Appendix F3

Response to Specific Public Comments

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List of Acronyms

cfs	cubic feet per second
Corps/USACE	U.S. Army Corps of Engineers
DEIS	Draft Environmental Impact Statement
DO	dissolved oxygen
USEPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
ROS	Reservoir Operations Study
SMI	Shoreline Management Initiative
TVA	Tennessee Valley Authority
TWRA	State of Tennessee Wildlife Resources Agency
USFWS	U.S. Fish and Wildlife Service

F3 Response to Specific Public Comments

This section contains specific individual comments followed by TVA's response. Comments are arranged by alternatives and study areas. Each comment identifies the author and original comment by number. TVA staff has provided a response related to every substantive comment, either individually or by clusters of clearly related comments.

F3.1 Alternatives

Base Case

1. The Base Case presented does not provide enough info to tell us what the current operating policies are. "Target dates and target elevations" don't tell us anything. I do not see how anyone can make an intelligent comment when the Base Case is not presented. The Alternatives can not be properly evaluated unless we know what the current operating policies are. **Bill Beutjer, 2554**

Response to Comment 1: The Base Case operations policy is described in Chapter 2 of the DEIS, and Appendix C contains detailed tabular and box plot data that show probable elevations for the Base Case and each alternative. In response to public comments, flood guide curves that show probable elevations for the Base Case and TVA's Preferred Alternative have been added to Appendix C.8.

2. It was difficult, indeed impossible, to select an alternative, or even two or three alternatives. Choosing an alternative to enhance one area of the environment almost always adversely affected another when straying from the Base Case. The most logical solution would be Adaptive Management. We don't know the outcome in some of the cases. Let us try for a period of time to see what works best. I hope you will take these comments seriously. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3108**

Response to Comment 2: TVA has long used an adaptive management approach to the operation of its reservoir system and intends to continue to do this, regardless of which alternative is selected. This involves extensive monitoring of a number of different reservoir and ecological parameters, and flexible application of reservoir operating guidelines that takes into account monitoring results. See Section 3.4 and Chapter 7.

3 My overall observation is that none of the 8 alternatives evaluated in detail stand out as a definite enhancement over how TVA operates the system currently. If that is the case, i.e., if the current policy cannot be improved upon and there is consensus that it was a fair and balanced assessment, as I believe it is, will TVA's critics and the TVA board be willing to accept "no action" as the preferred alternative for the FEIS? **Gary Hauser, 68**

Response to Comment 3: All eight alternatives identified in the DEIS and the Preferred Alternative identified in the FEIS were evaluated in detail to determine whether they met the criterion of increasing the overall public value.

4. This [Base] Case calls for a very low drawdown of the tributary lakes (November - December) when flood risk is negligible and peak power production is the least needed. Summer levels are acceptable to reduce electrical rates, as long as drawdowns are somewhat limited prior to Labor Day. **Greg Worley, 1346**

Response to Comment 4: TVA's Preferred Alternative strives to increase recreational opportunities on a number of reservoirs by restricting drawdowns through Labor Day and allowing higher winter flood guide elevations, as determined by the flood risk analysis.

Reservoir Recreation Alternative A

1. This comment is submitted on behalf of The United Company, a privately held corporation located in Bristol, Virginia, which owns Camp Sequoya, a girl's camp located on 50 acres of lakefront property at South Fork Holston River Mile 64. Camp Sequoya was established more than 75 years ago by Sullins College as a private camp where young girls and young women would be allowed to flourish in a safe, nurturing environment.

Throughout its history, Camp Sequoya has attracted generations of campers from across the United States, and many foreign countries. One of the strengths of the camp is the diversity of the backgrounds of its campers, each of whom returns to their respective homes at the end of each summer as an ambassador for the beauty of South Holston Lake and the surrounding area. The camp is the only facility of its kind on South Holston, and to our knowledge, is unique in its proximity and access to the TVA waterways.

Throughout the years, Camp Sequoya has managed its operations in relative harmony with the TVA's operations of its South Holston Reservoir. Much of the Camp lies within the TVA easement below the 1747 foot elevation mark, which accommodation was reached when the TVA approved the construction of certain camp facilities in its easement.

The camp, which is in the peak of its operations during the summer season when schools are out of session, is affected dramatically when the elevation of South Holston approaches the 1729 level. At this elevation, the camp's swimming pool is rendered nearly unusable, as the pump equipment is at this elevation. At 1732 elevation, the camp pool, which is one of its primary attractions, is underwater. At this higher lake level, access to the isthmus portion of the camp property is also cut off as the access road is likewise underwater. Consistently higher pool levels in the summer season will threaten the economic viability of the camp.

For these reasons, The United Company and Camp Sequoya are concerned about the ROS alternatives that project higher levels for the summer pool in South Holston. For example, Recreation Alternative A would increase the number of days that the camp pool would be underwater during June, July and August. Under the Base Case, the South Holston summer pool level peaks in late May and early June, which generally has minimal impact on camp operations.

We certainly recognize that by virtue of the easement agreement between the TVA and the Camp, complaining about the impact of reservoir levels on camp operations may not be compelling. However, we wished for the TVA to understand that Camp Sequoya campers and their families who visit the area to drop off campers and pick them up, are just the type of visitors that this area needs -- people who appreciate the natural beauty of the lakes and

mountains, and choose this area over scores of others, to send their daughters to learn about teamwork, fellowship, nature, self-sufficiency, self-image and themselves.

In concluding, we believe that the Base Case Alternative, which has been the manner in which the South Holston Reservoir has been managed very well for more than a decade, is the best alternative to pursue. We therefore wish to add our voice to those who oppose raising the summer pool levels in the manner contemplated by Reservoir Recreation Alternatives A & B, the tailwater recreation and habitat alternatives, and the Equalized Risk alternative. **Brian Sullivan, 3120**

Response to Comment 1: Under the Preferred Alternative, the flood guide for South Holston Reservoir in late spring and summer has not been modified from the existing operation.

2. I do not fully understand the differences between the Reservpor Recreation Alternatives A and B. I would like to communicate that as a homeowner, small business owner, and permanent resident of Towns County, I would like to see Lake Chatuge stay at the highest water level possible throughout the year. This would benefit the businesses of Towns County in many ways, make the lake recreational year round, and increase the look of the area. I would tend to think that Plan B would accomplish these things, but as I stated earlier, I do not understand the report enough to draw that conclusion. I want the plan that would keep the lake level up year round. Please take my comments into consideration when making a decision about Lake Chatuge. **Denise N. Gladfelter, 518**

Response to Comment 2: The major difference between Reservoir Recreation Alternatives A and B regarding summer pool levels on Chatuge is that Reservoir Recreation Alternative B would provide a higher median pool elevation on Labor Day than Reservoir Recreation Alternative A. TVA did evaluate holding reservoir levels higher year-round; however, this would result in unacceptable flood risks.

3. Allowing the TVA lake and river levels to remain high in summer and winter would greatly increase their recreational value and use. Property values and development would increase around them as a result. This would help the economies of the surrounding areas.

I work for Georgia Power and Southern Company. I have seen what the Georgia Power lakes such as Burton and Rabun have meant to the economies of the counties around them. I can only assume that this would happen for TVA's lakes if recreation is made a primary purpose also

I realize that when the dams and lakes that make up the TVA system were created, flood control, navigation and power generation were the primary purposes for the system.

It is my opinion that due to the tremendous population growth the south has seen in the past 50 years, recreation will have a much higher priority than in the past. The mountains and lakes of Appalachia are where the people of the South choose to play.

The political pressure to make recreation a primary purpose for the TVA lakes and rivers will only increase in the future.

I call upon you - the leaders of TVA to be proactive and make that change today!

Michael P. Van Winkle, 680

Response to Comment 3: TVA developed its Preferred Alternative in an effort to enhance recreational opportunities on its reservoirs and the associated economic benefits, while lessening the potential impacts on other important values and benefits associated with alternatives in the DEIS—such as water quality and flood risk reduction. The primary purposes for which the TVA reservoir system is operated were established by the TVA Act.

4. Under my study of 2002 that I sent to TVA, this plan would fall with in my predictions for Douglas Reservoir. I live on Douglas at river mile 61 left. **Philip Davis, 716**

Response to Comment 4: Comment noted.

5. The possibility of Alternative A is the best news we in the navigation business have gotten from TVA in over 40 years. There are innumerable reasons for an additional 2 feet of water at minimum winter pool levels and no apparent reasons not to change the minimum levels. Some of the advantages to navigation, and the river's other users as well, are**:**

The 2 feet additional depth would eliminate all the choke points on the main river, i.e., below Pickwick Dam, Florence cut and the canal below Wilson Dam, the rock reach below Guntersville Dam, problems below Nickajack, and all the low water problems between Chattanooga and Knoxville. The choke points limit an otherwise 10' plus useable channel. It seems wasteful to let choke points adding up to less than 50 miles of river dictate the usability of the remaining 600 miles of the Tennessee River. Actually, the load draft is limited all the way from origin.

The 2 feet additional depth will mean that barges will not have to "lite load" for the Tennessee River, thereby putting Tennessee River users at an automatic rate disadvantage. (TVA coal will probably be the single biggest benefactor).

The 2 feet additional depth will enable more tonnage to transit our congested locks in the same number of lockages, i.e., a 15-barge tow that is held to 9' draft rather than 10' draft is sacrificing 17 ½ feet of cargo handling capability or over 1 ¾ extra barge loads equaling over 12%. This would mean an automatic 12% decrease in lockages required to move the same tonnage, saving our equipment time, wear and tear on old locks and dams, saving wasted lockage water, etc.

The 2 feet additional depth would make the Tennessee River much safer. The Tennessee River is a major hazardous liquid material artery. More water would vastly increase the safety factor in handling these hazardous barges.

The 2 feet additional depth would be a significant safety factor for our towboats themselves. Since there are no midstream fuelers on the Tennessee River, the towboats going to the Tennessee must take on at least 10 days of fuel prior to entering the river. This means that for the first few days of a trip during “winter low pools” our towboats are drafting deeper than their tow of barges. This is certainly not desirable now “best practices.” It is usually much more serious when the towboat is disabled or holed than when a barge(s) is grounded.

The additional 2 feet of water at minimum pool would be a great help to all of our river dock customers and would greatly lessen the need for dredging, thereby appealing to environmental concerns.

The fact that the Tennessee River is known as a “lite load river” undoubtedly has cost the area some industry. If everything else is equal, a plant on the Ohio or Illinois rivers has an advantage of heavier draft and thereby lower transportation costs. There is no appreciable difference in our boats costs shoving a 9’ draft tow and a 10’ draft tow if there is enough water. **Tennessee Valley Towing, Inc., Bill Dyer, 3717**

Response to Comment 5: The purpose of increasing channel depth in the winter pool time frame was to provide added benefits to navigation on the Tennessee River. However, detailed flood risk analyses indicated that raising the mainstem reservoirs by 2 feet in winter would result in an unacceptable flood risk. The Preferred Alternative provides for a 1-foot increase in channel depth at Kentucky Tailwater to elevation 301 feet by controlling releases at Kentucky Dam and raising the minimum winter pool depth at Wheeler by 6 inches.

Reservoir Recreation Alternative B

1. The actual resulting Water Level Elevations would be a very important clarification when presenting the alternatives. I.e. - Great Falls Dam Reservoir Summer Pool Level of 800 ft. would be extended to June 1 through Labor Day of each year ... and the winter pool MINIMUM water elevation would be increased from 785 ft. to 795 ft. ... suggest this be applied throughout the Alternatives discussing the TVA Great Falls Dam Reservoir at least. You folks have been doing an excellent job in this "Milestone" Project. Would accept Reservoir Recreation Alternative B with these discussed changes. **Dan Fairfax, Representative of Rock Island Shores Property Owners, 1982**

Response to Comment 1: Under the Preferred Alternative presented in the FEIS, Great Falls would have a planned operating level of 800 feet from Memorial Day through the end of September, and the winter minimums would be set at elevation 785. Due to hydrologic characteristics of the reservoir and contributing watershed area, however, much of the time the reservoir levels would be substantially higher than 785 feet. Allowing the pool to be lowered to 785 feet by hydroelectric generation as often as possible during this period provides additional benefits to TVA power consumers during a time of the year when recreation is less critical.

2. The lake elevations are very important to my family. The extended summer elevations through labor day will add value to my property and allow me to use my lake front property for a longer period. I would like to have the following charts shown during one of the presentations for Wheeler lake**:**

- Flow chart for options A & B base
- Elevation charts for options A& B& Base
- Generation capacity for option A & B & Base

I would like to get the above charts for the main stem lakes combined also **Gail Spurgeon, 2305**

Response to Comment 2: Probability elevation plots along the flood guide curves for the tributary reservoirs and the operating guide curves for the mainstem reservoirs have been included in Appendix C for both the Base Case and the Preferred Alternative.

Equalized Summer/Winter Flood Risk Alternative

1. Was the original intent and origination of TVA to control waters to prevent flooding along with the opportunities of commercial navigation and power supply? If this is true, and the original goal of TVA, there is only one alternative that reduces the risk of flooding, (Equalized winter/summer flood risk), with minimal increase or decrease for optional benefits. **Lane Marte, 2354**

Response to Comment 1: Section 9a of the TVA Act establishes the priorities for operation of the TVA reservoir system. The primary priorities are navigation, flood control, and the generation of power. Consistent with meeting those priorities, TVA also operates the system to meet other goals, such as water quality and recreation. Under the Preferred Alternative, potential damages from flood events with less than a 500-year frequency are lower than under the other action alternatives, and essentially the same as under the Base Case.

2. When did TVA go to a 500-year inflow? What is the variance when comparing the 500-year inflow, and the 100 year inflow? Since Blue Ridge lake is only 73 years old, where did tva get statistics from 500 years ago. To me it sounds like TVA did this, to have as large a "cushion" as possible for justification when it decides on lake levels.

The description of "lower summer pools" and "higher winter pools" is totally vague. I believe all users of Blue Ridge lake as well as the other TVA lakes would welcome fairly stable lake levels as long as those levels would not make land owners and public-use areas non-navigable to recreation boats and docks. **Thomas G. Sandvick, 2655**

Response to Comment 2: TVA selected the 500-year flood level as an objective means of comparing the flood damages associated with large flood events. A 100-year continuous period flow record was established from historical stream gage data, and then analyzed using standard hydrologic statistical techniques to estimate flood inflow volumes. Using the 500-year flood inflow is appropriate, in light of the direction in the TVA Act to operate the reservoir system primarily for flood control (as well as for navigation and power generation). Reservoir levels vary for many reasons such as heavy rainfall and runoff, power demands, and meeting downstream minimum flow targets and navigation needs.

Commercial Navigation Alternative

1. Do the numbers in the EIS include navigation levels for Kentucky? Very difficult to determine from text. Assume Corps did not allow Kentucky to be included. Would make report more straight forward to say 2 feet increase Ft. Loudoun through Pickwick. **Arland Whitlock, 565**

Response to Comment 1: Seasonal levels for all projects, including Kentucky, for all alternatives are shown in Appendix C. Several agencies, including the Corps and other individuals, objected to changing levels on Kentucky Reservoir. TVA's Preferred Alternative would not change operating guide curves on Kentucky.

2. It is extremely disturbing to discover the fact that TVA did not broaden the scope of their study, which they are currently performing, for other adverse affects downstream of Savannah. Increased water flow into the Tennessee River, which in turns increases water flow on the Ohio River which in turns increases water flow on the Lower Mississippi River. During high water months, navigation on the Lower Mississippi River becomes extremely difficult due to increased water flows. Towing companies are unable to efficiently move barges up and down stream on the Mississippi River during high water conditions. During normal water conditions, a 20 barge tow can be pushed with a 4,000 horsepower towboat (approximately 200 horsepower/barge). However in high water conditions, the same 20 barge tow can only be pushed with a 5,000 horsepower towboat (approximately 250 horsepower/barge). Many towing companies are unable to offer such an option of increased horsepower so they have to limit the size of their tows or they will add a helper boat to the tow in order to gain the needed horsepower to move the 20 barge tow. The increased water flows also greatly escalates the risk for a tow to collide with bridge piers on the Ohio and Lower Mississippi Rivers. **Eddie Adams, 3033**

Response to Comment 2: As explained in Section 5.22, TVA's analysis did extend downstream of Savannah, Tennessee. The Corps expressed concerns about changing operations on Kentucky Reservoir because of the potential effect on the lower Ohio and Mississippi Rivers. Its position is that any proposed changes that would involve reduction in flood storage capacity would need to be evaluated within the context of the entire lower Ohio/Mississippi River system. Flow changes, if any, from Kentucky Reservoir and/or Barkley during high-flow periods are expected to be minor and should not impede navigation. TVA did not include changes to the operating guide curve for Kentucky Reservoir as an element of its Preferred Alternative.

3. Commercial benefits seem somewhat obsolete despite all of the supporting information. We do not believe river commercial navigation is either economical or practical considering the impending scarcity of water. Wasting water on navigation is somewhat scurrilous. **George Pisciotta, 1871**

Response to Comment 3: See Section 4.21 for a discussion of commercial navigation benefits. Water used to support navigation serves a number of different objectives, including maintaining water quality.

4. The way that I understand this Alternative, Kentucky Lake reservoir elevation would be 356' during the winter months and the drawdown from summer pool would be much later than the base case. If that is the case, I would be in favor of this Alternative. **John De Freitas, 3082**

Response to Comment 4: TVA's Preferred Alternative does not include changes to the operating guide curve for Kentucky Reservoir.

5. If the pool level could be maintained at a higher level, barge traffic in the Guntersville pool would be improved. My company, USG, Bridgeport, Al. is adversely affected when low water pool levels are experienced. We receive 100 % of our raw material, synthetic gypsum by barge. We experience difficulties in maintaining barge deliveries when the water pool level falls below 594 MSL. In addition during power generation peak periods, we experience rather severe water level fluctuations on an hourly basis. This not only interferes with barge delivery schedules but also creates safety issues for barge handling personnel. **Larry Pawlosky, 2197**

Response to Comment 5: None of the alternatives analyzed in detail, including the Preferred Alternative, would change elevations for Guntersville Reservoir headwater because of the limited flood storage available. Steady water releases, such as those that would occur under the Tailwater Habitat Alternative, were found to result in an unacceptable cost to power and power system reliability. Dredging at the dock to ensure adequate depth and provision of adequate and safe mooring facilities are the responsibilities of the dock owner.

6. 1) One of the things that is causing this [shoreline erosion] to come up is barge traffic. Barges don't operate in the sloughs even in the summer, and the channel stays at a relatively fixed level. Increasing water levels in the reservoir will only fix the problem for a short time - until the channel fills again. It is likely that the increased washing on the shore will advance the rate of sedimentation or silting. The channel should be deepened by dredging, not by changing the ecology of the river. **Mark Cole, 2077**

Response to Comment 6: Wave action from barges does contribute to shoreline erosion. However, barges produce a smaller wake than large V-hulled recreational boats because they have a flat bottom and travel at slower speeds. Other factors contributing to erosion and sedimentation are addressed in Sections 4.16 and 5.16. The Corps dredges the channels periodically, but resource limitations preclude the use of dredging throughout the reservoir system with sufficient frequency to "fix the problem." Dredging also results in a number of adverse environmental impacts, including re-suspension of sediments and disruption of channel bottom ecosystems.

7. As an employee with Marine Terminals of Alabama, I am very concerned that lower water levels will adversely affect our company. One of our main sources of income derives from unloading steel scrap from barges off the river. A lower water level will inhibit the ability for scrap to arrive at our port and therefore not provide the revenue to sustain our current job level and limit the potential for growth. Increased cost would also adversely affect the ability of NUCOR Steel to make a profit and again negatively impact the employment situation of our facility. **Ray Hancock, 2333**

Response to Comment 7: Comment noted.

8. We need an additional 2 feet of water at "winter pool." The Tennessee River is being severely affected by a 9' restriction when the whole US River System is at their higher winter pools with "at least" 10' loadings. **William H. Dyer, 3506**

Response to Comment 8: The Preferred Alternative would allow 1 foot of additional channel depth through controlled releases below Kentucky Dam. Increasing winter pool elevations resulted in an unacceptable increase in flood risk; therefore, it was not included in the Preferred Alternative.

9. My main concern is operation of the gates at Normandy Dam during flooding. I think there needs to be a study on when to open them and close them in order to release -- in releasing the water to help in the flooding downstream. The big question -- I know when the lake gets full, it has to be released, but maybe a study that it could start releasing -- when you see the radar that the weather is coming, maybe the lake could be lowered prior to all the rain when it gets here, then be cut back. That is my main concern. Operating it by computer from Knoxville, I think that's the way it's operated, it's questionable whether you could open the gates properly or know when to open and close them. That's basically it. I mean, that's my main concern is the flood. You know, I know there's concern with fishermen and boaters, but Normandy Dam was built for flood control and not for boating and recreation; that's as only a second. And this flooding here this time has cost me somewhere around probably 18 to 20,000 dollars. Even though I have flood insurance, you still lose the deductibles and things. Then last January, I was also flooded in my shop due to two gates being opened after the river had already crested, and it brought 26 inches in my shop; didn't quite reach my home. And this is my main concern, the opening and closing the gates. There needs to be more study done on them to maybe help us downstream. **Donald R. Carpenter, 2324**

Response to Comment 9: No changes are proposed in the operations policy for Normandy Reservoir as part of the ROS. To address some of the specific concerns you have regarding the existing operations policy at Normandy, we offer the following comments:

Normandy Reservoir is operated as part of the TVA integrated water control system. Releases from Normandy Dam are scheduled and implemented from TVA's River Forecast Center in Knoxville, Tennessee. Normandy is monitored 24 hours a day in the Forecast Center for observed rainfall, predicted rainfall, downstream flows, and the existing and projected reservoir pool elevations. When heavy rainfall occurs in the Normandy and Shelbyville area, if adequate pool storage is available at Normandy, Normandy releases are generally reduced to low amounts until the flooding that occurs due to natural runoff

below Normandy Dam has crested. Releases are then increased at Normandy, but not to the extent that flooding is increased beyond that which occurred due to the local runoff downstream of the dam. Because Normandy Dam has limited flood storage, if the reservoir fills to the top before downstream flooding has crested, TVA must begin releasing water earlier than desired.

Although weather radar is a valuable tool in helping plan and monitor the system, the advance warning provided by radar is not sufficient to lower the reservoir in order to gain any substantial additional flood storage. In fact, in many events, lowering the pool level while heavy rainfall is occurring downstream would increase flooding.

10. I would be interested in knowing how much increase in navigation tonnage would be realized by the extra 2ft of water. I would like to know if there is a preferred plan at this time. **Rick Saucer, 1296**

Response to Comment 10: The ROS project looked at the increased efficiency to existing Tennessee Valley shippers with the extra 2 feet of year-round navigable channel. No measurement of induced tonnage was made; however, a traffic forecast growth factor was included for the existing shippers. During the comment period for the DEIS, TVA had not selected a preferred alternative. After review of comments on the draft and further analyses, TVA formulated a Preferred Alternative, which is addressed in Chapter 3 of the FEIS.

Tailwater Recreation Alternative

1. Please continue to provide regular releases on from Ocoee #2 and #3 and also from the Apalachia Dam. I am pleased that Ocoee #3's releases will augment from 20 in 2003 to 54 in 2004. River releases are critical to the economy and in essence to the survival of Polk County and its neighbors. Thanks for reclassifying the Upper Ocoee into the bracket (community/economic development rather than power generation) in which it belongs. **Anonymous, 2100**

Response to Comment 1: TVA's Preferred Alternative includes increased flows through the Apalachia Dam and scheduled releases at a number of locations for which this has not been previously done. This should enhance opportunities for tailwater recreation, including rafting and boating. As stated in the EIS, recreational releases from Ocoee #2 and #3 are not within the scope of this EIS. In addition, the Upper Ocoee has not been reclassified; TVA still requires full-cost recovery for lost power revenues that result from Upper Ocoee recreational releases.

2. As a whitewater paddler, I request that reservoir releases be planned in advance whenever possible and that current release data be available online or by telephone for as many navigable waterways as possible. I request that fall draw-down releases be conducted during daylight hours and with flows suitable for recreational uses. I appreciate the variation of these releases as this creates a more natural river environment than one sustained level at all times. Please consider the importance of recreational information and releases on the Ocoee, Nantahala, Tallulah, Pigeon and Dries, Great Falls Hydrostation, and other popular whitewater streams that make the Southeast such a great place for paddlers to live, work, and play. **Cay Wright, 666**

Response to Comment 2: To respond to this and similar comments, TVA's Preferred Alternative includes a number of scheduled releases from dams. TVA will continue to provide a daily water release schedule on its web site and toll-free public lake information telephone line.

3. The Ocoee is a world-class whitewater paddling resource, as emphasized by the construction of the 1996 Olympic Whitewater facilities. Nothing in the ROS should be done to interfere with the 74 release days recommended for the Upper Ocoee in the earlier NEPA document pertaining to that issue; nor should the ROS adversely affect the whitewater releases on the Middle Ocoee. **David M. Ashley, 2098**

Response to Comment 3: TVA's Preferred Alternative would not adversely affect scheduled releases on the Ocoee.

4. I'm with Edge of the World Rafting Company in Banner Elk, North Carolina, and we are concerned with the release of the water from Watauga Lake out of Wilbur Dam back into the Watauga River because that's where we raft.

And what we would like to see ideally happen for our rafting business and the other rafting businesses over there is to begin scheduled releases Memorial weekend and to end the scheduled releases Labor Day weekend, plus have Saturdays through September, plus add Sunday of Memorial weekend and Sunday of Labor Day weekend. And the amount of water we would find ideal to release would be one unit from 11:00 to 12:00, two units from 12:00 to 4:00 and one unit from 4:00 to 5:00 Monday through Saturday; no release on Sundays. **Greg Barrow, 4355**

Response to Comment 4: TVA has developed a Preferred Alternative that includes a release schedule for Watauga operations for recreation flows below Wilbur Dam. See Appendix B for details.

5. Two generators daily Memorial Day through Labor Day 9:00 am to 7 pm minimum and two generators 11:00 am-3:00 pm every Saturday of year at Apalachia --Hiwassee River. **J. Harold Webb, 2196**

Response to Comment 5: TVA's Preferred Alternative includes an expanded release schedule for below Apalachia Dam. See Appendix B for schedule and timing of recreation flows below Apalachia Dam.

6. I think the Ocoee #2 and #3 tailwaters should be considered in the recreation and economic and environmental studies also. And consider same for all other significant (i.e.,

where is a significant user base of desire for more tailwater flow) tailwaters upstream of the tailwaters you did study. Even though Ocoee #2 has a contract for water, it will be up for negotiation in the near future, about 5 to 7 years from now. So considering it now in your ROS would be helpful. The economic benefits of Ocoee #2 are great now to the region. Helping improve use of Ocoee #3 would further help the region economically, especially since so much money was invested in the Olympic section. **John Hubbard, 2255**

Response to Comment 6: Recreational flows for Ocoee #2 and Ocoee #3 were the subject of two separate EISs that included decisions concerning recreational releases to the Ocoee River. See Response to Comment 2.

7. An unrestricted drawdown would seemingly be beneficial for tailwater recreation on dams like Apalachia where water release coincides with power generation. However the statement that "no tailwater releases would be made for recreation"seems to imply that TVA would release the water whenever demand spiked. According to TVA's statements issued to Ocoee outfitters, power demand remains level on weekends as compared to weekdays, making the release of water into the Ocoee riverbed on weekends detrimental to the price of hydropower. However, TVA often cites lower weekend power demands as the reason for a lack of water on Saturdays and Sundays in the Hiwassee riverbed. Since Apalachia Powerhouse produces more electricity than Ocoees #2 and #3 combined, it seems that this alternative could work for that region if TVA opted to generate from Apalachia at the same times that they release water into the Ocoee for recreation. This would also produce a guaranteed release schedule for Hiwassee recreation, and the amount of cold water in the Hiwassee tailwater during the summer months would effectively protect the coldwater fishery habitat found there. **Mary Shirley, 42**

Response to Comment 7: TVA's Preferred Alternative includes scheduled releases from Apalachia Dam. See Appendix B for the schedule. Regardless of whether power demand is high or low, when water is spilled at Ocoee, revenues are lost.

8. Great job pitting lake interests against those downstream. I am CERTAIN that there is a balance that can provide adequate water for both of these groups, but the language employed in the summary of this plan should make for great fireworks at the Blairsville meeting.

I'm not sure that I understand this alternative correctly, but it seems that TVA would maintain lake levels until Labor Day -- delaying the fall drawdown by about a month. Would lake levels be maintained at lower levels than in the Base Case? I don't understand how a lengthened summer pool season can provide priority to downstream recreation over lake recreation -- at first glance it seems like a good compromise for both groups. **Mary Shirley, 45**

Response to Comment 8: Appendix C shows a comparison of reservoir levels at various times of the year for all alternatives. TVA's Preferred Alternative attempts to balance many competing demands, such as reservoir and tailwater recreation. Under this alternative, tailwater releases would have a higher priority at selected locations. See Appendix B for details.

9. Why does tailwater recreation have a higher priority over reservoir water level and recreation??? Is this because a group of Tennessee politicians forced the TVA to supply water to the Ocoee River for rafting?? **Thomas G. Sandvick, 2667**

Response to Comment 9: The Tailwater Recreation Alternative placed a higher priority on tailwater recreation compared to reservoir recreation, just as other alternatives placed higher priorities on other operating objectives. See Response to Comment 8.

10. I am concerned about this alternative, because I disagree with the notion that tailwater recreation at South Holston is more valuable (higher priority) than reservoir recreation. I would like to see more information regarding how this decision was made. The graph of model simulations for this alternative suggested that reservoir elevation would be higher under this alternative than in the Base Case scenario. Under median conditions, can flow be increased while maintaining the lake at higher elevations? **Tom Hampton, 262**

Response to Comment 10: Under median conditions both reservoir and tailwater recreation would benefit under this alternative. Under the Preferred Alternative, minimum flows at South Holston would be increased from April 1 through October 31 for the downstream fishery. See Response to Comment 9.

11. Tailwater recreation. Has this approach in other parts of the country or world caused any severe consequences? **Richard Wagner, 2101**

Response to Comment 11: A number of adverse effects were identified for the Tailwater Recreation Alternative assessed in this EIS. The nature and severity of these effects depend on site-specific factors. Under TVA's Preferred Alternative, releases would be scheduled from a number of TVA dams to support tailwater recreation.

Tailwater Habitat Alternative

1. This seems to be the best option to mimic the natural flow of the river. The adverse predictions about flood risk appear to be related to the decision to set pool levels at 75% of maximum. A better plan would start with deciding to keep flood risk equal and then set seasonal pool levels accordingly.

This criticism seems to apply to other alternatives as well, such as Reservoir Recreation Alternative A and B. That is, the increased flooding risk is an artifact of deciding to set winter pool levels such that there will be an increased risk of flooding.

A more honest alternative would be to start with a commitment to keep flood levels the same as the Base Case Alternative, and then determine what winter pool levels should be and develop the rest of the alternative from there. **Guy Larry Osborne, 1207**

Response to Comment 1: TVA designed the alternatives to evaluate the broad set of issues and suggested operational changes identified during the scoping phase of the study. TVA performed the flood risk analysis to determine which of the changes evaluated could be made without unacceptably increasing flood risk at any critical location. TVA developed its Preferred Alternative to maintain flood risk at acceptable levels while preserving desirable characteristics that were associated with the alternatives that were evaluated in detail.

2. This option would not appear to help the Apalachia tailwater habitat at all. The best way to maintain the coldwater fishery habitat in the Apalachia tailwater corresponds to practices for maximum tailwater recreation there and the installation of a continuous low-flow alternative to average the "one-hour-on/three-hours-off"amount of discharge currently practiced. **Mary Shirley, 54**

Response to Comment 2: The Tailwater Habitat Alternative was developed to improve biodiversity and aquatic habitat for native warm-water species that live in this cool-to-warm tailwater. TVA's Preferred Alternative contains increased recreational flows from the Apalachia powerhouse. See Appendix B for details.

3. Contrary to its stated purpose, the Tailwater Habitat Alternative does not always improve overall aquatic habitat in tailwaters. In fact, the DEIS characterizes this alternative, one of the two worst alternatives for water quality because it would reduce instream flow during the summer. DEIS at 3-26. We are puzzled by this. Could you please explain why mean Summer and August-September flow will decrease in almost all tributary tailwaters under the Tailwater Habitat alternative, when this alternative was intended to improve water quality and aquatic habitat by increasing and stabilizing instream flow? DEIS at 3- 18; DEIS at Table 5.7-04, Table 5.7-05. **Southern Environmental Law Center, 4229**

Response to Comment 3: The Tailwater Habitat Alternative was developed in response to requests to better mimic natural seasonal variation of flows—high flow during winter and early spring, and low flow during late summer and early fall. This was accomplished by reducing hydro peaking and releasing a portion of the natural inflow on a continuous basis. Reducing hydropower peaking stabilizes the flow on a weekly basis. These lower flows would adversely affect water quality. The benefits provided by the reservoir system to augment lower flows in late summer with water held in storage would not be realized under this alternative.

4. I raise the question of state prejudice when the TN located Ocoee River has priority over the Georgia located Blue Ridge Lake **Thomas G. Sandvick, 2668**

Response to Comment 4: TVA is not proposing to change recreational flows on the Ocoee as part of the ROS and this EIS. Those flows and their associated effects were the subject of two earlier EISs; decisions to provide recreational flows on the Ocoee were made earlier, after those EISs were completed.

5. As stated in Section 5.7.10, the Tailwater Habitat alternative "would increase the weeks at full pool levels and increase winter pool levels." Model results of reservoir levels for five dates through the year (Appendix C) show that the Tailwater Habitat Alternative has either the highest water levels or among the highest water levels of the modeled reservoirs. There are not adequate data presented to determine why this occurs, but it is likely to be

due to releases of only 25% of inflow or less. **Wendy Smith, Executive Director, World Wildlife Fund, Southeast Rivers and Stream Project, 4182**

Response to Comment 5: This is correct. Under the Tailwater Habitat Alternative, reservoir releases are limited to 25 percent of the inflows, or the minimum flows—whichever is greater—and are drawn down only in late fall in order to remain below flood guide levels and maintain flood storage capacity.

F3.2 Study Areas

Air Resources

1. From our property the haze and air pollution is all too pervasive -- there are more days when the park land across Fontana Lake is shrouded in dirty air than there are clear days. The rising incidence of asthma in our young people, the number of days it is unsafe to be outside if one is elderly, young or has respiratory problems is increasing. Plant and animal life in the [Great Smoky Mountains National Park] GSMNP is endangered by pollution and acid rain. TVA's responsibility for much of this pollution is a national shame and recent efforts to clean up the pollution spewing energy plants is way overdue. Continued efforts should be addressed immediately and should be ongoing. **Bonnie Ragland, 2461**

Response to Comment 1: As part of continuing efforts to address this problem, TVA has begun a major additional reduction program for air pollutants. The program focuses on reducing sulfur dioxide and nitrogen oxides emissions, which contribute to haze. TVA has spent almost $4 billion to reduce emissions from its coal-fired power plants, resulting in reductions to sulfur dioxide emissions of over 75 percent and reductions in nitrogen oxide emissions of over 60 percent. TVA is in the process of spending another $1.8 billion through the end of this decade on additional reductions. By the end of the decade, TVA will have reduced sulfur dioxide emissions by 85 percent and nitrogen oxide emissions by 75 percent during the ozone season. Impacts related to emissions under the Preferred Alternative range from no change to a slight increase compared to the Base Case because of a reduction in hydropower generation and its replacement with fossil-fuel generation.

2. It will cause TVA to burn more coal in a place that already has highly polluted air. This will cause further damage to the most valuable asset in Tennessee - Great Smoky Mountains National Park. **Charles, 2654**

Response to Comment 2: While some alternatives would result in slightly more fossil-fuel generation and others less, as described in Section 5.2, TVA does not believe that these relatively small differences would result in meaningful air quality changes. TVA's ongoing emissions control programs for both nitrogen oxides and sulfur dioxide would continue to reduce TVA's contribution to air pollution. See Response to Comment 1.

3. Would like to see improvements in air emissions. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3084**

Response to Comment 3: See Responses to Comments 1 and 2.

4. Do we need more air pollution when the area already ranks nationally as one of the top five in poor air quality? **Drew Danko, 1022**

Response to Comment 4: See Response to Comment 1. Contrary to media reports, air quality in the Tennessee Valley region has been steadily improving. The USEPA's decision to make its ozone- and particle-related national standards more stringent will now result in additional emission reductions, ensuring that air quality will continue to improve.

5. As a non-smoking Tennessee resident facing lung surgery for a tumor, I have a strong interest in establishment and enforcement of the most stringent air pollution regulations. Release of small quantities of carcinogens is NOT acceptable. It is better to prevent introduction of hazardous chemicals into our air and water supply than to enact laws to filter them out later. **Larraine Nobes, 18**

Response to Comment 5: TVA has conducted health risk assessments of toxic releases from its coal-fired power plants. Those assessments, which indicate that the releases do not substantially add to the risk of cancer incidences, have been reviewed by an independent third party. See the discussion of hazardous air pollution in Section 4.2.

6. Air quality would suffer if drawdown were to be postponed, as in the recreational alternatives. The loss of hydropower would be compensated by fossil fuel combustion in the worst period for air pollution. TVA should be making every effort to improve air quality. **Michael Sledjeski, 2968**

Response to Comment 6: See Responses to Comments 1 and 2.

7. Both recreation alternatives would result in increased fossil-fuel emissions during the period of highest air pollution. TVA power plants are presently the chief cause of air pollution in the area, resulting in conspicuous degradation of plant life, and visibility and a less obvious, but just as real adverse impact on human health. **Michael Sylva, 2124**

Response to Comment 7: See Responses to Comments 1 and 5.

8. Maximize all clean air potential for coal plants ASAP, please. **Pr. John Freitag, 983**

Response to Comment 8: Comment noted.

Climate

1. Climate is important. Our scientists tell us global warming is real. We know there is a much higher incidence of asthma in children than in the past. This may be related to air quality and climate. For the sake of our children and for the future of the planet, please protect the air resources. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3107**

Response to Comment 1: TVA actions to mitigate emissions of carbon dioxide include expansion of green power sources, increased use of generation that emits fewer or no greenhouse gas emissions, and support of carbon emission reduction programs.

Water Quality

1. Important to me, but not to such an extreme that other areas are severely affected. **Anonymous, 3072**

Response to Comment 1: TVA developed a Preferred Alternative that enhances recreational opportunities on a number of reservoirs and tailwaters, while reducing the potential for adverse water quality effects that was associated with a number of the alternatives identified in the DEIS.

2. Improved navigation and improved water quality seem to go together. **Anonymous, 3074**

Response to Comment 2: Comment noted.

3. Water Quality - Only 7 out of the 35 reservoirs were modeled for changes in water quality. The water quality parameters should have been modeled for all reservoirs considered in the EIS so that impacts could be analyzed for each reservoir. The proposed changes in TVA's operations should not be based on only a small portion of the system.

Although the change in reservoir retention time and change in volume of low DO water is presented for the reservoirs modeled, the number of days of low DO water is not presented in the same tables (Appendix D). An increase in low DO volume may only include lower elevations, which typically may not even impact aquatic habitat or compliance with water quality standards. The significance of the increase or decrease in the volume of low DO water is not described in the water quality sections. **Alabama Rivers Alliance, April Hall, Watershed Restoration Specialist, 3735**

Response to Comment 3: This is a programmatic EIS and use of representative reservoirs is an appropriate approach for a Valley-wide evaluation. A total of 26 reservoirs and 10 tailwaters were modeled and model outputs were examined during preparation of the EIS. Representative reservoirs were chosen from these results for more in-depth analysis. Based on comments on the DEIS and the operations policy of the Preferred Alternative described in the FEIS, model results from two additional representative reservoirs were included in the final evaluation and presentation of water quality information.

4. Reports on water quality for Lake Chatuge reflect fair to good and medical people in the area state that to swim in the lake can have adverse effects, involving ear infections and skin eruptions. As recent residents to the area, we hear about homes along the tributaries and on the lake frontage that have sewage flowing directly into the water system. Is this a Clay County in North Carolina and Towns County in Georgia issue or does TVA have any clout in cleaning up problem areas? **Alice Russell, 642**

Response to Comment 4: Other federal and state agencies have primary regulatory authority over water quality and sewage disposal facilities. However, TVA is concerned about water quality in its reservoirs and works cooperatively with other agencies, businesses, and landowners to encourage actions to improve water quality.

5. There have been septic systems that have been allowed to be put into flowage easement areas, and my concern is that the septic is going to be entering into the water. And this

high water has not been a consideration to land management in the past, and how are they going to handle the roads and the septic systems that have been allowed to put in the easement areas when they do hold the water up higher? **Angela Boyda, 4368**

Response to Comment 5: See Response to Comment 4. The June 1 flood guide levels would not be higher than they were in the past under the Preferred Alternative. Some roads and septic systems located in flowage easements would be subject to more—but still infrequent—inundation under the Preferred Alternative.

6. Please try some how to try and clean up South Holston lake. It is filthy and am ashamed of it. **Anonymous, 139**

Response to Comment 6: See Response to Comment 4.

7. I'm concerned that this objective only considered water quality of reservoirs, not those in tail waters. Could these two objectives be split into 2? **Anonymous, 20**

Response to Comment 7: Water quality in 10 tailwaters was modeled for the Base Case and alternatives identified in the EIS. Tailwater quality was an important metric in the threatened and endangered species analysis. Temperature, dissolved oxygen (DO), and water surface elevation were evaluated for the tailwaters.

Additionally, some of the reservoir metrics were chosen due to their potential impact on tailwater quality. For example, the Base Case and alternatives were compared for their potential to form anoxic (very low DO) conditions at the bottom of the reservoir. Under these conditions, manganese and iron in the bottom sediments may dissolve into the water. When this water is discharged into the tailwater, brown stains may appear on the rocks and shoreline downstream. Therefore, an alternative with better DO in the reservoir would result in better conditions in the tailwater.

Regardless of the alternative chosen, TVA is committed to maintaining the existing DO targets in the tailwaters. This may lead to adding aeration capacity at some sites. TVA's cost of additional aeration was included in the cost analysis.

8. I am seriously concerned that no alternative was included that optimized water quality on the reservoir system. The Navigation alternative helps water quality the most, but I'm concerned about the by products effects on water supply and purity. **Anthony Morris, 2715**

Response to Comment 8: Water quality improvement was an important consideration in the formulation of all of the alternatives. Because the alternatives considered span a reasonable range of alternative operations policy, water quality effects or consequences varied. There are many demands placed on the Tennessee River system, all of which TVA considers and integrates when making decisions about use of available water. Water quality is one of those considerations. For example, TVA operates the river system to provide minimum flows at numerous locations specifically for water quality. Water quality played a very important role in the development of the Preferred Alternative. One of the fundamental changes proposed in the Preferred Alternative is to manage reservoir operations to achieve certain flows, rather than certain levels in summer, June 1 through Labor Day. This is expected to improve water quality in low-flow years in the latter part of summer.

9. How is DO effected by alternatives in mg/ltr. No graphs or tables to indicate how close or how much deviation from TVA's commitments in base case. **Arland Whitlock, 566**

Response to Comment 9: Section 5.4 provides a variety of data and graphics relating to DO. More detailed information is contained in the Water Quality Technical Report. This report is in TVA's administrative files.

10. Water quality and water supply are my next biggest concerns and should be managed as the second highest priorities. **Betty M. Fulwood, 2292**

Response to Comment 10: Protecting water quality and managing to ensure adequate water supply are also goals of TVA. Chapter 3 of the FEIS includes a description and the reasoning behind the formulation of TVA's Preferred Alternative and indicates the roles of water quality and water supply in this alternative.

11. Water quality and water supply with higher lake levels, how can that be adversely affected also, I'm asking, for the fact that water is there, and not a dwindling supply of it, away from the tributary lakes. **Carroll and Gail Johnson, 4403**

Response to Comment 11: There are two components to water supply: (1) the cost of extracting water from reservoirs, which is decreased (a beneficial impact) by higher reservoir levels and (2) the quality aspect of the raw water in the reservoir. When reservoir levels are held up, flows through the system are generally decreased, water can stagnate, and water quality in the reservoir can deteriorate, which leaves the water more difficult to treat (an adverse impact). See Sections 4.4, 4.5, 5.4, and 5.5.

12. That is one of the first things I look for. I'm afraid we have way too much runoff in our rivers. This ends up in our reservoirs (such as TVA) and sits there with its load of pollutants. Nasty stuff. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3105**

Response to Comment 12: See Sections 4.5, 4.16, 5.5, and 5.16 and Response to Comment 4.

13. Continuation of the liquid oxygen injection system currently in use is encouraged. This is important to support the fishing opportunities in the tailwaters. This also assists in the aquatic insect population to insure adequate food production for the species in the river. We suggest that there be continued research in this area. As new technology and techniques become available it would be advantageous to implement them to insure the water quality of the lake at Blue Ridge and the Toccoa River. **Jacquelyn O'Connell, 3801**

Response to Comment 13: TVA is committed to maintaining these DO targets, regardless of any changes that may result from this review of TVA's reservoir system operations policy. To ensure effective and efficient operation, TVA continually researches products and techniques as they become available. When innovations appear promising, TVA conducts either bench-scale or pilot tests to evaluate potential application within the Tennessee Valley region.

14. There are significant water quality issues in the Elk River. There is amply evidence to suggest that there is untreated sewage–including some very obvious above-ground septic systems that are right on the river bank that have not been dealt with. **Jean Prater, 1373**

Response to Comment 14: Other federal and state agencies have primary regulatory authority over water quality and sewage disposal facilities. However, TVA is concerned about water quality in its reservoirs and works cooperatively with other agencies, businesses, and landowners to encourage actions to improve water quality.

15. There are many natural lakes without a drawdown that have better water quality than the TVA reservoirs. I don't believe that keeping the water up through the 1st of November would create a problem. **Joe Brang, 863**

Response to Comment 15: Reservoirs differ from natural lakes in many ways. Some of the more important differences are**:**

- *Water temperature*. TVA's reservoirs are warmer than most natural lakes. The warmer water helps more algae grow, which can deplete DO that aquatic life need.
- *Drainage basin*. The land area draining into a natural lake is usually small in comparison to the lake area. The land area draining into a reservoir is usually large compared to the reservoir area. This means there is more opportunity for nutrients and pollutants to rinse into the reservoir.
- *Inflow.* Runoff usually flows into natural lakes via small streams and often through wetlands before reaching the lake. These wetlands reduce the nutrient and pollutant load to the lake. Most inflow to reservoirs enters via high flow streams, directed along old riverbed valleys, where there is less opportunity for the nutrients to be reduced. Increased nutrient loads contribute to more algal growth.
- *Outflow*. Outflow is relatively constant from natural lakes and water flows out from the surface of the lake. Reservoir outflows are irregular, and withdrawals are typically from the bottom of the reservoir.
- Many reservoirs have been built to promote economic development.

Maintaining reservoir levels longer in fall requires releasing letting less water from the reservoir. Data and model results indicate that these lower flows affect water quality. Maintaining constant levels through November 1 would also result in unacceptable impacts on flood risk.

16. [Under the Tailwater Alternative] with levels remaining constant, I think that TVA could look at alternatives when discussing Water Quality and Aquatic Resources. Many of our northern neighbors have taken drastic steps in their older still water lakes. They have actually flown in large aerators to draw oxygen depleted bottom waters and thrust it into the air somewhat improving the quality. This would serve in much the same way as weir dams do in the tailwaters of rivers below dams. This also would allow natural regeneration of aquatic plant life to return thus renewing the process of replenishing the natural nutrients needed for healthy macroinvertibra. **Joe Payne, 60**

Response to Comment 16: TVA uses a wide range of methods to improve DO concentrations in tailwaters. As the commenter indicated, one way is through aerating

weirs (small dams designed to add oxygen to the water as it plunges over the top of the weir walls). Another method is turbine venting. TVA has developed a technique for this method using hub baffles and bypass piping to draw air into hydroturbines and mix it with water as power is generated. Air compressors and blowers are used at other sites to force air into the water flowing through the turbine.

Two other methods are used by TVA to improve tailwater conditions, each of which add oxygen to the reservoir immediately upstream of the dam. Hydroturbine intakes typically draw water from deep levels in the reservoir, creating low-oxygen conditions downstream of the dam. One of these methods is the use of surface-water pumps, which resemble large ceiling fans. These pumps push warm, oxygen-rich surface water downward, where it is mixed with low-oxygen bottom water and then drawn in by the turbines during generation. The other method TVA uses in the reservoirs is the use of oxygen injection systems. The system consists of an oxygen tank and evaporators on the bank that are connected to diffusers, perforated hoses suspended above the reservoir bottom upstream of the dam. All these methods are used to improve conditions in the tailwaters. Theoretically, the oxygen injection system could be used to aerate an entire reservoir. However, due to the volume of TVA's large reservoirs, this would be infeasible, both in terms of cost and the ability to obtain and diffuse the volume of oxygen needed. The method of drawing bottom water and thrusting it into the air, as the commenter suggested, is frequently used at wastewater treatment plants to aerate sewage. On a large scale, such as on the reservoirs, pollution prevention and reservoir operation are much more effective and practical than treatment.

17. In the video presentation, a somewhat negative impact on . . . water quality was indicated, however this was based on computer modeling, which, while an approximation of reality, is subject to question. I am interested in how the data was gathered, and whether the current TVA baseline is really a true median for all the factors at stake. So many things are affected by any change in the system, but I have to assume the overall benefit to the public is the eventual goal. **Margaret H. Schramke, 1436**

Response to Comment 17: The baseline, or existing conditions, as described in Section 4.4, was based on TVA's extensive Vital Signs Monitoring Program, which examines biological, chemical, and physical conditions in most TVA reservoirs. The program is in its 14th year and provides a very good representation of existing conditions. Water quality models were successfully calibrated against existing baseline conditions in order to ensure the validity of predicted results, and used to predict conditions that do not yet exist and for which there is no available data. TVA's objective in the ROS is to identify changes to TVA's reservoir system operations policy that will improve the overall public value of the system.

18. We also are concerned about water quality and would agree with exceptions to this plan in years when water quality is significantly affected by low inflow or other factors. **Michael and Evelyn Fink, 430**

Response to Comment 18: During drought conditions, TVA strives to continue to meet water quality and water supply commitments, and uses the flexibility in its reservoir operations policy to maintain other minimum levels of benefits to the extent possible. As discussed in Section 3.4, TVA is considering developing a formal drought management plan that would supplement its reservoir system operations policy.

