Yadkin Hydroelectric Project (FERC No. 2197)
Recreation, Aesthetics, and Shoreline Management
Issue Advisory Group
Final Meeting Summary

April 10, 2003
Alcoa Conference Center
Badin, North Carolina

Meeting Agenda

See Attachment 1.

Meeting Attendees

See Attachment 2.

Welcome and Introductions

Jane Peeples, Meeting Director, opened the meeting with introductions and a review of the agenda. Jane reviewed several process-related issues (meeting norms and schedule). She first reviewed the posted "meeting norms", which had been presented and agreed to at the February 28, 2003 Issue Advisory Group (IAG) Organizational Meeting: meetings begin and end on time; agenda is followed; needed information resources are available; tangible process is made; all decisions are clearly understood; agenda for next meeting is discussed at the close of each meeting; and group members demonstrate effective meeting behaviors.

Jane discussed the relicensing schedule. She said three-days had been set aside each month through the end of the year for Yadkin Project IAG meetings to avoid any conflicts with other regional relicensing meetings (May 20-22; June 3-5; July 8-10; August 5-7; September 2-4; October 7-9; November 4-6; and December 2-4). Jane noted that all three meeting days might not be used each month – for example, only two of the meeting days in April were used (April 9 and 10) for IAG meetings. She explained that the Fish and Aquatics and Recreation, Aesthetics, and Shoreline Management IAGs met in April because of the time sensitivity of the proposed studies. She said that the Wetlands, Wildlife, and Botanical IAG would also meet in April on April 25, 2003. Jane said that the Fish and Aquatics IAG scheduled a site visit for June 3, 2003. She noted that Yadkin had not yet scheduled meetings of the Operations Model IAG, County Economic Impacts IAG, or Cultural Resources IAG for April or May (all IAGs will not meet every month).

Jane said that a draft agenda was distributed in advance of the meeting (March 25, 2003 email). She explained that Larry Jones, High Rock Lake Association, asked Yadkin to add a discussion about shoreline management to the agenda in a letter dated April 8, 2003. Copies of the letter were emailed to the IAG (April 8, 2003 email). Jane said that if there was consensus among the IAG members (per meeting procedures), shoreline management would be added to the agenda.

Chris Goudreau, North Carolina Wildlife Resources Commission (NCWRC) did not oppose the added agenda item, but asked that it be added after the review of the Recreation Use Assessment Draft Study Plan and before the review of the Recreation Economic Impact Study and Yadkin Project Aesthetic Assessment Draft Study Plans. Jane proposed allotting the time between 11:00 a.m. and 12:00 noon for a discussion of shoreline management issues. The group agreed.

Continuing, Jane said that the purpose of the meeting was to review draft study plans for recreation and aesthetics studies. She said that based on the comments received at the meeting, Yadkin and its consultants would revise the draft study plans. The revised draft study plans would then be distributed (electronically) to the IAG for a second review. Yadkin and its consultants would then finalize the study plans and initiate the field studies.

Jane Peeples introduced Wendy Bley, Long View Associates, who provided a review of the March 13, 2003 Recreation, Aesthetics, and Shoreline Management IAG meeting.

Review of March 13, 2003 Meeting

Wendy briefly summarized the recreation and aesthetic issues discussed at the March 13, 2003 IAG meeting: recreation use, facilities inventory, reservoir carrying capacity, reservoir fluctuations and reservoir use, economic impacts of recreation use, downstream recreation, and regional recreation opportunities. She noted that the IAG would discuss draft study plans for a Recreation Use Assessment, an Overall Project Aesthetic Study, an Uwharrie National Forest Aesthetic Study, and a Recreation Economic Impact Study (see Attachments 3 through 6). All of the draft study plans were distributed to the IAG in advance of the meeting, with the exception of the Recreation Economic Impact Study Draft Study Plan, which was distributed at the meeting.

Wendy noted that the proposed Recreation Use Assessment (Attachment 3) would address many of the issues discussed at the March 2003 meeting including reservoir carrying capacity, reservoir fluctuations and reservoir use, and recreational use of the Project tailwaters. She said that Yadkin will also update its inventory of recreation facilities (to include an assessment of facility condition).

The Recreation Economic Impact Study (Attachment 4) will quantify the economic contribution of recreational use at the Yadkin Project to the five county region surrounding the Project. Recreational expenditure data will be collected by ERM as part of the Recreation Use Assessment.

Yadkin was also asked to study the potential effect of flows in the lower river, below Blewett Falls, on recreational opportunities. Wendy said that Yadkin believes that such a study should be conducted in conjunction with downstream fish and aquatic studies and in cooperation with Progress Energy, the downstream licensee. A joint workgroup (Yadkin and Progress relicensing workgroups) was proposed at an earlier meeting to address downstream flow issues. Wendy suggested revisiting the idea of a joint workgroup after Progress Energy's Resource Workgroups meet May.

Wendy said that Yadkin will also examine recreational opportunities at the Yadkin Project from a regional perspective.

Wendy stated that ERM will also conduct two aesthetic studies: 1) an Overall Project Aesthetic Study (Attachment 5) and 2) a Uwharrie National Forest Aesthetic Study (Attachment 6).

Robert Petree, SaveHighRockLake.org, asked which study would address recreational safety and the winter drawdown of High Rock Reservoir. Wendy answered the Recreation Use Assessment.

Wendy said that based on comments received, ERM would revise the recreation and aesthetic study plans. The revised study plans will be distributed electronically to the IAG within a couple of weeks for a final review. Wendy said that there would be no time to meet again before getting the Recreation Use Assessment in the field and suggested that Yadkin schedule a conference call, if needed, to discuss any major outstanding issues.

Wendy introduced David Blaha, ERM, who reviewed the various study plans.

Recreation Use Assessment Draft Study Plan

David Blaha suggested that the IAG review the Recreation Use Assessment Draft Study Plan (Attachment 3) page by page.

Chris Goudreau asked what was meant by "peak use weekend average recreation use" (the third bullet on page 1). David explained that the "peak use weekend average" is generally a summary of Saturday and Sunday recreation use during the peak use season (Memorial Day through Labor Day). Chris asked that this clarification be added to the study plan.

Chris requested "water quality" be added to the fourth bullet under Number 2 to read, "Evaluate effects of flow rates, timing, and **water quality** on boating/angling/other tailwater recreational uses". He expected use of the tailwaters would be different under low dissolved oxygen conditions.

Ann Bass, Yadkin Pee Dee Lakes Project, asked that the third bullet under Number 2 also include an evaluation of non-motorized boating opportunities (in addition to canoe/kayak opportunities). Ann also asked that the opportunity for whitewater recreation in the tailwater be evaluated. David Blaha noted that there are not any free-flowing river sections between the developments (i.e. the reservoirs back up to the dams). Ann clarified that she is interested in whitewater flows in the Narrows spillway. Wendy stated that an evaluation of whitewater recreation opportunities in the Narrows spillway is not a reasonable study request. Further, primarily because of safety concerns, Yadkin is not prepared to conduct such a study. Randy Benn, Yadkin counsel, added that if there was the potential for whitewater recreation at the Yadkin Project, American Whitewater would be participating in the relicensing. Ann said that if Gerrit Jobsis (South Carolina Coastal Conservation League and American Rivers) was at the meeting he would argue that if there were no dams there would be whitewater opportunities. David said that there might have been paddling opportunities, but probably not whitewater. Wendy reminded the IAG that the baseline, as defined by FERC, is the current condition at the

Project. She supposed that FERC would not approve and Yadkin would not propose whitewater flows in the Narrows spillway.

Ray Johns, U.S. Forest Service (USFS), asked David to expound on the first bullet under Number 2 ("characterize existing recreational use within the Project tailwaters"). David explained that ERM would characterize the amount and type of recreational use in the Project tailwaters (who was using the tailwaters, how often, and for what). Ray said that the USFS is interested in understanding if the recreational experience at the Project's reservoirs and in the Project's tailwaters is consistent with the USFS Recreation Opportunity Spectrum (ROS). Randy Benn asked about the extent of the ROS at the Yadkin Project. Ray said that the ROS is important as it applies to areas in and adjacent to the Uwharrie National Forest.

Larry Jones, High Rock Lake Association, asked that an objective be added to the study plan, which specifically states that ERM will evaluate the effects of varying water levels on the amount and type of recreational use at the Project (e.g. at certain water levels, are boat ramp closures necessary). Robert Petree asked that the study objectives also address recreational safety in the reservoirs and tailwaters.

Larry asked that a study be conducted to evaluate the quality of the public access areas and to determine if any improvements are necessary. David Blaha said that ERM would be using contact surveys to capture information about the adequacy of recreation facilities at the Project. Wendy Bley noted that the types of recreation facilities and their condition would be inventoried by Yadkin (the proposed Recreation Facility Inventory). Larry asked that the Recreation Facility Inventory be discussed briefly in the Recreation Use Assessment Study Plan.

Andy Abramson, Land Trust, asked that hiking be included in the first bullet on page two ("Total annual recreation use at the Yadkin Project, each of the four Project reservoirs, and at 40 individual recreation areas (in recreation days) by recreational activity type (e.g. boating, fishing, camping, **hiking**, swimming, picnicking, etc."). Ray Johns asked that the recreational activity "fishing" be described as "boat fishing" and/or "bank fishing". David Blaha said that the survey instruments make the distinction between boat and bank fishing.

Continuing, David Blaha proposed spot counts at 40 public access recreation areas for total of 54 days at each area (three times per day). He noted that ERM would administer a visitor use survey at each recreation area. David proposed using a canoe registry to estimate use of the four portage trails. Ann Bass asked if ERM would capture other non-motorized use of the portage trails (e.g. kayaks). David replied that ERM would include anyone using the portage trails (i.e. anyone who signs the registry). Ann asked that the title of the registry be revised to read, "Yadkin Canoe/Kayak Registry". David agreed to make the change.

Larry Jones asked if ERM is moving among recreation areas throughout the period of a day, how would they then get a use count for an entire day at one area (i.e. without a continuous presence at the area how can there be an accurate use estimate). Robert Petree and Mark Oden, High Rock Lake Business Owners Group, had similar questions. David Blaha explained that at each area, ERM would be recording the number of cars and boat trailers (as well as jet ski trailers, mounted roof top carriers, campers, anglers, swimmers, picnickers, and other recreation users) at the

recreation area during each visit. Larry said that oftentimes recreationists will not leave a car or trailer at the area. Rather, they will drop the boat off at the ramp and drive the trailer home.

Roger Jones, NCWRC, suggested using aerial counts to estimate recreation use of the Project reservoirs. David said that ERM would supplement spot count and survey data with recreational use counts made from aerial photos. He noted that aerial photos provide only a snapshot of use. Larry suggested using a traffic counter to capture use. Based on past experiences, David said that he preferred not to use traffic counters. Wendy said that the Recreation Use Assessment was not designed to count every person at every recreation area. Rather, the Use Assessment will include enough replications to cover use under every circumstance (peak use, non-peak use, good and bad weather etc.). Larry said that each visit to the recreation area needs to be longer than just one hour. David clarified that on any given day, ERM would be surveying 5 or 6 recreation areas. He said that the spot count data would be used to estimate a turnover rate and total daily use.

Chris Goudreau asked about the expected confidence interval for the use estimates, especially if the data set was subdivided into use by reservoir, day and nighttime use etc. David Blaha said that the assessment was structured to remain within the 95% confidence level. Chris asked if the 95% confidence level was for Project-wide use estimates or estimates of the individual reservoirs and/or recreation areas. David said that the confidence level for the individual recreation areas might be less. He committed to providing confidence level information for each of the data sets. Chris questioned the adequacy of spot counts on only two weekend days and two weekdays in the months of April and May.

Ray Johns asked that the Badin Lake Group Campground be added to Table 1 on page 4 and the list of Major Recreation Areas on page 5. Ray also asked that site No. 48 be listed as “UNF Deep Water Trail Access”. Wendy asked if the campground provides access to the reservoirs. Ray said, in his opinion, yes (i.e. recreational use of the campground is induced by the reservoirs). David Blaha suggested removing the UNF Cove Boat Landing from the list of Major Recreation Areas. Ray asked David not to remove the area from the list until he consulted with the local ranger district.

ERM proposed to try to collect 100 surveys at each of the major public access areas and at least 50 surveys at the other areas. Chris Goudreau suggested that there be target sample by season for the visitor use survey (e.g. not all 100 surveys during one use season – spring). He said that it would be important to understand recreation use during each season. David explained that ERM’s survey technicians will be sampling during all seasons and have been instructed to collect as many completed surveys as possible. Chris suggested that if ERM collects a large number of surveys from one recreation area, they re-focus their efforts on recreation areas where less surveys have been collected. David agreed.

Andy Abramson and Ann Bass asked that the following question be added to the visitor use survey, “Are there any other activities or services that are currently not available that would improve your recreational experience?”

Continuing, David Blaha proposed using a non-contact mail-back survey to the approximately 3,700 shoreline residences to estimate resident use of the reservoirs (each resident would receive

one of three surveys for the prior three months). David noted that total recreational use of the reservoirs would also include estimates of use from private community boat launches, private organizations/clubs, and campgrounds and commercial operations.

For clarification, Chris Goudreau asked if each of the 3,700 residences would receive only one survey. Larry Jones understood that each resident would receive all three surveys. David explained that each residence with a private recreation facility permit from Yadkin would have one opportunity to participate in the Use Assessment (i.e. they would receive one of the three surveys). Larry thought it important to get a complete year's worth of data from the resident – he suggested one survey to each resident asking them to estimate their family's annual recreation use. Mark Oden agreed. David said that it is not necessary to survey all 3,700 residents three times to develop a statistically defensible estimate of recreation use. Further, he said, that annual estimates are pretty gross because it becomes difficult to remember accurately use over the last 12 months.

Chris Goudreau asked ERM to delete the last two sentences under the second bullet on page 7 (beginning with, "Each residence will be randomly selected . . ."). He asked if once ERM estimated recreation use at the Yadkin Project if they would compare that estimate to previous use studies to see if the estimates make sense (i.e. do the use estimates pass the straight-face test and are they valid).

Ray Johns asked that the resident survey include a question about the type and number of watercraft per residence.

Greg Scarborough, Rowan Salisbury Association of Realtors, asked about estimating recreational use of those residents without private piers. David Blaha proposed a survey of those using private community boat launches. There are approximately 27 private communities with boat launches. David said that ERM would also estimate use by private organizations/clubs on the reservoirs and at the campgrounds and commercial operations. Greg asked David what was meant by "the total number of improved lots (lots with houses) within the 27 private communities with boat launches". David explained that an "improved lot" has a residence on it. Greg asked if a property owner with a vacant lot would receive a survey. David replied no. He clarified that ERM would be randomly selecting 500 improved lots in the private communities to receive the survey. Wendy Bley suggested that any lot for which Yadkin has a contact person and a mailing address should have the opportunity to be randomly selected.

David said that ERM will supplement the spot counts and surveys with any recreational use information available from commercial marina/campground operators, the USFS, or the NCWRC.

Next, David solicited comments on the various survey instruments (Attachments A-H to the draft study plan).

