November RBC Meeting Review

Agenda Item 3

Surface Water Scenarios

Base Scenarios

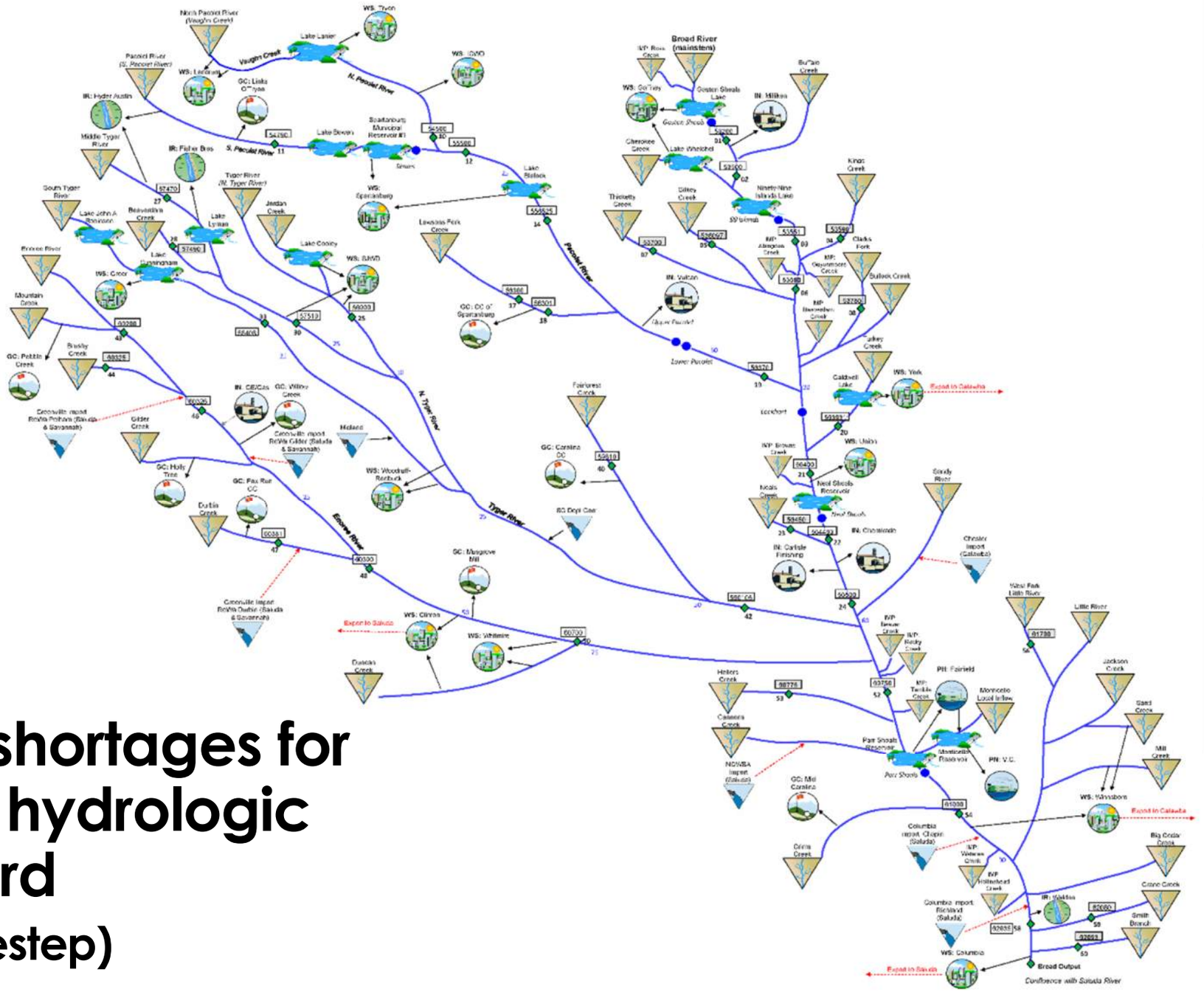
- Current Surface Water Use Scenario
  - *Uses most recent 10-yr average withdrawals (as reported by month)*
- Moderate Water Demand Projection Scenario
  - *Future water demand projection based on moderate growth and normal climate*
- High Water Demand Projection Scenario
  - *Future water demand projection based on high growth and hot/dry climate*
- Permitted and Registered Surface Water Use Scenario
  - *Uses current fully-permitted and registered amounts*

