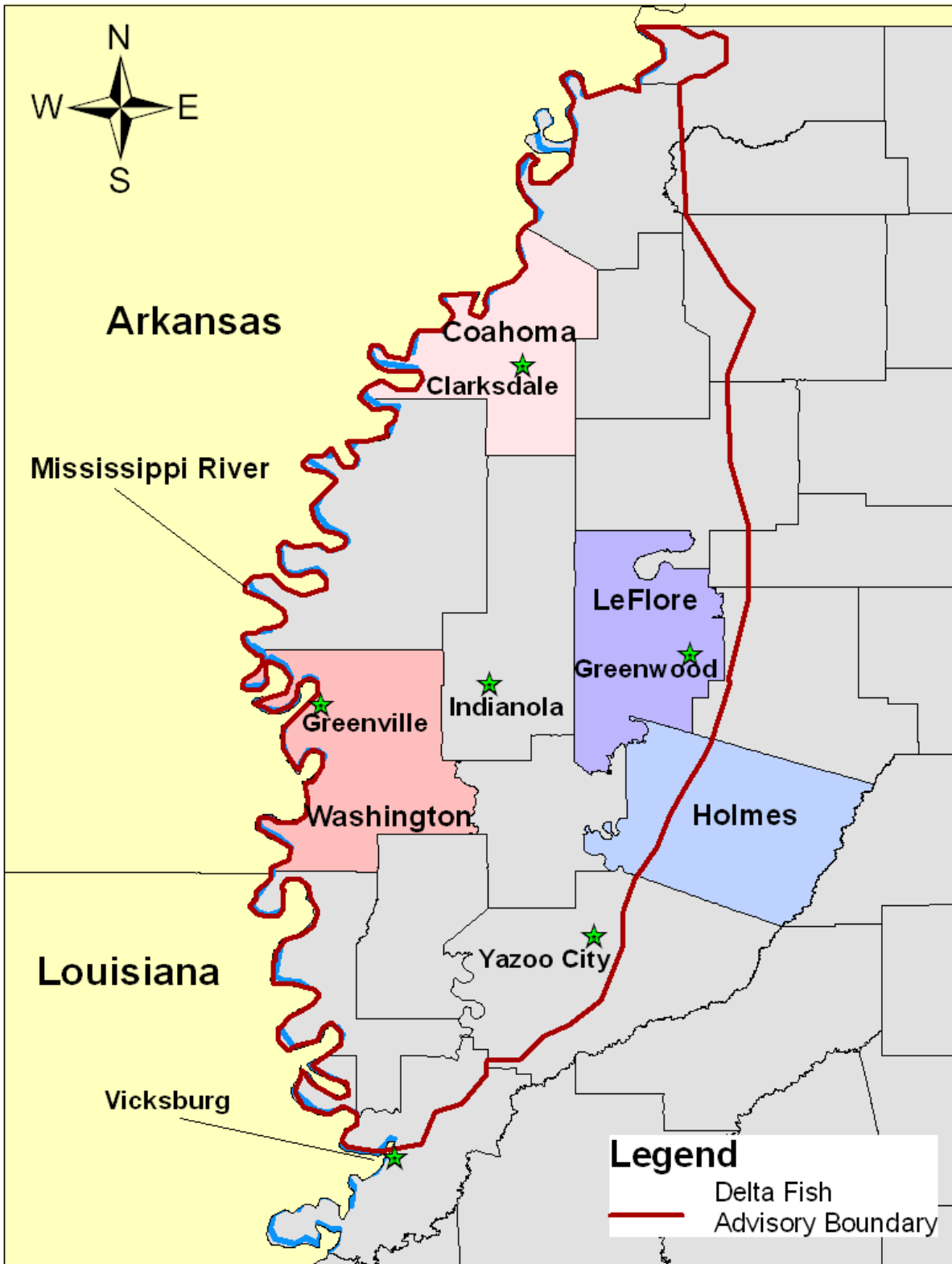
I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above-named individual.

Date

Signature of Person Obtaining Consent

Printed Name of Person Obtaining Consent

Map of Advisory



Portion Size Aid
Serving Sizes for Fish

4 oz.



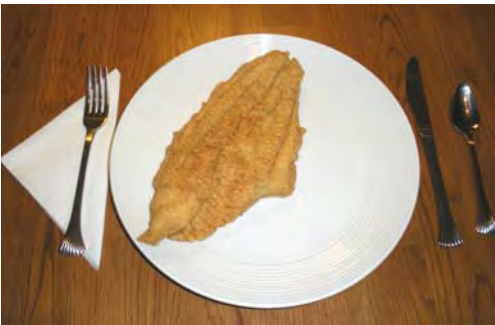
6 oz.



8 oz.

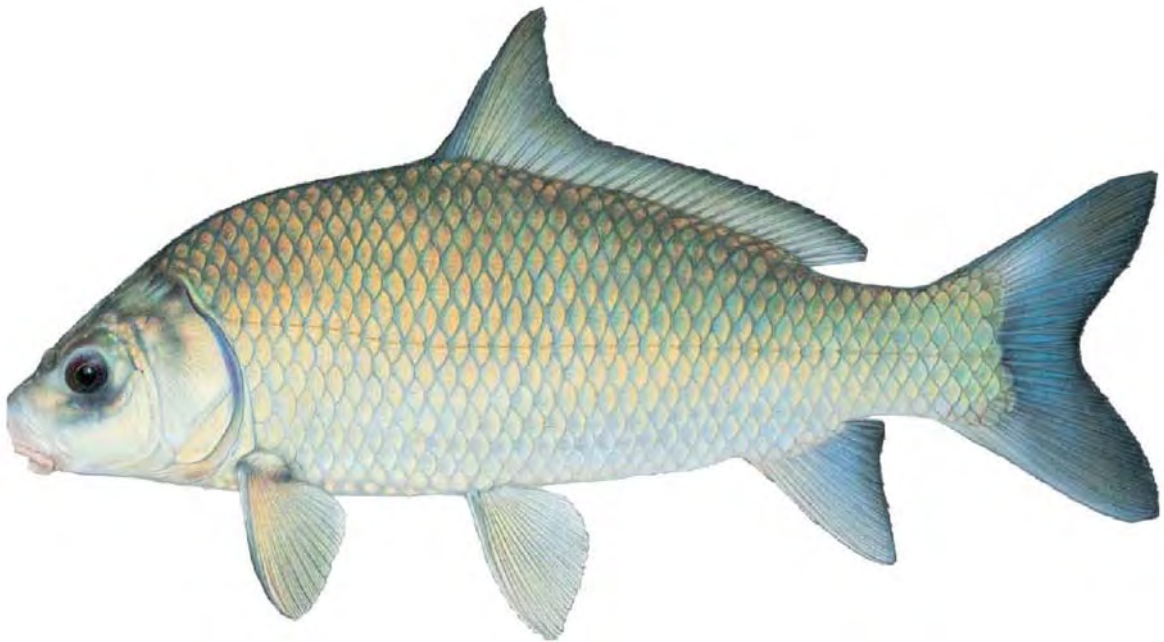


10 oz.



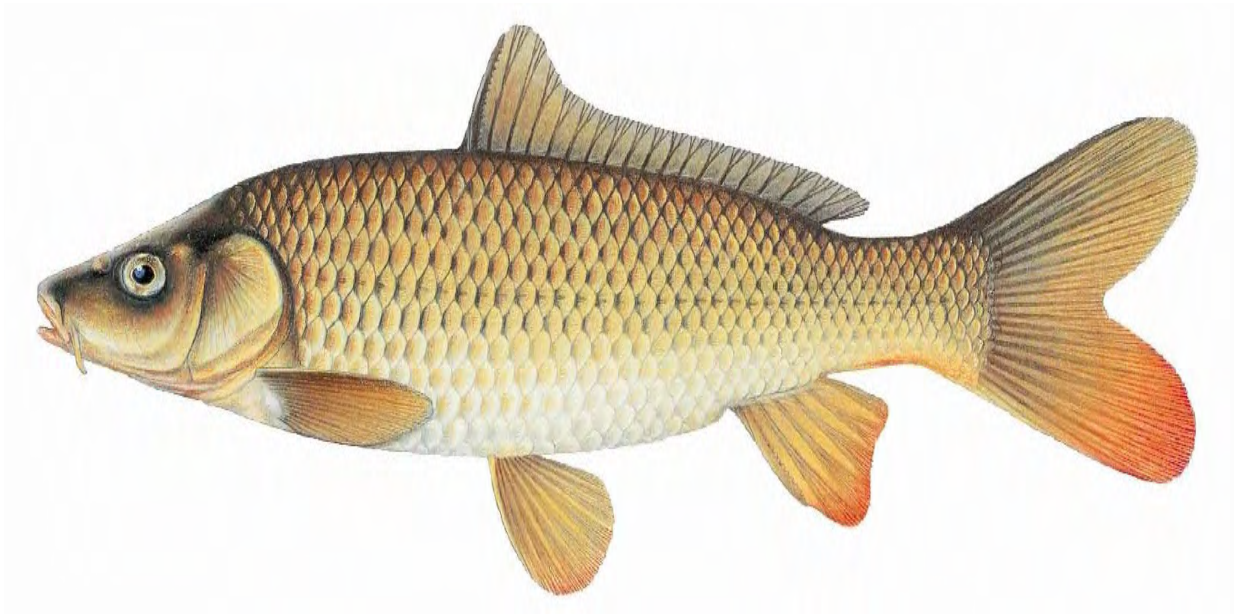
Pictures of the Fish Species Included in the Advisory