Attachment A – Spot Count Form

Lawrence Dorsey, NCWRC, asked if the various groupings of recreational areas were always similar. David explained that the recreation areas were grouped consistently for the given season for logistical reasons (e.g. Group 3 (Sites 49, 45, 44, 43, 33, and 32) will remain the same for the entire summer season). Chris Goudreau asked if ERM randomized the start location on each sampling day. David answered yes. He noted that the start time will also vary.

Robert Petree commented that three visits to six different sites per day would be difficult (i.e. not enough time in one day). David Blaha said that a similar survey plan had worked well in 2002.

Andy Abramson asked that hiking be added to all survey instruments as a recreational activity.

Attachment B – Yadkin Canoe/Kayak Registry

No comments.

Attachment C – Visitor Use Survey

David Blaha noted that the visitor use survey, which is also available in Spanish, was intended to be self-administered, but that the survey technicians would also offer to administer the survey verbally. Chris Goudreau suggested that all questions on the survey that relate to the particular day of the survey be grouped together and all general information questions be grouped together.

Larry Jones asked if the surveys were numbered so that ERM could track how many surveys are distributed and returned. David said that the surveys are not numbered, but that the survey technicians track the number of refusals (to complete the form) they receive.

Larry said that because of the nature of some of the questions, recreationists would not be able to complete the survey until they have finished recreating. David commented that the survey is not intended to be an exit poll. He said that the survey technicians would be advised to survey swimmers and picnickers while they were recreating and boaters as they were recovering their boats (i.e. after their trip).

Robert Petree commented that survey technicians could spend a whole day at the Southmont Boat Access Area counting users and administering the survey. He again questioned the timing of visiting six areas three time per day. David explained that the areas were grouped together to reduce driving time. He noted that about 12 of the 40 areas have very low use. He said that it would be very likely that the survey technicians would spend a majority of their time at the major recreation areas.

Randy Benn said that he was sympathetic to the group's concerns about not counting everyone, every day, at every location. He said that ERM is proposing a statistically valid sampling methodology. Randy asked David to provide some background on statistical sampling. David reviewed how total annual visitor and resident recreation use would be calculated (see study plan).

Robert Petree thought that traffic counters would be a quick and easy way to see if the use estimate was close to actual use (he recommended using the counter for multiple one day periods as a check). David said that the counter is not able to capture the total number of people in the car.

Chris Goudreau asked that Question 5 on the visitor use survey include parking areas and lighting as facilities. He also noted a typographical error in Question 8.

The IAG took a break before discussing shoreline management issues, as agreed to at the outset of the meeting. The IAG agreed to continue discussing the Recreation Use Assessment Draft Study Plan after lunch.

Shoreline Management Issues

Jane Peeples noted that the IAG had agreed to spend one hour discussing shoreline management issues. Hardcopies of Larry Jones' April 8, 2003 letter were available (see Attachment 7). Copies of a document submitted to Yadkin by SaveHighRockLake.org were also distributed (see Attachment 8). Jane asked Larry to review the contents of his letter.

Larry said that his letter was a product of the March 13, 2003 IAG meeting where Wendy Bley said that Yadkin would not be addressing the Yadkin Project SMP or shoreline management issues because Yadkin had not received any requests/comments to do so. Larry said that he understood, from the Initial Consultation Document (September 2002) and the November 2002 public meetings, that a new Shoreline Management Plan would be created as part of the relicensing process. He said that the High Rock Lake Association, in their January 9, 2003 letter to Yadkin suggested that Yadkin adopt shoreline management guidelines that are similar to Duke Power's and Progress Energy's and are much less restrictive. He commented that the Yadkin SMP is overly restrictive and asked that issues be revisited and studied (i.e. determine if there is a valid basis for the restrictions).

Jane asked Robert Petree to review the contents of his document. Robert explained that SaveHighRockLake.org identified eight issues that the group would like Yadkin to address. Very generally, the eight issues are 1) ban on new boat houses, 2) restriction on new private boat ramps, 3) 100-ft forested setback, 4) 200-ft shoreline requirement for a pier permit, 5) pier regulations, 6) ban on woody debris removal and fee, 7) seawalls and erosion control permits and fees, and 8) dredging permit process.

Jane Peeples summarized the issues: the role of the Yadkin SMP in the Project relicensing, the basis for the SMP restrictions that currently exist, the future of the existing SMP, and a comparison of Yadkin's SMP to other regional plans.

Wendy Bley said that at the March 2003 meeting she had been trying to distinguish between issues and actual study requests. Wendy said that it was unclear to her that anyone had requested specific information that would need to be collected as part of a study. As background, she explained that when the SMP was submitted to FERC for approval, Yadkin suggested that the SMP run concurrent with the license and that Yadkin use any new information collected during

the relicensing process to modify the SMP, as necessary. She noted that Yadkin would summarize the existing SMP, explain the basis of the SMP, present any new information collected during relicensing, and discuss any proposed changes to the SMP in Exhibit E of the License Application submitted to FERC. She suggested that the IAG explore the need for any shoreline management studies (i.e. what information do we need).

Larry Jones said that SaveHighRockLake.org objects to the ban on new boathouses. He asked what type of study would be needed to justify the continuation or removal of the ban. Larry and Robert Petree acknowledged that they were having trouble framing their issues as study requests.

Larry Jones stated that the current SMP took two years to develop. He said he was concerned about the clock running on the development of a new SMP. He said that a new SMP would need to be submitted with the License Application. Wendy said that a new SMP would not be developed over the next two years. She also clarified that the License Application must be submitted to FERC two years prior to current license expiration. The purpose of the License Application being to give FERC the information it needs to make a licensing decision. She said that new information on recreation use, aquatic habitat, and wetlands etc. would have to be evaluated by Yadkin and FERC before any decision was made to change the SMP.

Jane Peeples encouraged the group to discuss the kind of information that would need to be gathered to make a case for changing the SMP or not. Wendy said that SaveHighRockLake.org, in their issues document, had requested a comparison of the Yadkin SMP to other regional SMPs. She said that Yadkin could do such a study. Scott Slatton, Town of Badin, asked that such an evaluation also include a comparison of zoning regulations at the county and municipality level. Lawrence Dorsey suggested that the comparison also look at the various Project boundaries and the licensee's jurisdictional authority at the project. Darlene Kucken said that pulling this information together in a comparative way would be very helpful. She said that state regulations, as well as the resources being addressed by the plans should also be considered in the evaluation. Ray Johns agreed. He said that the evaluation should also determine why there are differences among the various SMPs (i.e. the rationale for the SMP - probably a resource condition). Because of the resource specific nature of a SMP, Andy Abramson was uncertain of the utility of comparing SMPs.

Larry stated that Alcoa should not use the management of lands outside of the Project boundary to hinder access to the reservoirs. Jane Peeples said that it seems as if Larry's concern is a legal issue. Scott Slatton suggested a review of relevant North Carolina case law. Randy Benn explained that a permit for a private recreation facility on a Project reservoir is a contract between Yadkin and the adjacent property owner. He said that the property owner agrees to certain conditions on his/her property in return for access to Yadkin's property.

Tim Langford, NCWRC, asked if the current SMP varies from reservoir to reservoir. Larry answered no – the Yadkin Project SMP is "one size fits all". Lawrence Dorsey said that the SMP allows dredging in High Rock, but not in Narrows.

Larry Jones said that the Project license is subject to the equal consideration of many factors. He said that the current SMP is detrimental to recreation. Randy Benn said that it is FERC who is

ultimately responsible for balancing power and non-power values. He said that FERC had approved the Yadkin SMP because it thought the SMP balances power and non-power values. Randy suggested that the group gather the necessary data before trying to define solutions. Larry said that he did not want to be years into the process and be told that he should have requested a study.

Tim Langford asked if there should be a study that looks beyond current use and estimates future use if, for example, there was more access to the reservoirs (i.e. what would use be if the SMP was less restrictive and allowed more private piers and/or boat ramps). David said that ERM would evaluate the effect of alternative Project operations on future recreation use at the Project. Wendy said that the Recreation Use Assessment, as proposed, did not address Tim's issue.

Ray Johns said that there are concerns about the type of recreational experience on the reservoirs and the aesthetics of the reservoirs. Larry Jones said that if he wanted to go boating and not interact with anyone, he would go to Tuckertown Reservoir. However, if he wanted to visit with friends and socialize, he would go to High Rock Reservoir. Ray said that it would be helpful to characterize (e.g. amount of shoreline development) the Yadkin Project reservoirs in a regional context.

Summarizing, Jane Peeples said that most of the concerns expressed have to do with access and the quality of the recreation experience and how both are limited by the current SMP. She said that the group agreed that a comparison of Yadkin's SMP to other regional SMPs, as well as the information being collected in other relicensing studies would be helpful when considering changes to the SMP.

Chip Conner, Uwharrie Point, asked if FERC has any SMP regulations or a template or other guidance document on the development of SMPs. Randy Benn replied that FERC does not have any SMP regulations. Gene Ellis added that FERC did publish a guidance document for licensees to use when developing a SMP. ["Guidance for Shoreline Management Planning at Hydropower Projects" in April 2001 (see www.ferc.fed.us).] Gene noted that FERC often uses the Yadkin Project SMP as benchmark for other licensees to follow.

Recreation Use Assessment Draft Study Plan (cont.)

After lunch, David Blaha continued to accept comments on the Recreation Use Assessment survey instruments.

Attachment C – Visitor Use Survey

David explained that ERM had initiated the Recreation Use Assessment in March 2002, but it was curtailed by July 2002 because of the drought. He proposed dropping several questions from the survey used last summer because the responses were not very useful: 1) Why did you select this access area at this reservoir? and 2) Do you own waterfront property on any of the reservoirs? Ray Johns advised David not to drop the question about owning waterfront property because he felt that the question helps to prevent "double-dipping" (i.e. residents completing a visitor use and resident use survey). Wendy agreed that the question would have some utility.

She suggested, “Do you own property on the Yadkin Project reservoirs and if so, which one?” Ray thought it would also be beneficial to understand why the resident is using a public access area (maybe the resident does not have a private boat launch). Lawrence suggested that the resident use survey also include a question about residents using public access areas for boat launch and recovery. Larry Jones commented that residents use the boat launch at Dutch Second Creek.

Ray asked that hiking be added as a recreational activity under Question 1. He also asked that “staying at my house” be added to list of responses to Question 4 (because residents may be using the public boat launches).

Chris Goudreau asked if Question 8 was specific to the day’s trip. David Blaha said yes, but agreed to add some clarifying language to the question.

David said that he was also considering deleting Question 7, “How has your visitation to this reservoir changed in the past five years?” Donna Davis, Stanly County Utilities, asked if ERM would be able to determine if users are long-term visitors or first timers. David said that Question 6 asks the user to estimate “about how many times of year do you recreate at each of the Yadkin Project reservoirs”. David commented that he might also delete Question 6. Chris Goudreau suggested that David not rely on responses to Question 7 to determine future trends. Ray Johns agreed. He suggested relying on some of the Ken Cordell use studies for trend information.

Larry Jones asked that that following responses be added to Question 11: exposed lake bottom; timber harvesting; floating debris/trash; bulkheads/rip rap; and lack of landscaping. Ann Bass asked that “water clarity or sedimentation” also be added to the list of responses.

Attachment D – Resident Use Survey

Chris Goudreau asked how the answers to Questions 2 and 4 would be used. David Blaha explained that he would weight the answers to Question 2 by the number of people in the household (Question 4).

Larry Jones questioned the relevance of having a child in the household answer Question 5. David said that he would use the responses to Question 5 to capture use when the head of the household may be working five days a week and possibly only recreating two days a week; whereas the child is recreating seven days a week. David said that the consequence of only using the responses of one adult would be to potentially underestimate use.

Ray Johns asked why the resident use survey was only for a three-month period (March, April, May 2003). David explained that there would be two other surveys for the months of June, July, and August and September, October, and November. There will be no survey for the months of December, January, and February. He noted that all 3,700 pier permit holders would receive one of the three surveys.

Larry Jones asked how ERM would account for guests/visitors to the household. Chris Goudreau suggested using the responses to Question 4 to expand the responses to Question 5. David also considered changing the language "usually stayed" in Question 4.
Larry Jones asked why the response "restaurants and drinking places" was limited to "only if at a lakeside establishment" in Question 9. David said that it is necessary to distinguish between normal eating-out expenditures and those that are Project or recreation related (e.g. food shopping at a local supermarket is not a recreation-related expenditure for a resident). Larry commented that the Boat and Tennis Club is not lakeside but is thought of as a lake restaurant. Wendy suggested that "lakeside" be changed to "lakeview".

Chris Goudreau suggested that ERM define some terms used in the mail-back survey, such as "recreate" (used in Question 2). He said that some people consider recreating to be looking out the window at the reservoir on a sunny day. Larry also suggested defining the unit of measure that ERM is trying to establish – "recreation days".

Attachment E – Private Community Resident Use Survey

David Blaha noted that the only difference between the resident use survey and the private community resident use survey was any reference to waterfront homes. The group agreed that changes to the resident use survey would also apply to the private community resident use survey.

Attachment F – Private Organizations/Clubs Phone Survey

No comments.

Attachment G – Private Campground Recreational Use Survey

Larry Jones asked if the survey instrument would be distributed to the campground owner or the individual campers. David said that the survey would be distributed to the campground owner. Ray Johns asked that the survey also characterize the level of amenity at the campground.

Recreation Use Assessment – Reservoir Carrying Capacity

David Blaha said that ERM would estimate the physical and social carrying capacities of each of the Project reservoirs. Ann Bass asked if the carrying capacity evaluation would address the issue of compatibility between different recreational uses. David suggested adding a question to the use surveys to identify any conflicts between different users.

Lawrence Dorsey said that the NCWRC has boating accident information by waterbody that could be used in the physical carrying capacity evaluations.

Brian Strong, NC Division of Parks and Recreation, asked if the physical carrying capacity evaluation would include an assessment of the ability of the Project, physically, to handle any future expansion of recreation (e.g. are there any areas appropriate for swimming if demand for

swimming increases). David explained that the Recreation Use Assessment would determine the percent utilization of each individual public access recreation area expressed as percent capacity.

Larry Jones asked why the recreation facility inventory was not described in the Recreation Use Assessment Draft Study Plan. Wendy Bley said that the recreation facility inventory would be described in a separate study plan. Larry asked if the facility inventory would include an assessment of potential improvements. Wendy explained that the facility inventory would include an assessment of facility condition and the availability of barrier-free facilities. She said this information would then be combined with recreation use estimates and percent capacity estimates for each recreation area to determine the need for additional facilities to accommodate existing and future use.

Larry Jones asked if the facility inventory could be used to determine if recreational use would improve at High Rock Reservoir if facilities similar to those available at Tuckertown Reservoir were available. Wendy said that there are no components of either study, as proposed, that would directly answer this specific question.

Recreation Use Assessment – Tailwater Use Assessment

David Blaha explained that the Tailwater Use Assessment would characterize existing recreational use of the Project tailwaters, assess safety conditions, and evaluate the effects of Project operations on tailwater recreation.

