

Economic Value of Recreational Fishing on Walter F. George Reservoir (aka Lake Eufaula),
Alabama and Georgia

Masters of Science Proposal

Submitted By

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Introduction

Fisheries management agencies must always decide annually how and where to allocate funding towards their natural resources. Without economic information, their decisions may not represent the most effective way of directing resources (Dalton et al. 1998). Creel surveys provide managers an opportunity to allocate funding where anglers are most likely to benefit from the decisions (Long and Melstrom 2016). Reservoirs, rivers, lakes, and other bodies of water supply economic value to the local areas in which they are located. Failure to recognize the motivation of anglers results in poor management decisions or lost opportunities to maximize angler satisfaction (Felder and Ditton 1994). Conservation agencies are often asked to justify allocation of resources to specific programs or resources. Economic data on specific resources assist these agencies to prioritize and justify programs to benefit these resources (Schorr et. al 1995).

Creel surveys have been traditionally used to calculate the economic impact of aquatic resources (Pollock et al. 1994). These surveys have been used to collect data on angling effort, harvest, expenditures, and socio-demographics (Pollock et al. 1994; Ditton and Hunt 2001) and assist both fisheries management agencies and social scientists to collaborate and decide which goals should be targeted to maximize management decisions on reservoirs (Martin 1987; Ditton and Hunt 2001). In addition to state fish and game agencies, local governments and chambers of commerce can benefit from information contributing to the efforts and spending of anglers. Economic data can guide local entities in building more infrastructure to better suit anglers and continue to heighten economic benefits (Driscoll and Myers 2014). Recreational fishing contributes to regional economies all over the United States (Weithman 1986; Hutt et al. 2013; Lothrop et al. 2014). In 2011, anglers spent over \$456 million dollars in Alabama and \$873 million dollars in Georgia for fish (U.S. Department of the Interior, Fish and Wildlife Service

and U.S. Department of Commerce, U.S. Census Bureau 2014). Many communities depend on money being spent near a local water body to support portions of their local community (Lothrop et al. 2014), and sport fisheries have proven to provide important local tourism programs (Martin 1987).

To obtain a full understanding of the fishery as a whole, creel surveys should be conducted during all seasons, weather conditions, and during low and high angler activity (Lockwood 2000). The best creel survey design will perform as many minimally intrusive surveys in the allocated time limit as possible (Mallison and Cichra 2004). Two main types of creel surveys are used to gain information about harvest, catch, effort, and overall economic impact contributed to the body of water being surveyed (Bernard et al. 1998). Access-point surveys are useful to retrieve effort, catch, and harvest rates of anglers (Pollock et al. 1994). This method is valuable in areas where access is limited, which ensures that the surveyor will have a good opportunity to have contact with the majority of the anglers entering and leaving the water body. This design is less effective when there are many access points to a water body. Surveyors allocate a predetermined amount of time to interview anglers as they return back to the access point after completing their fishing trip. The main benefit of this type of survey is that creel clerks obtain immediate information from completed fishing trips (Pollock et al. 1994; Lockwood 2000). Access surveys are usually cheaper to conduct compared to other methods due to the lack of need to use a boat to conduct the survey. Also, access-point surveys are usually preferred in areas where safety may be an issue. For instance, if a night survey is required for the creel survey, access-point surveys will be safer and more conducive to obtain interviews with anglers.

The second common type of creel survey is a roving creel survey. Like the access-point survey, roving creel surveys are also on-site and are a good method to collect effort, catch, and harvest rates from anglers (Pollock et al. 1994). Anglers are constantly moving and can use various boat ramps in larger bodies of water; thus roving creel surveys are ideal under these conditions (Malvestuto et al. 1978; Pollock et al. 1994). A roving creel survey is preferred in areas where there is a lot of waterfront property or shoreline access areas. This allows the surveyor to account for both bank anglers and anglers fishing from docks that otherwise would have been missed. In a roving creel survey, surveyors actively engage anglers via boat. This allows surveyors the opportunity to count the number of anglers along with the ability to collect instantaneous trip data (Hoenig et al. 1993). A disadvantage of using the roving creel survey method is that it generally only measures incomplete trips (Pollock et al. 1994). The surveyor will not be able to collect data of the full day trip if the angler plans to continue to fish after the survey is completed. Therefore, a combination of the roving creel survey with a follow-up interview will result in a better estimate of the anglers trip (Alexiades et al. 2015).