Summary of Average Annual Demands by Scenario (in MGD)

Water Use Sector	Current Use	Moderate Demand 2070	High Demand 2070	Permitted and Registered
Mining	0.1	0.0	0.1	3.9
Agriculture	0.3	0.3	0.3	8.8
Golf Courses	1.3	1.0	1.8	12.3
Industrial/Manufacturing	3.1	5.7	12.2	14.2
Public Water Supply	92.9	149.2	249.4	640.6
Thermonuclear	711	760	842	864
Total all Sectors*	809	916	1,106	1,543.3
Percent Increase Compared to Current Use:		13%	37%	91%
Total without Thermonuclear*	98	156	264	680
Percent Increase Compared to Current Use:		60%	170%	596%

** Rounded to nearest MGD*

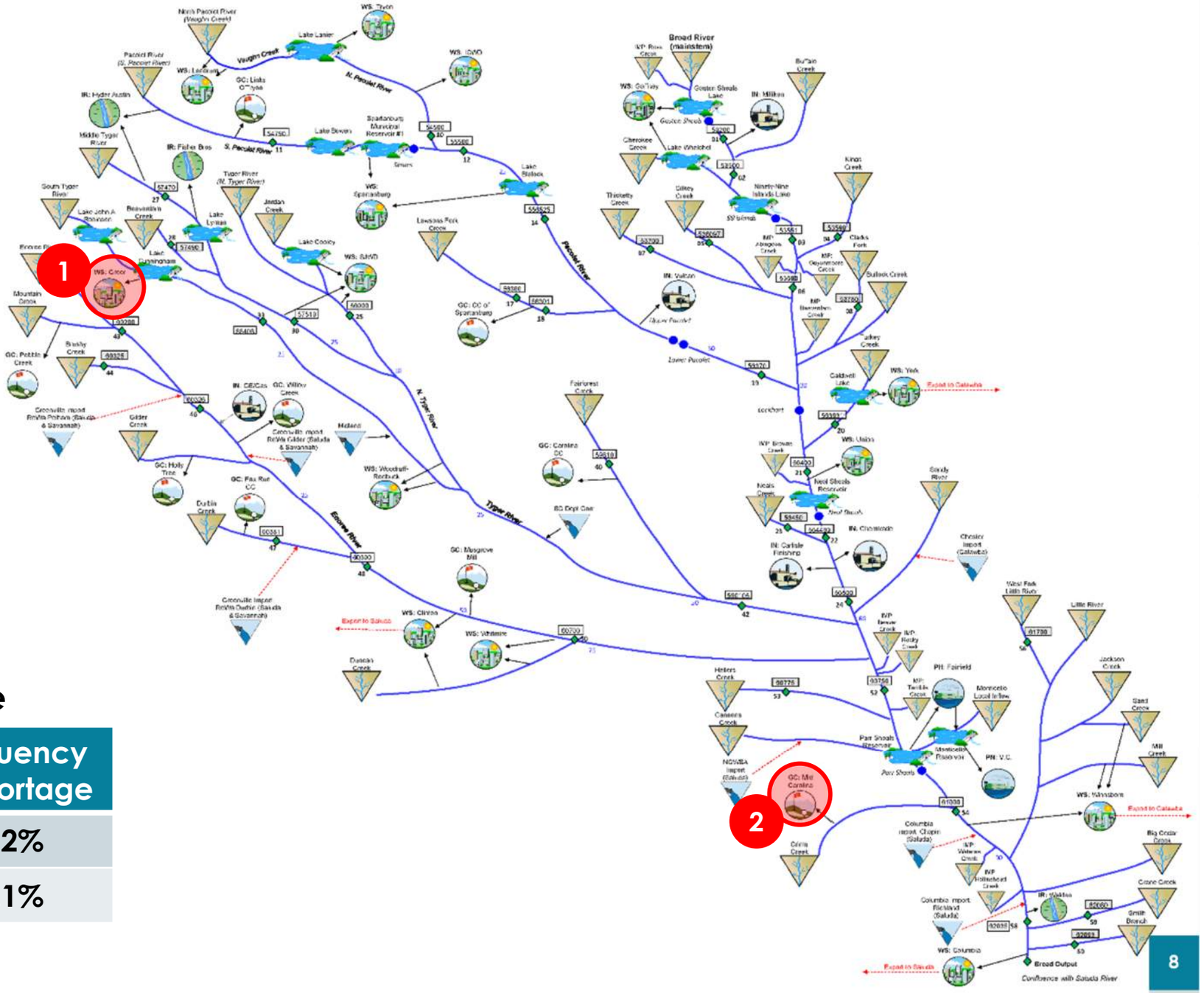
Current Use Scenario



No simulated shortages for the 1929-2019 hydrologic period of record

(using monthly timestep)