Buffalo Fish



Pictures of the Fish Species Included in the Advisory

Carp



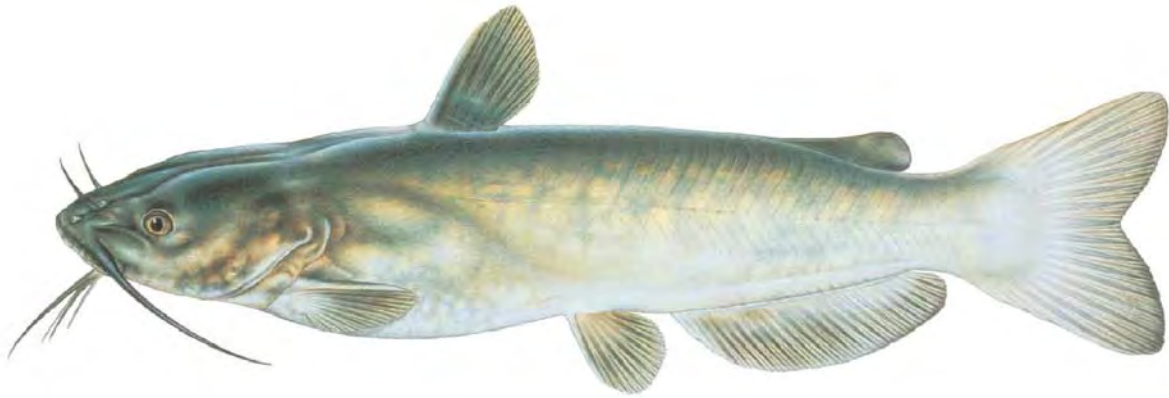
Pictures of the Fish Species Included in the Advisory

Gar



Pictures of the Fish Species Included in the Advisory

Catfish



Cards that Respondents Used during the Interview

CARD A

Question 2

What are some of the reasons why you fish?

1. To provide food for my family
2. To reduce the amount of money spent on food
3. To relax
4. To spend time outdoors
5. To spend time with friends and / or family
6. Enjoy fishing
7. To sell the fish / earn money
8. Like to eat fish
9. Other, specify

Cards that Respondents Used during the Interview

CARD B

Questions 24 & 41

What would you say are the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi Delta?

1. Radio
2. Television
3. Newspaper
4. Magazine
5. Post signs at lakes, rivers, and other water sources
6. Mail information to home
7. Internet or Web site
8. Wildlife and fish expos
9. Health fairs
10. Post information and provide brochures at bait shops
11. Post information and provide brochures at fish markets
12. Post information and provide brochures at Women, Infant, and Children (WIC) clinics
13. Post information and provide brochures at doctors' offices, hospitals, and clinics
14. Provide information through local churches
15. Go door to door to provide information
16. Fishing clubs
17. Other way, specify

Cards that Respondents Used during the Interview

CARD C

Question 53A

Which of the following changes did you make?

1. Started removing skin from fish before cooking
2. Started removing belly fat from fish before cooking
3. Started eating fillets instead of whole fish
4. Stopped frying fish or fry fish less often
5. Stopped making fish stew or soup
6. Started broiling, baking, or grilling fish instead of frying
7. Other, specify

Cards that Respondents Used during the Interview

CARD D

Question 58

What is your race?

1. White
2. Black or African American
3. Asian
4. Native Hawaiian or Other Pacific Islander
5. American Indian or Alaska Native

Cards that Respondents Used during the Interview

CARD E

Question 64

What was your total household income in 2008 before taxes? Include income from all persons living in your house.

1. less than \$9,999
2. \$10,000–19,999
3. \$20,000–29,999
4. \$30,000–39,999
5. \$40,000–49,999
6. \$50,000 or more

Picture of the Advisory

DELTA FISH ADVISORY

KEY FOR FISH BELOW



The advisory key is presented in a vertical column on the left, featuring three colored circles: red at the top, yellow in the middle, and green at the bottom. To the right of these circles are three horizontal bands, each with a background color matching the circle. The top band is red and contains an illustration of a Buffalo fish. The middle band is yellow and contains illustrations of Buffalo, Gar, Carp, and Large Catfish. The bottom band is green and contains illustrations of Drum, Bream, Small Catfish, Largemouth Bass, and Crappie.

Color	Fish Species	Advisory
Red	Buffalo	DO NOT EAT ANY BUFFALO FISH FROM ROEBUCK LAKE
Yellow	Buffalo, Gar, Carp, Large Catfish (Greater than 27 in.)	DO NOT EAT MORE THAN TWO MEALS PER MONTH OF THESE FISH
Green	Drum, Bream, Small Catfish (Less than 22 in.), Largemouth Bass, Crappie	NO LIMIT ON THESE FISH

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

For more information call toll free - 1-888-786-0661



**APPENDIX D:
WEIGHTING PROCEDURES**

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D.1 On-the-Bank Survey

With the information collected at each access point, coupled with the site selection process, survey weights and inflation factors were developed to adjust for deviations from sample design, such as variable nonresponse. The inflation factors can be used to infer estimates at the population level with measurable levels of sampling precision.

The first-stage sampling weight was calculated as the inverse of the probability of selection for each waterbody. The probability of selection was calculated as the measure of size divided by the selection interval for systematic sampling. For large waterbodies with probabilities of selection greater than one, the probability of selection was truncated at one. Because Lake Jackson was selected in addition to Lake Tchula, Lake Jackson was given the same probability of selection as Lake Tchula. The sampled waterbodies and their respective probabilities of selection are given in Table D-1.

The second- and third-stage sampling weights take into account the number of days each site was visited (second-stage) and the amount of time spent at each site on each day (third stage). The sampling period began on October 6, 2009, and continued through October 25, 2009. The second-stage sampling weight was calculated for each site as the number of days in the sampling period (21) divided by the number of days that site was visited by the interviewers. The third-stage sampling weight was calculated as the approximate number of daylight hours in that day divided by the number of hours spent each day at each site. The total number of daylight hours was calculated as the time between sunrise and sunset on each day in Grenada, Miss., a location central to all four counties in the sampling frame. Because some of the interviewers did not return their site information forms for every day, there were a few days for which the number of hours spent on site were not available. For these days, this value was imputed as the mean number of hours spent at that site over all other days.

A nonresponse adjustment was calculated as the number of eligible anglers divided by the number of anglers who completed the interview. This was calculated for each of the implicit strata created by sorting the frame by interview potential, type of water body, and county.

The final weight is the product of the three sampling weights and the nonresponse adjustment. Table D-2 provides summary statistics for the weights for the on-the-bank survey.

Table D-1. Sampled Waterbodies for the On-the-Bank Survey

Waterbody Name	County	Waterbody Type	Interview Potential^a	Shoreline Length (km)^b	Measure of Size^c	Probability of Selection
Brushy Lake	Washington	Lake	Unknown	2.30	2.30	0.0294
Yazoo Pass	Coahoma	River	Low	45.03	45.03	0.5762
Black Creek	Holmes	River	Low	50.00	50.00	0.6399
Minter City Oil Mill	Leflore	River	Low	15.96	15.96	0.2042
Yalobusha River	Leflore	River	Low	50.00	50.00	0.6399
Old River	Washington	River	Unknown	40.90	40.90	0.5234
Steele Bayou	Washington	River	Low	32.80	32.80	0.4197
Tchula H	olmes	Lake	Moderate	48.64	97.28	1.0000
Sidon Cutoff	Leflore	Lake	Moderate	14.67	29.34	0.3755
Big Sunflower	Washington	River	Moderate	50.00	100.00	1.0000
Deer Creek	Washington	River	Moderate	50.00	100.00	1.0000
Moon Lake	Coahoma	Lake	High	27.51	110.06	1.0000
Bee Lake	Holmes	Lake	High	48.91	195.65	1.0000
Horseshoe Lake	Holmes	Lake	High	45.04	180.14	1.0000
Round Lake	Leflore	Lake	High	14.50	58.00	0.7422
Lake Jackson	Washington	Lake	Moderate	19.55	39.10	1.0000
Reserve Sample						
Roundaway Lake	Coahoma	Lake	Moderate	4.49	8.98	0.1364
Blue Lake	Leflore	Lake	Moderate	14.63	29.26	0.4445
Tallahatchie Lef	lore	River	Low	50.00	50.00	0.3586
Parker Bayou	Holmes	River	Low	5.74	5.74	0.0412

^a Two fisheries biologists from the MDWFP subjectively assigned an interview potential of very low, low, moderate, or high based on their knowledge of the waterbodies. Waterbodies with unknown interview potential were assigned an interview potential of “low.”

^b Lake shorelines were measured by the circumference of the lake. River shorelines were measured by the length of the river within the advisory area multiplied by two. Rivers with shoreline lengths longer than 50 km were truncated to 50 km.

^c The measure of size was used in the systematic sampling, with measure of size equal to the shoreline length times the interview potential (1 = low, 2 = moderate, 4 = high).

Table D-2. Distribution of Weights for the On-the-Bank Survey

Statistic	First Sampling Weight	Second Sampling Weight	Third Sampling Weight	Nonresponse Adjustment	Final Weight	Scaled Final Weight
Min	1	1.91	1.33	1	4.08	0.15
Mean	3.43	4.43	5.07	1.05	79.12	1.00
Max	33.96	21	27.08	1.15	656.69	2.15
Unequal Weighting Effect (UWE)						1.65

As shown in Table D-2, the spread between the minimum and maximum final weights is quite large. To reduce the variance while maintaining the distribution of the weights as much as possible, the final weights were truncated to 60, the approximate 65th percentile. The variation in the weights can be measured by calculating the unequal weighting effect (UWE) as follows:

$$UWE = n \frac{\sum w^2}{(\sum w)^2}.$$

Finally, the truncated weights were scaled. That is, the size of the weights was reduced, while maintaining the distribution, so that the weights sum to the number of completes for the on-the-bank survey ($n = 413$).

Demographic information on anglers in the Mississippi Delta region is not readily available. Therefore, no poststratification adjustments were made to the weights for the on-the-bank survey.

D.2 Household Survey

The sample for the household survey was drawn using an address-based sampling (ABS) frame. Tables D-3 and D-4 provide information on the sample frame and sample distribution for the household survey. The weighting and poststratification procedures for the household survey are described below.

