

# Lake Gaston Roanoke Rapids Lake Operations



March 6, 2019

# Safety Moment

- Lake Conditions
  - Changes in bottom conditions
  - Debris
  - Temperature

45 F

# 2018 Safety Incidents

- No drownings!
- 1 boat accident with injuries
  - Alcohol involved

# Dominion Reservoir Level Operational Objectives

- Compliance with Federal Energy Regulatory Commission (FERC) license
- Meet VA State Corporation Commission and NC Utilities Commission objective providing reliable low cost electricity to customers
- Generate the lowest cost energy to provide a direct benefit to our customers

# Dominion

## FERC License Requirements

- Cooperate with USACE on flood control
- Maintain lake levels
  - Normal
  - Flood Control
  - Spawning Season
  - Drought
- Meet downstream flow requirements
- Meet anadromous fish spawning flows (Mar 1- June 15)

# Lake Gaston Level

## Current License Requirements

- Measured at the Gaston dam
- Normal: 199.0 – 200.0
- March 1 – June 15: 199.0 – 201.0 Fish Spawning
- Flood Control
  - Up to 203.0 when Flood Operations declared
  - Notify LGA if anticipate above 201
  - Update website with anticipated levels.
  - Agreement to keep levels below 201.5 if possible

# 2018/19 Lake Levels

- Lake Gaston
  - Normal: 199.0 – 200.0
  - 2018 Range 199.0 – 201.3
  - 2019 Range 199.1 – 201.4
- Roanoke Rapids Lake
  - Normal 127-132
  - 2018 Range 127.0 – 132.3
  - 2019 Range 126.7 – 132.3

# Lake Gaston Levels

- Between Sep 22 – Feb 28 the Lake Gaston Dam gauge indicated:
  - Peak level 201.4 ft (Feb 24<sup>th</sup>)
  - 0 hours over 201.5 ft
  - 245 hours over 201.0 ft
  - 16 of 22 Weeks in Flood Control, 9.1% of that above 201 ft



# River Flows since September

- 1965-2017 average flows for this period
  - 6,125 cfs
- Sep 22, 2018 – Feb 28, 2019
  - Average flow: 24,800 cfs
  - Highest average monthly flows on record for Oct- Jan. (1912)

# River Flows

- 2018 From September
  - Average of 25,260 cfs or 11 million gallons per minute
  - Low daily average on Jan 24th: 2,307 cfs
  - High daily average on Nov. 29<sup>th</sup>: 35,400 cfs 22.9 BGD
- 2019
  - Average of 21,800 cfs
  - Low daily average on Feb 16th: 6,070 cfs
  - High daily average on Feb 28<sup>th</sup>: 34,460 cfs 22.3 BGD
- Flood Control Declarations by the Corps
  - Not in flood control 2 weeks each in Dec, Jan and Feb
  - Flooding upstream and downstream
  - 2018 high daily inflow into Kerr: 125,963 cfs