Chris Goudreau said that the study, as proposed, would only address land-based access to the tailwaters, not water-based (by boat) access. Specifically, he asked if Attachment H (Tailwater Use Survey) would be administered to those in boats. Robert Petree suggested that a question (did you use the tailwater today) be added to the visitor use survey. Wendy commented that visitors might not know what the "tailwater" is. David said that he would give further consideration to the issue of the extent of the tailwater and how to best collect information from boaters using the tailwater.

Recreation Use Assessment – Historic and Future Use

David said that ERM would conduct a trend analysis to estimate changes in recreational use over time. Ann Bass asked why the study would only estimate future recreational use and facility demand at the Project through 2020, when there was the potential for a 30-year license. David said that changes in use could be so dramatic that any estimates beyond 20 years would be "a shot in the dark". Chris Goudreau agreed.

David asked if there were any other questions on the Recreation Use Assessment Draft Study Plan. Chris Goudreau asked ERM to report a standard deviation for each of the use estimates. Chris asked if use estimates would be provided for each recreation area. David replied yes.

Roy Rowe, Piedmont Boat Club, commented that the Abbotts Creek area is very busy, but because there are no access areas on Abbotts Creek this use would not be captured. David said that the aerial photos could be used to capture this use.

The group agreed to discuss the Overall Project Aesthetic Study (Attachment 5) and the Recreation Economic Impact Study (Attachment 4) next. ERM would discuss the Uwharrie National Forest Aesthetic Study Plan (Attachment 6) with the USFS (specifically, David Wright) at Ray Johns' request.

Yadkin Project Aesthetic Assessment Draft Study Plan

David Blaha explained that the Overall Project Aesthetic Study (Attachment 5) would generally characterize the aesthetic character of the Project area and more specifically characterize the aesthetic character of Project facilities and operations. The study will also evaluate the effects of existing and alternative Project facilities and operations on aesthetics in the Project area.

Ann Bass asked if "Project facilities" included the recreation areas. David said yes.

Steve Reed, North Carolina Division of Water Resources, asked if the IAG would have an opportunity to review the key viewpoints to be evaluated. David suggested that ERM put together a list and a map of key viewpoints to discuss with the IAG. Steve said that the IAG would want to consult on the actual viewpoint as well. Ray Johns suggested that ERM convene a small team, to include homeowners to select the viewpoints. Ray suggested that some of the viewpoints be of piers that could be used to assess the visual impacts of shoreline development. David said that the study, as proposed, does not address the visual impacts of shoreline development.

Ray Johns asked if the photographs of the key viewpoints would be rated and if so, by whom (a panel or focus group). David said that the Uwharrie National Forest Aesthetic Study (Attachment 6) would include a visual preference survey component.

Ann Bass suggested using real estate property values to offer some sense of the aesthetic value. David said that it would be difficult to use real estate property values because there are other variables associated with the assessment.

Robert Petree commented that "aesthetics" is a subjective term. He said that some people want to look at houses.

Summarizing, David said that ERM would work with the IAG to get agreement on the key viewpoints. He said that ERM and Yadkin would also give further consideration to somehow evaluating the visual impacts of shoreline development.

Recreation Economic Impact Study Draft Study Plan

Copies of the Recreation Economic Impact Draft Study Plan (Attachment 4) were distributed for review during lunch. David explained that the study would quantify the economic contribution of recreational use at the Yadkin Project to the five-county region surrounding the Project.

Scott Slatton asked how this study was different from the studies requested at the March 14, 2003 County Economic Impacts IAG. Wendy Bley explained that the Recreation Economic Impact Study is a subset of the larger economic picture that will be evaluated with studies requested by the County Economic Impact IAG (i.e. the information from this study will be much more detailed).

David explained that there would have to be some agreement on the Project operating alternatives to be used to estimate the effects of alternative Project operations on recreational use. David proposed to apply "adjustment factors" to the baseline future use estimates to reflect the effects of alternative Project operations on recreational use. He explained that the adjustment factors would be developed based on recreational use patterns at "surrogate" reservoirs.

Wrap-up

In conclusion, Wendy said that Yadkin would work with ERM to revise the study plans. The revised study plans will be distributed to the IAG electronically for a second round of review and comment. If any significant issues are raised, Yadkin may convene a conference call to discuss them. She said that ERM plans to initiate the Recreation Use Assessment in May 2003, so the study plan and the survey instruments will need to be finalized soon.

The IAG agreed to meet on June 4, 2003 at 10:00 a.m. to discuss the Overall Project Aesthetics Study and to possibly identify key viewpoints.

Larry Jones asked when the Operations Model IAG would meet again. Gene Ellis responded that, as was discussed at the March 14, 2003 meeting, there would not be anything substantive to discuss until later in the year when OASIS was constructed and operational.

Jane Peeples reviewed the meeting schedule: on April 25, 2003 the Wetlands, Wildlife, and Botanical IAG will meet; on June 3 and possibly the morning of June 4 the Fish and Aquatics IAG will meet; and on June 4, 2003 at 10:00 a.m. the Recreation, Aesthetics, and Shoreline Management IAG will meet.

Attachment 1 – Meeting Agenda

Yadkin Project
(FERC No. 2197)
Communications Enhanced Three-Stage Relicensing Process

Recreation, Aesthetics, and SMP Issue Advisory Group Meeting

Thursday, April 10, 2003
Alcoa Conference Center
Badin, North Carolina

9:00 AM – 4:00 PM

Preliminary Agenda

1. Introductions, Review Agenda

2. Review of March 13, 2003 IAG Meeting

3. Review of Draft Recreation and Aesthetic Study Plans

   I. Recreation Use Assessment
      i. Reservoir Use Assessment
      ii. Tailwater Use Assessment
      iii. Carrying Capacity Assessment
   II. Recreation Economic Impact Study
   III. Yadkin Project Visual/Aesthetic Assessment

4. Schedule and Agenda for Next Meeting

Attachment 2 – Meeting Attendees

Name	Organization
Andy Abramson	Land Trust
Ann Bass	Yadkin Pee Dee Lakes Project
Bob Smet	APGI, Yadkin Division
Brian Strong	NC Parks and Recreation
Chip Conner	Uwharrie Point
Chris Goudreau	NC Wildlife Resources Commission
Darlene Kucken	NC Division of Water Quality
Dean Barbee	NC Wildlife Resources Commission
Donna Davis	Stanly County Utilities
Gene Ellis	APGI, Yadkin Division
Greg Scarborough	Rowan/Salisbury Association of Realtors
Jane Peeples	Meeting Director
Jody Cason	Long View Associates
Julian Polk	APGI, Yadkin Division
Larry Jones	High Rock Lake Association
Lawrence Dorsey	NC Wildlife Resources Commission
Lee Hinson	Concerned Property Owners of High Rock Lake
Libby Saunders	Badin Lake Association
Mark Oden	High Rock Business Owners Group
Marshall Olson	APGI, Yadkin Division
Randy Benn	Yadkin counsel
Ray Johns	US Forest Service
Robert Petree	SaveHighRockLake.org
Roger Jones	NC Wildlife Resources Commission
Roy Rowe	Piedmont Boat Club
Scott Slatton	Town of Badin
Steve Reed	NC Division of Water Resources
Tim Langford	NC Wildlife Resources Commission
Wendy Bley	Long View Associates

Attachment 3 – Recreation Use Assessment Draft Study Plan

RECREATION USE ASSESSMENT
Yadkin Hydroelectric Project

Draft Study Plan

Background

Alcoa Power Generating Inc. (APGI) is the licensee for the Yadkin Hydroelectric Project. The Yadkin Project is currently licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2197. This license expires in 2008 and APGI must file a new license application with FERC on or before April 30, 2006 to continue operation of the Project.

The Yadkin Project consists of four reservoirs, dams, and powerhouses (High Rock, Tuckertown, Narrows, and Falls) located on a 38-mile stretch of the Yadkin River in central North Carolina. The Project generates electricity to support the power needs of Alcoa's Badin Works, to support its other aluminum operations, or is sold on the open market.

As part of the relicensing process, APGI prepared and distributed, in September 2002, an Initial Consultation Document (ICD), which provides a general overview of the Project. Agencies, municipalities, non-governmental organizations and members of the public were given an opportunity to review the ICD and identify information and studies that are needed to address relicensing issues. To further assist in the identification of issues and data/study needs, APGI has formed several Issue Advisory Groups (IAGs) to advise APGI on resource issues throughout the relicensing process. IAGs will also have the opportunity to review and comment on Draft Study Plans. This Draft Study Plan has been developed in response to comments on the ICD and through discussions with the Recreation, Aesthetics, and Shoreline Management IAG, to provide additional necessary information for consideration in the relicensing process.

1.0 Study Objectives

On March 13, 2003 the Recreation, Aesthetics and Shoreline Management IAG met and discussed objectives for the Recreation Use Assessment. Based on written comments and the discussions at the IAG meeting, the following objectives have been identified for this study.

1. Collect sufficient information to be able to make statistically sound estimates of the following aspects of recreational use of the Yadkin Project.

- Total annual recreation use (residents and visitors) at each of the four Project reservoirs (in recreation days) and under varying water levels
- Total annual daytime and nighttime use (residents and visitors) at each of the four Project reservoirs (in recreation days)
- Peak use weekend average recreation use (in recreation days) for daytime and nighttime use at each of the four Project reservoirs
- Total annual recreation use at the Yadkin Project, each of the four Project reservoirs, and at 40 public access recreation areas in recreation days) by residents and visitors

- Total annual recreation use at the Yadkin Project, each of the four Project reservoirs, and at 40 individual recreation areas (in recreation days) by recreational activity type (e.g. boating, fishing, camping, swimming, picnicking, etc.)
- Percent utilization of each individual public access recreation area expressed as percent capacity (based on the completed recreation use assessment, identify any recreation areas that are meeting or exceeding use capacity)
- Recreational user (resident and visitor) profile information (e.g. length of stay, types of recreational activities, party size adequacy of the recreation facilities etc.)

2. Assess the effects of the Yadkin Project on recreation in the tailwaters of the four dams that comprise the Project. Stakeholder comments on the Yadkin Project ICD raised the following information needs/issues:

- Characterize existing recreational use within the Project tailwaters;
- Evaluate vehicular, pedestrian, and disabled access to the tailwater areas;
- Evaluate canoe/kayak portage conditions and opportunities;
- Evaluate effects of flow rates and timing on boating/angling/other tailwater recreational uses;
- Evaluate recreational safety issues such as physical hazards, effects of project operations on water currents and depths, and access to tailwater areas.

3. Evaluate the recreational carrying capacity of the Yadkin Project.

- Estimate the physical (safety) and social carrying capacities of each of the four reservoirs, while also noting any environmental effects related to recreational use.
- Identify traditional recreational uses of the project area
- Estimate future recreational use of the project area

This Draft Study Plan describes the technical approach for collecting and evaluating information to respond to these information needs/issues, the study's final products, and a proposed study schedule.

2.0 Technical Approach

This section describes ERM's proposed methodology for preparing a sound, accurate, and highly defensible estimate of recreation use at the Yadkin Project.

2.1 Recreation Use Assessment

Six subtasks will be undertaken in order to assess recreational use at the Yadkin Project:

- Spot Counts
- Canoe Registry
- Visitor Use Survey
- Resident Use Survey
- Private Boat Launch Survey
- Other Recreational Use Data Collection

Each of these subtasks is described below.

2.1.1 Spot Counts

Spot counts will be conducted at 40 public access recreation areas (see Table 1 for a list of these areas) throughout the study year (May 2003 to April 2004).

- *Sampling Dates* –sampling days will be selected using a stratified random sampling methodology. All calendar days will be stratified by peak holidays, weekends, and weekdays for each month to ensure adequate sampling for the entire year.
- *Sampling Frequency* –Each public access recreation area will be sampled 54 days over the year with the following frequency:
  - 3 weekend days and 3 weekdays a month during June, July, and August (including Memorial Day, 4th of July, and Labor Day peak weekends) – we will treat 4th of July as a weekend day
  - 2 weekend days and 2 weekdays a month during the rest of the year.

During each sampling day, staff will visit each site 3 times (early in the morning, mid-day, and late afternoon/evening) to determine total daily recreational use and better estimate the turnover rate. The Highway 601 and the Rowan County Pump Station Boat access areas may be surveyed less frequently (but at least one weekday and one weekend day per month) during the off-season because of low use and their remoteness.

Table 1. Sample Sites and Number of Observations Made

Site	Site Description	Reservoir
1	Highway 601 Access Area	High Rock
2	Rowan County Pump Station	High Rock
3	York Hill Boat Access	High Rock
4	Crane Creek Fishing Access Pull-off	High Rock
5	Little Crane Creek Fishing Access	High Rock
7	Southmont Boat Access Area	High Rock
8	High Rock Marina and Campground	High Rock
9	Highway 47 Fishing Pull-off	High Rock
10	Buddle Creek Boat Access Area	High Rock
12	Abbotts Creek/NC 8 Bridge Pull-off	High Rock
13	Tamarac Marina	High Rock
14	Dutch Second Creek Boat Access	High Rock
15	Flat Swamp Boat Access	High Rock
17	High Rock Dam Tailrace Access	Tuckertown
18	High Rock Dam Tailrace Access	Tuckertown
19	Bringle Ferry Boat Access	Tuckertown
20	Cedar Creek Fishing Pull-off	Tuckertown
21	Lick Creek Fishing Pull-off	Tuckertown
22	Flat Creek Boat Access Area	Tuckertown
23	Flat Creek Fishing Access Area	Tuckertown
24	Newsome Road Access	Tuckertown
25	Riles Creek Recreation Area	Tuckertown
26	Highway 49 Boat Access Area	Tuckertown
27	Tuckertown Pull-off Fishing Access	Tuckertown
29	Tuckertown Dam Tailrace Access	Narrows
30	Garr Creek Access Area	Narrows
32	Old Whitney NCWRC Fishing Pier	Narrows
33	Old Whitney Boat Access Area	Narrows
34/35	Lake Forest CG/Fish Tales Marina	Narrows
37	Circle Drive Boat Access Area	Narrows
38	Lakemont Access Area	Narrows
39	UNF Holt's Cabin Picnic Area	Narrows
40	UNF Walk-in Fishing Pier	Narrows
41	UNF Badin Lake Campground	Narrows
42	UNF Cove Boat Landing	Narrows
43	Palmerville Access Area	Narrows
44	Badin Lake Swim/Picnic Area	Narrows
45	Badin Boat Access	Narrows
48	Deep Water Trail Access	Falls
49	Falls Boat Access	Falls

- *Survey Administration* – At each public access recreation area, ERM staff will count and record the number of vehicles, boat trailers, jet ski trailers, mounted roof-top carriers for canoes (not including roof-top carriers that come with vehicles), campers, anglers, swimmers, picnickers, and other recreation users. Any capacity problems will be noted and recorded.
- *Sampling Forms* – A standardized data collection form will be utilized to ensure completeness of the spot counts and to facilitate data entry into the electronic database (see Attachment A).