A major benefit of roving creel surveys is the ability to obtain instantaneous data from the angler (Mallison and Cichra 2004). The instantaneous count method allows the survey clerk to count the number of anglers and boats in a given area with minimal bias (Hoenig et al. 1993). An instantaneous count of all boats and anglers within the survey section usually occurs at a specific point within each survey period. This typically is conducted within 15-20 minutes to minimize chances of boats leaving the area while the count is being taken (Pollock et al. 1994; Bernard et al. 1998). The number of anglers may be counted using various methods including boats, stationary vantage points, and airplanes. Opportunity bias is the inability to count all the anglers leaving or arriving at a fishing area. Opportunity bias can however become reduced

when choosing random sampling sites and periods throughout the survey (Bernard et al. 1998). Performing an instantaneous count at the beginning of the survey provides a more accurate estimate of the fishing effort, catch, and harvest rates taking place during that time (Malvestuto et al. 1978; Mallison and Circhra 2004). Aerial surveys are another tool used to obtain an instantaneous count. Although aerial counts cannot account for catch or harvest data, this method aids in determining effort and gaining an instantaneous count of boats over the reservoir (Lockwood 2000; Pollock et al. 1994). Aerial counts can be used to extrapolate sampling data collected from the roving creel survey to the entire number of anglers fishing the waterbody on that day. If an instantaneous count cannot be done during the survey period, a progressive count may be used. Unlike instantaneous counts, progressive counts are done throughout the entirety of the day as opposed to the beginning of the survey period. A progressive count is beneficial in areas where time will be too limited to do an initial count over the entire survey period (Pollock et al. 1994). Another way to reduce bias during this type of survey is to use a stratified, reandom design to conduct the survey over various times of the day and areas. This stratification will reduce variability in estimates by accounting for various patterns of angling effort that takes place throughout the day (Malvestuto et al. 1978; Pollock et al. 1994; Lockwood 2000).

A target of at least 400 surveys during a year ensures an adequate sample size of the population of anglers (Ditton and Hunt 2001). Although the onsite survey only provides incomplete data on expenditures, total catch, and overall experience, follow-up interviews can be used to obtain completed trip information (Ditton and Hunt 2001; Chen et al. 2003). Phone interviews provide an inexpensive option in estimating how much anglers spent on fishing activities (Pollock et al. 1994; Schorr et. al 1995). By incorporating phone interviews, surveyors can collect complete effort, harvest, catch, and additional expenditure data that took place after

the creel survey (Chen et al. 2003). Surveyors should contact the angler shortly after the trip to minimize recall bias (Pollock et al. 1994). Memory is imperfect so it is ideal to contact the angler within a week after the roving creel survey has been conducted.

The travel cost method (TCM) is often used to estimate the economic value of a fishery. The TCM estimates travel costs of anglers including expenditures, length of trip, and opportunity costs (Mckee 2013; Lothrop et al. 2014). This method incorporates the distance traveled from the anglers' home to the reservoir where the creel study is being conducted (Weithman 1986). The TCM is unique because it accounts for demand shifts due to the quality of the anglers experience on the reservoir (Weithman 1986). This method is effective in calculating complete benefits associated with trips planned just for the sole purpose of visiting an area such as a reservoir (Pollock et al. 1994). Economists and managers have used this method to determine the number of trips an angler would make if conditions either improved or decreased for the particular reservoir. Typically as the dollar amount of a fishing experience increases, the demand to make trips decreases (Lothrop et al. 2014).

