Julie DeMeester/ Kristen Blann

Using the Indicators of Hydrologic Alteration (IHA) Software

The Nature Conservancy
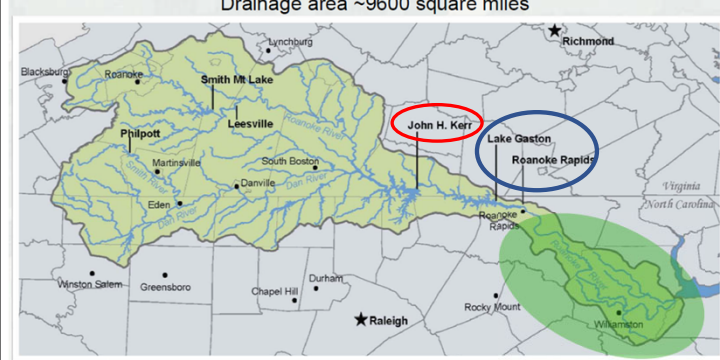
1

John H Kerr Dam and Lake, Roanoke River

- USACE dam and reservoir

- Primary purpose: flood control

- Began operation in 1953

- 1.2 mil AF flood storage

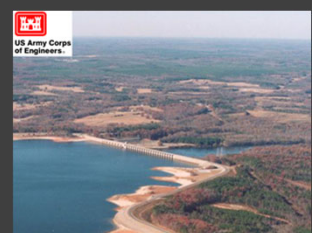- Roanoke River - upstream catchment 7,800 square miles

2

Roanoke River Basin

The Roanoke travels ~400 miles from the mountains to the sound
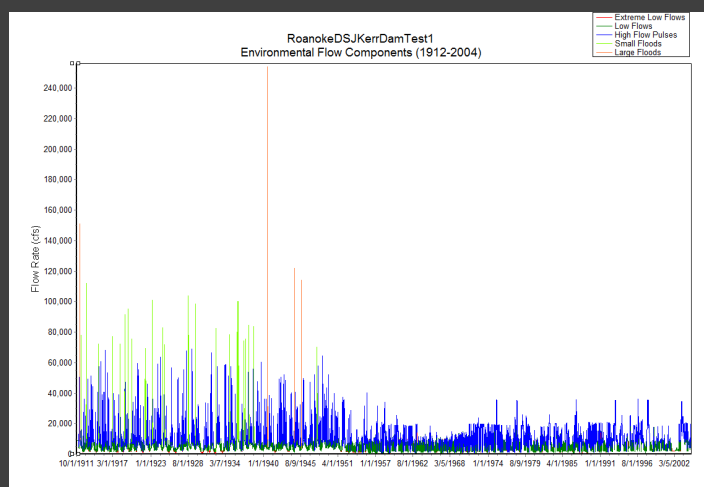Drainage area ~9600 square miles

- Some of the most intact bottomland hardwood forests on the East Coast.
- 5 mile wide floodplains, with 95k acres in conservation land in the lower Roanoke
- Important diadromous fish habitat

3

Exploring the Roanoke River Hydrologic Data

4

Exploring the Roanoke River Hydrologic Data

- For many years, Kerr dam was operated to release 20k cfs when in flood operations.

- The downstream environment was being flooded far more frequently.

- This led to negative effects on the floodplain vegetation, low dissolved oxygen into the water, and streambank instability.
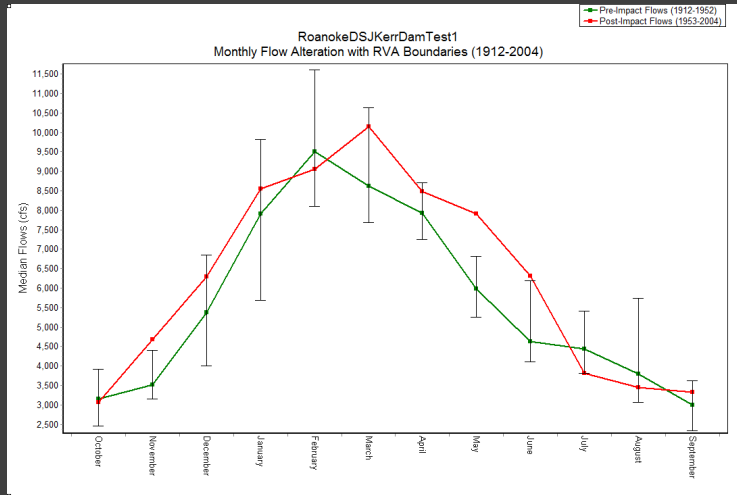

5

Exploring the Roanoke River Hydrologic Data

- Roanoke Rapids dam will raise and lower flows to 20k cfs for "peaking" hydropower needs.

- The lower Roanoke floodplains *will* be flooded at 20k cfs.

- In the Roanoke, historically, the wettest time of year is the dormant season (Nov-Mar).

- The driest time of year is the late summer (Aug-Oct)

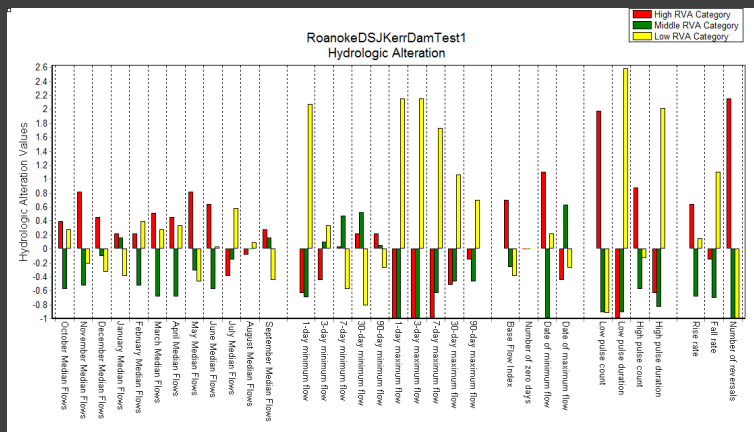- There are two fish spawns. One in the spring (March), and one in the fall (October).

6

Exploring the Roanoke River Hydrologic Data

7

Exploring the Roanoke River Hydrologic Data

HA = (observed frequency – expected frequency) / expected frequency

8