2.1.2 Canoe Registry

In lieu of conducting spot counts at the canoe portage trails at each of the four dams, a sign and weather-protected registry form for canoeists portaging around the dams will be installed at a prominent location near the take-out. The signs will request canoeists to register the date, time, and number in their party (see Attachment B). Staff will check these registries approximately every 2 weeks to tally the number of users. The survey technicians will ask any canoeist observed at any of the 40 public recreation access areas whether they used the portages and whether they signed the registry.

2.1.3 Visitor Use Survey

ERM will also conduct an on-site contact Visitor Use Survey, which would provide information on user characteristics, activities, concerns, and overall recreational experience. This survey would also be available in Spanish.

- *Sampling Locations* –the contact use survey will be administered at 40 public access recreation areas during the spot counts.
- *Sampling Dates* –sampling would occur on the stratified random sampling days selected for the spot counts.
- *Sampling Frequency* – ERM will try to collect at least 100 surveys at each of the major public access recreation areas (see list below) and at least 50 surveys at the other minor public access recreation areas.

  <u>Major Recreation Areas</u>
  Southmont Boat Access Area
  Buddle Creek Boat Access Area
  Tamarac Marina
  Dutch Second Creek Boat Access
  Flat Swamp Boat Access
  Flat Creek Boat Access Area
  Highway 49 Boat Access Area
  Tuckertown Dam Tailrace Area
  Old Whitney Fishing Pier/Boat Access Area
  Circle Drive Boat Access Area
  Lakemont Access Area
  UNF Cove Boat Landing
  Badin Lake Swim/Picnic Area
  Badin Boat Access
  Fish Tales Marina

Sampling at this level is expected to result in at least 2,500 surveys. This intensity of survey would allow for statistically valid conclusions to be drawn at the individual public access recreation area level regarding recreational use and opinions and a very high degree of confidence at the individual reservoir level.

- *Survey Administration* –the surveys will be administered on-site by trained survey technicians. Sample days would be 10 hours long. The survey technicians will approach recreation users at each site, explain that we are collecting information on recreational use for Yadkin to provide to FERC, and request that they complete a short survey. The survey form would be given to the user to fill out. The questionnaire will be relatively short (no more than 2 pages) and able to be completed in about five minutes. Surveys would be collected immediately on-site following their completion. At recreation areas with only a few users, the survey technician will ask all groups to complete the survey. At sites with many users, the survey technician will try to get surveys from recreation users in each recreation activity.
- *Sampling Forms* – a standardized survey form will be developed and used (see Attachment C). This survey form would ask user profile and expenditure information, such as:
  - length of stay
  - types of recreational activities
  - party size
  - adequacy of recreation facilities
  - degree of crowding
  - conflicts with other recreational users
  - changes in their visitation frequency to the Yadkin Project over time
  - recreation-related expenditures made on this trip (e.g., food, lodging, supplies, equipment, entertainment, fuel) for inclusion into IMPLAN

ERM will also keep track of the number of refusals to ensure the statistical validity of the results.

Spot count and survey data on recreation use will be supplemented with recreational use counts made from aerial photos. ERM will obtain approximately 6 aerial photographs of High Rock and Narrows reservoirs and count the total number of boats on the reservoirs. The 6 over flights will be scheduled as follows:

- 2 holiday weekends (4th of July and Labor Day)
- 2 summer weekends
- 2 summer weekdays

2.1.4 Resident Use Survey

There are approximately 3,700 residences with piers along the shoreline of High Rock and Narrows reservoirs. These residents have direct access to Project waters from their property without needing to use any of the 40 public access recreation areas. There are very few residences along the shoreline of Tuckertown Reservoir and no residences on Falls Reservoir.

A non-contact mail-back Resident Use Survey of Narrows and High Rock residents will be conducted that would provide information on user characteristics, activities, concerns, and overall recreational experience of these residents.

- *Sampling Dates* –surveys will be distributed 3 times (June, September, and December) and request that they be returned within two weeks. The surveys will ask users how often they have recreated at the reservoirs over the past 3 months. These surveys will have an addressed stamped return envelope provided to encourage a high return rate.
- *Sampling Size and Frequency* – Although a random survey of a portion of these residences would be acceptable statistically, ERM will mail the survey to all 3,700 residences that have private recreation facility permits from Yadkin (this does not guarantee their participation, only their opportunity to participate). Each residence will be randomly selected to receive one of the surveys. The list of private recreation facility permit holders will be supplemented with the slips managed by commercial and community marinas. Yadkin will provide ERM with contact names and addresses for these marinas.
- *Survey Administration* –information from all returned surveys will immediately be entered into a database.
- *Sampling Forms* –a standardized survey form will be used (see Attachment D). This survey form would ask user profile and expenditure information, such as:
  - household size
  - types of recreational activities
  - approximately how many days a year do they reside at their waterfront residence
  - frequency of recreational use for each recreational activity by season
  - average amount of time spent recreating per outing
  - adequacy of recreation facilities
  - degree of crowding
  - conflicts with other recreational users
  - changes in their visitation frequency to the Yadkin Project over time
  - recreation-related expenditures (e.g., food, lodging, supplies, equipment, entertainment, fuel) for a typical day of recreation, for inclusion into IMPLAN.
  - Questions regarding aesthetics

The data collected about recreation-related expenditures and aesthetics will be used in separate studies that evaluate the effects of recreation on regional economics and the effects of the project on aesthetics.

2.1.5 Private Boat Launch Survey

There are approximately 47 private boat launches at the Yadkin Project, including 12 commercial facilities, 27 private communities, and 8 organizations/private clubs. These are distributed as follows: 37 on High Rock Reservoir, 2 on Tuckertown Reservoir, 8 on Narrows Reservoir, and 0 on Falls Reservoir. ERM proposes a three-pronged approach to obtaining recreational use information based on type of ownership.

- *Private Community Boat Launches* – ERM will conduct a stratified random sample of residents within private communities with boat launches. This approach requires that APGI (or some other entity) provide the total number of improved lots (lots with houses) within the 27 private communities with boat launches. ERM will provide APGI with guidelines for randomly selecting approximately 500 improved lots and will provide ERM with the owner's name and address. ERM will develop a mail survey (a modification of the Resident Use Survey) (see Attachment E) to collect information on the frequency and type of recreational use by residents of private communities. These property owners

will receive one of three mailings requesting information on their recreational use of the reservoirs over the prior 3 months. Data from the returned surveys will be entered into a database and analyzed to estimate total annual recreational use at these private community boat launches and to describe recreational patterns.

- *Private Organizations/Clubs* –ERM will conduct a telephone survey of each club/organization to collect information on the organization/club's membership, extent of annual use (e.g., all year, summer, hunting season), frequency of use, and type of recreational activities at each site (see Attachment F). This approach assumes that APGI (or some other entity) can provide the names, addresses and phone numbers of contact persons at each organization/club.
- *Campgrounds and Commercial Operations* –ERM will conduct a telephone survey with each campground or commercial facility operator and collect information on the number of campsites, relative number of permanent, seasonal, and occasional residents, and recreational opportunities at the campgrounds. This approach assumes that APGI (or other entity) can provide the names and phone numbers of contacts at each campground. ERM will develop a survey (modification of the private community survey above) (see Attachment G) for the contact person to distribute to a statistically-determined number of campers regarding the frequency and type of recreational use at the reservoirs. Data from the returned surveys will be entered into a database and analyzed to estimate total annual recreational use at these private campgrounds/commercial operations and to describe recreational patterns.

2.1.6 Additional Recreational Use Data Collection

Spot counts and the Resident and Visitor Use Surveys will be supplemented by collecting available use data from the following entities that own and/or operate recreational facilities within the Yadkin Project boundary:

- commercial marina/campground operators,
- the U.S. Forest Service for the Uwharrie National Forest,
- North Carolina Wildlife Resources Commission

Some of the commercial marinas charge a launch fee (e.g., Tamarac Marina), the data from which we would convert into known launch use statistics. Obtaining information on the number of launches would allow us to compare that information with our spot counts to help confirm the turnover rate for boating-related recreational activities. Yadkin will coordinate with the marina operators (Boat Dock Marina, Badin Shores Marina, Badin Lake Marina, and Uwharrie Point Marina) to try to get their agreement to participate. ERM will collect information from the operators approximately every 2 weeks.

2.2 Reservoir Carrying Capacity

ERM will estimate the carrying capacity of each reservoir in terms of physical and social factors.

2.2.1 Physical Carrying Capacity

Estimates of physical carrying capacity are primarily driven by safety considerations (i.e., maintaining safe distances between boats). ERM will apply national boating safety criteria (e.g., Bureau of Outdoor Recreation) for area requirements for various types of reservoir recreational uses (e.g., power boating, waterskiing, jet skis, canoes).

2.2.2 Social Carrying Capacity

Estimates of social carrying capacity are a more direct measure of recreational experience and address crowding issues. There are several ways of measuring social carrying capacity that can lead to different carrying capacity estimates:

- Preferred boating density from an experience standpoint
- Acceptable boating density from an experience standpoint
- Boating density at which the user would accept limitations on the number of boats

ERM will evaluate social carrying capacity in several ways:

- Estimate the maximum number of boats at one time (BAOT) from the aerial photographs on peak holiday and summer weekend days (see Task 2.1 above)
- The Visitor Contact Survey asks recreational users how crowded the reservoir was on that day and to what extent has crowding been an issue for them at the reservoirs.

Based on these data, ERM will estimate both the physical and social carrying capacities of each of the four reservoirs.

2.3 Tailwater Use Assessment

Each of the four project tailwaters has different physical and hydrologic characteristics, which requires that each be evaluated individually. This study plan reflects this requirement. The study plan is organized around each of the specific information needs/issues identified in Section 1.0, and is described below.

2.3.1 Tailwater Physical Description

ERM will prepared a description of the physical characteristics of each of the four project tailwaters (e.g., width, depth, substrate, flow velocity) under a range of flow releases from the upstream dam and downstream headwater elevations. This information will be collected from three sources:

- Field observation and inspection at a range of discharges – including photo-documentation over a range of flow releases
- Results from the APGI's fisheries consultant's transects, which include width, depth, velocity and substrate information
- Hydraulic modeling from APGI's engineering consultant

2.3.2 Specific Information Needs/Issues

Characterize Existing Recreational Use of the Project Tailwaters

Task 2.1 will include spot counts and contact surveys in the following locations relevant to this Tailwater Recreation Study:

- High Rock Dam tailrace - High Rock Dam Picnic and Fishing Access (Rowan County) and High Rock Dam Tailrace Access (Davidson County)
- Tuckertown Dam tailrace - Tuckertown Dam Tailrace Access Area
- Narrows Dam tailrace – there is no direct access to the Narrows Dam tailrace other than the canoe portage. The RUA study is conducting spot counts and contact surveys at the Deep Water Trail Access and Falls Boat Access points.
- Falls Dam tailrace – there is no direct access to the Falls Dam tailrace other than the canoe portage.

In addition, a canoe registry will be established at each of the canoe portages at the four dams as part of the RUA study. This information will be supplement with any information available from Progress Energy regarding recreational use of the Falls Dam tailrace.

During the field visits conducted in Task 2.1, spot counts of users will be recorded and a short oral survey will be conducted regarding user preferences and concerns regarding recreational facilities, opportunities, access, and safety. ERM will develop a short survey instrument tailored to tailwater recreation areas (see Attachment H).

This information will be used to characterize existing recreational use of the Project tailwaters in terms of:

- The estimated total amount of recreational use (e.g., in terms of annual recreation-days)
- Recreational use by month and time of day
- Types and amounts of various recreational activities
- User assessment of the adequacy of recreational facilities

Recreation Safety Condition Assessment

The recreational safety condition assessment will evaluate safety conditions for recreational users in the project tailwaters, including safety issues associated with project operations (e.g., sudden changes in water depths and velocities, adequacy of safety signage) and associated with recreational use (e.g., proximity of recreational use to dam, presence of appropriate safety measures, safety policies and procedures).

ERM will review the Yadkin Project's safety history, FERC safety inspection reports, and the Project Emergency Action Plan (EAP). The Project will be evaluated in terms of consistency with FERC safety guidelines (*Guidelines for Public Safety at Hydropower Projects*) and the industry general standard of care regarding:

- Presence of safety devices such as fences, signs, boat barriers, buoys, log booms, audible devices, night illuminations, and beacon lights

- Presence of safety barriers to keep people and boats away from danger areas,
- Fencing to discourage public entry to hazardous areas,
- Warning signs, signals, and audible alarms to denote sudden changes in water releases,
- Signage to warn swimmers and other recreational users of danger areas

Effects of Project Operations on Project Tailwater Recreation

ERM will evaluate the effects of Project operations on tailwater recreation. This will involve evaluating the effects of a range of flow releases from the upstream dam and downstream reservoir headwater elevations on recreational facilities, access, use, and safety. The methodology for this evaluation will include:

- Effects on recreational facilities – determine based on water elevations whether any tailwater recreation facilities are unusable above or below certain flows/levels.
- Effects on recreational access – determine, based on water elevations, depths, or velocities, whether access (i.e., vehicular, boat, pedestrian, or handicapped) to any tailwater recreation areas is impeded, and if so, to what extent and where.
- Effects on recreational use – determine whether Project operations limit recreational use or opportunities, and if so, to what extent and under what conditions.
- Effects on recreational safety – determine whether Project operations create any safety issues in terms of sudden changes in water depths and velocities, access to desired recreation spots. This will be evaluated in terms of how quickly the changes in flow characteristics occur, whether there are any warnings of changes in flow, appropriateness of existing signage, and compatibility with normal safety requirements at hydropower projects

2.4 Historic and Future Use Assessment

2.4.1 Historic Recreational Use

This subtask involves research on traditional recreational uses of the project since the Project was constructed. In terms of traditional uses, ERM will coordinate with APGI and other contractors and review any historical photos regarding historic uses of the Project reservoirs for recreation. ERM will also collect all available information on recreational use since the Project was constructed, including prior FERC Form 80 reports, other APGI studies, any counts or other information from NCWRC and other state and local agencies. ERM will conduct a trend analysis to estimate changes in recreational use over time.

2.4.2 Future Recreational Use

ERM will collect and evaluate information on:

- Recreation use trends at the Yadkin Project using information collected in task 2.4.1 above;
- Projected demographic changes (e.g., population, age distribution, income, minority populations) as well as additional waterfront development at the Yadkin Project
- Recreational activity trends (i.e., which activities are becoming more or less popular) based on national and regional sources.

ERM will combine this information to develop estimates of future recreational use and facility demand at the Yadkin Project through the year 2020. ERM will also compare future use levels with existing facility capacity to determine the adequacy of existing facilities and the potential future need for additional facilities.

3.0 Analysis and Reporting

Once a full year of survey data has been collected, ERM will analyze the data and prepare the Draft Study Report. Below is a description of how recreational use will be estimated.

