SURFACE WATER AVAILABILITY RESOURCE ASSESSMENT UPDATES:

Current & Future Conditions

Georgia's State Water Plan

Updated – January 19, 2017

Coosa-North Georgia Council Member Premeeting Materials

Coosa & Tennessee Basins

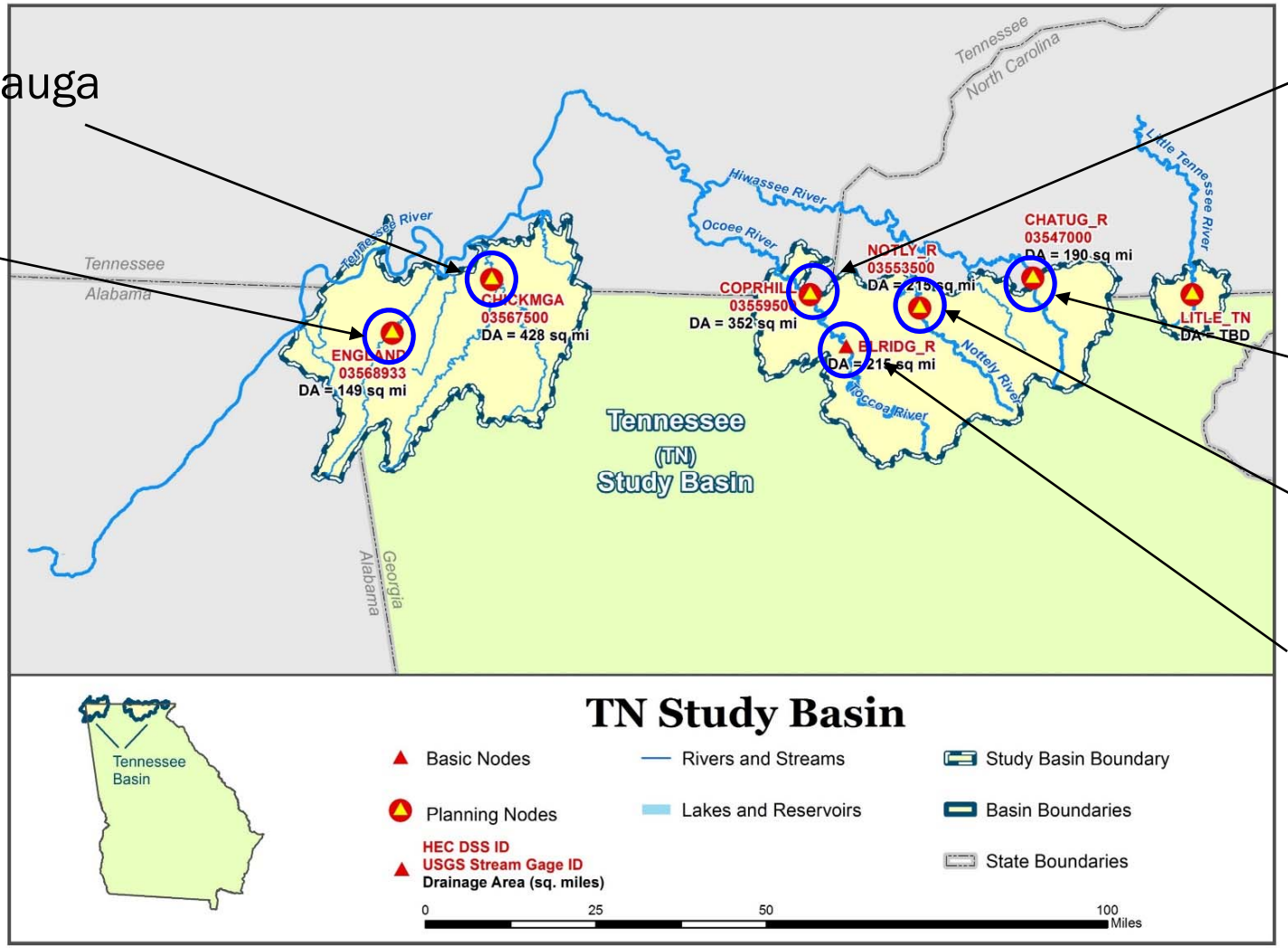
Contents

1/19/17 update ←

Approach

- Evaluate the impact of off-stream water consumption on the water remaining in the stream or reservoir at specific evaluation points in each river basin. Consumption means the withdrawals from a water body that is not returned to that water body.
- Low-flow thresholds for the water remaining in the stream or reservoir were selected as indicators of the potential for water consumption to impact instream uses like fishing, boating, or habitat for aquatic life.
  - For basins without large reservoirs, a low-flow threshold from state policy was used.
  - For basins with large reservoirs, low-flow thresholds were based on release requirements in permits or operating plans.
- Offstream demand was fully met in the modeling for the period of analysis. The water remaining in the stream or reservoir was then evaluated to see if any shortfalls or 'gaps' were evident. Results are shown on the following pages.

Evaluation Nodes in the Tennessee River Basin



Chickamauga

New England

Copper Hill

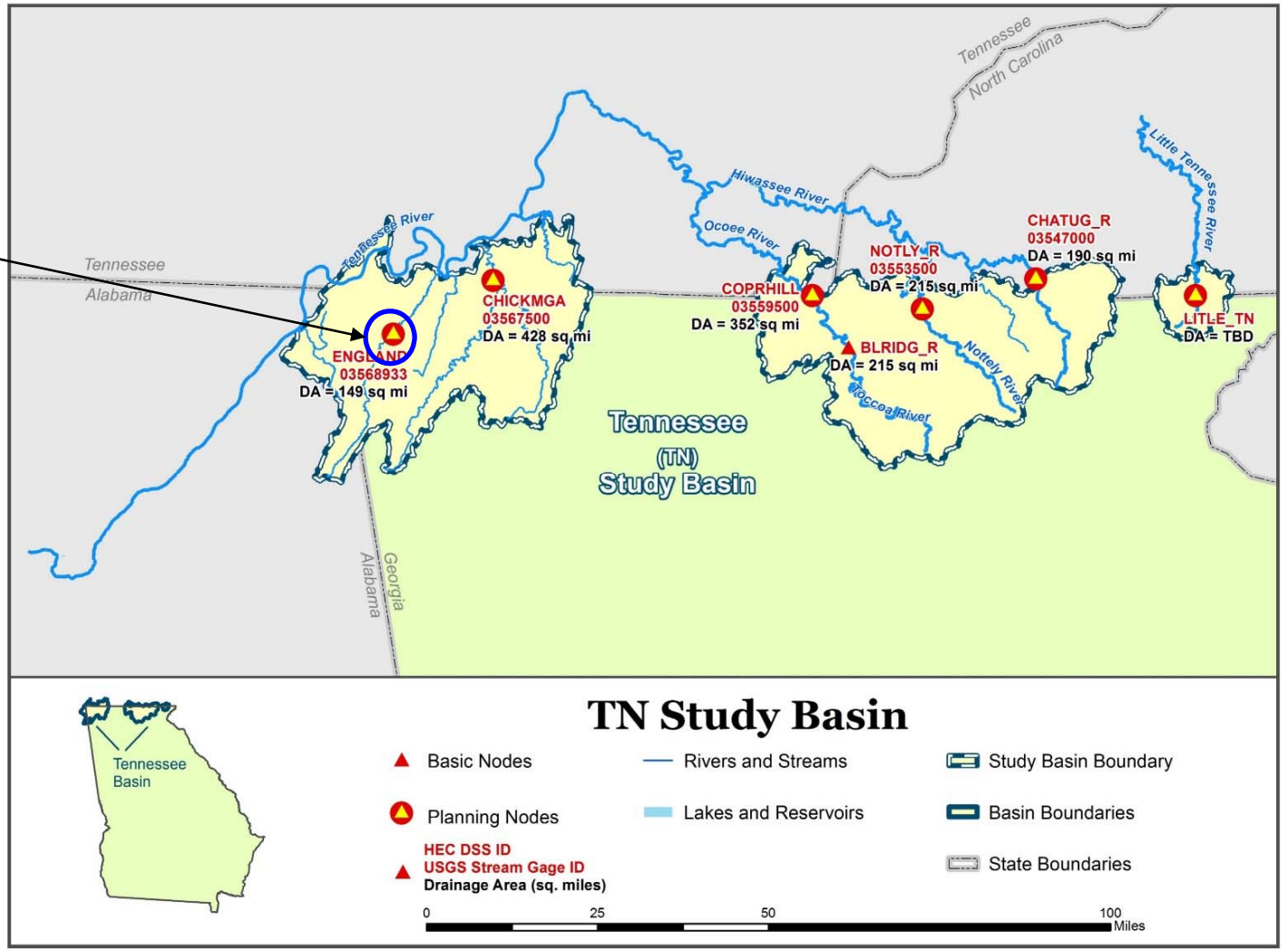
Chatuge Reservoir

Nottely Reservoir

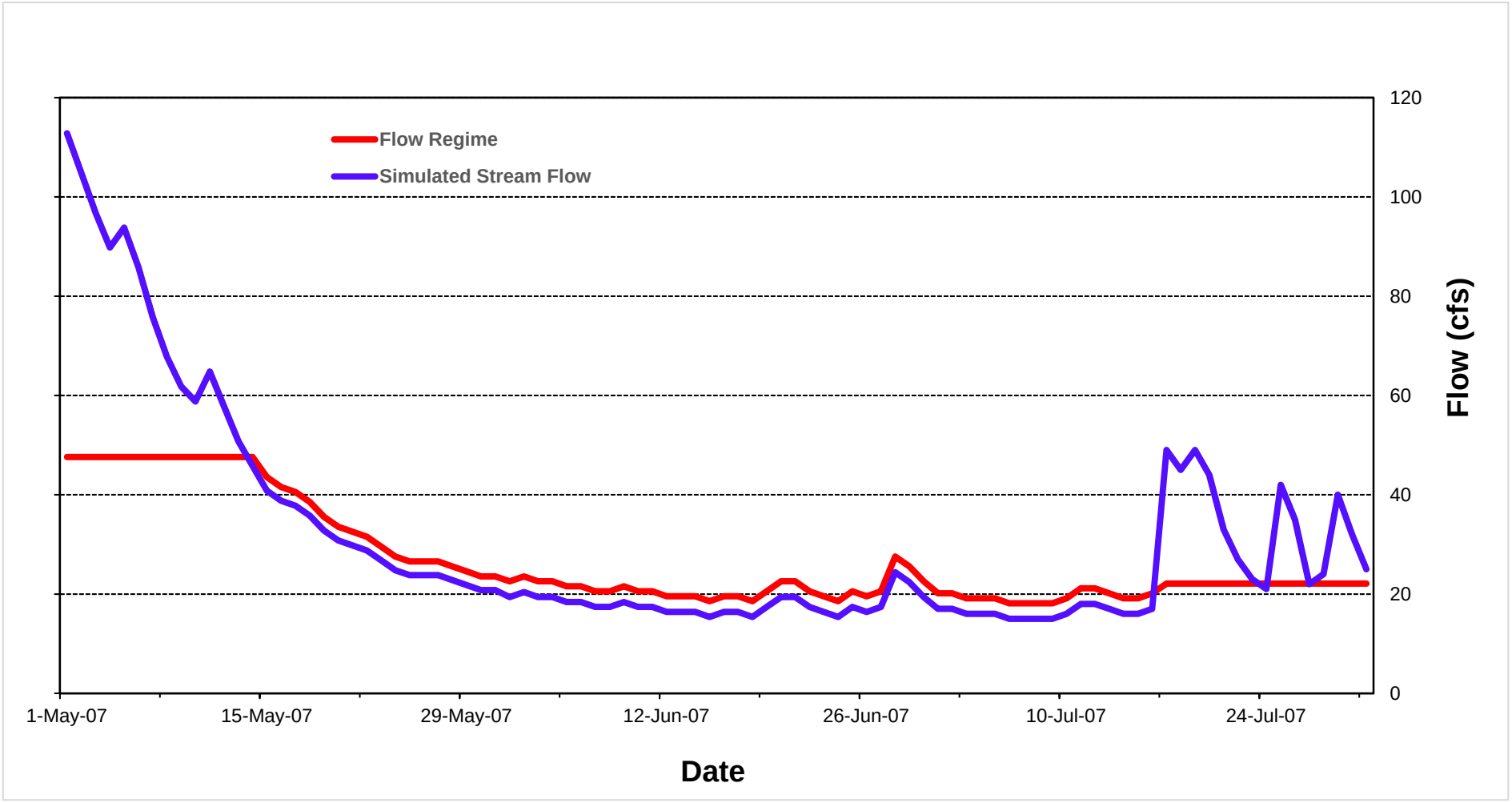
Blue Ridge Reservoir

New England Node in the Tennessee River Basin

New England



Potential Gap at New England – Future (2050)