19. I would like to see water quality monitored more than it is at this time. **Mrs. Jean Roberts, 1919**

Response to Comment 19: TVA has an extensive monitoring program, Vital Signs Monitoring, which provides extensive amounts of data from locations throughout the Tennessee Valley region. This program was started in 1990 and is expected to continue into the future. Other federal and state agencies also monitor water quality conditions.

20. Water needs to be tested regular and be enforced to keep clean water for fishing and over wildlife, also people health. **Paul Howell, 4024**

Response to Comment 20: See Response to Comment 19.

21. In addition to concerns about flood control, I would also like to minimize any adverse effects on the water quality of the system. This puts a double whammy on alternatives 3C, 5A, 7C, and 8A. **Robert A. Lamm, 2920**

Response to Comment 21: Comment noted.

22. With the standards in Virginia getting tougher every year our health department is protecting our water quality in an upgrade on a yearly basis. This quality is elevated on a yearly basis. Development in our area is strict. Of the highest standards and tradesmanship ability we protect our water quality to send it to the Tenn. River System in the highest quality that they can get the most benefits from it. **Taulbee Lester, 2987**

Response to Comment 22: Comment noted.

23. I would like to see this a top priority of concern in conjunction with affiliated agencies who oversee and enforce industrial waste and farmland waste. My school students think the green color of the water is the natural color and have no idea how beautiful clean water can be. **Terry Sisk, 577**

Response to Comment 23: Other federal and state agencies have primary regulatory authority over water quality and sewage disposal facilities. However, TVA is concerned about water quality in its reservoirs and works cooperatively with other agencies, businesses, and landowners to encourage actions to improve water quality.

24. TVPPA supports environmental stewardship in the Tennessee Valley. We believe that its citizens have a basic right to clean water. Thus, TVPPA supports a balanced sensitivity that incorporates environmental quality improvements in the overall reservoir operations policy decisions. **TVPPA, Richard C. "Dick" Crawford, President & CEO, 4237**

Response to Comment 24: Protecting water quality was an important consideration in the formulation of TVA's Preferred Alternative. Although there could be some negative impact

on water quality if the Preferred Alternative is implemented, compared to other alternatives that would enhance recreation, the expected effects would be less.

25. My house is on South Holston Lake and we have to have a septic system, sewer lines are not available for hookup. I don't believe this situation provides for optimal water quality. Are there any plans concerning this situation? Brian Mazzei, 134

Response to Comment 25: While it is true from the perspective of water quality that septic systems are less desirable than a sewer system connected to a wastewater treatment plant, a well-designed, properly installed, and periodically maintained septic system can effectively treat household wastewater. This EIS examines issues associated with possible changes to TVA's reservoir system operations policy. The resolution of site-specific problems, such as those identified in this comment, is addressed in other forums.

26. I think the winter water level should be maintained through the months of March, April and May because we have experienced our severest floods during those months in Decatur. When the pool is kept close to 553 heavy rains in those months cause the drainage system of Decatur to become slack water and our sewerage system seems to back up. **ITolly G. Shelton, 2428**

Response to Comment 26: Wheeler Reservoir is commonly filled during the period from March 15 to April 15 to full pool at elevation 555.75 feet. While holding Wheeler Reservoir levels low might relieve some of the backup on the sewage system, this comment suggests that the sewage system suffers from excessive infiltration and inflow or cross connections from the storm drain system. This is a design or operating problem. The sewage system should function without backup when Wheeler Reservoir is at full pool. After an extensive flood risk analysis, TVA is not proposing to change the spring fill period on Wheeler Reservoir under its Preferred Alternative.

Water Supply

1. It would be wonderful and helpful, and even critical if the data information in your publications contained easily readable 'x-y graphs' covering the ' 30 year water and population projection period' this study suppose to be covering within the Tennessee River Watershed. These graphs would contain on the 'y' axis the population increase over 30 years. The 30 years would be on the 'x-axis.' Also there would be similar separate or overlay graphs showing the increase of water consumption with increasing population over the 30 year projection. Separate increased water uses over the 30 year period would be on either separate graphs or overlays. The water uses would include as your report indicates**:** drinking (residential), industrial, recreation, and etc. The water quantity would be related to satisfy the water quality needed for the uses. The water uses would take into account the water quantity needed to maintain the water quality for human/aquatic/biological/ecology criteria. The average water quantity and related quality would also include 'drought' and 'global warming' variables over the 30 year projection. The drought variable (based on historical water history) would decrease total available water. The 'global warming' variable will either increase or decrease the water quantity in this geographical region over the next 30 years. I assume the impact of 'global warming' and the 'drought variables' would be

averaged into the total water quantity over the 30 year projection. Your 'Summary of Policy Alternative' tables are technically very wonderful, but visually for the ordinary citizens I do not believe are very readable for understanding the related impacts.

All of the above would indicate the decreasing amount of available water for inter-basin transfer from the Tennessee River Watershed to other regions over the next 30 years. **Frank DePinto, 3965**

Response to Comment 1: TVA's FEIS uses a variety of similar techniques to provide data in tabular formats. Among other things, summary material provided in the text of the EIS is typically expanded on in the appendices of the EIS, where readers can find more detailed information.

2. I. General
A. Yearly Projected Percentages of Growth for**:** Population/Business/ Industry/Commercial/Recreation and related water volume demands.

1. What is the yearly percentage increase (10%, 12% population growth) TVA will be using for the six state area for the 30 year projected period?
   a. also the yearly projected percentage growth for Business, Industrial and Commercial sectors?
2. What is the coinciding yearly increase of water increase for each of the above sectors?

B. The average inches per yearly rainfall statistic which will be used for the study? (80 inches/year, etc)

1. Does this include a global warming factor?

C. Drought occurrences.

1. The number drought occurrences within a 30 year time frame which will be used?
2. What are the parameters of these drought occurrences?
   a. Number of days, months, years of drought?
   b. The yearly reduction of water availability due to projected drought conditions. **Frank DePinto, 3968**

Response to Comment 2: Population is forecasted to increase from less than 10 percent in some parts of the watershed to more than 100 percent in other areas over the 30-year period. Likewise, business, industrial and commercial growth is expected to be slight in some areas of the watershed and extensive in others. Overall, population is expected to grow by about 31 percent over the watershed. Other growth factors in the next 30 years include:

- Public supply and commercial water use – 31 percent;
- Industrial use – 25 percent;
- Irrigation – about 37 percent;
- Cooling water for coal and nuclear power generation – about11 percent; and,
- Total water use – about 14 percent.

Average rainfall in the Tennessee River Watershed is presented in Section 4.3.3.

Potential global warming was not considered in the detailed modeling analysis of water quality and water supply effects because there are no reliable projections specific for the Tennessee River Watershed. In the water quality analysis, 8 years of varying meteorological conditions were considered. This included a record drought year, a very wet year, and a very warm year. The climate variability likely to occur in global climate change would be within the range of the variability illustrated during the 8-year simulation. Climate change and global warming are discussed in Sections 4.3 and 5.3.

The Base Case and each alternative were analyzed for the last 99 years of hydrologic record—the entire hydrologic record for the Tennessee River Watershed. This record includes both wet and drought conditions. Mean annual rainfall during this period varied from 35 to 65 inches per year, as explained in Chapter 2.

3. II. Priority/Allocation

A. Will each state know how much 'projected water' they will be getting for each of the 30 projected years so that they can plan growth/no growth?

B. Will there be any stipulations for water conservation programs in each state, and states where there is interbasin water transfer (a stipulation for inter-basin transfer)?

C. How will each state be allocation the quantity of volume of water per year? Will this be determined by the amount/percentage of area each state has in the watershed/waterstudy area? Or will it be determined by population number in the watershed/waterstudy area?

1. An example**:** say the State of Tennessee occupies 35% of the waterstudy area, so it will be able to obtain 35% of the water. Or**:** there are 1 million Tennesseans in the watershed/water study area so Tennessee will be able to obtain that amount of water for drinking, business, commercial and recreation uses. If Mississippi is only 6% of watershed/water study they will get 6% of the water flow.

   a. Scenario**:** Would Georgia (say 5% of the watershed/water study area) be able to siphon off as much water from Tennessee as they want and transfer it to Atlanta?

   b. Scenario**:** Will north Alabama which is in the watershed/waterstudy area be able to siphon off as much water as they want to send to South Alabama which is not in the watershed/waterstudy area?

3. Who/What type of committee/authorities will make the above decisions i.e. TVA, state agencies, federal agencies, etc. **Frank DePinto, 3969**

Response to Comment 3: Sections 4.5 and 5.5 address water supply issues. TVA's final reservoir operations policy and the analyses of it in this EIS will provide a framework for making the types of decisions identified in this comment. TVA has had over several years of dialogue with Valley states about water supply issues and the management of water supplies in order to meet the needs of the region now, and in the future, and that dialogue is ongoing. TVA is not, as part of the ROS or possible changes to its reservoir operations policy, proposing to establish a water allocation policy for the region. There are important and complex economic, environmental, and political considerations associated with developing such a policy that extend well beyond TVA's role as manager and steward of the water resources of the Tennessee River system.

4. III. Contractual- Inter-Basin Water Transfer-Droughts

A. Will there be stipulations that during droughts the amount of water originally contracted for Interbasin water transfers will be proportionally reduced during drought periods. **Frank DePinto, 3970**

Response to Comment 4: Net inter-basin transfers into and out of the Tennessee River watershed currently are only about 6 million gallons per day. All the transfers that account for this are the result of utility districts selling water to their neighbors. Some of this water is diverted above TVA reservoirs, where streamflow cannot be augmented in dry conditions by reservoir releases. Therefore, some of these utility districts might not have enough water during dry conditions. Contracts for the sale of such water generally carry provisions for what will happen when the seller has no water to supply the buyer. TVA is not involved in the provision of such contracts, and nothing in the ROS addresses what these utilities would do if flow in their unregulated streams declines.

Appendix D9 provides information about inter-basin transfers. The largest existing inter-basin transfer is 200 million gallons per day through the Tennessee Tombigbee Waterway. It is likely that this amount will not grow more than to about 300–400 million gallons per day over the next 30 years. The ROS, however, has conservatively assumed that the Waterway would operate at its design flow of 800 million gallons per day in 2030. TVA's analysis suggests that TVA's reservoir system could handle a diversion of this amount with limited effects, depending on where the diversions occur. As discussed in Section 3.4, TVA is considering developing a formal drought management plan that would supplement its reservoir system operations policy.

5. III. Contractual- Inter-Basin Water Transfer-Droughts

A. Will there be stipulations that during droughts the amount of water originally contracted for Interbasin water transfers will be proportionally reduced during drought periods. **Frank DePinto, 3971**

Response to Comment 5: See Response to Comment 4.

6. IV. Legal Strategies to Protect Water Study Area.

A. What type of legal strategies have the State of Tennessee and other states within the Waterstudy Area devised to protect its water supply in anticipation of law suits from other states such as Georgia/Atlanta for more water than TVA would allocate?

B. What legal protections do the citizen/state of Tennessee, etc. have that TVA will not sell its water to another state (outside the watershed/water study are) for greater profit i.e. if Atlanta is willing to pay more for water than the state of Tennessee or other states within the Water study areas?

C. What legal protection does the state of Tennessee have from the federal government stipulating that water is a southern regional item (Tennessee, Georgia, Alabama, Florida etc.) and not a local watershed/waterstudy (Tennessee, Alabama, Kentucky, Mississippi) item. With such an interpretation and water allocations would be based on a total regional framework and the areas with more population would get the most water. Thus, Georgia and Atlanta would not only get its own water, but would be eligible for water in Tennessee. **Frank DePinto, 3973**

Response to Comment 6: See Response to Comment 4. Tennessee has a law that requires a permit for transfers of water from one river basin to another. Should Georgia seek to divert water from Tennessee to Atlanta, Tennessee would have to agree to this action.

7. V. Aesthetic Attractive River Elevations.

A. Chattanooga

2. The city of Chattanooga's economy depends on tourism to a large extent. The attraction for tourists in Chattanooga is the Tennessee River. If drought occurs in the waterstudy area, the Tennessee River might be lowered for water transfer to other states thus leaving the water at lower than 'aesthetic attractive' level in Chattanooga, thus effecting tourism.

3. It would be pretty awful during a drought period for Atlanta to be getting Chattanooga's water that is now only 5 ft. above river bed and not a pretty site for tourists, thus demising tourism in Chattanooga. **Frank DePinto, 3981**

Response to Comment 7: See Response to Comment 4. None of the ROS alternatives would lower the elevation of Nickajack Reservoir. There are currently no proposals to withdraw water from Nickajack Reservoir for Atlanta. In fact, by Georgia state law, the solution to Atlanta's water problem must be found without considering inter-basin transfers of water. If this law changed in the future and a proposal was made to withdraw a large amount of water from the Tennessee River at Chattanooga, the proposal would be thoroughly evaluated to determine its effect under all hydrologic conditions and would require approval by the State of Tennessee.

8. VI. 30 Years of Soil Erosion. (Water Study projection)

A. "Water is like money in the bank. The bigger the bank one has the more money can be put in it."

1. It might be cost effective to dredge lakes, dam areas and rivers so more water can be stored.

2. It might be cost effective along with the Water Study to initiate a 'soil erosion protection plan' for the Water Study area using air and satellite photos. This could be part of a water conservation plan for all states in Study area and inter-basin transfer states. **Frank DePinto, 3985**

Response to Comment 8: Reservoir dredging and sediment control for the purposes of increasing reservoir storage were not included in the ROS as elements of an alternative operations policy. TVA has examined reservoir dredging at several locations and found it to be ineffective or too expensive to implement. TVA has implemented extensive soil erosion protection projects in the past (e.g., the reclamation of Copper Basin) and continues to look for opportunities for such projects particularly in cooperation with others. See Sections 4.16 and 5.16, where erosion is addressed.

9. I live on Lake Chatuge. My property is near the town's county water treatment plant. The area is very flat by mountain lake standards. A draw down of 4-5 feet exposes 15-20 feet of mud and red dirt.

I have wondered just how far out into the lake the supply pipe is that provides the county water. **Harold Andrews, 2423**

Response to Comment 9: The Clay County Water Service District—which serves Hayesville—is a groundwater system and is unaffected by Chatuge Reservoir levels. Hiawassee, Georgia, has a surface water intake on Chatuge, which can pull water from as low as 1,895 feet.

10. Flood Control on the Duck was conceived as a two dam river. Columbia didn't get theirs and Shelbyville should not suffer additional flood risk to benefit Columbia's water supply. There are more prudent solutions for Columbia; namely, its ability to provide for drinking water by building a smaller lake on a tributary of the Duck.

To conclude, I would strongly oppose any solution that would increase flow on the Duck. Should Normandy Dam be raised, increased flood control should be one of the benefits.

If the City of Columbia has involved itself in these discussions and that involvement has not made it into the record, I would be disappointed. **Harold Segroves, 3**

Response to Comment 10: None of the alternatives considered for the ROS would change the configuration of Normandy Reservoir, the operation of Normandy Dam and Reservoir, or the flow in the Duck River. The Duck River would not be affected by the Preferred Alternative.

11. In regard to Normandy Dam and its management, it is my opinion that nothing should be done that might increase average flows on the Duck River. It is my understanding that one solution the City of Columbia has to combat its own water quality problem would be to have Normandy Dam increase its release into the Duck. I also understand it might be possible to raise the dam at Normandy to help accomplish Columbia's needs.

I am concerned that Columbia's water needs have been a subtext of this TVA study. I can find some verbal proof that this is the case but can find nothing in the study indicating this as an issue. **Harold Segroves, 1**

Response to Comment 11: See Response to Comment 10.

12. In the late 1970s, Tupelo was forced to switch from ground aquifers to surface water. The aquifers were being drawn down so far that communities within 25 miles were affected by reduced water levels in their wells. The switch to surface water was essential for human consumption and economic development purposes.

Tupelo, through the Northeast Mississippi Regional Water Supply District, constructed an 18-mile pipeline, water treatment plant and pickup point on the Tombigbee River. A water withdrawal permit was granted for up to 30 million gallons per day. This system is being paid for by a 25-cent sales tax collected in Tupelo.

The Northeast Mississippi Regional Water Supply District services Tupelo, Baldwyn, Saltillo, Verona, Turner Industrial Park, Tupelo-Lee Industrial Park and North Lee Industrial Park. Fulton has just joined the system and has a main water line under the Tennessee Tombigbee Waterway. The system is truly a regional system at the present time.

Future needs are additional water allocation as the system grows and matures. Current use is in the 60 percent of withdrawal limits. This growth indicates that additional needs for water will be necessary within the next several years.

The future needs will be with the small rural systems that need to connect to a dependable water supply. This is critical for rural systems because of the financial stabilities they face. **Mayor Larry Otis, 4348**

Response to Comment 12: Sections 4.5 and 5.5 address water supply issues. Appendix D9 presents an analysis of potential effects from inter-basin transfers, including operation of the Tennessee–Tombigbee Waterway.

Groundwater Resources

1. High priority to protecting ground water from depletion and from contamination. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3088**

Response to Comment 1: Sections 4.6 and 5.6 address groundwater.

Aquatic Resources

1. In Chapters- 4.7 and 5.7, TV A acknowledges that only the currently existing species and habitats were considered during analysis of the alternatives. However, the EIS should place more importance on native habitat and species, especially those that are rare or imperiled. The Board of Directors should be aware that certain negative impacts on aquatic resources are not as significant as other negative impacts. For instance, a reduction in species or habitat for a non-native, hardy species found in reservoirs may not be considered as significant as the same reduction to a native riverine species. So an overall negative impact to aquatic resources (as illustrated in the Executive Summary) does not necessarily mean a significant change in important native habitat **Alabama Rivers Alliance, April Hall, Watershed Restoration Specialist, 3736**

Response to Comment 1: We recognize the importance of protecting native species, especially those that are threatened or endangered. However, TVA also realizes that several non-native species are highly managed to provide for sport fisheries. Sections 4.7, 5.7, 4.11, 5.11, 4.13, and 5.13 address aquatic resources, invasive species, and threatened and endangered species, including non-native species. Metrics developed to evaluate aquatic resource impacts included aspects important to native species, such as flow, water temperature, and DO concentrations. A metric was directed at reservoir habitat for cool-water fish species—both native and introduced.

2. The value clean, healthy water and aquatic habitats is not included in the economic model. While we understand that a numerical value would be difficult to determine, the TVA Board

of Directors should be aware that these values were not considered. We would like to point out however, that the public places a great deal of value on the protection of the environment, as determined, during TVA's scoping process. **Alabama Rivers Alliance, April Hall, Watershed Restoration Specialist, 3737**

Response to Comment 2: The importance of and potential impacts on these resources are fully addressed in the FEIS. TVA chose not assign monetary values to these resources; rather, to discuss them in terms of natural metrics, such as concentrations of DO as an indicator of water quality.

3. I would like to see the number and status of native flora and fauna improved even if it means that sport fishing opportunities decrease. **Anonymous, 9**

Response to Comment 3: Comment noted.

4. The lower levels and early pulls has an adverse effect on the biotic community. Does the TVA really care?? Or is power generation their main goal? **Bill Frisbey, 1445**

Response to Comment 4: Power generation is only one of several goals of the operation of the TVA reservoir system. Chapter 2 of the EIS describes in detail the reasons why TVA reservoirs are drawn down each year. Reservoirs are drawn down to maintain flood storage necessary to minimize flood risk, to generate hydropower, to provide minimum flows for aquatic resources, and to meet downstream water requirements, such as providing cooling water for nuclear and coal-fired power plants, processing water for industry, or flow for navigation. See Section 5.7 for a discussion of the potential effects on aquatic resources.

5. Do not want to see the aquatic resources harmed. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3087**

Response to Comment 5: See Section 5.7 for a discussion of the potential effects on aquatic resources.

6. Would like to see commercial musselling banned in all TVA reservoirs. **Chris Perkins, 3830**

Response to Comment 6: State fisheries agencies are responsible for regulating commercial mussel harvest in TVA reservoirs.

7. I also support maintenance of instream flows below TVA reservoirs to support healthy aquatic ecosystems; however, these measures should be enacted only after site-specific instream flow studies that will accurately quantify habitat needs and therefore minimize the amount of hydropower losses to the reservoir projects. In particular, there is no need for minimum releases on the Ocoee #3 and #2 projects because of the highly impaired nature of the river ecosystems from years of pollution in the Copper Basin upstream and from existing hydropower operations. **David M. Ashley, 2096**

Response to Comment 7: While it is true that aquatic resources in the Ocoee River have been devastated by acidic releases from Copper Basin activities for many years, conditions have improved considerably. Tennessee has been successful with acid

neutralization at one Copper Basin stream and may eventually be able to treat other streams enough to improve conditions for aquatic life in the Ocoee River. Although minimum flows may not be helpful at Ocoee #2 and #3 presently, they could be in the future. Minimum flows are beneficial for the Toccoa/Ocoee River below Blue Ridge Dam and Ocoee #1 Dam.

8. We need to broaden the discussion to take into account the environmental health of the river system. **Guy Larry Osborne, 1267**

Response to Comment 8: The purpose of much of the FEIS is to discuss factors potentially influencing the environmental health of the river system. These discussions were broken down into individual aspects of the environment that were most likely to be affected by various policy alternatives. Discussion of some specific aspects have been enhanced. For example, the FEIS contains additional discussion of factors that could influence fish spawning success and determination of year class strength (i.e., numbers of fish that attain sizes large enough for capture by traditional sport fishing techniques). It also describes factors that could influence waterfowl and shorebird numbers, if water levels were held high longer into summer and early fall.

9. I am concerned that the quantity and quality of our aquatic habitat is being compromised and our children's children will not have the option of fishing on our waters. **Larraine Nobes, 12**

Response to Comment 9: Aquatic resources and habitats are addressed in a number of EIS sections including, primarily, Sections 4.7 and 5.7.

10. I own a farm at the head waters of South Holston Lake, the South and Middle Fork rivers. My water level has dropped nearly three feet this week. I have noticed for ten years now at the number of fish that are lost to the water level dropping so rapidly. The farm in mention has over 4,000 feet of water frontage. **Larry Akers, 162**

Response to Comment 10: Tributary reservoirs play an important role in flood control; after heavy rainfall and associated runoff, reservoirs must be lowered to regain the flood storage space. Efforts to recover flood storage are made in accordance with prescribed policies that balance the need for recovering flood storage, reducing flood damage downstream, and minimizing environmental impacts in the reservoir. In the specific instance mentioned, the reservoir was lowered to flood guide level within the prescribed policies.

11. Every effort should be made to improve tailwater habitat regardless of which alternative is chosen. **Richard Simms, 2388**

Response to Comment 11: Regardless of the alternative, TVA is committed to maintaining existing tailwater conditions first established in the Lake Improvement Plan.

12. Limitations of the "Tailwater Habitat Alternative"

The Nature Conservancy's primary concern with the draft PEIS is that the management alternative intended to benefit these same aquatic habitats, the "Tailwater Habitat

Alternative," is interpreted as having either adverse or, at best, no effect on either warm-tailwater biodiversity in general or protected species in particular. We believe the problems with this alternative are twofold; the first being the manner in which different species groups were lumped during the impact interpretation, and the second being in the parameters of the alternative itself

In Section 4.7.5, Tailwater biodiversity, cool-water and warm-water tailwater aquatic communities are described separately. However, the discussion of the "Tailwater Habitat Alternative" in Section 5.7.10 lumps these habitat types under one category, "Tailwaters," and concludes that "results suggest no change to biodiversity under this alternative." Native warm- water fauna and introduced cool or cold water species generally have conflicting temperature requirements. Therefore, when these species are combined under the umbrella of" general biodiversity" to interpret effects of the various ROS alternatives, these conflicting requirements may cancel one another out and disguise otherwise beneficial effects for native warm-water species. For example, Section 5.13 - Threatened and Endangered Species, indicates that in warm, free-flowing tailwaters substantial benefits to fauna are seen in many instances under the Tailwater Habitat Alternative. **Scott Davis, Executive Director, Tennessee Chapter of The Nature Conservancy, 3743**

Response to Comment 12: Cool-water and warm-water fish species were combined for the purposes of describing potential impacts on biodiversity. This was done because fish species in both of these groups typically are not restricted in warm- to cool-water habitats (except for high water temperatures that could limit cool-water species; however, these conditions would not occur in tailwaters under any policy alternative). Cold-water habitats on the other hand typically have low biodiversity (see Section 5.7.1). Any alternative that would warm tailwater releases was considered to result in beneficial impacts on aquatic biodiversity. As noted in Section 5.7.2, metrics used to evaluate impacts on biodiversity included several directed at changes in water temperature (some comparing water temperatures during the summer and August-September periods, and another addressing hours with a water temperature less than 16 ^{o}C). As noted in Table 5.7-06, temperature conditions in warm and cool-to-warm tailwaters would not differ from the Base Case, except for the Cherokee Tailwater, which would have lower temperatures that would adversely affect biodiversity in that particular tailwater.

13. Shoreline habitat is vital to fish spawning and here on Kentucky reservoir we have seen severe shoreline habitat loss due to barge traffic, large pleasure boats, and higher lake levels. **Steve McCadams, 3171**

Response to Comment 13: Under the Preferred Alternative, the Kentucky Reservoir operating guide curve would not change from the Base Case.

14. The World Wildlife Fund comments are focused primarily on the aquatic biodiversity aspects of the PEIS.

Section 4.7, Aquatic Resources, [recognizes] "the construction of the TVA reservoir system significantly altered both the water quality and physical environment of the Tennessee River, with little regard at the time for aquatic resources." The reservoir system has indeed created "local extinctions," particularly of native mollusks and fish. However, the compound effect of "local extinctions" in reservoir pools and tailwaters multiplied across the entire Tennessee Valley also resulted in severe habitat fragmentation for our native aquatic

fauna. In spite of all this, the remnants of the native Tennessee Valley aquatic fauna still rank among the most diverse on the planet. In fact, World Wildlife Fund, the Nature Conservancy and others recognize the aquatic systems of the Tennessee Basin as some of the most significant freshwater systems in the world. As a result, we feel that TVA must place a strong emphasis on protecting and managing specific reaches of free-flowing river habitat in the Valley in order to minimize the risk of further species extinctions. **Wendy Smith, Executive Director, World Wildlife Fund, Southeast Rivers and Stream Project, 3545**

Response to Comment 14: As indicated in Section 3.4.1, TVA is aware of the wide diversity and the biological importance of several mainstem and tributary stream reaches within the Tennessee River basin. TVA has evaluated—and will continue to evaluate—project-specific activities that could enhance or improve recovery of endangered and other native aquatic species in these areas. TVA made a commitment in the 1990 Lake Improvement Plan to provide minimum flows below TVA projects. No alternative formulated for the ROS would reduce that commitment.

15. Limitations of the "Tailwater Habitat Alternative"

World Wildlife Fund agrees with The Nature Conservancy's primary concern with the draft PEIS which is**:** that the management alternative intended to benefit these same aquatic habitats, "Tailwater Habitat Alternative," is interpreted as having either adverse, or at best, no effect on either warm-tailwater biodiversity in general or protected species in particular. WE believe the problems with this alternative are twofold**:** the first being the manner in which different species groups were lumped during the impact interpretation, and the second being the parameters of the alternative itself.

In Section 4.7.5, Tailwater biodiversity, cool-water and warm-water tailwater aquatic communities are described separately. However, the discussion of the "Tailwater Habitat Alternative" in Section 5.7.10 lumps these habitat types under one category, "Tailwaters," and concludes that "results suggest no change to biodiversity under this alternative." Native warm-water fauna and introduced cool or cold-water species generally have conflicting temperature requirements. Therefore, when these species are combined under the umbrella of "general biodiversity" to interpret effects of the various ROS alternatives, these conflicting requirements may cancel one another out and disguise otherwise beneficial effects for native warm-water species. For example, Section 5.13—Threatened and Endangered Species, indicates that in warm, free-flowing tailwaters, substantial benefits to fauna are seen in many instances under the Tailwater Habitat Alternative. **Wendy Smith, Executive Director, World Wildlife Fund, Southeast Rivers and Stream Project, 3546**

Response to Comment 15: See Response to Comment 12.

16. The general framework of the Tailwater Habitat Alternative, given the constraints imposed by deep reservoir distributed throughout the system, limits TVA's ability to maintain adequate DO levels in both reservoirs and tailwaters. As evidenced by the success of the Reservoir Release Improvement Program, we believe that TVA can manage reservoir releases to the benefit of the native aquatic fauna. The Tailwater Habitat Alternative as designed does not meet water quality objectives due to reservoir levels that may be

excessively high. **Wendy Smith, Executive Director, World Wildlife Fund, Southeast Rivers and Stream Project, 4183**

Response to Comment 16: See Responses to Comments 12 and 14. Although water depth is a contributing factor to low DO concentrations in many reservoirs, citing it alone as a major contributor without acknowledging the complexities of oxygen depletion in the hypolimnion of reservoirs can be misleading. There are numerous examples in the Tennessee Valley region where deep reservoirs exhibit much less oxygen depletion than shallower reservoirs.

Other preliminary alternatives that passed between 50 and 75 percent of the inflow were evaluated in the screening process but were determined to result in substantial adverse impacts on several other operating objectives.

17. As is clearly described in Section 4.4, deep water is a major contributor to low DO levels. Larger releases from reservoirs would allow for water levels to meet other project objectives, reduce residence time, and improve quality of reservoirs and tailwaters. Better quality water and higher tailwater flows would be beneficial to native aquatic fauna. In addition, lower winter reservoir levels would reduce the adverse impact of this alternative on flood storage. Justification should be given for releases of only 25% of inflows or a new alternative should be designed with higher flows. **Wendy Smith, Executive Director, World Wildlife Fund, Southeast Rivers and Stream Project, 3871**

Response to Comment 17: See Response to Comment 16.

Fishing

1. I like fishing **Anonymous, 3174**

Response to Comment 1: Comment noted.

2. You can't fish the banks of the reservoir when lake is full for limbs hanging over – especially true on South Holston and Boone Reservoirs. **Alan Mitchell, 705**

Response to Comment 2: Comment noted.

3. Would like to do what's possible to enhance and preserve fishing. Critical for preserving wildlife. **Ben Robinson, 3977**

Response to Comment 3: State fisheries agencies are responsible for management of the fisheries resources in TVA reservoirs. TVA does work in concert with these agencies when possible to enhance environmental conditions.

4. As a South Holston tailwater fisherman I am concerned about water temperatures stressing trout during the month of August. We have experienced temperatures in excess of 70 degrees Fahrenheit. in May when you are releasing (2) one hour pulses a day in an attempt to bring the lake level to full pool by May 31. **Bob Cheers, 269**

Response to Comment 4: Retention of water in reservoirs such as South Holston enhances tailwater trout fisheries by creating a larger body of cold water. By retaining the water and releasing it at intervals, summer and early-fall water temperatures in the tailwater can actually be decreased (which is better for trout). Section 5.7.11 of the EIS provides additional explanation. In addition, the Preferred Alternative includes increased minimum flow releases from South Holston Reservoir from April 1 through October 31, which would result in colder tailwater temperatures for the downstream fishery.

5. Fishing is a wonderful pastime for many people. Native fish species should be encouraged. Commercial fishing should be monitored and controlled when it threatens to reduce the fish populations. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3104**

Response to Comment 5: See Response to Comment 3.

6. The reduction of the shoreline scrub/shrub wetland habitat will have a significant impact on the spawning success of crappie and largemouth bass on Kentucky Reservoir, as well as other mainstem reservoirs. With significantly reduced spawning success, these species could suffer population declines, which would significantly reduce fishing success.

This loss has the very real potential of decreasing standing stocks of sport fish such as white and black crappie and largemouth bass. If indeed this does occur, the economy of this region will suffer significantly. As it stands now, the summer season finds most resorts filled to near capacity with folks who come to the lake for water-related sports such as boating and swimming. However, most resort owners will tell you that these three months are not what is critical to the success of their business. It is the visitation of fishermen to this area in the months of March through May and September through November that make or break the resort's business for the year. If fishing success suffers as a result of reduced fish spawning and nursery habitat from mortality inflicted by longer periods of full pool water levels, visitation to the resorts will suffer significant declines during the "off-season" time frames previously mentioned. **Gary D. Jenkins, 2110**

Response to Comment 6: TVA's Preferred Alternative would not change the operating guide curve for Kentucky Reservoir, thereby avoiding potential impacts on fish spawning and nursery habitat.

7. In my opinion, the fishery of TVA's mainstem reservoirs could possibly be severely and significantly affected by any alternative which would cause extension of full pool elevation any longer than currently being implemented. **Gary D. Jenkins, 2105**

Response to Comment 7: As discussed in Section 5.7.2, extending the time that reservoirs are kept at full pool would, over a period of successive years, decrease available habitat. Reservoir bottom areas would not be dewatered for sufficient time to allow adequate growing conditions for redeveloping the desirable vegetative growth that provides the nutrient boost, good spawning, and nursery habitat for the fishery.

8. On behalf of Clinch River Chapter of Trout Unlimited. Concerned with summer hydropower alternative could significantly increase number of days of warm water releases that can stress both trout and intvertebrates. Concerned that Recreation Alts A and B could lead to increases in deposited sediment due to increase in periods of minimum flow during summer. We recommend that TVA review possibility of special flushing releases during

major rain events when extended minimum flows are in effect. We believe these would not be needed often and cost would be minimum. Second, recommend that TVA look for ways to increase minimum flows above 200 cfs on Norris. **H. B. McCowan, 3944**

Response to Comment 8: Under TVA's Preferred Alternative, these problems would largely be avoided. TVA considers peaking flows to be flushing flows and does this when water is available. Most of the year, the daily average minimum flow from Norris Reservoir is greater than 200 cubic feet per second (cfs). See Appendix A for these flows. These have been included in the Base Case, as well as in each alternative analyzed.

9. Can you explain why fishing has been so bad in the last few years? **James and Lavada Mansfield, 3823**

Response to Comment 9: Numbers of fish typically fluctuate annually, based on numerous environmental conditions and management options. State agencies are responsible for the management of sport fish.

10. More fishing time. **Jerome Alton Connor Jr., 2064**

Response to Comment 10: Comment noted.

11. I think that the Ocoee (upper and middle) needs to have consideration of its fish river habitats like you give to the Hiwassee. The waters going into the Ocoee are being cleaned up in the Copperhill area and the river should be able to support for fish life. But the lack of any but absolute bare minimums except for flood control releases and recreational releases seems to me to preclude much life support in the river sections. **John Hubbard, 2389**

Response to Comment 11: Aquatic resources and habitats are addressed in a number of EIS sections including, primarily, Sections 4.7 and 5.7.

12. TVA does not do a good job of regulating the lakes for fishing... I feel income in the area is probably decreasing rather than increasing due to water control by TVA. **Karen Niehaus, 3853**

Response to Comment 12: See Response to Comment 3.

13. Crappie fishing should get the highest priority in this area. **Kathy Mesmer, 465**

Response to Comment 13: Comment noted.

14. No Sea Bass brought in. They have ruined my crappie fishing. **Marlin Seaton, 2735**

Response to Comment 14: Comment noted.

15. The way that TVA operates the generators affects our ability to put commercial fishing nets in the water. If the flow is high, we cannot work. It's very important that we continue to be able to get the generation schedule off the computer that TVA now provides on their website. It's also important that we be able to get the daily schedule off of the recorded telephone line at Pickwick Dam. **Mike Kelley, 4524**

Response to Comment 15: The recorded flow information systems would not be changed under any of the alternatives.

16. One of the recommended alternatives, and I think it was the navigation alternative, where the flow would be continuously an increase flow would severely affect about 400 commercial fishermen and mussel drivers on the Kentucky Reservoir, from Pickwick Dam down to Kentucky Dam. Again I repeat, when the flow is high, we cannot work. To put it in real numbers, when it is in excess of 30,000 CFS. **Mike Kelley, 4525**

Response to Comment 16: Under the Preferred Alternative, the flow regime at Pickwick is not expected to change materially on a daily basis.

17. Our fish should be managed in the right way. **Paul Howell, 4027**

Response to Comment 17: See Response to Comment 3.

18. Plan A would help fish population along with a TWRA ban on fishing during spawning. **Phillip Davis, 2377**

Response to Comment 18: Comment noted.

19. The list below is people who like fishing in South Holston lake. Mr.& Mrs. Johnny Holmes, Mr.& Mrs. Charles Eastridge, Mark Ford, Mr.& Mrs. Lawrence Eastridge, Rev. Dennis Banks, Mr.& Mrs.Jonathan Duff, Mr.& Mrs. Robert Buchanan,Brian & Richard Duff, Troy Terry, Mr.& Mrs. Ralph Duff. We appreciate you keeping the lake at full stages thank you very much. **Ralph Duff, 306**

Response to Comment 19: Comment noted.

20. Management efforts should be conducted to enhance and improve fisheries resources. **Richard Simms, 2236**

Response to Comment 20: See Response to Comment 3.

21. I will make my comments on fishing here. I have a fishing license, so I fish in addition to boat. I hope that your ultimate operational decisions are not based on lobby from BASS. If fishermen can't catch fish with the electronics that are available to them in today's market, they need to pick another sport. **Suzie Reed, 43**

Response to Comment 21: Comment noted.

22. East Lake here in Morgan County just below west of the railroad bridge, normally here we call it the Flat Areas, a stumpy grass area, I would like to present a restocking area of large-mouthed bass because this area hosts the Bassmasters, other tournaments, revenue for this area.

I have an idea for restocking. They are small concrete octagons with holes in them to hold fish, to put a string of large-mouthed bass and other big bass that would draw revenue tournaments here, but they have to grow, be restocked, no fishing for a couple of years to hold in these grassy areas.

The issue about commercial fishing in the brochure and what I've seen today, I don't believe it was met or nothing was done. Could you look into it and TVA write – give me a letter, call, set up another meeting? **Tim Stewart, 4345**

Response to Comment 22: See Response to Comment 3.

23. Issue of a fish attractor, I am going to pursue it, seek a permit and we'll go with that, see how we do on that. That's for areas for the Bass Pro tournaments, environmental or how y'all list it as – this category would be under Aquatic Fishing, I believe. There's a section here under Sports Fishing and Commercial Fishing. That is what these fish attractors would do, bring revenue, and help the environment, fishing in this area. **Tim Stewart, 4346**

Response to Comment 23: There are guidelines pertaining to the placement of fish attractors on TVA reservoirs. Those guidelines, as well as permits for attractor placement, can be obtained from the appropriate TVA Watershed Team.

24. Would like to see the level of Douglas lake maintained at 2/3 full OR LESS. Duck hunting and fishing seem to be best when the lake levels are kept lower than they are now. Some really big fish were caught from Douglas Lake during the 60s and 70s. No more. **William E. Hixson, 923**

Response to Comment 24: Comment noted.

25. This plan would give the boaters more recreational time in the summer and fall. And also would benefit the fisherman also. **Windel Lester, 125**

Response to Comment 25: Comment noted.

Wetlands

1. Protect the wetlands which help water quality. Even the tailwater habitat increases pooling stability and thus doesn't aid water quality. Address a water quality option. **Anthony Morris, 2716**

Response to Comment 1: Sections 4.4, 5.4, 4.8, and 5.8 address water quality and wetlands. Water quality improvement was an important consideration in the formulation of all the alternatives. Because the alternatives considered span a reasonable range of operations policy, water quality effects or consequences varied. Many demands are placed on the Tennessee River system, all of which TVA considers and integrates when making decisions about the use of available water. Water quality is one of those considerations. For example, TVA operates the river system to provide minimum flows at numerous locations specifically for water quality. Water quality played a very important role in the development of TVA's Preferred Alternative. One of the fundamental changes proposed in the Preferred Alternative is to manage reservoir operations in such a way to achieve certain flows—rather than certain levels—in summer (June 1 through Labor Day). This is expected to improve water quality in low-flow years during the latter part of summer.

2. The emphasis on wetlands is absurd. The protection of so called wetlands is often illogical. Like most matters or causes, extremists seem to rule. **Bill Dearing, 2186**

Response to Comment 2: Wetlands perform a number of very important water quality and ecological functions. Under the Clean Water Act, certain wetlands are protected. In addition, Executive Order No. 11990 establishes a policy under which federal agencies are to avoid construction activities in wetlands and minimize adverse effects on wetlands. As a federal agency, TVA is committed to protection and stewardship of wetlands. Sections 4.8 and 5.8 address wetlands.

3. Preserve existing wetlands and nurture potential wetlands. Do not destroy existing wetlands. They are one of our greatest natural resources. I won't list all their contributions. Constructed wetlands are nice if they are not replacing a natural wetland which was lost through "development." **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3097**

Response to Comment 3: See Response to Comment 2.

4. Wetlands are important to strong ecosystem. **Chris Perkins, 3828**

Response to Comment 4: Wetlands are addressed in Sections 4.8 and 5.8.

5. As indicated in the study, scrub/shrub wetlands on Kentucky Lake and other mainstem reservoirs will suffer significant impacts as a result of increased duration of full pool elevations. **Gary D. Jenkins, 2109**

Response to Comment 5: Potential effects on scrub/shrub wetlands and other types of wetlands are addressed in Section 5.8. Under TVA's Preferred Alternative, operating guide curves for Kentucky Reservoir would not be changed, and the wetlands and flats on that reservoir would not be affected.

6. On Kentucky Reservoir in particular, the shoreline scrub/shrub wetland vegetation was significantly reduced by the change in dates of beginning drawdown starting in the early 1980's. Prior to that change, water started being drawn from Kentucky Reservoir on June 15. The change was to start the drawdown on July 5. This additional two weeks of high water started increasing mortality of plants such as buttonbush, water willow, and black willow that at one time grew out as deep as the 357 contour on the lower portion of the reservoir. Now, one would be hard-pressed to find any of this vegetation thriving below the 357.5 contour, again on the lower portion of the reservoir. With an increased time of inundation of this vegetation as proposed in the current alternatives, it is highly probable this vegetation will suffer greater devastation. **Gary D. Jenkins, 2106**

Response to Comment 6: See Response to Comment 5.

7. I don't like bugs and snakes, but accept them as part of the outdoors. Too many communities are being built at the edge of our lakes and rivers and wiping out the very habitat that made the house on the lake so desirable.

TVA should consider stronger restrictions for homes and communities that build on or near aquatic areas. **Larraine Nobes, 22**

Response to Comment 7: TVA's Shoreline Management Initiative (SMI) (TVA November 1998) and resulting policy addressed this.

8. If TVA messes up in this area it will be a national disgrace. Many school programs talk about wetland communities and youth today are very aware of the need to preserve these areas. Be very careful to stay on the side of conservation rather than progress in management of wetland areas, because many eyes are watching. **Larraine Nobes, 32**

Response to Comment 8: TVA is committed to stewardship of wetlands on TVA reservoir lands. Potential changes to wetlands and other sensitive ecological resources throughout the region have been evaluated. See Sections 4.8 and 5.8.

9. The Base Case presents the least adverse effect on lowland areas and their plant and animal inhabitants. Migratory birds are at risk because of rampant habitat loss. The TVA water system provides a vital "lifeline"for these birds. Their future may very well depend on the flats that are created in the TVA tributary areas at drawdown. Any choice that raises or maintains higher water levels year round will eliminate the flats. Choices that maintain water levels for longer periods of time, miss the migratory time frame. Any of these choices adversely affect migratory birds. Tree species that currently survive with part of the year spent in the dry, would surely suffer under conditions that would keep them submerged year round. Loss of these species would have an adverse effect not only on the aesthetics of an area but also on animals and other plants that depend on them or relate to them in various ways. **Leslie J.Gibbens, 84**

Response to Comment 9: Shorebirds were identified as important resources in the EIS. As noted in Section 5.10, most of the identified alternatives would adversely affect shorebirds, as well as some species dependent on forested wetlands—mostly from the extension of summer pool levels on various reservoirs. TVA considered these impacts when developing the Preferred Alternative and has made changes where appropriate to accommodate this important resource.

10. Wetlands improvement is almost certain to result. **Mark Patterson, 2898**

Response to Comment 10: The wetland analyses conducted for this EIS indicate that holding reservoir levels higher longer would increase the period of inundation of wetlands and flats, and result in some adverse effects. See Sections 5.8 and 5.10.

11. A potential compromise**:** limit drawdown in Douglas Lake to 980 feet from Aug. 1 until Labor Day, then, say, 970 feet until Oct. 1. This would allow plenty of lake surface for recreation and esthetics, and permit power generation during the late summer period of high demand. Most importantly, the established wetland cycle would be preserved and the dependent wildlife species protected. **Michael Sylva Sledjeski, 78**

Response to Comment 11: TVA formulated a Preferred Alternative in an effort to enhance recreational opportunities on a number of reservoirs and tailwaters, while reducing the impacts associated with the alternatives identified in the DEIS. See Appendix C for elevation probability plots along with flood guide curves for tributary reservoirs, including Douglas, under the Preferred Alternative.

12. Wetland sites should be protected and enhanced in every way possible. TVA should not penalize groups who work to enhance wetland habitat through winter flooding. In other words, don't charge people for holding back water for wildlife development projects. **Richard Simms, 2247**

Response to Comment 12: Comment noted.

13. Most of the alternative will increase the flood risk to the managed wetlands on Kentucky and Wheeler Reservoirs. These wetlands provide valuable habitat for many species of fish and wildlife. They are also important areas for recreation activities such as hunting. If changes are made that increase the risk of flooding TVA should mitigate the risk. **Robert Wheat, 2813**

Response to Comment 13: Potential flood risk to managed wetlands and associated infrastructure are discussed in Sections 4.8 and 5.8. Under TVA's Preferred Alternative, operating guide curves for Kentucky Reservoir would not be changed and the important wetlands and flats on that reservoir would not be affected. Wheeler Reservoir minimum winter pool elevations would be raised by 0.5 foot under the Preferred Alternative. See Section 5.14.

Aquatic Plants (Including Invasive Aquatic Plants)

1. Aquatic Plants - Hooray for past programs to retard hydrella and other aquatic plants that choked reservoirs! Hooray! **Anonymous, 3244**

Response to Comment 1: Comment noted.

2. Public should be made more aware of the potential good or bad of plants and trees they may be placing on our shorelines so as not to damage the environment over the long term. **Anonymous, 605**

Response to Comment 2: TVA has an active program that provides information to landowners about beneficial native vegetation that can be used along shorelines.

3. Invasive aquatic plants are a problem and should be vigorously pursued with a goal toward elimination. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3086**

Response to Comment 3: Invasive aquatic plants such as Eurasian watermilfoil, hydrilla, and spinyleaf naiad—the most abundant invasive species in the TVA reservoir system—are so abundant and widespread that eradication is not feasible. Although these species are exotic, they provide benefits to fish and wildlife, and an eradication effort would likely be opposed by angler and waterfowl organizations, and some state resource agencies. TVA works with stakeholder groups to develop reservoir-specific management plans for

controlling invasive and nuisance aquatic plants along areas of developed shoreline, where they hinder recreational use or restrict boating access. See Section 4.9.

4. The City of Guntersville is concerned about the impact of the policy changes and their effect on the aquatic weeds that we are dealing with on the Guntersville Reservoir. We have worked with TVA through the Stakeholders Group to manage and control these invasive aquatic plants. We are satisfied with the progress we have made together with TVA and would not support a policy that would hamper or hinder that process. We feel that the Base Plan is working for us. **City of Guntersville, Alabama, 2332**

Response to Comment 4: No reservoir operating guide curve changes are proposed for Guntersville Reservoir under the Preferred Alternative. TVA is appreciative of the support and accomplishments of the Guntersville Stakeholder Group in managing aquatic vegetation in Guntersville Reservoir.

5. I would hope that "Real" science would be used to control the invasive aquatic species of plants, i.e. milfoil and hydrilla. Too many sports fishermen continue to believe that the more plants there are then the more fish there are. Science refutes this and I hope that the TVA is not swayed by emotion put forth by uninformed fishermen. **Harold DeHart, 2132**

Response to Comment 5: Aquatic vegetation in moderate amounts is considered beneficial to the reservoir fishery. However, when aquatic plants become overabundant they can adversely affect fish growth and the structure of fish populations, and hinder angler access to "prime" fishing areas. Aquatic plant management plans are developed to promote balanced use of the resource—controlling aquatic plants in some areas and protecting aquatic plants in other areas as fish and wildlife habitat.

6. As I watched the video, I didn't see any discussion of aquatic plants and plant growth. And my property is on Wheeler Lake and I'm very concerned that we do not get aquatic plant growth similar to what they have on Guntersville Lake.

So I'm curious if these alternatives where we keep the water at a higher level throughout the year, in the wintertime particularly would in any way enhance the growth of these undesirable milfoil or other aquatic plants in the lake.

I like the idea of the lake levels being kept at a higher level in the winter as compared to where it is now, but if there's going to be any adverse affect of enhancing the aquatic plant growth, I would be very disappointed. **John Dumbacher, 4331**

Response to Comment 6: Higher winter levels on mainstem storage reservoirs, such as Wheeler, could favor the establishment and expansion of species such as Eurasian watermilfoil and hydrilla into the area of the drawdown zone that would no longer be dewatered during late fall and winter months. In many mainstem reservoirs, this portion of the drawdown zone with suitable substrate is already colonized—primarily by spinyleaf naiad and other plants that regrow from seed when flooding occurs during summer months. Therefore, higher winter levels could shift the composition of the plant community in the portion of the drawdown zone flooded by higher winter levels. The extension of summer pool levels could slightly decrease coverage of Eurasian watermilfoil and hydrilla colonies on the deep-water side due to a reduction in light penetration and slightly increase aquatic plant coverage in the drawdown zone. Regardless of the alternative, aquatic plants in

mainstem reservoirs are expected to fluctuate widely in response to natural climatic and hydrologic events that are beyond the control of TVA. See Sections 4.9 and 5.9.

7. As a fisherman who has been on Kentucky Lake, Barkley, and Priest for several years, I find the lack of aquatic vegetation very disturbing. Years ago, it was possible to see and hear frogs and toads, now they can rarely be seen. I think this may be due to a loss of their habitat and food supply. Consideration needs to be given to bringing back vegetation to support the eco-system needed for reptiles and amphibians. **Larraine Nobes, 16**

Response to Comment 7: TVA recognizes that aquatic plants, including invasive species such as Eurasian watermilfoil and hydrilla, provide benefits to fish and wildlife. TVA also recognizes that an overabundance of aquatic plants impedes many types of recreational activities, restricts access to shoreline areas, and negatively affects the ecological balance within a reservoir. To achieve balanced use of the resource, TVA works with stakeholder groups representing a wide variety of user interests to develop reservoir-specific aquatic plant management plans that allow control in designated areas and protect aquatic plants in other areas for fish and wildlife habitat. Aquatic plants fluctuate widely primarily in response to hydrologic and climatic events that are beyond the control of TVA. Planting of native vegetation is very costly, and expected results are small in comparison to increases that occur during years with optimal growing conditions. See Section 4.9.