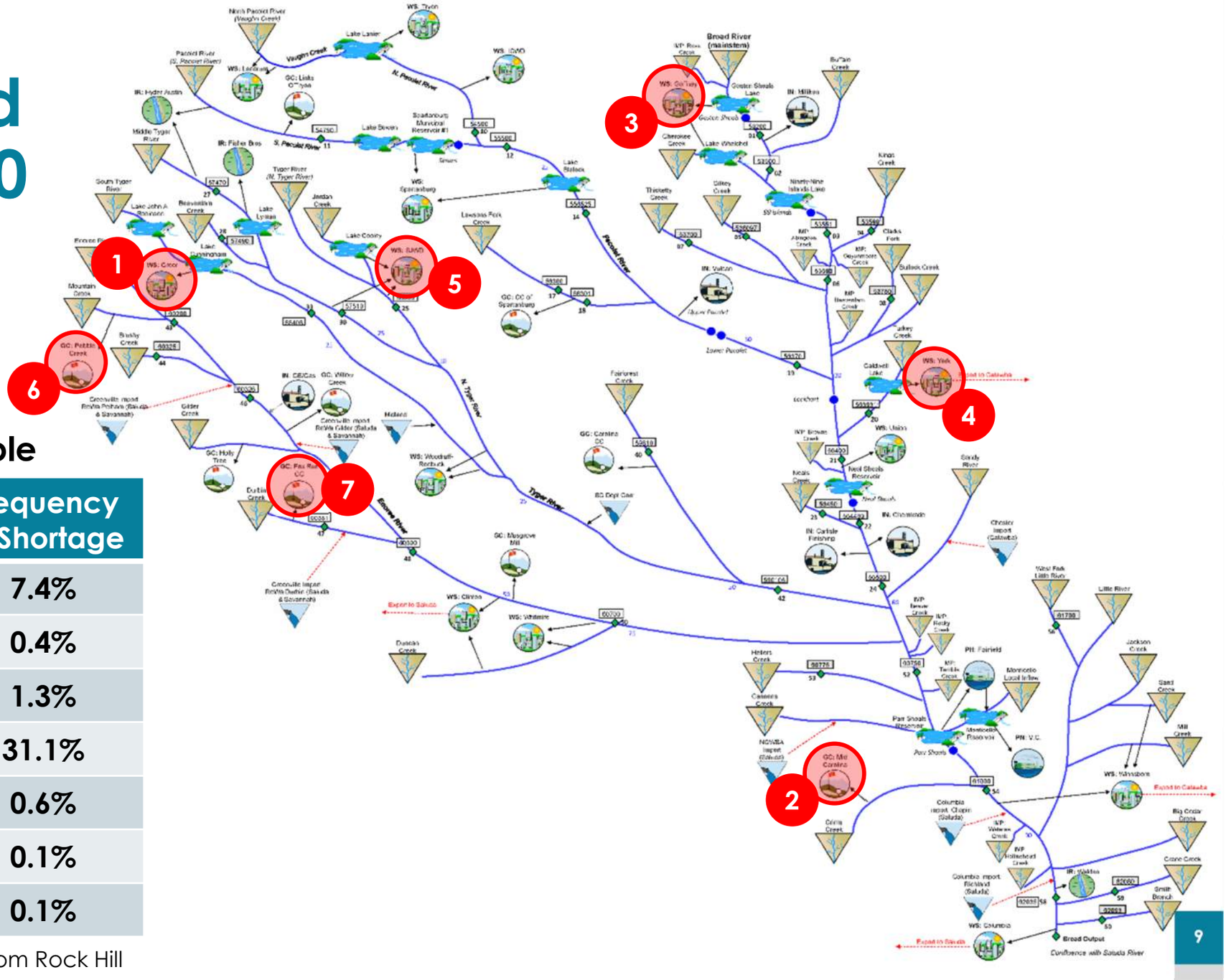
Moderate Demand Scenario 2070



Surface Water Shortage Table

Map ID	Water User	Frequency of Shortage
1	WS: Greer	2.2%
2	GC: Mid Carolina	0.1%

High Demand Scenario 2070



Surface Water Shortage Table