Table D-3. Sample Distribution for Household Survey by Census Block Group (CBG), Income Strata, County, and Replicate

Sample Replicate	County (ZIP code)	CBG Income Strata ^a	CBG ID	LMA Sample
Sample Replicate A	Coahoma (28027)	Low	280279504002	34
			280279505004	69
			280279505005	25
			280279506002	46
		Medium	280279507003	35
		High	280279502003	61
	Holmes (28051)	Low	280519502003	60
			280519505003	53
		Medium	280519501002	64
	Leflore (28083)	Low	280839502003	28
			280839503003	71
			280839508002	60
			280839508004	28
			280839509001	78
		Medium	280839504002	54
	Washington (28151)	Low	281510002001	49
			281510004004	58
			281510006002	54
			281510006004	34
			281510013001	70
Medium		281510004005	59	
		281510012001	42	
		281510012004	92	
High		281510007001	72	
		281510008001	100	
	281510014004	37		
	281510017003	61		
Total for Sample Replicate A				1,525
Sample Replicate B	Coahoma (28027)	Medium	280279505001	45
		High	280279505002	60
	Holmes (28051)	Medium	280519502001	41
	Leflore (28083)	Medium	280839509005	59
		High	280839504003	105
	Washington (28151)	Medium	281510001001	22
		High	281510003001	36
281510009002			58	
Total for Sample Replicate B				426

^a Low income = ≤ \$19,939; Medium income = \$19,940–\$30,769; High income = ≥ \$30,770.

Notes: CBG = Census block group, LMA = locatable mailing addresses

Table D-4. Household Survey Sampling Frame and Sample Distribution by County and Income Strata^a

County (ZIP code)	CBG Income Strata	Frame		Sample		Sample Replicate A		Sample Replicate B	
		CBG	LMA	CBG	LMA	CBG	LMA	CBG	LMA
Coahoma (28027)	Low	13	4,028	4	174	4	174	0	0
	Medium	8	2,219	2	80	1	35	1	45
	High	7	3,344	2	121	1	61	1	60
Holmes (28051)	Low	7	2,618	2	113	2	113	0	0
	Medium	6	2,905	2	105	1	64	1	41
	High	1	309	0	0	0	0	0	0
Leflore (28083)	Low	12	6,135	5	265	5	265	0	0
	Medium	9	3,132	2	113	1	54	1	59
	High	10	3,760	2	136	1	31	1	105
Washington (28151)	Low	21	6,151	5	265	5	265	0	0
	Medium	17	5,963	4	215	3	193	1	22
	High	23	10,107	6	364	4	270	2	94
Total		134	50,671	36	1,951	28	1,525	8	426

^aLow income = ≤ \$19,939; Medium income = \$19,940–\$30,769; High income = ≥ \$30,770

Notes:

CBG = Census block group

LMA = locatable mailing addresses

D.2.1 Weighting Procedures

Survey weights and inflation factors were developed to account for the sample selection process and to adjust for deviations from sample design, such as variable nonresponse. The inflation factors can be used to infer estimates at the population level with measurable levels of sampling precision.

One sample weight was created for each stage of sampling. The first-stage sampling weight accounts for the selection of the 36 CBGs and was calculated by dividing the measure of size by the selection interval used for the systematic sampling. The second-stage sampling weight accounts for the selection of 1,951 addresses out of the 50,671 addresses in the selected CBGs. This weight was calculated for each stratum (county/income combination) by dividing the total number of addresses in the group by the number of addresses selected. The third sampling weight accounts for the division of the original sample into two replicates. Because Replicate B was not needed, Replicate A was rounded up by the total number of CBGs sampled divided by

the number of CBGs in Replicate A. The fourth sampling weight accounts for the size of each responding household and is equal to the number of people in the household. The combined sampling weight is the product of the four sampling weights.

During the data collection period, the actual eligibility and response rates were much higher than anticipated. Thus, the interviewers were advised to randomly sample from the remaining list of sampled units. As a result, not every sampled unit was contacted for the survey. A subsampling weight was developed to account for this discrepancy. The subsampling weight was calculated for each CBG as the number of units sampled divided by the number of units contacted. For those groups with very large subsampling weights (greater than 60%), groups were collapsed either by income group or census tract or by combining medium- and high-income groups within a county.

The nonresponse adjustment was calculated at the CBG level. CBGs with nonresponse adjustments larger than 2 were collapsed first by Census tract and then by stratum. As with the on-the-bank survey, the final weight was calculated by multiplying the combined sampling weight by the subsampling and nonresponse adjustments.

As in the on-the-bank survey, the difference between the largest and smallest weights was quite large. To keep the variance low, the final weight was truncated at 306.5, the 95th percentile. Finally, the truncated weights were scaled to sum to 604, the number of respondents in the household survey.

D.2.2 Poststratification

Using data from the combined 2006–2008 American Community Survey (ACS) and the 2000 Census, the household survey data were stratified by gender, age, race, ethnicity, and educational attainment. Poststratification occurred at the county level for gender, age, and educational attainment categories. Because of lack of data from ACS, race and ethnicity were poststratified to the levels published in the 2000 Census. Race was poststratified at the county level; however, very few respondents claimed Hispanic origin, so ethnicity was poststratified to the collapsed distribution of all four counties.

After the poststratification adjustment, the difference between the largest and smallest weights was large. Therefore, the weights were truncated on both ends so they would fall between 0.09 and 2.50, the 10th and 90th percentiles, respectively. These truncated weights were rescaled to sum to 604. The distributions of the intermediate and final weights are given in Table D-5.

Table D-5. Distribution of Weights for the Household Survey

Statistic	Combined Sampling Weight	Subsampling Weight	Nonresponse Adjustment	Scaled Weight (Before Poststratification)	Scaled Final Weight
Min	15.17	1.02	1	0.22	0.16
Mean	65.45	1.62	1.22	1.00	1.00
Max	394.88	2.34	1.96	2.62	3.22
Unequal Weighting Effect (UWE)					1.98

Table D-6 gives the unweighted and weighted sample distribution, as well as the ACS population distribution by county. Tables D-7 through D-11 give the unweighted, poststratified, and benchmark distributions for the five demographic variables used in the poststratification.

There were two observations for which a demographic characteristic had to be imputed. In one, the level of education was not given, and in the other, the age was not given. Mean imputation was used for these two observations, using age range, gender, race, and education level to define imputation cells.

Table D-6. Household Sample and Population Counts by County

County	Household Survey Sample				Population (ACS)	
	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Frequency	Percent
Coahoma	106	17.55	125.71	20.81	19,126	19.40
Holmes	72	11.92	71.55	11.85	14,545	14.75
Leflore	141	23.34	168.81	27.95	25,399	25.76
Washington	285	47.19	237.93	39.39	39,541	40.10
Total	604	100	604	100	98,611	100

Table D-7. Household Distribution by Gender

Gender	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
Male	270	44.70	260.23	43.08	44,594	45.22
Female	334	55.30	343.77	56.92	54,017	54.78
Total	604	100	604	100	98,611	100

Table D-8. Household Distribution by Age

Age	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
18 to 24	47	7.78	87.23	14.44	15,542	15.76
25 to 34	87	14.40	100.18	16.59	16,711	16.95
35 to 44	99	16.39	105.67	17.50	16,372	16.60
45 to 64	251	41.56	211.76	35.06	33,336	33.81
65 and up	120	19.87	99.17	16.42	16,650	16.88
Total	604	100	604	100	98,611	100

Table D-9. Household Distribution by Ethnicity

Ethnicity	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
Hispanic/Latino	3	0.50	3.87	0.64	1,173	1.12
Other	601	99.50	600.13	99.36	103,822	98.88
Total	604	100	604	100	104,995	100

Table D-10. Household Distribution by Race

Race	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
White	80	13.25	159.26	26.37	36,547	34.81
Non-white	524	86.59	444.74	73.63	68,448	65.19
Total	604	100	604	100	104,995	100

Table D-11. Household Distribution by Education

Highest Level of Education	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
Less than 9th grade	81	13.41	61.94	10.26	9,685	9.82
9th – 11th grades	102	16.89	127.04	21.03	19,088	19.36
High school diploma or equivalent	240	39.74	193.31	32.01	29,690	30.11
Some college	117	19.37	132.31	21.91	21,054	21.35
2-year degree	28	4.64	29.60	4.90	5,275	5.35
4-year degree	26	4.30	44.58	7.38	9,250	9.38
Advanced degree	10	1.66	15.21	2.52	4,569	4.63
Total	604	100	604	100	98,611	100

D.3 Combining the Household and On-the-Bank Surveys

The sampling universe for the combined household and on-the-bank surveys included all people who fish or eat wild-caught fish from the Mississippi Delta and live in Coahoma, Holmes (area in the advisory), Leflore, or Washington County. All households sampled were in one of these four counties, and to be eligible for the on-the-bank survey, the respondent had to live in one of these four counties. To develop weights for the combined surveys, respondents to the on-the-bank survey were combined with respondents to the household survey who indicated that they fished in the Mississippi Delta in the past year. This provided a survey of anglers for which weights were developed. The anglers were then combined with the remaining respondents to the household survey to develop the final combined survey weight.

D.3.1 Weighting Procedures

Weights for the combined angler survey were created by first retaining the original sampling weight for each respondent. This was calculated as the truncated final weight divided by the nonresponse adjustment. The inverse of this sampling weight provides the probability of selection for each respondent.

For each respondent to the on-the-bank survey, the probability that he or she would have been selected in the household survey was calculated. This probability was calculated by dividing the total number of locatable mailing addresses (LMAs) by the number of units sampled in the household survey for each county. Based on the county of residence for each on-the-bank survey respondent, this probability was added to the respondent's original sampling probability

to create the combined probability of selection. The inverse of this selection probability provides the combined sampling weight.

