

18. Recreational Boating Numbers

APPENDIX C: EVALUATION OF RECREATIONAL RESOURCES, SUPPLEMENT

Outline

In response to our discussion with LUPC Staff on the topic of recreational boating numbers, this supplement to Appendix C, Evaluation of Recreational Resources, has been provided to clarify the methodology used to predict potential recreational impacts on the lakes within the Concept Plan area.

Overview. Appendix C, an Evaluation of Recreation Resources (Evaluation), was prepared to provide LUPC with a) an indication of the relative number of boats that are anticipated on each of the four lakes in the Fish River Chain of Lakes in the Concept Plan (i.e., Long Lake, Mud Lake, Cross Lake, and Square Lake) and the connecting thoroughfares, if the Concept Plan were fully implemented, and b) the effect that the additional boating use is expected to have on the recreational experience of those using these resources.

The analysis in the Evaluation is based upon the Recreation Opportunity Spectrum (ROS), a recreation inventory and management tool that was developed by the USDA Forest Service in the late 1970s for use on public lands in the western United States. In 2003, a team of Vermont researchers developed a revision of ROS aimed at recreational land holdings in the Northeastern United States. This program, called the ROS Northeast Guide (the Guide), was aimed at lands similar to the Petitioner's holdings in Aroostook County, i.e., smaller land holdings (smaller than those found in the Western US), and greater number of roads. In 2004, the Forest Service issued a refinement to the original ROS for water-based recreation planning called the Water Recreation Opportunity Spectrum (WALROS). The Evaluation used both the Guide and WALROS to evaluate impacts to the recreation experience.

Summary. This Amendment re-examines the assumptions that were used in the evaluation for both Cross Lake and Square Lake, based upon comments received by LUPC staff. The Amendment takes a more conservative approach in establishing a WALROS Class for the lakes and refines the number of boats that are anticipated to be on the lakes during peak times. While the estimated number of boats for both lakes changed slightly, the increase is in line with the Evaluation, which determined that the possible development allowed under the Concept Plan will not have an unreasonable effect on the experience characterizations for either lake.

Cross Lake

Cross Lake has a surface area of 2,515 acres. The area north of the boat launch (approximately 80% of the lake, or approximately 2,000 acres) is heavily developed, with approximately 275 camps along the shoreline. The Evaluation characterized this part of the lake as Suburban (according to WALROS). Many, if not most, of these existing camps have docks, and it is assumed that they have some type of watercraft.

If all five of the residential development areas on Cross Lake were built, there would be an additional 125 units within easy walking distance of the lake. While very few of these new units would have water frontage, a limited number of water access sites and docking facilities would be available.

For purposes of determining the maximum number of boats to be expected on the lake during peak times (i.e., occurring on a warm, sunny day during a weekend or holiday) the Evaluation assumed that a) all residences had a boat and b) 15% of those households were using their boat on the water. This number is in line with a 2005 literature review of boating carrying capacity¹ in seven selected studies throughout the United States and Canada that found that the proportion of moored boats on a lake at any given time ranged from 3.6% to 25%.

Likewise, the Evaluation assumed that all new units would have boats, and that 15% of these boats would be on the water during this peak time. The following projection of boating activity (which is revised from the original Evaluation in Appendix C) also accounts for day-use boats that would gain access from the Cross Lake boat launch.

15% of 275 existing residences on lake	41 boats
15% of the 125 new units	19 boats
50% of boats from boat launch	10 boats
Total anticipated boats on Cross Lake	70 boats

These estimates are very conservative. It is unlikely that all residences in the new development areas would have boats, since there are so few water access sites. Likewise, the boat launch at Cross Lake typically has a small number of boats using the facility. And, as noted in the Evaluation, year-round residents report that on a busy July 4th there may be as many as 30 motorized boats (including jet skis) on the lake, plus another 5 canoes/kayaks. On a “typical” day during the summer, there may be as many as a dozen motorized boats on the lake. (Cheryl St. Peter, Cross Lake Resident. Personal Communication.)

Table 3, Range of Boating Coefficients, from WALROS (from the Evaluation and presented below) presents a range of “reasonable boating capacity coefficients,” which are defined as the number of water surface acres adequate for each recreational boat in a particular WALROS class. Lake users in each of the WALROS classes have an expectation of the number of boats that might be on the lake; once that number is exceeded, the perception of the lake may change. (For example, if a boater was on a lake in a Rural Natural area and the number of boats exceeded 50 acres/boat on a

¹ Hosley, Holly E., Techniques for Estimating Boating Carrying Capacity: A Literature Review, North Carolina State University, Department of Parks, Recreation & Tourism Management. For Catawba-Wateree Relicensing Coalition. August, 2005.

regular basis, it would start to take on the characteristics of a Rural Developed lake.)