Total Annual Visitor Recreation Use

Based on the spot counts, ERM will average daily recreational counts at each of the 40 public access recreation areas for peak weekend, weekend, and weekday by month. These daily counts will be modified to estimate daily use based on a turnover factor. The turnover factor will be determined from the analysis of spot count results from the three visits to each site per sample day and the Visitor Use Survey responses regarding length of visit. As mentioned above, if available, spot counts will be compared to actual entire day information from the commercial operators. If the preliminary analysis indicates seasonal differences (e.g., length of visit may be less in the off-season than in the summer), turnover factors specific to each recreational use (visitors may turnover less while boating, for example, than picnicking) and for each recreation season will be developed. Based on the spot counts, the turnover factor, and average party size by recreational activity, ERM will estimate daily visitor recreation use for peak weekend, weekend, and weekdays for each month and then simply multiply these estimates by the number of days for each type of day for each month for all 12 months for each public access recreation area. ERM will then sum up the monthly totals for each public access recreation area by reservoir to estimate total annual visitor recreation use at each reservoir. Total annual visitor recreation use for the Project will be estimated by simply summing the totals for each reservoir.

ERM will distinguish daytime versus nighttime visitor recreation use using the traditional definition of nighttime as sunset to sunrise. ERM will estimate "nighttime" use by tallying campground receipts and observations during the early morning and late evening spot counts.

Total Annual Resident Recreation Use

Based on the Resident Use Survey, an average number of recreational days per residence will be developed (by multiplying the number of recreational visits by the average number of participants) by season. If the data indicate a significant difference, separate estimates will be developed for each reservoir. This average number of recreation days per residence multiplied by the total number of waterfront residences for each reservoir will estimate the total annual resident recreation use by month for each reservoir. Total annual resident recreation use for the Project will be estimated by simply summing the totals for each reservoir.

Total Annual Recreation Use by Recreation Activity

Total annual visitor recreation use by recreation activity for each of the 40 public access recreation areas will be estimated by determining the percentage of recreation use by recreation activity by month from the Spot Count and Visitor Use Surveys and applying it to the total monthly recreation use estimates for each recreation area developed above.

Average residence recreation use by recreation activity will be estimated using the results of the Resident Use Survey where the respondents would estimate the number of recreational trips and average number of participants for each recreational activity by season. If the data indicate a significant difference, separate estimates will be developed for each reservoir. This average number of recreational days per recreational activity per season will be multiplied by the number of waterfront residences to estimate total seasonal resident recreational use by activity. The total annual resident recreation use by recreation activity will be determined by simply adding the results for each season.

Total annual recreation use by recreational activity by reservoir will be determined by simply adding the results from of the resident and visitor estimates. The total for the Yadkin Project will be determined by simply adding the totals for the four reservoirs.

Percent Utilization of Public Access Recreation Areas

ERM will estimate percent utilization for each of the 40 public access recreation areas by averaging the non-peak weekend daily use estimates and comparing them to the facility capacity. ERM will also provide additional information regarding utilization and identify any recreation areas or facilities that are meeting or exceeding use capacity using the following information:

- Estimate percent utilization of the 40 public access recreation areas by averaging the non-peak weekend daily use during the peak season only (which is a better gauge of facility capacity than all non-peak weekends) and comparing them to the facility capacity
- Note the number of observations from Spot Counts when facility capacity was exceeded for each public access recreation area
- Gather data in several ways to help understand the magnitude of the crowding issue:
  - Include questions on the Resident and Visitor User Surveys regarding recreational user's opinions about the degree of crowding (e.g., social carrying capacity)
  - Use the proposed aerial photographs to estimate total number of boats on each reservoir at one time during peak hours on peak weekend days, and typical weekend days and weekdays.

Recreational User Profile Information

Responses from the Visitor Recreation Use and Resident Recreation Use surveys will be used to characterize recreational users. For example, this information would include:

- Basic demographics (e.g., age, sex, place of residence)
- Length of stay
- Types of recreational activities
- Party or household size
- Adequacy of recreation facilities

- Frequency of recreational use at the Yadkin Project
- Average amount of time spent recreating per outing
- Degree of crowding on reservoirs and at access sites
- Conflicts with other recreational users
- Changes in visitation to the Yadkin Project over time

Other information based on the questions in the survey instrument will also be analyzed. This information will be presented for both visitors and residents separately and combined where appropriate.

3.1 Draft Recreation Use Assessment Study Report

ERM will prepare a Draft Study Report. The Draft Study Report will be provided to APGI, the IAG, and other interested stakeholders for review and comment.

3.2 Final Recreation Use Assessment Study Report

ERM will address APGI, the Recreation, Aesthetics, and Shoreline Management IAG, and other reviewer's comments on the Draft Study Report and prepare a Final Study Report. ERM will also provide APGI with an electronic copy of the Final Study Report as well as all databases that have been created.

4.0 Proposed Project Schedule

This study should take approximately 15 months to complete the preliminary draft report (12 months of field surveys and 3 months of analysis and report preparation).

Date: _____
Interviewer: _____

YADKIN RECREATION USE ASSESSMENT
SPOT COUNT FORM
GROUP 3 - Summer Season

Starting Mileage: _____
Ending Mileage: _____

ACTIVITY	Site 49 Falls Boat	Site 45 Badin Boat	Site 44 Badin Lake	Site 43 Palmerville	Site 33 O. Whitney Boat	Site 32 O. Whitney Fish.
Time & Weather						
Total # of Vehicles						
No. of Boat Trailers						
No. of Jet Ski Trailers						
No. of Top/Roof Carriers						
Bank Anglers						
Sun Bathers						
Swimmers						
Picnickers						
Water Skiers						
Campers						
Jet Skiers						
Canoeists						
Power Boaters						
Hunters						
Sailors						
Other						
Comments/Observations						
Number of Visitor Contact refusals (not interested/already surveyed)						

Attachment A

YADKIN CANOE REGISTRY

The Yadkin Division of Alcoa Power Generating, Inc. who manages this reservoir, has hired ERM to conduct a recreation use survey at High Rock Reservoir, Tuckertown Reservoir, Narrows Reservoir (Badin Lake) and Falls Reservoir. This information will be used to help improve recreation opportunities at the reservoirs. Please take a few minutes to answer these questions. Your experience and opinions are important to us.

Date/Time	# of people in your group	Put-in Location	Take-out Location	Ease of using the portage at this dam (circle)		
				Easy	Moderate	Difficult
				E	M	D
				E	M	D
				E	M	D
				E	M	D
				E	M	D
				E	M	D
				E	M	D
				E	M	D
				E	M	D
				E	M	D
				E	M	D
				E	M	D

Attachment B

Interviewer: _____
Location: _____

Date: _____
Time: _____

YADKIN PROJECT
VISITOR USE SURVEY

Attachment C

The Yadkin Division of Alcoa Power Generating, Inc. who manages this reservoir, has hired ERM to conduct a recreation use survey at High Rock Reservoir, Tuckertown Reservoir, Narrows Reservoir (Badin Lake) and Falls Reservoir. This information will be used to help improve recreation opportunities at the reservoirs. Please take a few minutes to answer these questions. Your experience and opinions are important to us. All responses will be kept confidential.

1. Please indicate with a **"P"** which one of the following is the ***primary activity*** that you have participated in, or will participate in, during your trip to the reservoir today. You can indicate other activities you have/will participated in with a "✔".

motor boating	_____	swimming	_____	picnicking	_____
boat fishing	_____	jet skiing	_____	sun bathing	_____
bank fishing	_____	water skiing	_____	sailing	_____
canoeing	_____	camping	_____	hunting	_____
				other	_____

2. How many people are in your group today, including yourself?
   Number of adults (16 years or older) _____
   Number of children (less than 16 years) _____

3. How long will you be staying at the reservoir today?

   _____ Day Trip – how many hours do you plan to spend at the reservoir today? _____ hours
   _____ Overnight – how many nights do you plan to stay at the reservoir on this trip? _____ nights

4. If you are staying overnight, please indicate below where you are staying?
   Local hotel/motel_____
   Tent camping _____
   Trailer or RV camping _____
   Renting a house near the reservoir _____
   Staying at my vacation home _____
   Staying at a friends house _____

5. Please evaluate the adequacy of each of the following facilities at this reservoir. (check appropriate box)

	Excellent	Very Good	Acceptable	Mostly inadequate	Inadequate	Don't know/ Not applicable
Boat ramps/docks						
Marinas						
Campgrounds						
Swimming beaches						
Toilets (Port-a-johns)						
Fishing Piers						
Informational Signage						

If you feel any of the facilities at this reservoir are "mostly inadequate" or "inadequate", please explain why. _____

_____

6. About how many times a year do you recreate at each of the Yadkin Project reservoirs? (check appropriate box)

	None	1-5 times	6-10	11-20	21-50	51-100	> 100
High Rock							
Narrows (Badin)							
Tuckertown							
Falls							

7. How has your visitation to this reservoir changed in the past 5 years? (circle number)

-3	-2	-1	0	1	2	3
Decreased Greatly			No Change			Increased Greatly

If there has been an increase or decrease in your visitation, what has been the major reason for this change?_____

_____

8. ALCOA would like to know whether you have encountered certain conditions at this reservoir that interfered with your recreation experience. Please check whether each of the following is a big, moderate, slight, or not a problem

	Big Problem	Moderate Problem	Slight Problem	Note a Problem
Too many people along the shoreline	☐	☐	☐	☐
Too many boats on this reservoir	☐	☐	☐	☐
Low water levels at this reservoir	☐	☐	☐	☐
Improper disposal of litter or trash	☐	☐	☐	☐
Human waste or toilet paper around the shoreline	☐	☐	☐	☐
Rude or inconsiderate behavior by other users	☐	☐	☐	☐
Crowded conditions at boat launches	☐	☐	☐	☐

9. How would you rate how crowded this reservoir is ***today***: (circle number)

Not Crowded				Very Crowded
1	2	3	4	5

10. How would you rate the scenic quality of this reservoir? (circle answer below)

Very Unattractive Unattractive Average Attractive Very attractive

11. Please circle any of the following that you think detract from the scenic quality of this reservoir? (Circle answer below)

Project dams waterfront housing electric transmission lines exposed shoreline reservoirs roads other

12. What is the zip code of your primary residence?_____

13. Please estimate the total expenditures that will be made by all members of your group today, or will be made make before you get home, on the following items. Include all expenses incurred for the purposes of making this trip.

Restaurants and drinking places	$_____	Gasoline (car/boat)	$_____
Food stores (i.e., groceries)	$_____	Equipment Rental	$_____
Other recreation services (e.g., miniature golf)	$_____	General merchandise stores (misc. supplies)	$_____
Bait/Tackle	$_____	Repair Service (car/boat)	$_____
Lodging	$_____	Other	$_____

14. What is your age? _____
Are you male _____ or female _____?

15. We may be interested in following up with some recreation users by mail in the future. If you would be willing to be contacted, please provide your name and mailing address below.

Name: _____

Address: _____

_____

16. Do you have any other comments regarding your recreation experience at this reservoir?

Thank you for taking the time to complete this survey!!!

YADKIN PROJECT
RESIDENT USE SURVEY

Attachment D

The Yadkin Division of Alcoa Power Generating, Inc. has hired ERM to conduct a recreation use survey at High Rock Reservoir, Tuckertown Reservoir, Narrows Reservoir (Badin Lake) and Falls Reservoir (collectively the Yadkin reservoirs). This information will be used to help improve recreation opportunities at the reservoirs. Please take a few minutes to answer these questions. Your experience and opinions are important to us. All responses will be kept confidential.

1. Check the reservoir on which you own waterfront property.
   ( ) High Rock ( ) Tuckertown ( ) Narrows (Badin Lake)

2. About how many times during March, April, and May 2003 did any member of your household recreate at each of the Yadkin Project reservoirs? (check appropriate box)

	None	1-9 times	10-19 times	20-29 times	30-39 times	40-59 times	>60 times
High Rock							
Narrows (Badin)							
Tuckertown							
Falls							

3. Approximately how many days during March, April, and May 2003 did you spend at your waterfront home?
   ( ) 0 - 10 days (i.e., occasionally)
   ( ) 11 - 20 days (i.e., some weekends)
   ( ) 21 - 30 days (i.e., most weekends)
   ( ) 31 – 80 days (i.e., regularly)
   ( ) 81 – 90 days (i.e., this is my primary residence)

4. How many people usually stayed at your waterfront home during March, April, and May of 2003?
   Number of adults (16 years or older) _____
   Number of children (less than 16 years) _____

5. **Please have the adult and child (if applicable) in your household whose birthdays are closest to July 1st answer this survey question.** About how many days during March, April, and May 2003 did this adult and this child (together, with other household members, or individually) participate in the following activities, as their *principal recreational activity*, on the reservoir?

   For example, let's say both the adult and child answering this question went motor boating on a Project reservoir about 17 times during March, April, and May. If fishing was their principal recreational activity (e.g., the reason they went out on their boat) 10 of these times, and the other 7 times they simply went boating, then you would write in "10" next to boat fishing and a "7" next to motor boating in both the adult and child columns below. ***Please estimate the number of days of participation in each recreational activity (if there was no participation in an activity, please write in a 0 for that activity). Please always estimate a number – do not write in "a lot".***

Recreational Activity	Number of days the **adult** with the birthday closest to July 1st participated in the following recreational activities	Number of days the **child** with the birthday closest to July 1st participated in the following recreational activities
motor boating		
boat fishing		
bank fishing		
canoeing		
swimming		
jet skiing		
water skiing		
camping		
picnicking		
sun bathing		
sailing		
other (please list)		

6. How has your use of this reservoir changed in the past 5 years? (circle number)

-3	-2	-1	0	1	2	3
Decreased Greatly			No Change			Increased Greatly

If there has been an increase or decrease in your use, what has been the major reason for this change?_____

_____

7. How would you rate how crowded was the reservoir where you live on a typical weekend day during March, April, and May 2003 (circle number).

Not Crowded				Very Crowded
1	2	3	4	5

8. ALCOA would like to know whether you have encountered certain conditions at this reservoir that interfered with your recreation experience. Please circle whether each of the following is a big, moderate, slight, or not a problem

	Big Problem	Moderate Problem	Slight Problem	Note a Problem
Too many people along the shoreline				
Too many boats on this reservoir				
Low water levels at this reservoir				
Improper disposal of litter or trash				
Human waste or toilet paper around the shoreline				
Rude or inconsiderate behavior by other users				

9. If your waterfront home is your primary residence, please provide the information requested in section **A**. If you use this waterfront home for seasonal or weekend use, and it is not your primary residence, or if you are renting this home for the purpose of vacation or recreation, please provide the information requested in section **B**.

A. ***If your waterfront home is your primary residence,*** please estimate the total expenditures that were made by all members of your household during March, April, and May 2003 for the following recreational or entertainment activities that were conducted at the Yadkin Reservoirs. Please do not include normal household expenditures for daily activities that are not associated with recreation on the Yadkin reservoirs

Restaurants and drinking places (only if at a lakeside establishment)	$	Gasoline (boat)	$
Use fees (e.g., launch fees, slip rental)	$	Equipment Rental	$
Other recreation services (e.g., miniature golf)	$	General merchandise stores (recreational supplies only)	$
Bait/Tackle	$	Repair Service (boat)	$
Seasonal boat rental fee	$	Other	$

B. ***If you use your waterfront home for seasonal or weekend use,*** please estimate the total expenditures that were made by all members of your household during your March, April, and May 2003 trips to the reservoir on the following items. Include all expenses incurred for the purposes of making these trips.