Impact refers to economic events that would not occur if a particular resource was not present, such as a fishing reservoir. Economic impacts can be broken down into two categories. Direct impacts are those in which money is spent on expenditures such as gas, food, lodging etc. Indirect impacts refer to income that adds to the local communities or region which includes employment, taxes, and retail sales generated among businesses (Chen et al. 2003). Indirect impacts are usually the result of direct impact spending (Propst and Gavrilis 1987). When an angler enters into a region and spends money on products and services, it generates more money than what was initially spent (Propst and Gavrilis 1987; Ransom 2001). Industries that experience a net income demand even more goods, services, and additional jobs (Greene et al.

2006). Because state agencies are interested in the regional economic value of their fisheries, economists quite frequently use a multiplier when reporting gross sales to account for all the money added to the local economy (Weithman 1986). A multiplier becomes smaller the more an input is purchased outside of the region being surveyed (Chen et al. 2003). Some argue that economic impact on a local community does not necessarily include local anglers because people who live in the region are not adding money to the area; rather, the dollars are circulating (Martin 1987; Bradle et al. 2006). Others authors believe that there is a need to incorporate both local and non-local anglers due to the fact that a community could lose potential income if an angler decides to fish outside of a region due to poor fishing quality (Loomis 2006). It may be beneficial to separate local and non-local fisherman depending on what kind of economic data is being sought.

It is beneficial for economists and biologists to gauge the quality of anglers' experiences on various reservoir of interest (Bradle et. al 2006). This information allows fisheries managers to maximize the value of their resource by directing more effort towards projects that the anglers most prefer (Dalton et al. 1998). Asking questions such as, "would a higher catch rate or larger fish influence the amount of times an angler would visit the reservoir in the future" is a good start (Loomis 2006). In some instances, anglers have reported that they increase their number of trips substantially if fishing quality improved (Schramm et al. 2003). Another factor that may aid in an agency's evaluation on where to dedicate funds can be the angler's "willingness to pay" for certain management programs. Anglers may be willing to pay more than they currently do on fishing trips if their overall satisfaction increases. Thus, managing reservoirs to improve fishing quality in turn could boost local economies.

The economic value generated by a local fishery can be affected by various physical and environmental impacts, especially aquatic vegetation. In general, anglers prefer aquatic vegetation and consider it beneficial for catching their targeted species (Henderson 1996). A creel survey in two South Carolina reservoirs showed that anglers felt that aquatic vegetation enhanced their fishing experience, which was predicted to increase economic value of these reservoirs through increased angling effort (Henderson et al. 2003). However, there have been cases when an excess of Hydrilla *Hydrilla verticillata* had negatively impacted angler effort. In 1977, Hydrilla coverage exceeded 80% of Orange Lake, Florida, resulting in a 90% loss in revenue generated by anglers (Colle et al. 1987). Typically non-angling home owners and other groups who use the body of water for waterskiing, swimming, and other recreational activities associated with the reservoir have negative feelings associated with increased aquatic vegetation (Henderson 1996). Decreasing water levels have also been known to negatively affect fish habitat and angler effort (Hanson et al. 2002; Bradle et al 2006; Hutt et al. 2013; Daugherty et al. 2015). Other factors that can decrease value of fisheries include economic increased land prices, crowding on boat ramps and waters, and recreational activities other than (Chen et al. 2003). Reservoir managers have been faced with the realization that managing their water for hydrological operations alone are no longer necessarily the most economic beneficial approach (Niemi and Raterman 2008).

As with any method, certain biases are associated with creel surveys. As bag limit increases, this bias will decrease since there is less of a chance for an angler to meet his limit and leave early (Pollock et al. 1997). A higher bag limit usually ensures that a fisherman will stay for a more extended period of time. There also may be some error by not measuring or personally counting harvested fish, but generally these data are not worth the costs of potentially

inconveniencing anglers and harming public relations (Mallison and Cichra 2004). Subjective response error is human error generated by an angler from either over or under estimating measurements such as the size of fish harvested, and should be considered when analyzing measurement error (Alexiades et al. 2015).