8. I am concerned with the growing presence of the aquatic plant Hydrilla that continues to plague Pickwick Lake and the Tennessee River. An aggressive plan to rid this plant of our waterways needs to be developed before it overtakes the regional waters. Last summer there was a sizeable "island”of the plant on the main body of the lake about 1 mile upstream from Pickwick Dam. It caused numerous incidents of damage to boats and PWC but fortunately no loss of life as in other recreational lakes such as Lake Austin in Texas, where uncontrolled neglect of the plant caused an eventual shutdown for a season to recreational boating resulting in major economic impact. **Mark Wiggins, 2275**

Response to Comment 8: See Response to Comment 3.

9. All seven policy changes note that they would have an adverse affect on the abundance and spread of aquatic weeds. This, of course, throws up a "red flag”to us on the Guntersville Reservoir. We would not support any policy that would increase the aquatic weed on our reservoir. **Milla M. Sachs, 2331**

Response to Comment 9: See Response to Comment 4.

10. I would also like to see if there is anything that can be done about water weed control. At one time it was sprayed for, but we have terrible problems with prop fouling. We know the anglers love it, but it causes tremendous problems for us. **Pat McAlister, 2352**

Response to Comment 10: An overabundance of aquatic plants can affect boating and restrict access to developed shoreline and other areas within reservoirs. All aquatic plant management activities within TVA reservoirs are guided by reservoir-specific plans developed by stakeholder groups that represent a wide variety of user interests. These plans promote a balanced approach to the use of the resource, by allowing control in designated areas while protecting aquatic plants in other areas for the benefit of fish and wildlife. See Section 4.9.

11. Aquatic plants good if keep clean **Paul Howell, 4030**

Response to Comment 11: See Response to Comment 3.

12. There should be recognition that some species once considered "invasive,"provide great benefits. Specifically Eurasion milfoil provides great benefits to fish and wildlife, especially waterfowl. **Richard Simms, 2239**

Response to Comment 12: See Response to Comment 3.

13. Management efforts should be conducted to improve and enhance aquatic vegetation in the reservoirs as they provide great benefits for fish and wildlife. **Richard Simms, 2235**

Response to Comment 13: See Response to Comment 3.

14. I would like to see the resource managed to INCREASE the number of aquatic vegetation to provide more habitat for fish and wildlife. **Richard Simms, 2219**

Response to Comment 14: See Response to Comment 3.

15. The plan should recognize that there can be benefits to certain species that some people might consider "invasive."Eurasion milfoil has long been considered "invasive,"yet provides great benefit to fisheries and wildlife. There must be an acceptance of the benefits of some of these invasive species. **Richard Simms, 2225**

Response to Comment 15: See Response to Comment 3.

16. Don't make any changes that will allow more millfoil and hydrilla to grow.
Rita Dumbacher, 3955

Response to Comment 16: Except for the Summer Hydropower Alternative and the Equalized Summer/Winter Flood Risk Alternative, which are expected to decrease coverage of submersed and floating-leaved aquatic plants, climatic and hydrologic events beyond the control of TVA are expected to override any potential changes in coverage associated with the other alternatives during most years (see Section 5.9). Aquatic plants in mainstem reservoirs are expected to continue to fluctuate widely in response to natural climatic and hydrologic events. Hydrilla is expected to continue to expand in TVA mainstem reservoirs under the Base Case or any of the other alternatives.

17. With respect to invasive aquatic plants, we encourage TVA to consider alternative means of controlling plant growth. Reducing nutrient-laden non-point source runoff and point source discharges of nutrients would retard the growth and spread of invasive plants without using herbicides. **Southern Environmental Law Center, 3615**

Response to Comment 17: TVA Watershed Teams currently work with stakeholder groups and local and state agencies throughout the Tennessee Valley region to reduce non-point pollution. TVA also works with stakeholder groups representing a wide variety of user interests to develop reservoir-specific plans for managing aquatic plants. The various options for managing aquatic plants are reviewed prior to development of the plans. Management methods in the plans primarily include the use of herbicides for controlling aquatic plants in near-shore areas of developed shoreline and mechanical harvesters for opening and maintaining boating access lanes.

18. The water levels this summer has reduced the amount of algae and weeds growing in my slough by a considerable amount. **Thomas H. Hollingsworth, 3521**

Response to Comment 18: Comment noted.

Terrestrial Ecology

1. If you chose an alternative plan that does reduce the amount of late summer / fall habitat, I urge you to mitigate this loss by providing a comparable or greater amount of habitat distributed elsewhere across the reservoir system. I would also urge you to commit to managing this replacement habitat in perpetuity. **Benny Thatcher, Graduate Research Assistant, Natural Resources Program, Department of Forestry, Wildlife and Fisheries, University of Tennessee, 2549**

Response to Comment 1: As noted in Section 5.10, most of the identified alternatives would affect flats habitats used by shorebirds and waterfowl. This issue ranked highly when TVA developed its Preferred Alternative. TVA considered potential impacts on threatened and endangered species and on resident and migratory wildlife. TVA's Preferred Alternative better addresses these issues than the alternatives identified in the DEIS, which were formulated to improve recreational opportunities by holding levels higher longer. The Preferred Alternative would result in fewer impacts on wildlife resources than the other action alternatives. For example, under the Preferred Alternative, TVA would not change the operating guide cuves for Kentucky Reservoir, which has flats that are important to migrating wildfowl. See Sections 4.10 and 5.10. Also see Chapter 7 for a discussion of mitigation.

2. Waiting until later to lower water level will cause an undue burden on a majority of people, so that a small minority of wealthy landowners and boat owners can play, and enjoy raised property value....

It will reduce the number of nature lovers who travel to places such as Rankin Bottoms — who spend money there. **Charles, 2653**

Response to Comment 2: Comment noted.

3. Improve the wildlands to support habitats to support as wide a variety of species as possible. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3093**

Response to Comment 3: Comment noted.

4. Particular attention to our R/T/E species habitat which is used year round, breeding habitat, or is an important migratory stop-over for some species. Please be sure that if any of their habitat is lost they will have another place to stop that is as rich as the one they are presently using. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 4181**

Response to Comment 4: See Response to Comment 1.

5. It is my understanding that, in the TVA Reservoir Management Study the Base Case (No-Action Alternative**:** current operating conditions), pool levels begin to drawdown around July 1 each summer by a few inches per day. This results in great habitat for shorebird migration. Regular utilization includes killdeer, plovers, yellowlegs, sandpipers, and dowitchers by the hundreds, perhaps thousands at many sites. However, the TVA does not have comprehensive survey or inventory data. Checking the TNWR bird checklist, 10 waders and bitterns, and over 30 shorebirds could be affected by a change in habitat availability.

If an alternative other than the Base Case is selected and implemented, pool levels will be significantly altered during the peak shorebird migration period, sometimes low, but most times too high to provide the kind of habitat available for them in most normal years. Either way, changes in the current operations will greatly reduce or potentially eliminate this habitat.

TVA should compile all known data on species occurrence, numbers, alternative sites, alternative site utilization, for the project area. Also, assess the potential for reservoir habitat loss and shorebird use with each alternative.

TVA should evaluate potential to avoid impact to certain high quality areas, and nominate these areas as Important Bird Areas. Mitigate loss through creation of other suitable habitat, purchase of other habitats (assuming purchase isn't a high priority habitat for other valuable resources).

Evaluate (research if necessary) use of areas and impact of habitat loss to shorebird energetics during migration. **Christine Liberto**, **2434**

Response to Comment 5: See Response to Comment 1.

6. Delaying of the drawdown will likely cause continued decline of buttonbush as did the delay that occurred in the 80's. This buttonbush habitat is very important for brood rearing habitat for wood ducks. This could cause decline in the wood duck population. Crappie lay their eggs in buttonbush and this is also important habitat for fish fry. Loss of the buttonbush could be damaging to fisheries on Kentucky Lake as well as others. Loss of this habitat will also speed erosion of islands and the shoreline. This buttonbush habitat is also used by breeding prothonotary warblers as well as migrant warblers. This loss could hurt these populations. Presently flats on the lake are important for fall shorebird migration which begins in early July. Delaying the drawdown will reduce this habitat. Pace Point on the Big

Sandy Unit of the Tennessee National Wildlife Refuge used to be the most important migration stopover for shorebirds in the state. The delay that occurred in the 80's significantly hurt this area for shorebirds and another delay will be even more detrimental. Another concern is increased flood risk. Hurricanes and tropical storms from the Gulf Coast often dump very heavy rains on this area in late summer. Flooding at this time could ruin the waterfowl foods on the WMA's and Refuges significantly hurting wintering waterfowl populations and hunting. I feel this change will be very detrimental to habitat and wildlife populations in this area. **Clayton Ferrell, 2498**

Response to Comment 6: See Response to Comment 1.

7. I am concerned about potential adverse impact on breeding and migrating birdlife (and other aquatic life). It is my sincere hope that TVA place a high value on the ecological results of any changes in reservoir operations. It is my understanding that ANY of the changes being considered will harm waterfowl. If this is the case, I would encourage TVA to reject any of the changes.

I realize that this is a complicated and confusing issue, so I would appreciate any additional information (or sources of information) — if a human reads this and can indeed email me. **Dan Feather, 2685**

Response to Comment 7: Your request for additional information has been forwarded to our Resource Stewardship staff for a response. See Response to Comment 1.

8. Finally, the loss of flats would negatively impact shorebirds. Of the 74 species of shorebirds in North America, over one-third are exhibiting population declines, and 22 are considered conservation priorities. Many shorebirds make extremely long migration, some flying from the Alaskan tundra all the way down to the beaches of Argentina. These flights require a tremendous amount of energy, and all feeding sites along the way are critical to the survival of these species. The loss of flats would reduce the chances of survival for many shorebird species. **David A. Aborn, Ph.D., 2091**

Response to Comment 8: See Response to Comment 1.

9. All of your proposed alternatives would increase water levels on the Hiwassee River during the fall and winter, the time when the cranes are here. This would cause the loss of flats and sandbars which the cranes rely on for roosting and feeding. The loss of roosting/feeding sites would result in one of two possible detrimental effects.

The second possibility would be that the cranes stayed in the area, but would begin utilizing off-refuge fields and farm ponds for roosting and feeding. This would result in the cranes being viewed as a nuisance, and could lead to people poaching them or calling for a hunting season on the cranes. **David A. Aborn, Ph.D., 2089**

Response to Comment 9: The mouth of the Hiwassee River is an important area for migrating sandhill cranes. Under TVA's Preferred Alternative, the reservoir operating guide curves would be similar to the Base Case during late fall and winter. Consequently, the flats still would be available to the cranes under this alternative, and potential impacts on sandhill cranes should be minimal.

10. In addition to the sandhill cranes, Hiwassee Wildlife Refuge figures mainly in the efforts to restore endangered Whooping Cranes to the eastern United States. For the past 2 years, ultralight aircraft have been leading flocks of juvenile Whooping Cranes on a migration from Wisconsin to Florida. Hiwassee is one of the places the planes land and the flock spends several days there. The US Fish and Wildlife Service hopes that Hiwassee will be one of the main resting areas for the cranes when they begin migrating on their own. Last year, several of the birds from the previous years' flights did indeed stop at Hiwassee for several days to rest and feed before continuing their migration. The loss of roosting and feeding areas would seriously impair the efforts to restore an endangered species. **David A. Aborn, Ph.D., 2090**

Response to Comment 10: See Response to Comment 9.

11. Serious concerns. All your proposed alternatives would increase water levels on Hiwassee during fall and winter, the time when cranes are here. Causing loss of roosting/ feeding sites, resulting in detrimental effects. **David A. Aborn, Ph.D., 4060**

Response to Comment 11: See Response to Comment 9.

12. One of the most disturbing things about changing the river operating plan is the effects the various alternatives will have upon Rankin Wildlife Management Area on Douglas Lake in Cocke County, I. During the fall, Rankin Bottoms is a crucial migrations stop-over for thousands of shorebirds as well as large waders such as herons and egrets, Bald Eagles, Peregrine Falcons and waterfowl.

Shorebird migration begins in late June and continues until October or even November; however, the peak of this migration occurs from late July through early September. First-year birds (born the previous summer) and non-successful breeders are the first to trickle back through in late June. Early July the males of many species begin to return from the Arctic breeding grounds leaving the females to brood and raise the young. In late July and early August, the females pass through, having left the fledged young to fend for themselves. The juveniles are typically the last to pass through beginning in early August throughout the remainder of the season with peak numbers in late August. The juveniles have a high mortality rate to begin with and depend highly upon reliable migration stop-overs on their long trip south.

In addition to shorebirds, Rankin WMA is important to large wading birds such as Great Blue Heron, Black-crowned Night-Heron, Green Heron, Cattle Egret, Great Egret, Little Blue Heron, Snowy Egret, and White Ibis. The first four species mentioned are known to breed at Rankin; the last four disperse from their breeding colonies further south and come to Rankin specifically to take advantage of the easy feeding opportunities as fish are trapped in ponds as the water level drops. In late August, over 300-400 waders can often be found feeding and roosting at Rankin making the area look more like the Everglades than East I. Local breeding and dispersion into the area are timed to coincide with the lake drawdown.

Bald Eagles also come to Rankin at this time for the easy fishing. Migrating Peregrine Falcons follow the flocks of shorebirds and ducks and can often be seen preying on them at Rankin.

The current operating plan with drawdown beginning on 1 August provides excellent habitat for shorebirds and waders in late August right at the crucial time, during the peak of shorebird migration and during post-breeding dispersal of the large waders. That is why they have learned to come here. Delaying the drawdown until 1 September would mean that suitable habitat at Rankin would not be exposed until late September or even early October, well past the peak migration period for shorebirds, eagles and Peregrine Falcons and after many of the waders will have headed back south **Dr. K. Dean Edwards, 2726**

Response to Comment 12: Most of the proposed alternatives in the DEIS affected waterfowl and shorebirds in varying degrees. Some alternatives reduced the amount of flats habitats by extending summer pool or raising winter pool levels. TVA's Preferred Alternative better addresses these issues than other alternatives that seek to enhance recreational opportunities. See Response to Comment 1.

13. [If you choose to deviate from the Base Case] I urge TVA in the strongest terms to ... to (1) mitigate the loss [of critical habitat for migrating shorebird, herons and egrets] by providing a comparable or greater amount of habitat distributed across the reservoir system, and (2) commit to properly manage this replacement habitat in perpetuity. **Elizabeth Wilkinson-Singley, 2571**

Response to Comment 13: See Response to Comment 1.

14. Additionally, several species of wildlife could be adversely affected by such an action. Many species of birds such as Prothonatary warblers, red-winged blackbirds, utilize this habitat for nesting. Wood ducks use these areas for feeding, resting and fro brood protection. Many species of water snakes and turtles inhabit these habitats. With the loss of this habitat, significant impacts on these species can be expected. **Gary D. Jenkins, 2111**

Response to Comment 14: Comment noted.

15. Raising winter level and not exposing river mud bars would completely do away with waterflow watering at refuges and hunting along the river and at management areas. My lifetime observation show the present policy is working well. **J. Don Burgess, 4164**

Response to Comment 15: The proposed changes under the Preferred Alternative would not result in substantial changes that would affect dewatering activities at associated wildlife refuges and management areas.

16. Reservoir Recreation Alternative A would have an adverse impact on migratory shore birds. This would be beneficial to Chatuge since we have too many Canada Geese that have ceased to migrate. **James B. and Elizabeth F. Eppes, 4014**

Response to Comment 16: Comment noted.

17. We (Candace Myers, PhD and I) are writing a guide to birding sites along Interstate 40. One of our best sites is Rankin Bottoms, particularly for wading and shore birds. Delaying the late summer Water drawdown would eliminate critical habitat for shorebirds, herons, egrets, etc for Tennessee. There are a limited number of migrating flats for these birds in Tennessee. While the drawdown delay might benefit waterfowl such as ducks, geese and swan there are plenty of lakes to accommodate these birds. **James K. Luce, MD, 2513**

Response to Comment 17: See Response to Comment 5.

18. I strongly object to any plan that destroys or endangers bird and other wildlife habitat. Such plans diminish the quality of life in the Tennessee Valley. If TVA chooses an alternative that destroys important bird habitat, I urge TVA to mitigate the loss by providing a comparable or greater amount of habitat distributed across the reservoir system, and that TVA commit to properly manage this replacement habitat in perpetuity. **Jerry Hadder, 2505**

Response to Comment 18: See Response to Comment 1.

19. It is my understanding that there is a proposal to change the time frame the water levels will be increased or decreased. In doing so it endangers the feeding and wading areas of many shorebirds that have built in migratory cycles. I watched a documentary on Yellowstone National Park and how badly it was devastated in the 1920's and through the 1950's all the get the dollars from tourism. Those that use the lakes will not suffer if the boating season is cut short will they? TVA has been an organization that for many years has been trying to balance nature and business and has done a very good job. I hope that you will consider the impact your plan my have on those migratory birds. I will also contact my congressman to let them know what I think as well. **Kelly, 3158**

Response to Comment 19: See Response to Comment 1.

20. The shrub/scrub community at the headwaters of Douglas Lake appears to be at the limits of tolerance to prolonged submersion, More black willows and buttonbushes die off during years of prolonged high lake levels. **Michael Sylva, 2126**

Response to Comment 20: Under the Preferred Alternative, the fall drawdown would be similar (albeit slightly slower) than the average drawdown observed under the Base Case. The changes for Douglas Reservoir are not expected to result in significant reductions of scrub/shrub plant communities.

21. During the winter months, the flats are very unpleasant to look at. Perhaps migratory birds do like flats somewhere but I have yet to see them here. **Michelle Maloney, 2421**

Response to Comment 21: Flats can be an important feeding and resting resource for many birds. See Sections 4.10 and 5.10.

22. The original primary purposes of your dam and reservoir system were power production and flood control. Once in full operation, secondary benefits appeared—some perhaps not anticipated by the planners. As currently operated the system provides excellent fishing year-round, as well as critical habitat for migrating shorebirds, herons, egrets, and other species. In Douglas Lake in particular [where we have for many years enjoyed the fishing and the birdlife], the long months of low water provide time for vegetation growth on the

exposed flats. When the water level is raised in the spring, these areas become nurseries for many aquatic species, causing Douglas to be one of the most productive lakes around. And the flats at Rankin Bottoms and elsewhere have become important stopovers for migrating shore- and wading birds in August and September. We feel that delaying the late summer drawdown would be a big mistake. The numerous wildlife species that now call our TVA lakes home have adapted to the patterns of high/low in remarkable and delightful ways. Why can't the people who live on the lakes do likewise? **Thomas and Marian Fitzgerald, 3537**

Response to Comment 22: Comment noted.

23. I have enjoyed Douglas Lake as a fisherman and wildlife observer for many years. If drawdown schedule is changed, what will be the impact on aquatic species and migrating waterfowl that use the flats as they come through? For over 50 years TVA has maintained the same drawdown schedule and I know for a fact as a fisherman when they draw it down in late August, September, but the time you get to October, there are weeds sprouting and in the spring when it fills back up this provides a great place for baby fish who have been spawned. After all these years, when the aquatic and wildlife have attuned themselves, what is the impact? **Tom Fitzgerald, 3953**

Response to Comment 23: Flats must have adequate exposure to air for the annual vegetation to become established. This vegetation provides food for waterfowl, and the exposed flats become feeding areas for migrating shorebirds. See Sections 4.10 and 5.10.

24. It is apparent that many of the alternative reservoir management scenarios outlined in the ROS, would maintain higher water levels during the late summer, fall and winter months. This practice would lead to significant reductions of important habitat for migrating shorebirds, wading birds, and waterfowl, as well as some species of songbirds and raptors. Currently, a large portion of the shorebird foraging habitat available to migrating shorebirds during late summer, and early fall months found in the Tennessee Valley is located within the TVA reservoir system. Unfortunately, this habitat is not quantified. Nor does the study discuss the availability of alternative habitats of the proportion of shorebird, wading birds, and waterfowl in the Tennessee Valley that are dependent on this habitat. This information is critical to the development of measures to mitigate the adverse affect of higher water levels.

We have noted that a few important shore bird areas in mainstream reservoirs, including Pace Point on Kentucky Lake and Savannah Bay on Chickamauga Reservoir, no longer support the late summer/early fall shorebird populations that they did during the 1970s and 1980s (although these areas remain important habitats). This is probably a result of stabilized water levels introduced in the early 1990s, although we cannot determine from the very brief description of previous reservoir policy changes whether this is indeed the case. An explanation of the reduced shore bird numbers at these locations would help in further evaluating the effects of the currently proposed changes.

Among the species that would be adversely affected by increased lake levels are several species included on the US Fish and Wildlife Service 2002 List of Birds of Conservation Concern. These species include Little Blue Heron, Peregrine Falcon, Buff-breasted Sandpiper, Semipalmated Sandpiper, Short-billed Dowitcher, Prothonotary Warbler and Louisiana Waterthrush. Alternative lake management scenarios outlined in the ROS may

also adversely affect foraging areas used by the Federally Threatened Piping Plover. We are concerned that the DEIS makes no mention of most of these species or the potential impact that increased lake levels may have on their populations.

We believe higher lake levels maintained during fall and winter months will be detrimental to wintering waterfowl population as well as to wintering sandhill cranes. The largest population of wintering sandhill cranes in the Southeastern US north of the Georgia-Florida border is found in the upper Chickamauga Reservoir. These birds require exposed flats for critical evening roosting sites and for foraging grounds.

We find it difficult to evaluate the birds in Appendix Table D6a-01 because there is no accompanying key in the "Reaches" column. This table lists the Swainson's Warbler (which is also on the USFWS 2002 List of Birds of Conservation Concern) as being potentially directly affected in upland habitats. This species also occurs in bottomland forests in the Kentucky Reservoir area (and potentially in similar habitats elsewhere). These populations could be affected by water level changes in the reservoir and are in fact, probably adversely affected by the current practice of periodic overfilling of the reservoir in the late spring. **Virginia B. Reynolds, President, Tennessee Ornithological Society, 3791**

Response to Comment 24: See Sections 4.10 and 5.10. More information about waterfowl has been added to these sections to respond to comments. Many of the impacts described in this comment are associated with Kentucky Reservoir. Under the Preferred Alternative, the operating guide curve would not be changed and there would be no impacts on the many biological resources that occur on Kentucky Reservoir. This would include species such as piping plovers and least terns that are discussed specifically in TVA's Biological Assessment submitted to the USFWS. The Preferred Alternative would extend some summer pool levels on select reservoirs. However, many of these reservoirs receive limited use by shorebirds (Guntersville) or are used by them as wintering sites (such as Pickwick) under present operations. TVA recognizes that the Preferred Alternative would delay the development of some flats habitats used by shorebirds by extending pools. We are looking at a variety of ways to mitigate or offset these impacts. Lastly, the sandhill and whooping crane resources at Chickamauga Reservoir are identified as important resources in the EIS. Most flats habitats on Chickamauga Reservoir are not available until mid-October. The weekly scheduling models for the Preferred Alternative indicate that reservoir levels would be similar to those of the Base Case by October 1, and would remain at Base Case levels through April 1. Therefore, TVA does not anticipate impacts on sandhill cranes or their habitat under the Preferred Alternative.

25. I am concerned over the loss of late summer/early fall habitat for shorebirds, herons, egrets, and other species, as well as the loss of winter flat habitat. These birds do not have much habitat left and they need our help. **Wayne Patterson, 2532**

Response to Comment 25: See Response to Comment 5.

Invasive Terrestrial and Aquatic Animals and Terrestrial Plants

1. Let's fight the invasives. **Anonymous, 3073**

Response to Comment 1: Sections 4.11 and 5.11 address invasive species.

2. Stop the spread of invasive plants and animals on land and in the water. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3089**

   Response to Comment 2: Comment noted.

3. Invasives**:** our animals and fish should be protected from. **Paul Howell, 4031**

   Response to Comment 3: Comment noted.

Vector Control (Mosquitoes)

1. Put up boxes for purple martins. **Anonymous, 3245**

   Response to Comment 1: Comment noted.

2. In the 18 years I have been associated with the use of Lake Hiwassee, this is the first year I have seen mosquitoes to be a problem. Right now, not a severe problem, but this is the first year we have even seen problems. This might be studied as a potential problem keeping the water at full pool for too long, caused by the flooding conditions we have had this year **Anonymous, 624**

   Response to Comment 2: This was studied as part of the FEIS. See Sections 4.12 and 5.12. Due to unusually heavy rainfall periods, there was an increase in the mosquito population because depressions in the floodplains were continually being filled by rain and high waters. TVA removed the high water as quickly as possible while reducing further flood damage. However, water remained in these pools to produce mosquitoes. The Preferred Alternative does create a potential for increased mosquito breeding habitat.

3. Do whatever it takes to reduce number of mosquitoes. **Bill Dearing, 2187**

   Response to Comment 3: TVA fluctuates water levels on four mainstem reservoirs—Chickamauga, Guntersville, Wheeler, and Pickwick—for the suppression of mosquitoes and would continue to do so under all of the alternatives identified in the EIS. See Sections 4.12 and 5.12 for a discussion of vector (mosquito) conditions.

4. They used to have it and we would like it back. **Carolyn Ippisch, 3135**

   Response to Comment 4: TVA no longer uses pesticides for the control of mosquitoes. The TVA mosquito program includes the fluctuations of four mainstem reservoirs for the suppression of mosquito populations. The program also conducts disease surveillance. When TVA has a positive mosquito sample for a virus the state health department is notified. See Sections 4.12 and 5.12 for a discussion of vector issues (mosquitoes) and Sections 4.11 and 5.11 for a discussion of invasive plant issues.

5. Is there habitat for the natural predators of mosquitoes? Bat/other insects eat many mosquitoes. Would like to see natural controls used. Are there particular seasons (such as we are experiencing in WNC) when the mosquitoes are worse? If so, then a flexible

approach would be best. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3095**

Response to Comment 5: There is habitat for natural predators of mosquitoes. It is the same habitat as that for mosquitoes. These predators are small fish and dragonflies. Dragonflies are one of the most efficient predators of mosquitoes. According to many university studies, bats do not eat enough mosquitoes to reduce the abundance of mosquitoes. Spring is typically a worse time for mosquitoes; however, anytime there is an increase in rainfall, there will be an increase in mosquitoes. TVA fluctuates water levels on four mainstem reservoirs for the suppression of mosquitoes.

6. Would like to see mosquito control. **Chris Perkins, 3829**

Response to Comment 6: See Response to Comment 4.

7. I'm a resident of Lakeshore Campgrounds where I camp during the summer. The biggest problem we have over there is TVA lowering the lake so much. We get these ponds every time they lower it and mosquitoes are terrible over there because the water doesn't drain. It gets in there somehow but it won't drain until it evaporates. **Danny Matas, 4352**

Response to Comment 7: See Response to Comment 4.

8. You need to start spraying for mosquitoes. **David C. Johnigk, 4187**

Response to Comment 8: See Response to Comment 4.

9. If the users of Boone Lake can manage this [mosquito] problem with high lake levels in the summer, the users of South Holston Lake can also manage this potential problem with Alternative A. **Greg Robinson, 2976**

Response to Comment 9: Comment noted.

10. Obviously, this is an important issue, especially in light of the West Nile Virus. Continued [mosquito] control is of utmost importance. **Harold DeHart, 2134**

Response to Comment 10: See Response to Comment 4. West Nile Virus is transmitted by container-breeding mosquitoes (for example, mosquitoes that breed in tires, birdbaths, buckets, and clogged gutters). These types of mosquitoes are not affected by the operation of the reservoirs.

11. If the lake users on Boone Lake can manage this [mosquito] problem with high lake levels in the summer, the users of South Holston Lake can also manage this potential problem with Alternative A. **Joseph A. Robinson, Jr., 2619**

Response to Comment 11: Comment noted.

12. The lakes are left very high until mid-June and dropped too low by mid-August. Causes a definite mosquito problem. **Karen Niehaus, 3854**

Response to Comment 12: Comment noted. The drop in August actually decreases mosquito populations. During the summer pool levels in June, mosquito populations typically increase. During this increase, TVA monitors the mosquitoes for viruses.

13. Sanity needs to be part of this area – in the words of Benjamin Franklin, "Moderation in all things."**Larraine Nobes, 27**

Response to Comment 13: Comment noted.

14. Mosquitoes and diseases associated with them is a major issue that should be addressed. It has become a major concern. If any change will cause more stagnant water to pool and cause mosquito populations growth that should be a concern. **Linda Coons, 2309**

Response to Comment 14: See Sections 4.12 and 5.12. The TVA mosquito program includes the fluctuations of four mainstem reservoirs for the suppression of mosquito populations. The program also conducts disease surveillance. When TVA has a positive mosquito sample for a virus, the state health department is notified.

15. Need to spray to reduce mosquitoes and milfoil. **Marvin and Lili Scott, 3987**

Response to Comment 15: See Response to Comment 4.

16. I think mosquito control should be reinstated. **Mrs. Jean Roberts, 1916**

Response to Comment 16: See Responses to Comments 4 and 10.

17. Mosquito Control, yes we need to control mosquitoes **Paul Howell, 4032**

Response to Comment 17: Comment noted.

18. The lower and raise policy for vector control should be maintained at all costs... there need to be people to use the resources and aside from health issues, there is a need to encourage recreational use and as such, less bugs=more fun. **Pr. John Freitag, 994**

Response to Comment 18: See Response to Comment 14.

19. Once upon a time, TVA had a mosquito control program. They would raise the lake level for a few days, giving the mosquito's time to lay their eggs, then they would drop the lake level abruptly, killing the eggs. I don't remember ever having a mosquito problem in those days. As it stands today, I can't go outside without being eaten alive. This lake level control process did not require any chemicals or spraying and was very effective in controlling the mosquito population. **Suzie Reed, 47**

Response to Comment 19: See Response to Comment 4.

20. New viruses are found on mosquitoes. It is very important for TVA to start again spraying for mosquitoes before we all have West Nile. **Thomas Browning, 618**

Response to Comment 20: See Response to Comment 10.

21. The number of mosquitoes in my area has been drastically reduced since early June. Since we have had more rain than usual I can only attribute this drop to higher water levels. **Thomas H. Hollingsworth, 3522**

Response to Comment 21: The reduction of mosquitoes in the commenter's area is probably the result of two things: (1) mosquito populations naturally drop during summer, and (2) TVA fluctuates water levels on four mainstem reservoirs for the suppression of mosquitoes.

22. Improved efforts to control mosquitoes would be helpful, especially at our site, we now use two (2) LP gas fired Deleto units to control our sites exterior areas and will provide screened porch at addition. **Thomas L. Parker, 3992**

Response to Comment 22: See Response to Comment 4.

23. I think mosquito control should be reinstated and be a high priority **Vernon Roberts, 1921**

Response to Comment 23: See Response to Comment 4.

Threatened and Endangered Species

1. I would like to suggest that on lands adjacent to TVA holdings that contain cultural resource that TVA advise the local jurisdictions of the significance of these resources and ways they may be protected. The same should be done for other sensitive resources such as Threatened and Endangered Species, etc. **Barbara Garrow, 471**

Response to Comment 1: With regard to endangered species, the Tennessee Valley region supports a large number of species that are protected at either the federal or state level. Whenever it is involved with a project, TVA works with local entities to avoid or mitigate adverse effects on protected species in the area. However, identification of specific sites of sensitive resources may not always improve their protection, especially cultural resources.

2. [I am] for protecting T&E species **Ben Robinson, 3978**

Response to Comment 2: Sections 4.13 and 5.13 address threatened and endangered species.

3. In the area of threatened/endangered species, it appears extremists are calling the shots. **Bill Dearing, 2188**

Response to Comment 3: Comment noted.

4. This is one area that we feel TVA has been largely successful with--we would however, encourage TVA to expand it's programs in this area and encourage it. **Jean Prater, 1381**

Response to Comment 4: Comment noted.

5. The Tennessee River system is home to what is undoubtedly the most important community of freshwater mussels in the world. Protection of this globally valuable resource should be a very high priority, especially in tailwaters of Pickwick, Wheeler and Guntersville dams. One specific situation which should receive consideration is in Wilson Dam tailwaters. There are at least four and probably five federally endangered mussels in the riverine reach downstream of the dam. With no flow from the dam when power is not being generated or water spilled for flood control (which is an almost daily occurrence) treated wastewater from the Florence sewage treatment plant accumulates until the daily start of generation (late morning). Minimum flows from Wilson Dam (enough to keep the wastewater flushed) would likely be very beneficial to that mussel community. Several species in that river reach will likely be lost over the next decade due to very low recruitment. Mitigation of this problem with minimum flows could prevent their loss. **Jeff Garner, 2842**

Response to Comment 5: Information provided by the Alabama Division of Wildlife and Freshwater Fisheries has helped TVA stay aware of the importance of the fresh-water mussel stocks in northern Alabama, including the presence of endangered mussel species. TVA has met with state regulatory agencies to discuss possible causes and solutions for the reported stresses to mussel stocks downstream from Wilson Dam. At present, the identification and resolution of those problems appear to be state water quality matters instead of issues that TVA should attempt to identify and address—particularly in the context of evaluating alternative operations policy that are system-wide and not location specific.

6. These practices [?] have not only been very harmful to habitat, but have left the streams almost destitute of freshwater mussels and probably some other aquatic groups as well. An excellent remnant population of freshwater mussels, including two federally endangered and several other sensitive species, is located in the lower reaches of Bear Creek, just above the reach influenced by Pickwick Reservoir. Should the flow regime from the Bear Creek dams be adjusted, and instability problems mitigated, mussels from that population would likely expand upstream to repopulate the system. **Jeff Garner, 2844**

Response to Comment 6: As indicated in Section 3.4.1, TVA is not proposing changes in operation of the Bear Creek Projects as a part of the ROS.

7. There appears to be very little justification for this [Tailwater Habitat] plan, except in limited areas such as the Apalachia Bypass. It appears to me that the Apalachia Bypass is unique enough to be an exception to the general plan. **Michael A. McMahan, 2387**

Response to Comment 7: As indicated in Section 3.3.8, this alternative was included in the evaluation to specifically look at ways the reservoir system might be managed that would benefit tailwater aquatic habitats. With regard to the flow augmentation through the Apalachia Bypass, as indicated in Section 3.4.1, that proposal would be implemented under any of the identified alternatives.

8. T&E**:** Should be protected, there are too many people sport fishing and hunting. They kill and leave laying. My daddy told me don't take what you don't use. **Paul Howell, 4033**

Response to Comment 8: Comment noted.

9. Threatened or endangered species didn't matter to TVA as it built Tellico Lake. Why should they now? **Richard Simms, 2233**

Response to Comment 9: Comment noted.

10. Project-specific recommendations to protect native aquatic species

While the Nature Conservancy appreciates the system-wide comprehensive nature of the ROS, in order to guard against further extinctions of native mollusk and fish species. TVA must focus financial resources and management efforts on specific free-flowing tailwaters downstream from several tributary and mainstem dams. We are pleased that TVA recognizes that "in some... tailwater reaches, the abundance and diversity of these aquatic communities could be improved through a combination of operational and physical modifications to the dam" (Section 34.1- Biodiversity Considerations). We also are very encouraged that TVA may consider "other project-specific actions to improve biodiversity...on a case-by-case basis as the opportunity for habitat improvement is identified" (Section 34.1- Biodiversity Considerations).

Based on TVA Heritage and other expert-derived data, The Nature Conservancy considers the following five tributary tailwaters to be of extreme significance for the protection of our remnant native fauna**:** the Duck River downstream from Normandy Dam, the Elk River downstream from Tims Ford Dam, the French Broad River downstream from Douglas Dam, the Holston River downstream from Cherokee Dam, and the Hiwassee River downstream from Apalachia Dam.

Surveys in 2001 and 2002 of the mollusk fauna in the Duck River funded by a grant from the Tennessee Environmental Endowment to The Nature Conservancy and conducted by U.S. Geological Survey and TN Aquarium Research Institute researchers indicate that the Duck River fauna is responding dramatically to improvements made in aeration and minimum flow releases from Normandy. We are pleased that TVA plans to continue these management strategies on the Duck in the future. The Elk River downstream of Tims Ford represents the second longest tailwater in the system and contains potential habitat for a wide range of native aquatic species. We encourage TV A to continue its investment in evaluating operational strategies at Tims Ford to improve native aquatic diversity downstream (Section 3.4.1- Biodiversity Consideration).

In addition to the Duck and Elk project improvements in the central Tennessee Valley, we support TV A's efforts to provide minimum flows on the Hiwassee downstream from Apalachia dam to enhance aquatic diversity (Section 3.4.1- Biodiversity Considerations). The Nature Conservancy requests that TV A consider evaluating management actions to improve water quality conditions for native species on the French Broad River downstream from Douglas Dam and the Holston River downstream from Cherokee.

Available data suggests that on the mainstem of the Tennessee River, the most significant reaches of habitat for native aquatic species are located downstream from Guntersville dam, including the tailwaters of Wheeler, Wilson, and Pickwick dams. TVA should explore potential management actions that would improve DO in releases from these four dams and create a more gradual drawdown from Pickwick. Managing these lower reaches of the Tennessee's mainstem for the enhancement native aquatic species, particularly mussels, is critical because of severe population declines in the upper 350 miles of the mainstem

due to hydrologic alterations and sediment toxicity issues **Scott Davis, Executive Director, Tennessee Chapter of The Nature Conservancy, 3741**

Response to Comment 10: As indicated in Section 3.4.1, TVA is aware of the high diversity and the biological importance of several mainstem and tributary stream reaches within the Tennessee River basin. See Sections 4.13 and 5.13. Under TVA's Preferred Alternative, additional scheduled releases would be provided in several tailwaters. Apart from the ROS, as indicated by this comment, TVA has devoted substantial resources to addressing sensitive populations at a number of locations, including mussels in the Duck River. TVA decided to dismantle Columbia Dam and commit most of the property acquired for that project to natural resource management and recreation. This protected the diverse species that reside in the Duck River watershed, including a number of threatened and endangered mussel species. See Final Environmental Impact Statement, Use of Lands Acquired for the Columbia Dam Component of the Duck River Project (April 1999).

11. In addition to managing the Tennessee River system for navigation, flood control, power production and water supply, TVA must comply with the Clean Water Act and with the Endangered Species Act. In particular, Section 313 of the CWA, 33 U.S.C. 1323, requires TVA to operate its dams in compliance with Tennessee water quality standards, including the narrative standard for aquatic habitat which implicitly requires sufficient instream flow in the mainstem and tributaries to protect aquatic habitat for all native species of fish, mussels and other aquatic organisms. TENN. COMP. R. AND REGS. R. 1200-4-3-.03 (3) (j) (2003). The ESA, in turn, requires special attention be paid to the conservation and recovery of endangered and threatened species. 16 U.S.C. § 1546 (a); 50 C.F.R. § 402.02. The preservation and restoration of natural flow regimes can be important to meeting the requirements of both the CWA and ESA. **Southern Environmental Law Center, 4222**

Response to Comment 11: TVA has strategies in place for complying with all applicable environmental requirements, including those established under the Clean Water Act and the Endangered Species Act. Various sections address aquatic resources and habitats and threatened and endangered species. See Sections 4.7, 4.13, 5.7, and 5.13. As indicated in Section 5.13 and the USFWS Biological Opinion concerning this project (Appendix G), TVA has complied with Section 7 of the Endangered Species Act.

12. While both the World Wildlife Fund and The Nature Conservancy appreciate the system-wide comprehensive nature of the ROS, in order to guard against further extinctions of native mollusk and fish species, TVA must focus financial resources and management efforts on specific free-flowing tailwaters downstream from several tributary and mainstem dams. We are pleased that TVA recognizes that "in some...tailwater reaches, the abundance of diversity of these aquatic communities could be improved through a combination of operational and physical modifications to the dam" (Section 3.4.1-Biodiversity Considerations). We also are very encouraged that TVA may consider "other project-specific actions to improve biodiversity...on a case-by-case basis as the opportunity for habitat improvement is identified" (Section 3.4.1-Biodiversity Considerations).

Based on TVA Heritage, The Freshwater Initiative of TNC, WWF's assessments of priority watershed and other expert-derived data, the World Wildlife Fund considers the following tributary tailwaters to be of extreme significance for the protection of our remnant native fauna**:** the Duck River downstream from Normandy Dam, the Elk River downstream from Tims Ford Dam, the French Broad River downstream from Douglas Dam, the Holston River

downstream from Cherokee Dam, and the Hiawassee River downstream from Apalachia Dam.

The same data suggests that on the mainstem of the Tennessee River, the most significant reaches of habitat for native aquatic species are located downstream from Guntersville dam, including the tailwaters of Wheeler, Wilson, and Pickwick dams. TVA should explore potential management actions that would improve DO in releases from these four dams and create a more gradual drawdown from Pickwick. **Wendy Smith, Executive Director, World Wildlife Fund, Southeast Rivers and Stream Project, 3548**

Response to Comment 12: See Response to Comment 10. As indicated in Section 3.4.1, TVA is aware of the high diversity and the biological importance of several mainstem and tributary stream reaches within the Tennessee River basin. TVA has evaluated, and will continue to evaluate, project-specific activities that could enhance or help recover endangered and other native aquatic species in these areas.

Managed Areas and Ecologically Significant Sites

1. The TVA managed areas are no longer managed or maintained well. Over the years, we have enjoyed these areas for picnics, camping, launching our boat, etc. There are no longer safe places to launch, mowed places to picnic or camp, trash barrels to deposit litter, or easy access to these areas because roads and drives are no longer maintained. It appears to us TVA is trying to restrict access to the waterways for recreational uses. **Jean Prater, 1379**

Response to Comment 1: The budgets for most of the governmental entities, including TVA, that have maintained managed areas have been strained. TVA continues to maintain its facilities within the constraints of its available resources.

Shoreline Erosion

1. We are aware that some of the small farmers had to place fences along the creeks and riverbeds to keep the cattle from eroding the edges of the streams and river. But at the same time some LARGE cattle farms are still using the shoreline for cattle watering holes, thereby eroding the edges of the natural river (lake) beds. **Anonymous, 611**

Response to Comment 1: Within the limitations of its resources, TVA tries to monitor such activities on its lands licensed for agricultural uses. Other entities, such as the USEPA and state environmental agencies, potentially have regulatory authority over the activities described in this comment.

2. Shoreline Erosion – Encourage USCOE [to provide] permission for riprap. **Anonymous, 3246**

Response to Comment 2: TVA recognizes that shoreline erosion can be a problem, and we work with the Corps and others to address the issue by providing technical help and information about preventing and repairing shoreline erosion.

3. I think that if TVA would help people with the erosion that live on the lake we could clean up the lake. **Anonymous, 141**

Response to Comment 3: See Response to Comment 1. TVA does provide technical help and information about preventing and repairing shoreline erosion. Contact the Watershed Team office for your reservoir.

4. Provide information and assistance to residents as to how to stop erosion. **Anonymous, 159**

Response to Comment 4: See Response to Comment 2.

5. I am concerned that areas of the lakes are filling with runoff soil and may cause increased chances of injury to users of the lakes and property values to fall over time as once used areas can not be accessed with water. **Beth Carey, 1714**

Response to Comment 5: Siltation of reservoirs is more likely caused by sediment from activities in the watershed rather than by shoreline erosion. Erosion issues are addressed in Sections 4.16 and 5.16.

6 Shoreline erosion needs to be addressed. Landowners should be allowed to protect their land from erosion. **Bill Dearing, 2189**

Response to Comment 6: Shoreline erosion was addressed as a major issue in this EIS. See Sections 4.16 and 5.16.

7. Shoreline erosion is ugly, pollutes the water. Trees, plants and others are also lost as the shoreline erodes back further and further. The only positive comment I can think of is that some aquatic species might find temporary shelter. But temporary shelter can be provided without the losses caused by shoreline erosion. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3092**

Response to Comment 7: TVA recognizes that shoreline erosion can be a problem, which is why it is addressed as a major issue in this EIS. See Sections 4.16 and 5.16.

8. I yield to your experts on this subject [of erosion]. However, 9 years on Watauga Lake (with its substantial Summer-Winter-Summer level changes) lead me to a somewhat different conclusion. The current system usually leads to a 10' water level drop (1959 to 1949) from June 1 to August 1. Thereafter, the level continues to fall, reaching 1940 or sometimes as low as 1935 during the winter. Then, the level rises in the Spring as the lake is refilled. The cycle repeats.

The issue is not the water level change. Rather, it is the level change during moderate to high boating seasons. What this does is subject almost the entire shoreline height to erosion. Specifically, as the level drops during the Summer/early Fall, you can see that boating waves cut a series of small "steps" in the shoreline. Then, when the level rises, these steps become focal points to undercut the shoreline.

In contrast, when levels are held at a high, constant point during the boating seasons, then erosion occurs mostly at that single high level. There is little if any of the "undercutting"

which I have seen to cause large-scale erosion. Rather, over time the erosion pattern creates a stable, gentle slope. Please consider this. **Colman B. Woodhall, 392**

Response to Comment 8: Erosion of the reservoir bank below full pool is an unavoidable consequence of changing water elevations. Although there is a slight water quality impact from this erosion, it is small compared to the sediment contributions from the watershed. Most concern has been for erosion of the full-pool shoreline because usable land is lost when this area erodes. For erosion that occurs within the reservoir pool, no net storage is lost when the eroded material settles elsewhere in the pool. See Sections 4.16 and 5.16.

9. This comment applies specifically to Watauga Lake, and may just be a misunderstanding on my part. Currently Watauga is managed to Jan 1 = 1940', March 15 = 1952', June 1 = 1959', and August 1 = 1949'. Alternative A proposes (if I understand it correctly) to manage Watauga to Jan 1 = 1952', March 15 = ?', June 1 = 1959', and Labor Day no lower than 1949'. It seems then, that the lake level would actually rise from Labor Day (1949') to Jan 1 (1952'). Also, that implies that the majority of lake "pulldown" occurs in the Summer (1959' to 1949'). Somehow, these results do not appear logical. But, logical or not, the Summer pulldown does imply large-scale erosion during that period. Please consider leaving the lake somewhat higher (at least to the Mar 15 level) during the Summer, even if that means a more rapid pulldown after Labor Day.

PS – nowhere could I find specific lake levels corresponding to controlling the 7-day, 500-year flood. Based on the narrative, I presume these would be higher than the stated Alternative A levels. **Colman B. Woodhall, 394**

Response to Comment 9: Reservoir Recreation Alternative A would hold Watauga up to about 1,955 feet on Labor Day on average and not decline to 1,949 until mid-October.

All the action alternatives, except the Commercial Navigation Alternative, have higher average winter levels than the Base Case and, therefore, slower drawdown and higher water in late summer and fall. See the box plots in Appendix C.8 for median elevations.

10. In the past eight to ten years we have lost about six to eight feet of our shoreline to erosion. At the present time there's a real serious situation relating to watercraft safety in and out of our cove, located between lake markers 6 and 7. Both types of boats, especially jet skis, are creating a very serious problem relating to boat safety and shoreline erosion. Extreme watercraft speeds are wearing away the shoreline and may eventually cause a future serious accident. We are recommending that a No Wake safety buoy be located at the cove entrance to warn boaters about boat speed. Decreasing boat speed will hopefully decrease shoreline erosion. That's where we are with the situation. **D. C. Wenberg, 4411**

Response to Comment 10: Erosion is addressed in Sections 4.16 and 5.16. The state agencies are primarily responsible for regulating boating activity and setting no-wake zones.

11. In the DEIS it mentioned a negative shoreline erosion condition with Recreation "A" alternative. I can see that at full pool more erosion of shoreline would be possible, but I wondered if you took into account that under the Base Case we get tremendous shoreline erosion during the winter pool levels when we have erosion of the area from the full pool shoreline to the winter shoreline. In some areas this is 50 to 150 feet of bare ground and we get tremendous erosion during the low pool level. **Doug Triestram, 1752**

Response to Comment 11: TVA did take this into account when evaluating the potential effects on erosion from identified alternatives. Sections 4.16 and 5.16 summarize TVA's evaluations. Erosion of the reservoir bank below full-pool is an unavoidable consequence of changing water elevations. Although there is a slight water quality impact from this erosion, it is small compared to the sediment contributions from the watershed. Most concern has been for erosion of the full-pool shoreline because usable land is lost when this area erodes. For erosion that occurs within the reservoir pool, no net storage is lost when the eroded material settles elsewhere in the pool.

12. It might be cost effective along with the Water Study to initiate a 'soil erosion protection plan' for the Water Study area using air and satellite photos. This could be part of a water conservation plan for all states in Study area and inter-basin transfer states. **Frank DePinto, 3984**

Response to Comment 12: Relating to erosion, reservoir shorelines have all been assessed and catalogued, as have some of the tributary tailwater streambanks. TVA has ongoing programs to address erosion issues on TVA-owned land and to provide technical support on private land.

13. The lake [Kentucky] is so silted in that when you draw down to 354 the lake becomes very dangerous. Holding it to 356 during winter would make it much safer for winter activities. Since the 354 was established ,many years ago the lake has silted in many feet. The canal dredged behind my property in Jonathan creek, 7 years ago, has silted in over two feet. What considerations have been made on this problem in the last ten years? **Garland Wyatt, 2047**

Response to Comment 13: Erosion is addressed in Sections 4.16 and 5.16. Siltation of reservoirs is more likely caused by sediment from the watershed than shoreline erosion. TVA and other agencies have programs that work to reduce erosion and resulting sedimentation from upstream. TVA also provides advice and assistance to private landowners with erosion problems. Under the Preferred Alternative, the operating guide curves on Kentucky Reservoir would not change.

14. I have a home on Lake Chatuge. I'm also chairman of the Sediment and Erosion Overview Counsel for the state of Georgia. We are very concerned about the environmental impact of the erosion in the lakes. And this year, in particular, we have noticed or I have noticed since the lake has been as high as it is, the water quality has been substantially improved. And I believe the reason for that is that because the levels are more consistent instead of eroding the soil when the lake levels are lower than what they are now. And so by having the water level as high as it is, you don't have that constant up and down effect of the lake where it reaches not only the soil but it reaches the silt and allows the silt to come into the lake. **Jack Miller, 4304**

Response to Comment 14: If reservoirs were maintained at a constant level all year, it is likely that shorelines would continue eroding until they reached a stable angle. However, this process would be slower than under existing conditions because vegetation would become better established. Changes in water level contribute to erosion because the changes in the growing environment prevent establishment of stabilizing vegetation. Changes in elevation also make the erosion that occurs at high water visible. Sometimes banks that are undercut during high water collapse when the water goes down; however, these would collapse eventually anyway.