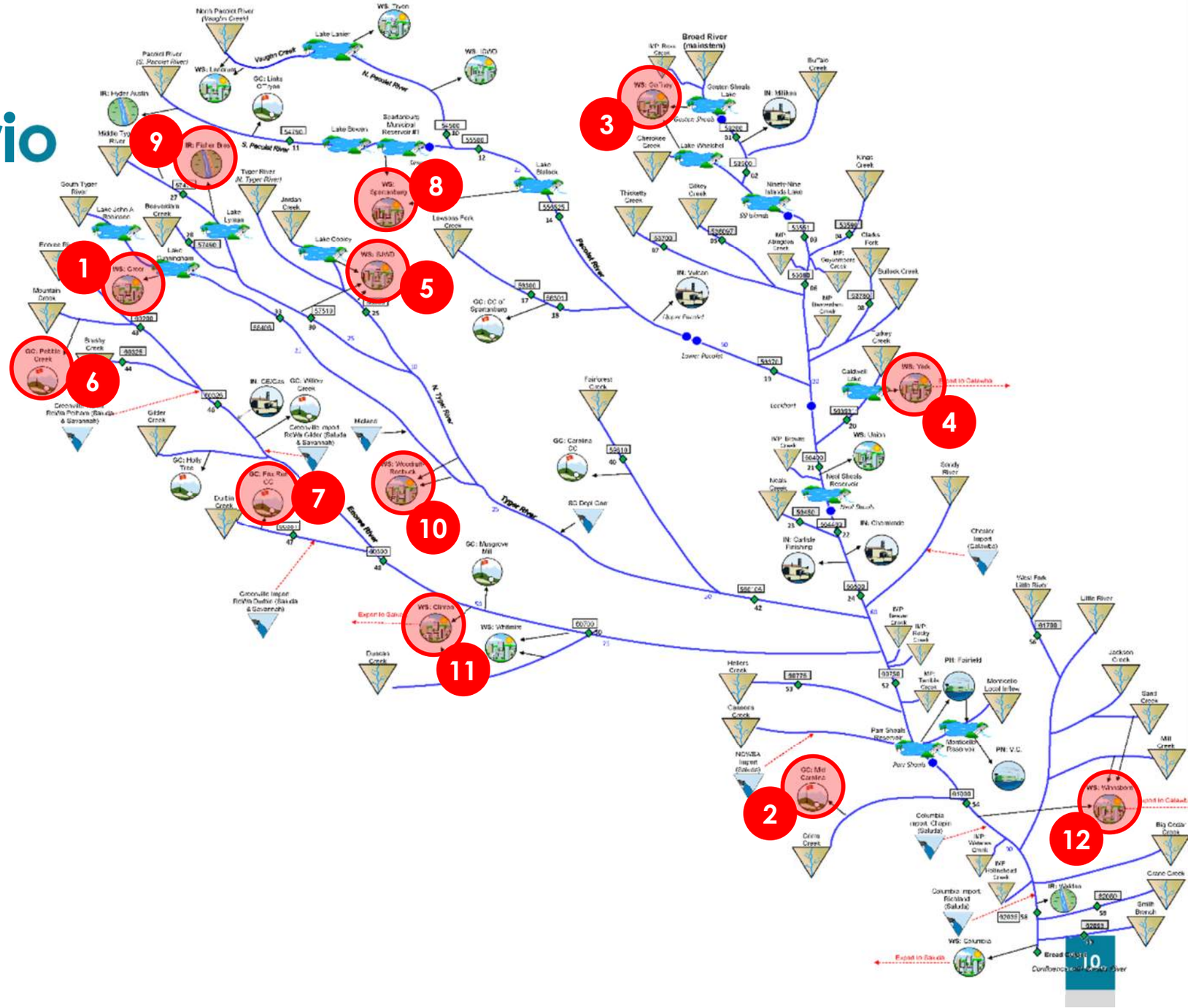
Map ID	Water User	Frequency of Shortage
1	WS: Greer	7.4%
2	GC: Mid Carolina	0.4%
3	WS: Gaffney	1.3%
4	WS: York*	31.1%
5	WS: SJWD	0.6%
6	GC: Pebble Creek	0.1%
7	GC: Fox Run	0.1%