Restaurants and drinking places	$	Gasoline (car/boat)	$
Food stores (i.e., groceries)	$	Equipment Rental	$
Other recreation services (e.g., miniature golf)	$	General merchandise stores (misc. supplies)	$
Bait/Tackle	$	Repair Service (car/boat)	$
Lodging	$	Other	$
Use fees (i.e., boat launch, slip rental)	$		

10. How would you rate the scenic quality of this reservoir (circle answer below)

Very Unattractive Unattractive Average Attractive Very attractive

11. Please circle any of the following that you think detract from the scenic quality of this reservoir (circle answers below)
Project dams waterfront housing electric transmission lines exposed shoreline reservoirs themselves roads other

12. What is your age? _____
Are you male _____ or female _____?

Do you have any other comments regarding your recreation experiences at this reservoir?

Thank you for taking the time to complete this survey!!! Please return this survey in the enclosed stamped envelope.

Attachment E

YADKIN PROJECT
PRIVATE COMMUNITY RESIDENT USE SURVEY

The Yadkin Division of Alcoa Power Generating, Inc. has hired ERM to conduct a recreation use survey at High Rock Reservoir, Tuckertown Reservoir, Narrows Reservoir (Badin Lake) and Falls Reservoir (collectively the Yadkin reservoirs). This information will be used to help improve recreation opportunities at the reservoirs. Please take a few minutes to answer these questions. Your experience and opinions are important to us. All responses will be kept confidential.

1. Please indicate the name of your community. _____
   ( ) High Rock ( ) Tuckertown ( ) Narrows (Badin Lake)

2. How has your use of this reservoir changed in the past 5 years? (circle number)

-3	-2	-1	0	1	2	3
Decreased Greatly			No Change			Increased Greatly

   If there has been an increase or decrease in your use, what has been the major reason for this change?_____

   _____

3. About how many times in the last 3 months did any member of your household recreate at each of the Yadkin Project reservoirs? (check appropriate box)

	None	1-9 times	10-19 times	20-29 times	30-39 times	40-59 times	>60 times
High Rock							
Narrows (Badin)							
Tuckertown							
Falls							

4. Approximately how many days during March, April, and May 2002 did you spend at your waterfront home?
   ( ) 0 - 10 days (i.e., occasionally) ( ) 31 – 80 days (i.e., regularly)
   ( ) 11 - 20 days (i.e., some weekends) ( ) 81 – 90 days (i.e., this is my primary residence)
   ( ) 21 - 30 days (i.e., most weekends)

4. How many people usually stayed at your waterfront home during March, April, and May of 2002?
   Number of adults (16 years or older) _____
   Number of children (less than 16 years) _____

5. **Please have the adult and child (if applicable) in your household whose birthdays are closest to July 1st answer this survey question.** About how many days during March, April, and May 2002 did this adult and this child (together, with other household members, or individually) participate in the following activities, as their *principal recreational activity*, on the reservoir?

   For example, let's say both the adult and child answering this question went motor boating on a Project reservoir about 17 times during March, April, and May. If fishing was their principal recreational activity (e.g., the reason they went out on their boat) 10 of these times, and the other 7 times they simply went boating, then you would write in "10" next to boat fishing and a "7" next to motor boating in both the adult and child columns below. ***Please estimate the number of days of participation in each recreational activity (if there was no participation in an activity, please write in a 0 for that activity). Please always estimate a number – do not write in "a lot".***

Recreational Activity	Number of days the **adult** with the birthday closest to July 1st participated in the following recreational activities	Number of days the **child** with the birthday closest to July 1st participated in the following recreational activities
motor boating		
boat fishing		
bank fishing		
canoeing		
swimming		
jet skiing		
water skiing		
camping		
picnicking		
sun bathing		

sailing		
other (please list)		

6. How would you rate how crowded was the reservoir where you live on a typical weekend day during March, April, and May 2002 (circle number).

Not Crowded				Very Crowded
1	2	3	4	5

7. ALCOA would like to know whether you have encountered certain conditions at this reservoir that interfered with your recreation experience. Please circle whether each of the following is a big, moderate, slight, or not a problem

Too many people along the shoreline
Too many boats on this reservoir
Low water levels at this reservoir
Improper disposal of litter or trash
Human waste or toilet paper around the shoreline
Rude or inconsiderate behavior by other users

8. If your waterfront home is your primary residence, please provide the information requested in section **A**. If you use this waterfront home for seasonal or weekend use, and it is not your primary residence, or if you are renting this home for the purpose of vacation or recreation, please provide the information requested in section **B**.

A. ***If your waterfront home is your primary residence,*** please estimate the total expenditures that were made by all members of your household during March, April, and May 2002 for the following recreational or entertainment activities that were conducted at the Yadkin Reservoirs. Please do not include normal household expenditures for daily activities that are not associated with recreation on the Yadkin reservoirs

Restaurants and drinking places (only if at a lakeside establishment)	$	Gasoline (boat)	$
Use fees (e.g., launch fees, slip rental)	$	Equipment Rental	$
Other recreation services (e.g., miniature golf)	$	General merchandise stores (recreational supplies only)	$
Bait/Tackle	$	Repair Service (boat)	$
Seasonal boat rental fee	$	Other	$

B. ***If you use your waterfront home for seasonal or weekend use,*** please estimate the total expenditures that were made by all members of your household during March, April, and May 2002 on the following items. Include all expenses incurred for the purposes of making this trip.

Restaurants and drinking places	$	Gasoline (car/boat)	$
Food stores (i.e., groceries)	$	Equipment Rental	$
Other recreation services (e.g., miniature golf)	$	General merchandise stores (misc. supplies)	$
Bait/Tackle	$	Repair Service (car/boat)	$
Lodging	$	Other	$
Use fees (i.e., boat launch, slip rental)	$		

9. What is your age? _____
Are you male _____ or female _____?

10. How would you rate the scenic quality of this reservoir (circle answer below)

Very unattractive Unattractive Average Attractive Very attractive

11. Please circle any of the following that you think detract from the scenic quality of this reservoir (circle answers below)

Project dams waterfront housing electric transmission lines exposed shoreline reservoirs themselves roads other

Do you have any other comments regarding your recreation experiences at this reservoir?

Thank you for taking the time to complete this survey!!! Please return this survey in the enclosed stamped envelope.

PRIVATE ORGANIZATIONS/CLUBS PHONE SURVEY

ERM will conduct a phone survey with the designated contact person with each of the 8 private organizations/clubs with private boat launches and waterfront access at the Yadkin Project.

1. Confirm exact location of facility – which reservoir is it located on?
2. What recreational facilities do you have?
3. Are they functional at all water levels?
4. What recreational activities occur at your facility
5. How many members do you have?
6. Are members allowed to bring guests and/or family members
7. Are you open year-round?
8. If not, when are you open?
9. What are your daily operating hours?
10. Do you allow overnight use (e.g., camping)
11. For each season (spring, summer, fall, winter)
    - How many people use your facility on a typical weekday?
    - How many people use your facility on a typical weekend?
    - What is the largest number of people you would have at any one time?
12. Has your organization/clubs use of this reservoir changed in the past 5 years?
13. If so, why?

YADKIN PROJECT
PRIVATE CAMPGROUND RECREATIONAL USE SURVEY

The Yadkin Division of Alcoa Power Generating, Inc. has hired ERM to conduct a recreation use survey at High Rock Reservoir, Tuckertown Reservoir, Narrows Reservoir (Badin Lake) and Falls Reservoir (collectively the Yadkin reservoirs). This information will be used to help improve recreation opportunities at the reservoirs. Please take a few minutes to answer these questions. Your experience and opinions are important to us. All responses will be kept confidential.

1. Please indicate the name of your campground. _____
   Please check which reservoir your campground is located on. High Rock ( ) Tuckertown ( ) Narrows ( )

2. About how many times during March, April, and May 2003 did any member of your household recreate at each of the Yadkin Project reservoirs? (check appropriate box)

	None	1-9 times	10-19 times	20-29 times	30-39 times	40-59 times	>60 times
High Rock							
Narrows (Badin)							
Tuckertown							
Falls							

3. Approximately how many days during March, April, and May 2003 did you spend at this campground?
   ( ) 0 - 10 days (i.e., occasionally)
   ( ) 11 - 20 days (i.e., some weekends)
   ( ) 21 - 30 days (i.e., most weekends)
   ( ) 31 – 80 days (i.e., regularly)
   ( ) 81 – 90 days (i.e., this is my primary residence)

4. How many people usually stayed with you (including yourself) at the campground during March, April, and May of 2003?
   Number of adults (16 years or older) _____
   Number of children (less than 16 years) _____

5. **Please have the adult and child (if applicable) in your household whose birthdays are closest to July 1st answer this survey question.** About how many days during March, April, and May 2003 did this adult and this child (together, with other household members, or individually) participate in the following activities, as their *principal recreational activity*, on the reservoir?

   For example, let's say both the adult and child answering this question went motor boating on a Project reservoir about 17 times during March, April, and May. If fishing was their principal recreational activity (e.g., the reason they went out on their boat) 10 of these times, and the other 7 times they simply went boating, then you would write in "10" next to boat fishing and a "7" next to motor boating in both the adult and child columns below. ***Please estimate the number of days of participation in each recreational activity (if there was no participation in an activity, please write in a 0 for that activity). Please always estimate a number – do not write in "a lot".***

Recreational Activity	Number of days the **adult** with the birthday closest to July 1st participated in the following recreational activities during March, April, and May 2003	Number of days the **child** with the birthday closest to July 1st participated in the following recreational activities during March, April, and May 2003
motor boating		
boat fishing		
bank fishing		
canoeing		
swimming		
jet skiing		
water skiing		
camping		
picnicking		
sun bathing		
sailing		
other (please list)		

6. How has your use of this reservoir changed in the past 5 years? (circle number)

-3	-2	-1	0	1	2	3
Decreased Greatly			No Change			Increased Greatly

If there has been an increase or decrease in your use, what has been the major reason for this change?_____

_____

7. How would you rate how crowded was the reservoir where you live on a typical weekend day during March, April, and May 2003 (circle number).

Not Crowded				Very Crowded
1	2	3	4	5

8. ALCOA would like to know whether you have encountered certain conditions at this reservoir that interfered with your recreation experience. Please circle whether each of the following is a big, moderate, slight, or not a problem

Too many people along the shoreline
Too many boats on this reservoir
Low water levels at this reservoir
Improper disposal of litter or trash
Human waste or toilet paper around the shoreline
Rude or inconsiderate behavior by other users

9. If this campground is your primary residence, please provide the information requested in section **A**. If you use this campground for seasonal or weekend use, and it is not your primary residence, please provide the information requested in section **B**.

A. ***If this campground is your primary residence,*** please estimate the total expenditures that were made by all members of your household during March, April, and May 2003 for the following recreational or entertainment activities that were conducted at the Yadkin Reservoirs. Please do not include normal household expenditures for daily activities that are not associated with recreation on the Yadkin reservoirs

Restaurants and drinking places (only if at a lakeside establishment)	$_____	Gasoline (boat)	$_____
Use fees (e.g., launch fees, slip rental)	$_____	Equipment Rental	$_____
Other recreation services (e.g., miniature golf)	$_____	General merchandise stores (recreational supplies only)	$_____
Bait/Tackle	$_____	Repair Service (boat)	$_____
Seasonal boat rental fee	$_____	Other	$_____

B. ***If you use this campground for seasonal or weekend use,*** please estimate the total expenditures that were made by all members of your household during March, April, and May 2003 on the following items. Include all expenses incurred for the purposes of making this trip.

Restaurants and drinking places	$_____	Gasoline (car/boat)	$_____
Food stores (i.e., groceries)	$_____	Equipment Rental	$_____
Other recreation services (e.g., miniature golf)	$_____	General merchandise stores (misc. supplies)	$_____
Bait/Tackle	$_____	Repair Service (car/boat)	$_____
Lodging	$_____	Other	$_____
Use fees (i.e., boat launch, slip rental)	$_____		

10. How would you rate the scenic quality of this reservoir (circle answer below)

Very unattractive	Unattractive	Average	Attractive	Very attractive

11. Please circle any of the following that you think detract from the scenic quality of this reservoir (circle answers below)

Project dams waterfront housing electric transmission lines exposed shoreline reservoirs themselves roads other

12. What is your age? _____
Are you male _____ or female _____?

Do you have any other comments regarding your recreation experiences at this reservoir?

Thank you for taking the time to complete this survey!!! Please return this survey in the enclosed stamped envelope.

Interviewer: _____
Location: _____

Date: _____
Time: _____

YADKIN PROJECT
TAILWATER USE SURVEY

Attachment H

The Yadkin Division of Alcoa Power Generating, Inc. who manages this recreation area, has hired ERM to conduct a recreation use survey at tailraces (i.e., based of the dam) of High Rock Reservoir, Tuckertown Reservoir, Narrows Reservoir (Badin Lake) and Falls Reservoir. This information will be used to help improve recreation opportunities at the reservoirs. Please take a few minutes to answer these questions. Your experience and opinions are important to us. All responses will be kept confidential.

1. Please indicate with a **"P"** which one of the following is the ***primary activity*** that you have participated in, or will participate in, during your trip to the tailrace today. You can indicate other activities you have/will participated in with a "✔".

motor boating	_____	swimming	_____	picnicking	_____
boat fishing	_____	jet skiing	_____	sun bathing	_____
bank fishing	_____	water skiing	_____	sailing	_____
canoeing	_____	camping	_____	other	_____

2. Please evaluate the adequacy of each of the following facilities at this tailrace. (check appropriate box)

	Excellent	Very Good	Acceptable	Mostly inadequate	Inadequate	Don't know/ Not applicable
Boat ramps convenient to tailrace						
Parking areas convenient to tailrace						
Campgrounds						
Trails to tailrace						
Toilets (Port-a-johns)						
Informational/Warning Signage						

If you feel any of the facilities at this tailrace are "mostly inadequate" or "inadequate", please explain why. _____

_____

3. ALCOA would like to know whether you have encountered certain conditions at this tailrace that interfered with your recreation experience. Please circle whether each of the following is a big, moderate, slight, or not a problem

	Big Problem	Moderate Problem	Slight Problem	Note a Problem
Too many people along the shoreline				
Too many boats on this reservoir				
Low water levels at this reservoir				
Sudden changes in water levels in the tailrace				
Poor water quality in the tailrace				
Improper disposal of litter or trash				
Human waste or toilet paper around the shoreline				
Rude or inconsiderate behavior by other users				
Crowded conditions at boat launches				

4. What is the zip code of your primary residence?_____

5. What is your age? _____
Are you male _____ or female _____?

6. Do you have any other comments regarding your recreation experience at this reservoir?

Thank you for taking the time to complete this survey!!!

Attachment 4 – Recreation Economic Impact Study Draft Study Plan

RECREATION ECONOMIC IMPACT STUDY
Yadkin Hydroelectric Project

Draft Study Plan

Background

Alcoa Power Generating Inc. (APGI) is the licensee for the Yadkin Hydroelectric Project. The Yadkin Project is currently licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2197. This license expires in 2008 and APGI must file a new license application with FERC on or before April 30, 2006 to continue operation of the Project.