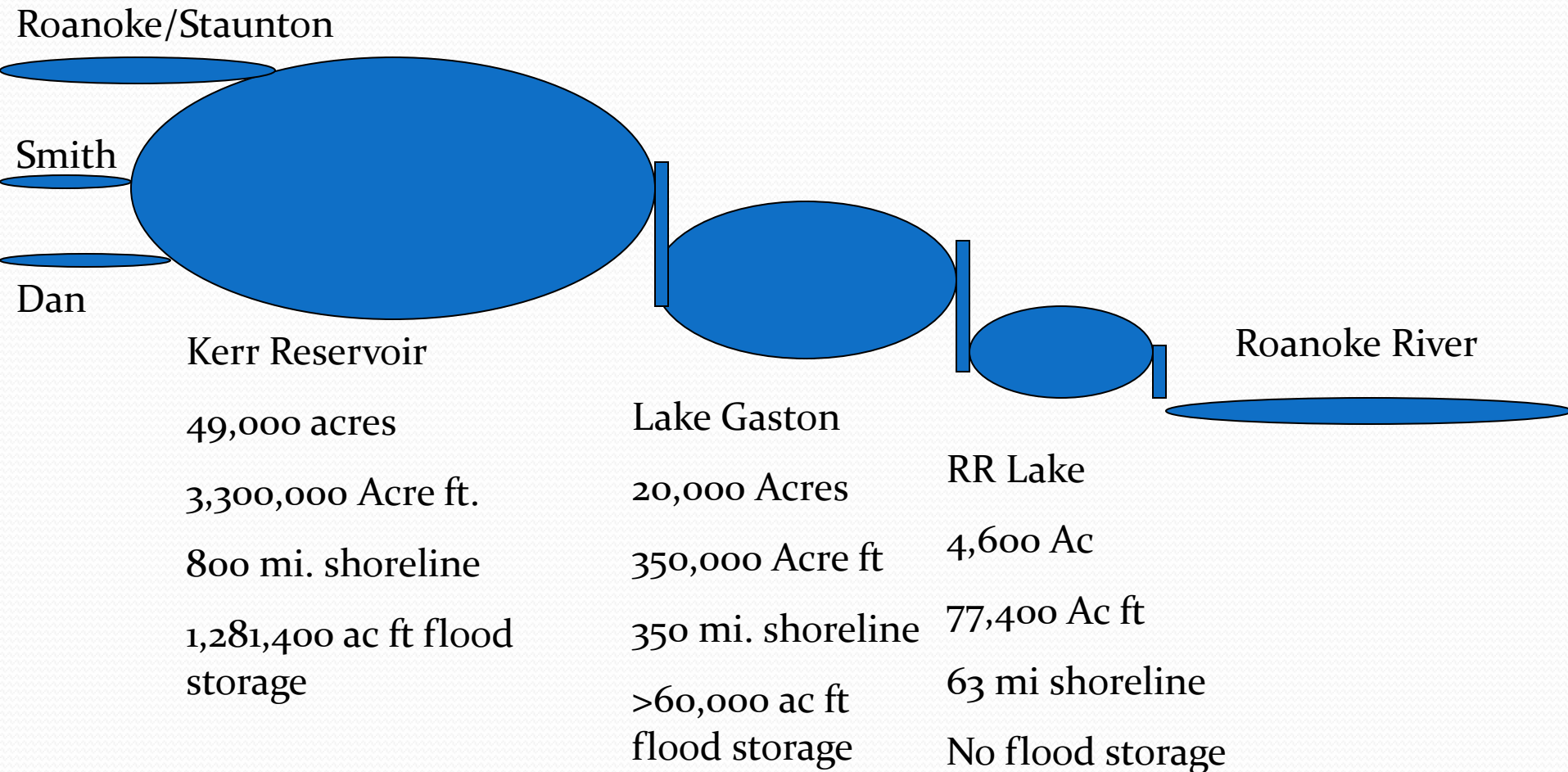
# Generation

- The two dams generated 848,000 megawatt hours of electricity in 2018.
- 50% increase over the average year
- Cheapest electricity in the fleet with fuel cost passed directly to the consumer

# Questions?



# Kerr / Gaston / Roanoke Rapids System



# What impacts Lake Level?

- Kerr Operations
- Location in the lake
  - Closer to Kerr = more fluctuation
- Gaston Dam operations
- Fetch (wind)
- Coves



# Roanoke River Flow Control

- USACE responsibilities:
  - meet contractual hydropower obligations at Kerr,
  - publish Weekly Declaration of flows from Kerr,
  - designate flood and drought operations at Kerr,
  - prescribe releases from Roanoke Rapids Dam during flood operations and fish spawn.
- Dominion responsibilities:
  - Required to discharge full declaration and prescribed, releases through the system each week,
  - Determines dam flows, volume and timing,
  - Comply with license.

# Construction and Use Procedures

## 1.9 Cautions

- For purposes herein the maximum normal water level (“MNWL”) is defined as 200 feet above mean sea level for Lake Gaston and 132 feet above mean sea level for Roanoke Rapids Lake.
- The Applicant is cautioned that water levels in the Lakes can fluctuate within the following limits (elevations are in feet above mean sea level, measured at the dams):

Condition	Lake Gaston High	Lake Gaston Low
Normal Fluctuation	200.0	199.0
March 1- June 15	201.0	199.0
Abnormal Fluctuation	203.0	195.0
100-Year Flood Event	204.0	

- It is possible that structures may be damaged by high water levels or by wavewash from passing vessels. The issuance of a Construction and Use License Agreement does not relieve the Applicant from taking necessary steps to ensure the integrity of the structure and the safety of moored boats.



# Dominion Actions

- Operated dam to hold lake levels to 201.5 or less during entire flood operation period
- Notified LGA when levels were expected to rise above 201.0
- Updated website to more accurately show anticipated water levels