Individual preferences differ between anglers. Managers who wish to capitalize on money continuing to circulate around their local water body need to consider all types of anglers' desires for their fishing experience. The more economic data they have on the variety of anglers in their area, the better community managers can dictate how and where to spend money to benefit the local economy (Driscoll and Myers 2014). A study of various Mississippi fishing sites showed that the angler's top reasons to fish was to be outdoors and to relax (Schramm et al. 2003). Fishing success does not always take priority over other desires. Another survey in Missouri showed that catching a trophy muskellunge *Esox masquinongy* during tournaments played a little role in overall angler satisfaction (Belusz and Witter 1986).

There have been countless numbers of creel surveys conducted on reservoirs throughout the country, but few have considered economic impacts of fishing. Because each reservoir has unique properties, including to proximity to anglers, proximity to other bodies of water, resources, and uses, site-specific creel surveys will continue to be needed (Chen et al. 2003). To avoid consequences of improper management of reservoirs, managers must dedicate more time into understanding all the demands of their water users (Niemi and Raterman 2008). Creel surveys can aid in providing data that can show other stakeholders in reservoirs the economic importance of properly maintaining their local fishery. With continuing effort towards conducting creel surveys, economic gains should increase in local economies if agencies and economists understand the desires of fishermen.

Objectives

1. Quantify recreational fishing effort, catch, and harvest rate for the main sport fish on Walter F. George Reservoir, Alabama-Georgia (hereafter, Lake Eufaula).
2. Quantify total expenditures and consumer surplus associated with these fisheries and partition trip expenditures into the respective regions where they occurred.
3. Determine amount of angler's trip expenditures that contribute to local taxes generated by Lake Eufaula fishery.
4. Describe expectations and goals of anglers to better understand where to allocate resources in the future so managers can better meet demands of anglers to increase revenue for this region.

Study Site

Completed in 1963, Lake Eufaula is located approximately 137 km between Columbus and Fort Gaines, Georgia (Figure 1). The reservoir is located on the Chattahoochee River bordered by both Alabama and Georgia and is operated by the United States Army Corps of Engineers to provide hydroelectric power and flood control but is also used heavily for recreation. Covering approximately 18,285 ha the reservoir has 1,030 km of shoreline with mean and maximum depths of 6.2 m and 29.3 m respectively (Environmental Protection Division 1993). The creel survey will cover the area between Walter F. George Dam to the Georgia State Road 39 Bridge, an area covering approximately 14375 ha (Appendix I).

Lake Eufaula is managed jointly by Georgia Department of Natural Resources (GADNR) and Alabama Department of Conservation and Natural Resources (ADCNR). The reservoir supports many sport fisheries, such as Largemouth Bass *Micropterus salmoides*, crappie

Pomoxis spp., sunfish *Lepomis* spp., Hybrid Striped Bass *Morone saxatilis* x *M. chrysops*, and catfish (family Ictaluridae). The reservoir is popular and has a national reputation for its Largemouth Bass fishery. In 2013 there were 51 known bass tournaments that brought in 1,412 anglers to Lake Eufaula (Abernethy 2014). In 2017 there are already 49 scheduled tournaments and will be expected to add more public tournaments.

Methods

A roving creel survey will take place January 1 through December 31, 2017. The reservoir will be divided into four sections with anywhere from 3-5 subsections within each unit. Each section varies in area due to the variation in shoreline length and width throughout the reservoir (Appendix I). A stratified, non-uniform probability sampling design will be used for this survey to select time of day and section of reservoir to sample (Malvestuto et al. 1978; Pollock et al. 1994). Probabilities of sampling each section will be weighted based on the amount of expected fishing pressure, determined after consultation with ADCNR and GADNR biologists. There are at least four separate boat ramps that will be used (one in each section) for convenient access to each section.

