

Appendix K – Mountain Lakes Boating Capacity

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Shoreline Development and Boating Density

Shoreline Development

Shoreline development affects population growth, recreation demands, and boating capacity. Increasing development around the reservoirs and subsequent population growth are accompanied by an increase in recreation facilities including public and commercial developments, as well as private and community dock development. This leads to an increase in recreation activities taking place on the reservoirs and can potentially lead to boating capacity issues.

Because this increase in population and development affects how the lands around the reservoirs are used, it is important to recognize the level of development on each reservoir. For each reservoir, the percentage of shoreline open for private residential dock access was recorded, as determined by TVA's Shoreline Management Initiative. That figure was divided into an estimate of percentage of shoreline currently developed/permited and percentage of remaining shoreline open for future residential access.

Boating Density

The mountain reservoirs are managed by TVA to provide a multitude of benefits, including high-quality recreation opportunities for nearby residents and visitors from the surrounding region. The question arises whether the number and diversity of recreation users present, along with associated local development, may threaten the safety and enjoyment of visitors and residents. To help answer this question and make more informed decisions concerning facilities associated with boating, TVA has completed an evaluation of boating density for the mountain reservoirs.

Specifically, boating capacity is the prescribed number of people/boats (demand) that a reservoir area will accommodate (supply), given the desired biophysical/cultural resources, visitor experiences, and management program. It is the reservoir condition in which a high-quality, safe, and enjoyable recreation experience can be maintained while protecting the natural resources where recreation activities occur. Because complete boating capacity data are not available at this time, boating density estimates were calculated. The objectives were to estimate existing boating density and to project future density based on shoreline development data for the reservoirs.

Analysis

Shoreline Development and Boating Density are listed together for each reservoir below. These data indicate potential for shoreline residential growth on Blue Ridge, Chatuge, Fontana, and Nottely reservoirs. Boating "units" were calculated by compiling the number of TVA Section 26a permits (boat docks or slips) for private residential access shoreline for each reservoir. The number of units listed for the undeveloped shoreline is an extrapolated projection based on the current number of units on the developed shoreline of a particular reservoir and the ratio of developed/undeveloped shoreline. This estimate is conservative, as it is based on the ratio of the current number of permits on developed residential access shoreline, which will also continue to increase over time as lots are split and private individual facilities are replaced by multislip facilities and the availability of developable shoreline decreases.

TVA staff established assumptions about the estimated percentage of boats that would be in use on a peak summer holiday/weekend day, and an average boating season weekday. The estimated percentage has been applied to total boating units and divided into surface acres, at the June 1st Flood Guide elevations, to obtain acres per boat.

TVA estimated the effect on density from private water use facilities projected at the estimated maximum residential buildout by adding the projected number of boating units for the undeveloped shoreline and keeping the other boating unit factors constant.

Current boating density estimates do not indicate any immediate capacity issues. However, as some reservoirs (such as Blue Ridge, Chatuge and Nottely) approach total buildout of shoreline available for development, boating density estimates approach a level that may warrant additional study. It is not anticipated that any of the reservoirs will reach this point within the planning horizon of the MRLMP.

CHATUGE**Shoreline Development Data**

Total Percentage of Shoreline Open for Residential Development (open) 57%

Current Percentage of Open Shoreline Developed/Permitted 74% (1,472 units)

Current Percentage Undeveloped Open Shoreline 26% (517 units)

Estimated Private Residential Maximum 1989 units

Boating Density Worksheets

Boating Units	Current Estimate	Projected at "Build Out"
Private Water Use Facility Slips	1472	1989
Commercial Wet Slips	573	573
Commercial Dry Slips	50	50
Subtotal Boating Units	2095	2612

Reservoir Access Site Parking Spaces	Current Estimate	Projected at "Build Out"
Public Ramp Parking	74	74
Private Community Ramp Parking	300	300
Subtotal Parking Spaces	374	374

	Estimated Percentage of Boating Units In Use		
	Average Summer Weekday %	Average Summer Weekend Day %	Summer Peak Holiday %
Private and Commercial Slips	15%	25%	35%
Public/Private Ramp Parking	20%	60%	75%

Surface Acres at June 1 Flood Guide	6840
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	Estimated Number of Boating Units In Use		
	Average Summer Weekday #	Average Summer Weekend Day #	Summer Peak Holiday #
Total Boating Units	389	748	1014
	Density - Surface Acres Per Boating Unit		
	Average Summer Weekday	Average Summer Weekend Day	Summer Peak Holiday
Current Estimated Density	18	9	7
Projected Density at Residential "Build Out"	15	8	6

HIWASSEE

Shoreline Development Data

Total Percentage of Shoreline Open for Residential Development (open) 4%

Current Percentage of Open Shoreline Developed/Permitted 100% (224 units)

Current Percentage Undeveloped Open Shoreline 0% (0 units)

Estimated Private Residential Maximum 224 units

While there are undeveloped lots in Bear Paw Subdivision that are open for residential shoreline access and one community facility site on the Fowler Bend area of Bear Paw, the majority of these shoreline segments are permitted and are therefore represented as 100% developed based on these conservative estimates.