The probability that an angler responding to the household survey would be selected for the on-the-bank survey was calculated as the average selection probability for respondents to the on-the-bank survey by resident county. This probability was added to the original sampling probability for respondents to the household survey to get the combined selection probability. The combined sampling weight is the inverse of the selection probability.

The nonresponse adjustment was calculated by averaging the nonresponse weight from the on-the-bank survey by county of residence. This was applied to all respondents in the combined angler survey.

The final weight for anglers was calculated as the product of the combined sampling weight and the nonresponse adjustment. This final weight was then scaled to sum to 585, the number of angler respondents for the on-the-bank survey ($n = 413$) and household survey ($n = 172$). Table D-12 gives the distribution of the weights for the combined angler survey.

The 585 anglers were combined with the 432 nonanglers from the household survey. The weights for both anglers and nonanglers were scaled to keep the proportion of anglers to nonanglers the same as in the household survey.

D.3.2 Poststratification

As with the household survey, the weights for the combined survey were poststratified by gender, age, race, ethnicity, and educational attainment to Census 2000 and 2006–2008 ACS totals. Again, the level of education was imputed for one respondent and the age for another.

After the poststratification adjustment, the difference between the largest and smallest weights was large. Therefore, the weights were truncated on both ends so they would fall between 0.074 and 3.420, the 5th and 95th percentiles, respectively. These truncated weights had to be rescaled to sum to 1,017. The distributions of the intermediate and final weights are given in Table D-13.

Table D-12. Distribution of Weights for the Combined Angler Survey

Statistic	Household Sampling Weight	On-the-Bank Sampling Weight	Nonresponse Adjustment	Scaled Weight (Before Poststratification)	Scaled Final Weight
Min	21.03	3.98	1.04	3.90	0.09
Mean	68.89	26.15	1.05	14.76	1.00
Max	306.5	60.00	1.06	31.78	3.94
Unequal Weighting Effect (UWE)					2.11

Table D-13 gives the unweighted and weighted sample distribution as well as the ACS population distribution by county. Tables D-14 through D-18 give the unweighted, poststratified, and benchmark distributions for the five demographic variables used in the poststratification.

Table D-13. Combined Sample and Population Counts by County

County	Combined Survey Sample				Population (ACS)	
	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Frequency	Percent
Coahoma	173	17.01	187.61	18.45	19,126	19.40
Holmes	185	18.19	132.50	13.03	14,545	14.75
Leflore	269	26.45	322.98	31.76	25,399	25.76
Washington	390	38.35	373.92	36.77	39,541	40.10
Total	1,017	100	1,017	100	98,611	100

Table D-14. Combined Survey Distribution by Gender

Gender	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
Male	582	57.23	477.87	46.99	44,594	45.22
Female	435	42.77	539.13	53.01	54,017	54.78
Total	1,017	100	1,017	100	98,611	100

Table D-15. Combined Survey Distribution by Age

Age	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
18 to 24	76	7.47	147.47	14.50	15,542	15.76
25 to 34	140	13.77	180.27	17.73	16,711	16.95
35 to 44	150	14.75	167.13	16.43	16,372	16.60
45 to 64	432	42.48	347.22	34.14	33,336	33.81
65 and up	219	21.53	174.91	17.20	16,650	16.88
Total	1,017	100	1,017	100	98,611	100

Table D-16. Combined Survey Distribution by Ethnicity

Ethnicity	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
Hispanic/Latino	5	0.49	7.76	0.76	1,173	1.12
Other	1,012	99.51	1,009.24	99.24	103,822	98.88
Total	1,017	100	1,017	100	104,995	100

Table D-17. Combined Survey Distribution by Race

Race	Unweighted Frequency	Unweighted Percent	Poststratified Frequency	Poststratified Percent	Benchmark Frequency	Benchmark Percent
White	220	21.63	311.58	30.64	36,547	34.81
Non-white	797	78.37	705.42	69.36	68,448	65.19
Total	1,017	100	1,017	100	104,995	100

Table D-18. Combined Survey Distribution by Education

Highest Level of Education	Unweighted Frequency	Unweighted Percent	Post-Stratified Frequency	Post-Stratified Percent	Benchmark Frequency	Benchmark Percent
Less than 9th grade	149	14.65	115.87	11.39	9,685	9.82
9th – 11th grades	180	17.70	188.07	18.49	19,088	19.36
High school diploma or equivalent	381	37.46	325.06	31.96	29,690	30.11
Some college	182	17.90	208.53	20.50	21,054	21.35
2-year degree	60	5.90	50.00	4.92	5,275	5.35
4-year degree	45	4.42	93.83	9.23	9,250	9.38
Advanced degree	20	1.97	35.65	3.50	4,569	4.63
Total	1,017	100	1,017	100	98,611	100

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**APPENDIX E:
WEIGHTED SURVEY RESPONSES**

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Screening Questions for Household Survey (Weighted Results)

All respondents to the household survey completed this section.

Question Number	Question	Household	
		n	%
E1	Have you or anyone in your household been fishing anywhere in the Mississippi Delta area in the past year? Do not include fishing for commercial purposes or fishing in commercial catfish ponds.	604	
	1 Yes		9.4
	2 No (go to Question E3)		90.6
	Don't know		0.0
	No response		0.0
	Total		100.0
E2	Did you or anyone in your household fish in any of the following counties in October of this year?	172	
	1 Coahoma		19.7
	2 Holmes		14.9
	3 Leflore		38.0
	4 Washington		27.3
	5 None of the above (go to Question E4)		0.0
	Don't know		0.0
	No response		0.0
	Total		100.0
E4	To the best of your knowledge, have you or anyone in your household eaten wild-caught fish from the Mississippi Delta in the past year? Please include wild-caught fish caught by you or others, including fish you buy.	604	
	1 Yes		99.7
	2 No		0.3
	Don't know		0.0
	No response		0.0
	Total		100.0

Section A: Fishing Practices (Weighted Results)

Only respondents who fished in the Mississippi Delta in the past year completed this section.

Question Number	Question	Anglers	
		n	mean
1	How often have you been fishing in the Mississippi Delta area in the past month?		
	Days per month	581	3.0
	Days per year	581	35.5

Question Number	Question	Anglers	
		n	%
2*	What are some of the reasons why you fish?	585	
	1 To provide food for my family		13.4
	2 To reduce the amount of money spent on food		12.0
	3 To relax		48.5
	4 To spend time outdoors		46.5
	5 To spend time with friends and/or family		36.6
	6 Enjoy fishing		73.4
	7 To sell the fish/earn money		3.1
	8 Like to eat fish		42.1
	9 Other		1.6
	Don't know		0.2
	No response		0.0

* Multiple responses allowed.

Question Number	Question	Anglers	
		n	mean
3	When you fish, how often do you give away or trade the fish that you catch to other people? Would you say...	585	
	1 never		21.3
	2 rarely		20.1
	3 some of the time		35.6
	4 most of the time		15.9
	5 all of the time		3.9
	Don't know		3.1
	No response		0.0
	Total		100.0
4	When you fish, how often do you eat the fish you catch? Would you say ...	585	
	1 never		4.9
	2 rarely		7.2
	3 some of the time		24.4
	4 most of the time		34.7
	5 all of the time		27.6
	Don't know		1.1
	No response		0.0
	Total		100.0

* Multiple responses allowed.

Section A

Question Number	Question	Anglers	
		n	mean
5	When you fish, how often do other people in your household eat the fish you catch? Would you say ...	585	
	1 never		14.6
	2 rarely		4.4
	3 some of the time		23.1
	4 most of the time		31.4
	5 all of the time		25.0
	Don't know		1.0
	No response		0.5
	Total		100.0
6	How important are the fish that you catch as a source of food for your family? Would you say ...	585	
	1 not at all		43.5
	2 a little bit		27.8
	3 somewhat		17.7
	4 a lot		10.6
	Don't know		0.3
	No response		0.0
	Total		100.0

Note: There was not a Question 7.

Section B: Fish Consumption Practices (Weighted Results)

Only respondents whose household ate fish caught from the Mississippi Delta in the past year completed this section.

Question Number	Question	Anglers			Non-anglers			All Respondents		
		n	mean	%	n	mean	%	n	mean	%
8†	Amount wild-caught fish usually eaten when served at a meal (ounces)	552	11.2		409	10.8		961	10.9	
	Frequency of eating wild-caught fish (number of times per month)	552	3.1		409	2.3		961	2.6	
9	Did you or others in your household eat gar in the past year?	572			432			1004		
	1 Yes			10.2			3.2			5.7
	2 No (go to Question 10)			88.6			96.8			93.8
	Don't know			1.2			0.1			0.5
	No response									
	Total			100.0			100.0			100.0
9A†	For respondents that eat gar, average number of times gar is consumed per month	69	0.8		13	0.5		82	0.7	
10	Did you or others in your household eat carp in the past year?	572			432			1004		
	1 Yes			10.0			2.7			5.3
	2 No (go to Question 11)			88.0			97.3			94.0
	Don't know			2.1			0.0			0.8
	No response									
	Total			100.0			100.0			100.0
10A†	For respondents that eat carp, average number of times carp is consumed per month	60	0.7		15	0.6		75	0.7	

* Multiple responses allowed.

† The survey collected consumption information for each household member. The results reported are for the respondent only.

Question Number	Question	Anglers			Non-anglers			All Respondents		
		n	mean	%	n	mean	%	n	mean	%
11	Did you or others in your household eat wild-caught catfish that are smaller than 22 inches in the past year?	572			432			1004		
	1 Yes			75.2			80.0			78.3
	2 No			24.8			19.8			21.6
	Don't know			0.1			0.2			0.1
	No response									
	Total			100.0			100.0			100.0
12	Did you or others in your household eat wild-caught catfish that are longer than 22 inches in the past year?	572			432			1004		
	1 Yes			32.8			21.5			25.6
	2 No (go to Question 13)			65.1			78.2			73.5
	Don't know			2.1			0.2			0.9
	No response									
	Total			100.0			100.0			100.0
12A†	For respondents that eat large catfish, average number of times large catfish is consumed per month	201	1.5		88	1		289	1.3	
13	Did you or others in your household eat buffalo fish in the past year?	572			432			1004		
	1 Yes			33.9			29.2			30.9
	2 No (go to Question 14)			65.9			70.8			69.0
	Don't know			0.3			0.0			0.1
	No response									
	Total			100.0			100.0			100.0
13A†	For respondents that eat buffalo fish, average number of times buffalo fish is consumed per month	226	1.1		132	0.8		358	0.9	
	Percentage of respondents that consumed buffalo fish from Roebuck Lake	226		0.0	132		0.0	358		0.0

* Multiple responses allowed.