TVA formulated a preliminary alternative that held reservoir levels constant, but this was determined to result in unacceptable flood risk and was not included for further detailed study or as an element in the Preferred Alternative.

15. We suggest that the shorelines of all islands in Lake Chatuge be covered with broken rock to reduce shoreline erosion and improve beauty during periods of low level **James B. and Elizabeth F. Eppes, 4000**

Response to Comment 15: This EIS evaluates the potential effects of system-wide operational changes. Site-specific concerns, such as the one identified in this comment, are addressed in other forums. TVA has an ongoing program to assess and address shoreline conditions. This assessment information is used to prioritize the stabilization of TVA-owned areas. If the areas mentioned in this comment are owned by TVA, they are in this assessment. For areas not owned by TVA, we offer technical support. Also see Response to Comment 13.

16. In the winter the water goes down too much. It seems that we should be able to go through the winter so low. Especially on Lake Chatuge. There has also been so much erosion in front of my home …The Dock seems to be sitting in the mud sooner. Is there any way to slow that down or can the TVA correct this problem. **Jane Chinnici, 1421**

Response to Comment 16: Erosion is addressed in Sections 4.16 and 5.16. See Responses to Comments 13 and 15.

17. I think, there's been a lot of erosion of water going back and forth, and it seems to be worse now than it was ever before, and I don't know if they're going to have some kind of correction for the areas that are eroded so poorly. **Jane Chinnici, 4298**

Response to Comment 17: See Response to Comment 14.

18. Reaches downstream of the Bear Creek reservoirs have been sites of very bad stream bank erosion and stream bed instability since the dams were constructed. The regime for winter drawdown of those reservoirs appears to be the primary culprit, with water held well into the autumn, then released over a short period prior to the rainy season. **Jeff Garner, 2843**

Response to Comment 18: As indicated in Section 3.4.1, TVA is not proposing to change operation of the Bear Creek Projects as a part of the ROS. Erosion is addressed in Sections 4.16 and 5.16.

19. TVA needs to survey TVA controlled shorelines and develop a plan to minimize shoreline erosion. **Jerry Stephens, 253**

Response to Comment 19: TVA does have an active program that does this. See Section 4.16.2 and Responses to Comments 13 and 15.

20. It is a shame that each year we as landowners are losing our land to erosion, for the purpose of TVA profits, not flood control. **Jimmy and Amy Owens, 478**

Response to Comment 20: Erosion is addressed in Sections 4.16 and 5.16. Although the generation of electricity is one of the operating priorities of the TVA system and revenue is produced from the TVA power system, TVA does not operate the system to produce profit. TVA's operations are non-profit.

21. Jet skis are eroding the shore line on Lake Nottley. No one is monitoring the damage or concerned with doing anything about speeding jet skis and the destruction and safety hazards they cause **Joanne Wenberg, 2440**

Response to Comment 21: Erosion is addressed in Sections 4.16 and 5.16. This takes into account erosion caused by watercraft. State agencies, not TVA, are primarily responsible for the regulation of watercraft on the TVA reservoir system.

22. If the water level was maintained during the summer months it would eliminate some shoreline erosion. I believe more people who live on the lakes would build retaining walls which would further reduce shoreline erosion. **Joe Depew, 1286**

Response to Comment 22: See Response to Comment 14.

23. For 35 years I have watched the Decatur area shoreline of Wheeler Basin be destroyed by the action of high water on the bank structure. Over 150 feet on each side of the river in the Decatur area has been taken out through this action. Additionally, almost all islands with trees have been systematically destroyed along with all of their archaeological resources. Your proposal to increase the winter water levels by two feet will accelerate this process and may complicate immeasurably recreation navigation on the river all year long. Let me try to explain.

The erosion process attacks the root system and slow, but sure, exposes enough roots on the river side that the tree weight cannot be supported. The tree eventually falls into the river and is held in that location by the remaining root structure. The gradually drowns, dies, and begins the rotting process. At some point in time, sufficient erosion and rot occurs that the tree remains are freed to travel downriver for collection and removal at the dam.

The majority of large trees that have been downed at the shoreline are release during high water periods in the winter months after drying out somewhat during the earlier low water periods. The river at such times is dangerous to travel in recreational boats, but the event occurs over a relatively short time span and is then over.

Your proposal to increase the winter pool levels will accelerate shore bank erosion dropping even more trees into the river where they will hang on the bank until rotted to the point where currents and the actions of large boat waves will tear them loose. Without the

opportunity to dry out somewhat, I predict that they will become periodic dead-heads or sink entirely to the bottom and tumble their way to the dam where they will be very difficult to recover. Since the higher water will continually do its job of erosion with no intermediate drying period, release of these dangerous masses will be highly unpredictable and most likely occur all year long. You are creating a very dangerous situation for recreational boaters all year long by raising water levels a couple of feet during the winter months. **John Gustafson, 2103**

Response to Comment 23: Analysis indicates that the amount of time that the reservoir surface is in the summer operating zone is the main factor in the rate of shoreline erosion on mainstem reservoirs.

The winter minimum pool level would be raised 6 inches in Wheeler Reservoir. On any reservoirs with substantial changes in winter pool levels, the difference in pool elevations should still allow drainage of shoreline soils. Shoreline erosion is addressed in Sections 4.16 and 5.16.

24. If the water were lowered and raised more quickly during a shorter period of time it would seem that less erosion would occur. As it is it is difficult to protect the lakeshore since the water moves so much so slowly. **Larry Mancini, 1605**

Response to Comment 24: The rate of drawdown is determined by the design of the reservoir and dam (see Section 4.20.5). The rate of filling is determined by the amount of water available, which can be changed little while maintaining operational commitments. Extremely rapid drawdown is likely to cause increased erosion from mass wasting.

25. Also, I am curious whether keeping the lake level higher would be more environmentally friendly, as silt and debris washing into the lake would be diminished. **Linda Wingo, 1677**

Response to Comment 25: It depends. Keeping the lake level higher would allow more residence time and, therefore, more opportunity for suspended material from upstream to settle out in the reservoir pool and for floating material to waterlog. However, high pool elevation also causes more shoreline erosion by delivering wave energy to steep banks for longer periods.

26. I live on the Douglas Lake system and during the recent flooding that took place in May 2003, lost 20+ feet of shore line because of a simple fact**:** that the level was raised too high too soon. When the Spring rains came as you are aware there was no place for the water to go but on to private property because the lake level was full. Debris and large logs where deposited on my shore and I even lost some trees as a result. If erosion continues because of flooding onto my land, my house will be in jeopardy in a few more floodings. **Mike Harris, 1014**

Response to Comment 26: As this comment recognizes, Douglas Reservoir was used to its full capacity in the May 2003 flood to minimize downstream flooding to the extent possible. This is a primary purpose of Douglas Reservoir. At no time during the May 2003 flood did the water level on Douglas Reservoir exceed TVA purchased flowage easements. TVA has an active program to address erosion on its lands as well as programs to assist private landowners with erosion problems. See Response to Comment 1.

27. Alternating freezing and rewetting of exposed shorelines in winter months generates heavy silt load into reservoirs. Eventually this will have an impact on flood control capability. Has this been considered in the study? **Norman Owen, 639**

Response to Comment 27: See Response to Comment 14. Erosion is addressed in Sections 4.16 and 5.16. Most sediment that is deposited in the reservoirs is at low levels and has little impact on the active storage zone. Buildup from siltation is not expected to be substantial in any of TVA's flood control reservoirs within the 30-year time frame of the ROS.

28. A certain level of shoreline erosion should be expected in any aquatic system. Oxbow lakes are great. Erosion control should be allowed where it is occurring at extraordinary levels. However, the cost of that control should be borne directly by those who benefit, not by ratepayers in general. And on that note, the excessive amount of rip rap that has been placed below Chickamauga Dam toward downtown Chattanooga is horrible! We've turned the Tennessee River into a glorified ditch. **Richard Simms, 2242**

Response to Comment 28: See Response to Comment 15.

29. The erosion on Douglas needs to be better controlled probably by maintaining higher water levels. At my Marina (Swann's) the bottom of the lake has risen 8 ft in 12 yrs. At this rate my children won't have to worry about water level but will worry about the Lily Pond **Stan Veltkamp, 926**

Response to Comment 29: See Response to Comment 13.

30. Shoreline erosion would increase dramatically if lake levels were left higher in late summer and drawdown was pushed back later, especially here on Kentucky reservoir. **Steve McCadams, 3172**

Response to Comment 30: If reservoirs were maintained at a constant level all year, it is likely that shorelines would continue eroding until they reach a stable angle. However, this process would be slower than under existing conditions because vegetation would become better established. Erosion is addressed in Sections 4.16 and 5.16. Under TVA's Preferred Alternative, operating guide curves for Kentucky Reservoir would not be changed.

31. Shoreline erosion, along with the loss of islands adjacent to the main river channel along Kentucky reservoir, would be worse under all the alternatives as keeping water levels up longer would further damage an already fragile area. **Steve McCadams, 2141**

Response to Comment 31: Erosion is addressed in Sections 4.16 and 5.16. Under TVA's Preferred Alternative, operating guide curves for Kentucky Reservoir would not be changed.

32. With rising and lowering the levels of the water it has caused enormous erosion on our lot and supposed TVA will not let you build retaining walls to keep that from happening. **Sue King, 1045**

Response to Comment 32: See Response to Comment 13.

33. Reservoirs like Nottely have areas where 90% of the lake bed is exposed during drawdown. The inflow of mud and debris each spring appears to be significantly reducing the available volume of lake after filling the reservoir each year. **Thomas Carey, 1708**

Response to Comment 33: See Responses to Comments 13 and 27.

34. You may not want to hear this, but the TVA is the largest source of shoreline erosion!!!! Every time you reduce or raise the lake levels, serious erosion occurs… We all know this, but it seems that the tva being the main source of erosion is not addressable!!!!!! **Thomas G. Sandvick, 2661**

Response to Comment 34: See Response to Comment 14.

35. The concerns listed in my March 4, 2003 letter to you noted the primary problems namely excessively high flood plain level and erosion or health hazard caused by the water released from the Nottely Dam into the Nottely River tailwater riverbank area. This water level backflows everyday into the creek that traverses our site. This backflow deposits debris, limbs, etc., or whatever flows downstream. The water level rises five to six feet and causes erosion along the creek and Nottely riverbanks at our site and also at the other sites along the river tailwater release area, especially sites #6, 7, and 8. Who can we contact at TVA to evaluate what can be done to hopefully resolve these health and erosion conditions? **Thomas L. Parker, 4057**

Response to Comment 35: See Response to Comment 15.

36. Over 10 feet of shoreline has been lost on our property, primarily due to wave motion. One potential solution might be for TVA to put a barge in Douglas lake for the purpose of installing riprap. We'd pay for the materials and labor if TVA would furnish this. This would stabilize soil, keep silt out of the lake, improve water quality and be an overall benefit to all parties concerned. **William and Velda Clayton, 782**

Response to Comment 36: See Response to Comment 15. TVA is also encouraging a contractor to begin serving tributary reservoirs, including Douglas, with a barge capable of installing riprap.

Prime Farmland

1. Yes, prime farmland must be protected. From topsoil runoff, from unnecessary flooding at inappropriate times of the year. We are losing topsoil and prime farmland. High priority. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3091**

Response to Comment 1: Although some of the alternatives could potentially increase flooding events and land development, with associated risks of soil erosion, TVA has determined that the impact on prime farmland is not likely to be materially different than under existing conditions. Prime farmland is addressed in Sections 4.17 and 5.17.

Cultural Resources (Archaeological & Historic Sites)

1. Cultural Resources will be significantly affected by increased water levels. The only way to reduce this impact is to reduce reservoir levels, even if it is only for a short time. **Anonymous, 2840**

Response to Comment 1: Although a number of alternative operations polices could adversely affect cultural resources, these impacts would be mitigated pursuant to agreements with the seven Valley State Historic Preservation Officers and other consulting parties prior to implementing any alternative. Under TVA's Preferred Alternative, potential impacts on cultural resources are expected to be only slightly adverse and only on some reservoirs.

2. While cultural resource may receive some protection due to less draw down, thus reducing the possibility for looting of archaeological sites, it is clear that it is not within TVA's authority to give additional protection to historic buildings and structure that are not on TVA lands. I would like to suggest that on lands adjacent to TVA holdings that contain cultural resource that TVA advise the local jurisdictions of the significance of these resources and ways they may be protected. **Barbara Garrow, 468**

Response to Comment 2: TVA does coordinate implementation of actions with local officials, as appropriate, as well as with State Historic Preservation Officers. Although cultural resources may not be located on TVA property specifically, TVA does consider impacts on these resources when it evaluates the impacts of its proposed actions. Cultural resources are addressed in Sections 4.18 and 5.18.

3 We also need to acknowledge the historical trauma associated with lake property, which once belonged to Native Americans, early settlers, and more recently (prior to the building of the dams) to farmers. The land was forcibly taken from the farmers to construct the reservoirs in the name of the most good for the most number of people

Now a class of wealthy lake property owners have the shoreline property. They seem oblivious to the history of the land they now own and the human suffering behind its current availability to them. **Guy Larry Osborne, 1265**

Response to Comment 3: The cultural history of the Tennessee River valley is addressed in Section 4.18.

4. For the sake of archeological sites that have been threatened and damaged for years by your current practices, please maintain your current plans. Raising the winter pool in Wheeler Basin will further erode and destroy what little archaeological treasures that currently exist. The Archaeological Resources Protection Act demands that you do your best to protect those sites from damage. Preservation could best be served by further lowering the basin water levels at all times during the year. The optimum preservation route would be to drain the basin completely back to it's original condition. Obviously, this is impossible and inappropriate to preserve and foster your other goals, but increasing pool levels in the winter will only damage those fragile archaeological sites that remain. **John Gustafson, 2093**

Response to Comment 4: See Response to Comment 1. As indicated in this comment, completely draining the TVA reservoir system—if it were possible—would conflict with uses of the reservoir system and would not increase overall public value of the system.

5. I am very concerned about the increased shoreline erosion associated with water levels kept high in Kentucky Lake for extended periods of time. What about the impacts on arch./historic sites? **John Taylor, 2751**

Response to Comment 5: Erosion and cultural resources are addressed in Sections 4.16, 4.18, 5.16, and 5.18. Under TVA's Preferred Alternative, the operating guide curve for Kentucky Reservoir would not be changed; therefore, risks of adverse affects on cultural resources would not change.

6. No problems on South Holston Lake. **Joseph A. Robinson, Jr., 2624**

Response to Comment 6: Comment noted.

7. As the water goes down in the winter, the fish go to the dam area. The lake near the hi-way turns to red mud and looks terrible. Property values go down and friend ask why you brought a home near just a big red mud-hole.

It is hard to visit historic sites due to the mud etc. **Marcia, 1652**

Response to Comment 7: Comment noted.

8. There are numerous archaeological sites that would be seriously affected or destroyed by the increase in year-round water levels. Some of them are among the most important in this nation. This is a MAJOR ISSUE.

Have the Indian tribes been contacted? Along with these sites, raising water levels will destroy a number of Native American burials in the Tennessee Valley, burials protected by federal law in the Native Americans Graves Protection and Repatriation Act.

Either these burials need to be moved to a safe place, via a complete and thorough archaeological investigation, or other actions need to take place. **Mark Cole, 2081**

Response to Comment 8: TVA has invited 17 federally recognized Indian tribes to be consulting parties in the process that addresses potential effects on historic properties, Section 106 of the National Historic Preservation Act. Cultural resource impacts are addressed in Sections 4.18 and 5.18.

Visual Resources (Scenic Beauty)

1. Visual beauty is always important and worth saving. Whenever possible avoid the drawdowns of many feet which expose rock and/or mud walls. Not attractive. Allow natural vegetation around the shorelines to become and remain mature. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3100**

Response to Comment 1: Many of the alternatives evaluated in the EIS would have beneficial effects on visual resources, including TVA's Preferred Alternative. Visual resources are addressed in Sections 4.19 and 5.19.

2. It is with great hope that TVA will make a change in their policy and give us lake owners, users, visitors and passer bys a much more beautiful site to see. With the mild temperatures we were swimming in October and the bad part was just walking out passed the mud. I appreciate the opportunity to voice my concerns and hope my choice of living on a TVA reservoir will continue to be a great investment with the beauty and recreation it offers. **Gordon, 1149**

Response to Comment 2: Comment noted.

3. It means a beautiful govt. provided lake adding more beauty in the winter instead of a wide ugly mud ring around it. **Harold Andrews, 2174**

Response to Comment 3: Comment noted.

4. The elimination of unsightly flats would have a favorable impact on our region. **Joe Brang, 881**

Response to Comment 4: See Response to Comment 1.

5. I love the beauty of the lake and being able to enjoy it as much possible. To me it is very important for TVA to keep up the good work so people like can continue to enjoy the beauty of our surroundings **Juanita Phillips, 2824**

Response to Comment 5: Comment noted.

6. Please take into consideration the families who plan to visit when you drop the water so tremendously, leaving an unsightly gap. **Mary Teaster, 422**

Response to Comment 6: See Response to Comment 1.

7. I do not like the lake to look like a mud hole in the winter. I think it hurts business and it is not necessary. **Penny Caudell, 1745**

Response to Comment 7: Comment noted.

8. Shoreline development should be discouraged in every way in every viewshed. Recreation is the Number Two priority (or should be) and the recreational experience is dramatically enhanced by scenic beauty. **Richard Simms, 2245**

Response to Comment 8: Visual resources are addressed in Sections 4.19 and 5.19. Shoreline development was comprehensively addressed by TVA in its SMI EIS process (November 1998). Section 4.15 discusses the SMI and its resulting policies.

9. The "viewshed"is an integral part of the recreational lake experience and it should be enhanced in every way possible. **Richard Simms, 2227**

Response to Comment 9: See Response to Comment 1.

10. One of the most beautiful times of the year in our area is the fall. Yet many of our reservoirs have levels that do not allow the enjoyment of our environment during that beautiful time. **Roger Williams, 2473**

Response to Comment 10: See Response to Comment 1.

11. The lake is an ugly sight and potentially dangerous when water levels are dropped low. Fences, pipes and junk are clearly visible. **Thomas Atkinson, 1411**

Response to Comment 11: See Response to Comment 1.

Dam Safety

1. Dam safety must always be a top priority. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3103**

Response to Comment 1: None of the alternatives identified in the EIS, including TVA's Preferred Alternative, would compromise dam safety. Dam safety is addressed in Sections 4.20 and 5.20.

2. The purpose of the dams in general is for the protection of the people and their livelihood down stream. Historically, the management of the twin lakes has been for flood control. I request that any management plan have this as its number one priority. Those of us who live in the valley are very fortunate to have TVA and its power-producing ability as an added convenience of the dams. We live with the comfort of knowing that operational procedures of the water management plan of the lakes have and need to continue with flood control as the priority for making water level decisions. **Doug Goodman, 3184**

Response to Comment 2: TVA developed its Preferred Alternative to reduce flood damages to acceptable levels while preserving increased opportunities for recreation and reducing impacts on other objectives.

3. I understood that there is a federal requirement for dams to be designed to handle the Probable Maximum Flood, at least for dams over a certain size, with potential loss of life downstream from dam failure. So I am curious as to why this option was even considered in the first place, because it raises the winter pool to a level that can only hold the 500-year inflow. But I don't know all the details on how such levels would affect flood control performance in the PMF, so maybe the reservoirs are still capable of passing the PMF. **Gary Hauser, 66**

Response to Comment 3: The alternative to which the commenter refers is based on the provision of flood storage sufficient to completely store the inflow volume expected in an event with a 500-year recurrence interval. In the event of inflow volumes larger than the 500-year level, flood control operations at a given project would still allow safe passage of these volumes. TVA would not adopt an alternative that compromises our ability to safely pass the design-basis flood for each project.

4. Dam safety is of high importance, particularly since the Tennessee Valley is in earthquake and tornado zones. **Larraine Nobes, 23**

Response to Comment 4: See Response to Comment 1.

Navigation (Commercial Barges)

1. In the discussion of navigation operations in Chapters 4.21 and 5.21, the current condition of navigation is not discussed. For instance, the EIS does not provide an indication of how many days the Tennessee River is not at least 11 feet deep. If there are only a small number of days per year when the river is not fully navigable, then a positive change in navigation operations may not be considered as important as a positive change in the other operational considerations. However, without the discussion of current conditions, it is difficult for an individual to ascertain the impacts of operation alternatives to navigation **Alabama Rivers Alliance, April Hall, Watershed Restoration Specialist, 3738**

Response to Comment 1: The Tennessee River navigation system was designed to provide 9-foot draft navigation 365 days per year as mandated by the TVA Act. An 11-foot channel is maintained to provide this 9-foot draft and a 2-foot margin of safety. The navigation industry is able to take advantage of summer conditions to ship at greater than 9-foot draft. The benefits or losses to navigation were computed for each alternative based on the number of months the alternative would change the existing navigation draft depth condition. TVA receives a number of complaints every year about insufficient depths for navigation at various locations on the waterway. The number of these complaints fluctuates annually. Partly in response to these complaints, the Preferred Alternative provides for a 1-foot increase in channel depth at Kentucky tailwater to elevation 301, by controlling releases at Kentucky Dam and raising the minimum winter pool depth at Wheeler Reservoir by 6 inches.

2. It is imperative that barge navigation receive serious consideration in this study. This one area has dramatic economic impact along the river. In Northeast Alabama, industries are closing their doors due to not being competitive. The industries on the river, especially the gypsum industry is growing, but if the river management increases the cost, this industry will be impaired. **Anonymous, 2198**

Response to Comment 2: Commercial navigation is important to the region's economy and is a primary objective for operating the reservoir system. Under the Preferred Alternative, the minimum winter elevation on Wheeler Reservoir would be raised 6 inches to address navigation problems on that reservoir. Also, TVA would commit to discharging a minimum instantaneous flow up to 25,000 cfs as necessary to maintain a tailwater elevation of 301 feet at Kentucky Dam, thereby aiding navigation on the reach downstream of Kentucky Dam. These changes would benefit the navigation industry.

3. We at Marine Terminals of Alabama would like to see the water level at the river to stay the same or raise. The impact of lowering the river would cause definite problems with barge traffic. We are already facing problems as is with the water levels with barge traffic. Please take that into consideration. Thanks **Anonymous, 2299**

Response to Comment 3: Under TVA's Preferred Alternative, minimum winter water level on Wheeler Reservoir would be raised by 6 inches in order to address navigation problems on that reservoir, and tailwater releases would be increased as necessary to allow deeper draft barges to move on the Tennessee River.

4. Inexpensive and environmentally-friendly means of transportation (barges) are also important to me. **Betty M. Fulwood, 2293**

Response to Comment 4: Water transportation is an important component of the nation's transportation infrastructure. This mode of transportation generates savings for industries that utilize it and it also produces a water-compelled rate effect in the region that benefits industries that use rail as a means of transportation. Transportation data indicate that, because water transportation is available in the region, rail rates are lower due to competitive factors and the need of railroads to maximize utility.

5. We have been penalized by limited draft on our barges for 40 years and it is time to raise minimum winter pools at least a foot and a half. It is foolish to limit the Tennessee River efficiency because of shallow drift in tow percent of the river. **Bill Dyer, 2770**

Response to Comment 5: Analysis of the alternatives evaluated in the DEIS indicated that raising winter flood guides 2 feet on the mainstem reservoirs would result in unacceptable increases in flood risk. Under the Preferred Alternative, the minimum winter elevation on Wheeler Reservoir would be raised 6 inches to address navigation problems on that reservoir. Also, TVA would commit to discharging a minimum instantaneous flow up to 25,000 cfs as necessary to maintain a tailwater elevation of 301 feet at Kentucky Dam, thereby aiding navigation on the reach downstream of Kentucky Dam. These changes would benefit the navigation industry.

6. All navigation channels need to be clearly marked. **David C. Johnigk, 4186**

Response to Comment 6: The U.S. Coast Guard marks the main channel of the Tennessee River; TVA maintains about 2,000 markers on the secondary channels and tributary reservoirs used primarily for recreation. Observed problems can be reported to TVA on its Info-line or at (865) 632 2906.

7. Navigation was a primary concern in bringing jobs into the Valley. **Dean and Mary Jane Heavener, 2214**

Response to Comment 7: Commercial navigation is important to the region's economy and is a primary objective for operating the reservoir system. Under the Preferred Alternative, the minimum winter elevation on Wheeler Reservoir would be raised 6 inches to address navigation problems on that reservoir. Also, TVA would discharge a minimum instantaneous flow up to 25,000 cfs as necessary to maintain a tailwater elevation of 301 feet at Kentucky Dam, thereby aiding navigation on the reach downstream of Kentucky Dam. These changes would improve navigation conditions.

8. In regard to the barge industry, your economic analysis there also rests on some unknown assumptions. If there is job loss due to increased shipper costs they too could pass on the costs. If the issue is shipping more tonnage by creating deeper channels that comes at the expense of the home owners and lake users of Douglas and other tributary lakes. I

seriously doubt anyone other than the barge owners and their stockholders would benefit from the increased revenues generated by the increased tonnage shipped. At the same time, they would be creating more safety hazards and contributing to more pollution by continuing to support coaled fired power plants. Do we need more air pollution when the area already ranks nationally as one of the top five in poor air quality? **Drew Danko, 1023**

Response to Comment 8: Navigation on the Tennessee River supports industries in East Tennessee such as zinc mining, road paving, corn processing, aluminum production, agricultural inputs, and steel fabrication. It also produces a water-compelled rate effect in the region that benefits industries that use rail as a means of transportation. Transportation data indicate that, because water transportation is available in the region, rail rates are lower due to competitive factors and the need of railroads to maximize utility. Reducing the cost of transportation to these industries allows for more investment in jobs in the region. The ability to ship coal by barge helps TVA keep its power costs low, which is good for the entire region. As part of continuing efforts to address emissions at its coal plants, TVA has begun a major additional reduction program for air pollutants. The program focuses on reducing sulfur dioxide and nitrogen oxides emissions, which contribute to haze. TVA has spent almost $4 billion to reduce emissions from its coal-fired power plants, resulting in reductions to sulfur dioxide emissions of over 75 percent and reductions in nitrogen oxide emissions of over 60 percent. TVA is in the process of spending another $1.8 billion through the end of this decade on additional reductions. By the end of the decade, TVA will have reduced sulfur dioxide emissions by 85 percent

9. During high water conditions, some loading/unloading docks are unable to accept barges at their docks because they are unable to load/unload them with any degree of safety or the water is above their dock. That in turn creates an economic downturn in the local economy if the loading/unloading facilities are unable to load/unload barges. If that happens, freight owners will turn to the trucking and/or rail industry in order to move their product at drastically higher rate, which creates higher prices for raw materials and finished goods alike. **Eddie Adams, 3035**

Response to Comment 9: TVA operates the reservoir system to achieve multiple objectives, including navigation, flood control, and power supply. During periods of high flow, TVA stores water in the tributary reservoirs and controls releases at the dams, if possible, to reduce navigation disruptions.

10. I would like to encourage further exploration and support to the efforts concerning increased barge traffic. It continues to be the safest and most efficient means of transporting large amounts of goods. It is also a primary reason to eliminate the need of interstate truck traffic. **Harold DeHart, 2131**

Response to Comment 10: Navigation is an important element in the transportation of bulk commodities. Under the Preferred Alternative, the minimum winter elevation on Wheeler Reservoir would be raised 6 inches to address navigation problems on that reservoir. Also, TVA would discharge a minimum instantaneous flow up to 25,000 cfs as necessary to maintain a tailwater elevation of 301 feet at Kentucky Dam, thereby aiding navigation on the reach downstream of Kentucky Dam. These changes would improve navigation conditions and enhance the continued use of this safe and efficient mode of transportation.

11. Looks good, need to keep the navigation access available for economic development. The new automotive industry growth will need this. **Jeff Braun, 2335**

Response to Comment 11: See Response to Comment 7.

12. Understood from the video presentation that this alternative might decrease the depth of the channel for commercial navigation. I represent a large chemical plant in Decatur. We receive a billion lbs of chemicals at our site each year plus up to 1000 tons per day of coal shipments. We also ship some finished products out of the plant by barge. Barge draft is already a limiting factor on our shipments in the Base Case, and this case apparently might reduce that.

You can probably recite the plight of US chemical companies competing in a global marketplace - we cannot pass on these additional costs, and it is more and more difficult to absorb them ourselves. Commercial navigation is a responsibility that is somewhat subtle - I'm not sure the public appreciates the impact of barge transportation, or more importantly, the impact of losing some of that ability. We encourage you to retain at least the current commercial navigation capabilities of the river system. **Jim L. Collins, 2350**

Response to Comment 12: See Response to Comment 7.

13. On the decision of either lowering the river or raising the river please take into consideration the barge terminals on the river. We really could use the higher river waters for barge traffic for our terminal. We would really appreciate the consideration for this. Thanks! **Joe Huzar, 2342**

Response to Comment 13: See Response to Comment 7.

14. My comment commends TVA for recently installing blinking lights on the electric towers that cross the water ways, this has helped us greatly in navigating the river after dark. But now I am disappointed to find that the lights are no longer in use on the towers in the area where we live. Big Sandy arm and the Tennessee River toward Leatherwood. Please reconsider turning them back on. This was a great safety measure that you had put in place. **Kelly Brawner Chadwick, 2591**

Response to Comment 14: Recent tower construction required de-activation of the blinking lights. TVA staff has asked the construction superintendent to look at re-activating the lights on the tower.

15. I work for Marine Terminals & I would like to see the water table stay as it is. It is very important to me, my fellow co-workers, & several other people & industry in the area that rely on the river for their income. I also feel that if the water table was lowered it would present navigational problems for the boats & barges coming down river. **Kevin Sellars, 2336**

Response to Comment 15: See Response to Comment 7.

16. The nature of Chickamauga reservoir (including the Hiwassee branch) is that in most locations the primary deep water river channel is surrounded by large but very shallow flats. My experience is that with near full pool elevations (>682'), these areas can be

navigated safely. However, when the elevation is decreased to the current August 1 guide (681' nominal), the shallow flats become hazardous. This tends to squeeze recreational boaters into the deeper main channel regions and, due to congestion in areas where the channel is narrow, increases the danger of accidents. Another negative aspect of the current operational guide for the late summer period is that access into and out of shallow bays and sloughs, where most private residences and docks are located, becomes difficult. In early August of 2002, my personal dock and boat lift become essentially unusable for the remainder of the season due the effects of silting and low water (nominally less than 681' during daylight hours). **Larry Rinaca, 1895**

Response to Comment 16: To achieve the multiple objectives for operating the system, reservoirs are drawn down to regain flood storage capacity, to generate hydropower to meet peak demands, and to meet downstream requirements such as providing cooling water for nuclear and coal plants. Under the Preferred Alternative, the summer operating zone on Chickamauga would be extended through Labor Day.

17. The Ohio and Mississippi Rivers have sufficient water levels to accommodate 10 and 11 foot draft barges. Most of the new barge construction today is 13 and 14 foot hull barges. These barges can be loaded to a draft of 10 to 12 feet. However the Tennessee River cannot currently these heavy draft barges. This results in additional cost to shippers in the Tennessee Valley and leaves our region at a competitive disadvantage as compared to other areas along the mainstream rivers. **Mark Hommrich, 2230**

Response to Comment 17: The Tennessee River is a multi-purpose system designed for a navigation draft of 9 feet, with a 2-foot under clearance for safety. Under the Preferred Alternative, the minimum winter elevation on Wheeler Reservoir would be raised 6 inches to address navigation problems on that reservoir. Also, TVA would discharge a minimum instantaneous flow up to 25,000 cfs as necessary to maintain a tailwater elevation of 301 feet at Kentucky Dam, thereby aiding navigation on the reach downstream of Kentucky Dam. These changes would improve navigation conditions.

18. We are concerned about water resources that supply the Tennessee Tombigbee Waterway and water supply for Tupelo and other communities. It is essential that water resources of the connected basins continue to be available for continuous transportation of barges and ports along the Tennessee Tombigbee Waterway. This vital link in Northeast Mississippi is critical in retention of jobs and creation of jobs in this needy area. The waterway is maturing at a measured rate as the economy firms up. The waterway also provides through passage of materials in the states of Kentucky, Tennessee, Missouri, Illinois and other northeastern states. Many natural products flow from this area in to coastal markets and global markets. **Mayor Larry Otis, 4347**

Response to Comment 18: All of the policy alternatives considered as part of this study included full design capacity use of the locks at Jamie Whitten Dam, offering maximum utilization of the Tennessee–Tombigbee Waterway and flows downstream of the project. See Appendix A, Table A-06 for additional water withdrawal assumptions for the Tennessee–Tombigbee Waterway.

19. My name is Mike McDonald. I am VP of Muscle Shoals Marine Service, Inc. in Florence, AL. We operate harbor and fleeting services at Florence mile 257 and Yellow Creek mile 215 (TTWW mile 448) on Pickwick Lake. Our primary concern of course is the safe and

efficient operation of our vessels in accomplishing their work. To that end our specific concerns are pool and discharge levels on Pickwick Lake. Our major area of concern is low pool levels at Florence during winter pool and periods of low water. Pickwick levels below 410 at Florence cause unsafe conditions for our tugs and customer barges. Customer barges have been damaged on several occasions with lake levels below 410 costing the company thousands of dollars in insurance deductibles and contributing to increased insurance premiums. Low lake levels also cause problems with fleeted barges causing groundings which can potential damage barges and also inability to spot barges at docks. Also of great concern are dramatic fluctuations (we have witnessed 4 to 5 foot fluctuations overnight) in lake levels over a relatively short period of time. Fleeted barges in both fleets can suddenly be hard on ground after these rapid fluctuations and we must then "pull the barge off ground" to prevent sinking which can damage or hole the barge. This is of particular concern at Yellow Creek where our fleeting area is adjacent to limestone bluffs with many rock ledges the barges can "sit down on" when water levels are lowered rapidly. Also of concern are Lock discharge levels which can make it very difficult to shove barges upstream. **Mike McDonald, 2509**

Response to Comment 19: Under the Preferred Alternative, the minimum winter elevation on Wheeler Reservoir would be raised 6 inches to address navigation problems on that reservoir. Also, TVA would discharge a minimum instantaneous flow up to 25,000 cfs as necessary to maintain a tailwater elevation of 301 feet at Kentucky Dam, thereby aiding navigation on the reach downstream of Kentucky Dam. These changes would improve navigation conditions.

20. In conjunction with this I would hope that the lock can be replaced soon at Chickamauga in order to allow the transfer of such products as asphalt to Knoxville by barge rather than by highway or rail which increases costs, air pollution and accident risks on interstate highways and local roads. **Pete Barile, 1192**

Response to Comment 20: A 600- by 110-foot lock has been authorized at Chickamauga. Funding has been provided in Fiscal Year 2004 for pre-construction and design work.

21. As an employee with Marine Terminals of Alabama, I am very concerned that lower water levels will adversely affect our company. One of our main sources of income derives from unloading steel scrap from barges off the river. A lower water level will inhibit the ability for scrap to arrive at our port and therefore not provide the revenue to sustain our current job level and limit the potential for growth. Increased cost would also adversely affect the ability of NUCOR Steel to make a profit and again negatively impact the employment situation of our facility. **Ray Hancock, 2334**

Response to Comment 21: See Response to Comment 7.

22. We would like for you to take into consideration to keep the water levels at the same level or raise them. We are already facing problems with water levels as it is. With the barge traffic coming as it is we are going to have definite problems with lower river waters. Please take this into consideration. **Stanaley L. McClellan, 2341**

Response to Comment 22: See Response to Comment 19.

23. As an employee of marine terminals of Ala. I think this could cost jobs and a loss of profit to the company that I work for. We unload scrap steel from barges and load processed coils back onto barges for NUCOR Steel. If water tables are to low we can not get the product in to load or out with full loads. In turn this will cost more to ship causing a loss of productivity which will cause labor to go up and profit to go down this is where jobs will be lost. **Tim Bass, 2300**

Response to Comment 23: See Response to Comment 19.

24. I was here last time, I addressed about dredging the river from Guntersville to the dam. I would like to know where we're at and what has happened up until now. TVA has raised our power rates or are trying to. You cannot generate energy from silt or mud, so, you know, I would like to know why we're not doing any dredging to get more water flow, more capacity in the river. **Tim Stewart, 4344**

Response to Comment 24: The primary influences on improved hydropower generation are improving turbine efficiency or increasing the height of the water column that feeds the turbine. Dredging the main channel would have little influence on the production of hydropower. Subject to the availability of resources, the USACE performs dredging operations on the inland river system to support navigation and flood control objectives.

Flood Control

1. TVA raises lake levels too fast. Keep water 10ft. low till May 1st. Then finish filling lake so it is full on Memorial Day. This will help with flood control and fishing. Then everyone can enjoy a full lake until Labor Day or there abouts. Specifically South Holston and Boone and maybe others - everyone wins. You can't fish the banks of the reservoir when lake is full for limbs hanging over - especially true on South Holston and Boone Reservoirs.

TVA started as flood control and that should be the main concern. People who moved in and around lake should know this before they moved there. All I'm saying is why won't this work. Keep lakes 10ft from full till May 1st, then fill by Memorial Day. You would have your flood control, people could fish better along banks, and then you could have full pool for the rest of the summer. Why won't this work. **Alan Mitchell, 706**

Response to Comment 1: In general, the potential for increased flood risk is greater for any alternative operations policy that specifies higher pool levels for any reservoir during any time of the year. The reduction in flood storage associated with increases in pool levels necessarily implies a reduction in TVA's ability to regulate large floods. A goal of the ROS is to determine what kinds of operational changes could be made without resulting in an unacceptable increase in potential flood risk.

2. Flood control is not directly affected by TVA. Other impacts are causes of floods. We should, as a society, concentrate on correcting these imperfections, such as permeable surfaces in our parking lots. Creating greenroofs to help aid in the prevention of flooding. **Anonymous, 1809**

Response to Comment 2: Flood control is addressed in Sections 4.22 and 5.22.

3. Only one alternative was even slightly beneficial for flood control, Equalized Winter/Summer Flood Risk. **Anonymous, 2839**

Response to Comment 3: For the Equalized Winter/Summer Flood Risk Alternative, the increase in potential flood risk (relative to the Base Case) associated with the higher winter reservoir pool levels would be, at some locations, offset by the decrease in potential flood risk associated with the lower summer pool levels.

TVA developed its Preferred Alternative to maintain flood risk at acceptable levels while preserving increased opportunities for recreation and reducing impacts on other objectives.

4. Its seems that the tributary lakes carry an unfair share of the burden of providing flood control to some mystery person or city out on the Tennessee River. Surely a small increase in flood storage capacity on non-tributary lakes would allow us to have winter lake levels that would allow boat ramps to remain useable. **Bob Garrison, 1773**

Response to Comment 4: The TVA flood control system was designed and built to take maximum advantage of locations whose physiographic characteristics allowed the construction of dams and benefits justified the required costs. The tributary dams were located where they could provide the aggregated flood storage necessary for TVA's integrated reservoir system and flood control purpose. The flood risk analysis indicated that TVA could not replace flood storage lost on tributary reservoirs on the mainstem river without adversely affecting navigation.

5. Melton Hill Lake, downstream of Clinton, has had two serious floods in the last eight years, washing away boats and docks. About four years ago, the flood from local precipitation washed away several boats, and nearly lifted my floating dock off of its pilings. At that time, Norris dam appeared to be releasing water through the turbines at maximum flow. I extended my pilings about a foot after that. This year, the flood would have removed my dock if the pilings had not been extended. The dock and pilings are more than thirty years old, so this problem must be recent. With Norris and Melton Hill dams to control the water level, this situation should not occur. **Bob Olson, 3012**

Response to Comment 5: Flood control is addressed in Sections 4.22 and 5.22. A primary purpose of Norris Dam is flood control. However, some downstream flooding can, and does, occur. To prevent unacceptable increases in reservoir flood elevations during a flood control operation, TVA will release water through the turbines to generate electricity, instead of spilling water to lower the level upstream of Norris Dam.

6. Alternative A does not make sense to me by saying that flood control would be an adverse effect, when flood control is not even a subject here or a problem to begin with, in the Douglas area or any of the tributary lakes. But as Chattanooga is flooded every year, how can TVA blow their own whistle and say they've saved us millions of dollars in flood dams in Chattanooga, when we have plenty of water space in Douglas and other tributary lakes also. **Carroll and Gail Johnson, 4401**

Response to Comment 6: TVA's detailed flood risk assessment shows that the loss of available flood storage associated with Reservoir Recreation Alternative A would lead to an unacceptable increase in the flood risk at many damage centers, including Copperhill-McCaysville, Elizabethton, Knoxville, Lenoir City, Chattanooga, Decatur, Florence, and

Savannah. At several of these locations, increases in flood risk would be expected for all five of the seasons included in the assessment. Flood control is addressed in Sections 4.22 and 5.22. Chattanooga is not flooded every year. Douglas is one of many multi-purpose reservoirs that are used to reduce flood risk but have insufficient capacity to completely eliminate flood risk.

7. Being downstream of the dams of Kentucky Lake and Lake Barkley, flood control is critical and has an impact on navigation, economic development, agriculture and recreation. Many jobs, family farms and billions of dollars of economic activity depend on reliable flood control. In times of serious flooding, your alternatives would have an adverse effect on flood control and significantly increase the flood risk of people downstream. **Delila Sayre, Vice President, Caruthersville Marine Service, Inc, 3083**

Response to Comment 7: Flood control is addressed in Sections 4.22 and 5.22. Under TVA's Preferred Alternative, operating guide curves on Kentucky Reservoir would not be modified and it is expected that downstream flooding would not be noticeably affected.

8. Flood control was one of TVA's primary goals, and TVA has succeeded in meeting it. It should remain an important goal. As such, those alternates which have "substantially adverse" impacts upon flood control should be considered only with great reluctance. That said, it is very difficult to comprehend how the relatively small water level flood control changes (mainly shifting to the 7-day, 500-year flood) produce such large adverse impacts. **Colman B. Woodhall, 385**

Response to Comment 8: TVA remains committed to reducing the risk of flooding throughout the Tennessee River system. The adoption of the 7-day, 500-year inflow volume as a criterion for flood control storage would result in reservoir levels being substantially higher during the winter months at a large number of projects (relative to the existing operations policy). TVA's analysis demonstrates that such a reduction in total available flood storage would be accompanied by increased discharges at some points in the system during some times of the year. Flood control is addressed in Sections 4.22 and 5.22.

9. While I was unable to find the exact winter lake level (for Watauga) under the 7-day, 500-year storm criterion, the narrative leads me to believe it would be higher than the March 15 level. However, the March 15 level is such a substantial improvement over the Base Case Jan 1 level (1952 vs 1940 for Watauga) that any further increase would appear marginal -- particularly considering the stated increased flood risks. **Colman B. Woodhall, 332**

Response to Comment 9: The Watauaga winter lake level required to satisfy the 7-day, 500-year inflow volume criterion is about elevation 1,957 feet. The commenter is correct in the assumption that higher reservoir levels could lead to additional increases in flood risk.

10. Would be interested in separation of Kentucky and Barkley Lakes from other mainstream reservoirs regarding flood control as holding water from Base Case in July until Labor Day has minimal impact of flood in these lakes. This is by far our driest time. **Dave Baxter, 2803**

Response to Comment 10: Flood control is addressed in Sections 4.22 and 5.22. Under TVA's Preferred Alternative, the operating guide curve for Kentucky Reservoir would not be adjusted.

11. No alternative looked at the environmental impact of taking the reservoirs so low in the winter. In the case of Cherokee Lake, 15,000 acres are turned into a habitat that is similar to a strip mine. No amount of flood control can justify the damage to our environment the TVA is doing. **Dave Cooper, 1140**

Response to Comment 11: All the alternatives were evaluated in order to determine the potential environmental consequences of increasing or lowering water levels over different periods of time. The benefits of flood control are discussed in Sections 4.22 and 5.22.

12. Once again those of us living on the tributaries need real numbers to make a informed decision. We all know that the 500-yr. storm inflow is only a subjective number since there have only been lake level history since the 1940's and weather keeping records only for less than 100 years so there is no real data to base a 500 yr level on. So what level does Douglas Lake need to be to hold this 500 inflow? **David and Marylin Miles, 383**

Response to Comment 12: The estimated volumes are based on real data. However, uncertainty is associated with using the 99 years of available data to estimate an event with a recurrence interval substantially larger. This is a common situation in hydrologic design and analysis. TVA's estimates of the 500-year inflow volume were based on a rigorous statistical analysis of both estimated and observed inflows spanning the continuous 99-year period between 1903 and 2001. The analysis is based on techniques that were adopted by all federal agencies over 20 years ago.

The Douglas Reservoir level required to store the 500-year inflow depends on a number of factors**:** the duration of the storm event in question (for example, the 1-day, 500-year inflow volume is substantially smaller than the 3-day, 500-year inflow volume), the assumed operation of the project (which would dictate how much of the inflow volume could be discharged during the flood event), and the time or season of the year. The target winter flood guides for Reservoir Recreation Alternative B are based on the ability to store all of the volume from the 7-day, 500-year inflow.

13. Public comments were sought from within the Tennessee River watershed and the TVA service area but not from those outside this region. However, it is precisely those residents of communities downstream in the Ohio and Mississippi River basins whose lives, livings, and property are currently protected by the prudent and historically proven operation of the Tennessee River reservoirs.

In citing the benefits of reservoir operations, the documents on your website mention navigation, clean water supply, sustainable economic development, recreation, environmental enhancement, and flood control. For those of us downstream from the dams of Kentucky Lake and Lake Barkley, flood control is more than merely another benefit, more than an afterthought. Flood control has critical impacts on navigation, clean water supply, sustainable economic development, agriculture, and recreation. Indeed, flood control makes these benefits possible! Tens of thousands of jobs and billions of dollars of economic activity depend on reliable flood control.

All but one of your considered alternatives have an adverse effect on flood control, and that one, Equalized Summer/Winter Flood Risk, affords only a slight decrease in flood risk. Similarly, only two alternatives have a positive effect on commercial navigation, and those effects are negligible.

When TVA studies policy changes that have impacts which reach far beyond its service area, those who are affected by proposed changes should be equal participants in the decision process. **David P. Madison, Executive Director, Pemiscot County Port Authority, 3282**

Response to Comment 13: Notice of the availability of the ROS and EIS was widely provided, including in the Federal Register. Flood control, navigation, and power production are the three primary purposes for operating the TVA water control system. Under TVA's Preferred Alternative, operating guide curves on Kentucky Reservoir would not be modified; and analysis indicates that downstream flooding would not be noticeably affected.

14. We do have a couple suggestions for improving river management. When the threat of heavy rain in the eastern part of the state occurs, start lowering the reservoirs downstream to help control water levels. For our immediate area, the property on the west side of interstate 75 from the 24-75 split to exit 1 could be used as a catch basin for Chickamauga Creek back water. **Dean and Mary Jane Heavener, 2205**

Response to Comment 14: This comment describes typical flood control actions on the TVA system. Under any alternative, TVA would prepare for expected flood events by recovering flood storage capacity in appropriate reservoirs to assist in managing flood waters.

15 I also think the current flood control levels on tributary lake are excessive. Last year at Nottely we had higher than normal lake levels well into November because of work on the dam. Even with higher than normal rain fall level over the winter we were never in danger of flooding at our lake or downstream. **Doug Triestram, 1786**

Response to Comment 15: However, flood risk studies indicate that the risk of a major flood event during this time is high. The fact that no flood occurred in that particular year is not a valid indicator of the likelihood of future flood events.

16. Flood control with the Kentucky Lake and Barkley Lake dams greatly affects the Ohio and Lower Mississippi Rivers navigation, economic development, agriculture, and our clean water supply. Only one of your considered alternatives has an adverse effect on flood control, and that one only affords a slight decrease in flood risk. Similarly, only two of your alternatives provide a positive effect, but negligible, on commercial navigation. **Eddie Adams, 3036**

Response to Comment 16: TVA formulated its Preferred Alternative with the objective of trying to reduce the adverse effect on flood risk associated with the alternatives identified in the DEIS. Under TVA's Preferred Alternative, operating guide curves on Kentucky Reservoir would not be modified; and analysis indicates that downstream flooding would not be noticeably affected.

17. Why does TVA seem to be considering flooding some of our lands below Pickwick Dam and at the same time helping other people upstream with recreational activities, et cetera?

What effect will these have specifically with given elevation changes with the present 1991 operating system? By this, what would the alternatives that have been mentioned in the EIS do to storm events of the past and their relation to these easement levels?

With a given easement of elevation 372 and with a flooding of 385, what effect would each of these alternatives have -- back it up just a second. With a past rainfall event that crested at elevation 385, what would each of these alternatives do to this?

Also, what would be the duration of the flooding and the effect on this duration with these various alternatives? **Frank Mcginley, 4475**

Response to Comment 17: The downstream limit of TVA's detailed flood risk simulation model is Savannah. At that location, the model computes total discharges only. No data are available to demonstrate flood-crest elevations and durations for the various alternatives at Savannah. However, the analysis at Savannah is very comprehensive, and includes both period-of-record flow-frequency curves and analysis of a very large number of hypothetical design storms.

The intent of the flood risk study is to define the range of operations policy modifications that can be made without substantiallly increasing the potential for flood damage at any critical location, including Savannah. TVA developed its Preferred Alternative in order to maintain flood risk at acceptable levels, while preserving increased opportunities for recreation and reducing impacts on other objectives.

18. What economic effect on Agriculture below Pickwick Dam would each of these alternatives have had for each flood occurring from May through November from 1991-2002 which exceeded 372 feet in elevation? A comparison with the 1972-1990 period would also be helpful since, I've been told, different operating conditions were used in the earlier period. How much would each of these changes cost farmers in the flood plane below Pickwick Dam? Ag related records are available from Farm Service Agency, USDA and UT Extension Service Offices. Flood information should be readily available from the stream models developed as part of this EIS. Consideration of maximum elevation and duration should be made a part of this exercise. **Frank McGinley Jr., 3024**

Response to Comment 18: The hydrologic model used by TVA to assess potential changes in flood risk at critical locations across the Tennessee Valley region does not compute elevations at Savannah. Therefore, it was not possible to conduct the specific analysis requested in your comment. Assessment of potential change in flood risk at Savannah was based on computations of total discharge. TVA has computed annual and seasonal flow-frequency curves at Savannah for all the alternatives based on a simulation of 99 continuous years. In addition, TVA has analyzed the impact of 138 hypothetical design storms at Savannah.

TVA developed its Preferred Alternative in order to maintain flood risk at acceptable levels, while preserving increased opportunities for recreation and reducing impacts on other objectives.