A roving creel survey, instantaneous count, aerial counts of boats, and follow-up telephone surveys will all be conducted to meet the goals of this project (Appendices I-III). The roving creel survey will be divided into three time periods spring, summer, and fall (January 1- May 31, June 1- September 30, and October 1- December 31), which will account for seasonal variation (Malvestuto et al. 1978). Using a random-number generator, sampling periods will be chosen for three possible times of the day. During spring months each period will be divided into three 3.5-h segments: morning (6:30 AM to 10 AM), mid-day (10 AM to 1:30 PM), and evening (1:30 PM to 5 PM). For the remainder of the year each period will be divided into three

4-h segments: morning (6 AM to 10 AM), mid-day (10 AM to 2 PM), and evening (2 PM to 6 PM). Two of three periods will be sampled day. Sampling periods will consist of five consecutive days, and two periods will be conducted each month. Each 5-day period will consist of two weekend days and three weekdays, and three aerial boat counts will be conducted during the period, one on a weekday and two on weekend days. Thus, each sample period will comprise seven roving creel surveys and three aerial counts.

Estimated wind speed (km/h), air temperature (°C), water temperature (°C), and precipitation (Yes/No) will all be recorded before each survey begins. Instantaneous counts will be conducted before interviews begin to determine instantaneous effort (Appendix II) by driving the full length of the section as described by Hoenig et al. (1993). Conducting this procedure will allow a count of both boat and shoreline anglers. After this process is done the interview process will begin (Appendix III).

Fishing boats will be approached at idle speed and continue with the trolling motor to prevent any disturbances to anglers. The survey clerk will identify themselves then ask anglers if they would be willing to participate in the survey. Only one angler per boat will be surveyed; if there is more than one angler on the boat, the one with the most recent birthday will be interviewed. The survey questions will be designed to promote a continuous flow of conversation that will last 5-10 minutes.

After the interview is complete anglers will be asked if they would be willing to participate in a follow-up phone interview. If they agree, the survey clerk will ask for their phone number and what the best time to contact them would be. After the 5-day survey period is complete, anglers will be called in the order they were interviewed. Anglers will be contacted

within the next week to try to prevent memory recall bias; if anglers cannot be reached a maximum of three attempts will be made to contact each angler (Pollock et al. 1994). After making contact with the angler, more detailed information about their trip to be receive during the creel survey will be obtained (Appendix V), including total hours fished, how many days spent at the reservoir, overall satisfaction of the trip, and if they plan to return. Other detailed questions will be asked based on individual expenses. These expenditures will be divided into the larger town/counties where their money was spent (Eufaula and Abbeville, Alabama; Georgetown and Ft. Gaines, Georgia) and other regions from out of town anglers. At the end of the interview, anglers will have an opportunity to pass along any additional comments regarding their fishing experience on the reservoir.

Data from the phone survey will be combined with those from the roving creel survey, instantaneous counts, and aerial surveys, to estimate completed economic impacts using calculations described in Malevestuto et al. (1978). Tax spending patterns will also be calculated for each of the targeted species. Targeted species categories will include black bass species, crappie, Hybrid Striped Bass, catfish and sunfish. Tax-rate distributions will be obtained for Alabama, Georgia, and counties surrounding the reservoir.

The TCM will be used with data gathered by on-site and follow-up interviews to determine the costs people incur to visit at Lake Eufaula (Mckee 2013; Lothrop et al. 2014). Only visitors whose sole purpose was to participate in angling will be accounted for in the travel cost method. The cost of gas for anglers will be calculated by using mileage sheets throughout the year. Consumer surplus will be estimated by calculating the difference in price an angler paid for a fishing trip compared to his willingness to pay for the same trip (Lothrop et al. 2014). A regression analysis will be conducted to show the relationship between the annual number of

visits and independent variables such as travel costs for the trip (McKee 2013; Lothrop et al. 2014).