† The survey collected consumption information for each household member. The results reported are for the respondent only.

Question Number	Question	Anglers			Non-anglers			All Respondents		
		n	mean	%	n	mean	%	n	mean	%
14	How respondent prepares and cooks gar (Only respondents with a household member who ate gar in the past year answered this question.)	73			14			87		
	<i>Preparation Practices:</i>									
	Removes skin before cooking			62.2			75.7			67.0
	Removes belly fat before cooking			99.2			100.0			99.5
	Removes head before cooking			99.4			100.0			99.6
	Guts the fish and discards internal organs			98.8			100.0			99.2
	<i>*Cut of fish eaten:</i>									
	Fillet			41.0			56.1			46.3
	Steak			56.3			43.9			51.9
	Whole fish			0.8			0.0			0.5
	<i>*Cooking method:</i>									
	Fry			93.2			100.0			95.6
	Grill			0.0			2.3			0.8
	Soup			1.3			0.8			1.1
	Stew			1.9			1.7			1.8
	Broil			0.9			0.0			0.6
	Bake			1.2			7.8			3.5
	Other			1.9			0.0			1.3

* Multiple responses allowed.

† The survey collected consumption information for each household member. The results reported are for the respondent only.

Question Number	Question	Anglers			Non-anglers			All Respondents		
		n	mean	%	n	mean	%	n	mean	%
	How respondent prepares and cooks carp (Only respondents with a household member who ate carp in the past year answered this question.)	63			16			79		
	<i>Preparation Practices:</i>									
	Removes skin before cooking			58.1			50.3			55.6
	Removes belly fat before cooking			96.2			100.0			97.4
	Removes head before cooking			100.0			100.0			100.0
	Guts the fish and discards internal organs			100.0			100.0			100.0
	<i>*Cut of fish eaten:</i>									
	Fillet			50.8			49.5			50.4
	Steak			48.2			52.5			49.6
	Whole fish			1.6			0.0			1.1
	<i>*Cooking method:</i>									
	Fry			98.2			69.8			89.1
	Grill			1.6			1.3			1.5
	Soup			0.0			0.0			0.0
	Stew			0.0			0.0			0.0
	Broil			0.7			0.0			0.5
	Bake			2.1			27.7			10.4
	Other			0.0			0.0			0.0

* Multiple responses allowed.

† The survey collected consumption information for each household member. The results reported are for the respondent only.

Question Number	Question	Anglers			Non-anglers			All Respondents		
		n	mean	%	n	mean	%	n	mean	%
	How respondent prepares and cooks catfish smaller than 22 inches (Only respondents with a household member who ate small catfish in the past year answered this question.)	442			332			774		
	<i>Preparation Practices:</i>									
	Removes skin before cooking			90.5			87.7			88.7
	Removes belly fat before cooking			94.1			91.4			92.3
	Removes head before cooking			97.0			97.6			97.4
	Guts the fish and discards internal organs			99.1			99.9			99.6
	<i>*Cut of fish eaten:</i>									
	Fillet			82.6			87.8			86.0
	Steak			17.6			9.4			12.2
	Whole fish			33.1			34.7			34.2
	<i>*Cooking method:</i>									
	Fry			95.5			96.9			96.4
	Grill			13.5			6.8			9.1
	Soup			0.0			0.0			0.0
	Stew			0.1			0.1			0.1
	Broil			3.1			2.9			3.0
	Bake			16.2			25.4			22.2
	Other			0.5			0.0			0.2

* Multiple responses allowed.

† The survey collected consumption information for each household member. The results reported are for the respondent only.

Question Number	Question	Anglers			Non-anglers			All Respondents		
		n	mean	%	n	mean	%	n	mean	%
	How respondent prepares and cooks catfish larger than 22 inches (Only respondents with a household member who ate large catfish in the past year answered this question.)	207			93			300		
	<i>Preparation Practices:</i>									
	Removes skin before cooking			92.6			79.1			85.4
	Removes belly fat before cooking			97.9			93.2			95.4
	Removes head before cooking			99.2			96.4			97.7
	Guts the fish and discards internal organs			99.6			96.4			97.9
	<i>*Cut of fish eaten:</i>									
	Fillet			64.1			65.8			65.0
	Steak			50.1			50.8			50.5
	Whole fish			7.9			2.1			4.8
	<i>*Cooking method:</i>									
	Fry			93.6			93.1			93.4
	Grill			9.1			6.8			7.9
	Soup			0.0			0.0			0.0
	Stew			0.0			0.3			0.2
	Broil			2.3			0.0			1.0
	Bake			10.2			19.5			15.2
	Other			0.4			0.0			0.2

* Multiple responses allowed.

† The survey collected consumption information for each household member. The results reported are for the respondent only.

Question Number	Question	Anglers			Non-anglers			All Respondents		
		n	mean	%	n	mean	%	n	mean	%
	How respondent prepares and cooks buffalo fish									
	(Only respondents with a household member who ate buffalo fish in the past year answered this question.)	237			146			383		
	<i>Preparation Practices:</i>									
	Removes skin before cooking			69.3			84.3			78.4
	Removes belly fat before cooking			94.8			98.6			97.1
	Removes head before cooking			97.8			98.9			98.5
	Guts the fish and discards internal organs			99.2			98.9			99.0
	<i>*Cut of fish eaten:</i>									
	Fillet			40.9			60.3			52.6
	Steak			61.2			44.1			50.9
	Whole fish			10.3			2.8			5.8
	<i>*Cooking method:</i>									
	Fry			98.7			96.8			97.6
	Grill			1.6			2.6			2.2
	Soup			0.1			1.7			1.1
	Stew			0.0			0.0			0.0
	Broil			0.6			0.0			0.2
	Bake			2.0			13.4			8.9
	Other			0.5			0.0			0.2

* Multiple responses allowed.

† The survey collected consumption information for each household member. The results reported are for the respondent only.

Section C: Questions to Determine If Respondent Is Aware of Fishing Advisory (Weighted Results)

All respondents completed this section.

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
15	How safe do you think it is to eat wild-caught buffalo fish, carp, gar, and large catfish from the Mississippi Delta, would you say that it is ...	585		432		1017	
	1 not very safe		32.5		16.9		22.7
	2 somewhat safe		32.4		31.0		31.5
	3 very safe		20.8		35.1		29.8
	Don't know		14.3		16.5		15.7
	No response		0.0		0.4		0.3
	Total		100.0		100.0		100.0
16	How safe do you think it is to eat other types of wild-caught fish, those not previously mentioned, from the Mississippi Delta?	585		432		1017	
	1 not very safe		5.7		6.1		5.9
	2 somewhat safe		43.9		35.7		38.7
	3 very safe		35.8		44.2		41.1
	Don't know		14.6		13.7		14.0
	No response		0.0		0.4		0.3
	Total		100.0		100.0		100.0
17	Are you aware of any warnings or advisories about eating wild-caught fish from the Mississippi Delta?	585		432		1017	
	1 Yes (go to Section E)		43.2		13.6		24.6
	2 No (go to Section D)		49.0		80.6		68.9
	3 I heard of an advisory a few years ago (go to Section E)		3.2		3.9		3.6
	Don't know (go to Section D)		4.6		1.9		2.9
	No response (go to Section D)						
	Total		100.0		100.0		100.0

Section D: Questions for Respondents Not Aware of Advisory (Weighted Results)

Respondents not aware of the advisory completed this section.

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
18	The advisory recommends that you should not eat any buffalo fish from Roebuck Lake and that you should not eat more than two meals a month of buffalo fish, carp, gar, and catfish greater than 22 inches from other Mississippi Delta waters. How believable to you is the information in the advisory, would you say that it is ...	344		368		712	
	1 not very believable		5.4		4.0		4.4
	2 somewhat believable		36.6		33.3		34.2
	3 very believable		41.3		52.0		49.1
	Don't know		16.2		10.6		12.2
	No response		0.5		0.0		0.1
	Total		100.0		100.0		100.0
19	In terms of protecting your health, how important do you think it is to follow the advisory's recommendations? Would you say...	344		368		712	
	1 not very important		1.6		2.7		2.4
	2 somewhat important		25.3		14.4		17.5
	3 very important		66.6		77.3		74.3
	Don't know		6.0		5.5		5.7
	No response		0.5		0.0		0.1
	Total		100.0		100.0		100.0
20	How difficult would it be for you and your family to limit how much you eat of buffalo fish, carp, gar, and large catfish? Would you say...	344		368		712	
	1 not a problem at all		52.9		47.7		49.1
	2 somewhat of a problem		14.4		8.1		9.8
	3 a very big problem		0.6		1.0		0.9
	4 Do not eat these fish (go to Question 24)		25.1		42.7		37.8
	Don't know		6.5		0.5		2.1
	No response		0.5		0.0		0.1
	Total		100.0		100.0		100.0