19 I've lived on Douglas Lake for over 27 years and most of the 27 years the drawdown has started around the 1st of July. When I try to find out I'm told it's for flood control. If it's for flood control why so early, since the rainy season doesn't start till the end of the year and I know doesn't take that long to let the lake down. If you started to let it down after Labor Day you would still be ahead of the rainy season. **Fred Schaffer, 889**

Response to Comment 19: Since the implementation of the alternative operations policy recommended in the Lake Improvement Plan in 1991, TVA typically begins unrestricted drawdown on eastern tributary flood storage projects on August 1. In terms of monthly average rainfall, rainfall in the Tennessee Valley region is fairly uniform throughout the year. While the volume of runoff associated with that rainfall shows a strong seasonal variation—with maximum amounts in the winter seasons when most vegetation is dormant—the observed hydrologic history of the Tennessee Valley region clearly indicates that large floods can and do occur any time of the year. Restricted drawdowns during June and July, and unrestricted drawdowns afford other benefits to constituents in the region, including power consumers. Flood control issues are discussed in Sections 4.22 and 5.22.

20. We have not seen any potential flood hazard during the winter months more so than summer months since we have lived around the Douglas lake area. We do not understand the reason for lowering the lake levels so low that homeowners and boaters cannot enjoy the benefits of the lake year round. **Frederick L Steel, 404**

Response to Comment 20: TVA's system of integrated multi-purpose dams was designed and built primarily to provide a navigation benefit and to reduce the risk of flooding in communities that had been built in the floodplains of the Tennessee River and its tributaries. That flood risk varies seasonally. Because the probability of large inflow volumes is highest in winter months, the reservoi r pool levels are lowest then.

The inherent difficulty in demonstrating the value of flood control is the relative rarity of the flood events for which the system was designed. The TVA system was designed to provide protection for floods larger than those that can be expected every 500 years on the average. There is only about an 18-percent chance that one or more 500-year floods could occur within any given 100-year period. Therefore, the fact that large floods have not been observed within recent history does not necessarily mean that the potential for these large floods does not pose a significant risk. Flood control issues are discussed in Sections 4.22 and 5.22.

21. There seems to be concern about flooding downstream, Chattanooga. Chattanooga was supposed to build levees years ago. I don't see why our lake has to be drawn down because Chattanooga didn't build their levees. **Glen and Janice Boland, 4448**

Response to Comment 21: Flood control issues are discussed in Sections 4.22 and 5.22. Chattanooga's failure to construct levees, except on South Chickamauga Creek, was addressed in TVA's 1990 Lake Improvement Plan EIS, Tennessee River and Reservoir System Operation and Planning Review (December 1990). As discussed in the 1990 EIS, the likelihood that Chattanooga could now construct levees is remote. The consequence of this failure, however, is not increased lowering of tributary reservoir levels, but a higher risk of flooding in the Chattanooga area. The total Chattanooga flood protection plan included seasonal flood control afforded by the TVA system, as well as the planned levee system.

22. A better plan would start with deciding to keep flood risk equal and then set seasonal pool levels accordingly. This criticism seems to apply to other alternatives as well, such as Reservoir Recreation Alternatives A and B. That is, the increased flooding risk is an artifact of deciding to set winter pool levels such that there will be an increased risk of flooding.

A more honest alternative would be to start with a commitment to keep flood levels the same as the base alternative, then determine what winter pool levels should be and develop the rest of the alternative from there. **Guy Larry Osborne, 1206**

Response to Comment 22: TVA designed the alternatives to evaluate the broad set of issues and suggested operational changes identified during the scoping phase of the study. TVA performed the flood risk analysis to determine which of the changes evaluated could be made without unacceptably increasing flood risk at any critical location. TVA developed the Preferred Alternative in order to maintain flood risk at acceptable levels, while preserving desirable characteristics that were associated with the alternatives that were evaluated in detail.

23. The higher flood risk associated with Recreation Alternative B is an artifact of your decision to keep winter pool levels higher. This would be a stronger alternative if TVA committed to holding flood risk levels constant and then developed a plan for later draw down from that starting point. TVA has fudged in constructing alternatives from the Base Case by building in a higher flood risk. Who will vote for that? This is a rigged process to insure we stick with the Base Case which is what TVA wants to do anyway. **Guy Larry Osborne, 1271**

Response to Comment 23: Our analysis of Reservoir Recreation Alternative B has indicated an unacceptable increase in flood risk in all seasons of the year at critical locations in the Valley, including Knoxville. The increase in flood risk is not limited to the winter months. The alternatives analyzed as part of the ROS were based on extensive input received from the public, governmental agencies, and non-governmental organizations. TVA developed its Preferred Alternativein order to maintain flood risk at acceptable levels, while preserving increased opportunities for recreation and reducing impacts on other objectives.

24. We have weather systems today that tell us weeks in advance of major storms. Why do we have to pull the lakes down in preparation of a 100 year flood when we know it is not going to happen 99 of those years. As a worst case, we know well in advance of any rains that cause floods. **Harold Andrews, 2168**

Response to Comment 24: While the science of meteorological forecasting has improved over the years, there is still far too much uncertainty to allow effective operation of the reservoir system based on weather forecasts. In order to release water "as needed" to provide effective flood-risk reduction, reservoir pool levels would need to be drawn down days or weeks before the initiation of flood-producing rainfall (the rate at which pools can be lowered is constrained by downstream channel capacities and, in some cases, dam safety considerations).

A "release-as-needed" operation would frequently dictate the need to lower pool levels quickly based on rainfall forecasts. If the rainfall did not develop as predicted (or fell in an area outside the predicted area), the effective operation of the entire reservoir system would be compromised. Under this operating scenario, reservoir levels would likely fluctuate much more widely and often.

25. As you know the 99 year study excludes the three highest regulated floods of record at Chattanooga. This includes the 1867 flood (44.0 gauge) , which is above the 500 year regulated flood at Chattanooga (42.48), and the 1875 flood (40.6) and the 1886 flood (39.1), which are both above the 100 year regulated flood (35.88). The 1867 and the 1875 floods were both between the January 1 and March 15 period which Alternative A does not provide any extra flood storage. The scaling factors of 1.5 and 2.0 attempt to compensate for these larger floods outside of the 99 year study, and if storage is provided for these scaling factors, all floods of record would be accounted for in the study. **Jack C. Marcellis, 2862**

Response to Comment 25: The design of the flood risk study includes both a continuous simulation over the 99-year period between 1903 and 2001, driven by observed (historical inflows), and the discrete simulation of a large series of hypothetical floods, some of which are larger than the 1867 flood.

26. As for flood control. It is time Chattanooga built the dike. **Janice Boland, 1619**

Response to Comment 26: See Response to Comment 21.

27. The problem of flooding does concern me though in that less retention of water in the upper reservoirs does reduce the ability to hold back excessive runoff from rain.
An alternative to this may be the possibility of check dams along some of the larger inlet streams into the main channel rivers. An example of this was discussed about 12 years ago when TVA conducted a feasibility study in Claiborne County to see if damming the Big Sycamore Creek would benefit the economy of the region. At that time it was decided that it wouldn't. The dam would not be a hydroelectric but more to control the water flow of several large streams into the main channel. **Joe Payne, 2102**

Response to Comment 27: Flood control is discussed in Sections 4.22 and 5.22. In light of the environmental issues associated with constructing new dams and reservoirs, as a general matter it would be difficult to justify the construction of check dams at most locations in the Tennessee Valley region from a flood storage viewpoint alone. The objective of this EIS is to identify how TVA's existing reservoir system could be operated to improve overall public value of the system. TVA is not proposing to construct additional dams and reservoirs. If such a proposal was made, additional environmental review would be required.

28. Does this EIS consider the silt buildup that all dams have? How will this be addressed? From my readings, at some point in the life of a dam, it ought to have greatly reduced water holding capacity as the silt builds up. **John Hubbard, 2257**

Response to Comment 28: While the buildup of silt is problematic at some dams, this buildup and continued silt deposition in TVA reservoirs is generally below the range of elevations important for flood control pool operations. It is not expected to be substantial in

any of TVA's flood control reservoirs within the 30-year time frame of the study. Erosion and its effects are addressed in Sections 4.16 and 5.16.

29. 500-year inflow?????? **Julia Householder, 3285**

Response to Comment 29: The 500-year inflow, for any given reservoir, is the volume of water flowing into the reservoir that, on average, would be expected to be equaled or exceeded every 500 years. This does not mean that the period between events of this magnitude is 500 years. It is more accurate to state that the probability of an event of this magnitude is about 1 in 500, or 0.2 percent, in any given year. Therefore, it is possible, although highly unlikely, that 500-year events could occur in successive years.

The 500-year inflow volume is usually understood to occur over a specified duration. The 7-day, 500-year inflow volume is the inflow volume over a 7-day period that is expected to be equaled or exceeded once every 500 years.

30. I'm from Savannah, Tennessee, and I'm a farmer. I farm approximately 1500 acres below Pickwick Dam, between Pickwick Dam and Savannah. I am concerned about the adverse effects on the flood control on the Tennessee River that were proposed in basically all the alternatives that are proposed except for the flood control or the flood risk alternative. I am very much opposed to any increase in flood control below Pickwick Dam especially.

I want to increase awareness that below Pickwick Dam TVA has several thousand acres that they use to flood or for flood control where there were no easements purchased back in the '40s. My concern is that if any of these alternatives are going to be selected and imposed on us, has TVA any kind of idea how to approach the easement issue below Pickwick Dam. I make my living 100 percent from farming and I am very much opposed, again, for increased floods that can be prevented with the system as it is now. **Karl Forsbach, 4438**

Response to Comment 30: TVA developed its Preferred Alternative in order to maintain flood risk at acceptable levels, while preserving increased opportunities for recreation and reducing impacts to other objectives. TVA is aware of the potential flooding impacts on farming in the Savannah area and will continue to operate the system to minimize these impacts on the extent possible.

31. 1. I would like to see data showing the duration and crest elevation of the flood at Mile Marker 190 (Savannah) for each alternative using the April/May 2003 storm pattern as an example.

2. I would like to see data showing the duration and crest elevation of the flood at Mile Marker 190 without any dams (flood control) using the April /May 2003 storm pattern as an example.

Let me point out at this time that every foot of additional flood water above 372’ will dramatically increase the flooding of our farm land. In addition to that, the duration of a flood adds drastically to the damage of our crops and shorelines.

Furthermore, I would like to question why the analysis for flood risk did not consider areas downstream from Savannah? How can a study like the ROS be complete if it fails to neglect the lower part of the Tennessee River and Kentucky Dam?

It is my understanding that the Corps of Engineers only interfere with the discharge of Kentucky Dam when the Ohio River is at a certain flood stage, I believe measured at Cairo, Illinois. The result of that particular situation is well known here in Savannah. TVA blames the Corps of Engineers for holding water on our farmland, at our expense. Does your study suggest that the above described situations will get worse? **Karl Forsbach Farms, Inc., Karl Forsbach, Jr., 3731**

Response to Comment 31: The downstream limit of TVA's detailed flood risk simulation model is Savannah. At that location, the model computes total discharges only. No data are available to demonstrate flood crest elevations and durations for the various alternatives at Savannah. However, the analysis at Savannah is very comprehensive, and includes both period-of-record flow frequency curves and analysis of a very large number of hypothetical design storms. Separate from its modeling of flood risks, TVA did consider flooding effects downstream from Savannah.

For Kentucky Reservoir, TVA conducted a detailed investigation of the effect of different operations alternatives on the volume of water discharged from Pickwick Landing Dam. This investigation included the identification of the 10 largest annual and seasonal volumes discharged over 1-, 3-, 7-, 10-, 15-, and 30-day durations in the 99-year simulated period of record and, for each of these events, a comparison of the incremental volumes discharged into Kentucky Reservoir with respect to the No-Action Alternative or Base Case. This analysis shows that it is reasonable to expect that the differences in discharge at Pickwick in these large storms can be temporarily stored in the Kentucky pool.

TVA developed its Preferred Alternative in order to maintain flood risk at acceptable levels, while preserving increased opportunities for recreation and reducing impacts on other objectives.

32. Are you seriously looking at alternatives that would turn our privately owned land, free of easements, into a “holding pond” for the benefit of some developers on certain lakes, which were originally designed to ease the flooding of the Tennessee River and consequently the lower Mississippi River?

I would like to state adopting any one of your alternatives would be devastating to our farm operations in and around Savannah. Crop Insurance would become unaffordable for us, the Shoreline Erosion would drastically increase and our property values (farmland) would collapse. All these facts combined would be devastating to any family farm operation. **Karl Forsbach Farms, Inc., Karl Forsbach, Jr., 4172**

Response to Comment 32: TVA developed its Preferred Alternative in order to maintain flood risk at acceptable levels, while preserving increased opportunities for recreation and reducing impacts on other objectives. Flood control is addressed in Sections 4.22 and 5.22.

33. TVA owns flood easements along most of the Tennessee River and prohibits building permanent structures below the 500 year flood elevation to minimize high water damage.

They have no easements from Chickamauga Dam downstream thru Chattanooga because House Document 91, 76th Congress, 1st Session, 1939 planned the main Tennessee River reservoirs with limited flood storage, 4,000,000 acre-feet of tributary storage and a levee at Chattanooga to hold back water to Walnut Street gage height of 60 feet or thirty feet above flood stage. TVA constructed the Tennessee River dams and 9,000,000 acre-feet for flood control in the tributaries. Chattanooga refused to build the levee. After the March 1973 flood, TVA Chairman Aubrey Wagner made numerous proclamations making one think completing Tellico Dam wood solve Chattanooga's flood problems. But former TVA Chairman Herbert D. Vogel, who worked at the Corps of Engineers river hydraulic lab at Vicksburg before his TVA appointment, warned of continued extensive flood hazard because the levee was not in place in a March 25, 1973 letter to The Chattanooga Times.

The May 2003 flood shows General Vogel was right and extensive rains can fall any time of the year. Tributary communities are requesting TVA to hold reservoirs high into the fall for recreation. But TVA really needs to lower upland lake levels in warm weather so five inches of runoff can be stored like the Corps of Engineers does in their reservoir operation instead of the approximate one inch TVA keeps. Chattanooga also needs to help itself by limiting development below the 500 year flood plain. When an early season hurricane stalls over the eastern Tennessee Valley and the river washes out the foundations of the 21st Century Waterfront Development, FEMA and Chattanooga officials will wonder what happened. Anyone who has studied the situation will remember General Vogel's warning.
Minimum drawdown levels of navigable channel reservoirs should not be raised two feet during winter to accommodate heavier barges. These lakes have quite marginal flood storage under the current plan. **Kirk Johnson, 3794**

Response to Comment 33: Flood control is addressed in Sections 4.22 and 5.22. See Response to Comment 21.

34. All other options are either adversely or substantially adverse for the risk for flooding, with most other options being effected slightly plus or minus. It is great to look at alternatives for better recreation, power, or navigation and do what can be done to improve these by reservoir, tributary or by area, but do it scientifically and not err on the risk side of massive flooding, thereby defeating the purpose of TVA. **Lane Marte, 2395**

Response to Comment 34: See Response to Comment 32.

35. After reviewing the TVA document called “Weighing the Alternatives,” I really don’t understand why or how improving late summer recreational opportunities (particularly on mainstream reservoirs) has any significant adverse impact on flood control. Historically, it appears that the major flood risk is in the winter through spring time frame (i.e., the normal rainy season where the ground is usually saturated), particularly after the reservoir filling process has started or completed. Although it is obvious that raising winter reservoir levels would be adverse to flood control, it is not clear why increased mid-winter levels are necessarily tied to increased late summer levels. **Larry Rinaca, 1894**

Response to Comment 35: The flood risk analysis indicates that extending summer pool levels leads to an increase in flood risk in those months. The location and the extent of increased flood risk varies from alternative to alternative, but the notion that late summer is a period free from flood risk is not supported by the results of the analysis. See Sections 4.22 and 5.22.

36. In the video presentation, a somewhat negative impact on flood control . . . was indicated [for Alternative A], however this was based on computer modeling, which, while an approximation of reality, is subject to question. I am interested in how the data was gathered, and whether the current TVA baseline is really a true median for all the factors at stake. So many things are affected by any change in the system, but I have to assume the overall benefit to the public is the eventual goal.

A more balanced approach to raising and lowering the local lakes would be desirable. The tributary lakes should be dropped evenly, instead of drastic differences (for example, Lake Chatuge is only dropped 10 feet while Nottely is dropped 30. This is not fair to the homeowners and recreational industries on Lake Nottely.)

The tributary lakes seem to be a "red-headed -step child"of sorts. We are responsible for flood control and navigation, with resulting dramatic and detrimental changes in our lake levels. The main system realizes very few elevation changes, perhaps levees could be put in place to help regulate shipping needs. **Margaret H. Schramke, 1437**

Response to Comment 36: A computer model is only an approximation of reality and should not be interpreted as reality itself. However, a computer model that captures all of the important physical phenomena associated with the modeled process, and is driven by valid data, can be a very useful tool in predicting possible outcomes or in comparing the potential impacts of changes in the modeled system.

TVA's flood risk analysis was performed using a complex reservoir simulation model called RiverWare. The RiverWare model has been thoroughly tested and used routinely by TVA for several years. It accurately represents all of the physical characteristics of the TVA reservoir system that would affect the magnitude and the timing of floodflows.

The model was driven by an extensive database of both observed and estimated hydrologic inflows. The Tennessee Valley region was conceptually subdivided into 55 sub-basins, and a continuous record of flows in those subbasins over the 99-year period from 1903 through 2001 was developed. Observed inflow data included stream gage records maintained by the U.S. Geological Survey and TVA's reservoir operations data. Standard hydrologic techniques were used to fill in "gaps" in the available flow record where required.

The computer model makes decisions about how much water to release from each simulated project every 6 hours for the entire 99-year period. Those decisions are driven by rules incorporated into the RiverWare model that were developed and tested by TVA to represent the existing operations policy. Because TVA's operations policy has evolved since the inception of the agency in the 1930s, the model is not intended to "reproduce" historical flow and elevation data but rather to operate as if the 99-year historical pattern were to recur under the existing operations policy. Each time an alternative was analyzed,

the RiverWare model operations policy rules were revised as required in order to reflect that new policy and the entire simulation repeated.

Based on extensive analysis, the computer model adequately represents both the Base Case and all of the simulated alternatives; therefore, any differences between the Base Case and a given alternative are meaningful. See Response to Comment 21.

37. I am surprised TVA would consider options that increase the risk of flooding. Unfathomable to me that TVA would manipulate the water levels in such manner to increase the risk of flood damage. Recreation for some is not worth the risk of flooding damage. Recreation for some is not worth the risk of flooding to the many of us downstream. Primarily TVA is to provide cheap electricity and control flooding. Providing water recreation should be of secondary importance. **Marianne T. Helton, 4058**

Response to Comment 37: Although navigation, flood control, and the generation of electricity are the primary objectives for operating the TVA reservoir system, TVA also operates the system to improve water qualityand water supply, and to provide recreation opportunities. TVA designed the alternatives that were evaluated in detail in the DEIS to reflect the broad range of issues and recommendations that were identified during scoping. This enabled a determination of the full range of associated potential impacts. Results of the analyses were then used to determine which elements of the alternatives would and would not meet evaluation criteria that were established for the primary system operating objectives, such as reducing the risk of floods. TVA developed its Preferred Alternative in order to maintain flood risk at acceptable levels, while preserving desirable characteristics that were associated with the other alternatives.

38. As a landowner in the upper bottom area in Fulton county on the Mississippi, (an area unprotected by levee) I am interested in seeing lake levels and flows managed to reduce flooding of our farmland at critical growing periods in our crop year. This may mean Alternative ES 7.5, or the Equalized Summer/Winter Flood Risk would be the best alternative for us but it is hard for me to understand how maintaining higher winter levels could reduce flood risk downstream. I can see how reducing pool levels in summer somewhat would give more storage to reduce downstream flooding in the event of growing season flooding conditions, however. I believe flood control continues to be a primary reason for flow management. This alternative seems to have few negative effects compared to some others. The overall change in area GDP is very slight and probably within the estimation margin of error. One thing is for sure, when the river takes your crop in June and July, it is gone, with no replanting recourse, and along with it comes the large negative economic impact in our farming economy counties. **Max Wilson, 2002**

Response to Comment 38: The Equalized Summer/Winter Flood Risk Alternative attempts to equalize flood risk for the two seasons of summer and winter, relative to each other. In fact, the higher winter pool levels specified in this alternative lead to an increase in winter flood risk over the Base Case condition. The lower summer pool levels specified in this alternative, conversely, lead to a decrease in summer flood risk over the Base Case condition. Flood control is addressed in Sections 4.22 and 5.22.

39. And the other comment would be the flexibility, flood control being probably the most important thing. And I find it's pretty hard to write a formula for flood control when there's too many variables that are uncontrolled and try to interject them the best you can. So, if

probably a more flexible system were developed, that if flood is the problem, then do what you have to do to eliminate it, whether it's lowering the lake or letting it up here and lowering it someplace else. **Michael Kovich, 4469**

Response to Comment 39: See Response to Comment 32.

40. We've had very heavy rainfall in the watershed of the French Broad, Nolichucky, and Pigeon Rivers in August of 2001 and 2003. If drawdown had not commenced on August 1, there likely would have been flooding in the river system. I don't think a tradeoff of flood risk and recreational opportunities is fair. Even if the positive and negative economic impacts are balanced, recreation is fleeting and easily rearranged; flood damage is long-lasting and emotionally and financially burdensome. **Michael Sledjeski, 3221**

Response to Comment 40: Comment noted.

41. There was serious downriver flooding in 2003 despite the extensive system of TVA flood control dams. My impression is that the impoundments were allowed to build up too soon. In view of this failure, TVA should reconsider allowing summer pool levels to be reached too early. Likewise, TVA should make every effort to maintain early drawdown dates, i.e., August 1, for all lakes. Rainfall during August of this year, was quite heavy. There should be no margin of error when it comes to flood control. Failures by TVA in this area are inexcusable. **Michael Sledjeski, 2969**

Response to Comment 41: The Base Case, or No-Action Alternative, shows the flood consequences of an August 1 drawdown. The Summer Hydropower Alternative shows the flood consequences of a June 1 drawdown.

42. Flood control is the original reason for constructing the TVA dam system, but is being relegated to a secondary position by the demands of recreational users and tributary lakeshoreline property owners, TVA must not slack off on its responsibility to protect downstream communities from flooding. Lake levels were allowed to rise too high, too soon in Spring 2003, and considerable damage resulted from the inability to hold back floodwaters. Delaying drawdown will increase the likelihood of flood damage; in 2001, flooding was avoided in August because drawdown commenced an August 1. Comparing economic impact of recreational use and flood damage is unfair and egregious. Recreation advantages are trivial relative to the tragic effects of flooding. Property owners should have known about drawdown schedules before they bought; they should have to live with it, rather than ignore the risk to downriver property owners. **Michael Sylva, 2128**

Response to Comment 42: See Response to Comment 41. Table 3.5-02 shows changes in the percentage change (plus or minus) in annual flood damage and other economic effects, including recreation spending.

43. If the extra 2 months of full pool create a flood hazard due to excessive rain (which is very unusual for July and August), why can't the water be released as needed. **Mrs. Jean Roberts, 1913**

Response to Comment 43: See Response to Comment 24.

44. I do not know the number of rivers feeding into the 10 reservoirs addressed in Alternative A. Regarding Nottley, because it is only fed by one river, it has little impact on flood control to the overall TVA system. This spring exemplifies this. The highest level was 1777, 8 feet below the allowed level of 1785, as stated on the plats. How were the 10 reservoirs chosen for the study? Would the elimination of one or two reservoirs from having the levels maintained greatly impacting the "substantially adverse"flood control results?

I compliment the TVA system on its control when compared to the other reservoir systems in region, i.e., Lake Lanier. **Nanette M. McCarthy, 1494**

Response to Comment 44: The reservoir simulation model used to perform the flood risk analysis includes 36 dams. While several very small dams with little or no impact on flood control operations were not included in the study, all of TVA's major dams were included in an effort to conduct a comprehensive and physically realistic analysis. TVA's understanding is that the 10 reservoirs referred to are the eastern tributary projects with some flood control storage. These include Norris, South Holston, Watauga, Cherokee, Douglas, Fontana, Chatuge, Nottely, Hiwassee, and Blue Ridge.

The flood risk analysis of Reservoir Recreation Alternative A was based on the assumption that the operations policy of all of these reservoirs would be modified in a similar fashion. Separating operation of the system and operating reservoirs on an individual basis could be done, but this would be inconsistent with how the system was designed to be operated and would result in substantially adverse impacts on flood control and other important system operating objectives, such as navigation. TVA did consider excluding individual reservoirs from its system-wide operations policy, when it last comprehensively evaluated system operations for the 1990 Tennessee River and Reservoir System Operation and Planning Review (Lake Improvement Plan). TVA concluded that, while this may be feasible, it would raise serious equity issues because of the disparate treatment of reservoirs within the system. For example, if TVA substantially reduced levels on Nottely and other reservoirs in that basin, TVA might be able to maintain levels somewhat higher longer on Cherokee or Douglas Reservoirs (ignoring the increased risk of local flooding) without unacceptably affecting downstream locations. However, such preferential treatment would likely be objectionable to users of Nottely. For clarity, the Top-of-Gates at Nottely Dam is elevation 1,780. The 1,785 elevation referenced includes flowage easements.

45. [Recreation B] is a viable alternative; however once again those of us living on the tributaries need real numbers to make an informed decision. We all know that the 500-yr. storm inflow is only a subjective number since there have only been lake level history since the 1940's and weather keeping records only for less than 100 years so there is no real data to base a 500 yr level on. So what level does Douglas Lake need to be to hold this 500 inflow? **Anonymous, 4190**

Response to Comment 45: See Response to Comment 12.

46. Because of flood water in the last 3 years, I have lost about $20,000. They hold water in the lake to take care of these rich people. If you're going to flood us, then pay us for what we lose. There is no cause for this flooding. You could control the flooding if it is managed right. Instead of letting water raise in the lake, you could take care of the water without flooding. We are just as important as the lake side. I don't like to try to tell people how to do their job, but something got to be done. Our money running out. **Paul Howell, 4021**

Response to Comment 46: See Response to Comment 36.

47. I believe that the concern for flood control is overstated and is controlling the lake in an adverse manner not beneficial to all concerned, especially residents of the areas concerned. Anytime you raise water levels you will have an increase of flood concerns, however, look at recent flood situations, not 100 years, and you will find the concerns are not substantiated. Is a loss of power sales or a real concern of flood risks? Let the voice of the people be heard and respected as many who are involved have as much knowledge if not more than the elected officials involved. **Richard Rodriguez, 1338**

Response to Comment 47: It is correct that any time reservoir levels are raised, there is an increased risk of flooding. See Response to Comment 36.

TVA's flood risk analysis was based on extensive evaluation of the entire period for which good hydrologic data are available. Weather patterns are often cyclic, with both wet and dry conditions occurring in multiples of 2 or more consecutive years. Conditions over any period limited to several years are most likely representative of only a very small sample of the range of possibilities. If the last several years had been wetter than normal, the commenter's argument would suggest that pool levels should be reduced throughout the system. TVA's position is that the flood potential of any watershed is best understood by observation over a long period.

The flood risk analysis was conducted independently of the analysis of power costs. See Sections 4.22 and 5.22, where flood control and flood risks are addressed.

48. Flood control is critical; however the public in general places too much responsibility on government agencies, including TVA, for flood control. No matter what alternative is chosen, or what action's TVA takes, there will always be risk to those whose choose to live within the flood plain. There should be an education effort to help the public understand that. Mother Nature has the last word... NOT TVA! **Richard Simms, 2223**

Response to Comment 48: TVA and other agencies such as FEMA do try to educate the public about the risks of living in the floodplain. This EIS should contribute to that effort.

49. 7-Day 500-year inflow--what does that mean? Re**:** water levels? **Richard Smith, 4042**

Response to Comment 49: See Response to Comment 29.

50. Would like to see Kentucky and Barkley Lakes looked at separately concerning summer flooding impacts. **Roberta Baxter, 2046**

Response to Comment 50: Because Kentucky and Barkley Reservoirs are directly connected by a canal, any changes in pool level in one of the reservoirs necessarily causes

an equal change in the pool level of the other. It is unrealistic to conceptually separate these two projects.

51. It seems that this spring and summer have been a prime example of how to deal with high water levels due to all of the rain that we have had. We keep a boat on South Holston and would like to see the water level stay higher until labor day. According to your study it seems that this would cause a lot of adversity, but like I said earlier, with all the rain that we have had, I believe TVA could handle it. **Sherri Hinkle, 189**

Response to Comment 51: Flood control and flood risks are addressed in Sections 4.22 and 5.22.

52. I don't think the risk of flooding is any higher up to this point than it is throughout the summer. The real risk of flooding is not until water- absorbing grass, crops, trees and shrubs have gone dormant for the winter, especially from November on. **Steven L. Cook, 327**

Response to Comment 52 : Comment noted.

53. The TVA ROS will have a widespread impact across the Tennessee River Valley. The critical balance between electricity production, flood control, economic development and recreational opportunities all contribute to our excellent quality of life in this region. TVA's initial mission to control flooding is critical and should remain an extremely high priority--the protection of human life is paramount. **The Honorable Zach Wamp, U.S. House of Representatives, 3896**

Response to Comment 53: See Response to Comment 36.

54. When TVA went to a 500 year flood level basis, it was done for one reason..... An additional excuse for justification of lower lake levels. This ploy is too similar to the insurance companies new revised hurricane forecast table for the gulf of Mexico, for the sole purpose of justification of insurance rate increases. **Thomas G. Sandvick, 2659**

Response to Comment 54: The TVA flood control system was designed to provide effective reduction in flood risk for events much larger than the 500-year flood. The primary flood risk evaluation criterion used in the ROS specifies that substantial increases in flood risk associated with events smaller than the 500-year level are not acceptable. Using the 500-year event as a primary criterion to judge flood risk acceptability could be viewed as being less conservative than the flood risk criteria originally used by TVA to design the system.

55. This is our primary concern since the floodplain level indicated by Cherokee County (NFI) flood damage prevention ordinance adopted 2/2/89 was based on TVA/ONRED/AWR 85/25 dated August 1985. We can find no basis for raising the flood plain level as shown on elevation certificate #6558 issued at 1/23/95 was to be raised from 1577.00 to 1585.00 at 7/2/95. TVA has no record of any changes in 1995 or after. **Thomas L. Parker, 3995**

Response to Comment 55: As discussed in the September 3, 2003 meeting where this comment was made, there has been no change in the 100-year flood elevation on the Nottely River since the publication of the 1985 flood study.

56. I am primarily interested only in the Nottely River area near bridge #74 at Cook Bridge Road (NCSR 1596) in particular our lot No. 1 and the seventeen (17) lots along the Nottely river in The Preserve subdivision. Our biggest problem is to confirm that the base flood elevation data is realistic and correct, since TVA closely monitors the release waters on a daily basis. Our observations at our site indicate that the daily flood level is maintained about 13' to 15' lower than the EIS info. **Thomas L. Parker, 4056**

Response to Comment 56: The pertinent TVA Watershed Team will be asked to contact the commenter about this.

57. I have never seen a rain in winter raise the level anywhere near full pool and am certain that the winter low draw-down could be raised about 25 feet with no adverse flooding. Most of the volume of the lake is in the top part of the lake any way. The lake would fill up sooner in the spring if the winter draw down was not so severe. **Tom Murphy, 1537**

Response to Comment 57: TVA has considered several alternative operating guidelines for Nottely Reservoir that specify higher winter flood guide levels than those for the Base Case. Under TVA's Preferred Alternative, higher winter flood guide levels would be established for 11 tributary reservoirs, including Nottely.

58. What I'm concerned about is a lot of times this lake as of right now is a foot higher than it should be. It's a foot higher than normal. This is our rainy season. Right now it's coming up on our rainy season. I just feel like that this could be controlled a lot better. They know this water is coming, so why not pull it down a foot? Why do they have to leave it up to as high as it is right now? Especially, what is the reason, do you know, that it's a foot higher?

…I just feel like that TVA handled their end of this last flood very poorly. I feel like that a lot of that could have been prevented to a certain extent by controlling the reservoir. The reservoir -- that's what a reservoir is for is to control the water. They didn't do it. They didn't control their end of it. **Tommy Epperson, 4529**

Response to Comment 58: Due to the multi-purpose nature of TVA's system of reservoirs and the unpredictability of weather, pool levels in TVA reservoirs can ordinarily be expected to fluctuate 1 or more feet over short periods. When reservoir levels increase above flood guides, TVA acts to lower them as expeditiously as practicable—consistent with the protection of downstream areas from increased flooding and using available water to generate electricity.

59. Another thing that concerns me is why the Tom Bigbee Waterway down here is running at a 35 percent capacity when they could route some of that water down the Tom Bigbee Waterway. I understand that the Corp of Engineers and the TVA is two different forms -- I understand that the Corp of Engineers is a form of the government, but TVA is a different form. I can't see why that two big organizations like that can't work together enough in an emergency situation to dump that other 65 percent of water down that Tom Bigbee Waterway. **Tommy Epperson, 4532**

Response to Comment 59: The amount of flow released on the Tennessee–Tombigbee Waterway is determined by the amount of traffic that moves through the locks at Jamie Whitten Dam. Current use is well below the maximum utilization level. Also, the waterway does not have sufficient flow capacity to be used effectively in a flood control operation. USACE and TVA closely coordinate operations during flood events.

60. The other thing that I see in water releasing is below Nottely Dam there are about 30 to 40 properties that it may be in the best interest of TVA to buy those so that they wouldn't have to worry about flooding in this particular area. **Vincent L. and June D. Greaves, 4295**

Response to Comment 60: Those properties are located in the floodplain and are subject to flooding. However, operation of the TVA system does not exacerbate this situation and, in fact, provides them substantial protection.

61. Many times we hear about the water reservoirs protecting Chattanooga from flooding. Approximately two months ago, Chattanooga flooded. Well, what happened? What happened was the entire area received so much rain that you couldn't stop it from flooding. If you'd had ten more lakes up here, it wouldn't have made any difference.

Putting that in context, there are many times when those lakes would prevent that, but there's also many times when Chattanooga is going to get flooded because they did not put in flood prevention walls down there in the city. When this act went into effect back in the '30s, I believe they were directed to do that. And they assumed that Douglas and Cherokee and Norris lakes would prevent them from getting flooded, but they have found out since that's not necessarily so. **W. G. Cahoon, 4383**

Response to Comment 61: See Response to Comment 21.

62. Douglas Reservoir - We need clarification on what depth change occurs to provide for a seven-day, 500 year storm inflow. Was the 8 inches of rain in 36 hours this spring a 500 year storm? If so, the level change of 10 feet or so in spring had little effect, and less effect than the quick drawdown following the next week. **Wayne Gallik, 2915**

Response to Comment 62: The depth change associated with the storage of a given inflow volume depends on the initial reservoir pool level. For Douglas Reservoir, our analysis shows that the annual 7-day, 500-year inflow volume is about 475,000 day-second-feet, or about 940,000 acre feet. This is a volume equivalent to 3.9 inches of runoff (not rainfall) distributed uniformly over the entire 4,541-square-mile drainage basin above Douglas.

Most of the watershed above Douglas received between 2 and 4 inches of rainfall (not runoff) in 72 hours on May 5–7, 2003. Based on a review of our rainfall data, this was the most intense rain over the watershed this spring (and was not particularly unusual). It is possible that the event you describe occurred over a small area, but we have no data that show rainfall of that amount.

Power

1. Reservoir operations policy should not be changed to increase power prices for Valley residents so that a few wealthy property owners around reservoirs can increase their property values and have better views of the lake. They bought their lake property knowing that reservoir levels would drop in August and the price they paid for that property reflected it. I should not have to pay any more for my power so they can get a windfall when they sell their property. **Anonymous, 2678**

Response to Comment 1: One of the objectives in the formulation of TVA's Preferred Alternative was to reduce the potential cost impact on the TVA power system that occurred under the recreation-based alternatives in the DEIS.

2. Power - Learn more nuclear! When coal is gone, nuclei will still be around. **Anonymous, 3248**

Response to Comment 2: Comment noted.

3. Keep power rates low **Ben Robinson, 3982**

Response to Comment 3: See Response to Comment 1.

4. Restrictions on when TVA can pass water through it's hydro-turbines would result in the use of fossil fired power for peak power demands instead of the hydro-turbines! This ultimately comes back to the consumer as higher utility bills. **Clifford J Rabalais, 2287**

Response to Comment 4: Potential effects on the TVA power system are addressed in Sections 4.23 and 5.23.

5. I am not in favor of any option that would increase my power costs. I am not in favor of increased recreation that would increase noise, increased pollution, increased boat traffic. **David R Cook, 1522**

Response to Comment 5: Potential effects on the TVA power system are addressed in Sections 4.23 and 5.23.

6. TVA was created to create affordable power for the Valley. **Dean and Mary Jane Heavener, 2213**

Response to Comment 6: Comment noted.

7. When the TVA originated low cost energy to stimulate growth in the Valley was very important. Today the energy out of tributary dams is but a small part of the power used by our area according to my contacts at Blue Ridge Mountain EMC. **Doug Triestram, 1787**

Response to Comment 7: Although hydropower generating plants provide less than 15 percent of TVA's annual power generation in the average year, the water released from the reservoirs is also necessary to assure adequate cooling water for the TVA coal and nuclear power plants that provide the majority of TVA's generation. Reservoir releases for cooling water and other purposes are dispatched through hydropower units when it is most valuable, reducing reliance on higher-cost fuels during high demand periods.

Also, the operational flexibility afforded by the hydropower units for adjusting the system generation to changes in demand is critical in order to maintain the stability of the power system at a low cost.

8. Do not hold it up past Sept 1. I do not want my power bill to go up. We like to go boat riding and my husband likes to fish when he gets the opportunity. **Glenda Wade, 234**

Response to Comment 8: Comment noted.

9. My suggestion to TVA is on Cherokee Lake that they build a coffer dam at the bottom of the big dam; and the water they're spilling to make electric power, that they catch it at the bottom and recycle it, pump it right back up into the lake and use it over again. That way they don't have to lower the level of the lake as much as they do. Now, they tell me that they're doing this at other dams currently. So, they do have the program working elsewhere. I guess that will do it. **Gordy and Helen Reed, 4369**

Response to Comment 9: The type of plant that you are describing is known as pumped storage. The concept of pumped storage is that two adjacent reservoirs are connected by piping and a combination pump-turbine. Electricity is used to pump water from the lower to the upper reservoir, and electricity is generated when the water in the upper reservoir is released to the lower reservoir.

Due to friction in the piping, mechanical equipment, etc, energy losses occur during both generation and pump-back; and the electricity required to pump exceeds the energy produced during the generation cycle, making the process a net energy user. Because pumped storage is a net energy user, it is not a viable stand-alone source of electricity and is only beneficial in limited applications. Pump storage applications can be beneficial if, for example, the difference between the value of peak- and off-peak electricity is greater than the cost of the energy lost during the generation/pump-back cycle. The plant operator would pump during off-peak periods and generate during peak periods.

TVA has one such facility, the Raccoon Mountain Pumped Storage project, and one pump unit located at Hiwassee Dam. Cherokee Dam is not being considered for modification for a pumped storage project.

10. The benefit of hydropower to maintaining low rates can not be under stated. **H. Ray Threlkeld, 2252**

Response to Comment 10: Comment noted.

11. Our utilities are government regulated, yet we have a government agency competing with them. TVA contracts and provides electricity when it wants to. The private companies do it because they have to by government regulations. GA Power has a power lake within 20

miles of TVA Power Lake Chatuge. It is never pulled down anywhere near the levels of the TVA lake while generating power.

If TVA elects to stay in the power generation business, competing with the private sector, then it should study that sector's method of returning the water from the generators back to the lake. This prevents all water used for generating power from being lost down stream. Rather, it is pumped back over the dam and used again and again without affecting the lake level. **Harold Andrews, 2176**

Response to Comment 11: Chatuge Reservoir is a multi-purpose project. As such, its uses include a critical flood risk reduction role. Annual drawdowns in Chatuge Reservoir are driven in part by the need to provide the seasonal allocation of flood storage necessary for this purpose. The Georgia Power lake near Chatuge Reservoir is not used for flood control purposes. In addition, as decribed in Response to Comment 9, pumped storage is not suitable for all locations. Chatuge Dam is not being considered for modification for a pumped storage project.

12. It seems strange to me that when fall comes and power demands drop because we are between cooling and heating seasons and our power consumption falls at the lowest is when the TVA drops the water levels with much pretty weather wasted for recreation use. Boat docks and other related businesses suffer. **Jay Wise, 224**

Response to Comment 12: Fall drawdown of the reservoir system is driven by many factors, including flood control. The water is used economically for power generation while evacuating water to regain flood storage space.

13. Power is a great resource from the TVA dams but I would like to know why we sell power to the north and if that is the reason TVA drains the lakes down so early in the fall is to supply the north with power, without regard to what is does to the recreation and beauty of the lakes, **Jay Wise, 239**

Response to Comment 13: See Response to Comment 12. Currently, TVA is a net importer of power. Interchange of power at favorable rates with neighboring utilities is performed to help maintain a reliable and affordable power supply for TVA consumers. TVA balances its reservoir system operating objectives to provide multiple benefits. These include year-round commercial navigation, reduced flood risk, reliable and low-cost power, improved water quality and water supply, and recreational opportunities.

14. Power generation should be a byproduct of flood control and recreation, not the driving force. I believe that a higher lake levels would have a much more beneficial impact on the region. **Joe Brang, 877**

Response to Comment 14: See Response to Comment 12.

15. But if it requires that we lose some the privileges of being in a low rate electric area as a tradeoff for a little bit more water in the lake, I don't mind paying the extra bill. **LARRY SAMPLE, 4414**

Response to Comment 15: Comment noted.

16. Cooling Brown's Ferry reactor is not an issue [for higher winter levels]. My father was an engineer there for many years and the cooling line draws from the channel, which makes raising water levels for Brown's Ferry a non-issue. **Mark Cole, 2080**

Response to Comment 16: The reason that this ROS has proposed alternative operations that include higher winter levels on the mainstem reservoirs is to increase the depth of the navigation channel. The increased depth influences the navigability, size of barges that can used, barge travel times, and a number of factors that could reduce the cost of shipping goods on the commercial waterway of the TVA system. Higher winter reservoir levels are neither a hindrance nor aid to withdrawal of water for cooling the Browns Ferry Nuclear Plant.

17. Raising rates without FIRST or, CONCOMITANTLY, creating new jobs to sustain the population's ability to afford it would be unconscionable. **Pr. John Freitag, 985**

Response to Comment 17: The potential socioeconomic consequences of alternative operations policy are addressed in Sections 4.25 and 5.25.

18. Please increase your use nuclear power. **Ronald Huffaker, 933**

Response to Comment 18: Comment noted.

19. As a ratepayer in the TN Valley, I am especially opposed to any alternative that might increase my cost of electricity. **Stephen L. Keever, 1967**

Response to Comment 19: See Response to Comment 1.

20. Relatively inexpensive power rates have been one of TVA's most important goals. Any reduction in the ability to generate inexpensive power penalizes all TVA customers. Cost of generation must still be tempered by water and air quality. **Terry C Smith, 2961**

Response to Comment 20: See Response to Comment 1.

21. Labor Day would be a good start for maintaining summer pool, but why just to labor day? Why not until November 30th or after Thanksgiving? The potential for floods in the fall is minimal. Once the water level goes below full pool by 14 feet, the efficiencies of generating power is significantly reduced. In other words, you have to use more water to generate power when the lake levels are down. Also, with current power outages in the northeast, shouldn't we consider higher lake levels as an alternative power source in the event of power outages in the south? **Thomas G. Sandvick, 2665**

Response to Comment 21: While hydropower generation is more efficient at higher levels, some of the water must be released to generate power, which lowers water levels. TVA evaluated a range of dates for unrestricted drawdown of reservoirs, including through November 1, as well as holding reservoir levels constant year-round. TVA conducted a comprehensive flood risk evaluation, based on hydrologic data for the 99-year continuous period between 1903 and 2001, and supplemented by consideration of a large number of hypothetical design floods. This evaluation is described in detail in Section 5.22. The evaluation allowed TVA to rigorously investigate the potential changes in seasonal and annual flood risk at a large number of critical locations in the Tennessee Valley that were

associated with any given operations policy alternative. The Preferred Alternative satisfies the flood risk evaluation criteria established for this study. The results of the flood risk evaluation indicated that it is not possible to extend reservoir levels beyond Labor Day without increasing flood risk at some locations.

22. The delivery of low-cost reliable power to electric customers in the Tennessee Valley remains the primary interest of TVPPA and its members. Attainment of this critical priority requires using our region's natural resources, none of which are more important than the Tennessee River. Maximizing the value of Tennessee River system of reservoirs requires TVA policies that effectively integrate a robust, economical generation and transmission infrastructure with other beneficial river uses, including recreation. Considering TVA's critical role as the power supplier in the Tennessee Valley, TVPPA supports operating alternatives that maintain TVA's ability to provide low-cost, reliable power. **TVPPA, Richard C. "Dick" Crawford, President & CEO, 4233**

Response to Comment 22: TVA formulated a Preferred Alternative in an effort to achieve what this comment suggests.

23. I want Tennessee Valley Authority to meet the rates of Kentucky Utility. I think they should be able to compete. TVA has 6.40 cents per kilowatt hour. Kentucky Utility has 4.29 cents per kilowatt hour. And that's from the source Tennessee Valley Authority, out of the News Sentinel. **Winona and Hilton Tunnell, 4373**

Response to Comment 23: TVA has evaluated the potential effect of alternative operations policy on the TVA power system. See Sections 4.23 and 5.23. For a number of reasons, average rates on the Kentucky Utility system are lower than TVA's, including proximity to low-cost coal supplies and reduced transportation costs. Apart from the ROS, TVA is developing a strategic plan that will help maintain TVA's competitiveness in the electric utility industry.

Recreation

1. Lake Chatuge--Your recent allowing launching from Hwy.64 is Dangerous, unnecessary, and loads up heavy boat traffic which erodes private and TVA shoreline. Waters are flooded with loud jet ski boats racing back and forth in a small lake channel. BESIDES, there is an EXCELLENT dual concrete launching ramp about a mile away on Ledford Chapel Rd. where parking area, safe wide lake waters, etc. has been present for 30 years. On NC lakes, your present early drawdown reduces fishing & recreational use--mainly to help the barge navigation up to Knoxville--not fair! **Andrew J. Dickerson, 2394**

Response to Comment 1: TVA manages water to achieve a variety of purposes, including flood control, navigation, and power generation, as well as for recreation and water quality. The primary reason that TVA seasonally adjusts reservoir levels is for flood control, not navigation. See Sections 4.22 and 5.22, which address flood control issues. The commenter's concern about boat launching from Highway 64 has been referred to the pertinent TVA Watershed Team for an answer. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions—including Chatuge.

2. We are in favor of limited population growth on the shorelines of Hiawassee River/Lake, but USFS has a neglected campground on/near the lake that should be analyzed for possible contamination of the lake. Restrooms are simply port a pottys that overflow, smell bad, and are basically unkept. Private enterprise might be suggested to USFS on TVA Lake protection of the waterway. **Anonymous, 623**

Response to Comment 2: We will pass them on to our Murphy Watershed Team, which works with other agencies on this type of problem.

3. I realize there are a lot of issues to consider, however recreation is very important to a great many people and financial gains are not always the answer **Barbara Cavagnini, 542**

Response to Comment 3: One of the driving issues that prompted the ROS was stakeholder concerns about the decrease in reservoir levels between August 1 and Labor Day, and the effect this has on recreation use and property values. Recreation issues are addressed in Sections 4.24 and 5.24. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions.

4. Another thing I would like, I would like to see the recreation vehicles kept out of the closed-in coves because they are tearing up my land. I moved here 15 years ago and I have lost over two foot of land **Bart Dastolfo, 4488**

Response to Comment 4: The State of Tennessee's Wildlife Resources Agency (TWRA) is responsible for managing watercraft on Tennessee's water. TWRA has a regional office in Morristown (1-800-890-8366).

5. All other issues are "nice to have's" but incidental in my opinion. Recreation, especially is questionable to me. The emphasis on recreation may be affecting our environment negatively through large boats on our waterways, personal water craft and water pollution. **Betty M. Fulwood, 2294**

Response to Comment 5: Comment noted.

6. Congress has considered legislation to encourage TVA to consider recreation more prominently in it's operation, but I would hope that the Board would choose to move aggressively, rather than being forced by Congress.
As home owners on Blue Ridge, we have mixed feelings about more recreation as that means more pleasure boats on the lake. However the consideration to keep levels higher at least thru Labor Day would greatly benefit the economics of the Blue Ridge area. **Bob Harrell, 1687**

Response to Comment 6: See Response to Comment 3. Blue Ridge is one of the reservoirs that would benefit under the Preferred Alternative.

7. Lake level fluctuations make operating a marina way too difficult, unpredictable and unprofitable. **Carl Lakes, 965**

Response to Comment 7: TVA fluctuates reservoir levels seasonally and weekly for a number of reasons, including flood and mosquito control, as well as power generation. See Sections 4.24 and 5.24 for a discussion of recreation issues.

8. The recreation survey gives a biased view of reservoir-based recreation, as it fails to address wildlife-oriented recreation such as hunting and wildlife viewing. These recreation activities occur at public, commercial, and private sites, on reservoir waters and shoreline lands, and on mainstem reservoirs, tributary reservoirs, and on tailwaters. These activities have a growing economic impact, and both participation rates and expenditures likely exceed several of the recreation activities included in the survey. The recreation analysis fails to address the full spectrum of potentially affected recreation activities. **Charles P. Nicholson, 2889**

Response to Comment 8: The ROS was a system-wide analysis of 35 reservoirs. The recreation evaluation of that system was an effort to evaluate total water-based recreation use of 35 reservoirs. Over 4,500 interviews were conducted at pubic boat ramps and beaches, over 2,000 households on the shoreline were surveyed, and approximately 200 commercial recreation providers were surveyed to determine the most important recreation activity for any given trip to the reservoir. These interviews took place on reservoirs from Watauga, Tennessee; to Nottely, Georgia; to Guntersville Alabama; to Kentucky Reservoir. The results of those interviews, and the subsequent models developed from the interviews, were used to estimate recreation use and the potential effects of alternative operations policy on recreation use.