The Yadkin Project consists of four reservoirs, dams, and powerhouses (High Rock, Tuckertown, Narrows, and Falls) located on a 38-mile stretch of the Yadkin River in central North Carolina. The Project generates electricity to support the power needs of Alcoa's Badin Works, to support its other aluminum operations, or is sold on the open market.

As part of the relicensing process, APGI prepared and distributed, in September 2002, an Initial Consultation Document (ICD), which provides a general overview of the Project. Agencies, municipalities, non-governmental organizations and members of the public were given an opportunity to review the ICD and identify information and studies that are needed to address relicensing issues. To further assist in the identification of issues and data/study needs, APGI has formed several Issue Advisory Groups (IAGs) to advise APGI on resource issues throughout the relicensing process. IAGs will also have the opportunity to review and comment on Draft Study Plans. This Draft Study Plan has been developed in response to comments on the ICD and through discussions with the Recreation, Aesthetics, and Shoreline Management IAG, to provide additional necessary information for consideration in the relicensing process.

1.0 Study Objectives

The purpose of this study would be to quantify the economic contribution of recreational use at the Yadkin Project to the five county region surrounding the Project. The study would estimate both direct economic impacts as well as indirect and induced effects (i.e., multiplier effects) of Project-related recreational spending that occur within the five county region. The study will use the U.S. Forest Service's IMpact analysis for PLANning (IMPLAN) model to estimate the economic effects of recreational use at the Yadkin Project. IMPLAN uses the latest national input-output tables from the Bureau of Economic Analysis, secondary economic data at the county level from a variety of public sources, and proprietary procedures to develop an input-output model for the study area.

2.0 Technical Approach

This study will evaluate the economic effect on the five county, Yadkin Project region associated with recreational use of the Project under both existing Project operations and alternative Project operations.

2.1 Existing Project Operations and Current Recreational Use

This analysis will use the information collected in the Recreation Use Assessment Study to estimate total existing recreational use and recreational spending patterns. Development of direct impact estimates will involve allocating expenditures across the 528 industrial sectors within the IMPLAN model using the Bureau of Economic Analysis' Commodity Composition of Personal Consumption Expenditures published in the Survey of Current Business. Only within region spending will be considered. As the expenditures are allocated to IMPLAN industries, local purchase coefficients will be used to estimate portions of those expenditures that immediately leak from the economy.

Indirect and induced impacts represent the so-called multiplier effects of the recreational spending that occur across the regional economy when they are set in motion by the direct spending. These indirect and induced impacts typically are calculated using input-output multipliers. The latest IMPLAN data will be used to develop these estimates. Impacts will be measured in terms of total industry output, personal and total income, value added, and employment.

The economic effects associated with recreational use of the Project would be disaggregated into a resident component and a visitor component.

2.2 Future Project Operations and Recreational Use

This analysis requires two major inputs:

- Description of the future continued and alternative Project operations to be studied
- Estimate of the effects of these alternative Project operations on recreational use

Description of Future Continued and Alternative Project Operations

This description will be provided to ERM by APGI based on consultation with the Recreation, Aesthetics, and Shoreline Management IAG. ERM assumes that this will include at least continued Project operations and two alternative Project operations scenarios. Potential future operational scenarios that could be considered in the analysis include extending the recreation level of High Rock Reservoir into the spring and fall shoulder seasons, operating High Rock Reservoir with a reduced winter drawdown, and additional utilization of available storage at Narrows Reservoir.

Effects of Alternative Project Operations on Recreational Use

This analysis will use as a baseline the future recreational use estimates from the Recreational Use Assessment Study. These estimates reflect a continuation of existing Project operations. These estimates must be adjusted to reflect the effects alternative Project operations may have on recreational use. ERM proposes to apply "adjustment factors" to the baseline future use estimates to reflect the effects of alternative Project operations on recreational use. These "adjustment factors" will be developed based on recreational use patterns at "surrogate" reservoirs. These surrogate reservoirs will be identified using the following screening criteria:

- Proximity to the study area (preferably all the reservoirs would at least be located in the Piedmont region of the southeast)
- Similar to the Project reservoirs in terms of surrounding land use (e.g., significant waterfront residential population)
- Similar operations to the proposed alternative Project operations at Yadkin
- Reasonably accurate and current recreational use data are available

The proposed surrogate reservoirs will be reviewed with the Recreation, Aesthetics, and Shoreline Management IAG. Once a surrogate reservoir has been selected for each alternative Project operating scenario, ERM will compare monthly recreational use levels to develop monthly adjustment factors for the Yadkin Project. These adjustment factors will be applied to the baseline future recreational use estimates for each alternative scenario.

Future Project Operations Economic Effects

Estimates of future economic effects from recreation at the Yadkin Project will be developed for each scenario, including:

- Continuation of existing Project operations and reservoir fluctuations
- Altered operations and reservoir fluctuations

These estimates will be developed using IMPLAN as described above. The only modifications to the model will be changes in the level of recreational use and associated changes in recreational spending. The continuation of existing Project operations scenario will use the estimate of future recreational use and the recreational spending per recreation day estimate developed from the Recreation Use Assessment Study. The alternative Project operations scenarios will use the adjusted future recreational use (as described above) and the recreational spending per recreation day estimate developed from the Recreation Use Assessment Study. Each of these scenarios will also include a breakdown of the residential and visitor contributions to overall regional economics.

3.0 Reporting

3.1 Draft Study Report and IAG Meeting

ERM will prepare a Draft Study Report. The Draft Study Report will be provided to APGI and the IAG for review and comment. ERM will attend one meeting with the IAG to review their comments on the draft report.

3.2 Final Study Report

ERM will address the comments received on the Draft Study Report and prepare a Final Study Report.

4.0 Proposed Project Schedule

This study should take approximately 6 months (after the data from the Recreation Use Assessment Study is available) to complete the draft report.

Attachment 5 – Overall Project Aesthetic Draft Study Plan

OVERALL PROJECT AESTHETIC STUDY
Yadkin Hydroelectric Project

Draft Study Plan

Background

Alcoa Power Generating Inc. (APGI) is the licensee for the Yadkin Hydroelectric Project. The Yadkin Project is currently licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2197. This license expires in 2008 and APGI must file a new license application with FERC on or before April 30, 2006 to continue operation of the Project.

The Yadkin Project consists of four reservoirs, dams, and powerhouses (High Rock, Tuckertown, Narrows, and Falls) located on a 38-mile stretch of the Yadkin River in central North Carolina. The Project generates electricity to support the power needs of Alcoa's Badin Works, to support its other aluminum operations, or is sold on the open market.

As part of the relicensing process, APGI prepared and distributed, in September 2002, an Initial Consultation Document (ICD), which provides a general overview of the Project. Agencies, municipalities, non-governmental organizations and members of the public were given an opportunity to review the ICD and identify information and studies that are needed to address relicensing issues. To further assist in the identification of issues and data/study needs, APGI has formed several Issue Advisory Groups (IAGs) to advise APGI on resource issues throughout the relicensing process. IAGs will also have the opportunity to review and comment on Draft Study Plans. This Draft Study Plan has been developed in response to comments on the ICD and through discussions with the Recreation, Aesthetics, and Shoreline Management IAG, to provide additional necessary information for consideration in the relicensing process.

1.0 Study Objectives

The following objectives were identified for the study.

- To generally characterize the aesthetic character of the Project area
- To specifically characterize the aesthetic character of Project facilities and operations
- To evaluate the effect of existing and alternative Project facilities and operations on aesthetics in the project area

The geographic scope of this study includes the area within the viewshed of the four project reservoirs and other project facilities.

2.0 Technical Approach

2.1 Conduct General Visual Assessment

ERM will collect and photo-document the general visual character of the Project area, including the following items:

- Describe the project area's visual character, including landscape features (e.g., geology, forest cover) and cultural features (land cover, built features).
- Determine the project viewshed based on topographic maps and field visits.
- Identify key viewpoints/viewsheds of the Project reservoirs and facilities, including views from public access recreation areas, roads (including nearby scenic highways) and other public vantage points in the project area. Such points might include state designated scenic roads, road overlooks, trails, and Morrow Mountain State Park.
- Each of these key viewpoints will be evaluated in terms of:
  - landscape features/visual character,
  - primary viewer group (e.g., recreational users, homeowners, motorists),
  - the frequency of viewing, and
  - viewing distance of project facilities (e.g., foreground, middleground, and background).
- Describe the aesthetic character of existing project facilities and existing operations.

ERM will use photographic documentation at each of the key viewpoints to record the visual conditions during different seasons and reservoir water levels.

2.2 Conduct Aesthetic Resource Analysis

The evaluation of project effects on aesthetics will include the following items:

- Evaluate the compatibility of existing Project facilities and operations with the existing landscape and adjoining land uses. This analysis will include consideration of the project area's scenic integrity and inherent scenic attractiveness similar to the analyses proposed for the Uwharrie National Forest.
- Evaluate the effects of alternative Project facilities and operations with the adjoining landscape and land uses. This analysis will again include consideration of the project area's scenic integrity and inherent scenic attractiveness and will be compared to the existing condition (e.g., will the proposed alternatives improve or degrade the aesthetics of the project area). Common metrics will be developed to facilitate comparison among alternatives (e.g., average water level elevation, or the number of days water levels are below a certain threshold).
- Evaluate responses to questions on the Recreation Use Assessment survey regarding recreation user's perceptions of the aesthetic quality of the Project. These responses can be sorted by season and by water level to determine the effect of these variables on project area aesthetics.

Unlike the Uwharrie National Forest, the rest of the project area does not have existing Visual Quality Objectives to use as benchmarks for determining whether aesthetic goals are met. In this case, the compatibility of the project features with the surrounding natural and cultural landscape will be used to assess to what extent the project is affecting aesthetic resources.

3.0 Reporting

3.1 Draft Recreation Aesthetic Study Report

ERM will prepare a Draft Study Report. The Draft Study Report will be provided to APGI, the IAG, and other interested stakeholders for review and comment.

3.2 Final Aesthetic Study Report

ERM will address APGI, the IAG, and other reviewer's comments on the Draft Study Report and prepare a Final Study Report.

4.0 Proposed Project Schedule

This study is expected to require approximately 15 months to complete the preliminary draft report (approximately 12 months of fieldwork and 3 months of analysis and report preparation).

Attachment 6 – Uwharrie National Forest Draft Study Plan

UWHARRIE NATIONAL FOREST AESTHETIC STUDY
Yadkin Hydroelectric Project

Draft Study Plan

Background

Alcoa Power Generating Inc. (APGI) is the licensee for the Yadkin Hydroelectric Project. The Yadkin Project is currently licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2197. This license expires in 2008 and APGI must file a new license application with FERC on or before April 30, 2006 to continue operation of the Project.

The Yadkin Project consists of four reservoirs, dams, and powerhouses (High Rock, Tuckertown, Narrows, and Falls) located on a 38-mile stretch of the Yadkin River in central North Carolina. The Project generates electricity to support the power needs of Alcoa's Badin Works, to support its other aluminum operations, or is sold on the open market.

As part of the relicensing process, APGI prepared and distributed, in September 2002, an Initial Consultation Document (ICD), which provides a general overview of the Project. Agencies, municipalities, non-governmental organizations and members of the public were given an opportunity to review the ICD and identify information and studies that are needed to address relicensing issues. To further assist in the identification of issues and data/study needs, APGI has formed several Issue Advisory Groups (IAGs) to advise APGI on resource issues throughout the relicensing process. IAGs will also have the opportunity to review and comment on Draft Study Plans. This Draft Study Plan has been developed in response to comments on the ICD and through discussions with the Recreation, Aesthetics, and Shoreline Management IAG, to provide additional necessary information for consideration in the relicensing process.

1.0 Study Objectives

The objective of this study is to evaluate the consistency of existing and proposed Project facilities and operations that are visible from Uwharrie National Forest (UNF) with the Visual Quality Objectives (VQO) of the Uwharrie National Forest Management Plan. A secondary objective will be to consider the potential auditory effects of Project use on the UNF.

2.0 Technical Approach

The Aesthetic Study Plan for the UNF will be conducted in accordance with the USFS's Scenic Management System (SMS).

2.1 Define Study Area and Identify Key Observation Points

The first task is to define the study area. The study area includes that portion of the Project that is within the viewshed of the UNF (i.e., portions of Narrows Reservoir and all of Falls Reservoir and associated Project facilities). This study will include both views from the UNF and from key viewpoints toward the National Forest. This will be determined based on a review of topographic maps and field observations, and in consultation with the USFS.

Once the study area has been defined, ERM will identify Key Observation Points (KOP) that may be potentially affected by the Project features. These will be viewpoints in common public use areas within the UNF (e.g., campgrounds, shoreline recreation sites, trails, roads, fishing areas). This will include viewpoints of the Project features from UNF out to a maximum distance of four miles from the Project boundary. This four mile cutoff corresponds with the near background distance zone as defined within the SMS process. While it may be possible to see some large Project features beyond this distance, they would have little adverse visual impact at this distance. These sites will be identified based on field reconnaissance and input from the USFS.

At each KOP, the following information will be collected:

- Photo-documentation of Project facilities
- Distance from the Project facility
- Estimated number of viewers annually from this location
- Context of the viewers (use association and setting)
- Context of the Project in the surrounding landscape
- Duration of the view
- Extent to which Project-related noise can be heard

2.2 Document Existing Landscape Character

Landscape Character consists of a combination of physical, biological, and cultural attributes that make a landscape identifiable or unique. The description of landscape character is based on Ecological Unit Descriptions (EUD) supplemented with existing land use patterns or themes. The EUD will draw heavily on existing landscape descriptions (e.g., ECOMAP 1993; Bailey 1980) and more detailed habitat mapping from the Uwharrie National Forest Management Plan and for the Yadkin relicensing.

The landscape character description provides the frame of reference for defining the *Scenic Attractiveness* classes. The three Scenic Attractiveness classes are: distinctive, typical, and indistinctive. This assessment takes into consideration landform patterns and features, surface water characteristics, vegetation patterns, and land use/cultural features. This will involve delineating discrete landscape units within the study area and documenting the Scenic Attractiveness class for each unit. ERM will consult with the USFS in making these Scenic Attractiveness Determinations.

The final component of defining landscape character is determining *Scenic Integrity.* Scenic integrity indicates the degree of intactness and wholeness of the landscape character, as influenced by human alterations. These assessments will take into consideration the normal range of reservoir water levels over the course of the year. Scenic integrity is measured using a six point scale ranging from VERY HIGH to UNACCEPTABLY LOW. ERM will make these determinations using the guidance in the USFS Landscape Aesthetics Handbook.