Effort, catch, and harvest rates will be calculated for all species combined for each target species category using non-uniform probabilities described in Malevestuto et al. (1978). Effort for boat anglers (E) will be calculated with the following equation:

$$E = (I \times A \times t) / p_1$$

Where I is the instantaneous count of boats from aerial surveys, A is the average number of anglers per boat, t is the length of the time block, and p_1 is the probability of sampling an angler in each time block (McKee 2013). Effort will be estimated separately between bass boats and pontoon boats. The reason these vessels will be accounted for separately is because bass boats typically have a higher angling effort compared to pontoon boats.

Catch per effort will be calculated for each sample day with the following equation:

$$C = E \times R$$

Where C is catch, E is effort, and R is rate. Boat anglers and bank anglers will be estimated separately.

Harvest per effort will be calculated daily with the following equation:

$$H = E \times R$$

Where H is catch, E is effort, and R is rate. Boat anglers and bank anglers will be estimated separately.

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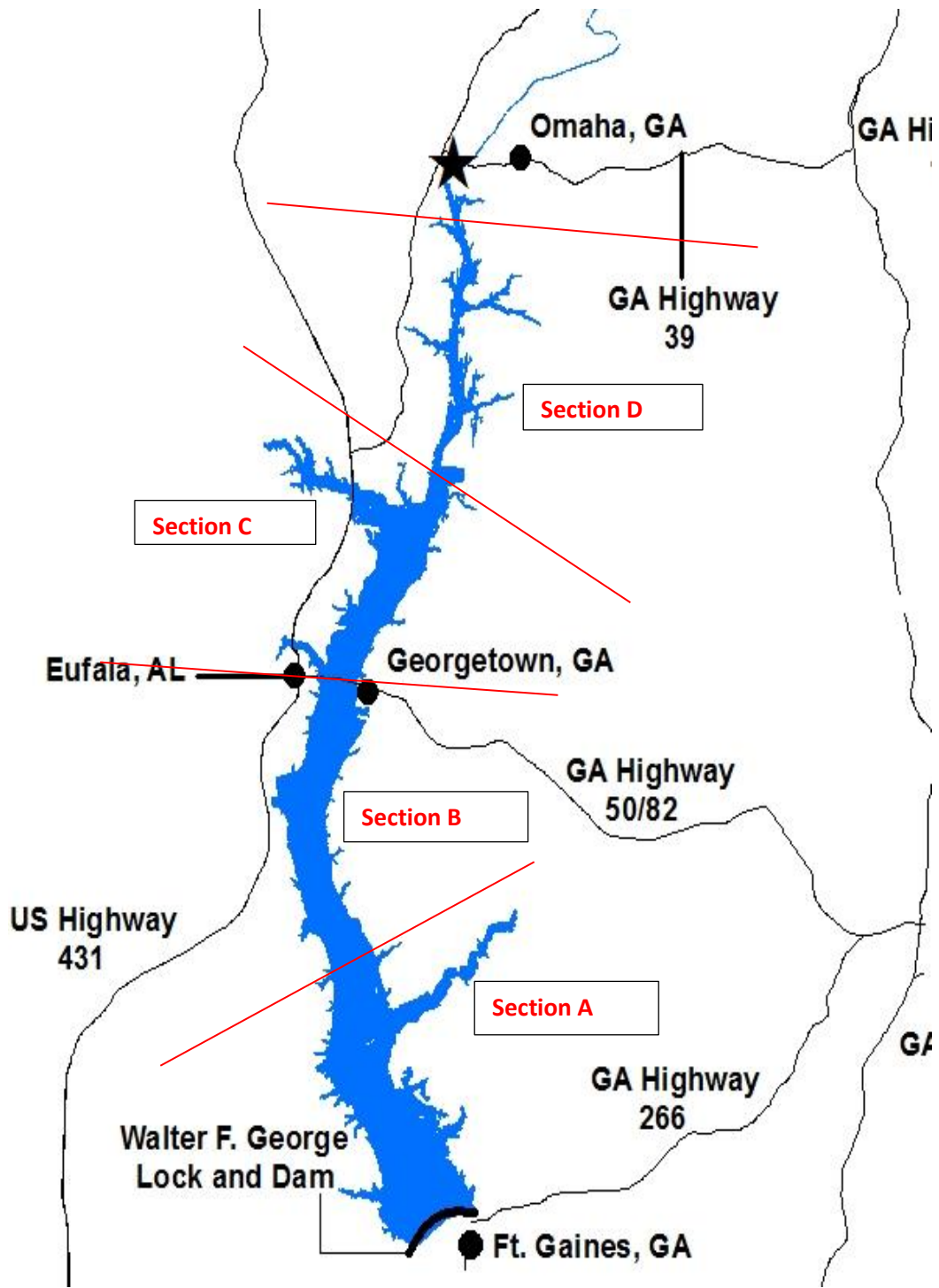