Modeled Stream Flow Assumes Water Demand Fully Met

Potential Gaps at New England Node

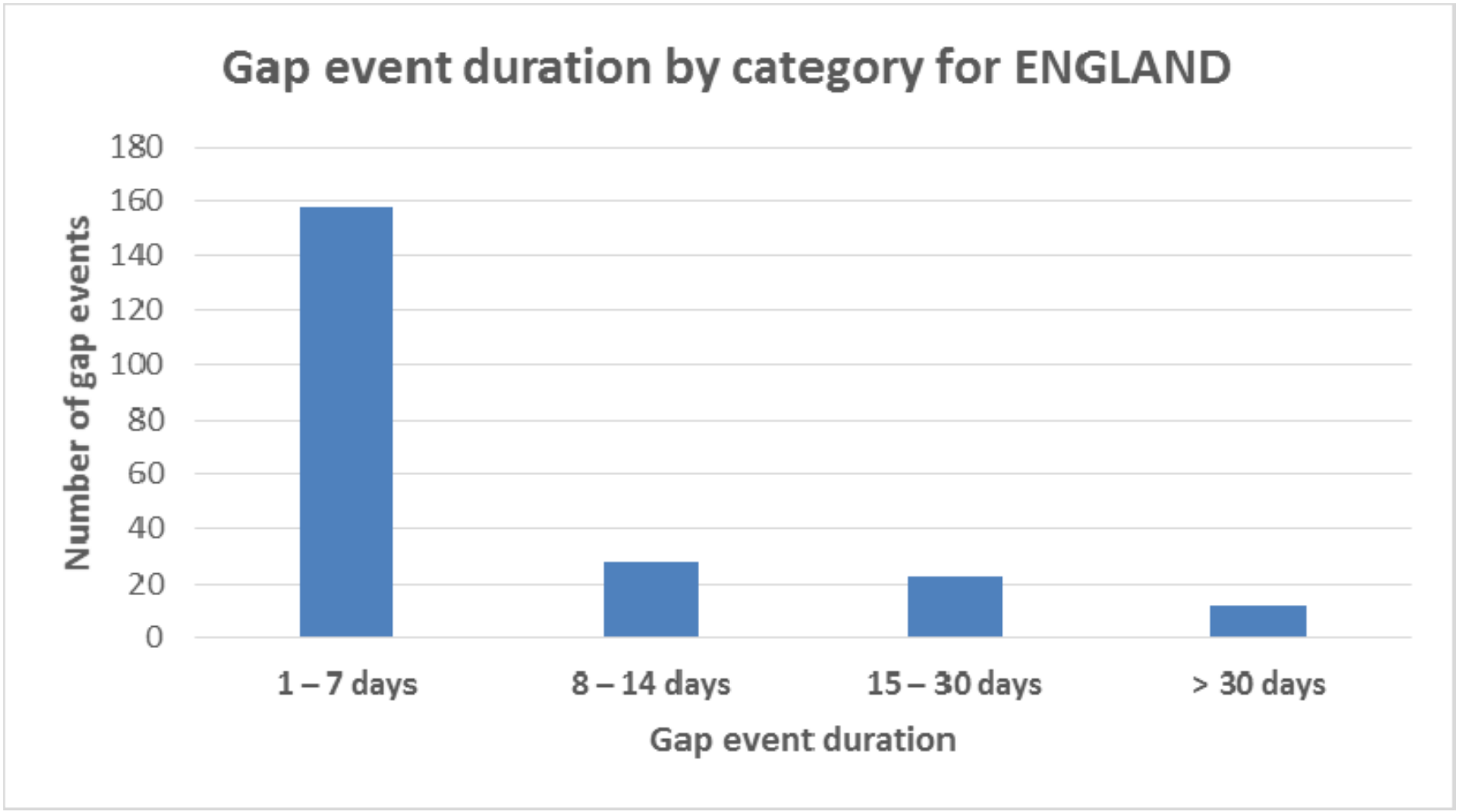
	Length of Gap (% of time)	Average Gap	Long-term Average Flow	Maximum 1-Day Gap	Corresponding Flow Regime
Round 1 Current (1939-2007)	7	3 cfs (1.9 mgd)	250 cfs (161 mgd)	4 cfs (2.6 mgd)	12 cfs (7.8 mgd)
Round 2 Current (1939-2013)	6	2 cfs (1.3 mgd)	250 cfs (162 mgd)	4 cfs (2 mgd)	12 cfs (7.8 mgd)
Round 2 Future (1939–2013)	6	2 cfs (1.3 mgd)	250 cfs (162 mgd)	3 cfs (1.9 mgd)	12 cfs (7.8 mgd)

Characteristics of Potential Gaps at New England Node– Future Conditions (2050)

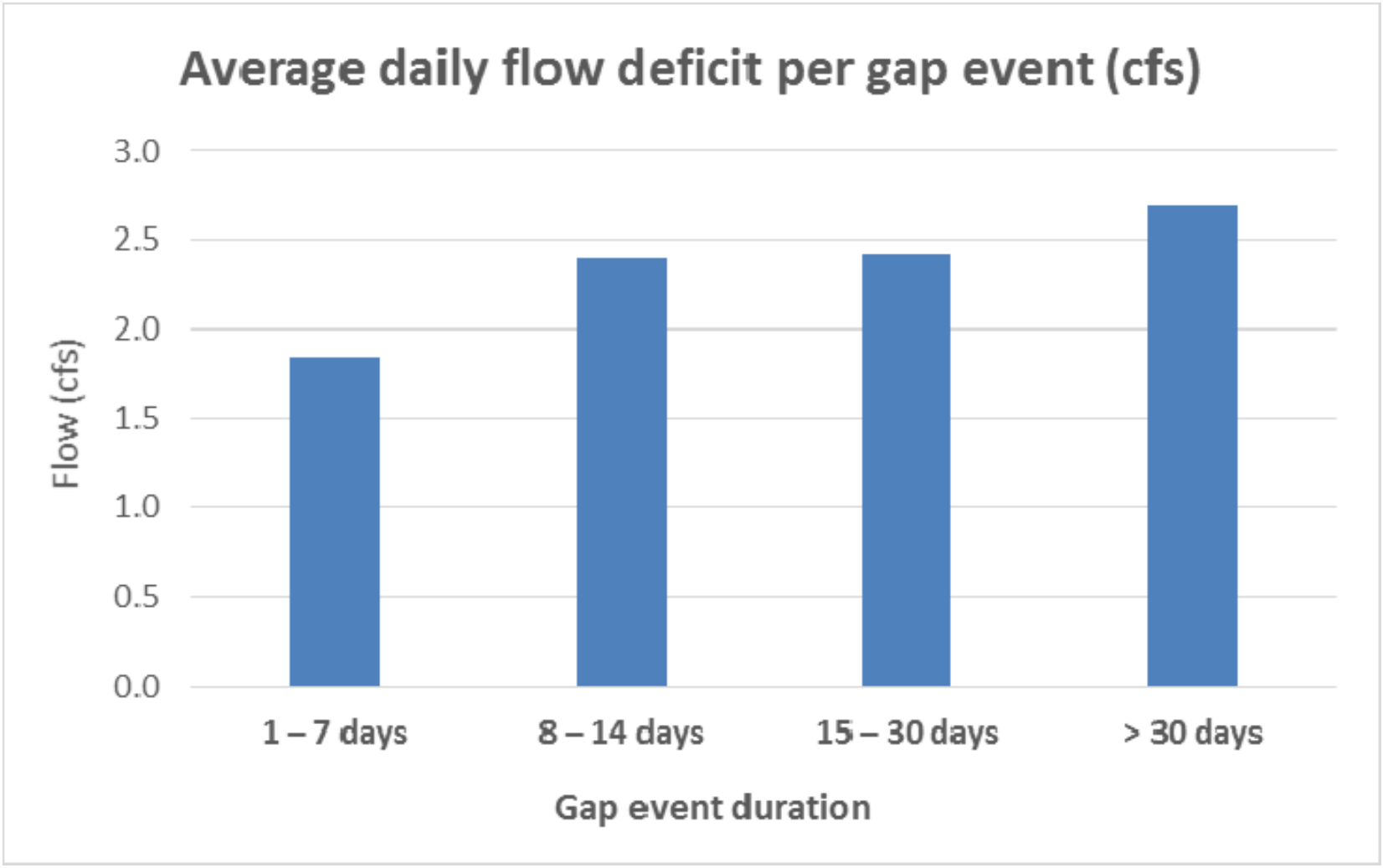
Gap event duration by category for Claxton	Number of gap events		Total gap days by category, 1939-2013		Average daily flow deficit per gap event (cfs)	Average cumulative flow deficit per gap event (cfsd)
1 – 7 days	158	(71.5%)	447	(1.6%)	2	6
8 – 14 days	28	(12.7%)	275	(1.0%)	2	24
15 – 30 days	23	(10.4%)	466	(1.7%)	2	49
> 30 days	12	(5.4%)	502	(1.8%)	3	113
Totals (∑)	221	(100.0%)	1,690	(6.2%)		

This information is shown in the following graphs

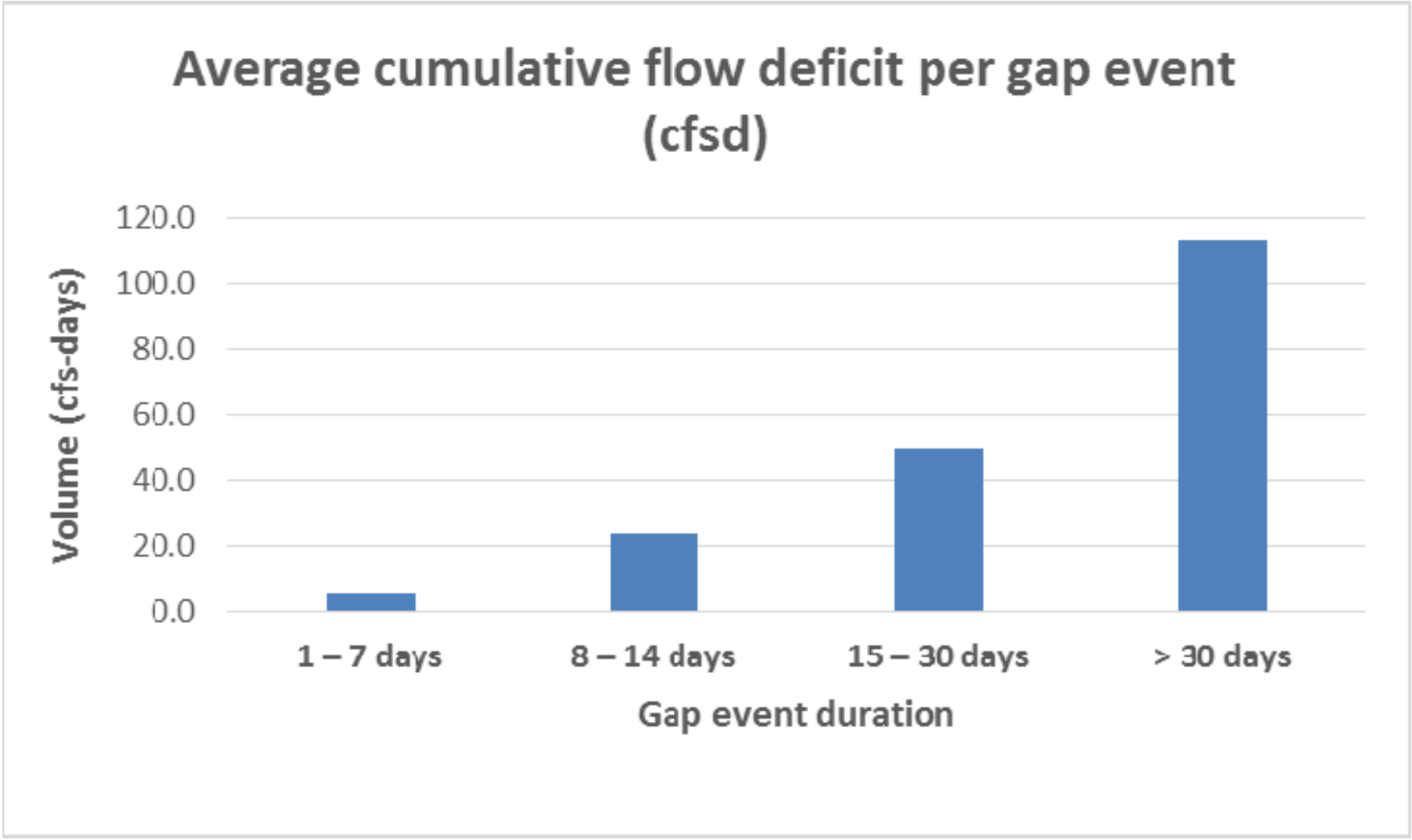
Characteristics of Potential Gaps at New England Node– Future Conditions (2050)