2.3 Assess User Attitudes and Sensitivities

The next step in the SMS process is to incorporate constituent (recreational users, visitors, residents) information. This task assesses user attitudes about the visual character and quality of the Project area and the effects of Project facilities and operations. This information will be collected using a visual preference survey. This survey will include some questions as well as a rating a series of photographs from the project area (see Attachment A). The survey will include questions that address the following issues:

- How important is the visual quality of an area in choosing a place to recreate or visit?
- How important is the scenic quality of an area to the overall quality of the recreation experience?
- How would you rate the scenic quality of the Project area relative to other similar areas that you use for recreation?
- What do you consider the most attractive features of the Project area?
- What do you consider the least attractive features of the Project area?
- To what extent has noise affected your recreational experience?

2.4 Determine Consistency with the UNF Visual Quality Objectives

Based on the existing landscape character and constituent information, ERM will determine to what extent the existing Project meets the UNF Visual Quality Objectives, taking into consideration seasonal changes and varying water levels, under existing Project operations. ERM will also evaluate whether potential alternative Project operations would meet the UNF Visual Quality Objectives. ERM will also consider whether Project-related noise is potentially affecting recreational use of the UNF.

These evaluations will be conducted for each of the KOP and will include an overall assessment.

2.5 Consultation

ERM will consult with the USFS and other interested stakeholders periodically through IAG meetings, and other coordination activities (e.g., teleconferences).

3.0 Reporting

3.1 Draft Study Report

ERM will prepare a Draft Study Report that will be provided to APGI, the USFS, the IAG, and other interested stakeholders for review and comment.

3.2 Prepare Final Study Report

ERM will address APGI, the USFS, the IAG, and other reviewer's comments on the Draft Study Report and prepare a Final Study Report. ERM will also prepare an electronic copy of the Final Study Report.

4.0 Schedule

It is anticipated that this study would require approximately 15 months to complete the draft report (approximately 12 months of field surveys and 3 months of analysis and report preparation).

Attachment A

Yadkin Project
Visual/Aesthetic Resources Survey

Location:_____ Date:_____

Hello. My name is _____. I am working on a study for Alcoa Power Generating, Inc. and the U.S. Forest Service. We are interviewing people to find out what they like and dislike about their visits to this area. The information we collect will be used to help make decision about future management here. Could I take a few minutes to ask you a few questions? I will start by showing you a map to orient you to our study area. The questions I ask will refer to this area [indicate on map].

1. What is your zip code?

2. Was scenic quality an important factor in your decision to come to the Uwharrie National Forest?
   - _____ A. A major determining factor.
   - _____ B. An important consideration.
   - _____ C. A minor consideration.
   - _____ D. Not a consideration.

3. Generally speaking, how important to your recreation activities is the scenic quality of the surroundings? Would you say scenic quality is VERY IMPORTANT, SOMEWHAT IMPORTANT, or NOT AT ALL IMPORTANT? (circle one)

   VERY IMPORTANT SOMEWHAT IMPORTANT NOT AT ALL IMPORTANT

4. Overall, how would you rate the scenic quality of this site relative to other similar areas you use for recreation? Would you say it is BETTER, the SAME, or WORSE than other areas in terms of scenic quality?

____ Worse	_____ Worse than any	OR	_____ Worse than Most
____ Same			
____ Better	_____ Better than most	OR	_____ Better than any others

5. What other areas do you commonly recreate or visit that you would rate as having higher scenic quality?

   _____

   What makes it/them more scenic?_____

   _____

6. With regard to the scenery of the Uwharrie National Forest, what do you consider to be the most attractive area or feature?

   _____

   Why?_____

7. With regard to the scenery of the Uwharrie National Forest, what do you consider to be the least attractive area or feature?

   _____

   Why?_____

8. I am going to review a list of landscape features and ask you if you've ever noticed them in the Uwharrie National Forest, and if so, what your reaction was to their **visual** appearance. (Each modification will be read and the respondent asked the following questions):
   - Have you ever noticed _____ in the Uwharrie National Forest? If no, go to next modification. If yes, ask the following question.
   - Was your reaction positive, negative, or neutral? If positive or negative, ask: strongly or moderately).
   -

	Notice?	Where?	Reaction	
Campground/Picnic areas ↓	___Yes→ ___No		___Pos→ ___Neg→ ___Neutral	___Moderately ___Strongly
Forest Service Buildings ↓	___Yes→ ___No		___Pos→ ___Neg→ ___Neutral	___Moderately ___Strongly
Private Residences ↓	___Yes→ ___No		___Pos→ ___Neg→ ___Neutral	___Moderately ___Strongly

	Notice?	Where?	Reaction	
Transmission lines and towers ↓	___Yes→ ___No		___Pos→ ___Neg→ ___Neutral	___Moderately ___Strongly
Reservoirs ↓	___Yes→ ___No		___Pos→ ___Neg→ ___Neutral	___Moderately ___Strongly
Roads and related structures ↓	___Yes→ ___No		___Pos→ ___Neg→ ___Neutral	___Moderately ___Strongly
Timber harvests ↓	___Yes→ ___No		___Pos→ ___Neg→ ___Neutral	___Moderately ___Strongly
Da__/power generation facilities ↓	___Yes→ ___No		___Pos→ ___Neg→ ___Neutral	___Moderately ___Strongly
Have you ever noticed anything else in the study area whose appearance affected you positively or negatively?_____ If yes, what was it?_____				

9. The Forest Service would like to known whether you have encountered certain conditions at the Uwharrie National Forest. Please indicate if these conditions have been a big problem, moderate problem, slight problem, or not a problem.

	Big Problem	Moderate Problem	Slight Problem	Note a Problem
Noise from boats on the reservoir				
Noise from vehicular traffic				
Noise from RV generators				
Noise from other recreation users				

10. I will show you a series of ____ photographs that represent typical scenes from the Uwharrie National Forest. Considering the VISUAL QUALITY of the lands in these photos, please indicate your likely OVERALL impression of these scenes if you were to encounter them while visiting the area.

    The following scale will be sued to provide your responses. The scale ranges from "Strongly Positive" through "Neutral" to "Strongly Negative".

OVERALL VISUAL QUALITY						
Positive ←			Neutral	→		Negative
Strongly Positive (+3)	Moderate (+2)	Low (+1)	Neutral (0)	Low (-1)	Moderate (-2)	Strongly Negative (-3)
Strongly Positive	Clearly Positive, But Not Strongly	Slightly More Positive Than Negative	Few Distinguishing Characteristics; Or Equally Competing Influences	Slightly More Negative Than Positive	Clearly Negative, But Not Strongly	Strongly Negative

Scene	Positive				Negative		
	Strongly Positive (+3)	Moderate (+2)	Low (+1)	Neutral (0)	Low (-1)	Moderate (-2)	Strongly Negative (-3)
Example							
Example							
Photo A							
Photo B							
Photo C							
Photo D							
Etc.							
Etc.							

11. Approximately how many times have you visited the Uwharrie National Forest in the past 12 months? _____times

12. Approximately what year did you first visit the Uwharrie National Forest? _____

13. (Surveyor provides list of responses below) From this list, indicate your three MAIN reasons for choosing the Uwharrie National Forest for this trip.

_____ A. Proximity to home
_____ B. Most suited to my primary recreation activities
_____ C. Convenient to accommodations/services
_____ D. Scenery
_____ E. Inexpensive
_____ F. Undeveloped-low-key character
_____ G. Good facilities (e.g. campgrounds)
_____ H. Natural Environment
_____ I. Good place for family
_____ J. Other *(specify)* _____

14. For each of the following statements, please tell me if it applies to you.

_____ A. Our family has traditionally come to this area to recreate.
_____ B. I have strong memories of visiting this area as a child
_____ C. My parents or grandparents once lived in the study area.
_____ D. My parents, grandparents or previous generations of my family were involved in early timber, hydro or farming/ranching operations in the study area/
_____ E. I live, or have lived, in the study area.
_____ F. I work, or have worked, in the study area.
_____ G. This is a special place for me. Please explain: _____

_____

Attachment 7 – April 8, 2003 Letter from Larry Jones, High Rock Lake Association

High Rock Lake Association, Inc.

P.O. Box 159

Southmont, NC 27351

April 8, 2003

Mr. Gene Ellis
APGI – Yadkin
293 NC 740 Highway
PO Box 576
Badin, NC 28009

Subject: **Yadkin Hydroelectric Project**
Shoreline Management Issues

Dear Mr. Ellis;

In our letter to Alcoa dated January 9, 2003 we enclosed a seven page document addressing issues we believe should be addressed early in the Relicensing process. On page 4 of our ICD comments we specifically talked about Shoreline Management Issues. An excerpt follows:

> The categories currently identified as IAG Issues seem to be addressing only those issues presently covered in excruciating detail by Alcoa's Shoreline Management Plan (SMP). This indicates the present SMP will terminate with the present License, and be replaced by a new SMP. Any new SMP must be responsive to the needs and desires of users and property owners around the lakes, and must certainly be more "user friendly" on the issues that were hotly debated in the Nineties when Alcoa decided to implement a SMP. These issues include the current highly restrictive Alcoa regulations for:
>
> - Piers
> - Boathouses
> - Boat Ramps
> - Removal of Stumps and dead trees
> - Shoreline stabilization and retaining walls
>
> Alcoa should adopt guidelines that are in keeping with other lakes in North Carolina, such as those owned and managed by Duke Power Company and CP&L. Any shoreline management plan that is a part of the 2008 License should be no more restrictive than similar projects. Any restrictions should be limited to issues that have a demonstrated direct impact on Alcoa's hydro power production. Policy on issues affecting privately owned land surrounding the Project Lakes should be left to the many local, state, and federal agencies charged with administering laws and regulations on land use, watershed protection, environmental and cultural issues; and Alcoa should not try to incorporate or assume responsibility for those issues under terms of its FERC License.

During the first IAG meeting devoted to Recreation, Aesthetics, and Shoreline Management held on March 13, 2003 we were very surprised when Alcoa's moderator told everyone there were no issues identified during the ICD comment period relating to

Shoreline Management or the SMP. The moderator went on to say specifically that Alcoa did not consider HRLA's comments to ask for any study or issue review related to the SMP. She also said we should submit any such study issue in writing to Alcoa. Our specific SMP issue studies would include:

1. SMP should allow Boat Shelters with lifts
2. SMP should allow private boat ramps if property size permits, and sufficient water depth is available.
3. Allow Total Pier Length to achieve "End of Pier Water Depth" (EPWD) of 6' at target low water level
4. Pier construction should be per County Building Code; not "Alcoa Standards"
5. Allow seawalls with adjoining landscaping that is environmentally sound
6. Allow shoreline clean-up of debris and deadwood
7. Prohibit NCWRC practice of cutting down trees on shoreline. This also encourages "copy-cat" actions by others, and accelerates bank erosion.
8. Require water willow propagation and management equally on all lakes
9. Alcoa's SMP should not be more restrictive to lakefront property owners than those of other comparable Electrical Producers in North Carolina. Alcoa's new SMP should closely relate to those of Duke Power and Progress Energy.
10. A SMP should not attempt to control actions on private land by requiring compliance with Alcoa regulations on those private lands, lands that are outside project boundaries, as a condition of gaining access to the waters of the river and lakes within the FERC licensed Project. The current SMP effectively circumvents the intent of Article 7 of the License issued by the Federal Power Commission on February 11, 1958.

The High Rock Lake Association believes the comments in our Jan. 9, 2003 submission were a perfectly clear statement of our recommendation that the relicensing process include a study of SMP issues and the formulation of a new SMP that treats all interests fairly. The High Rock Lake Association also believes an attempt to ignore properly submitted comments, as well as many verbal comments we heard during the public meetings that were advertised as means to identify issues of concern by interested parties, would be an abuse of the relicensing process.

We hope Alcoa will review of this issue; and Shoreline Management Practices and Issues will be placed on the agenda for the attention that is demanded.

Sincerely,
High Rock Lake Association

Larry O. Jones
President

Attachment 8 – Issues Document from Robert Petree, SaveHighRockLake.org

SaveHighRockLake.org
Help Us Rescue "The Rock"
P.O. Box 628 Southmont, NC 27351

In response to the statement that APGI did not receive any public comments concerning the Shoreline Management Plan, SaveHighRockLake.org conducted a poll of its members who are adjacent property owners. In response to this poll, the respondents identified the following specific issues that they would like to have restudied during relicensing.

1. Ban on new boat houses
   - The restriction on building a boat house on private property above the 655 ft. project elevation is beyond the regulatory authority of a private corporation. The allowable types of structures and setback requirements are officially the domain of the county governmental authorities. The construction of a boat house is no more visually obstructing than a densely wooded 100 foot buffer zone.
2. Restriction on new private boat ramps
   - As a boat ramp poses no visual impairment to neighbors and minimizes erosion there is no reason to deny property owners with reasonable grade to the waters edge a permit to construct a boat ramp.
3. 100 foot forested setback
   - As a private company Alcoa has no authority to mandate usage or impose restrictions on private property above the 655 ft. elevation. This type of authority is the domain of the county government.
4. 200 foot shoreline requirement for pier permit
   - This effectively eliminates everyone but the wealthy from being able to obtain a pier permit. Requiring those with less than 200 feet of waterfront to build shared piers is the equivalent of forcing neighbors to share facilities as personal as their family rooms with their neighbors.
5. Pier regulations – water depth, pier length, covered piers (not enclosed) and requiring ramps to floating piers.
   - The requirement that a pier must be able to extend to a certain depth is ridiculous. If there is adequate water depth available to float a boat at full pond, fish, swim or just enjoy the view, it should be the decision of the homeowner whether to invest in constructing a pier.
   - Restricting the length of a pier **and** requiring it to extend to a minimum water depth is especially restrictive on High Rock Lake. Due to the shallow nature of High Rock Lake this is often impossible.
   - Piers with overhead decks pose no visual or aesthetic impairments and should be allowed
   - Requiring ramps to connect and access floating piers often makes the most important portions of the pier inaccessible in impoundments with fluctuating water levels. Floating piers riding up and down on rails or posts and accessible via adjacent steps are much safer and more accessible at any water level. This also reduces the stress on the stationary pier from the torque and leverage associated with the attachment of the floater via a 16 foot ramp.

6. Woody debris "lap tree" removal ban/permit requirement and fee
   - The removal of fallen trees in developed areas with permitted piers should not be restricted. Studies done during the development of the Shoreline Management Plan at Lake Norman showed that the pier itself provided a comparable beneficial fish habitat. The presence of downed or "lap" trees at a permitted private recreational facility can create personal hazards.
7. Sea Wall ban and Exorbitant fees for erosion control permit
   - Sea walls offer an effective form of erosion control with little environmental impact. The fees charged for erosion control/shoreline stabilization are exceptionally high.
8. Complicated process for obtaining dredging permit

In many of the issues above, the regulations exceed the authority of a private corporation to regulate the use of private property and Alcoa has forced compliance by denying private recreational facility permits. Only the local county governmental agencies have the authority to enact zoning and building regulations or restrictions. Denying pier permits to enforce these rules is the equivalent of extortion.

In light of the number of issues identified, SaveHighRockLake.org requests that the Shoreline Management Plan be compared to the plans for other area hydropower reservoirs. To the extent possible, many of the rules and regulations applying to FERC licensed hydropower projects should be very similar with only minor variations due to any unique attributes of a given impoundment.