Figure 1. Sampling sections for Lake Eufaula 2017.

Appendix I. Area covering each section and subsection in hectares

Section	Sub 1	Sub 2	Sub 3	Sub 4	Sub 5	Total	Comment
A	1498	1622	1534	400	1158	6212	Walter F. George Dam to mile marker 84 (9 miles)
B	857	1450	700	970		3977	Mile marker 84 to US highway 82 Bridge (10.5 miles)
C	886	917	570	557		2930	US highway 82 Bridge to Bustahatchee Creek (9 Miles)
D	186	233	837			1256	Bustahatchee Creek to Georgia State Road 39 Bridge (12.5 Miles)

Appendix III. On site Roving Creel Survey Form

Lake Eufaula Interview Form 2017

Date: _____ Major River Section: _____ Creel Clerks: _____ Interview # _____
 Interview Time (military): _____ WPT: _____ Latitude: _____ Longitude: _____
 Circle One: Fishing Boat Pontoon Boat Shore Other _____
 Hello, we are working with Auburn University Fisheries Department... May we interview you? Y N
 -----(if yes continue)-----

1. What are you primarily fishing for? Bass/ Crappie /Sunfish/ Catfish/ Striped Bass or Hybrid
 Anything/ Other _____

2. How many of each species have you caught today?

Bass	Crappie	Catfish	Striper	Sunfish:
Keep: _____	Keep: _____	Keep: _____	Keep: _____	Keep: _____
Release: _____	Release: _____	Release: _____	Release: _____	Release: _____
Livewell: _____	Livewell: _____	Livewell: _____	Livewell: _____	Livewell: _____

3. Is this fishing trip in any way related to a tournament? Y N
 If **YES**, a. Currently in a tournament b. Prefishing c. Tournament name _____

4. Is this a guided trip? Y N

5. Have we contacted you before about this survey? Y N
 a. If **YES**, Have we contacted you on this particular fishing trip? Y N

6. What time did you start fishing today? _____
 a. What time do expect to quit fishing today? _____

7. What city do you live in?
 b. City: _____ State _____
 c. Trip type: Day Overnight If overnight, how many days? _____
 d. Launch site: _____
 e. Waterfront property? Y N Cabin

8. How many miles 1-way did you travel from your home to fish? _____

9. How much will your completed trip cost, including gas, lodging, food, drinks, ice, fishing equipment,
 tournament and license fees, and any other items? _____ **Circle One:** Individual Boat
 a. Of the \$xxx you will spend on this trip, how much will be spent within "20" miles of this
 river/reservoir section? _____

10. How many days have you fished for species at this stretch of the river or reservoir in the past 12
 months? _____

11. Number of adult anglers in party ___m ___f ::::::: Number of children < 16 ___m ___f

12. Would you be willing to allow us to contact you by phone for a more detailed survey? Y N

Contact information: Name: _____ Phone number: _____

M/F Age _____ Ethnicity _____ Occupation _____

Appendix IV. Aerial Boat Count Form

Clerk:		Aerial Boat Count	Date:
Start Time	End Time	Angler Boats	Pontoon Boats
Clerk:		Aerial Boat Count	Date:
Start Time	End Time	Angler Boats	Pontoon Boats
Clerk:		Aerial Boat Count	Date:
Start Time	End Time	Angler Boats	Pontoon Boats