The Evaluation assumed that the northern end of Cross Lake was in the Suburban WALROS Class, due to the density of the waterfront development. For lakes in the Suburban class, the coefficients range from 10 to 20 acres per boat, which translates into a coefficient range of 100 to 200 boats over the 2,000 acres in the northern portion of Cross Lake. At 70 boats (from chart on previous page), based upon the assumptions for boat ownership and use, this is well below the acceptable range for the Suburban class.

LUPC staff has suggested, however, that northern portion of Cross Lake may be considered a Rural Developed ROS class, which has a coefficients range from 20 to 50 acres per boat. This translates into a coefficient range of 40 to 100 boats over the 2,000 acres. At 70 boats, this is well within the acceptable range for the Rural Developed class.

TABLE 3 RANGE OF BOATING COEFFICIENTS		
WALROS CLASS	Range of Boating Coefficients	
	Low End (more boats)	High End (fewer boats)
Primitive	480 acres/boat	3,200 acres/boat (5 sq. miles)
Semiprimitive	110 acres/boat	480 acres/boat
Rural Natural	50 acres/boat	110 acres/boat
Rural Developed	20 acres/boat	50 acres/boat
Suburban	10 acres/boat	20 acres/boat

Square Lake

Square Lake has a surface area of 8,150 acres. Its north half is considered Rural Developed, due to the number of camps along the western shoreline (19 Irving leased/licensed lots) and the northern shoreline (approximately 36 non-Irving properties). One additional camp is located at the point where the Cross Lake thoroughfare enters the lake. The southern half is almost completely undeveloped and was considered Rural Natural in the Evaluation.

The Evaluation estimated that there currently may be as many as 18 boats on the lake during peak times. However, this number is undoubtedly high, due to lack of convenient public access, lack of deep water access, limited number of residents, distance from the Cross Lake boat launch, obstructions in the Cross Lake thoroughfare, wind and wave conditions on the lake, and lack of service facilities.

The Concept Plan anticipates a maximum of 130 new units on the lake, divided between Square Lake W, Square Lake E, and Square Lake Yexas. In addition, the Concept Plan calls for a public or commercial trailered ramp to be constructed on the east side of the

lake in conjunction with development at Square Lake E or Yexas. The Concept Plan also allows a commercial marina at Yexas, which may have slips for up to 50 boats.

The assumptions used for Cross Lake (i.e., 15% of moored boats would be on the water at peak times) were also applied to Square Lake, even though it would likely result in higher use numbers than would actually occur.

The Evaluation's projection of boating activity on Square Lake has been revised to account for a) a decrease in the number of boats coming from the Cross Lake boat launch, partially due to b) boats that would use the new Square Lake boat launch, and c) boats launched from the existing Muscovic facility (private) at the northern end of the lake.

15% of 56 existing camps on lake	8 boats
Boats from Cross Lake boat launch	5 boats
Boats from Muscovic boat launch	5 boats
Boats from new trailered facility	15 boats
15% of 130 new units (total on lake)	19 boats
Boats for lease (estimate)	15 boats
Total anticipated boats on Square Lake 67 boats	

For purpose of this assessment, Square Lake is divided into the northern and southern half, due to their different ROS characteristics. The northern portion is considered Rural Developed. Table 3 (above) indicates that for lakes in this class, boating coefficients are expected to range from 20 to 50 acres per boat, which translates into a capacity of 80 to 200 boats for the roughly 4,000 acres in the north half of the lake. The southern half of the lake is classified as Rural Natural, which has a boating coefficient range from 50 to 110 acres per boat, or 36–80 boats for the 4,000 acres at the south half of the lake. Combined totals for the entire lake are 116 to 280 boats.

At 67 boats, based upon the assumptions for boat ownership and use, this is well within or below the acceptable range for both the Rural Developed and Rural Natural classes. As noted, it is highly unlikely that this number would ever be achieved, or that the boats would concentrate in either the northern or southern end.

LUPC staff suggested that the lake may have characteristics of less intense ROS classes, i.e., portions of the northern half could be considered Rural Natural, while portions of the southern half could be considered Semi-Primitive. The coefficients for these classes range from 36 to 80 boats for the northern half, and 8 to 36 for the southern half. Combined totals under this scenario range from 44 to 116 boats. At 67 boats, assuming they were split evenly between the north and southern halves of the lake, this is still within or below the acceptable range for Square Lake.

Conclusion

Based on this supplemental analysis for the Evaluation, additional boating pressure from the Concept Plan is not expected to have an unreasonable effect on the recreational experience on the Fish River Chain of Lakes in the Plan area.