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
21	How likely are you to follow the advisory's recommendations? Would you say ...	268		228		496	
	1 not very likely		2.3		2.9		2.7
	2 somewhat likely		41.0		28.2		32.5
	3 very likely		45.4		67.5		60.1
	Don't know		10.5		1.4		4.5
	No response		0.8		0.0		0.3
	Total		100.0		100.0		100.0
22	Now that you know about the advisory, how concerned are you about eating wild-caught buffalo fish, carp, gar, and large catfish from the Mississippi Delta? Would you say...	268		228		496	
	1 not very concerned		15.9		19.2		18.1
	2 somewhat concerned		54.8		31.6		39.3
	3 very concerned		27.7		47.2		40.7
	Don't know		0.7		2.0		1.6
	No response		0.9		0.0		0.3
	Total		100.0		100.0		100.0
23	In your opinion, if you or members of your household were to eat wild-caught buffalo fish, carp, gar, or large catfish from the Mississippi Delta, how likely is it that you or they would get sick? Would you say...	268		228		496	
	1 not very likely		18.8		20.3		19.8
	2 somewhat likely		31.5		29.8		30.4
	3 very likely		15.8		15.3		15.4
	Don't know		33.2		33.3		33.3
	No response		0.7		1.3		1.1
	Total		100.0		100.0		100.0

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
24	What would you say are the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi Delta? (Respondents could select up to two responses.)	344		368		712	
	1 Radio		17.6		30.7		27.1
	2 Television		68.1		82.4		78.5
	3 Newspaper		12.0		18.0		16.3
	4 Magazine		2.3		1.7		1.9
	5 Post signs at lakes, rivers, and other water sources		46.0		19.3		26.7
	6 Mail information to home		5.9		15.7		13.0
	7 Internet or Web site		4.3		7.4		6.5
	8 Wildlife and fish expos		1.7		1.4		1.5
	9 Health fairs		0.8		1.2		1.1
	10 Post information and provide brochures at bait shops		10.8		0.2		3.2
	11 Post information and provide brochures at fish markets		6.7		7.5		7.3
	12 Post information and provide brochures at Women, Infant, and Children (WIC) clinics		2.1		0.2		0.7
	13 Post information and provide brochures at doctors' offices, hospitals, and clinics		1.1		0.9		0.9
	14 Provide information through local churches		2.8		0.8		1.3
	15 Go door to door to provide information		5.9		10.5		9.2
	16 Fishing clubs		2.1		0.1		0.7
	17 Other		0.8		0.0		0.2
	Don't know		3.9		0.9		1.7
	No response		0.5		0.0		0.1

Section E: Questions for Respondents Aware of Advisory (Weighted Results)

Respondents aware of the advisory completed this section.

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
25*	To the best of your knowledge, tell me what the advisory recommends about eating fish.	241		64		305	
	1 Cannot explain what the advisory is about		23.3		13.3		19.4
	2 Do not eat fish over a certain size		25.7		22.3		24.4
	3 Do not eat any buffalo fish from Roebuck Lake		42.0		41.2		41.7
	4 Do not eat too much of certain fish		35.3		57.9		44.1
	5 Do not eat too much buffalo fish		9.4		7.8		8.8
	6 Do not eat too much carp		2.1		7.2		4.1
	7 Do not eat too much gar		1.9		7.2		4.0
	8 Do not eat too much large catfish		7.7		14.5		10.4
	9 Do not eat more than two meals a month of buffalo fish		17.4		14.2		16.2
	10 Do not eat more than two meals a month of carp		13.8		9.3		12.1
	11 Do not eat more than two meals a month of gar		15.1		9.3		12.8
	12 Do not eat more than two meals a month of large catfish		17.3		11.1		14.9
	13 Other		0.1		0.9		0.4
	Don't know		0.8		0.0		0.5
	No response		0.0		0.0		0.0
26	The advisory recommends that you should not eat any buffalo fish from Roebuck Lake and that you should not eat more than two meals a month of buffalo fish, carp, gar, and catfish greater than 22 inches from other Mississippi Delta waters. Are you aware of this particular advisory?	241		64		305	
	1 Yes		100.0		100.0		100.0
	2 No		0.0		0.0		0.0
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
27	Do you usually follow the advisory recommendations?	241		64		305	
	1 Yes		91.3		90.8		91.1
	2 No		4.4		2.2		3.6
	Don't know		4.3		7.0		5.3
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
28	How believable to you is the information in the advisory, would you say that it is ...	241		64		305	
	1 not very believable		0.8		0.0		0.5
	2 somewhat believable		19.3		14.3		17.4
	3 very believable		78.4		84.8		80.9
	Don't know		1.4		1.0		1.3
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
29	In terms of protecting your health, how important do you think it is to follow the advisory's recommendations? Would you say...	241		64		305	
	1 not very important		0.6		0.0		0.4
	2 somewhat important		16.2		16.9		16.5
	3 very important		82.7		83.1		82.9
	Don't know		0.4		0.0		0.3
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
30	How difficult is it for you and your family to limit how much you eat of buffalo fish, carp, gar, and large catfish? Would you say...	241		64		305	
	1 not a problem at all		60.7		60.2		60.5
	2 somewhat of a problem		3.8		14.2		7.8
	3 a very big problem		4.0		0.0		2.5
	4 Do not eat these fish (go to Question 32)		30.0		24.8		28.0
	Don't know		1.6		0.8		1.3
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Section E

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
31	In your opinion, if you or members of your household were to eat wild-caught buffalo fish, carp, gar, or large catfish from the Mississippi Delta, how likely is it that you or they would get sick? Would you say...	176		46		222	
	1 not very likely		14.5		5.9		11.0
	2 somewhat likely		41.3		49.9		44.8
	3 very likely		28.8		21.5		25.8
	Don't know		15.3		22.6		18.3
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
32*	Please think about this advisory when answering the next questions. How did you hear or learn about the advisory?	241		64		305	
	1 Radio news or talk show		7.4		17.6		11.4
	2 Radio advertisement		1.7		6.0		3.4
	3 Television news or talk show		15.9		39.4		25.0
	4 Television show		5.5		0.7		3.6
	5 Newspaper		6.9		0.8		4.5
	6 Signs posted at lakes/rivers/water		54.6		7.7		36.3
	7 Brochure/pamphlet		5.6		2.8		4.5
	8 Church		8.3		1.6		5.7
	9 Family/friends		22.2		17.3		20.3
	10 Other		1.4		10.4		4.9
	Don't know		13.1		19.2		15.5
	No response		0.1		1.0		0.4
33	Do you believe the advisory is still in effect?	241		64		305	
	1 Yes		74.1		75.6		74.7
	2 No		0.2		2.9		1.2
	Don't know		25.8		21.5		24.1
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
34	Have you seen signs posted about the advisory at places where you fish?	241		64		305	
	1 Yes		65.3		4.6		41.6
	2 No		21.8		21.1		21.5
	3 I used to see it		11.9		0.0		7.3
	4 Respondent does not fish		0.0		67.8		26.4
	Don't know		0.9		0.0		0.5
	No response		0.1		6.6		2.6
	Total		100.0		100.0		100.0
35	Did you get a brochure or pamphlet about the advisory?	241		64		305	
	1 Yes		19.9		9.9		16.0
	2 No (go to Question 36)		79.8		90.1		83.8
	Don't know (go to Question 36)		0.3		0.0		0.2
	No response (go to Question 36)		0.0		0.0		0.0
	Total		100.0		100.0		100.0
35A*	Where did you get or who gave you the brochure or pamphlet?	32		9		41	
	1 Health fair		2.3		0.0		1.7
	2 Commercial fisherman		0.0		0.0		0.0
	3 Bait shop		2.3		0.0		1.7
	4 Wildlife and fish expo		2.9		0.0		2.2
	5 Fish market		6.7		40.3		14.8
	6 WIC clinic		0.0		0.0		0.0
	7 Doctor, hospital, or other health care provider		0.8		0.0		0.6
	8 Park ranger		27.0		8.5		22.5
	9 Church		25.0		0.0		19.0
	10 Family/friends		4.6		5.4		4.8
	11 Other		4.7		45.8		14.6
	Don't know		23.7		0.0		18.0
	No response		0.0		0.0		0.0

* Multiple responses allowed.

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
35B	How useful was the brochure or pamphlet? Would you say ...	32		9		41	
	1 not at all useful		0.0		0.0		0.0
	2 somewhat useful		15.2		35.6		20.1
	3 very useful		81.5		64.4		77.4
	4 did not read brochure		3.4		0.0		2.5
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
36	Do you know about the toll-free hotline that you can call to get information on the advisory?	241		64		305	
	1 Yes		17.9		15.3		16.9
	2 No (go to Question 37)		80.0		82.5		80.9
	Don't know (go to Question 37)		2.1		2.2		2.2
	No response (go to Question 37)		0.0		0.0		0.0
	Total		100.0		100.0		100.0
36A	Have you called the advisory hotline?	34		9		43	
	1 Yes		24.5		23.0		24.0
	2 No (go to Question 37)		75.5		77.0		76.0
	Don't know (go to Question 37)		0.0		0.0		0.0
	No response (go to Question 37)		0.0		0.0		0.0
	Total		100.0		100.0		100.0
36B	How useful was the information you got from the advisory hotline? Would you say ...	4		1		5	
	1 not at all useful		0.0		0.0		0.0
	2 somewhat useful		0.0		0.0		0.0
	3 very useful		100.0		100.0		100.0
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Section E

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
37	If you have Internet access, have you looked for any information about the advisory online?	241		64		305	
	1 Yes		11.5		4.4		8.7
	2 No (go to Question 38)		69.0		65.5		67.6
	3 Do not have Internet access (go to Question 38)		19.5		30.2		23.7
	Don't know (go to Question 38)		0.0		0.0		0.0
	No response (go to Question 38)		0.0		0.0		0.0
	Total		100.0		100.0		100.0
37A	How useful was the information you found online? Would you say ...	11		2		13	
	1 not at all useful		0.0		0.0		0.0
	2 somewhat useful		26.2		0.0		21.1
	3 very useful		73.8		100.0		78.9
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
38	Did your church pastor talk about the advisory at all?	241		64		305	
	1 Yes		15.3		5.1		11.3
	2 No		70.0		76.0		72.3
	3 Do not attend church		9.9		11.1		10.4
	Don't know		4.8		7.8		5.9
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
39	Did your doctor or other health care provider talk with you about the advisory?	241		64		305	
	1 Yes		1.6		3.4		2.3
	2 No		86.5		78.3		83.3
	3 Have not been to a doctor		11.5		17.7		13.9
	Don't know		0.4		0.5		0.5
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Section E