Characteristics of Potential Gaps at New England Node– Future Conditions (2050)

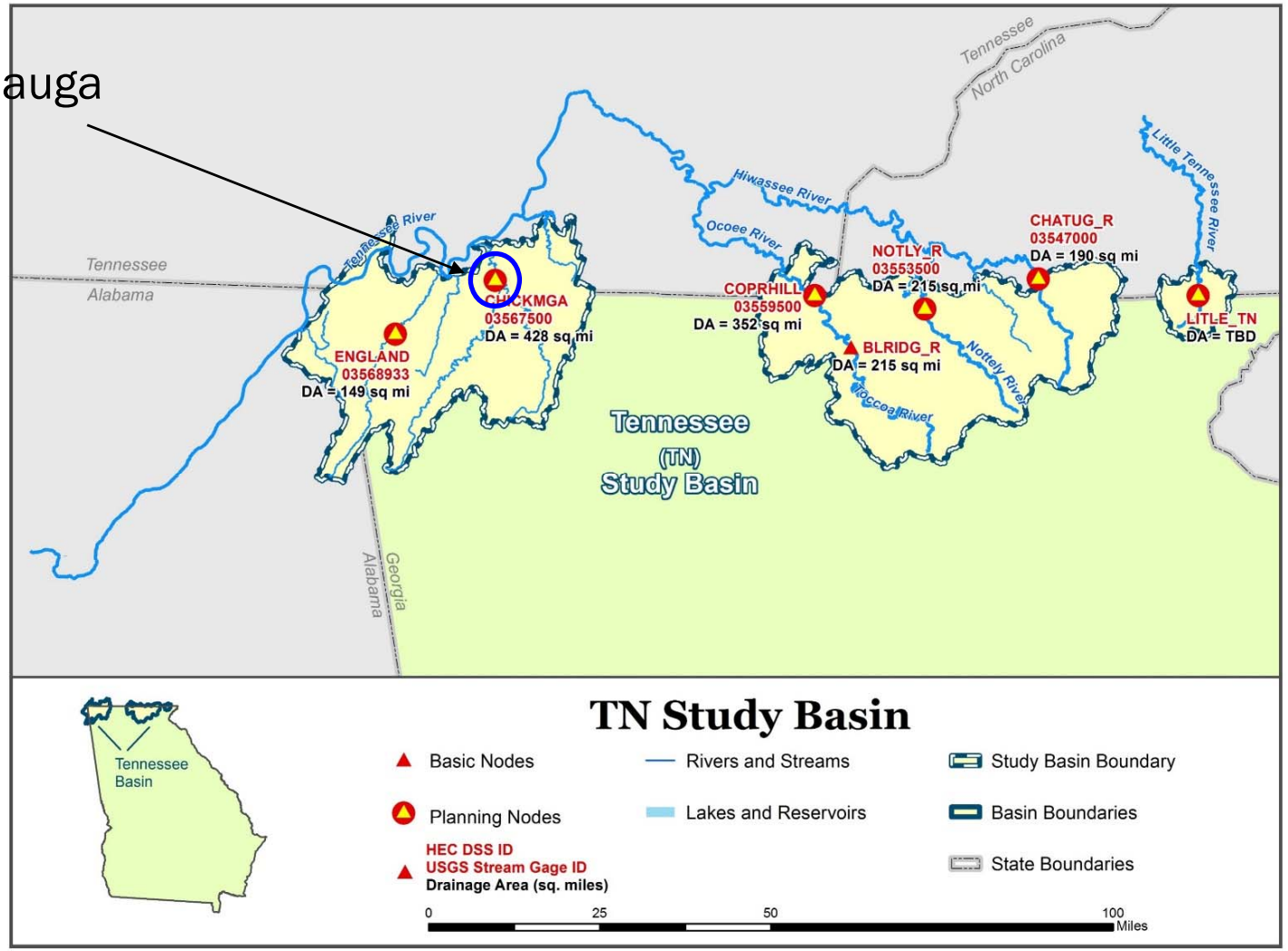


Characteristics of Potential Gaps at New England Node– Future Conditions (2050)

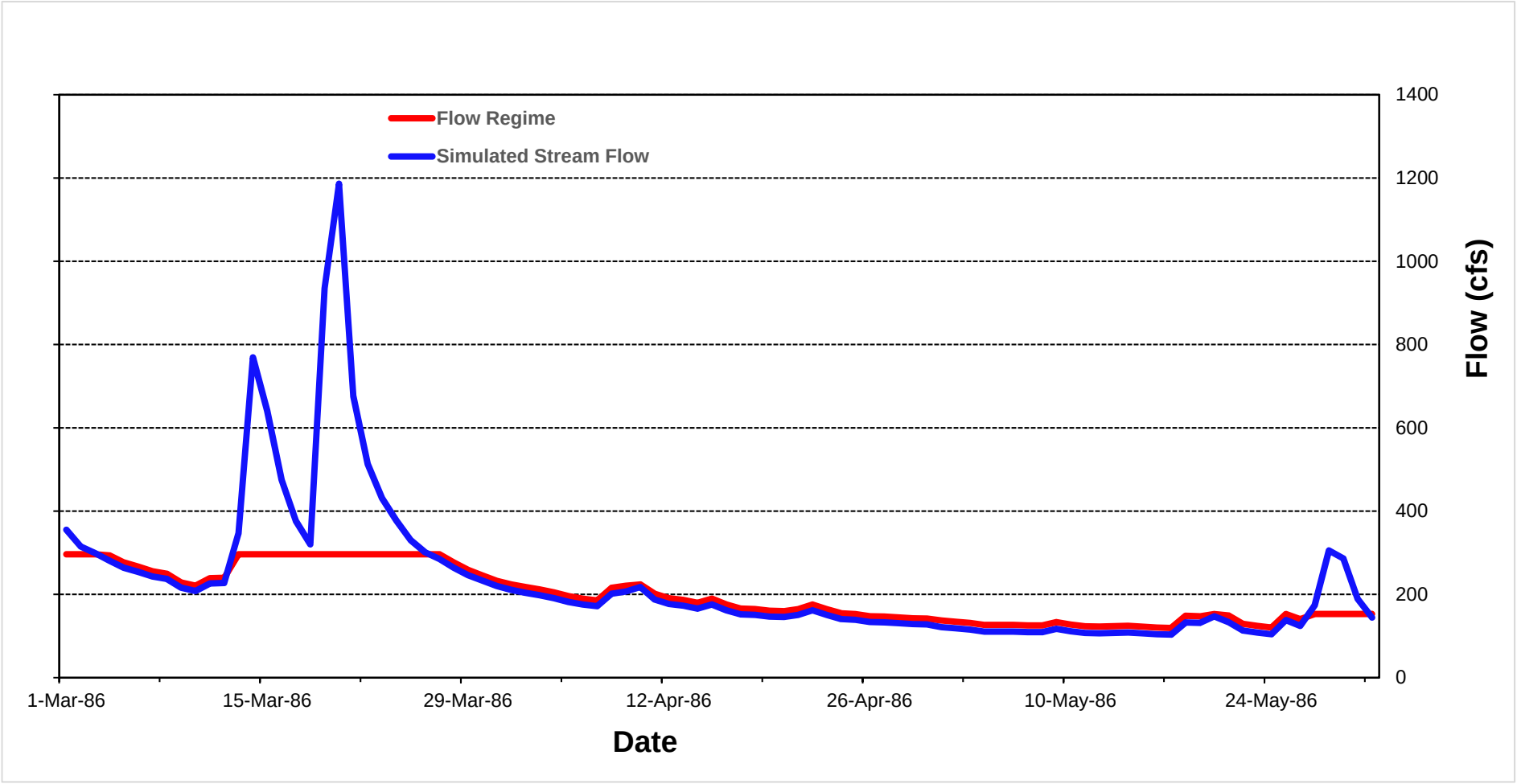


Chickamauga Node in the Tennessee River Basin

Chickamauga



Potential Gap at Chickamauga – Future (2050)



Modeled Stream Flow Assumes Water Demand Fully Met

Potential Gaps at Chickamauga Node

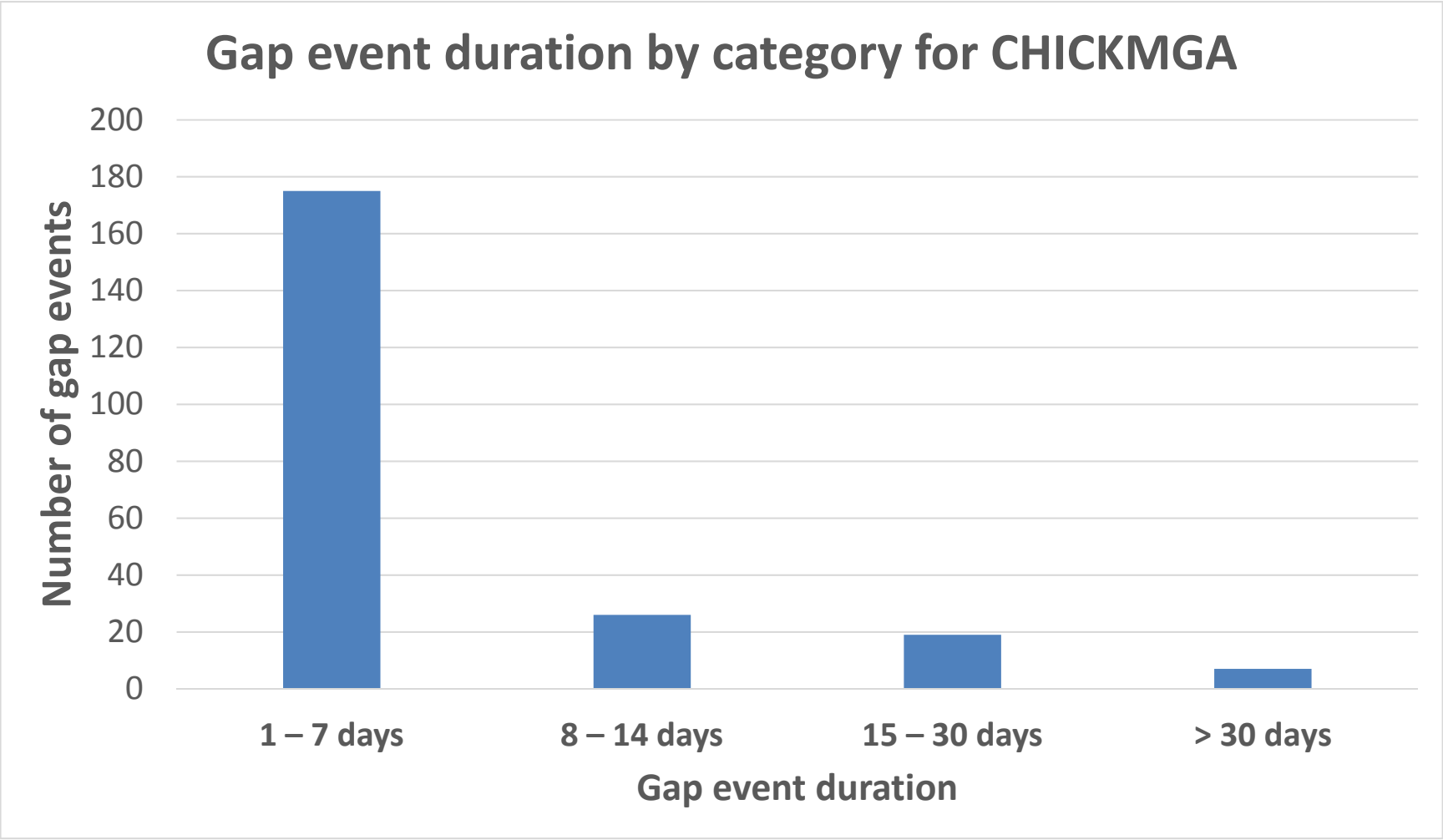
	Length of Gap (% of time)	Average Gap	Long-term Average Flow	Maximum 1-Day Gap	Corresponding Flow Regime
Round 1 Current (1939-2007)	1	6 cfs (4 mgd)	691 cfs (447 mgd)	9 cfs (5.8 mgd)	48 cfs (31 mgd)
Round 2 Current (1939-2013)	5	6 cfs (4 mgd)	698 cfs (451 mgd)	8 cfs (5.2 mgd)	129 cfs (83 mgd)
Round 2 Future (1939–2013)	5	6 cfs (4 mgd)	697 cfs (450 mgd)	10 cfs (6 mgd)	129 cfs (83 mgd)