* York is now purchasing all their water from Rock Hill

Permitted and Registered Scenario

Surface Water Shortage Table

Map ID	Water User	Frequency of Shortage
1	WS: Greer	47.4%
2	GC: Mid Carolina	33.5%
3	WS: Gaffney	7.0%
4	WS: York	13.3%
5	WS: SJWD	94.3%
6	GC: Pebble Crk	9.0%
7	GC: Fox Run	1.7%
8	WS: Spartanburg	91.2%
9	IR: Fisher Bros	1.8%
10	WS: Woodruff-Roebuck	0.2%
11	WS: Clinton	3.5%
12	WS: Winnsboro	89.2%



Flow-Ecology Metrics Proposal: Low-Med-High Risk Ranges

	Instream Flow Performance Recommendations and Risk Ranges											
Stream Type:	**Piedmont Perennial Runoff**			**Piedmont Flashy**			**SE Plains Perennial Runoff**			**SE Plains Stable Baseflow**		
	Risk Ranges											
	Low	**Med**	**High**	**Low**	**Med**	**High**	**Low**	**Med**	**High**	**Low**	**Med**	**High**
Flow Metric												
Mean Daily Flow (FR)	>0.78	0.64-0.78	<0.64	>0.71	0.49-0.71	<0.49	>0.66	0.42-0.66	<0.42	>0.75	0.52-0.75	<0.52
Duration of High Flow (NF)				<0.16	0.16-0.39	>0.39						
Frequency of High Flow (MS)				<0.20	0.20-0.43	>0.43						
Low Flow Duration (FR)										<0.13	0.13-0.40	>0.40
Calendar Day of Lowest Flow (BHF)	>327											
Calendar Day of Lowest Flow (NF)				<278								
Calendar Day of Lowest Flow (MT)				>285								

FR=Fish Species Richness: The number of fish species found in a stream or river reach

NF=Nesting fishes - the group of fish species who build nests for their eggs, and typically guard the site and the young hatchlings.

MS=Shannon diversity of aquatic insects. Shannon diversity accounts for both the number of species at a site, and also how equally their numbers are distributed

BHF=Brood hiding fishes. Brood hiders bury or place their eggs in a concealed location, but do not guard or provide any parental care

MT=Macroinvertebrate Tolerance: Aquatic insects which tolerate stagnant water, low oxygen and pollution. This includes worms, nematodes, gnats, mosquitoes, etc.