Boating Density Worksheets

Boating Units	Current Estimate	Projected at "Build Out"
Private Water Use Facility Slips	224	224
Commercial Wet Slips	385	385
Commercial Dry Slips	180	180
Subtotal Boating Units	789	789

Reservoir Access Site Parking Spaces	Current Estimate	Projected at "Build Out"
Public Ramp Parking	19	19
Private Community Ramp Parking	155	155
Subtotal Parking Spaces	174	174

	Estimated Percentage of Boating Units In Use		
	Average Summer Weekday %	Average Summer Weekend Day %	Summer Peak Holiday %
Private and Commercial Slips	15%	25%	35%
Public/Private Ramp Parking	20%	60%	75%

Surface Acres at June 1 Flood Guide	5860
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	Estimated Number of Boating Units In Use		
	Average Summer Weekday #	Average Summer Weekend Day #	Summer Peak Holiday #
Total Boating Units	153	302	407

	Density - Surface Acres Per Boating Unit		
	Average Summer Weekday	Average Summer Weekend Day	Summer Peak Holiday
Current Estimated Density	38	19	14

Projected Density at Residential "Build Out"	38	19	14
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BLUE RIDGE**Shoreline Development Data**

Total Percentage of Shoreline Open for Residential Development (open) 38%

Current Percentage of Open Shoreline Developed/Permitted 71% (613 units)

Current Percentage Undeveloped Open Shoreline 29% (250 units)

Estimated Private Residential Maximum 863 units

Boating Density Worksheets

Boating Units	Current Estimate	Projected at "Build Out"
Private Water Use Facility Slips	613	863
Commercial Wet Slips	300	300
Commercial Dry Slips	70	70
Subtotal Boating Units	983	1233

Reservoir Access Site Parking Spaces	Current Estimate	Projected at "Build Out"
Public Ramp Parking	118	118
Private Community Ramp Parking	110	110
Subtotal Parking Spaces	228	228

	Estimated Percentage of Boating Units In Use		
	Average Summer Weekday %	Average Summer Weekend Day %	Summer Peak Holiday %
Private and Commercial Slips	15%	25%	35%
Public/Private Ramp Parking	20%	60%	75%

Surface Acres at June 1 Flood Guide	3180
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	Estimated Number of Boating Units In Use		
	Average Summer Weekday #	Average Summer Weekend Day #	Summer Peak Holiday #
Total Boating Units	193	383	515
	Density - Surface Acres Per Boating Unit		
	Average Summer Weekday	Average Summer Weekend Day	Summer Peak Holiday
Current Estimated Density	16	8	6
Projected Density at Residential "Build Out"	14	7	5

NOTTELY

Shoreline Development Data

Total Percentage of Shoreline Open for Residential Development (open) 41%

Current Percentage of Open Shoreline Developed/Permitted 45% (765 units)

Current Percentage Undeveloped Open Shoreline 55% (935 units)

Estimated Private Residential Maximum 1,700 units

Boating Density Worksheets

Boating Units	Current Estimate	Projected at "Build Out"
Private Water Use Facility Slips	779	1700
Commercial Wet Slips	94	94
Commercial Dry Slips	0	0
Subtotal Boating Units	873	1794

Reservoir Access Site Parking Spaces	Current Estimate	Projected at "Build Out"
Public Ramp Parking	33	33
Private Community Ramp Parking	70	70
Subtotal Parking Spaces	103	103

	Estimated Percentage of Boating Units In Use		
	Average Summer Weekday %	Average Summer Weekend Day %	Summer Peak Holiday %
Private and Commercial Slips	15%	25%	35%
Public/Private Ramp Parking	20%	60%	75%

Surface Acres at June 1 Flood Guide	3950
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	Estimated Number of Boating Units In Use		
	Average Summer Weekday #	Average Summer Weekend Day #	Summer Peak Holiday #
Total Boating Units	152	280	383

	Density - Surface Acres Per Boating Unit		
	Average Summer Weekday	Average Summer Weekend Day	Summer Peak Holiday
Current Estimated Density	26	14	10

Projected Density at Residential "Build Out"	14	8	6
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OCOEE 1 (PARKSVILLE)**Shoreline Development Data**

Total Percentage of Shoreline Open for Residential Development (open) 23%

Current Percentage of Open Shoreline Developed/Permitted 100% (76 units)

Current Percentage Undeveloped Open Shoreline 0% (0 Units)

Estimated Private Residential Maximum 76 units

The shoreline on Ocoee 1 Reservoir that has private boat slips permitted is associated with the Recreation Cabin Sites on USFS property.