Characteristics of Potential Gaps at Chickamauga Node– Future Conditions (2050)

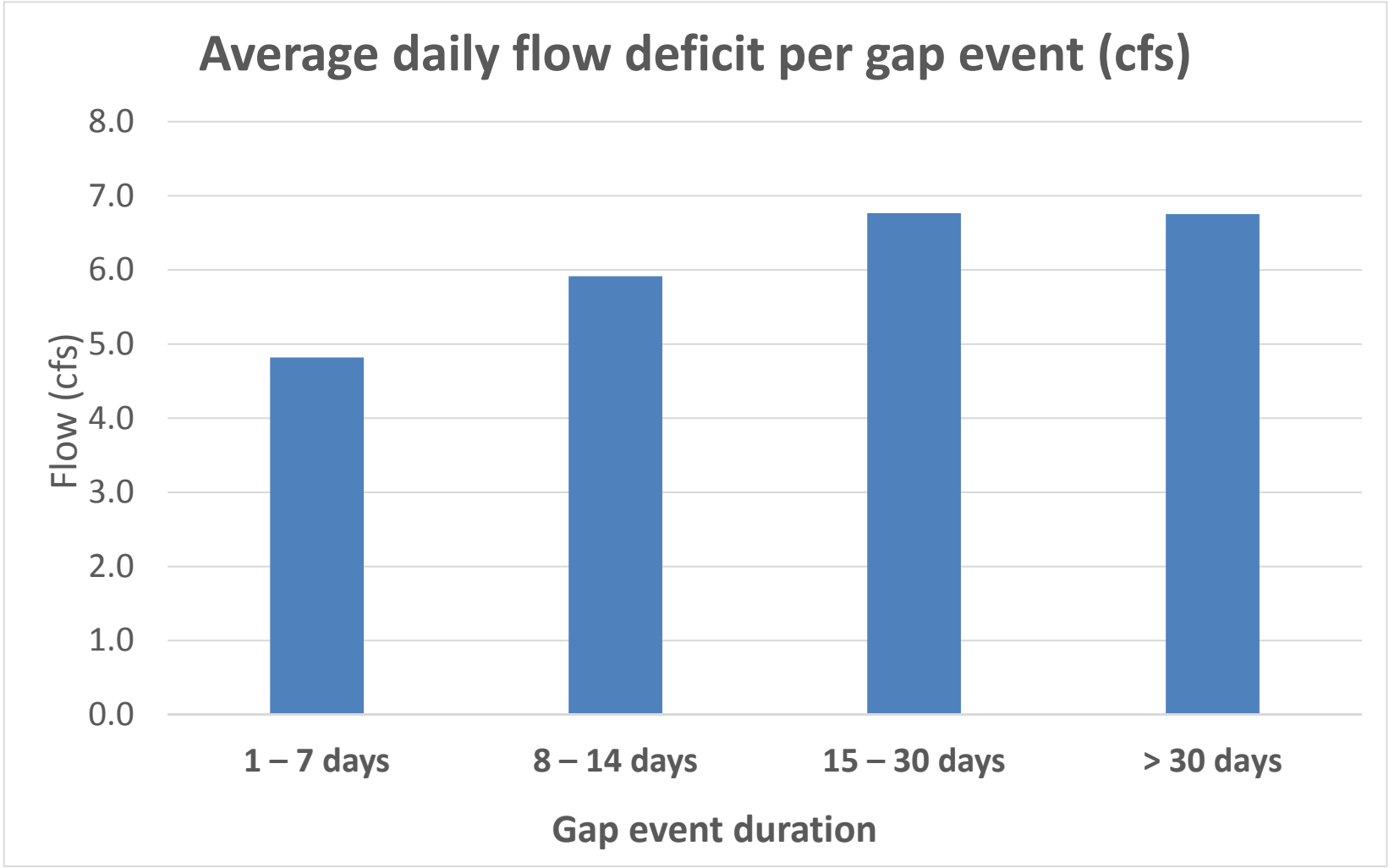
Gap event duration by category for Claxton	Number of gap events		Total gap days by category, 1939-2013		Average daily flow deficit per gap event (cfs)	Average cumulative flow deficit per gap event (cfsd)
1 – 7 days	175	(77.1%)	509	(1.9%)	4.8	15.6
8 – 14 days	26	(11.5%)	280	(1.0%)	5.9	64.1
15 – 30 days	19	(8.4%)	375	(1.4%)	6.8	132.2
> 30 days	7	(3.1%)	328	(1.2%)	6.8	333.8
Totals (∑)	227	(100.0%)	1492	(5.4%)		

This information is shown in the following graphs

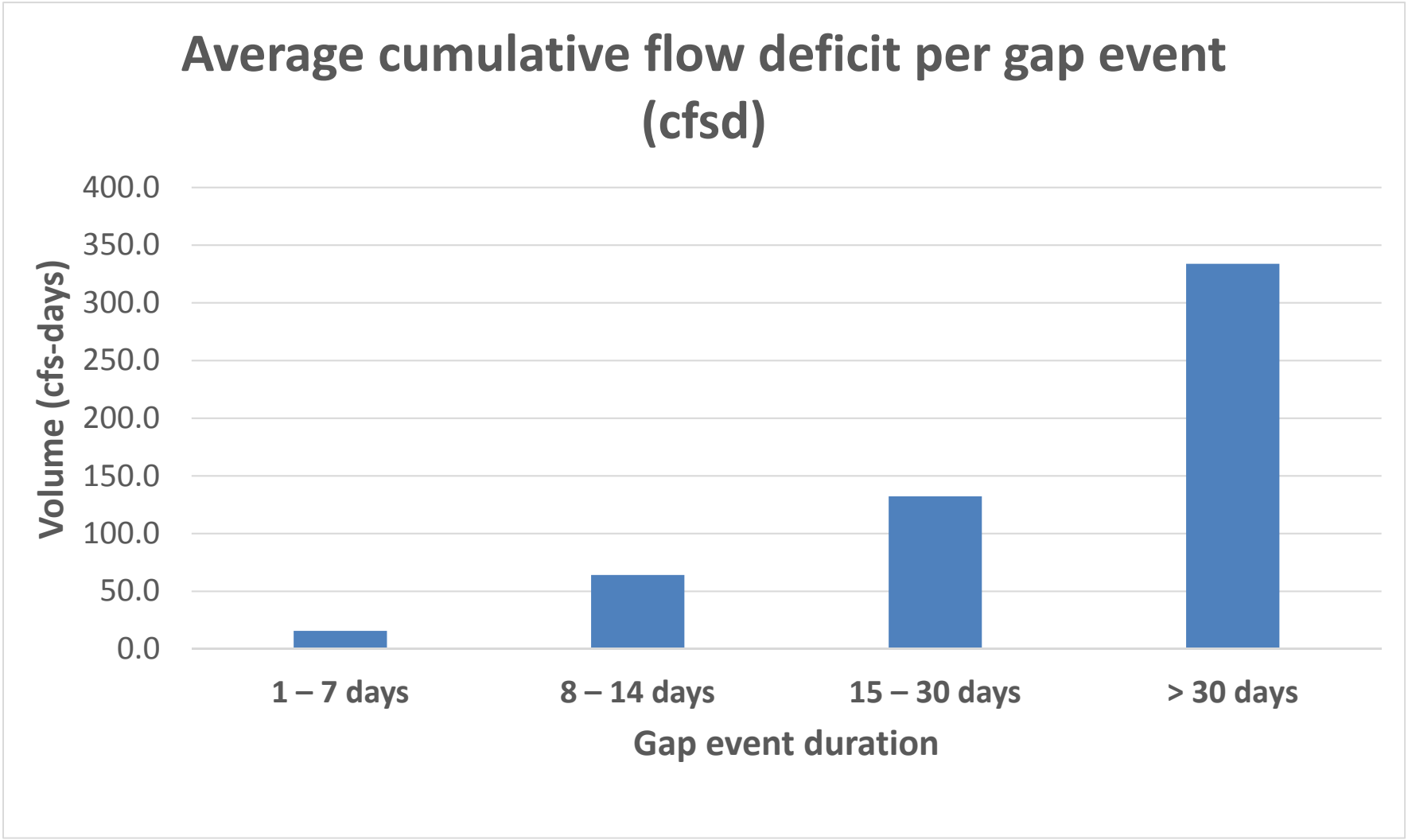
Characteristics of Potential Gaps at Chickamauga Node– Future Conditions (2050)



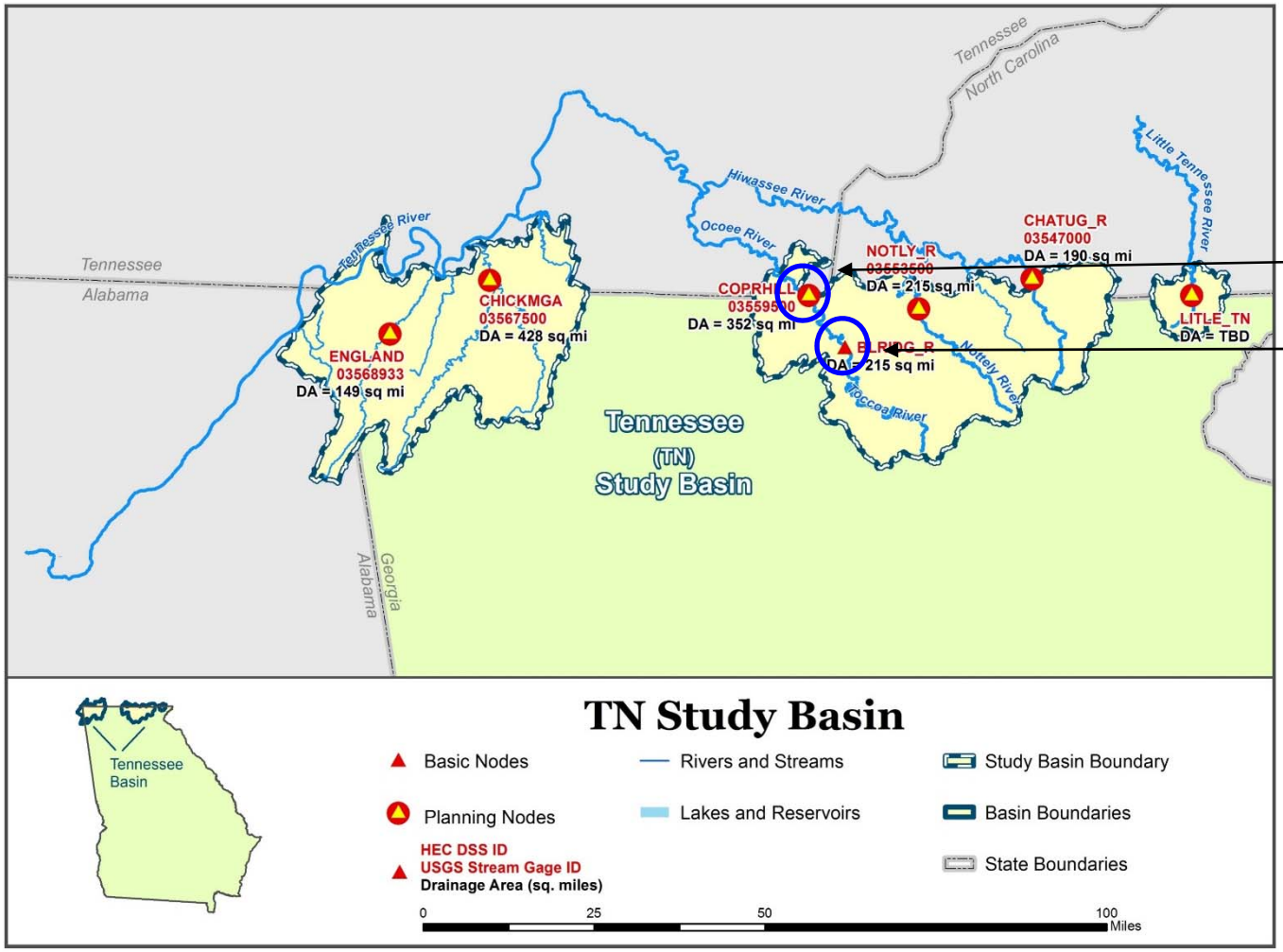
Characteristics of Potential Gaps at Chickamauga Node– Future Conditions (2050)