Because it was a system-wide evaluation, the models are not specific to specific reservoirs or recreation activities. It is possible that waterfowl hunting and late-fall bird watchers were underrepresented in the sample because interviewing and recreation counts were completed by mid-October. These data provide the most accurate water-based recreation picture of the TVA system. However, the potential for underestimating recreation use has been considered qualitatively.

9. Human paddle sport is becoming more and more common. Pay attention to this sector. Would like to see TVA cooperate in constructing portage routes around dams such as Fontana to enable multi-day trips by paddlers. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3098**

Response to Comment 9: Comment noted.

10. TVA and Tapoco lakes are being used by paddlers more. Constructed routes around the dams, making portage possible, and multi-day trips is highly desirable. APGI has consented to construct portage routes around Lakes Cheoah, Calderwood and Chilhowee. A portage route around Lake Fontana would make a wonderful multi-night trip available beginning somewhere around Bryson City on the Tuckaseegee River or even the Little TN River at its confluence with Lake Fontana. **Charlotte E. Lackey for WNC Group, NC Chapter, Sierra Club, 3106**

Response to Comment 10: The objective of this EIS is to determine whether changes could be made in TVA's system-wide operations policy in order to provide overall greater public value.

We are working with the Regional Resource Stewardship Council to examine TVA's recreation strategy. Because we have limited funds to invest in capital improvements, such as portage routes for paddlers, we currently give highest priority to investments with partners who have committed to fund part of the capital cost and assume responsibility for long-term maintenance. Groups interested in presenting partnership proposals to TVA should contact the local TVA Watershed Team. More information about these teams can be found on TVA's website at www.tva.gov/river/landandshore/index.htm.

11. There is also a safety concern. Many people who are weekend boaters do not see the change in the water level. They are not aware that last week there was 6' of water, and now there is less that 2'. The small inlets are fun places for people to play, but when the water goes down early, they become hazards. **Chip Miller, 1393**

Response to Comment 11: TVA recognizes that, on certain reservoirs and in areas of certain reservoirs, submerged hazards may become more problematic to boating safety when the reservoir is drawn down. Typically, this situation occurs at a time when the majority of the recreating public has reduced their use or stopped using the reservoir. No recreation activity is 100 percent safe. TVA makes an effort to mark particularly hazardous underwater obstructions; in the final analysis, however, it is the responsibility of individuals to be aware of the conditions under which they participate in recreation activities.

12. I believe that the stakeholders should embrace recreation as much higher valuable factor in future system management. **Chris Offen, 2328**

Response to Comment 12: Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions.

13. As a whitewater paddler, I request that reservoir releases be PLANNED in advance whenever possible and that current release data be available online or by telephone for as many navigable waterways as possible. I request that fall draw-down releases be conducted during daylight hours and with flows suitable for recreational uses. I appreciate the variation of these releases as this creates a more natural river environment than one sustained level at all times.

Please consider the importance of recreational information and releases on the Ocoee, Nantahala, Tallulah, Pigeon and Dries, Great Falls Hydrostation, and other popular whitewater streams that make the Southeast such a great place for paddlers to live, work, and play. **Clay Wright, 665**

Response to Comment 13: Under TVA's Preferred Alternative, TVA would schedule releases from a number of dams in order to enhance tailwater recreation. Call 1-800-238-2264 to obtain information about scheduled or planned releases.

14. The use of the lakes by fishermen and other persons who enjoy being on the water is a wonderful thing. In reality, the use by the majority of the users has nothing to do with the lake levels. I live in a Marina. The lakes are nearly empty after Labor Day every year and before Memorial day every May. There will be a big surge of folks coming to the lake when the weather first gets warm. Then immediately after school lets out, and the kids are free,

between Memorial Day and the end of June there is a lot of recreational activity on the lake. By late June a lot of folks have gotten tired of "going to the lake"and the crowds diminish greatly. There will be a surge of folks for the week of July 4th, then the activity drops off again. August is generally considered "too hot"so there are not a lot of folks coming to the lake. The last week of August before school starts, a lot of people come to the lake for the ""last week of summer"". There will be a surge again for Labor Day, but by early September the lakes are nearly empty again.

This cycle has repeated itself every year. Rain and cold have a lot more to do with the number of folks who use the lakes for recreation than anything else. **Clifford J Rabalais, 2288**

Response to Comment 14: This pattern is generally close to many reservoir recreation use patterns. The ROS was an effort to quantify that pattern and the contributions that reservoir levels have in creating that pattern. When asked why people stopped coming to the reservoirs, the most common answer was the air temperature was either too hot or too cold.

15. At the present time there's a real serious situation relating to watercraft safety in and out of our cove, located between lake markers 6 and 7. Both types of boats, especially jet skis, are creating a very serious problem relating to boat safety and shoreline erosion. Extreme watercraft speeds are wearing away the shoreline and may eventually cause a future serious accident. We are recommending that a No Wake safety bouy be located at the cove entrance to warn boaters about boat speed. Decreasing boat speed will hopefully decrease shoreline erosion. That's where we are with the situation. **D. C. Wenberg, 4410**

Response to Comment 15: TVA employees from the Hiwassee Watershed Team in Murphy, NC, can help the commenter to assess the shoreline erosion problem. However, it is the Georgia Department of Natural Resources' responsibility to establish no-wake zones and regulate boating use.

16. Also during high water months, there is an increased risk for recreational boating along the Lower Mississippi River due to the fact that recreational boaters are unaware of the swift water conditions and are simply unable to or do not know how to react in certain situations. **Eddie Adams, 3034**

Response to Comment 16: Comment noted.

17. I live in view of South Holston Lake. I enjoy fishing all year long. During the winter months it is impossible for me to launch my boat from any boat ramp near by. Avons mill, Washington County, Observation Knob are boat ramps that are useless during the winter months on South Holston Lake. **Edward J. O'Neill, 683**

Response to Comment 17: If the commenter has similar problems in the future, it is recommended to use the TWRA ramps on Highway 421. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions—including South Holston.

18. However, many of the complaints from residents about water levels are actually about water access during recreational seasons (April 1 through October 31). Other than higher

water levels increasing property values, most residents do not utilize the reservoir for recreation after the above mentioned date **Edwin D. Breland, Jr., 2451**

Response to Comment 18: Comment noted.

19. I am a whitewater enthusiast. and while I am not very versed on many of the particulars of land and river management, I do know that I love to paddle. It is my favorite thing in the world!! I first learned on the Ocoee river and I thought that was the only place people kayaked in the world, back in the '90's. Since then, my eyes have been opened, all from my experiences on the river! I have traveled the country, I follow politics so that I may not lose this privilege. I have become VERY aware of water quality and have interest in its improvement. I have made a decent living at recreation on TN rivers, and I have gotten to see some of the most remote and beautiful places in our state. Please take people like me into consideration when you make your decisions regarding recreation and water. recreating on water has changed my life for the better! I believe it improves the economies and lives of many others as well. **Amy Elizabeth Walters, Asheville, NC, 2095**

Response to Comment 19: TVA is concerned about both reservoir and tailwater quality. Eleven tailwaters were modeled to evaluate the Base Case and action alternatives. Tailwater quality was an important metric in the threatened and endangered species analysis. Temperature, DO, and water surface elevation were evaluated for the tailwaters.

Additionally, some of the reservoir metrics were chosen due to their potential impact on tailwater quality. For example, the Base Case and alternatives were compared for their potential to form anoxic (very low DO) conditions at the bottom of the reservoir. Under these conditions, manganese and iron in the bottom sediments may dissolve into the water. When this water is discharged into the tailwater, brown stains may appear on the rocks and shoreline downstream. Therefore, an alternative with better DO in the reservoir would result in better conditions in the tailwater.

Regardless of the alternative chosen, TVA is committed to maintaining the existing DO targets in the tailwaters. This may lead to adding aeration capacity at some sites. TVA's cost of additional aeration was included in the cost analysis. Under TVA's Preferred Alternative, it would schedule releases into a number of tailwaters to help enhance recreational use, including paddling.

20. In essence, the reason for increased duration of full pool is not valid! The recreational boaters and swimmers essentially start their season on Memorial Day weekend and vacate this reservoir after Labor Day. Fishermen make up the bulk of water recreationists at other times of the year, with several waterfowl hunters coming into the picture during September, November and December. The proposed alternatives that suggest full pool for a longer time frame have the potential to severely impact these users of the reservoir. **Gary D. Jenkins, Buchanan, TN, 2108**

Response to Comment 20: The reservoir system is used by people with different, and sometimes competing, objectives. The EIS presents a range of alternatives. TVA's challenge and goal is to select an alternative that improves overall public value of the reservoir system.

21. How is it not one alternative has a beneficial, yet a substantially beneficial advantage to recreation, according to your study? **Greg Batts, 2738**

Response to Comment 21: When evaluating the increase or decrease in recreation use associated with the various alternatives, TVA focused on the changes in recreation use that were estimated for August, September, and October. Reservoir Recreation Alternative B and the Tailwater Recreation Alternative showed an estimated increase in recreation use of over 23 percent for this period. When compared to recreation use for a 12-month period, however, the increase is only 7.4 percent.

22. There are lots or unmarked, very dangerous stakes and rebar that have been placed in the water. These objects could cause serious damage to water craft and injury to boaters and others using the water for recreation. What are the laws/policies about placing such dangerous objects in the water? Is anything being done to remove these objects? And if nothing is being done, why not? **H. Lee Fleshood, 2864**

Response to Comment 22: Under Section 26a of the TVA Act, TVA approval is required before obstructions can be placed in a reservoir. Our permits require that structures be kept in a safe condition. Unauthorized structures, such as fish attractors or duck blinds, that are built can pose a hazard. As resources are available, TVA does remove derelict facilities and mark hazards. Other federal and state agencies are also involved in boating safety.

23. We realize the need to continue the current cooperation between TVA and the rafting organizations in our area. Having appropriate water levels for the fishermen and rafters alike are an important aspect of the tourism and recreational opportunities that support our local economy.

The need for cooperation and support between Fannin County, State and Federal Governments are necessary for the quality of the growth in our area. We need to continue to build on the collaboration between TVA, US & GA Fish & Wildlife, USDA (Chattahoochee/Oconee) National Forests, GA Dept of Natural Resources and the GA Dept of Transportation. It is imperative that we continue and enhance the cooperative efforts on projects through the research, funding, design, and implementation stages. Working together with all of these organizations will insure the enhancement of the tourism and recreational opportunities around the Blue Ridge Reservoir and the entire Fannin County area.

We are respectfully asking for your consideration of all these alternatives. The additional revenues realized would provide an economic stimulus to our local municipalities, our county and the TVA region. We hope you will examine these options in the final adoption of policies for your Reservoir Operations as it pertains to Fannin County. **Jacquelyn O'Connell, 3802**

Response to Comment 23: TVA works closely with county and state governments, as well as federal agencies to promote recreation and economic development. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions—including Blue Ridge—in order to enhance recreational opportunities.

24. We need more parks bike paths, recreation areas and similar high touch areas to attract tourism. TVA also has property on these area lakes that will also be more useful. **Jerry Huskey, 2488**

Response to Comment 24: We addressed the impact of the various alternatives on water-based recreation on 35 projects (reservoirs).

TVA is working with the Regional Resource Stewardship Council to examine TVA's recreation strategy. As part of this effort, we are examining recreation trends. Our evaluation thus far shows that walking for pleasure is attracting a growing number of participants. The recreation strategic assessment will help us better determine the most beneficial role for TVA in meeting future recreation demands.

25. There seem to be two competing areas of recreation**:** Whitewater rafting, and lake boating. I feel the revenue benefit of increased rafting would only benefit the limited number of tour operators. Lake boating would benefit more of the general public. **Jim Mootrey, 1995**

Response to Comment 25: Recreation and recreation-based economic effects are addressed in Sections 4.24, 4.25, 5.24, and 5.25.

26. I also want to see the ramps improved so that they can be used when the lake is less than 5 ft. from full. **Jim Wood, 2317**

Response to Comment 26: The ramps at Clay County Park, Chatuge Woods, Towns County Park, and TVA's Dam Reservation should all be usable in the range of elevation the commenter mentioned. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions—including Chatuge.

27. There has been no analysis of the impacts on waterfowl hunters and birders associated with increased water levels adversely affecting flat habitat. There will also be adverse impacts on crappie fishermen due to a loss of button ball brush habitat used for spawning. **John Taylor, 2746**

Response to Comment 27: Additional information about potential impacts on these resources has been added to the FEIS. See Sections 4.10 and 5.10.

28. I live locally to South Holston and use the lake quite often. After the first of August we usually quiet using the lake due to so much mud around the shore line. This is very hard on a boat and has almost ruined mine. **Kevin Abel, 294**

Response to Comment 28: One of the driving issues that prompted the ROS study was stakeholder concerns about the decrease in reservoir levels between August 1 and Labor Day. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions, including on South Holston.

29. Whatever changes TVA considers, please realize the vital importance of BASS tournaments to the Columbus region. This year we've hosted 5 major tournaments this year. Each one brings over 250 boats, pumping $1.5 million PER Tournament. Tournament

hosting is a growing area for B.A.S.S./ Bassmasters/ESPN. Others host smaller tournaments that also contribute. This is a significant shot in the arm to the local economy. At a 3x multiplier this represents a MAJOR contribution to our economy. 7% of this is sales tax. Next year in Columbus we will host 7 MAJOR fishing tournaments with additional sponsors looking. Recreation is a serious, significant component of the picture in the Columbus area. Please be certain that any considered changes recognize this. **Larry Turman, 3425**

Response to Comment 29: Comment noted.

30. Many fishermen think that they will be able to motor through the sloughs at will in the winter if this takes effect, but soon the number of just submerged boats hung on stumps will become an issue. Adding two feet of water will have serious consequences to boaters, as stumps that normally are out of the water in winter pool, or deeper in summer pool, become just out of site, but within the draft of a boat. It is an invitation for disaster. **Mark Cole, 2079**

Response to Comment 30: See Response to Comment 11.

31. This category is given too much significance in the evaluation. Recreational "needs" are frivolous and should be regarded as secondary to the primary functions of the TVA system. The greater community served by TVA shouldn't have to bear any extra cost or risk to satisfy the demands of recreational users of the system. Let them adapt to the schedule determined by the primary functions of TVA. **Michael Sledjeski, 2967**

Response to Comment 31: Comment noted.

32. Any increase in water level during Winter Pool would be very much appreciated for the LAUNCH areas of Ditto Landing and Whitesburg Boat and Yacht Club (WBYC) which is at mile marker 334. The rationale is that both harbors are in need (especially WBYC) of dredging. In fact WBYC cannot launch boats during the current winter pool. WBYC is teaming with DITTO for dredging needs; however, neither marina will have the proper funds to perform such a task this - year 2003. I will close for now with more to come and I appreciate your time and energy towards a worthy cause. **Mike Jankowski, Fleet Captain (WBYC), 2430**

Response to Comment 32: Thank you for the comments. Changes in winter elevations on mainstem reservoirs have been evaluated as a part of this study. Under TVA's Preferred Alternative, the minimum winter elevation on Wheeler Reservoir would be raised 6 inches. Unfortunately, unacceptable impacts on flood risk precluded raising winter levels on other mainstem reservoirs as part of TVA's Preferred Alternative.

33. At this time I am requesting an answer from you on one of your studies concerning recreation and the levels and drawdown of the lake. In particular from your study, Recreation 4.24.1, the last paragraph and the footnote**:** You state that you made your study on 19 recreation areas and usage out of a total of 70 properties, representing public, commercial, and private recreation areas. Using that small a number of areas is bad enough as a representation, but your footnote is even worse. You state that a user day is equivalent to a recreation day as a visit by one person for recreation purposes in a 24 hour period. That is a total of nineteen people, am I right? You refer to that as a study? How many people go swimming, boating, etc., alone? How about boating? Usually one person

in a boat? Fishing? The fishing business certainly would not be able to stay in business if they rented only one boat, etc., a day. This is just a few questions on one category. **Mr. and Mrs. Schaffer, 4054**

Response to Comment 33: TVA organized the 35 projects (reservoirs) under review in ROS by type of reservoir, character of reservoir, and level of recreation use. TVA then conducted recreation surveys on 13 entire reservoirs and tailwater areas, and field interviews and recreation user counts at 121 recreation areas on the 13 reservoirs and 6 tailwater areas, for a total of 490 person days spent in the field collecting data.

TVA input the survey results from 4,587 different groups of people to generate results from the "trip response" model and the economic model. In addition, TVA sent questionnaires to approximately 200 commercial recreation operators on the reservoirs and tailwaters. Finally, TVA used the results of 2,200 questionnaires from private homeowners to estimate recreation use and behavior of private recreation users. TVA retained national recreation experts with experience in designing and carrying out recreation studies to lead this effort. The analysis of recreation issues done for this EIS was comprehensive and state-of-the-art.

34. I am surprised by the findings that Alternative A and Alternative B would only be "slightly beneficial to recreation. After seeing the growth along the TVA system over the last 16 years, I would think the benefits of recreation to the reservoirs would be greatly beneficial to the counties housing these reservoirs. **Nanette M. McCarthy, 2207**

Response to Comment 34: The growth you are describing is occurring without extending summer reservoir levels and is driven by population, increased incomes, and the desire to be on the reservoir—even one with fluctuating water levels. The majority of recreation use occurs during the May through July 4 period, and holding reservoir levels higher into Labor Day or longer would have a limited effect. From a regional economic standpoint, the more important recreational expenditures are those that come into the region from the outside and this is what TVA's economic analyses captured. The regional economy benefits regardless of whether a regional resident elects to spend money on recreation at a TVA reservoir or on shopping at the local mall. See Sections 4.25 and 5.25.

35. I'm a member of the lake watch at Pickwick and we've been working with TVA now to organize a lake watch on Pickwick and we're putting it together. We have about 100 signed up on it now. We plan to have one of the best lake watches on the entire system. I just wanted to make some comments about TVA, things they've done in the past and maybe about some changes that they may be going to make to it. **Roger Gant, 4533**

Response to Comment 35: Comment noted.

36. The other thing that I question is on your numbers. On your Recreation A, for improving recreation on reservoirs and tailwaters, you have a number here of 1.34 million user days. As I see it that's an increase of 20 percent. It would read better if it was added onto the base of 6.57, giving us a total of, a real number, of 7.9 million user days. And the same goes with reservoir or Recreation B. That 1.54 should really read 8.1 million user days. **Ted Bollman, 4378**

Response to Comment 36: Because there is no specific reference, it is unclear whether the commenter is referring to one of our visual presentations or the EIS document.

However, Table 5.24-01 lists the specific numbers the commenter identified and Section 5.24.4 includes a verbal description of the percent change of the various alternatives. In addition, Table D8-07 in Appendix D8 has the specific numbers and percents listed together.

37. We are also concerned and surprised that wildlife-dependent recreation activities including hunting and non-consumptive wildlife viewing are generally ignored in your recreation analyses, even though they are often directly dependent on reservoir waters. Based on results of the 2001 National Survey of Fishing, Hunting and Wildlife Associated Recreation, these activities are likely more popular than several activities your survey did address. Therefore, we question the results of your survey and the dependent recreation impact analyses. **Virginia B. Reynolds, President, Tennessee Ornithological Society, 3793**

Response to Comment 37: See Response to Comment 8.

Social and Economic Resources

1. The reasons being, Marshall County's #2 industry that contributes to our economy is "tourism". It would be of great economic impact to our community to have the water levels lowered at a later date at less drastic levels than it is currently operating under, which in turn would expand our tourism season thereby contributing more to our community and providing more dollars to our community. If used wisely these dollars will contribute to a better way of life for all citizens. **Anonymous, 2801**

Response to Comment 1: USACE expressed concerns about changing operations on Kentucky Reservoir because of the potential effect on the lower Ohio and Mississippi Rivers. Its position is that any proposed changes that would involve reduction in flood storage capacity would need to be evaluated within the context of the entire lower Ohio/Mississippi River system. In addition, USFWS, other agencies, and individuals voiced concerns about changing operations on Kentucky Reservoir. TVA did not include changes to the operating guide curve for Kentucky Reservoir as an element of its Preferred Alternative.

2. The need for revenue, which I believe is the reason you are using the water, can no longer be a rationalization for doing so. As more and more expensive homes are built on the Douglas reservoir there will most decidedly be a bigger tax base for the counties. Since the county affords little to these homes TVA should look into the trade off of less taxes to the counties and more water to the owners. Simplistic to be sure but a half century of doing things one way could certainly be modified if people got their heads together. **Anonymous, 554**

Response to Comment 2: This study analyzes whether it is possible to increase the overall public value of the TVA reservoir system by making changes in reservoir operations. TVA operates its reservoir system to achieve a number of goals including, primarily, navigation, flood control, and power generation. The first two priorities are not related to producing revenue. Socioeconomic issues are addressed in Sections 4.25 and 5.25.

Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Douglas.

3. TVA is a business, in your study you do not address the impact on TVA operating costs of any of the alternatives. My understanding is that you as an entity have been running at a substantial deficit for many years. Your baseline does not appear to address that problem and the new alternatives do not factor that in as beneficial or adverse. I think that if study participants knew what the cost advantages/disadvantages are they may have a different viewpoint on the best approach.

As a note; AMTRAK has been a federally funded operation for years that Congress is now seriously considering selling off because it has accumulated such huge cost overruns. I would think that prudence would dictate that a healthy operating business model should also be a operating goal for TVA and that it should be included in this EIS. **Anonymous, 2441**

Response to Comment 3: The economic analysis for each alternative is the net effect of economic drivers and includes an estimate of the gain or loss as a result of generating power. This is presented in Section 5.3. All these alternatives increase the cost of generating power—some more than others. TVA formulated its Preferred Alternative, in part to reduce the potential cost impact on TVA's power system compared to other alternatives that enhanced recreation opportunities.

4. I also believe that benefits assigned to recreation have been severely undervalued by the study team **Anonymous, 2013**

Response to Comment 4: TVA retained nationally recognized experts with experience in designing and carrying out recreation studies. Economic analysis regarding recreation was based on expenditure data provided by survey data of recreationists at various locations around the region participating in water-based recreational opportunities. A separate mailed survey to lakeshore property owners provided increased expenditures for those who would live in the area longer if the lake levels were held up longer. Surveys included restaurant, hotels, automobile rentals, and other related consumer spending. The analysis did not include expenditures from regional residents, only those coming from outside the region. Although local effects might be higher, TVA is looking at the regional economy for a determination of whether changes could benefit the overall public value of its regionwide reservoir system.

5. Most of the homes located on Douglas Lake only have lake access 3 months out of each year these homes are taxed as lakefront but 9 months of the year we don't even have lake view. **Bernard Johnson, 297**

Response to Comment 5: TVA does not set the rates at which property is taxed. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day,

resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Douglas.

6. I attended your workshop at Gilbertsville recently. I understood that your economists came up with about 65 million dollars for the value of recreation on all TVA reservoirs. That strikes me as incredibly low. We discussed some of the things that were not deemed to be an economic impact and these economists surely don't think the way most of us do!! I would have expected the economic impact to be one or two orders of magnitude larger than the value given. Just an example, they didn't consider money spent playing golf or other recreation to be an impact even though the people were attracted to the area by the lake. And people who live here have no economic impact even though the lake may have attracted them and keeps them here? I could go on with other examples! **Bob Holdman, 2589**

Response to Comment 6: Recreational economic benefits were estimated based on survey data of customers at facilities located on reservoirs (recreationists at locations where water-based recreation is the primary activity), marina operator customers, and reservoir property owners. The survey provided the estimate of changes in water-based recreation spending but not what is spent in the Tennessee Valley region for all types of recreation.

The property owner survey sampled residents to determine whether they would spend additional time and funds in excess of what they do now (Base Case), if reservoir levels were maintained at summer pool longer. Their response provided information on expenditures for consumer goods, gasoline, groceries, and other items related to property owners. Therefore, property owners responses were included in the recreation spending gathered through the study.

Also, note that the estimate for recreation spending is the net increase, not the total spent on recreation. See Section 4.25

7. It seems like in the economic analysis that they didn't really address how lake levels on Kentucky Lake negatively impact the economy by people who live here or people who have bought a second home here deciding to leave because of their frustration with lake levels being lowered so quickly in the fall. And so the economic impact doesn't address the economic loss if I go elsewhere.

Also, when I participated in the survey. It addressed me and my family, but it didn't address that the last two weekends I've had 20 people each weekend down here with me, eating out at restaurants and spending money on the lake, and those people won't be coming down if I leave because I'm so frustrated with lake levels **Brian Keister, 4522**

Response to Comment 7: See Response to Comment 6.

8. I do not understand the "slightly adverse" label that has been placed on the job category. The video stated that jobs would be slightly effected but it failed to mention what types of

jobs, how many jobs, and what exactly "slightly adverse" means. **Charles and Kristie Wallis, 1171**

Response to Comment 8: A "slightly adverse" effect on jobs means that the number of jobs in the region would be slightly less than under the Base Case in the year 2010. For a region with 6 million jobs in 2010, the loss for Reservoir Recreation Alternative A would be 43 jobs, a very slightly negative number. The impact of any alternative with a job loss of less than 1,000 was considered slightly adverse. The impact of any alternative with a job loss of more than 1,000 was considered adverse. Types of jobs vary across the economy and include industrial, business, retail, and agricultural.

9. Attended Blairsville meeting - interested in new paradigm for evaluation economic value. **Chris Offen, 3867**

Response to Comment 9: Comment noted.

10. As I understand the econometric model it seems to me that the economic benefit of higher lake levels and therefore better recreation has a negative bias from the beginning. The benefit coming from recreation is highly fragmented and impacts many sectors of the local economy which is hard to quantify. This challenges the TVA decision making in wondering whether the recreational value is underestimated. If this is so then alternatives may be favored where the driver is something other than recreation i.e. navigation and/or power. I would ask TVA decision makers to favor recreation more intensely than seen in recent years. **Chris Offen, 2326**

Response to Comment 10: The economic modeling for the ROS analysis was conducted with REMI, the regional economic impact analysis model most widely used in the United States and Canada. The economic relations designed in the model are well documented and the result of considerable research over many years. The REMI model was programmed for TVA by its creators, Regional Economic Modeling, Inc., using methodologies and assumptions consistent with existing economic thought and conditions. The economic outcomes of the various alternatives were derived by comparing the Base Case (existing conditions) with the changes to the economic drivers that result from changes in operations. The economic drivers were recreational spending, consumer spending resulting from changes in property values, shipper savings from commercial navigation, the cost of hydropower, and the cost of water supply. The model calculates the indirect, as well as direct, effects of the inputs; therefore, spin-off effects are captured in the analysis.

There is a description of the REMI model in Appendix C of the DEIS, and Section 4.25 contains descriptions of the economic drivers. Under TVA's Preferred Alternative, recreation opportunities would be enhanced by a longer duration of higher pool levels under median conditions on a number of reservoirs.

11. I have lived and worked along the lower Mississippi River, and in Houston, Texas along the ship channel. These areas are full of industrial facilities. While they may not be pretty, they provide the good paying jobs for a LOT of people. The Tennessee Valley area has some areas of economic growth, because of the access to water, and water borne commercial traffic. The ability to maintain commercial barge traffic is essential for the economic health of this area of the US. **Clifford J Rabalais, 2286**

Response to Comment 11: Comment noted.

12. Most of the people who come to the lakes, spend money on the recreational equipment, spend money on coming to the lake, and people who spend money to buy property on the lake all have jobs. Jobs that are supported in some form or fashion by the industrial base in the US, and particularly in this region.

Restrictions on TVA lake levels based on recreational activities is not only ludicrous, it is self defeating! **Clifford J Rabalais, 2289**

Response to Comment 12: Effects on jobs in the region is one of the key factors to be considered. The economic analysis showed that, under Reservoir Recreation Alternatives A and B, and the Tailwater Recreation Alternative, power costs and its effect on industrial, commercial, and residential customers—as well as shipping costs to businesses—would have more effect on the economy through loss of jobs than jobs created, due to increased recreational opportunities on a regionwide basis.

13. It is difficult to grasp that Summer Hydropower would actually increase the cost of electricity generation (albeit a tiny amount), while Commercial Navigation would actually decrease it. It is also difficult to grasp why Tailwater Habitat would cause such a large increase. **Colman B. Woodhall, 333**

Response to Comment 13: The Summer Hydropower Alternative would decrease navigation channel depth, which would increase the cost of shipping coal to TVA plants. System operations for the Navigation Alternative would be similar to the Base Case but would reduce TVA's shipping costs because of increased navigation channel depths. The Base Case already uses available water to achieve as much value as possible from hydropower generation, consistent with the constraints on the use of that water. Under the Summer Hydropower Alternative, TVA would change the start date for unrestricted drawdowns from August 1 to June 1, the date that existed before the changes made following TVA's 1990 Lake Improvement Plan study. This would make more water available for generation during summer months but would decrease hydropower generation in fall. Power costs would increase for this alternative due to additional coal derates, additional aeration costs, and higher coal shipping costs. Maintenance of tailwater habitat prohibits the use of the hydropower units for peak power production, thereby resulting in large power purchases.

14. Look to the western NC mountains or Lake Burton in NE Georgia as documentation of what happens. **Colman B. Woodhall, 349**

Response to Comment 14: The mountain areas in western North Carolina in the Tennessee River Watershed were considered in the economic analysis, including Watauga, Mitchell, Madison, Yancey, Buncombe, Haywood, Swain, Graham, Macon, Jackson, Transylvania, and Henderson Counties. In Georgia, Union, Towns, Fannin , and Gilmer Counties, and other counties in the watershed were included. The economic analysis used population, industry, and other economic data from those counties.

15. This comment combines Recreation, Social and Economic Resources, and Visual Resources. The comment is specific to Watauga Lake and its surrounding communities.

The DEIS states that the impact of any alternative is relatively minor upon the regional area. However, the combined impact of improved Visual Resources and Recreation would most likely have substantial positive impact upon the Johnson and Carter county communities surrounding Watauga Lake.

Johnson County (and to a lesser extent, Carter County) is poor. It in no way matches the Tri-Cities economic data the DEIS presents. In the past, Johnson County has tried to rely upon textile-oriented plants for non-agricultural employment. While these individually offer 100-300 jobs, unfortunately they quickly leave when wages become lower abroad.

In contrast, improved recreation, vacation, and retirement opportunities tend to build support businesses and jobs only a few at a time -- but, once created, these types of businesses and jobs almost never leave (see the area around Lake Burton in NE GA and the NC mountains in general as documentation).

This would be very important for Johnson County. Watauga Lake, with the surrounding mountains, could become a major resource to develop these jobs -- and several of the alternatives appear to greatly improve the Recreation and Visual Resources of the lake. As such, these alternatives should be strongly considered. **Colman B. Woodhall, 389**

Response to Comment 15: TVA used a regional economic analysis because it is considering changes to its regionwide reservoir system. This can mask benefits that specific locations might receive from changes. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Watauga.

TVA has programs such as its Special Opportunities Counties and Cities that specifically address the furthering of economic development and improving the standard of living in such areas.

16. Secondary comments on economic impact of delayed draw down. Based on three (3) years of financial data, please note following**:** Labor Day drawdown would extend our season by

at least 30 days and possibly longer. Typical monthly income drops approximately $20,000.00 in August compared to July and another $20,000.00 in September compared to August. Fall in East Tennessee is some of the best weather to enjoy our lake, however, under current policy, levels are such that no one is interested utilizing our beautiful resources. **Dan Meek, 1313**

Response to Comment 16: See Response to Comment 2.

17. It appears that a very large economic impact has been overlooked, TVA should look at new commercial development that would come to our lake because the longer season now justifies the investment. It appears that TVA only considered the increase in recreation for the couple of months that the lake levels are extended. **Dave Cooper, 1138**

Response to Comment 17: See Response to Comment 10.

18. It appears that TVA only considered the increase in recreation for the couple of months that the lake levels are extended. The "quality of life" has not been taken into consideration. **Dave Cooper, 1139**

Response to Comment 18: Quality of life is a difficult concept to define and quantify. This EIS analyzes the impact of various alternative operations scenarios on visual resources (scenic beauty), cultural resources, property values, and recreation—in addition to environmental resources. The change in these resources should suggest whether "quality of life" would be improved or harmed.

19. First, the cranes might leave the area. The cranes are a significant source of revenue for the area. Hiwassee is the second largest concentration of cranes in the eastern United States. People have come from as far away as Indiana and New York to see them. The Sandhill Crane celebration that is held every year in Birchwood draws up to 10,000 people, spending $25,000 to $50,000 in Hamilton, Meigs, and Bradley counties JUST FOR THAT SINGLE WEEKEND! The loss of the cranes would mean a huge economic loss for the region. **David A. Aborn, Ph.D., 2088**

Response to Comment 19: Comment noted.

20. I am a resident of Fannin County. The county has traditionally lost jobs in the past due to plant closings. The region in general would benefit economically using Lake Blue Ridge as a recreation lake. More dollars would stream into the local economy thru increased spending. Property taxes, school taxes and sales tax would also increase not to mention the additional construction boom to the county. **Don Leonard, 2935**

Response to Comment 20: Comment noted.

21. This would also bring more birders to the area to see the birds, bringing in more revenue to Cocke Co. I personally have met birders at Rankin WMA who have come from Memphis,

Chattanooga, Alabama, Kentucky, and North Carolina... all to see the birds. **Dr. K. Dean Edwards, 2728**

Response to Comment 21: TVA surveyed recreationists at reservoir access locations and property owners across the region. This effort should have captured comments from some birders.

22. I am concerned about the assumptions you made when building your models for the impact analysis. First, I wish you had made the assumptions more public. In fairness I can understand this may have been difficult, but to fully understand and TRUST your impact conclusions I would like to know what assumptions you made in order to do the analyses. For example, under Alt. A there is a slightly negative impact for employment. Further investigation revealed that this comes about because of the assumption made that Alt. A would increase power generating costs which could force certain employers to not hire or to lay off employees. But use of that assumption seems biased in favor of the base case. Why not assume some other equally or more plausible assumptions such as--1. the employer will pass on the increased costs to the consumer as has been done historically. 2. TVA could charge residential customers the small amount it would take to cover their losses. Would TVA not be able to further offset its increased costs by generating more power than it is doing now if the lake levels were up longer?

In regard to the barge industry your economic analysis there also rests on some unknown assumptions. If there is job loss due to increased shipper costs they too could pass on the costs. If the issue is shipping more tonnage by creating deeper channels that comes at the expense of the home owners and lake users of Douglas and other tributary lakes. I seriously doubt anyone other than the barge owners and their stockholders would benefit from the increased revenues generated by the increased tonnage shipped. At the same time, they would be creating more safety hazards and contributing to more pollution by continuing to support coaled fired power plants. Do we need more air pollution when the area already ranks nationally as one of the top five in poor air quality? **Drew Danko, 1025**

Response to Comment 22: See Response to Comment 10. There is no doubt that an extended recreation season on tributary reservoirs would result in job creation in the areas around those reservoirs, particularly in the recreation and tourism industry and in retail sales. However, the TVA region as a whole would be negatively affected by these alternatives because a loss of hydropower generation would increase power costs. These increased costs would drive up the cost of doing business in the region, the result of which would be the loss of jobs either through job reduction or plant relocation.

While coal and nuclear plants provide the base load of TVA's power production capabilities, hydropower is used to meet peak demands. The water that turns turbines at tributary dams continues to generate electricity at each location downstream. If that hydropower generation capability is reduced as a result of holding tributary pool levels up longer, TVA must replace that power by either generating it by other means (typically gas turbines) or buying it off the national grid at market rates. Either proposition is more expensive than

hydropower generation, especially in July and August, when annual demand is at its greatest.

TVA costs are paid for by its power consumers. While the change in TVA costs may be relatively small, the change in the cost of doing business for industrial customers purchasing hundreds of thousands of dollars of electricity every day could be millions annually. These industries compete with others outside the region, and they can either reduce their workforce or relocate to remain competitive. Although extending summer pool levels would at least extend seasonal employment in areas around the tributary reservoirs, the resulting employment increases would be offset by decreases elsewhere in the TVA region, and would tend to outweigh those benefits from a regional perspective. The same may be said for increases in barge transportation costs.

23. What was the rationale for placing the three Georgia Counties in the Chattanooga Region as opposed to North Carolina? **Frank Maloney, 1760**

Response to Comment 23: The three Georgia counties**:** Fannin, Union, and Towns, are close to Chattanooga, as are two North Carolina counties, Cherokee and Clay, and are in the TVA Power Service Area. All these counties are in the Chattanooga region. The other counties in the North Carolina subregion are not in the TVA Power Service Area, but are in the watershed of the Tennessee River.

24. You will be guaranteed increased tourism dollars and weekend second home and rental dollars by allowing water to remain in Nottley lake throughout the year. Today everyone knows the lake goes dry in many areas, so they are buying homes at lake Chatuge and other lakes. Blairsville is not getting that added revenue. keep up the water and watch your revenue grow **Jeanne Sheahan, 2701**

Response to Comment 24: Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Nottely.

25. There is minimal information on the assumptions used for the economic analysis. It would be helpful to have some information on the inflation rate, interest rates assumed and other factors. Also there is no indication of the discount rate used, the assumed economic life of the projects, or any justification of any of the figures used. How were the values for fish, wildlife, value of lakefront land, etc established? All this seems very subjective. Changes in these numbers could have a significant impact on the answers. The final solution will likely have a mix of projects and which ones are viable and finally selected could be affected by all the assumptions above **Jim Mills, 3479**

Response to Comment 25: See Response to Comment 10. TVA did not try to monetize natural resources such as fish and wildlife. Rather, potential effects on these resources are reported in their natural metrics (e.g., changes in DO concentration for water quality).

26. Table ES-02 indicates that for all alternatives except for Commercial Navigation the impact on personal income and Gross regional product is slightly adverse. Is this correct?

Table ES-03 indicates that for all except the Commercial Navigation alternative the net effect of any changes is not beneficial (slightly). It seems that this would include several intangibles and other factors which would be very hard to evaluate and would be very subjective. How were these factors evaluated and included in the final result? It is true that the net loss is very small, but the region is so far behind that any loss at all may not be desirable. **Jim Mills, 3483**

Response to Comment 26: It is correct that all alternatives except the Commercial Navigation Alternative would negatively affect (however slightly) the region's economy because they would involve a loss of hydropower generation, which would increase power costs. These increased costs drive up the cost of doing business in the Tennessee Valley, the result of which would be jobs lost, either through plant relocation, job reduction, or slower job growth (as compared to the Base Case).

While coal-fired and nuclear plants provide the base load of TVA's power production capabilities, hydropower is used to meet peak demands. The water that turns turbines at tributary dams continues to generate electricity at each location downstream. If that hydropower capability is reduced as a result of holding tributary pool levels up longer, TVA must replace that power by either generating it using other means (typically gas turbines) or buying it off the national grid at market rates. Either proposition is more expensive than hydropower generation, especially in August when annual demand is at its greatest. TVA costs are paid for by its power consumers. Increased power costs are passed along to customers.

Although the percentage is small, the actual change in the cost of doing business for industrial customers purchasing hundreds of thousands of dollars of electricity every day could be millions annually. These industries compete with others outside the region, so they might, in turn reduce their workforce, add fewer jobs than would occur under the Base Case, or relocate in order to remain competitive.

27. Table ES-01—increasing revenue from recreation. Note 2 says this is the change in recreational expenditures from outside the TVA region. Please explain. **Jim Mills, 4168**

Response to Comment 27: See Response to Comment 10. For each alternative, we estimated the effects from five areas that affect the economy**:** power costs, navigation or shipping costs to industries and users of water-borne transportation, increased spending by consumers in categories related to recreation, increased spending in durable goods related to the wealth effect of increased property values, and water supply costs for municipalities or industries that rely on minimum elevations or flows. The economic analysis measures the net effect on the regional economy for each alternative. Because the analysis is for the entire region, shifting expenditures from one section of the Valley to another (i.e., recreationists choosing Chickamauga Reservoir rather than Kentucky Reservoir) are not

counted, but transfers into the valley (recreationists choosing Chickamauga Reservoir rather than Lake Michigan) would constitute a net gain to the region.

28. There is minimal information on assumptions used for economic analysis. Some of the data is referenced to TVA revenue in 2010 but no indication of how this figure was arrived at. Some of economic data appears smoothed over a lengthy period. Has recent blackout of 2003 caused the evaluation of risks, etc., to be reevaluated? Questions on tables ES-02, ES-03. You are asking us to take nearly all your figures on faith. **Jim Mills, 3961**

Response to Comment 28: See Response to Comment 10.

29. There is a lot of revenue to be generated from use of TVA lakes for the economy of surrounding counties. **Jimmy and Amy Owens, 486**

Response to Comment 29: Sections 4.25 and 5.25 provide data on economic conditions and impacts.

30. Douglas Lake in 2003 has many more lakeshore land owners and users and is still growing by leaps and bounds and is an asset to the communities that surround it. **Jimmy and Amy Owens, 480**

Response to Comment 30: Comment noted.

31. The notion that increased power costs to the public would be detrimental is absurd when you're talking about 30 cents or so per hundred dollar electric bills. **John Honey, 2037**

Response to Comment 31: Applying the increased cost of power due to the loss of hydropower production across residential, commercial, and industrial customers is a method of showing the magnitude of the effects on customers. While the effect on an individual customer basis might be small, the effect when accumulated over the region might be in the $10s and $100s of millions annually, depending on the alternative. For some customers, any increase would be meaningful.

32. I feel income in the area is probably decreasing rather than increasing due to water control by TVA. **Karen Niehaus, 3856**

Response to Comment 32: On the contrary, U. S. Department of Commerce data indicate that personal income on the national average in per capita terms has been increasing. The Base Case economic forecast projects this trent to continue in the Tennessee Valley region, with personal income expected to increase yearly at a rate of 2–3 percent per year.

33. TVA concludes Alternative 2A would result in job loss. The explanation I read is based on a series of extrapolated assumptions. If that is accepted as valid, I offer this equally reasonable scenario with an opposite projection**:**

A lake season throughout summer would encourage commercial and retail development in our community. This growth would ADD jobs. It would also increase real estate value, both commercial and residential, adding to area financial health.

An additional comment about your job loss conclusion. If there were any increased downstream cost as the result of Alternative 2A, most businesses pass those costs along to consumers before resorting to job lay-off. You did not include that reality in your assumption base.

Honestly -- with the exponential increase in recreational use of TVA reservoirs since its charter in the 30's and accompanying commercial and residential growth, can trade-offs for allowing high pool to more fully mirror a full summer season really be that bad???

Thank you for all your hard work!! We await the December decision (with crossed fingers)! **Laurie Danko, 2732**

Response to Comment 33: See Responses to Comments 10 and 22.

34. I work at the public library here in Morristown, which is between Cherokee and Douglas Lake. We get a lot of people in who are looking for a place to move from out of state. In the summer they are real happy about the idea of living here on the lakes, but in the winter all they do is talk about mud holes and flats and they are not so encouraged to come and move into this area, which I think is detrimental to TVA's image and East Tennessee's image. **Marti Steffen, 4497**

Response to Comment 34: Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Cherokee and Douglas Reservoirs.

35. I believe TVA may be underestimating the scenic beauty and long run recreational values of some of our local feeder lakes. The natural beauty of S. Holston and Watauga rival some of the most beautiful water systems on our continent such as the inland passages from Vancouver to Alaska. I recently kayaked parts of this passage and when I returned I realized how similar those lakes with their adjacent mountains were to that inland passage. The August pull downs and resulting mud banks severely reduce that natural beauty.

I do not have enough information or expertise to know if those increased aesthetic and recreational benefits would outweigh the increased flood risks. However, I think, as a professional economist, TVA needs to weigh those benefits more heavily. **Mike Everett, 272**

Response to Comment 35: TVA did evaluate all of the issues identified in this comment. See Sections 4.19, 4.24, 5.19, and 5.24. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including South Holston and Watauga.

36. I think this section is just a guess. The best that can be done is to look at trends . A major event like 9/11 can have more impact than anything. I think it can not be a heavily weighted factor on the overall study. **Richard Wagner, 1635**

Response to Comment 36: TVA used the REMI model which was customized to industries, population data, and demographics, or the economic structure of the Valley. The model has been verified and results compared favorably to actual historical records. The forecasting model processes thousands of data points in order to formulate trends, and calculates variations from those trends related to changes in water management.

These variations are certainly smaller than the effect of 9/11 but are based on the same concept because an event like 9/11 was not predicted. The impact of that event over time is not only calculated in the Base Case forecast but also in all the action alternatives. As with all major events, it affects the Base Case and the action alternatives. What is being compared in this study is the net difference between the Base Case and each alternative. Comparing various river management effects against their economic impacts is a standard and reasonable way of evaluating change.

37. The economic study by the U of T seemed to consider the entire country rather than just the local TVA area in value of Higher lake levels for a longer time period. The presentor made a statement to the effect that if the recreation activity were to and the result was a wash. The reason for higher lake levels longer is to bring "recreationists" to this area. If recreationists that come here because the season is longer are new, great. If they come from other areas because the season is longer, that too is great. Bottom line is more will come here if the season is longer. That adds to the economy.

Another area that will be affected is dining on the lake. There is only one eating establishment left on the lake between mile marker 9 and 29. The other one closed because the season was too short and they could not make a go of it.

The economic study also indicated that the increase in value of the average home would be about $13,000. Ask a real estate agent about that erroneous information. **Robert J. Reynolds, 898**

Response to Comment 37: The comments seem to focus on the University of Tennessee report on recreation and tourism in 13 counties in East Tennessee. The report is available on the University of Tennessee Center for Business and Economic Research web site**:** http**:**//cber.bus.utk.edu/lakeres.htm.

TVA's study is much broader in scope than that study—encompassing 201 counties in the Tennessee River watershed and TVA Power Service Area. The commenter is correct that an extended recreation season on tributary reservoirs would result in job creation in the areas around those reservoirs, particularly in the recreation and tourism industry and in retail sales. From a regional analysis perspective, however, those local gains would be offset by losses elsewhere in the region from increased costs in power production—due to

the loss of the availability of hydropower to meet peak demands during the period of highest annual demand in August. Increased power costs would drive up the cost of doing business in the region, resulting in the loss of jobs through job reduction or relocation of production. The outcome of holding tributary reservoir levels up longer into fall is a net loss in jobs for the TVA region as a whole.

The reference to property value impacts seems to be specific to the University of Tennessee report. See Sections 4.25 and 5.25 for a discussion of how property value changes were evaluated for the ROS.

38. I am not sure what jobs are included or the economic impact on the communities surrounding the lake. I would assume that a more consistent lake level during the summer would make North Georgia a more attractive vacation area and stimulate the local economy creating more jobs. At this point, any jobs projection would be speculative at best. **Roger W. Hill, Jr., 2417**

Response to Comment 38: See Response to Comment 10. Recreation surveys around the reservoirs yielded increases in consumer spending, as a result of an extended recreation season. Additional jobs around the tributaries would be expected from the additional spending in the area (for example, at marinas and restaurants).

39. In your studies of economic impact do you look at retail sales, tax dollars, local jobs, hotel and cabin rentals and incomes, or any economic impact other than commercial navigation affects? The language does not indicate this. The only economic impact to the region TVA indicates in any of their studies is the impact on mass industry and shipping costs based on river navigation. Take Polk County for example. If you study the local economy of such counties that depend almost entirely on tailwater recreation for their economy, you will find that economic impacts are far more reaching than mass industry. **Stephen Smith, 48**

Response to Comment 39: See Response to Comment 10.

40. One item that I have not seen discussed is the benifit of increased tourism that the later summer pools and slower draw downs would encourage. **Teddy Murrell, 1248**

Response to Comment 40: The benefits of increased tourism were specifically addressed in the study as part of the recreation-related benefits. See Sections 4.25 and 5.25. There is no doubt that an extended recreation season on tributary reservoirs would result in job creation in the areas around those reservoirs, particularly in the recreation and tourism industry and in retail sales. The study looks at the economic impact of recreation, power costs, navigation and shipping costs, water supply, and property values simultaneously. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs, which would enhance recreation.

41. So what I would like to see is TVA to work with our local county executives, Johnson County, Carter County and the counties surrounding the Bristol area to help recruit industry as far as lakes are concerned. I know one industry in Mountain City, Tennessee, came here primarily because of Watauga Lake and they were trying to recruit some more people to come in that area because of the lake. **Terry Peters, 4359**

Response to Comment 41: TVA works cooperatively with the Northeast Tennessee Valley Regional Industrial Development Association and is represented on its board. More information about this organization, including contact information for representatives in your area, may be found on the internet at http://www.netvaly.org. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Watauga.

42. The growth in Fannin County over the past ten years is without doubt tied to the recreational and tourist opportunities provided by the region. Given recent industry shutdowns (Levi Strauss, etc.), recreation will be a key industry for the county into the future and Blue Ridge Lake is a critical component of this direction. **Thomas C. Roberts, 2908**

Response to Comment 42: Recreation and economic effects are addressed in Sections 4.24, 4.25, 5.24, and 5.25. The analysis did not look at economic impacts on specific counties but rather regionwide, where the economic outcomes of the various alternatives were derived by comparing the Base Case (existing conditions) with the alternatives.

Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Blue Ridge.

43. The initial purposes of the TVA projects of the 1930's were to control flooding, bring electricity to these underdeveloped areas and promote economic growth.....

Now, 73 years later, the fluctuating lake levels are restricting economic growth by forcing potential consumers to chose alternative locations for recreation, such as many of the lakes in Tennessee that do not fluctuate lake levels. **Thomas G. Sandvick, 2663**

Response to Comment 43: See Responses to Comments 10 and 17.

44. I challenge your economic assumptions regarding recreation revenue. While your figures may reflect the total universe of direct recreation revenue, I wonder if you have also fully captured the indirect effects of increased spending at local restaurants and businesses and the resultant multiplier effect on the regional economy. It hardly seems possible to me that the total economic benefit of 1.34 million user days of recreation would only generate an $11 million incremental contribution to local economies. While I'm sure you've captured direct revenue to TVA, I urge you to also consider the significant effect on the local economy as visitors spend in local shops and businesses, generating an economic engine

in the region more than capable of offsetting the potential increase to electricity costs. **Thomas Still, 353**

Response to Comment 44: See Response to Comment 10.