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
40	Do you remember seeing or hearing information about the advisory on any of the following TV or radio programs?						
	<i>Local TV or news talk show:</i>	241		64		305	
1	Yes		36.7		51.6		42.5
2	No		49.0		33.9		43.1
	Don't know		14.4		14.5		14.4
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
	<i>Mississippi Outdoors program on ETV:</i>	241		64		305	
1	Yes		8.8		2.5		6.4
2	No		72.0		79.6		74.9
	Don't know		19.2		17.9		18.7
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
	<i>Local radio news or talk show:</i>	241		64		305	
1	Yes		11.9		20.9		15.4
2	No		71.8		54.5		65.0
	Don't know		16.4		24.6		19.6
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
	<i>Radio advertisements:</i>	241		64		305	
1	Yes		3.7		1.8		3.0
2	No		78.4		74.4		76.8
	Don't know		17.8		23.8		20.2
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Section E

Question Number	Question	Anglers		Nonanglers		All Respondents	
		n	%	n	%	n	%
41	What would you say are the two best ways to get information on fishing advisories to people who fish or eat wild-caught fish from the Mississippi Delta? (Respondents could select up to two responses.)	241		64		305	
	1 Radio		4.3		51.1		22.5
	2 Television		73.3		93.4		81.2
	3 Newspaper		10.9		11.6		11.1
	4 Magazine		0.0		0.0		0.0
	5 Post signs at lakes, rivers, and other water sources		61.5		5.1		39.6
	6 Mail information to home		7.9		8.5		8.1
	7 Internet or Web site		2.9		1.0		2.1
	8 Wildlife and fish expos		6.7		0.0		4.1
	9 Health fairs		2.0		0.4		1.4
	10 Post information and provide brochures at bait shops		8.4		3.5		6.5
	11 Post information and provide brochures at fish markets		3.0		1.4		2.4
	12 Post information and provide brochures at Women, Infant, and Children (WIC) clinics		1.7		0.0		1.1
	13 Post information and provide brochures at doctors' offices, hospitals, and clinics		1.8		2.2		1.9
	14 Provide information through local churches		6.5		0.0		4.0
	15 Go door to door to provide information		5.8		15.0		9.4
	16 Fishing clubs		0.1		0.0		0.1
	17 Other		2.8		3.5		3.1
	Don't know		0.1		0.0		0.1
	No response		0.0		0.0		0.0

* Multiple responses allowed.

Section E

Section F: Self-reported Changes in Fishing Practices (Weighted Results)

Only respondents who fish and are aware of the advisory completed this section.

Question Number	Question	Anglers	
		n	%
42	After learning about the advisory, did you make any changes in your fishing practices, such as how often you fish, where you fish, or the types of fish that you catch?	241	
	1 Yes		32.8
	2 No (go to Section G)		67.2
	Don't know (go to Section G)		0.0
	No response (go to Section G)		0.0
	Total		100.0
43	After learning about the advisory, did you change how often you usually fish in Mississippi Delta waters? Do you fish ...	74	
	1 more often		0.0
	2 about the same amount of time		53.1
	3 less often		46.9
	Don't know		0.0
	No response		0.0
	Total		100.0
44	After learning about the advisory, did you change the locations where you usually go fishing in the Mississippi Delta? Do you fish ...	74	
	1 in the same places		55.5
	2 in different places		38.6
	Don't know		5.0
	No response		0.9
	Total		100.0

Question Number	Question	Anglers	
		n	%
45	Before learning about the advisory, did you ever fish in Roebuck Lake in Leflore County?	74	
	1 Yes		24.2
	2 No		75.8
	Don't know		0.0
	No response		0.0
	Total		100.0
46	Since learning about the advisory, have you fished in Roebuck Lake?	74	
	1 Yes		0.5
	2 No		99.5
	Don't know		0.0
	No response		0.0
	Total		100.0
47	After learning about the advisory, did you make any changes in the types of fish that you usually fish for in the Mississippi Delta? Do you fish ...	74	
	1 for the same types of fish (go to Section G)		27.4
	2 different types of fish		60.2
	Don't know		12.4
	No response		0.0
	Total		100.0

Section G: Self-reported Changes in Fish Consumption (Weighted Results)

Only respondents whose household eats fish and is aware of the advisory completed this section.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
48A*	Before learning about the advisory, did you eat any of the following types of fish?	234		64		298	
	1 Buffalo fish		30.3		51.1		38.7
	2 Carp		5.4		2.4		4.2
	3 Gar		6.1		2.1		4.5
	4 Catfish longer than 22 inches		30.8		47.8		37.7
	5 None of the above		55.5		42.0		50.0
	Don't know		1.5		0.0		0.9
	No response		0.7		0.0		0.4
48B*	Since learning about the advisory, what types of wild-caught fish have you stopped eating?	234		64		298	
	1 Buffalo fish		10.2		16.9		12.9
	2 Carp		3.6		0.0		2.1
	3 Gar		0.8		1.9		1.2
	4 Catfish		2.4		0.0		1.4
	5 Large catfish (> 22 inches)		13.5		31.0		20.6
	6 Small catfish		1.3		0.0		0.8
	7 Other		0.1		0.0		0.1
	8 None		76.1		60.6		69.8
	Don't know		0.0		0.0		0.0
	No response		0.0		0.3		0.1

* Multiple responses allowed.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
49*	Since learning about the advisory, what types of wild-caught fish do you eat less of now?	234		64		298	
	1 Buffalo fish		16.0		30.4		21.9
	2 Carp		1.4		2.2		1.7
	3 Gar		3.7		0.0		2.2
	4 Catfish		5.4		16.3		9.8
	5 Large catfish (> 22 inches)		20.3		19.4		19.9
	6 Small catfish		3.8		0.8		2.6
	7 Other		0.0		2.2		0.9
	8 None		64.6		49.7		58.6
	Don't know		2.2		0.0		1.3
	No response		0.6		0.7		0.6
50*	Since you cut back or stopped eating certain wild-caught fish, what are you eating instead? (Only respondents that have stopped eating or are eating less fish responded to this question).	110		38		148	
	1 Eat other types of fish/drum/bream/large mouth bass/crappie/fish that are not in advisory		78.0		49.7		65.0
	2 Eat farm/pond raised catfish instead		22.6		12.6		18.0
	3 Buy fish from fish market or grocery store instead		21.9		48.0		33.9
	4 Eat smaller fish instead		31.0		23.8		27.7
	5 Have less food to eat now		0.0		0.0		0.0
	6 Buy and eat chicken instead		14.8		28.5		21.1
	7 Buy and eat beef/pork/meat instead		8.4		7.7		8.1
	8 Other		0.1		1.6		0.8
	Don't know		6.9		7.4		7.1
	No response		2.4		1.8		2.1

* Multiple responses allowed.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
51*	Since learning about the advisory, what types of wild-caught fish do you eat more of now?	234		64		298	
	1 Buffalo fish		0.0		0.2		0.1
	2 Carp		0.0		0.2		0.1
	3 Gar		0.0		0.2		0.1
	4 Catfish		2.2		0.2		1.4
	5 Large catfish (> 22 inches)		0.0		0.2		0.1
	6 Small catfish		18.8		6.9		14.0
	7 Other		2.0		0.0		1.2
	8 None		56.5		51.1		54.3
	11 Other types of fish/drum/bream/bass/crappie		30.8		43.3		35.8
	Don't know		0.1		2.0		0.9
	No response		0.4		0.0		0.2
52	After learning about the advisory, did you change the size of wild-caught fish from the Mississippi Delta that you eat?	234		64		298	
	1 Yes		31.5		37.6		34.0
	2 No (go to Question 53)		67.7		56.2		63.0
	Don't know		0.4		6.2		2.7
	No response		0.4		0.0		0.2
	Total		100.0		100.0		100.0
52A	After learning about the advisory, do you usually eat ...	79		24		103	
	1 larger fish (go to Question 53)		1.1				0.6
	2 smaller fish		64.7		82.3		72.6
	3 smaller-sized fish for some types of fish and the same size for other types of fish		34.2		17.7		26.7
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
52B*	For what types of fish do you eat smaller-sized fish?	78		24		102	
	1 Buffalo fish		2.0		1.3		1.7
	2 Carp		1.5		0.0		0.8
	3 Gar		0.8		0.0		0.5
	4 Catfish		71.4		98.3		83.6
	5 Drum		10.0		0.0		5.4
	6 Bream		38.4		12.8		26.8
	7 Large mouth bass		14.0		1.7		8.4
	8 Crappie		34.1		11.2		23.7
	9 Other		11.3		0.0		6.2
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
53	After learning about the advisory, did you make any changes in how you prepare or cook wild-caught fish from the Mississippi Delta?	234		64		298	
	1 Yes		2.7		10.5		5.8
	2 No (go to Question 54)		97.3		86.0		92.7
	Don't know		0.0		3.5		1.4
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
53A*	Which of the following changes did you make?	14		6		20	
	1 Started removing skin from fish before cooking		30.2		1.2		9.0
	2 Started removing belly fat from fish before cooking		10.1		0.0		2.7
	3 Started eating fillets instead of whole fish		0.0		10.2		7.5
	4 Stopped frying fish or fry fish less often		20.7		58.8		48.5
	5 Stopped making fish stew or soup		10.7		0.0		2.9
	6 Started broiling, baking, or grilling fish instead of frying		49.2		92.6		80.9
	7 Other		0.0		0.0		0.0
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
54	After learning about the advisory, were any changes made in the types and amount of wild-caught fish or how fish was prepared and cooked for children under the age of 7?	234		64		298	
	1 Yes		1.7		1.1		1.5
	2 No (go to Question 54)		49.4		50.0		49.7
	3 Do not prepare and cook fish for children		48.8		49.0		48.9
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Section H: Demographics (Weighted Results)