Characteristics of Potential Gaps at Chickamauga Node– Future Conditions (2050)



Copper Hill and Blue Ridge Reservoir in the Tennessee River Basin

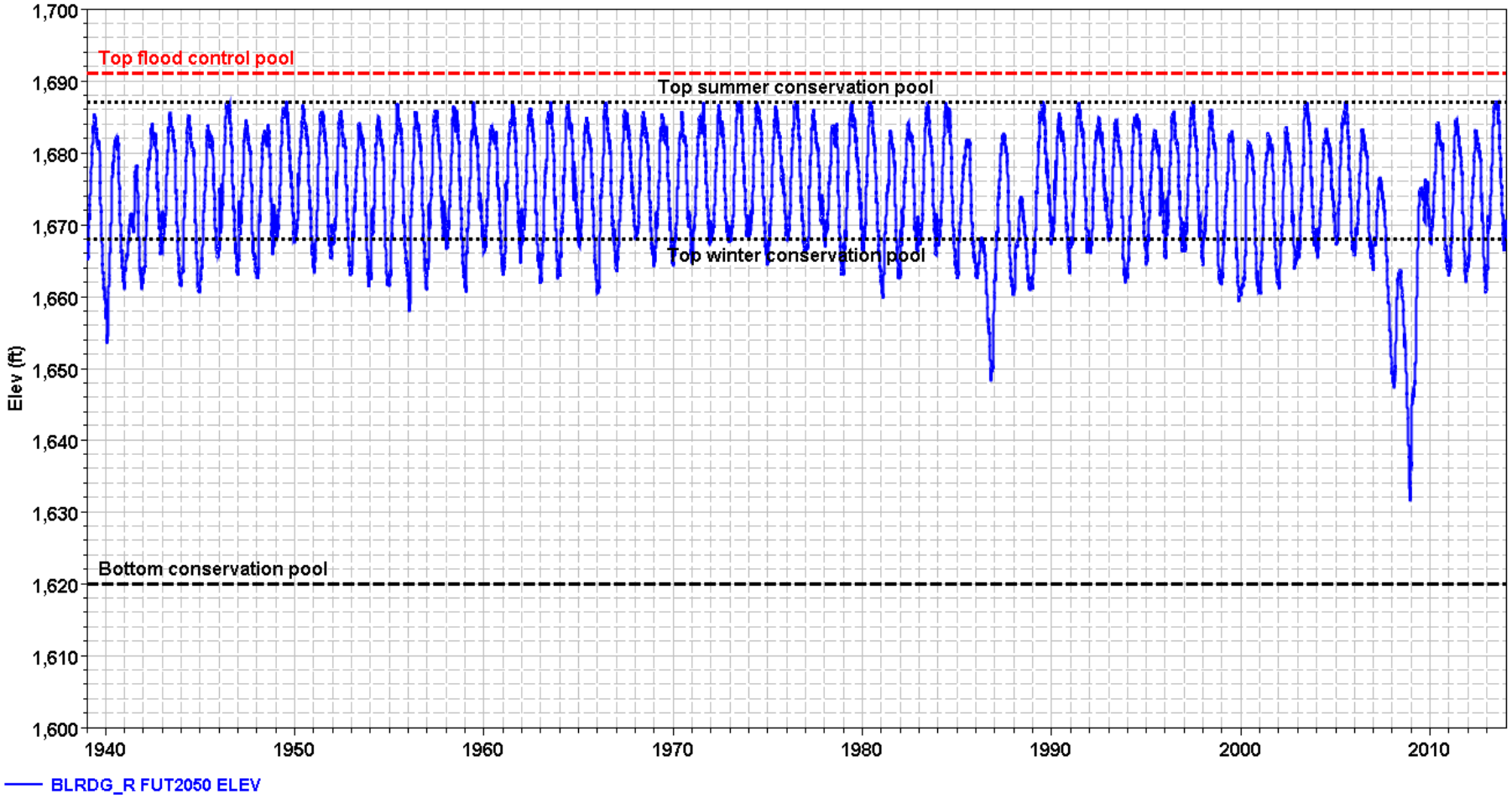


Copper Hill

Blue Ridge Reservoir

Conservation Storage Capacity: 144,097 acre-feet

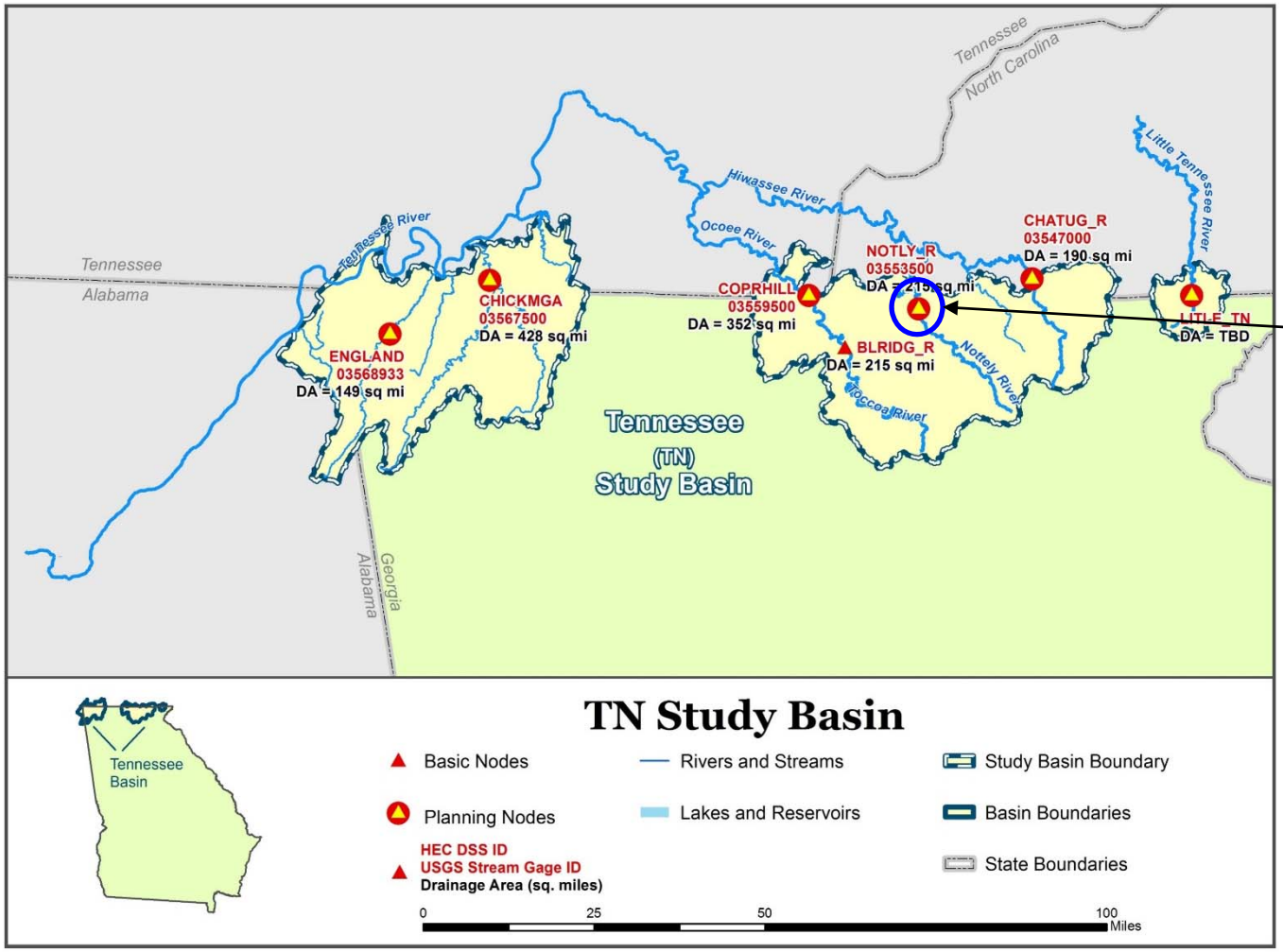
Blue Ridge Reservoir Elevation (1939-2013) – Future Conditions (2050)



RA Results at Copper Hill and Blue Ridge Reservoir – Future Conditions (2050)

Demand shortage (cfs)	At-site flow requirement shortage (cfs)	Minimum conservation storage remaining (acre-feet)	Minimum percentage of conservation storage remaining	Basin-wide flow requirement shortage
0	0	15,453	11%	N/A

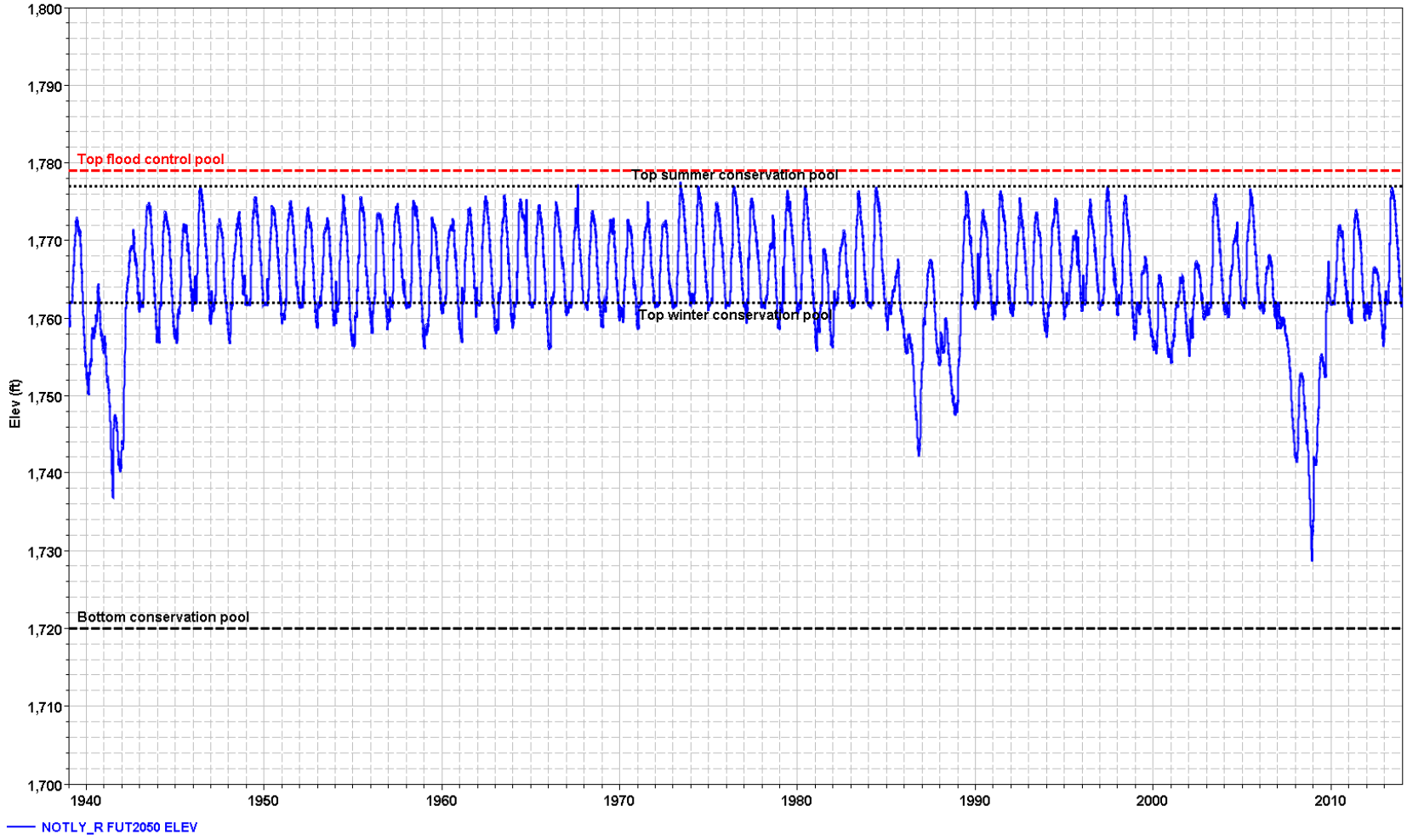
Nottely Reservoir in the Tennessee River Basin