45. Although the commercial navigation alternative seems to yield the greatest positive economic benefit, I urge the TVA and relevant parties to consider not only the impact on Gross Regional Product but also the potential impact on adjacent property owners of dramatic changes to reservoir levels in terms of adverse impact on property values. Literally thousands of property owners like myself have invested hundreds of millions of dollars in properties for purposes of enjoying the recreational opportunities and aesthetic beauty of TVA reservoirs. While this option may seem to have a positive impact on economic income, the potential impact on property values and the real estate market, especially surrounding tributary reservoirs, would likely be devastating. On the other hand, I believe that longer term positive benefits to the economy would result from the recreational opportunities, in terms of longer term attractiveness of the area to investors and retirees, ultimately providing a sustainable (versus cyclical) lift to the economy while preserving the aesthetic beauty of the Tennessee Valley watershed versus the Commercial Navigation alternative. **Thomas Still, 345**

Response to Comment 45: Changes in property values were included in the overall economic analysis; one measure of this is gross regional product. TVA has assessed the impact of changes in property value (a measure of wealth) on the regional economy in terms of consumer spending (a contribution to the economy) for each of the alternatives. This is discussed in Sections 4.25 and 5.25. Further information about property value modeling and the regional economic modeling process is available in Appendices C6 and C7.

Aesthetic impacts, while not quantified in the economic analysis, have also been considered for each alternative. More about aesthetics can be found in Sections 4.19 and 5.19. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs.

46. Recreational use of lake Nottely is vital to the economical and financial welfare of Union County. Presently, the amount of funds that the county and school system receives from TVA is not a fraction of the taxes that would be obtained if the property was private. Given this arrangement, TVA should allow the lake to be maintained at full pool at least until the tourist season has wained (late October). **Tommy Stephens, 1996**

Response to Comment 46: The 2002 in-lieu-of-tax payment to Union County was about $476,000, and payment to Blairsville was about $15,000. The existing value of the block group properties around Nottely was $237 million. Property taxes were considered in the Base Case. See Response to Comment 45.

47. I completely disagree with the information provided by TVA as to how jobs would be lost with Alternatives A and B. Jobs would have to develop around the tributary reservoirs due to increased usage of the lakes. There would be opportunities that would be attractive to land developers of many different types. I can only imagine how the housing would increase for not only vacation and second home purposes, but permanent residences, as well. Obviously, with more people in the area the potential for jobs would be much greater than currently exists. New businesses would start up immediately, with the greater number of users on and around the lakes. Please look at the tourist destination areas of Sevierville, Pigeon Forge and Gatlinburg and all of the jobs that have been created because of the millions of visitors in these areas, yearly! Surely, the real estate located on the banks of the Reservoir of Douglas Lake would see a significant increase in values, as well. Undoubtedly, the demand for these properties would significantly increase. With over 550 miles of shoreline, on Douglas Lake alone, the possibilities would continue past our lifetimes and into future generations. **Vicky Murrell, 1260**

Response to Comment 47: See Responses to Comments 10, 33, and 45.

48. At the review meeting in Bryson City it appeared as if the management is too committed to a computer model that is inflexible. Furthermore an economic projection that goes out 20 years is a joke. No economic model can work for anything but short term and as exhibited by today's economic conditions, models generally don't work well even in the short term. They are no substitute for common sense and good management practices! **William Gazda, 3193**

Response to Comment 48: See Responses to Comments 10 and 36.

F3.3 Other Areas

Water Levels

1. Why is it necessary to drawdown Douglas Lake before Labor Day of each year? This year with all the rain and bad weather proved that an early drawdown is not necessary. **Anonymous, 2407**

Response to Comment 1: The reasons why TVA reservoirs are drawn down each year are described in detail in Chapter 2 of the EIS. Reservoirs are drawn down to maintain flood storage availability in order to minimize flood risk, generate hydropower, and meet downstream water requirements (such as providing cooling water for nuclear and coal-fired power plants, processing water for industry, and flow for navigation). A single year, or small subset of years, does not provide an adequate basis for establishing or modifying reservoir management policy.

2. TVA officials have told us for years that tributary lakes must be started down by August 1 in order to get all the water through a single outlet downstream from Nottely. This really seems unjustified since we are drawn down way below any possible flood storage requirements that are ours. It seems our shores are exposed for months ahead of any real flood storage need. **Bob Garrison, 1799**

Response to Comment 2: See Response to Comment 1.

3. With the info from weather satellites, and accessibility to all types of weather patterns, are they being used to the fullest to perhaps move water in a more efficient way in the year 2003? **Carolyn R Clarkson, 1849**

Response to Comment 3: TVA uses a variety of weather information for guidance with our daily reservoir operations. However, as the commenter may know from following the local weather forecasters: weather forecasting, even in the short term, is not completely accurate.

4. I would like the water to be kept up until September. Every year half way into the summer season we lose use of our boat because the water level is so low. I think it would be nice to at least be able to go boating all summer. Instead all we are looking at is brown dirt , flats. At one time TVA said they would leave the lake up until August 1. THAT has never happened. TVA takes the lake down starting the middle of July. I don't think TVA is being fair. TVA has even lowered the full pool number. I would like to know why? **Catherine Kelly, 1500**

Response to Comment 4: The full summer pool of 1,777 feet on Nottely has been in effect since 1991. The existing operating plan restricts the drawdown to elevation 1,770 until August 1. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs.

5. I have never understood the need to start pulling the lake level down beginning in July which is still the middle of the summer. **Charles Butler, 1838**

Response to Comment 5: See Response to Comment 1. Under TVA's existing operations policy, unrestricted drawdown typically starts on August 1, not July 1, for most reservoirs.

6. When discussing summer pool as it relates to Cherokee Lake, a specific level should be clarified. 1060 or min. recreation level should not be used. 1073 is full pool and full pool is what level all other lakes are measured by. Please treat Cherokee as the other lakes are treated, so we don't see a 13 foot drawdown in July. **Dave Cooper, 1131**

Response to Comment 6: Full summer pool at Cherokee is 1,071 feet. Under TVA's Preferred Alternative, equitable treatment of the reservoirs that comprise the TVA system was a consideration. Under the Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Cherokee.

7. The only problem I have with your proposal is that those of us who live on the tributaries are use to dealing with specific lake level numbers while main reservoir users pay little attention to lake level numbers as the level fluctuates very little from summer to winter. I have lived on both for years and know this is true.

The reason I mention this is that it would be nice to know what the March 15 levels are in real numbers mentioned under the winter pool? We know full pool is 992-995. We know the winter pool level is usually pulled down to 940-942 level, but most of us are not sure what the level is supposed to be at March 15. Is it 965?

Also there is no mention of time schedule to raise tributary level from winter pool to summer pool. Would full pool levels be reached earlier since winter pool is kept higher or still be same as today? **David and Marylin Miles, 379**

Response to Comment 7: Full summer pool on Douglas is elevation 994. Flood guide elevation on March 15 is 958 feet. The fill schedule depends on which alternative is being discussed. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Douglas. In addition, winter flood guide levels would be raised. See Appendix C.8 for elevation probability plots and flood guides.

8. I question TVA as to their policy. This year for example the lake was within 1 foot of full pool. Then TVA "dumped"4 ft in the June/July period as contrary to the policy of not "dumping"water until August 1st. Will the acceptance of plan A change TVA from doing what they want at any time.

Another comment is that I have lived on the lake for 13 years. Up until last year "full pool"was 1779 ft. Last year TVA announced that "full pool"was now 1773 ft. **Debra Jensen, 1478**

Response to Comment 8: Full summer pool at Nottely, established by the Lake Improvement Plan in 1990, is elevation 1,777. The existing operations policy restricts the drawdown to elevation 1,770 through August 1, then allows unrestricted drawdown to winter elevations starting on August 1. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Nottely.

9. What is different about your management system that results in much lower water levels than what the Corps of Engineers is able to accomplish on other reservoirs? **Douglas Dean, 2903**

Response to Comment 9: Operation policies vary between organizations, but also depend on the objective of individual projects. It would be difficult to compare different reservoirs without knowing which specific reservoirs to compare. For example, some Corps projects in Tennessee operate with a larger fluctuation than similar TVA projects.

10. My first concern is that you may be taking too much water out of Nottely Reservoir compared to the other reservoirs. How can you justify the 30 foot drop in the winter water level? It makes no sense to comment on policy if Nottely is not treated fairly. **Gerald Langer, 3535**

Response to Comment 10: The drop in water elevation that occurs as water is withdrawn depends largely on the design of the reservoir. See Response to Comment 1.

11. Why not go ahead and lower the water levels to the 354 level on our lakes by Jan/Feb for Spring floods? Recreational needs would not be affected; flood control would then be positively affected. Power would still be available. Navigation would be affected over a drastically lower period than the base level.

Is it a fast rule that the drop must occur in a steady pattern? Why not stair-step it down? **Greg Batts, 2741**

Response to Comment 11: See Response to Comment 1. The stair-step pattern suggested was tested in the early to mid-1990s; however, the USACE and USFWS identified unacceptable flood risk and environmental consequences with this type of operation at Kentucky and Barkley Reservoirs.

12. Negotiated settlement of the Tapoco FERC relicensing is nearly complete. As proposed, the general relicensing changes to the Tapoco operations include**:** The Santeetlah reservoir will be operated at higher levels with an extended recreation season and significantly less drawdown **Greg Ott, Operations Manager, Alcoa Power Generating Inc. Tapoco Division, 3749**

Response to Comment 12: Comment noted.

13. The EIS does not contain sufficient detailed information to allow for an evaluation of the impact of the alternatives on the Tapoco facilities. To better understand the effect of alternative Fontana operations on the Tapoco facilities we need to have access to the model that was used to evaluate ... flood operations and the results from that model. In addition, the model should be modified to account for future changes in the operation of the

Tapoco facilities. **Greg Ott, Operations Manager, Alcoa Power Generating Inc. Tapoco Division, 3750**

Response to Comment 13: TVA continues to work with Tapoco to provide them with detailed data for their evaluations.

14. Why is it necessary to keep water levels so low in July, August, September and October? **H. Lee Fleshood, 3297**

Response to Comment 14: See Response to Comment 1.

15. Since we are virtually at the headwaters of Douglas Lake, we have absolutely no lake for 2/3 of the year. I believe a balance can be reached between the needs of TVA and the needs of those of us who use the system. Unfortunately, none of the alternatives will substantially increase the winter pool for our County. The lakebed will continue to be an unattractive, unusable mudbog for much of the year. **James Finchum, 1299**

Response to Comment 15: Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Douglas.

16. I guess I want the plan that is best all around. That's pretty much it. **Jane Chinnici, 4299**

Response to Comment 16: Comment noted.

17. Why is Lake Chatuge level still as high as it is when every other lake is not. **Joanne Wenberg, 2415**

Response to Comment 17: See Response to Comment 1. Chatuge has less planned annual fluctuation due to characteristics of the watershed and the reservoir shape.

18. Can you please tell me why TVA lets so much water down, in lake Chatuge, you are killing the fish, and causing more erosion, breaking up docks. i see no reason for such a let down, and yes i have heard all the stories, to which i find very hard to believe, can we find a happy middle point. **John S. Petraskiewchz, 2512**

Response to Comment 18: See Response to Comment 1. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Chatuge.

19. What factors dictate the dropping of water levels in August? Why must it be done before summer is over? **Judy Kirchner, 4558**

Response to Comment 19: See Response to Comment 1.

20. The lake has not been this high for 5 years and even with the high water this year the TVA has managed the water flow. Since we've had 5 lean years it appears it would in the best interest of TVA to maintain some water level in Lake Nottely so that there would be standardization. **June Hewett, 1830**

Response to Comment 20: Inflow fluctuates substantially on an annual basis and will result in varying water levels that TVA must manage, regardless of the policy alternative selected.

21. One of the biggest areas of concern over the past has been the varying degrees of draws between the surrounding tributaries. Nottely has had a lower level much earlier than Lake Chatuge and Lake Blue Ridge. A main concern is that all the surrounding lake levels be lowered consistently and that all are done on the same time frame. **Karen Adamson, 1666**

Response to Comment 21: Equitable treatment among the reservoirs that comprise TVA's reservoir system was a consideration in the formulation of TVA's Preferred Alternative. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Nottley.

22. "Why was not the month of October included in the study", since that is what anyone and everyone, plus Loud, was asking for; that the winter draw down would not take place until the 1st of October, which would be the time that the reservoir usage would start to really drop off and the summer usage would be coming to an end, so to speak?

WHY wouldn't it be feasible to OPTIMIZE each dam on its own, just like you have four tires on your automobile and two wheels are balanced and two are not. If that were the case, you would then balance one of the other wheels and then balance to last wheel and A MAXIMUM OPTIMIZATION would be the final result. **Malcolm P. Cotton, 441**

Response to Comment 22: October was included in some of the preliminary alternatives but not included for the detailed study in the EIS due to adverse impacts on many operating objectives.

TVA is responsible for managing the entire Tennessee River system watershed for the purposes of navigation, flood control, power generation, water quality, water supply, and recreation. The high and low dams were designed to work together as a system to reduce the impacts of damaging floods and to ensure that a navigable waterway could be maintained year-round. In order to achieve the greatest overall level of benefits for the region, TVA operates the reservoir system as an integrated unit rather than a set of individual projects. This approach allows each of the projects to contribute to the operating objectives for the system. Because the water that is released from each of the reservoirs is used repeatedly by projects downstream and because there are varying amounts of storage space available in each reservoir, a careful balancing and scheduling of reservoir releases is required each day to ensure that enough water is released to meet system needs while preventing a surplus of water that could result in flooding under high inflow conditions. If each reservoir were optimized independently, just for its own immediate region, system needs at downstream locations would be negatively affected and the overall level of benefits provided for the region would be diminished.

23. Minimizing fluctuations in water levels to provide a stable environment. **Mark Wiggins, 2278**

Response to Comment 23: TVA fluctuates water levels weekly and seasonally for a number of reasons including, but not limited, to flood and mosquito control and power generation.

24. As property owners at Lake Blue Ridge, (611 Magnolia Drive, Blue Ridge), my wife and I would like to ask a question ...Why is it not possible for the lake level to remain at or near full until much later in the year? Keeping it at a higher level until at least Labor Day would make a very great improvement in the quality of life at Lake Blue Ridge.
Mr. And Mrs. John R. Scott, 3718

Response to Comment 24: See Response to Comment 1. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Blue Ridge.

25. I confess to being uneducated with respect to broad requirements of coping with TVA's mission--flood control, navigation, water quality, power supply, recreation, etc. And I confess to having a personal interest in lake levels, I have problems understanding the rigid adherence to reducing lake levels as early as late July and not allowing those levels to return to recreational levels until late spring. Would it make a significant difference if three or four weeks were added at each end? There already is a sizeable population along the lakeshores--and even more who commute to take advantage of water sports. Several residential developments are in planning--and actual construction--stages.

Yours is a challenging task requiring the balancing of many conflicting interests. I hope there may be room for modifying the present scheduling of lake level adjustments--providing more "lake" and less "Gobi."! **Norman J. Knights, 810**

Response to Comment 25: See Response to Comment 1. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs.

26. I guess my specific comment is that I strongly recommend some combination of these alternatives, a blend, if you will, because as I see this, the benefits of Reservoir Recreation Alternative Aand/or Alternative B are not in mutual exclusive to an alternative such as commercial navigation, which was economically beneficial. So it seems that in the process of evaluating comments and then trying to assign value to those comments that it would be advantageous to look across some combination of alternatives, and I'm sure you're doing that.

The major impact on our property owners has to do with the extreme fluctuation of the water levels and the fact that the low water in midsummer seems to be unnecessary from our perspective even when you look at the study data, and that is -- Alternative B in our specific case would be the most advantageous, yet, I do not understand the specific impact on hydro production in that the same amount of water would eventually flow through the reservoir and the hydro plant under alternative Base Case.

It's a question of timing, and the timing issue is not clear to me other than the fact that summertime, August, is the prime peak season for power needs. However, I also know at that point in time that you are very unlikely to lower the gas- and coal-fired plant production

because of the cost of the fluctuations of those plants as opposed to the ease of regulating a hydro plant off and on, if you will, in terms of generation.

So I'm here to speak in behalf of Alternative B and some combination of that alternative with any of the others, specifically, the commercial that seems to be the most economically advantageous. **Norman K. Owen, 4324**

Response to Comment 26: The commenter is correct that the adverse impact on power system costs is a question of timing. Generation from TVA's hydropower plants is used for and is most valuable during peak demands on the TVA system. Our coal-fired and nuclear plants are typically operated in a baseload manner (around the clock as necessary in order to meet demands). While the same amount of water may be available in most reservoirs to generate power at different times, that generation would likely be less economically valuable. The annual impact on the TVA power system from Reservoir Recreation Alternative B was estimated to be $67 million. In part to address these adverse cost impacts, TVA developed its Preferred Alternative. The Preferred Alternative has an estimated cost to the power system of approximately $14 million annually.

27. First let me identify my vested interest. I am a property owner on Boone Lake. As a result of this, TVA has a flowage easement for Boone Lake on my property and I interface with the lake every day. Therefore, I was most interested in the Reservoir Operations Study and attended the workshop you had in Blountville, TN in the spring of 2002 to collect input from concerned people about TVA operations and the impact on Boone Lake and others in the TVA System. I had great hopes for some improvement in the lake level that could be obtained by (1) raising the January 1 lake level target to reduce the unsightly nature of the uncovered lake bed in the winter and (2) extending the targeted summer level to obtain more use of the lake in the favorable months of September and October.

I obtained and read the DEIS and was extremely disappointed to see that after all the effort spent by a lot of people there was no change made to Boone Lake. This does not address my hopes or those of many others interested in this lake. I found it to be curious why this lake received no redress on these issues when clearly so many of the people who attended the input meeting in Blountville in the spring of 2002 were desiring an improvement. I spent some time researching the background of the changes that TVA has made on lake levels over the years and I have concluded that TVA has made no changes to Boone Lake in the last 35 + years in spite of at least three significant studies where numerous lakes have received improvements in TVA operations policy. I base that conclusion on the DEIS and GAO/RCED-99-154 GAO Report on Lake Levels to the Honorable Van Hilleary, House of Representatives dated May 1999.

It seems clear that Boone Lake is one of 14 TVA lakes that falls into a category of TVA lake called a multi-purpose tributary project (MPTP) and as such has much more significant changes in lake levels than main river lakes. I quote the GAO report**:**

Chapter 2, Page 25 and 26**:** "While all 54 projects were built or acquired as part of TV A's integrated system of projects and all of the projects contribute to maximize the value of the available water in the Tennessee River, the multi-purpose tributary projects generally have more significant changes in lake levels during the year. For example, the target lake level for Douglas - a multi-purpose tributary project - decreases 50 feet from 990 feet on August 1 to 940 feet above sea level on January 1. On the other hand, the target lake level for Fort

Loudoun - a multi-purpose main river project - only decreases 6 feet from 813 feet on August 1 to 807 feet above sea level on January 1. Table 2.1 shows the differences between the August 1 and January 1 target lake levels at the multi-purpose tributary projects.

Table 2.1**:** August 1 and January 1 Target Lake Levels for TVA's Multipurpose Tributary Projects. Of the 14 MPTP lakes, ten have a significant variation during the year in their lake level of greater than 10 feet. They are Blue Ridge, Boone, Chatuge, Cherokee, Douglas, Fontana, Hiwassee, Norris, Nottely and South Holston. Of these 10, all but Boone and Fontana received an apparent recommended increase in the January 1 target Level. I quote the DEIS**:** "Under Reservoir Recreation Alternative A, the winter flood guide levels would be increased on 10 tributary reservoirs (South Holston, Watauga, Cherokee, Douglas, Chatuge, Nottely Hiwassee, Blue Ridge, Norris, and Tims Ford) to the pool level targeted to be reached by March 15 under the Base Case."

Fontana has received increases before so that leaves Boone as the only Lake of these 10 with significant lake level variation to never receive an increase in the winter lake level in the last 35+years. I quote the GAO report**:** Chapter 3 page 39 "Over the past 3 decades, TVA has instituted two sets of significant changes in the way the multi-purpose tributary projects are operated. --- In 1971, TVA conducted a study to modify, if possible, some portions of its operations to improve recreational uses of TVA's multi-purpose tributary projects within the framework of the statutory requirements for flood control, navigation, and hydropower generation. As a result of this study, TVA concluded that raising the January 1 target levels and the normal minimum levels of nine of its multi-purpose tributary projects should provide higher lake levels during the winter in most years. -Table 3.1 highlights the changes TVA implemented in 1971. Table 3.1**:** Changes Made in 1971 to Multipurpose Tributary Lake Levels SEE ORINIGAL FOR TABLE.

Executive Summary Page 5 "According to TVA, while large storms can occur throughout the year, the major regional floods on the Tennessee River normally occur between December and April." -- "A key change resulting from its December 1990 review of project operations was TV A's delaying the annual lake drawdown at the multi-purpose tributary projects from Memorial Day to August 1. (The multi-purpose tributary projects were defined as Boone, Chatuge, Cherokee, Douglas, Fontana, Hiwasse, Melton Hill, Norris, Nottely, South Holston, Tellico, Tims Ford, and Watauga plus Blue Ridge)"

Executive Summary Page 6 "Since the 1990 review, little has changed in how TVA operates its multi-purpose tributary projects. Because it had been receiving an increasing number of requests to analyze changes in the lake levels for individual lakes, TVA determined that a piecemeal approach raised questions of fairness in how each lake would be treated within TVA's system. --- Therefore in March 1997, TVA established a 4-year moratorium on making any changes in lake levels."

Chapter 3 Page 41 & 42 "In December 1990, TVA released the results of its work examining lake management policies in a report entitled, "Tennessee River and Reservoir System Operation and Planning Review."-- Referred to by TVA as its "Lake Improvement Plan," this review evaluated (1) three alternatives to provide additional minimum flows from TVA dams to improve reservoir releases downstream and (2) seven alternatives to stabilize lake levels by delaying the drawdown of lake levels until August 1 or later. As a result of TVA's analyses, the 1990 review recommended that (1) TVA increase minimum flow

requirements from mainstream and tributary projects and increase DO levels in the releases from 16 of its dams and (2) maintain summer target levels in 10 multi-purpose tributary projects until August 1st."

The 10 projects were: Blue Ridge, Chatuge, Cherokee, Douglas, Fontana, Hiwassee, Norris, Nottely, South Holston, and Watauga. "The remaining four multi-purpose projects - Boone, Melton Hill, Tellico and Tims Ford - not included in the review were excluded for various reasons. Boone was excluded because its original design included its operation at prescribed seasonal elevations that result in a constant lake elevation from Memorial Day through Labor Day. Melton Hill does not have an annual drawdown; it is operated in a fixed range of about 793 to 795 feet. Tellico, which is connected by an ungated canal to Fort Loudon Lake, has a lake elevation essentially the same as Fort Loudon - a multi-purpose main river project. Because Fort Loudon is targeted to reach its summer lake level by April 15 and its drawdown does not begin until November 1, Tellico has a flat summer lake level until November 1. Tims Ford, by design and original project allocation, has always been operated with a minimum summer lake elevation of 883 feet, which extends until October 15."

Chapter 3 pace 44 and 45 "Table 3.3 shows the effects of the changes on the August 1 lake levels of the 10 multi-purpose tributary projects considered in the 1990 review. SEE ORIGINAL FOR TABLE

What makes this situation even stranger is the fact that TVA recognizes the fact that minimizing exposed reservoir bottoms, debris, trash and underwater structures and shoreline ring effects resulting from low winter pool levels is important and discusses it in Chapter 4 and 5 of the DEIS. Table 4.19-02 Existing Scenic Conditions for Representative Reservoirs specifically discusses Boone Lake and describes the negatives of the current situation under Landscape Visibility as: "High Concern Level," "High opportunity for viewing," "Recreational Use," "Substantial residential Development," and under the Existing Scenic Integrity as: "Low water levels create ring effect and expose flats." "High amount of shoreline residential development and related facilities are evident" The DEIS, Chapter 4.19.5 Exposure of Reservoir Bottoms and Flats goes even further and depicts the situation on Boone Lake in Figure 4.19-02 The Effects of Lower Pool Levels on Exposing Reservoir Bottom and Flats-Boone Reservoir Observed from a Rural Road Adjacent to a Residential Area, Figure 4.19-03 The Effects of Lower Pool Levels - Upper Boone Reservoir Observed from Highway llE near Bluff City and Figure 4.19-04 Effects of Floating Structures Sitting on Exposed Reservoir Bottom and Other Exposed Structures Resulting in Lowered Scenic Integrity.

Yet the ROS did nothing to specifically address this problem on Boone Lake. Why? Why after all these years and studies has Boone Lake never received an adjustment in the winter pool level? The recommendations of this study would have been a great opportunity to address this problem on Boone Lake. I don't think this issue is going to go away.

On the second issue of extending the targeted summer level to obtain more use of the lake in the favorable months of September and October there was apparently no study done. The only two references to this I could find in the DEIS were in the Executive Summary ES.8 Other Actions Considered where the following was found:
"TVA considered but did not include a number of other actions. They included --- filling tributary reservoirs by March 1, and delaying drawdown until after October." and Chapter

3.4.2 Actions Not Included in Anv Policv Alternative where the following was found**:** "During the formulation of the initial 25 alternatives, the practice of raising tributary reservoirs to summer pool levels by March 1 and delaying drawdown until October 1 was evaluated but not carried forward. Because filing reservoirs before the end of the flood season would compromise TVA's ability to control runoff in spring, filling reservoirs to summer pool by March 1 was not considered for detailed analysis. Delaying drawdown until November 1 would reduce flows from the Tennessee and Cumberland Rivers during September and October when water levels on the lower Ohio and Mississippi Rivers already are likely to be low."

In my opinion, these statements seem like a broadbrush approach to basically staying with the status quo. The dates of March I and November I push the envelope and "likely" doesn't seem very definitive. There are 61 days between I March and I June and I don't understand why some interim points were not analyzed to consider bringing the summer levels earlier in the year by at least a few weeks. I do recognize that the spring months are flood sensitive. The same can't be said for the fall which is typically much drier than the spring and has excellent weather for recreational use of the lake. There are also 61 days between 1 September and 1 November and I don't understand why some interim points were not analyzed to consider keeping the summer pool levels into September or early October. I recognize that DEIS Reservoir Recreation Alternative A recommends extending the summer pool period until Labor Day on 10 of the 14 MPTP's (South Holston, Watauga, Cherokee, Douglas, Fontana, Chatuge, Nottely, Hiwassee, Blue Ridge, and Norris) but since Boone Lake already had the summer pool extended until that date, this lake got no improvement. Why? It's difficult to believe that holding Boone Lake at summer level for another month would have much impact on the Ohio and Mississippi River water levels. Earlier studies had shown that the impact was apparently not significant. I quote the GAO report**:** Chapter 4 Page 52 and 53, "Despite the changes made to its policies impacting lake levels earlier this decade, TVA has continued to receive a number of requests to make further changes. TVA ultimately decided in March 1997 to implement a 4-year moratorium on making further changes to these policies." -- "After the 1991 Lake Improvement Plan was implemented, requests for changes to TVA's lake-level policies slowed for a year or two but began again in 1993. According to TVA, constituents were no longer satisfied with the changes made in 1991, or new constituents were not aware of the changes that had been made." By March of 1997, several requests for changes to policies impacting lake levels had been submitted to TVA. For example, (1) TVA had completed a preliminary study that examined the power and flood control aspects of extending Boone Lake's level later into the fall**:**"-- .(In addition, TVA has commented on two studies discussing the potential economic benefits resulting from higher lake levels later in the year (Oct 1) at Cherokee and Douglas Lakes in Tennessee and Blue Ridge, Chatuge, and Nottely Lakes located in northern Georgia and users at South Holston and Watauga Lakes requested changes in policies at those lakes)

"TVA staff had performed analyses for Boone Lake, which indicated that the impacts on TVA's system-wide cost of supplying electric power associated with the requested changes were relatively small, with a net present value of less than $1 million. TVA estimated that increased cost of supplying electric power associated with the requested changes at Boone Lake was much less than for other TVA lakes analyzed in the past, primarily because the changes in lake levels during the year at Boone were smaller in comparison to other lakes, and TVA had already extended the summer target lake level at Boone Lake until Labor Day. As a result, TVA would not need to shift power production at Boone Lake from the

peak summer months to the fall. In addition, the flood impact analyses indicated that based on historic data, flood control at Boone Lake would not be affected. However, TVA indicated that potential storms would have an impact on the frequency of floods downstream from Boone Lake. TVA became concerned that more and more users were requesting studies for the lakes they used, resulting in an analysis of the system on a piecemeal basis. To TVA, this raised a "fairness" issue of treating these lakes differently in the TVA system. OF particular concern to TVA was the relatively low impact that the requested changes at Boone Lake would have on TVA's system-wide cost of supplying electric power. TVA believed that the implementation of these changes would give even more favoritism to a lake that already had high lake levels envied by users at other tributary lakes, while also promoting a "first come/first served" attitude to the lake users."

Why was the earlier study that had shown the feasibility of extending the summer pool level on Boone Lake later into the fall and had been placed on hold because of the moratorium on changes to lake levels, not now implemented in the ROS? Of the 14 MPTP Lakes, 4 received no benefit from the DEIS recommendation to extend the summer pool period. They are Boone, Melton Hill, Tellico and Tims Ford. Of these only Boone would receive some benefit from a summer pool extension into September or early October. Melton Hill has an operating range of 793 to 795 feet year-round so this is a non issue there. Tellico's level is determined by Ft. Loudoun's level which does not start drawdown until 1 November. Tims Ford already has the summer pool level extended until 15 October. So why not give Boone some benefit by extending the summer pool level-into the fall for some amount? Is it TVA's view about Boone Lake, as I found in Table 4.19- 02 of the DEIS, that "compared to other reservoirs, high water level is held longer (Mid-May to early September)" and therefore they don't need a benefit from this Reservoir Operations Study? I would point out that both the "run of the river" projects such as Ft. Patrick Henry and "mainstream" projects such as Guntersville all have high water levels longer as well as Melton Hill, and Tellico of the "tributary projects."

I hope you and your team have an opportunity to reflect on my comments and make some favorable adjustment in your recommendations concerning Boone Lake and the issues I have discussed in this letter. There are many other constituents in East Tennessee that are affected by TV A's operations policy on Boone Lake and they may be happy with continuing to get the status quo, but I doubt that the majority is. I write this letter hoping to achieve a positive benefit for both you and I. **Richard F. Odum**

Response to Comment 27 As stated in your comments, Boone Reservoir typically has high, stable reservoir levels through Labor Day. For several reasons, this duration of summer levels would not be extended under TVA's Preferred Alternative. Providing a longer duration of higher pool levels at Boone would negatively affect reservoir levels upstream, including Watauga and South Holston; increase residence time of water in the reservoir, which would likely lead to decreased water quality in the reservoir; and raise questions of equitable treatment among TVA reservoirs. Regarding your desire for higher winter levels on Boone, the winter flood guide level would be raised under the Preferred Alternative, which would likely result in higher winter water levels.

28. We can't see any valid reason to drop them [lake levels] before October. **Pete and Diane Heinen, 981**

Response to Comment 28: See Response to Comment 1. TVA considered extending reservoir levels to October but determined that this would result in unacceptable impacts on flood risk, as well as adverse impacts on many other operating objectives.

29. Would like Watts Bar held at normal pool from April to November for maximum power generation. Gradually lower by 6 ft before 1/1 for max power generation and held there during January for pier maintenance, filled 2 ft. in Feb. to increase turbine pressure and decrease ice formation by flow rate, then filled normal pool in April. All lakes lowered up to 2.5 ft. below normal pool to prevent flooding. Initiate lowering prior to rain. This year even piers installed by USACE destroyed. **Peter Low, 3956**

Response to Comment 29: Changing the operating guidelines for Tennessee River mainstem projects was included in all action alternatives. However, results of the flood risk analysis indicated that raising the winter operating guide levels would result in unacceptable increases in the potential for flood damage. These analyses led TVA to propose under the Preferred Alternative to delay the complete filling of upper mainstem river projects—including Watts Bar—until May 15, in order to reduce potential flood damage. Existing meteorological tools do not allow TVA to adjust reservoir levels quickly enough to respond to all possible flood events. Also see response to Comment 3.

30. If the water is drawn down after Labor Day rather than August 1, I fail to understand why the winter level has to be maintained at a higher level. Why can't the water be brought back down to the same level in September that it is in August, effectively leaving the winter level the same and avoiding the potential flood control danger? **Phyllis Miller, 287**

Response to Comment 30: This would eliminate some of the flood control concerns, and TVA considered this in the formulation of its Preferred Alternative. The analysis of flood risk impacts was conducted on a seasonal basis; therefore, data for each location and season were analyzed. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs.

31. No one cares so much in the winter so draw it down more then if needed. Power can still be created and everyone will be a lot more happy. **Regina Frisbey, 1453**

Response to Comment 31: TVA has also received a number of comments from people who care very strongly about reservoir levels in winter. While electricity can be and is generated during the winter months from TVA's hydroelectric units, natural inflow usually provides adequate water to maintain high use of the units.

32. The March 15 elevation on Nottely (1755' base line) was found to be 5+ feet lower than necessary by the TVA's 3R group in 1989. The increase to 1762 should solve your perpetual problem of not being able to fill Nottely. I guess 15 years later isn't very bad, assuming something is actually going to happen. **Richard Bell, 2025**

Response to Comment 32: TVA's Preferred Alternative would raise the winter flood guide levels at Nottely, as shown in elevation probability plots in Appendix C.8.

33. I have found no reasonable reason for the extreme drawdowns. **Stan Veltkamp, 930**

Response to Comment 33: See Response to Comment 1.

34. I am disappointed that the most important water level issue that is of significant concern to the users of Melton Hill is the pool level that is being maintained, mostly in the summer and more importantly, on weekends. Since Melton Hill is a pass thru only with a minimum capacity for storage, we have asked that levels be maintained at higher levels. As an example, we have requested that the day start off (AM) at 794 or higher so as you generate thru out the day, you have more flexibility without leaving many recreational boaters stranded at the end of the day. Many of the lake users have come down to their docks on a Saturday or Sunday, only to find that they cannot take their boat out due to the low lake level. Many complaints also are that they do go out in the morning, only to find out that the water level has dropped so much that they cannot get all the way home. We respectfully request that TVA consider working with higher levels on weekends during the summer so the users of Melton Hill Lake who live on some of the more shallow areas can have access to their docks. **Steve Lewis, 3281**

Response to Comment 34: As noted, Melton Hill has very little usable storage between the normal operating range of 792 to 795 feet. Therefore, it has no planned seasonal fluctuation: this is an advantage for year-round reservoir users, when compared to many other tributary reservoirs that seasonally fluctuate an average of 30 to 35 feet and, in some cases, more. Operations at Norris Dam and Melton Hill Dam support hydroelectric production and provide adequate water supply for the efficient and reliable operation of TVA Bull Run Steam Plant. The available usable storage space in Melton Hill is used on a daily basis to allow the hydroelectric units at Melton Hill and Norris Reservoir to generate during high-demand peak power hours in summer—typically from mid-day through early evening. Because the units at Norris generate at a flow rate of about 9,000 cfs, the units at Melton Hill generate at a flow rate of about 21,000 cfs, and travel time is required for the water released from Norris to arrive at Melton Hill; the stored water in Melton Hill Reservoir is used to supply water to the units at Melton Hill during the peak hours. Reducing the pool level fluctuation at Melton Hill would severely diminish TVA's ability to shape hydropower generation to cover the highest-cost peak hours.

35. I'd like to preface my comments with a disclaimer saying that, of course, I only have knowledge of what the TVA does with the lake levels from a purely personal point of view(and probably a selfish one too.) BUT, I would like to understand the timetable you folks work on a little better. thus enabling me to justify why a recreational lake, that provides much economic growth to this area i.e. BLUE RIDGE, cannot be used for recreation and the enjoyment in the splendid months of September, October, and in some instances, even as early as August. I understand you must maintain flood control, provide water for upstream usage, generate power elsewhere,, and maintain the dam...and probably many other projects that I have no clue about...., but why do we have such a full pool in March and no water in September? I'm sure I am being rather simplistic in my views, and I apologize for that, but I know that I am not alone in wishing with all of my heart, that we could change the timetable of events to rotate the drawing of the water level , delaying it for one month. I feel sure that the trade off for less water in March, would be met with great happiness from many of us who love our lake. Thank you for having this forum for our communication with you, who make such important decisions in our lives. **Susan Carruth, 3197**

Response to Comment 35: See Response to Comment 1. Blue Ridge Reservoir is actually a single-purpose power storage reservoir, not a recreation reservoir. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Blue Ridge.

36. So, what I want to find out is why they say the base is supposed to be August 1st, when we know they were drawing down early in July. That's really my only complaint. **Sydney Y. Cole, 4412**

Response to Comment 36: The existing operations policy (Base Case) allows for a restricted drawdown on the tributary storage reservoirs from June 1 to August 1. This means that TVA can draw down reservoirs a certain amount, while remaining above the minimum summer pool levels that were established in the 1990 Lake Improvement Plan. Unrestricted drawdown to winter elevations begins on August 1.

37. The late drawdown of the upper reservoirs during the month of August reduces the amount of water available for power generation during the peak months of TVA's generating scheme. The extended recreational requests of the small number of property owners in the upper reservoirs should not be able to cause increasing power production costs due to less available water flow when it is most needed. Additional coal must be purchased and burned to generate power. Landowners in the upper reservoirs (with few exceptions) knew the drawdown schedules when their property was purchased and the entire TVA customer base should not be penalized by higher generating costs and additional pollution created by lack of water flow. **Terry C Smith, 2965**

Response to Comment 37: Comment noted.

38. Am I correct in assuming that the total volume of water in Lake Nottely is decreasing over time? If yes, then increasing winter pool levels would help reduce the rate of change occurring. **Thomas Carey, 1707**

Response to Comment 38: There is no indication that the total volume of water is substantially decreasing over time.

39. When water levels are reduced below the maximum efficiency levels for the production of electricity, what is the justification????

It is not flood control on Blue Ridge Lake except during certain months. Who and why does TVA pick August 1 as the date to start reduction of water levels??

I believe that the TVA does not want to change or change as little as possible its water level policies, because once the people who use the lakes see how great it is to have a higher water level in months other than May, June, and July, they will protest future water level reductions vehemently. **Thomas G. Sandvick, 2664**

Response to Comment 39: See Response to Comment 1. Unrestricted drawdown begins on August 1 as a result of the 1990 Lake Improvement Plan that was adopted by TVA in 1991.

40. As far as I know TVA has never given any logical or believable reason for the low lake levels. Lake levels need to be higher in the winter. I do not believe a need has been shown for lowering the levels to the point at which they are now lowered. Also, levels should be reduced later. There is no documentation proving that the lake levels must be reduced as much as they are now reduced. Cherokee is dropped much more than appears necessary in the winter. For some reason TVA has not been open to this. **Vonda M. Laughlin, 2406**

Response to Comment 40: See Response to Comment 1.

41. I think things are operated reasonably well. I'm a little surprised this summer that Blue Ridge and Nottely are not full with all the rain we've had. **W. H. Cross, 4362**

Response to Comment 41: Comment noted.

42. I am voting to express my concern for the varying lake levels seen throughout the year for Lake Blue Ridge in Blue Ridge, GA. Aside from depriving lakefront property owners with year-around recreational opportunities, lowering the lake level too far below full pool, negatively affects property values and depresses economic development efforts of the surrounding municipalities. By depressing assessed property values, you are in fact robbing the City of Blue Ridge of additional tax dollars that are imminently important to improve and construct new economic and physical infrastructure necessary to support the growing popularity of North Georgia cities. I do not profess to be a hydrologist, water scientist or civil engineer, however, I can deduce that there are other ways to satisfy all necessary water and power obligations throughout the Toccoa/Ocoee River Basin without draining Lake Blue Ridge to such low levels. There are lake models, which serve as precedent outside of the TVA system. Lake Keowee in South Carolina, which is controlled by Duke Power, is able to maintain high lake levels, while still meeting necessary water and power obligations. As a result, housing developers and residents of the lake are very cognizant of their part in maintaining the natural characteristics of the shoreline to promote real estate value and tax dollars for the community. I hope that I have made a somewhat compelling argument for consistently high lake levels for Lake Blue Ridge, as I feel that this is the correct action to take. Everyone will have a role in this effort to promote economic development, and the TVA has the privilege of starting the process. **Wes Hardy, 3031**

Response to Comment 42: See Response to Comment 1. Under TVA's Preferred Alternative, flows would be adjusted from June 1 through Labor Day, resulting in a longer duration of higher pool levels under median conditions on a number of reservoirs—including Blue Ridge.

43. I just can't understand why the water level [on Kentucky]can't be up to at least 357 all winter. That's about it. **Wilbur Neil, 4367**

Response to Comment 43: USACE expressed concerns about changing operations on Kentucky Reservoir because of the potential effect on the lower Ohio and Mississippi Rivers. Its position is that any proposed changes that would involve reduction in flood storage capacity would need to be evaluated within the context of the entire lower Ohio/Mississippi River system. In addition, USFWS, other agencies, and some individuals voiced concerns about changing operations on Kentucky Reservoir. TVA did not include changes to the operating guide curve for Kentucky Reservoir as an element of its Preferred Alternative.

44. I manage Cancun on Boone. My concern is -- I asked a TVA representative here about 20 minutes ago, about the lake levels and why can't they leave the lake summer level until the end of October, and his comment was they didn't make that study on Boone Lake.

And October and November, to me, is a really dry month, and for us and economics of Boone Lake, it would be advantageous for TVA to maintain the lake level, at least to October. Then they could begin to drop. If a storm surge comes in, like a tornado, sure they could drop it, but, you know, we would take that chance. **Wynn Beidleman, 4310**

Response to Comment 44: See Response to Comment 27.

45. I am disappointed that the most important water level issue that is of significant concern to the users of Melton Hill is the pool level that is being maintained, mostly in the summer and more importantly, on weekends. Since Melton Hill is a pass thru only with a minimum capacity for storage, we have asked that levels be maintained at higher levels. As an example, we have requested that the day start off (AM) at 794 or higher so as you generate thru out the day, you have more flexability without leaving many recreational boaters stranded at the end of the day. Many of the lake users have come down to their docks on a Saturday or Sunday, only to find that they cannot take their boat out due to the low lake level. Many complaints also are that they do go out in the morning, only to find out that the water level has dropped so much that they cannot get all the way home. We respectfully request that TVA consider working with higher levels on weekends during the summer so the users of Melton Hill Lake who live on some of the more shallow areas can have access to their docks. We do not think that this will have any impact on TVA other than how they schedule power generation at Norris and Melton Hill. By running Norris Dam power generation for a set period longer than Melton Hill, and starting it sooner than Melton Hill, you should be able to accomidate these people. Melton Hill power generation usually draws the lake down much faster than Norris Dam power generation can replenish it. Our request is simple-Can TVA balance the power production at these two dams to maintain higher lake levels with special consideration to the weekend operations. With a little creativity in the scheduling of power production, you can produce the same power, provide the Melton Hill Lake user more ability to use the lake due to higher levels, and have no negative impacts on Norris, Melton Hill or Watts Bar Lakes. **John Croes, President, Milton Hill Lake Users Associations, 1374**

Response to Comment 45: See Response to Comment 34.

Minimum Flow

1. Why was 25K [at Chickamauga] chosen for August for this alternative? Average since LIP is 31K for August. The change only results in an increase of about 3 feet in tribs on Labor Day. 20K would have added about 6. What were the impacts for 20 that excluded it's consideration. **Arland Whitlock, 2171**

Response to Comment 1: A range of flows was considered for the August minimum flow requirement. Higher flow rates would have provided little increase in reservoir recreation levels compared to the Base Case; lower flow rates would result in greater negative impacts on water quality and power costs.

2. Release only minimum flows between June 1 and Labor Day. Douglas is my main concern. **Louise Murray, 688**

Response to Comment 2: Under TVA's Preferred Alternative, only minimum flows would be released from a number of tributary reservoirs, including Douglas, from June 1 through Labor Day. See Appendix B for details about summer minimum flow releases under the Preferred Alternative.

NEPA Process

1. I have reviewed the June 2003 Draft Environmental Impact Statement (EIS) prepared by TVA for the operation of 35 reservoirs in the Tennessee River Basin and am pleased to submit the following comments on behalf of the Alabama Rivers Alliance (the Alliance). The Alliance is a nonprofit conservation organization committed to the conservation, restoration, and preservation of waters in the state of Alabama. We would like to thank TVA for inviting the Alliance to participate as a member of the Public Review Group during the development of the EIS. We hope that these comments will be helpful in the development of the final operations policy. **Alabama Rivers Alliance, April Hall, Watershed Restoration Specialist, 3733**

Response to Comment 1: We are very grateful for all the time contributed by the participants of the Public Review Group established for the ROS.

2. Although we understand that several factors including recreation, environment, navigation, and power generation were considered in the development of operations alternatives, we consider the protection and enhancement of the natural aquatic environment to be the most important priority in the management of a natural resource such as the Tennessee River. The environmental impacts of TVA's reservoir system were not fully considered. When the first dams were constructed in the early 1900's because the system was constructed solely for navigation and power production and the many environmental protection laws that exist today were not in effect at the time of dam construction; Therefore, steps should be taken by TVA to protect the existing native habitat and to operate the system in a manner that will halt or reverse —the adverse impacts on the environment already created by the dams.

The results of the public scoping process indicate that 20 to 30 percent of individuals polled feel that protection of the environmental should be the top priority of TV A's operation. However, the proposed operations alternatives do not provide a "balance" to many TVA

objectives. It is obvious that improved environmental quality and recreation may likely come at the expense of other objectives such as power generation. We suggest that the information gathered during this lengthy and complicated EIS process be used to develop additional operations alternatives that actually reflect the opinions of the public. As presented in the draft EIS, alternatives were developed based on public input, but the results of the alternatives do not actually achieve an acceptable balance. Therefore, some of the proposed alternatives should be revised to achieve the results desired by the public. **Alabama Rivers Alliance, April Hall, Watershed Restoration Specialist, 3734**

Response to Comment 2: TVA was aware of the wide support for environmental protections when it formulated the identified alternatives. As recognized in this comment, the public identified a range of values and objectives for operation of the reservoir system and many of those are in tension with one another. Except for the alternatives that were formulated to be primarily single purpose (e.g., the Summer Hydropower or Tailwater Habitat Alternative), the identified alternatives were designed to achieve or enhance a number of different values. We are not surprised that the "balances" struck by these alternatives fail to satisfy all of those commenting on the EIS. As suggested, TVA did use this and other comments to help fashion the Preferred Alternative that is identified in the FEIS. TVA hopes that this alternative, and the balance it strikes, will be more acceptable to those who opposed earlier alternatives.

3. We acknowledge the Complexity of the ROS process conducted by TVA and appreciate the efforts put forth to compile and model the available data for the betterment of the TVA system. We urge TVA to consider the alternative best suited to provide improvements to the natural environment and prevent further damage. Since the alternatives discussed in the draft EIS do not provide a great deal of environmental quality improvements, modified alternatives should be developed and studied to optimize environmental improvements through TVA operations **Alabama Rivers Alliance, April Hall, Watershed Restoration Specialist, 3739**

Response to Comment 3: From scoping through the FEIS, TVA considered a large number of alternatives. Sections 1.6 and 3.2 discuss how TVA developed the range of alternatives that were evaluated in detail in the EIS. All of these alternatives would produce varying effects on the environment. Many of the alternatives would result in substantially adverse impacts on one or more environmental resources. Some alternatives would enhance a number of environmental resources but with substantial impacts on other objectives that are valued highly by the public. These results provide both TVA decision makers and the public a solid basis for judging the consequences of increasing or decreasing environmental protection.

4. For the people in communication that monitor the emails — I have asked for info twice, no reply

Have followed the study closely and know staff and consultants have done a tremendous amount of work. There must be a lot of technical data somewhere. Is it available to an old retiree like me? **Arland Whitlock, 1927**

Response to Comment 4: Technical data are in TVA's administrative files, which are available on request.

5. Another issue is that it seems like it's a system-wide analysis, but it doesn't seem to address just Kentucky's needs; that if Kentucky Lake was held at winter pool currently the way it is but held at a foot higher until October and then drawn down more quickly, the flood control problems with that are probably less severe, just when you look at Kentucky, than if you look at that on a system-wide basis.

And so I think that there's not enough information that looks at what happens to recreation on Kentucky and what impact does it have if all we do is hold the summer pool at where it's at for two more months. I think you'll find substantial recreational benefits, rather than tying it all to all the other systems. That's what I wanted to say. **Brian Keister, 4523**

Response to Comment 5: USACE expressed concerns about changing operations on Kentucky Reservoir because of the potential effect on the lower Ohio and Mississippi Rivers. Its position is that any proposed changes that would involve reduction in flood storage capacity would need to be evaluated within the context of the entire lower Ohio/Mississippi River system. In addition, USFWS, other agencies, and individuals voiced concerns about changing operations on Kentucky Reservoir. TVA did not include changes to the operating guide curve for Kentucky Reservoir as an element of its Preferred Alternative.

6. How many people attended Blairsville workshop? **C.G. Boland, 3958**

Response to Comment 6: Table F1-01 identifies the number of attendees at the TVA workshops. The attendance for the Blairsville workshop was 407 people.

7. I have been to these meetings at least two or three times. You waste your money by asking people what they want, because you do not listen. **Carolyn Lakes, 4388**

Response to Comment 7: TVA's Preferred Alternative was formulated largely in response to public comments.

8. I have a number of questions about this telephone survey**:**

Question # 1 is why wasn't the telephone survey made known up front when the information about the ROS was published?

Question # 2 is what questions were asked of those people surveyed?

Question #3 is what area codes and telephone exchanges were called in the survey? **Cecil G. Boland, President Lake Nottely Improvement Association, Inc., 4163**

Response to Comment 8: One of the first ROS documents released, TVA's Scoping Document, did provide information about the referenced telephone survey. This was a random survey and included telephone exchanges (and locations) throughout TVA's 201-county Power Service Area. Approximately 3,600 registered voters were contacted. An independent opinion research firm developed the questions that were asked. Both the EIS and the Scoping Document refer to the results of this survey.

9 First, determine which alternatives have large numbers of "substantially adverse" or "substantially beneficial" impacts. If so, these alternatives should be either strongly considered for elimination or for acceptance.

Summer Hydropower = 6 substantially adverse (SA), 1 substantially beneficial (SB)
Resevoir Rec B and Tailwater Rec each = 4 SA, 1 SB
Tailwater Hab = 3 SA, 1 SB
Equal Summer/Winter = 3 SA, 0 SB
Res Rec A and Comm Nav each = 0 SA, 0 SB

On that basis (and also noting the specific SA's), I would consider eliminating Summer Hydropower, Res Rec B, and Tailwater Rec. Equal Summer/Winter and Tailwater Hab would be considered poorly. Res Rec A and Comm Nav, although neither has strong benefits or negatives, should be considered as the best candidates. Of these, I would recommend Res Rec A as the preferred alternative. The basic reason is that it would provide benefits to a wider range or region residents than Comm Nav.