Appendix V. Follow-up Telephone Survey Form

Call Date: _____ Clerk: _____ Call attempts: _____ Interview #: _____ Name: _____ Target Species: _____
 Creel Telephone: _____ Creel Fishing Trip Total Cost (yr): _____ Creel Date: _____ Was the Survey Complete Y N

(Fill out the italicized headings before conducting the interview)
 Hello, I am with Auburn University Fisheries Department. I contacted you at Walter F. George Reservoir (aka Lake Eufaula), (or along the Chattahoochee River) on date. You gave me permission to conduct a follow up survey about your fishing trip that day. The interview should take only 10 minutes of your time. All the information you give me today will remain confidential, anonymous, and no one will try to sell you anything. May I interview you?

1. Was fishing for target species your sole purpose for visiting Lake Eufaula/Chattahoochee River? Y N
 A. If NO what was the primary purpose of the trip? _____
2. How many hours did you fish the day I interviewed you on Lake Eufaula/Chattahoochee River? _____
3. For your fishing trip on date, the same trip I interviewed you when you were fishing for target species, would you rate the quality of that trip as poor, fair, average, good, or excellent? Poor Fair Average Good Excellent
4. Do you plan on returning to Lake Eufaula/Chattahoochee River to fish for target species in the future? Y N

- a. (Yes) How many trips do you expect you will go on within the next 12 months? _____
- b. (No) Why not? _____

5. What ramp do you use the most? _____

6. Was this an overnight trip? Y N

7. How many days did you spend at Lake Eufaula/Chattahoochee River? _____

8. What kind of lodging did you use on the fishing trip? Hotel/Motel Bed and Breakfast RV park (private) USFS site State site
 County site/City site Friends/Families Private property (pp) Other _____ None

IF PRIVATE PROPERTY:

A. Do you own, rent, or lease this property? (circle one) Own Rent Lease

If they rented or leased a property:

B. How much do you pay to lease/rent? (circle one)

_____ per month year

C. Is fishing the primary reason you use this property to fish at Lake Eufaula/Chattahoochee River? Y N

D. What city, state is it in? _____

9. If fishing for (target species) was not available at Lake Eufaula, where would you go to fish for (target species) instead?

a) How many miles is (answer to #9) from your house one-way? _____

b) Which is better (*circle one*), Lake Eufaula or Answer to 9a ?

10. Do you ever fish for target species at night? *Y* *N* How many days per year? _____

11. Do you ever target any other species at night? *Y* *N* How many days per year? _____

12. How many tournaments have you fished on Lake Eufaula/Chattahoochee River in the past 12 months? _____
A. Tournament info: Name(s) _____

13. Are you a member of any fishing club? *Y* *N* Name: _____

14. How many other reservoirs have you fished on in Alabama in 2017? _____

a) What are the names of them? _____

b) Which one was the best to fish at including Eufaula? _____

15. Would you prefer (*circle one*), *more* *less* *same* amount of aquatic vegetation in Lake Eufaula?

16. How many years of fishing experience do you have? _____

17. What is your household income? _____

18. Next, we would like to break down your \$ that you spent to fish for target species on the trip by what items and by what city you bought it in. If you weren't in a city when you purchased an item, the county will work. How much was spent and where was it bought for:

*Circle one: *Individual expenses* *Entire boat*

Item	TOTAL Cost	Town/County	Cost	Town/County	Cost	Town/County	Cost	Town/County	Cost
Used boat gas									
Lodging									
Groceries/drinks/ice									
Restaurant meals									
Fishing equipment/bait									
Guide fees/tips									
Boat/fishing rentals									
Tournament fees									
Boat launch/Storage fees									
Repair/Maintenance									
Car Gas Location Only									

That is all we need from you at this time. Thank you very much for your time. Do you have any comments about the lake you would like to share?
 COMMENTS: _____

Mr./Ms. _____, that is all the questions that I have for you. I would like to thank you again for your time.