Nottely Reservoir

Conservation Storage Capacity: 125,200 acre-feet

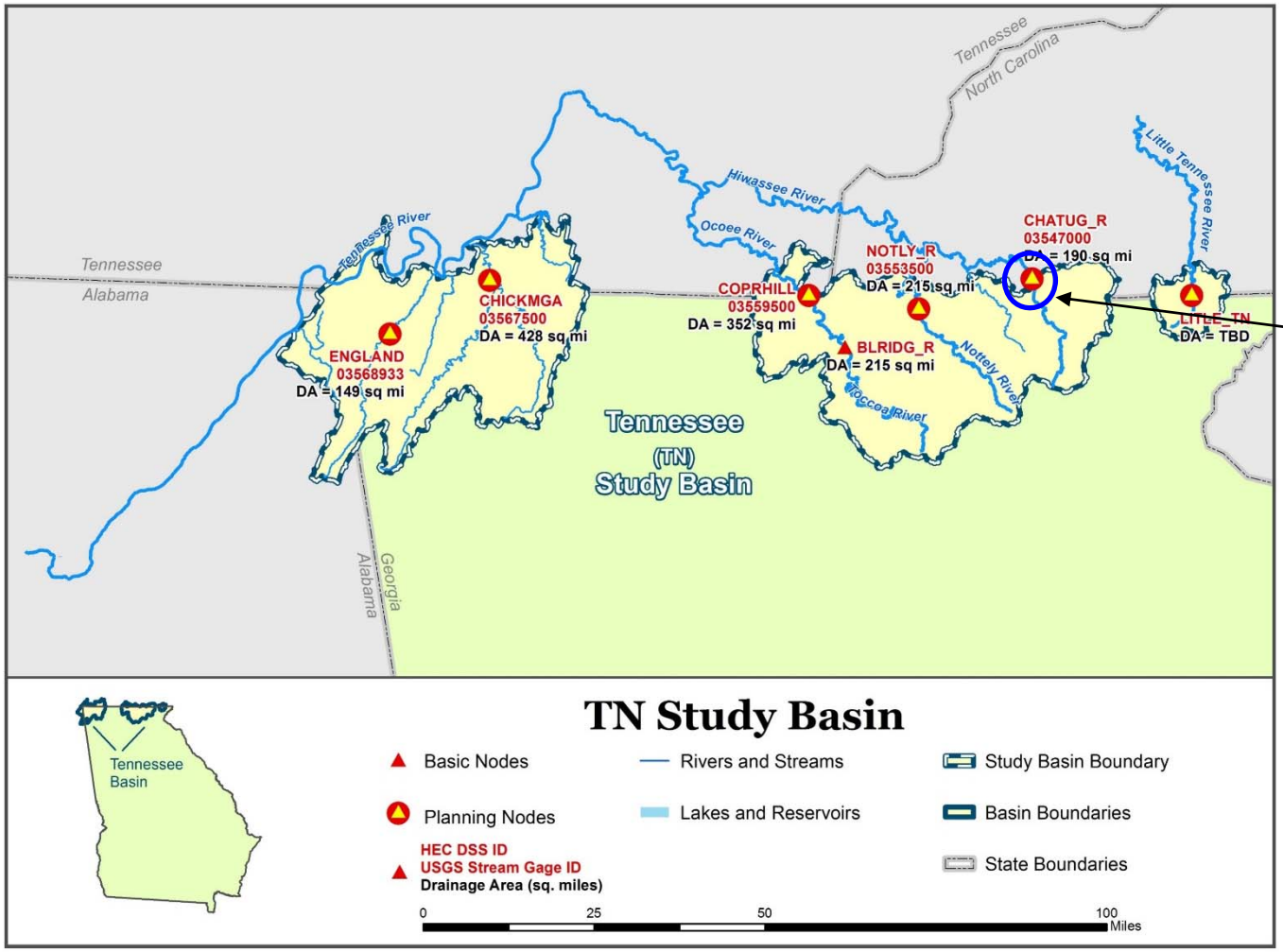
Notelly Reservoir Elevation (1939-2013) – Future Conditions (2050)



RA Results at Notelly Reservoir – Future Conditions (2050)

Demand shortage (cfs)	At-site flow requirement shortage (cfs)	Minimum conservation storage remaining (acre-feet)	Minimum percentage of conservation storage remaining	Basin-wide flow requirement shortage
0	0	10,790	9%	N/A

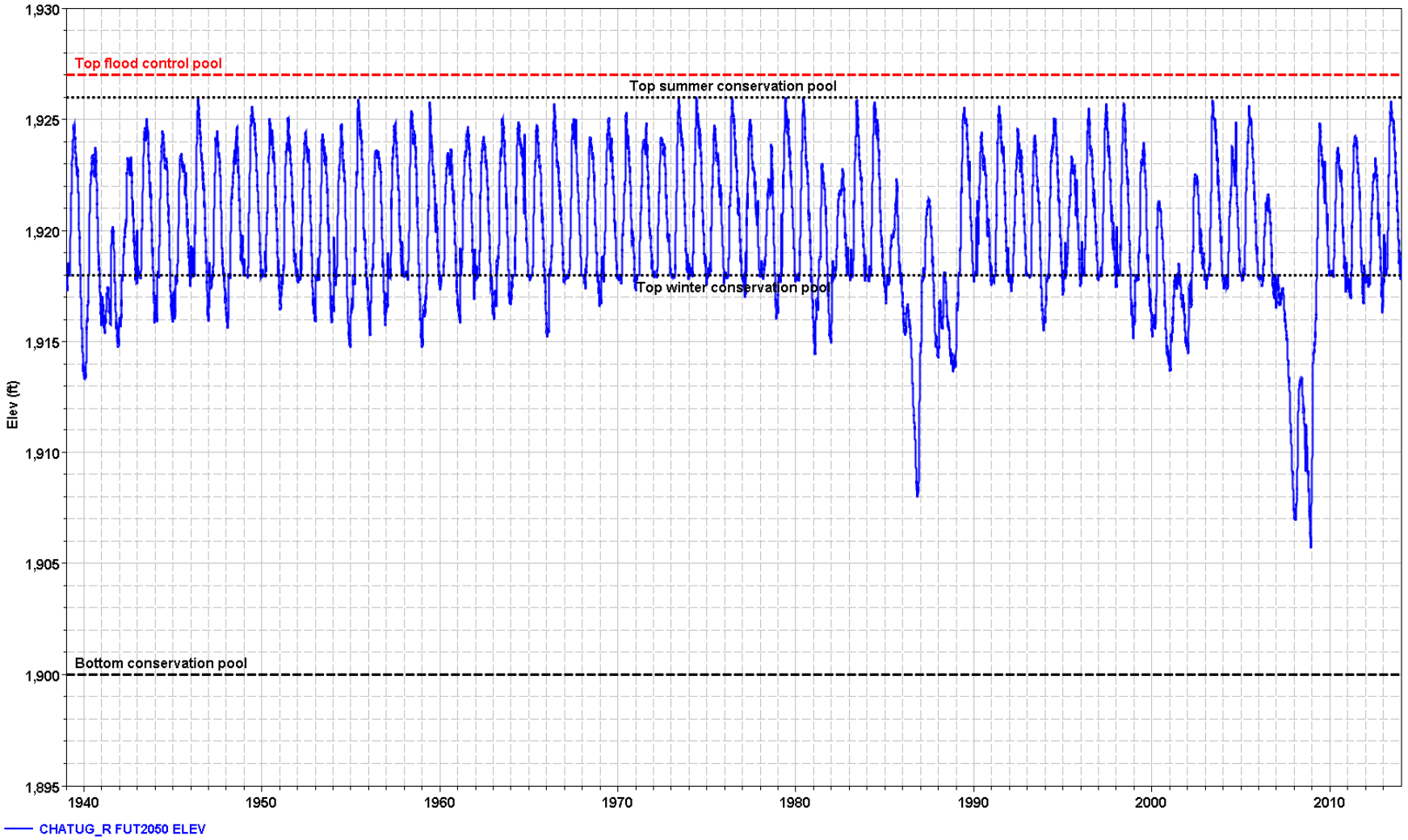
Chatuge Reservoir in the Tennessee River Basin



Chatuge Reservoir

Conservation Storage Capacity: 127,492 acre-feet

Chatuge Reservoir Elevation (1939-2013) – Future Conditions (2050)



RA Results at Chatuge Reservoir – Future Conditions (2050)

Demand shortage (cfs)	At-site flow requirement shortage (cfs)	Minimum conservation storage remaining (acre-feet)	Minimum percentage of conservation storage remaining	Basin-wide flow requirement shortage
0	0	21,180	15%	N/A

Evaluation Nodes in the Coosa River Basin

Gayles

Rome

Carters Reservoir

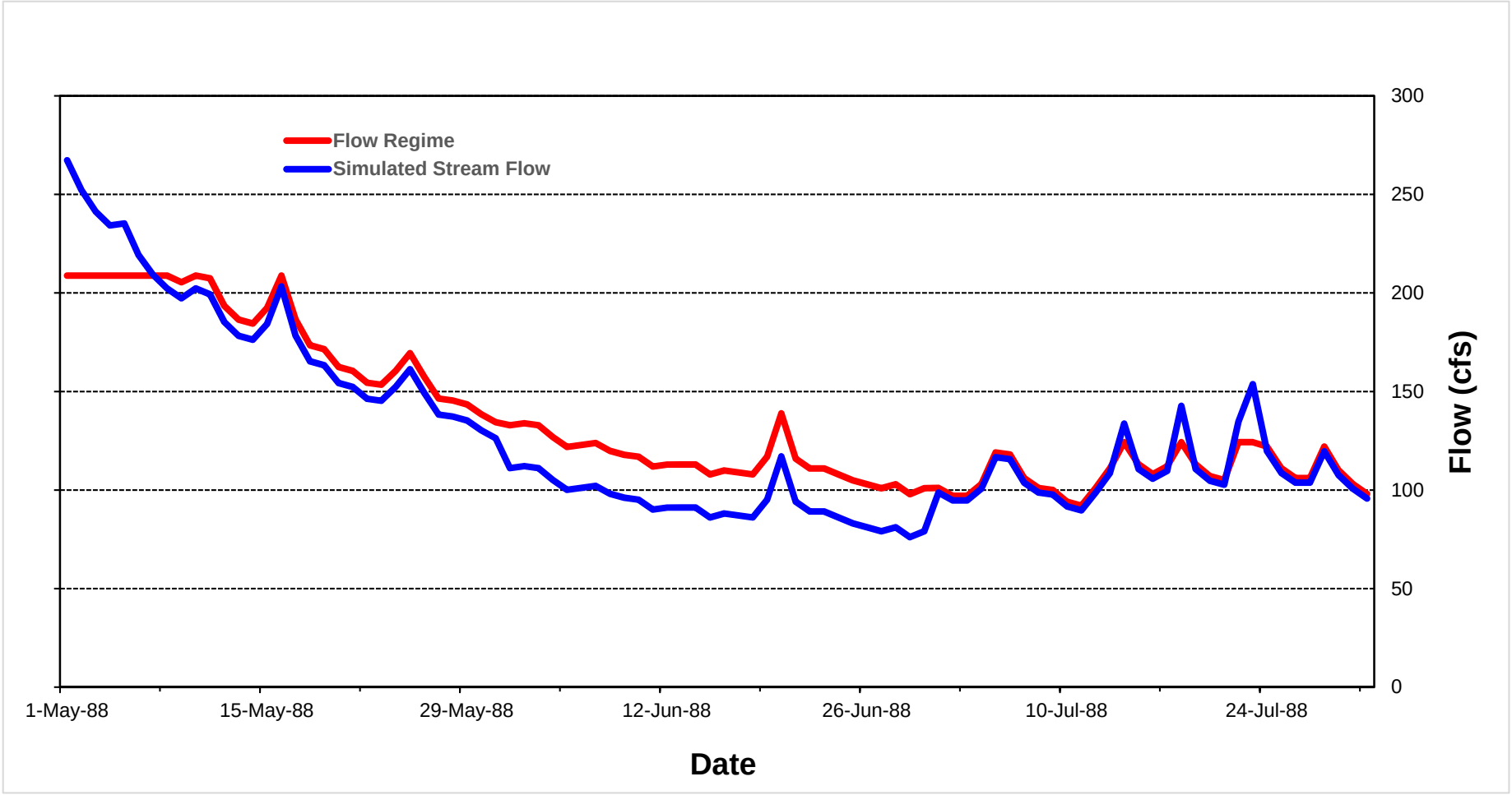
Kingston

Allatoona Reservoir

Gayles Node in the Coosa River Basin

Gayles

Potential Gap at Gayles – Future (2050)