Finally, congratulations on an excellent, detailed DEIS. As a resident, thank you! **Colman B. Woodhall, 399**

Response to Comment 9: The general approach described in this comment is the one TVA used to produce a set of alternatives that covered a reasonable range of possible operations policy changes. As described in Chapter 3, TVA began by eliminating alternatives that clearly produced unacceptable results that did not achieve TVA's objective of greater public value. This task was conducted in an iterative fashion to reformulate and reduce the number of possible alternatives. The eight alternatives identified and discussed in detail in the DEIS (including the Base Case) were the result of this process. Finally, after considering the environmental and economic analyses conducted for the ROS and the comments from the public and interested federal and state agencies, TVA formulated its Preferred Alternative, which appears in the FEIS.

10. I favor the use of scientific data in the determination of which alternative to use to better make use of the water resources of the Tennessee River and the many tributaries to the River. The proper decision needs to be made with the entire system in mind. I would favor the decision that maintains a "high" summer pool level in as many lakes as possible; but, keep "flood control" in mind. **David Slagle, 490**

Response to Comment 10: Comment noted.

11. It is my sincere hope that you will take the time to just use some of your God given common sense and not let someone inundate you with so many "facts" that you can't see the forest for the trees.

This is not meant in any way as an antagonistic approach and I hope that you will give this and the many other comments I am sure you have received serious consideration. **David Trotter D.D.S., 541**

Response to Comment 11: TVA has reviewed and considered each comment received.

12. I thank you so much for considering changing policy to better serve our lake region as it has changed over the years, requiring a different approach to water management, realizing the huge importance recreation and property values have become to our region. **Diane Layton, 2490**

Response to Comment 12: Comment noted.

13. During the course of TVA's study, they should have broadened their scope to include a larger population, not just their service area, that would be affected by the proposed changes and involved them in the decision making process. **Eddie Adams, 3037**

Response to Comment 13: Notice of the availability of the DEIS was published in the Federal Register, a publication that is distributed nationally. TVA received a number of comments from persons outside the TVA region. TVA also coordinated preparation of the EIS and ROS analyses with other agencies that have responsibilities beyond the TVA region, such as USACE.

14. I would also like to say that so far this year TVA has done a good job with lake levels. That is as of July 24th. Thank you for hearing my opinion. **Franklin D Brown, 117**

Response to Comment 14: Comment noted.

15. I am using this area to enter a general comment. Obviously an enormous amount of good work went into these evaluations, and TVA is to be commended on this study. I certainly admire the tenacity and skill of the technical folks who took on this enormous task. I hope the results will carry the day against political pressure that I know TVA faces day in and out which can work against a balanced operations policy. **Gary Hauser, 1899**

Response to Comment 15: Comment noted.

16. Based on the Executive Summary tables, I am struck by the fact that Res Rec A and B appear to focus on extending summer pool levels, which according the the tables have negative impacts pretty much across the range of reservoir objectives. So why do we continue to look so hard at extended summer lake levels when only benefits seem to accrue to a few? **Gary Hauser, 65**

Response to Comment 16: Comment noted.

17. And I hope, after $12 million, that TVA comes up with something more than "This is the way we've always done it and so we're going to continue to do it this way." **Glen And Janice Boland, 4449**

Response to Comment 17: Comment noted.

18. I am a little disappointed with the alternative options. I feel that they were somewhat limited in scope and did not include enough options in the area of winter pool draw down levels. **Gloria Dahlberg, 2040**

Response to Comment 18: TVA considered a wide range of alternatives, as described in Section 3.2.

19. TVA has fudged in constructing alternatives from the Base Case by building in a higher flood risk. Who will vote for that? This is a rigged process to insure we stick with the Base Case which is what TVA wants to do anyway. **Guy Larry Osborne, 1273**

Response to Comment 19: Chapter 3 describes the process TVA used to formulate alternatives. A substantial number of those commenting during the EIS scoping process asked TVA to change its operations policy in ways that would maintain reservoir levels higher for longer periods or that would fill reservoirs sooner after fall drawdowns. Most of the resulting alternatives were formulated in response to these commenters. In almost all instances, however, holding reservoirs higher for longer periods or filling them sooner would negatively affect flood management control. More water in reservoirs translates to higher flood risks because it corresponds to decreased flood storage capacity. Eliminating unacceptable effects on flood risk was one of the primary drivers in TVA's effort to formulate its Preferred Alternative.

20. I do not think TVA has adequately communicated to the non-lake user the potential impact of this study on them. The potential for higher electric rates due to efforts to maintain higher reservoir levels and increased water quality problems have not been communicated to the public. I agree the cost is not significant on the valley economy, but I don't think the non-lake user is really aware of the potential for a rate increase. **H. Ray Threlkeld, 2254**

Response to Comment 20: The DEIS; materials available at the 12 workshops that TVA held throughout the TVA region, including a short video that summarized results; and the Executive Summary of the DEIS that was widely circulated all presented information about potential impacts on power costs and water quality. TVA did receive a relatively large number of comments for an EIS process; however, relative to the more than 8.3 million people in the region that TVA serves, only a very small percentage chose to participate in the EIS process.

21. It was also noted that the material, entitled "Weighing the Alternatives" containing charts listing Base Case and seven policy alternatives, as distributed as color handouts and as part of the video, is different from the same document presented on the TVA website info. It is most confusing to prepare a response when the information presented is so completely different concerning the same specific alternative. Before any determinations are made, it would appear that clarification of this difference should be made known to the public so that accurate and consistent response could be made. Also, with conflicting information presented on the charts, it is unclear bow this information was obtained. **Janice L. Jones, Executive Director, Tennessee River Valley Association, 4176**

Response to Comment 21: Comment noted.

22. TVA is doing their best to get public input on all aspects of their operations which is the proper and responsible thing to do. From looking at information in the report it appears that the public input has been minimal despite TVA's best efforts. From the Executive Summary the total of public responses appears to be about 19,200, counting form letters and petition signatures, which amounts to about a 0.24 % sample of the public opinion. With this small an input, it seems that staff opinions will have a very great (overwhelming) impact on the final course of action. If the public does not speak up, then they have no right to complain if the final results don't suit them.

You are asking us to take nearly all of your figures on faith. The computer programs and models used are from reputable sources and are widely accepted in the industry, but there appears to be no way the results could be independently verified without repeating the ROS by another entity. After the recent debacles with some companies that had their financial reports (supposedly) verified by independent auditors and the results of that, you can understand why "trust me, I know what I am doing " is no longer acceptable. **Jim Mills, 4165**

Response to Comment 22: See Response to Comment 20. We appreciate the recognition that TVA has made a concerted effort to obtain public input. Staff analyses, as opposed to staff opinions, have traditionally had a strong influence on preferred actions identified in TVA EISs. The ROS EIS process was not an exception. TVA attempted to conduct as open and transparent a process as possible in producing the ROS EIS and its associated analyses. This included employing nationally recognized experts from outside TVA to assist in analyses; using widely accepted models and computer programs; and coordinating analyses with a group of interested federal and state agencies, as well as public stakeholders with diverse interests.

23. Many of the public utilities are having difficulty raising capital for improvements. How does this affect TVA, especially if TVA is required to pay down its debt more rapidly than now? The scarcity of capital may also affect which course of action and improvements are finally selected. **Jim Mills, 4167**

Response to Comment 23: TVA has not experienced problems in raising capital, but because one of its goals is to reduce its debt, capital expenditures are held to a minimum. None of the ROS alternatives, including TVA's Preferred Alternative would involve large capital expenditures. Under the preferred alternative, about $20 million in capital costs are expected to be incurred over a 3-year period.

24. I hope TVA is listening to the public this time around. Thank you for your consideration. **John Honey, President, Dandridge Yacht Club, 1070**

Response to Comment 24: Comment noted.

25. Much appreciation to all the TVA employees who created the many and somewhat varied alternatives. Once again though you have created an octopus of alternatives when those who desire a somewhat simplistic scenario get covered up in verbage. **John S. McClellan, 2032**

Response to Comment 25: Comment noted.

26. I don't even feel a social aspect of this is of much importance. I think the environmental effects are major concerns. **Linda Coons, 2308**

Response to Comment 26: Comment noted.

27. The (Road Show) presentation by TVA deserved an A+ for SPIN. I have never seen such bias mumbo jumbo misinformation on anything in my life. **Lloyd V. Bible, 2010**

Response to Comment 27: Comment noted.

28. We had hoped this would change in our lifetime, but there are so many people here that won't even come to these things because they say, and I quote, it's TVA, it's the way it will always be, it will never change. **Marilyn Allbritten, 4545**

Response to Comment 28: Comment noted.

29. TVA's responsibility is to consider all the alternative and come up with a compromise that will satisfy the needs of most users. **Michael A. O'Brien, 2482**

Response to Comment 29: TVA's Preferred Alternative was purposefully formulated with the intent of accommodating as many of the public's stated values and objectives as possible.

30. Public comments are a misleading indicator in support of this alternative. The few who stand to gain a lot are more likely to submit comments than the many who would have to share the load of adverse impacts. Increasing recreational opportunities and 'scenic integrity' for a few people, for one month, shoulcd only be given minor consideration in planning river operations. **Michael Sledjeski, 3215**

Response to Comment 30: See Appendix F1. TVA is aware that those commenting during EIS processes are self-selected and may not represent the opinions or preferences of the public at large. TVA uses a qualitative approach that is guided more by the merits of the comments made, than the numbers of the comments.

31. Thank you for the workshop and opportunity to comment on issues. Thanks for all the work you do and benefits TVA supplies not only to the seven states it encompasses, but the rest of the nation as well...Again thanks for the TVA system!! It's a great organization and makes many benefits to millions of people and has for many years. We love being a part of it, but feel that some policy changes are necessary now. **Mike Harris, 4555**

Response to Comment 31: Comment noted.

32. Based on all the data presented, including impact statements, a lot of work went into this study. I must say, however, that the average person will be overwhelmed by its volume and sometimes complexity. **Robert MacDonald, 1912**

Response to Comment 32: Comment noted.

33. At this time, The Nature Conservancy does not endorse any specific ROS alternative outlined in the draft PeIS. Rather, we encourage TVA to consider the outcomes of any decision on management alternatives in the context of TVA's responsibility for protecting the natural heritage of the Tennessee Valley. While other federal agencies such as the USFWS and state wildlife resource agencies hold responsibilities for managing and recovering native species, TVA remains the caretaker of the Tennessee Valley in many ways due to the extensive nature of its reservoir system.

In the coming years, TVA no doubt will be challenged to adapt to changes in regional and national power production and transmission markets. Despite the uncertainty of these

future challenges, The Nature Conservancy strongly encourages TV A to remain committed to its environmental stewardship responsibilities and to explore opportunities for expanding its financial investment in protecting and restoring the Tennessee Valley's natural heritage. **Scott Davis, Executive Director, Tennessee Chapter of The Nature Conservancy, 3744**

Response to Comment 33: Comment noted.

34. I Just Hope And Pray That You Do Not Take A Split Vote Among The Other Plans That Keep The Water Level Higher And Allow A Hydro Electric Only Plan To Sneak In With A Lower Percentage **Scott Pisciotta, 1864**

Response to Comment 34: Comment noted.

35. These comments are submitted on behalf of the Tennessee River Gorge Trust, a nonprofit organization committed to the protection of land, water and wildlife resources of the Tennessee River Gorge. We commend the Tennessee Valley Authority for undertaking this Reservoir Operations Study, and we appreciate the thought that has gone into outlining various operations alternatives and the effort to include the public in the development of this study. However, this study fails to fully consider several key impacts on aquatic resources. Moreover, the study fails to offer an alternative which significantly improves water quality and benefits aquatic species. We hope you will expand upon your analysis of potential impacts on water quality and aquatic habitat in the final EIS. **Southern Environmental Law Center, 3612**

Response to Comment 35: The system operating parameter that appears to have the most direct effect on water quality is reservoir water retention time. TVA's 1990 EIS on its proposed Lake Improvement Plan addressed this issue. TVA changed the date for unrestricted water releases on most tributary reservoirs from June 1 to August 1 and mitigated potential water quality impacts at select locations by installing equipment to increase DO concentrations. Reversing that decision—changing back to the June 1 release date—was an element of the Summer Hydropower Alternative. Our analyses indicate that some, but not all, water quality parameters would be beneficially affected. The effect on other parameters would be variable or adverse.

It may be possible to combine operating elements in additional ways in order to achieve more consistent beneficial effects on water quality, but this would likely require more frequent and aggressive water releases. Such an alternative would be strongly opposed by a large segment of TVA reservoir users. A substantial majority of those commenting on ROS alternatives prefer a completely opposite operational change; that is, retaining water longer in order to maintain reservoir levels longer. Because of the concerns about water quality effects expressed here and by others, TVA has formulated its Preferred Alternative to lessen potential water quality impacts, as compared to other alternatives that would enhance recreation.

36. The DEIS Should Be Supplemented With an Alternative Designed to Protect Aquatic Habitat and Species. The DEIS admits that "no policy alternative represents a clear benefit to aquatic resources." DEIS at 5.7-31. Actually, most alternatives will decrease instream flow, lower DO and adversely affect biodiversity. DEIS Table 5.7-02, Table 5.7-04, Table 5.7-05; DEIS at 5.7-29. This is contrary to the stated intent of the ROS, which is to

determine whether changes in operations policy would increase public benefits. DEIS at 1-4. **Southern Environmental Law Center, 4225**

Response to Comment 36: The intent of the Tailwater Habitat Alternative was to improve biodiversity and aquatic habitat by more closely approximating natural flow conditions. This was accomplished by reducing hydropower peaking and releasing a portion of the natural inflow on a continuous basis. However, this alternative would result in unacceptable adverse impacts on other operating objectives. To further address this, TVA formulated its Preferred Alternative that responds to the public's desire for increased recreational opportunities, while reducing adverse impacts associated with the action alternatives identified in the DEIS that would enhance recreation.

37. During the scoping process, the public expressed a strong desire for TVA to protect aquatic biodiversity and threatened and endangered species and to improve water quality and aquatic habitat. DEIS at 1-12. The DEIS characterizes these issues as "objectives , " yet no alternative meets these objectives .An alternative which meets these objectives and provides appreciable benefits to aquatic habitat and species throughout the Tennessee River system must be evaluated as one reasonable alternative. Under NEPA, this alternative cannot be ignored. Dubois v. USDA, 102 F.3d 1273, 1289 (lst Cir. 1996), cert. denied 521 U.S. 1119 (1997). **Southern Environmental Law Center, 4227**

Response to Comment 37: See Response to Comment 36. The Tailwater Habitat Alternative was formulated specifically to enhance aquatic habitats and promote biodiversity. Unfortunately, the subsequent analyses of this alternative suggest that it largely failed to improve aquatic habitats and minimize variable effects on aquatic resources overall. TVA has now formulated its Preferred Alternative to offset some of the projected adverse effects on aquatic resources and water quality. TVA consulted with the USFWS about the potential impacts of this alternative on threatened and endangered species. TVA's analyses and USFWS' Biological Opinion are included in the EIS. TVA believes the range of alternatives analyzed during this EIS process was adequate, and that the alternative formulation process used by TVA has been well explained in the EIS. Unlike a proposal to expand a ski area and increase snow-making capacities for skiing, there are countless possible alternative policies for operating the TVA reservoir system. The objectives of the alternative suggested here were made part of the alternatives examined in this EIS.

38. While we understand that attaining the appropriate balance for all the purposes and uses of the Tennessee River System will be a difficult job, we urge that the effects of the final River System will be a difficult job, we urge that the effects of the Final River System operating policies on all of the Valley's residents be taken into consideration, especially those who are not in regions of the Valley that can take advantage of all the uses of the Tennessee River. **TVPPA, Richard C. "Dick" Crawford, President & CEO, 4239**

Response to Comment 38: TVA was aware that the varying segments of the public served by TVA would be benefited and affected differently by any changes it may make to its existing operations policy.

39. It would be very helpful if the impact of each alternative on lake levels could be graphically depicted in the handouts and supporting materials. It can be challenging to determine what the impact of each alternative is predicted to be on lake levels. This is the primary concern of most attendees tonight. **Valerie Smith, 2424**

Response to Comment 39: Based on workshop attendee responses, reservoir operating guide curves appear to be readily understandable and may provide the graphical depiction sought by this commenter. For the workshops that TVA held throughout the TVA region on the DEIS, staff set up computers and large projection screens to show how changes in operating guidelines would affect the levels of reservoirs of interest to attendees. Elevation probability plots along with flood guides for tributary reservoirs and operating guide curves for mainstem reservoirs under the Preferred Alternative are in Appendix C.8.

40. This is a comment on the entire revised survey form. The original was more informative and easy to read but the shoreline draft which was done a few years ago was a much better way to present the information so that a person could make an informed comment. In other words, you have made a simple presentation very complicated and should just refer back to the shoreline study and redesign the format to show all the information in a chart form. Please respond **W.L. Panter, 2436**

Response to Comment 40: Comment noted.

Authority

1. What I don't understand about TVA is why every time we have a meeting with them, with LOUD, they send a representative, they never answer questions. It's always asked who is TVA responsible to. The people or the congress? They're supposed to be -- I understand they're supposed to be responsible directly to congress. I'd like to find that out. I'd them to respond to that some way. **G. L. and Billie Bowman, 4423**

Response to Comment 1: TVA is a federal agency. A three-member board governs TVA operations, and Congress provides oversight of TVA activities.

2. TVA is funded by the federal government and it is the government that will be receiving benefits of a lifetime by having productive citizens earning good wages and paying taxes instead of the government having to spend on them for lack of opportunity for a better education. **George Gantte, 4547**

Response to Comment 2: TVA is not funded by the federal government and receives no federal appropriations to fund its activities.

3. One thing, the water originates here in Georgia, and we seem to have the least use of it of any of the people downstream. They draw it right out and send it down to do whatever they want to do with it downstream and leave our lakes practically dry most of the year. We feel that like we should have first choice on this water and that we should have a fuller lake for a much longer period of time. **Glen and Janice Boland, 4450**

Response to Comment 3: Comment noted.

4. Past experience has shown, on South Holston Reservoir, that retaining greater quantities of water to extend the boating season has had the effect of reducing the ability to control flooding below the dam. There was an experiment run since 1990, and it had the effect of raisng the lake level almost to its overflow level. As a result of having held back a greater quantity of water, the influx of water from the streams feeding the lake due to storms is what caused the lake level to rise to dangerous levels.

I live below the dam. Outside of the above example, TVA's management of its properties has been excellent. I have been a user of the lake, with two separate boats, I use the park facility below the dam, I occassionally fish in the river, and I live on its banks.

TVA's enabling legislation, 16 USC, Sect 381, mandates navigation below Knoxville and flood control elsewhere as the purpose for creation and continuation of the Authority. Sub-section 381h-1 states that the operation of the dams is primarily for the purpose of navigation and flood control.

If TVA, for purposes of meeting the needs of a few boaters, and dock owners, increases the amount of water behind South Holston Reservoir so as to increase the need from time to time to release greater than normal quantities of water downstream, it will have violated its purpose and will be acting outside of its legal authority. Resulting damage to me and my neighbors will be considered actionable. **James Elliott, 172**

Response to Comment 4: Section 9a of the TVA Act (16 U.S.C. sec. 831h-1) directs the TVA Board to operate the TVA reservoir system primarily for the purposes of promoting navigation and controlling floods and, to the extent consistent with such purposes, for the generation of electricity. Consistent with these priorities, the TVA Board has discretion to adjust operations, including achieving collateral benefits, such as recreation. Under the Preferred Alternative, potential damages from flood events with less than a 500-year frequency would be lower than under the other action alternatives and essentially the same as under the Base Case.

5. I hope that TVA will not in attempting to meet the recreational needs of boaters forget that they will be creating dangerous situations for flood control, and I would remind the Authority that it was created and that creation or that enabling Act that created TVA still states that it's created for the control of destructive flood waters in the Tennessee Water basin and Mississippi River basin in section 831 of the U. S. Code. And 831-H-1 requires that the Board regulate stream flow primarily for the purposes of promoting navigation and controlling floods, and you're authorized to provide and operate the facilities for electric energy whenever the opportunity is afforded. Recreation is really not mentioned in the Act.

So your primary object is navigation on the streams from Knoxville Dam; flood control on all the streams, particularly in the areas above Knoxville; electric energy generation when that can be accommodated without jeopardizing your flood control purpose and activity.

So what we're asking is, and I say this for all my neighbors, we're very concerned about flood control south of the dam or below the dam, South Holston Dam, and bring to your attention the fact that your governmental purpose, the reason for TVA's existence, is primarily for the control of destructive flood waters in the Tennessee River basin. **James W. Elliott, Jr., 4357**

Response to Comment 5: See Response to Comment 4.

6. The comments one most often hears concerning TVA are as follows**:**
TVA is arrogant. TVA never changes. TVA only cares about electric production. You are wasting your time trying to get them to change drawdown dates. For too long the tributary lakes have been the neglected stepchildren of the TVA system. The tributary lakes are TVA's electrical cash cow yet the benefits accrue downstream. **John Parker, 871**

Response to Comment 6: Comment noted.

7. We bought property up here three years ago. We had a lake when we bought it. After September, the lake went down, turned into a big red mud hole; it wasn't a lake anymore. Whose water is it anyway? I mean, if it rains up here, it seems like it ought to be our water, even though TVA did build the dam. **Marcia Papatyi, 4363**

Response to Comment 7: Comment noted.

8. Constraints Introduced Outside Mississippi**:** The introduction of legislation by the State of Tennessee on inter basin transfers of waters on or through Tennessee stands to restrict both transportation and water resources for human use. We request that TVA use its collective influence to assure that the needs downstream are considered through this process. We also have concern that if the Great State of Tennessee claims the water from Tennessee sources that they also assume the responsibility for flooding that occurs when those waters leave that state and impact Mississippi and other states.

Conclusion**:** Our main concern is fairness and availability that will enable our communities to continue to receive water resources from the TVA reservoir system. **Mayor Larry Otis, 4349**

Response to Comment 8: Sections 4.5 and 5.5 address water supply issues. Appendix D9 presents an analysis of potential effects from inter-basin transfers including operation of the Tennessee–Tombigbee Waterway.

9. There is a major snag to this or any other alternative which changes the water level on Kentucky Lake and therefore Lake Barkley. Since the USACE controls Lake Barkley and per your report, they would need to do studies for which they have no money or authority, nothing can be done on either lake for some time. I believe the solution is to turn over the day to day operation of Lake Barkley to TVA, let them extend their study to the lower Ohio and Mississippi and then let them implement their findings. This will be substantially less expensive then having the USACE do a separate study by starting over with new contractors and a new approach and then trying to beat the two together for some compromise. Let the USACE continue to have over-riding authority in cases of National Emergency or Homeland Security and allow them to use their already scarce resources toward this end. **Stephen D. Hiland, 2827**

Response to Comment 9: TVA agrees that applying possible changes to its operating guidelines at Kentucky Reservoir is complicated. USACE expressed concerns about changing operations on Kentucky Reservoir because of the potential effect on the lower Ohio and Mississippi Rivers. Its position is that any proposed changes that would involve reduction in flood storage capacity would need to be evaluated within the context of the

entire lower Ohio/Mississippi River system. In addition, USFWS, other agencies, and some individuals voiced concerns about changing operations on Kentucky Reservoir. The Preferred Alternative identified in the FEIS would not change the operating guide curves for Kentucky Reservoir.

F3.4 Cumulative Effects

1. The water quality modeling that was done to evaluate the water quality effects of the various alternatives is impressive. I have a concern about cumulative water quality impacts of incrementally extending summer pool levels in each reservoir operations review (TVA seems to be doing them every 10 yrs or so now). While it is good to review the operations policy, using the current policy as Base Case each time results only considers the incremental changes, which might seem acceptable, and not the cumulative changes, which might not be acceptable.

I believe this is particularly true for reservoir water quality. During the previous operation review (1987-1991), summer drawdown was delayed from about June 15 to Aug 1 in many reservoirs. This had a modest water quality impact, and now 10 years hence we are talking about further delays in summer drawdown timing, which will further impact water quality in the reservoirs. So in a short period of 10-15 years, significant impacts are likely relative to pre-1991, yet using "current" conditions as Base Case, ignoring the changes already made, is masking the true cumulative impacts.

I think this should be addressed, at least on a small scale for a few reservoirs (e.g., Douglas, Cherokee), to show how important cumulative impacts might be. And certainly if TVA repeats these lake level policy reviews every 10 years, succumbing to pressures to hold summer pools longer each time, the cumulative impacts will dwarf the incremental impacts, so cumulative impacts should be given more consideration. **Gary Hauser, 49**

Response to Comment 1: The analysis of the Base Case (the No-Action Alternative for purposes of this EIS) and the description of existing resource conditions in Chapter 4 capture the effects of previous operations policy changes, including the effect of extending unrestricted drawdowns from June 1 to August 1. A comparison of the water quality effects under the Base Case and the Summer Hydropower Alternative, which moves the date for unrestricted drawdowns back to June 1, suggests how water quality was affected by the changes made as a result of TVA's 1990 Lake Improvement Plan. The action alternatives that would extend the date for unrestricted drawdown would increase water retention time in reservoirs and result in adverse impacts on water quality. In the formulation of its Preferred Alternative, TVA substantially reduced the adverse effects associated with other alternatives that would enhance recreational opportunities by extending summer pool levels on a number of reservoirs. However, anoxic conditions potentially increase in a number of reservoirs in dry years for a limited period in late summer, even under the Preferred Alternative. While TVA has reconsidered its reservoir system operations policy in the past and is doing so again here, TVA is not committed to doing this periodically. Future events will dictate when and if TVA conducts another analysis of this nature. The water quality analyses conducted for the ROS suggest that it would be very difficult to further extend summer pool levels (even with mitigation) without causing, or contributing to, unacceptable water quality impacts.

2. The Cumulative Impacts Analysis Needs to be Strengthened

First, the DEIS portrays the effects of the reservoir operations alternatives as minor and, therefore, without significant cumulative impacts on the environment. DEIS at 6-3- 4. The DEIS ignores the reality that TVA's management of the Tennessee River has already wrought extremely significant impacts, transforming a free-flowing river to a series of reservoirs with limited stretches of river in between some of them. In addition, small impacts multiplied many times over throughout the entire Tennessee River system could, in the aggregate, significantly affect water quality and aquatic species. ~ 40 C.F.R. § 1508.7; Natural Resources Defense Council v. Hodel, 865 F.2d 288, 297-300 (D.C. Cir. 1988) ; Neighbors of Cuddy Mountain v. USFS, 137 F.3d 1372, 1378-80 (9th Cir. 1998) ; Pacific Coast Fed'n of Fishermen's Ass'ns v. Nat'l Marine Fisheries Serv., 265 F.3d 1028 (9th Cir. 2001) .

Second, the DEIS fails to consider the cumulative impact of the effects of reservoir operations combined with the effect of other activities in the Tennessee River watershed. In particular, the DEIS does not provide meaningful information about the cumulative impact of inter-basin transfers and related water withdrawals from the river. Early in 2002, the Tennessee Department of Environment and Conservation (TDEC) placed a moratorium on permits for inter-basin transfers pending the completion of this ROS. TDEC and the public expected the ROS to provide necessary information about the cumulative impacts of anticipated and potential inter-basin transfers on aquatic resources. The ROS, planned as a comprehensive study of the entire Tennessee River system, appeared well-placed to provide this long-overdue information. Not only does the DEIS fail to meet expectations, but this information is a crucial component of NEPA cumulative effects analysis.

The DEIS predicts inter-basin transfers will increase by 488 mgd by 2030, in addition to potential flows of up to 600 mgd through the Tennessee-Tombigbee Waterway. DEIS at 4.5-6; DEIS Appendix D9-2. The DEIS does not clearly state whether these transfers are in addition to existing inter-basin transfers or whether these are the total estimated transfers by 2030.

We understand the speculative nature of some of the long-term withdrawals, including potential inter-basin transfers to serve Atlanta and Birmingham, but TVA should at least outline the factors used in estimating inter-basin transfers for the 2030 time frame and identify the assumptions made and the degree of uncertainty for that estimate.

The DEIS purports to analyze the "sensitivity" of the Tennessee River to inter-basin transfers, yet the DEIS considers only the effect of water withdrawals on median reservoir elevation. Given the pressure from some members of the public to maintain reservoir levels, we are concerned that water releases from dams will be reduced if reservoir levels begin to drop as a result of large withdrawals. The DEIS ignores the effect of predicted inter-basin transfers on water quality and quantity, in particular instream flow levels necessary to protect aquatic habitat. The DEIS should evaluate the flow levels and trends necessary to

support aquatic life in the Tennessee River and its tributaries. Based on this information, the DEIS should determine the Tennessee River's ability to accommodate water withdrawals.

Although the DEIS is vague about the source of future requests for other withdrawals from the Tennessee River system, the DEIS predicts future consumptive water needs will more than double. DEIS at 4.5-5-6. Again, we would appreciate it if you provided further detail about the uses expected to increase and the factors and assumptions involved in the estimates. Moreover, development in the Tennessee River watershed is expected to increase, bringing other pressures to bear on the watershed. Development in the region "may result in regional impacts, such as reduction in habitat, changes in surface water runoff, increased water use, and increased wastewater for disposal." DEIS at 6-15. The DEIS predicts these significant effects will occur but then breaks off the analysis.

NEPA requires TVA to consider the cumulative impact of its reservoir operations when added to the effects of other activities in the Tennessee River watershed. See 40 C.F.R. § 1508.7. Through this analysis, TVA. should predict the future pressures on aquatic resources and determine how its reservoir operations will affect those resources. TVA cannot avoid this analysis by concluding that future demands on water resources "may or may not lead to cumulative impacts on the quality of water resources." DEIS at 6-3. Likewise, the DEIS cannot evade thorough analysis by concluding, without evidence, that cumulative impacts are unlikely because the effects of the alternatives and existing management plans would be within the "range of natural variability". DEIS at 6-15. What does that mean?

Further, TVA cannot defer cumulative impacts analysis until future project-level analysis. Thomas v. Peterson, 753 F.2d 754 (9th Cir. 1985); Neighbors of Cuddy Mountain v. U.S.F.S., 137 F.3d 1372 (9th Cir. 1998). Future project-level analyses cannot conserve water resources and protect species throughout the region and is no substitute for comprehensive cumulative impacts analysis in this DEIS. Nor can the DEIS rely on other federal and state regulatory programs, "such as establishment of TMDLs" to "maintain certain levels of water quality and minimize cumulative effects," DEIS at 6-3, at least not without some evaluation of the effectiveness of those other programs. There is no support for the conclusion that these programs, standing alone, can protect aquatic resources and avoid cumulative effects. The TMDL program, in particular, has never been implemented adequately and thus far has failed to measurably improve water quality. Now, with the recent rescission of USEPA's July 2000 TMDL rules, the program appears less likely than ever to result in meaningful improvements……

We urge you to revise this draft EIS to fully analyze the cumulative impacts of reservoir operations and other activities in the region on aquatic resources. In particular, the public and Tennessee state agencies expect the final EIS to include comprehensive, meaningful information about the cumulative effect of inter-basin transfers and other water withdrawals on aquatic species and habitat. We also urge you to develop an alternative which substantially improves water quality and benefits aquatic species. A supplemental draft EIS

should then be released for public comment before a final decision is made. **Southern Environmental Law Center, 2283**

Response to Comment 2: Chapter 6 has been substantially modified, in part to respond to some of the concerns expressed here and clarify the information. Both Chapter 6 and specific resource sections in Chapters 4 and 5 discuss existing resource conditions and their trends over the next 30 years. Environmental analyses are unavoidably and inherently uncertain, especially those involving long periods and large regions. Because cumulative impact analyses require predictions about what others may do in the future that could affect resources potentially affected by a proposed action, this uncertainty can quickly become speculation when potential cumulative impacts are discussed. TVA's analysis of cumulative impacts appropriately recognizes this uncertainty and its speculative nature. In recognizing this, TVA is not seeking to avoid conducting cumulative impact analyses until more site-specific actions may be proposed and may be less speculative. Rather, failing to recognize the uncertainty and speculation involved in these analyses here could mislead others into believing that TVA's ability to predict the future is more certain than it is or can possibly be.

As suggested by a number of commenters, including the Department of the Interior, an appropriate way of addressing the uncertainty of future predictions, including cumulative impact predictions, is to monitor and measure changes to potentially affected resources and be prepared to flexibly adjust operations policy in response. This is called adaptive management. As Section 3.4.1 discusses, TVA has long used an informal adaptive management approach to management of its reservoir system and is committed to doing so in the implementation of any changes that result from the ROS. See Chapter 7 for the monitoring programs that TVA expects to conduct in order to implement this approach.

The possible consequences of inter-basin transfers are a good example of an uncertainty for which TVA accounted in its analyses. Sections 4.5 and 5.5 provide specific information and analyses about water supply and the inter-basin transfers. In the Base Case, TVA assumed that flows from the Tennessee River system down the Tennessee–Tombigbee Waterway (an inter-basin transfer) would increase up to 600 million gallons per day, albeit this amount is uncertain and involves some degree of speculation. The waterway is designed for this flow, however, and we think it is prudent to assume that it will be reached eventually. As a Base Case assumption, this is part of all of the resource analyses in the EIS.

Other inter-basin transfers are more uncertain and speculative. Not only do we not know what amounts could be involved in future inter-basin transfers, but we also do not know the location on the TVA reservoir system from which they might be withdrawn. Both of these facts are important in reasonably determining potential impacts on water quantity and other resource conditions. To get a sense of how important large inter-basin transfers could be, TVA prepared a sensitivity analysis and provided the results of this analysis in Appendix D9. TVA concluded that subject to the withdrawal location, the TVA system could handle several additional transfers from the standpoint of the quantity of water in our system. Because TVA should be able to control future inter-basin transfer proposals through its

Section 26a permitting authority over water withdrawal structures on the Tennessee River system, TVA will be able to better account for the effects of such proposals when the specifics of any such proposals become known.

Sections 4.5 and 5.5 and Appendix D9 provide substantial details about our inter-basin transfer analyses and estimates of future demands on the TVA reservoir system. Two important technical reports provide much of the foundation for our analyses. These are referenced in Chapter 10, Literature Cited**:** Bohac, C. E. 2003 (Water Supply Inventory and Needs Analysis) and Hutson et al. 2003 (Estimated Use of Water in the Tennessee River Watershed in 2000 and Projections of Water Use to 2030). Both reports are in TVA's administrative file for this action. The latter report is a U.S. Geological Survey report.

3. The DEIS fails to address whether the adverse effects of these [policy] alternatives, especially cumulative effects, jeopardize the continued existence of threatened and endangered species, in violation of the Endangered Species Act. 16 U.S.C. § 1536(a) (2); 50 C.F.R. § 402.02. The survival of endangered species is already at risk. It seems likely that the adverse effects of these alternatives could reduce the numbers and distribution of species and impair reproduction, thus further reducing the likelihood that these species will recover. 50 C.F.R. § 402.02. **Southern Environmental Law Center, 2285**

Response to Comment 3: TVA's analysis of potential impacts on protected species in Section 5.13 considers direct and indirect effects. All cumulative effects are addressed in Chapter 6. TVA consulted with USFWS about the potential impacts of the Preferred Alternative on protected species. USFWS' Biological Opinion is included in the EIS (see Appendix G). TVA concluded that its Preferred Alternative would not adversely affect most of the protected species in the region and would not affect any species sufficiently to jeopardize their continued existence.

F3.5 Mitigation

1. Maybe a plan to try for a trial period for the most popular alternative would be feasible. **Barry Hinkle, 1933**

Response to Comment 1: This suggestion is a form of adaptive management. TVA has long used an adaptive management approach to operation of its reservoir system and intends to continue to do this, regardless of which alternative is selected. This involves extensive monitoring of a number of different reservoir and ecological parameters, and flexible application of reservoir operating guidelines that consider the monitoring results. See Section 3.4 and Chapter 7.

2. I suggest that if lake levels are changed to provide for higher lake levels in late summer, fall and winter, that mitigation areas be established to replace important habitats for shorebirds and waterfowl that are reduced by such actions. **David Vogt, 3420**

Response to Comment 2: The FEIS more closely examines the potential impacts on migrating birds. Our analyses show that habitat changes—both increases and losses—would vary across the alternatives and across reservoirs within alternatives. Discussion of possible mitigation measures in Chapter 7 has been expanded in light of the identification of TVA's Preferred Alternative. TVA's Record of Decision will identify those mitigation measures to which TVA commits.

3. [If you choose to deviate from the Base Case] I urge TVA in the strongest terms to (1) mitigate the loss [of critical habitat for migrating shorebird, herons and egrets] by providing a comparable or greater amount of habitat distributed across the reservoir system, and (2) commit to properly manage this replacement habitat in perpetuity. **Elizabeth Wilkinson-Singley, 3422**

Response to Comment 3: The FEIS more closely examines potential impacts on migrating birds. The discussion of possible mitigation measures in Chapter 7 has been expanded in light of the identification of TVA's Preferred Alternative. This alternative was formulated partly to avoid or reduce potential environmental impacts associated with some of the alternatives identified in the DEIS. For example, no changes were made to the operating guides on Kentucky Reservoir—in part to avoid affecting important flats and other wildlife habitats. TVA's Record of Decision will confirm the additional mitigation measures that TVA decides to implement. Our analyses show that potential habitat changes—both increases and losses—would vary both across the alternatives and across reservoirs within alternatives.

4. Even characterizing the "Base Case" as the starting point is unfair. These lakes and reservoirs are "marketed" to the public as recreational assets. They should be operated as such, subject to minimizing adverse effects in other areas. As long as the TVA and Corps maintain shoreline control as present, any adverse effects can be mitigated to a sufficient degree. **Mark Patterson, 2900**

Response to Comment 4: There are approximately 10,995 miles of shoreline along the TVA reservoir system. Of this amount, TVA has flowage easement rights only over 21 percent. This gives TVA the authority to flood the property as necessary and to control the installation of structures, but the property owner otherwise controls use of the shoreline. Of the remaining shoreline, approximately 54 percent is "owned" by TVA, but others have rights to use or cross the property to access the water. TVA has essentially total control over the remaining 25 percent. The Corps has regulatory authority over some kinds of actions that occur on TVA-controlled property, but the Corps has no "ownership" interests. The TVA Act establishes the operating priorities of the TVA reservoir system. These are navigation, flood control, and power generation. Consistent with these purposes, TVA also operates the system to achieve other benefits, such as water quality, recreation, and water supply.

5. Mitigate loss through creation of other suitable habitat, purchase of other habitats (assuming purchase isn't a high priority habitat for other valuable resources).

Evaluate (research if necessary) use of areas and impact of habitat loss to shorebird energetics during migration. **Mary Stevens, Jackson Audubon Society, 2480**

Response to Comment 5: See Response to Comment 3. The discussion of potential impacts on migratory shorebirds and waterfowl has been supplemented in the FEIS. Purchase of compensating habitat is routinely considered by TVA in the implementation of specific actions. TVA questions the feasibility and appropriateness of this kind of mitigation approach for a region-wide proposal such as the ROS. The potential impacts on these resources would occur, if at all, slowly over a long period of time. A better approach to addressing such potential impacts is to reformulate the proposal to reduce the risk of such impacts. TVA has done this with its Preferred Alternative.

6. Our organization urges TVA to carefully consider the detrimental effects on bird populations that may result from many of the policy alternatives. We are strongly opposed to all alternatives that call for maintaining high lake levels. We further suggest that if such alternative is selected that mitigation areas be established to replace important bird habitats lost due to changes in lake level management. We are disappointed that such mitigation measures are not described in the draft EIS; their absence limits the opportunity for the public to evaluate and comment on them. **Virginia B. Reynolds, President, Tennessee ornithological Society, 3792**

Response to Comment 6: See Responses to Comments 3 and 5.

F3.6 Out of Scope

1. Glad that that miserable, wretched proposal years ago to have LBL theme parks, hotels, playgrounds was so despised that it was abandoned before USFS took LBL. **Anonymous, 3249**

Response to Comment 1: Comment noted.

2. Public should be made more aware of the potential good or bad of plants and trees they may be placing on our shorelines so as not to damage the environment over the long term. **Anonymous, 606**

Response to Comment 2: To address this issue, TVA actively works in partnership with reservoir users, other citizen groups, and local agencies to provide information on native plant species that may be used in stabilizing shorelines. TVA's Native Plant Selector web site may be of assistance for the commenter in selecting appropriate native vegetation for planting along Tennessee Valley region shorelines and stream banks**:** http**:**//www.tva.com/river/landandshore/stabilization/plantsearch.htm.

3. On the shoreline on Lake Hiwassee at Bear Paw we noticed several trees that were leaning into the water. If these trees fall or fall accidentally on a boat or in the water someone could get injured. Will you please look into this for us. **Anonymous, 451**

Response to Comment 3: TVA has sent this comment to the TVA Watershed Team that is responsible for the Hiwassee Reservoir.

4. Much attention should be paid to keeping the waters protected from the human element including limited use of houseboats, camp sites with no restroom facilities, or a dumping station that boaters are encouraged to use for boats, houseboats and campsites. **Anonymous, 2376**

Response to Comment 4: TVA works cooperatively with federal and state agencies with regulatory authority over activities that affect water quality in TVA reservoirs. TVA has a number of programs that are designed to encourage more environmentally sound use of its reservoirs, including its Clean Marinas Initiative.

5. There needs to be more regulation of residential development on feeder water channels into Lake Nottely as well as the River (Nottely) itself. **Arline Hodgson, 1803**

Response to Comment 5: TVA's SMI addressed residential shoreline development along TVA reservoirs. This culminated in a 1998 FEIS and policy changes that limit future development. Local and state agencies may regulate certain development activities in areas or circumstances where TVA does not have jurisdiction.

6. I would like to see strict enforcement by TVA of its permit responsibilities for docks, marinas, wastewater treatment systems, and the like. Shoreline development above the TVA easement that impacts the easement can be regulated through the permitting process. **Barbara Garrow, 2034**

Response to Comment 6: TVA recently amended its regulations that implement Section 26a of the TVA Act (TVA's permitting regulations). These amendments should enhance TVA's ability to ensure that future development along reservoir-system shorelines is acceptable. The Section 26a regulations can be accessed and viewed on TVA's web site**:** http**:**//www.tva.gov/river/26apermits/regs.htm#where.

7. A few years back there was a proposal prohibiting shoreline owners from cutting any vegetation a distance up to 6 ft from shoreline. This was opposed by many property owners. As a result of this feedback TVA abandoned this rule. I applaud TVA's willingness to listen and appreciate their soliciting of public input. **Bob Graham, 2195**

Response to Comment 7: Comment noted.

8. Houseboats- These are very detrimental to lake property. They at least need to be regulated to certain parts of the lake. i.e. the marina. **Carolyn Ippisch, 3134**

Response to Comment 8: See Response to Comment 4.

9. I think that Kentucky Dam should be staffed to enlighten visitors with personal input from former workers with enough knowledge to help them if they are visitors to the area. **Clinton Horton, 2777**

Response to Comment 9: Comment noted.

10. I urge continued and expanded support of the Boone Watershed Partnership since the water quality of the lake must begin with improved water quality of the 600+ streams that flow into the lake. **Don Cross, 282**

Response to Comment 10: Comment noted.

11. TVA police and other groups such as TDEC need a houseboat inspection program to stop sewage dumping from houseboats. The only solution is an annual inspection of all navigable houseboats and non-nav 4F structures. This step is vital to improving water quality of Boone Lake. **Don Cross, 4191**

Response to Comment 11: See Response to Comment 4.

12. The environmental situation of uncontrolled growth along the shoreline is a serious concern and must be managed to conserve the system for the whole valley. **Doug Triestram, 1768**

Response to Comment 12: See Response to Comment 5.

13. I further hope that when the board is reconstructed they decide to include at least two special members, one to represent the environmental interests and one to represent the recreational interests of land owners and users of Douglas Lake. **Drew Danko, 1026**

Response to Comment 13: Comment noted.

14. There is also a need for all regulations that cover Boone Lake to be enforced for everyone. There are persons who have cut trees and just let them fall into the lake **Fred Frazier, 264**

Response to Comment 14: TVA works in a coordinated effort with regulatory agencies that have control over such actions in order to maintain and improve water quality in its reservoir system.

15. What concerns me is the fact that some boaters are actually filling tanks or bladders provided by the boat maker, in the bottoms of their boats with several gallons of water in an

effort to make the boat heavier, therefore enabling the boat to throw out a larger wake for the wake boarders to jump and do their thing, which is alright to do but not to the 2' to 3' wakes these boats are putting out. They are really washing away the shoreline, more so than the "normal"boater. Additionally, the wakes are actually dangerous for other boaters, especially pontoon boats. I have been nearly thrown overboard on more than one occasion. They really rock a boat. In summary, I think this needs attention. **Fred Overbay, 1092**

Response to Comment 15: State agencies, not TVA, regulate watercraft operation on TVA's reservoirs.

16. I think you are out of the fertilizer business now. Most other companies in the south are also out of that business. I commend you for that. **Harold Andrews, 2175**

Response to Comment 16: Comment noted.

17. This classification doesn't exactly address the problem I'd like to bring up, but it's the closest one I could find. The problem is overboard discharges from boats, both commercial and recreational. I happen to live in a marina that has pump out facilities at the dock but there are boats here dumping overboard and don't have holding tanks. Even though the marina "rules" say boaters that are overboard discharging will be asked to leave, nothing is done. What can be done by TVA to help keep our waters clean? **Harold DeHart, 2136**

Response to Comment 17: See Response to Comment 4.

18. We are very much concerned that the many small islands, as well as Seven Mile Island on Pickwick Lake, are being used as personal camping areas, resulting in the destruction of these sites. In many cases, trees have been cleared and trash is always present. Are there laws that prevent the use of the islands in this destructive manner, and who enforces them, if there are any? **Judy Kirchner, 2467**

Response to Comment 18: This has been referred to the TVA Watershed Team that is responsible for Pickwick Reservoir.

19. Three times now while I have been typing, this computer has randomly placed the curser up in the middle of the text and started typing there. I do not have time to make any other changes and will try to comment further over the internet on my computer. This is very frustrating!!! **Lamar Paris, 2416**

Response to Comment 19: We apologize for any inconvenience that this may have caused you.

20. I don't like bugs and snakes, but accept them as part of the outdoors. Too many communities are being built at the edge of our lakes and rivers and wiping out the very habitat that made the house on the lake so desirable. TVA should consider stronger restrictions for homes and communities that build on or near aquatic areas. **Larraine Nobes, 21**

Response to Comment 20: See Response to Comment 5.

21. Thank you so very much for your efforts to continue to educate the community on water quality. Several local farmers through your education have become aware of containment of animals in the streams increases water quality. The presentations were expertly completed and presented. Hats off to your staff. **Marianne O. Hatchett, 1406**

Response to Comment 21: Comment noted.

22. On a side note, I certainly would like to see the Visitor Centers at the various dams opened back up to the public, even if under some degree of tighter security. While I understand the potential devastation that could result from a terrorist attack, there should be some way that individuals that have an interest should be able to tour the facilities. **Mark Wiggins, 2283**

Response to Comment 22: TVA appreciates the public's interest in its dams and strives to accommodate that interest, consistent with security needs.

23. We do not understand why Cherokee County, or State of North Carolina and TVA/USDA allowed this residential subdivision to be created within Nantahala National Forest with only boundary surveys filed on April 1994 without any engineering data or information regarding existing soil types or data concerning road construction and storm drainage requirements, septic system perk test or possibility of well water potability including probably well depths. The developer L.B. Land & Timber Co. Inc. purchased 91.30 acres and subdivided the property into 56 lots. All lots were sold within two years and six months for between $840,000 to $1,120,000 total minimum sales value, then declared bankruptcy so the Homeowner's Association would be responsible for any problems, pretty neat deal. **Thomas L. Parker, 3996**

Response to Comment 23: This EIS focuses on the reservoir system operations policy, not issues of the sort identified in this comment. If this development resulted in potable water quality problems, appropriate agencies from the State of North Carolina should be contacted.

24. [S]ince Jan/Feb 2003 I have been trying to confirm the correct flood plain data that should be in effect for Cherokee County including raising flood level up 8'0" at July 2, 1995 and why it was suddenly raised. **Thomas L. Parker, 3989**

Response to Comment 24: This has been referred to TVA staff who are responsible for floodplain evaluations.

25. Current policy of allowing individuals to camp on lake islands and shore lines without enforced regulations or laws which protect the environment is resulting is accelerated erosion of many islands and shore lines. Individuals currently feel free to camp anywhere they please on most TVA shore lines and islands. Many of these camp sites have temporary structures, unsanitary trash littering the area, make-shift in-ground toilets or worse, and evidence of long-term occupation resulting in killing of ground vegetation through overuse or mowing and weed eating, cutting of trees, etc. This unabated abuse of precious ecologically significant sites (this should include most all river shoreline and islands) has resulted in increased island and shore line erosion and adverse environmental impact. Recommend policy change and enforcement which prohibits destructive use of our river islands and shorelines. Request a written response to this comment stating current policy and responsible enforcement organization. (Specifically, who is the enforcement

authority on Pickwick Lake around the Seven Mile Island area where significant environmental damage has been observed due to camping and cutting of trees?) Also, request notification of the manner in which this comment was dispositioned, to include planned policy changes. **Tim Kirchner, 2558**

Response to Comment 25: This has been referred to the TVA Watershed Team that is responsible for Pickwick Reservoir. TVA works closely with federal and state agencies with regulatory authority over the kind of activities identified in this comment. Unfortunately, resource limitations at all levels hinder more aggressive enforcement.

26. This comment pertains to Water Safety rather than Dam Safety. The Georgia Law, "No wake at 100 feet from boat docks & etc" should be enforced for all water craft. **Tony E. Branan, 2953**

Response to Comment 26: State agencies, not TVA, regulate watercraft operation on TVA reservoirs.

27. The only constructive suggestion that I can make is that from my experience operational procedures once put in place are seldom, if ever, reviewed in light of changing conditions or environmental changes. Thus, it would seem that this study has served a very useful purpose even if no major changes are made. **Walter E. Flood, 1902**

Response to Comment 27: Comment noted.

28. We look forward to future years working closely with TVA to optimize all resources and provide more Green Power! **Wayne Gallik, 4169**

Response to Comment 28: Comment noted.

F3.7 References

Bohac, C. E. 2003. Water Supply Inventory and Needs Analysis. Tennessee Valley Authority, Navigation and Hydraulic Engineering. Draft. Chattanooga, TN. December.

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_____. 1990. Lake Improvement Plan, Tennessee River and Reservoir System Operating and Planning Overview. Final Environmental Impact Statement. (TVA/RDG/EQS-91/1.)