All respondents completed this section.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
55	Record gender.	585		432		1017	
	1 Male		72.3		32.1		47.0
	2 Female		27.7		67.9		53.0
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
55A	What is your age?	585		432		1017	
	1 18 to 24		18.8		12.0		14.5
	2 25 to 34		15.4		19.1		17.7
	3 35 to 44		14.3		17.4		16.3
	4 45 to 54		18.4		17.6		17.9
	5 55 to 64		16.6		16.1		16.2
	6 65 to 74		14.0		9.9		11.4
	7 75 or older		2.5		7.7		5.8
	Don't know		0.0		0.0		0.0
	No response		0.0		0.3		0.2
	Total		100.0		100.0		100.0
56	What is the highest level of education that you have completed?	585		432		1017	
	1 5th grade or less		4.5		0.6		2.1
	2 6th to 8th grade		12.6		7.4		9.3
	3 9th to 11th grade		17.6		18.5		18.2
	4 High school diploma or GED		24.8		36.2		32.0
	5 Some college		15.8		23.3		20.5
	6 2-year college degree		7.0		3.7		4.9
	7 4-year college degree		12.1		7.6		9.2
	8 Advanced degree		5.8		2.2		3.5
	Don't know		0.0		0.0		0.0
	No response		0.0		0.5		0.3
	Total		100.0		100.0		100.0

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
57	Are you Hispanic or Latino?	585		432		1017	
	1 Yes		0.5		0.9		0.8
	2 No		99.5		99.1		99.2
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
58*	What is your race?	585		432		1017	
	1 White		43.6		23.0		30.6
	2 Black or African American		56.4		77.0		69.4
	3 Asian		0.0		0.0		0.0
	4 Native Hawaiian or other Pacific Islander		0.0		0.0		0.0
	5 American Indian or Alaska Native		0.0		0.0		0.0
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
59	What is your marital status?	585		432		1017	
	1 Single		35.9		39.4		38.1
	2 Married		45.0		35.7		39.2
	3 Divorced/Separated		9.1		7.4		8.0
	4 Widowed		6.0		10.1		8.6
	5 Living with partner		3.9		7.3		6.0
	Don't know		0.0		0.0		0.0
	No response		0.1		0.0		0.0
	Total		100.0		100.0		100.0
60	Including yourself, how many people 18 years of age or older live in your household?	585		432		1017	
	1 1		24.9		23.5		24.0
	2 2		47.0		53.8		51.3
	3 3		22.3		17.4		19.2
	4 4		3.6		3.7		3.7
	5 5 or more		2.2		1.6		1.8
	Don't know		0.0		0.0		0.0
	No response		0.1		0.0		0.0
	Total		100.0		100.0		100.0

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
61	How many people under 18 years of age live in your household?	585		432		1017	
	1 None (go to Question 62)		62.7		57.7		59.5
	2 1		19.0		17.7		18.2
	3 2		14.4		14.9		14.7
	4 3		2.0		6.3		4.7
	5 4		1.1		3.1		2.3
	6 5 or more		0.8		0.4		0.5
	Don't know		0.0		0.0		0.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
61A	How many people under 5 years of age live in your household?	183		165		348	
	1 None		51.7		65.1		60.5
	2 1		37.2		25.4		29.4
	3 2		10.5		8.2		9.0
	4 3		0.5		1.3		1.0
	5 4		0.0		0.0		0.0
	6 5 or more		0.0		0.0		0.0
	Don't know		0.0		0.0		0.0
	No response		0.2		0.0		0.1
	Total		100.0		100.0		100.0
62	Which of the following best describes your work status?	585		432		1017	
	1 Employed full time		42.6		41.2		41.7
	2 Employed part time		9.7		10.9		10.5
	3 Unemployed		15.2		16.4		16.0
	4 Retired		15.2		14.1		14.5
	5 Disabled		9.9		8.4		8.9
	6 Student		3.9		4.2		4.1
	7 Homemaker		1.2		4.8		3.5
	8 Other		2.2		0.0		0.8
	Don't know		0.0		0.0		0.0
	No response		0.2		0.0		0.1
	Total		100.0		100.0		100.0

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
63	Do you have a current sport fishing license for the state of Mississippi? Do not include commercial fishing licenses.	585		432		1017	
	1 Yes		48.1		2.9		19.7
	2 No		49.0		97.1		79.2
	Don't know		2.4		0.0		0.9
	No response		0.5		0.0		0.2
	Total		100.0		100.0		100.0
63A	Do you have a working phone number for your household, either a regular phone or cell phone?	585		432		1017	
	1 Yes		83.1		89.9		87.3
	2 No		14.7		10.0		11.8
	Don't know		0.1		0.0		0.0
	No response		2.1		0.1		0.8
	Total		100.0		100.0		100.0
64	What was your total household income in 2008 before taxes? Include income from all persons living in your house.	585		432		1017	
	1 Less than \$9,999		15.0		16.9		16.1
	2 \$10,000–19,999		18.3		23.6		21.6
	3 \$20,000–29,999		14.2		14.6		14.4
	4 \$30,000–39,999		14.0		7.6		10.0
	5 \$40,000–49,999		6.9		7.7		7.4
	6 \$50,000 or more		10.4		4.2		6.5
	Don't know		9.6		8.7		9.1
	No response		11.7		16.7		14.9
	Total		100.0		100.0		100.0

Section I: Awareness of National Advisory on Mercury in Fish and Shellfish (Weighted Results)

All respondents completed this section.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
65	Have you heard anything about it being healthy to eat fish and shellfish?	585		432		1017	
	1 Yes		60.2		59.5		59.7
	2 No (go to Question 66)		36.9		38.9		38.2
	Don't know		2.9		1.6		2.1
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0
65A*	What health benefits have you heard of?	357		257		614	
	1 Generally healthy/nutritious		42.6		41.9		42.2
	2 Low fat		11.1		10.7		10.8
	3 Brain food		36.4		36.9		36.7
	4 Heart healthy		41.3		44.3		43.2
	5 Omega-3 fatty acids		34.7		22.6		27.1
	6 Cholesterol lowering		25.0		20.0		21.9
	7 Low calorie/aids in weight loss		9.2		17.4		14.3
	8 Antioxidant/good for skin		10.3		1.8		5.0
	9 Provides vitamins/minerals		6.0		3.4		4.4
	10 High protein		18.8		16.6		17.5
	11 Oil/fish oil		19.4		23.6		22.0
	12 Other		1.0		0.0		0.4
	Don't know		1.8		2.8		2.5
	No response		0.0		0.0		0.0
66	Have you heard of any health problems from eating fish or shellfish, other than the Mississippi Delta advisory that we've already talked about?	585		432		1017	
	1 Yes		22.9		31.0		28.0
	2 No (go to Question 67)		68.6		67.7		68.0
	Don't know		8.5		1.3		4.0
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
66A*	What health problems have you heard of?	140		124		264	
	1 Mercury/methyl mercury (go to Question 67A)		56.6		50.5		52.3
	2 PCBs		19.0		11.4		13.7
	3 Dioxin		2.5		2.9		2.8
	4 Vibrio		0.5		0.2		0.3
	5 Hepatitis		2.8		0.4		1.1
	6 Germs/parasites/bacteria		5.7		0.5		2.1
	7 Allergies		12.0		33.3		26.9
	8 Pesticides		19.8		12.1		14.4
	9 Chemicals		26.8		10.6		15.5
	10 Pollution/contamination		31.5		21.0		24.2
	11 Food poisoning		2.6		0.0		0.8
	12 Other		2.4		0.9		1.3
	Don't know		1.0		6.2		4.6
	No response		0.0		0.0		0.0
67	Have you heard anything about mercury as a problem in some fish or shellfish?	510		368		878	
	1 Yes		27.6		22.0		24.1
	2 No (end survey)		66.5		75.8		72.3
	Don't know		5.8		2.2		3.6
	No response		0.0		0.0		0.0
	Total		100.0		100.0		100.0

* Multiple responses allowed.

Question Number	Question	Anglers		Non-anglers		All Respondents	
		n	%	n	%	n	%
67A*	What kinds of fish or shellfish have mercury problems?	208		128		336	
	1 General tuna		40.2		32.6		35.6
	2 Tuna steak		4.6		2.5		3.3
	3 Canned tuna		16.7		21.6		19.7
	4 Albacore or chunk white tuna		4.7		2.9		3.6
	5 Light tuna		3.2		1.8		2.4
	6 Swordfish		10.4		1.6		5.0
	7 Shark		10.5		2.4		5.5
	8 King mackerel		1.4		0.9		1.1
	9 Tile fish		1.7		0.3		0.9
	10 Salmon		35.6		9.4		19.6
	11 Shellfish		23.8		36.4		31.5
	12 Any large fish		17.7		8.5		12.1
	13 Other		6.0		1.3		3.2
	Don't know		16.2		20.1		18.6
	No response		0.0		0.2		0.1
67B	Have you heard of any particular group of people who are advised to be especially careful not to eat too much fish or shellfish that might have mercury?	208		128		336	
	1 Yes		45.8		39.0		41.7
	2 No (end survey)		51.5		59.7		56.5
	Don't know		2.6		1.3		1.8
	No response		0.1		0.0		0.0
	Total		100.0		100.0		100.0
67C*	Which group of people should not eat too much fish or shellfish that might have mercury?	80		57		137	
	1 Pregnant women or women who might become pregnant		76.9		86.2		82.2
	2 Nursing mothers		43.2		44.7		44.1
	3 Young children		49.6		24.1		35.0
	4 Other		9.2		7.2		8.0
	Don't know		7.9		3.0		5.1
	No response		0.3		0.0		0.1

* Multiple responses allowed.

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