Modeled Stream Flow Assumes Water Demand Fully Met

Potential Gaps at Gayles Node

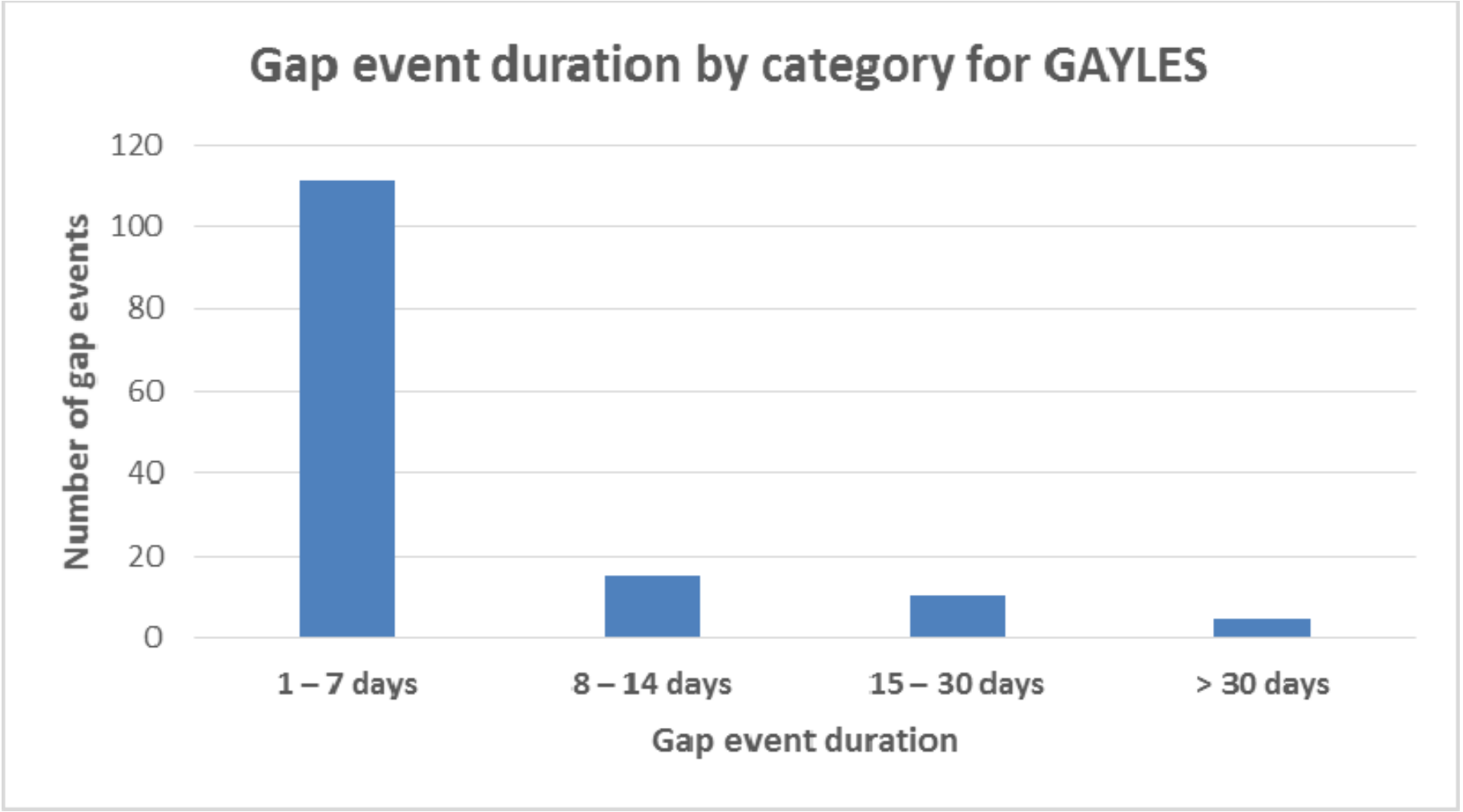
	Length of Gap (% of time)	Average Gap	Long-term Average Flow	Maximum 1-Day Gap	Corresponding Flow Regime
Round 1 Current (1939-2007)	7	4 cfs (2.6 mgd)	653 cfs (422 mgd)	6 cfs (3.9 mgd)	119 cfs (77 mgd)
Round 2 Current (1939-2013)	2	3 cfs (1.9 mgd)	656 cfs (424 mgd)	6 cfs (3.9 mgd)	87 cfs (56.2 mgd)
Round 2 Future (1939–2013)	3	9 cfs (5.8 mgd)	656 cfs (424 mgd)	22 cfs (14.2 mgd)	80 cfs (51.7 mgd)

Characteristics of Potential Gaps at Gayles Node– Future Conditions (2050)

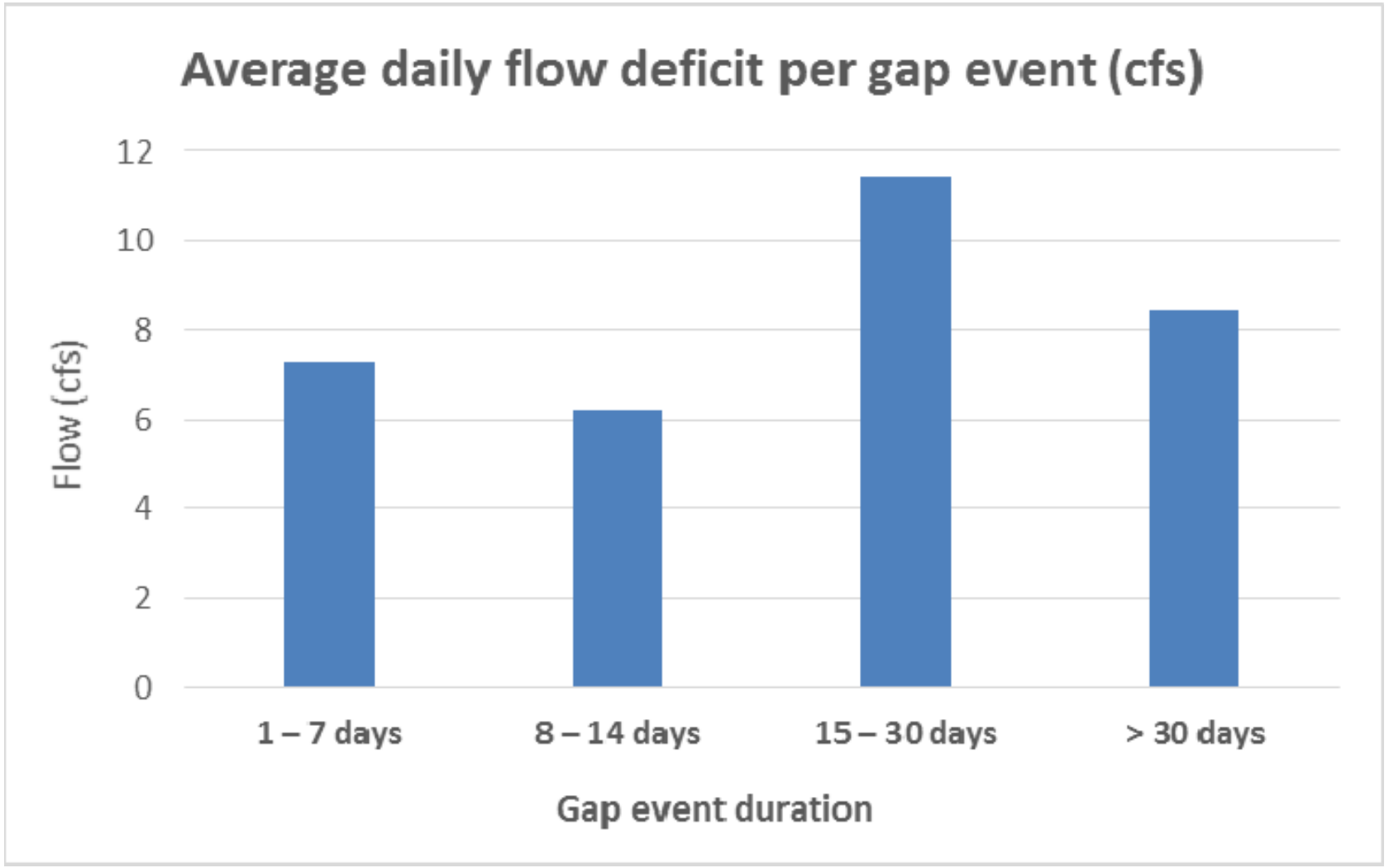
Gap event duration by category for Claxton	Number of gap events		Total gap days by category, 1939-2013		Average daily flow deficit per gap event (cfs)	Average cumulative flow deficit per gap event (cfsd)
1 – 7 days	111	(78.7%)	268	(1.0%)	7	18
8 – 14 days	15	(10.6%)	153	(0.6%)	6	64
15 – 30 days	10	(7.1%)	193	(0.7%)	11	216
> 30 days	5	(3.5%)	223	(0.8%)	8	421
Totals (∑)	141	(100.0%)	837	(3.1%)		

This information is shown in the following graphs

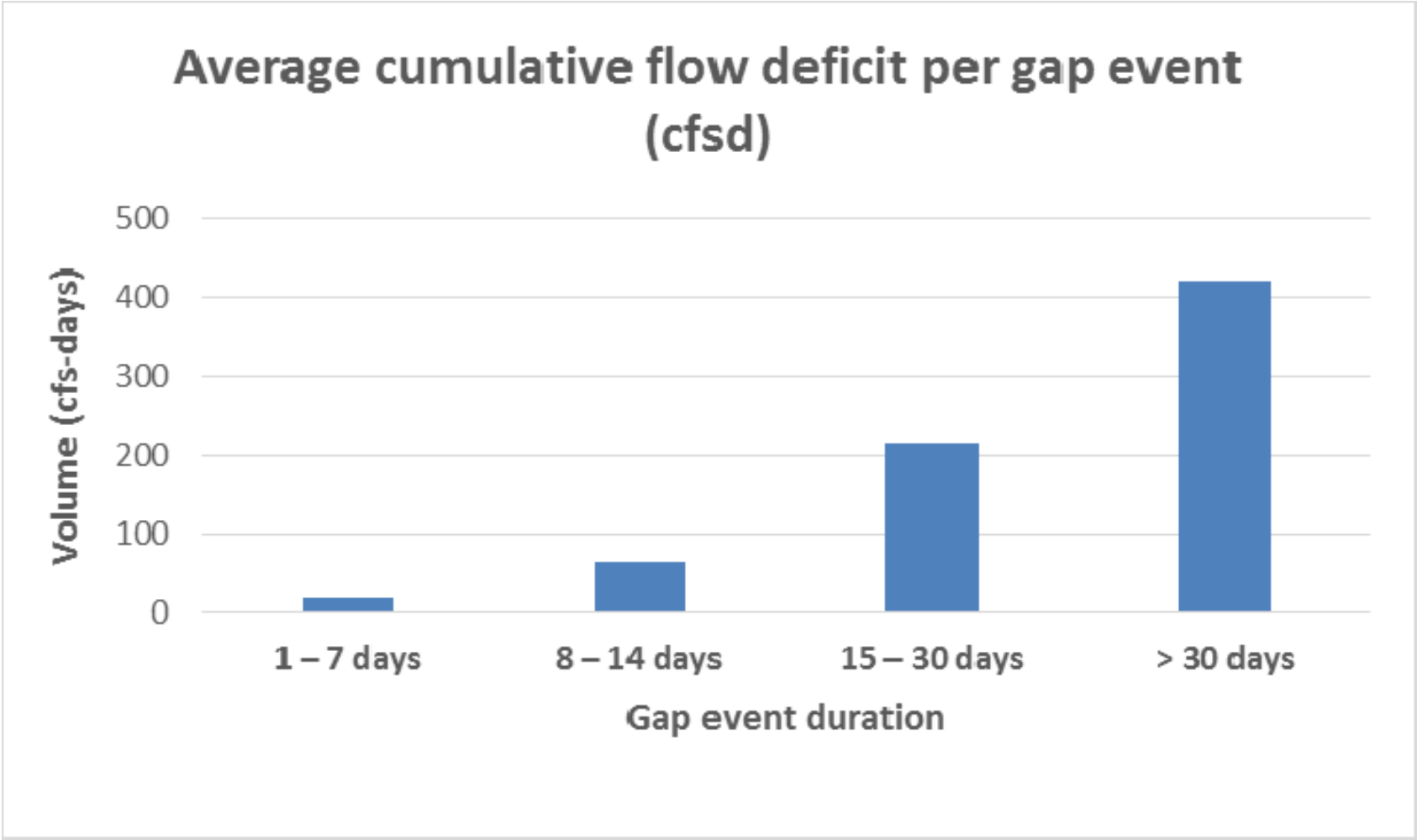
Characteristics of Potential Gaps at Gayles Node– Future Conditions (2050)