Boating Density Worksheets

Boating Units	Current Estimate	Projected at "Build Out"
Private Water Use Facility Slips	76	76
Commercial Wet Slips	180	180
Commercial Dry Slips	0	0
Subtotal Boating Units	256	256

Reservoir Access Site Parking Spaces	Current Estimate	Projected at "Build Out"
Public Ramp Parking	129	129
Private Community Ramp Parking	10	10
Subtotal Parking Spaces	139	139

	Estimated Percentage of Boating Units In Use		
	Average Summer Weekday %	Average Summer Weekend Day %	Summer Peak Holiday %
Private and Commercial Slips	15%	25%	35%
Public/Private Ramp Parking	20%	60%	75%

Surface Acres at June 1 Flood Guide	1930
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	Estimated Number of Boating Units In Use		
	Average Summer Weekday #	Average Summer Weekend Day #	Summer Peak Holiday #
Total Boating Units	66	147	194
	Density - Surface Acres Per Boating Unit		
	Average Summer Weekday	Average Summer Weekend Day	Summer Peak Holiday
Current Estimated Density	29	13	10
Projected Density at Residential "Build Out"	29	13	10

APALACHIA

Shoreline Development Data

Total Percentage of Shoreline Open for Residential Development (open) 0%

Current Percentage of Open Shoreline Developed/Permitted 0% (0 units)

Current Percentage Undeveloped Open Shoreline 0% (0 units)

Estimated Private Residential Maximum 0 units

Boating Density Worksheets

Boating Units	Current Estimate	Projected at "Build Out"
Private Water Use Facility Slips	0	0
Commercial Wet Slips	0	0
Commercial Dry Slips	0	0
Subtotal Boating Units	0	0

Reservoir Access Site Parking Spaces	Current Estimate	Projected at "Build Out"
Public Ramp Parking	10	10
Private Community Ramp Parking	0	0
Subtotal Parking Spaces	10	10

	Estimated Percentage of Boating Units In Use		
	Average Summer Weekday %	Average Summer Weekend Day %	Summer Peak Holiday %
Private and Commercial Slips	15%	25%	35%
Public/Private Ramp Parking	20%	60%	75%

Surface Acres at June 1 Flood Guide	1070
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	Estimated Number of Boating Units In Use		
	Average Summer Weekday #	Average Summer Weekend Day #	Summer Peak Holiday #
Total Boating Units	2	6	8

	Density - Surface Acres Per Boating Unit		
	Average Summer Weekday	Average Summer Weekend Day	Summer Peak Holiday
Current Estimated Density	535	178	143

Projected Density at Residential "Build Out"	535	178	143
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FONTANA**Shoreline Development Data**

Total Percentage of Shoreline Open for Residential Development (open) 11%

Current Percentage of Open Shoreline Developed/Permitted 7% (635 units)

Current Percentage Undeveloped Open Shoreline 4% (362 units)

Estimated Private Residential Maximum 997 units

Boating Density Worksheets

Boating Units	Current Estimate	Projected at "Build Out"
Private Water Use Facility Slips	635	997
Commercial Wet Slips	570	570
Commercial Dry Slips	0	0
Subtotal Boating Units	1205	1567

Reservoir Access Site Parking Spaces	Current Estimate	Projected at "Build Out"
Public Ramp Parking	233	233
Private Community Ramp Parking	6	6
Subtotal Parking Spaces	239	239

	Estimated Percentage of Boating Units In Use		
	Average Summer Weekday %	Average Summer Weekend Day %	Summer Peak Holiday %
Private and Commercial Slips	15%	25%	35%
Public/Private Ramp Parking	20%	60%	75%

Surface Acres at June 1 Flood Guide	10,230
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	Estimated Number of Boating Units In Use		
	Average Summer Weekday #	Average Summer Weekend Day #	Summer Peak Holiday #
Total Boating Units	229	445	601
	Density - Surface Acres Per Boating Unit		
	Average Summer Weekday	Average Summer Weekend Day	Summer Peak Holiday
Current Estimated Density	45	23	17
Projected Density at Residential "Build Out"	36	19	14