Characteristics of Potential Gaps at Gayles Node– Future Conditions (2050)



Characteristics of Potential Gaps at Gayles Node– Future Conditions (2050)



Kingston and Allatoona Reservoir in the Coosa River Basin

Kingston

Allatoona Reservoir

Conservation Storage Capacity: 284,583 acre-feet

RA Results at Kingston and Allatoona Reservoir – Future Conditions (2050)

Demand shortage (cfs)	Minimum flow requirement (cfs)	Minimum flow requirement shortage (cfs)	Minimum upstream conservation storage remaining (acre-feet)	Minimum percentage of upstream conservation storage remaining
0	0	0	87,825 at Allatoona	62% at Allatoona

Carters Reservoir in the Coosa River Basin

Carters Reservoir

Conservation Storage Capacity: 141,402 acre-feet

Rome in the Coosa River Basin

Rome

Carters Reservoir

Allatoona Reservoir

RA Results at Rome – Future Conditions (2050)

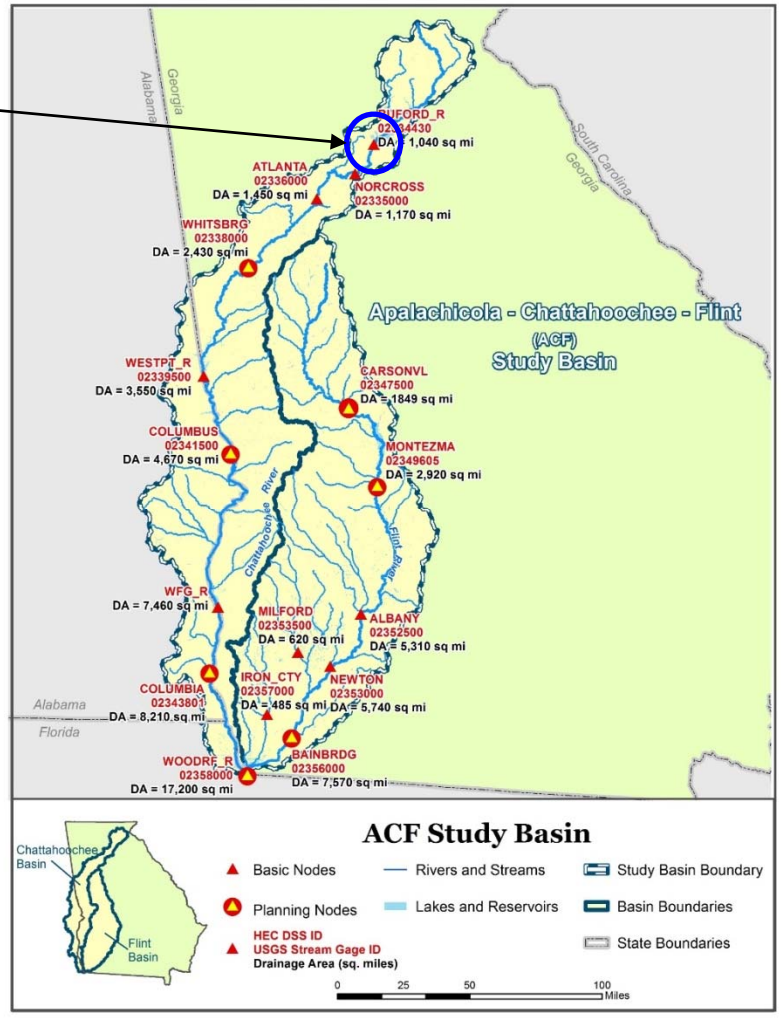
Demand shortage (cfs)	Minimum flow requirement (cfs)	Minimum flow requirement shortage (cfs)	Minimum upstream conservation storage remaining (acre-feet)	Minimum percentage of upstream conservation storage remaining
0	0	0	87,825 at Allatoona 91,881 at Carters	62% at Allatoona 68% at Carters

Lake Lanier in the Chattahoochee River Basin

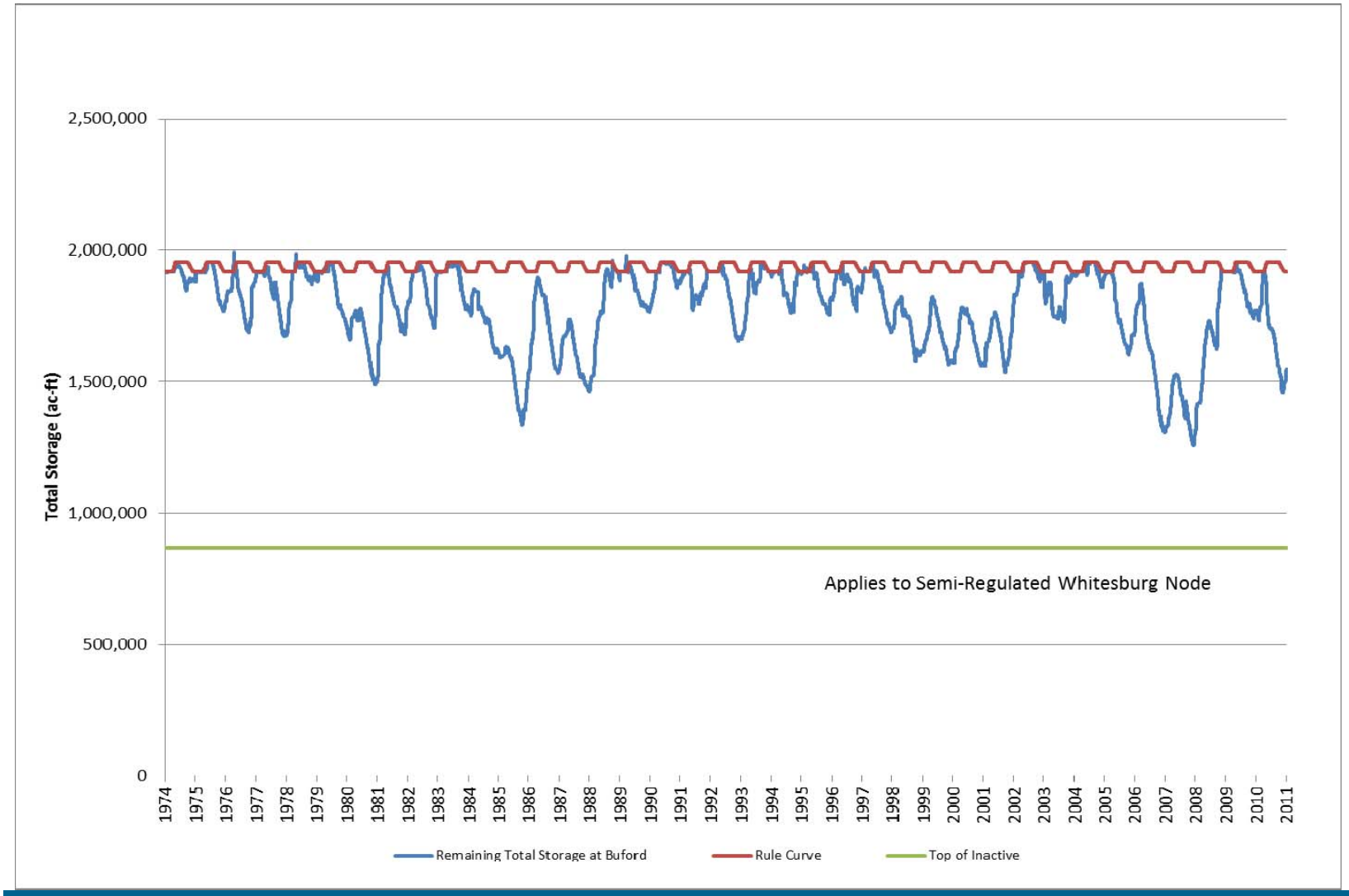
Lanier

In the 2011 plan, these results were labelled Whitesburg node.

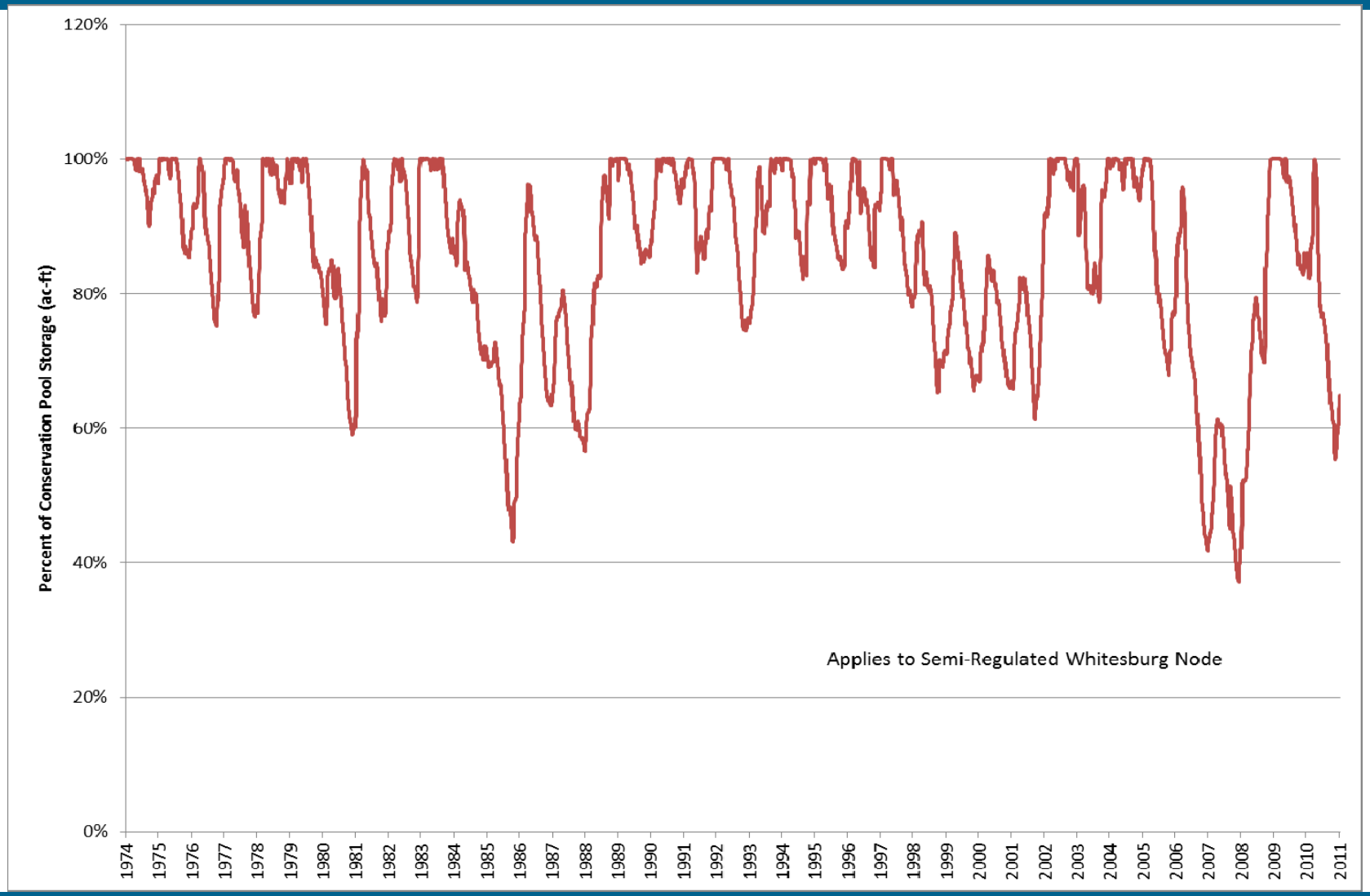
Conservation Storage Capacity: 1,087,400 acre-feet



Lake Lanier Total Storage – Future (2050)



Lake Lanier Conservation Storage – Future (2050)



Resource Assessment Results at Lake Lanier

Demand shortage (cfs)	At-site flow requirement shortage (cfs)	Minimum conservation storage remaining (acre-feet)	Minimum percentage of conservation storage remaining	Basin-wide flow requirement shortage
0	0	389,703	37%	N/A