

# FALLS LAKE OPERATIONS

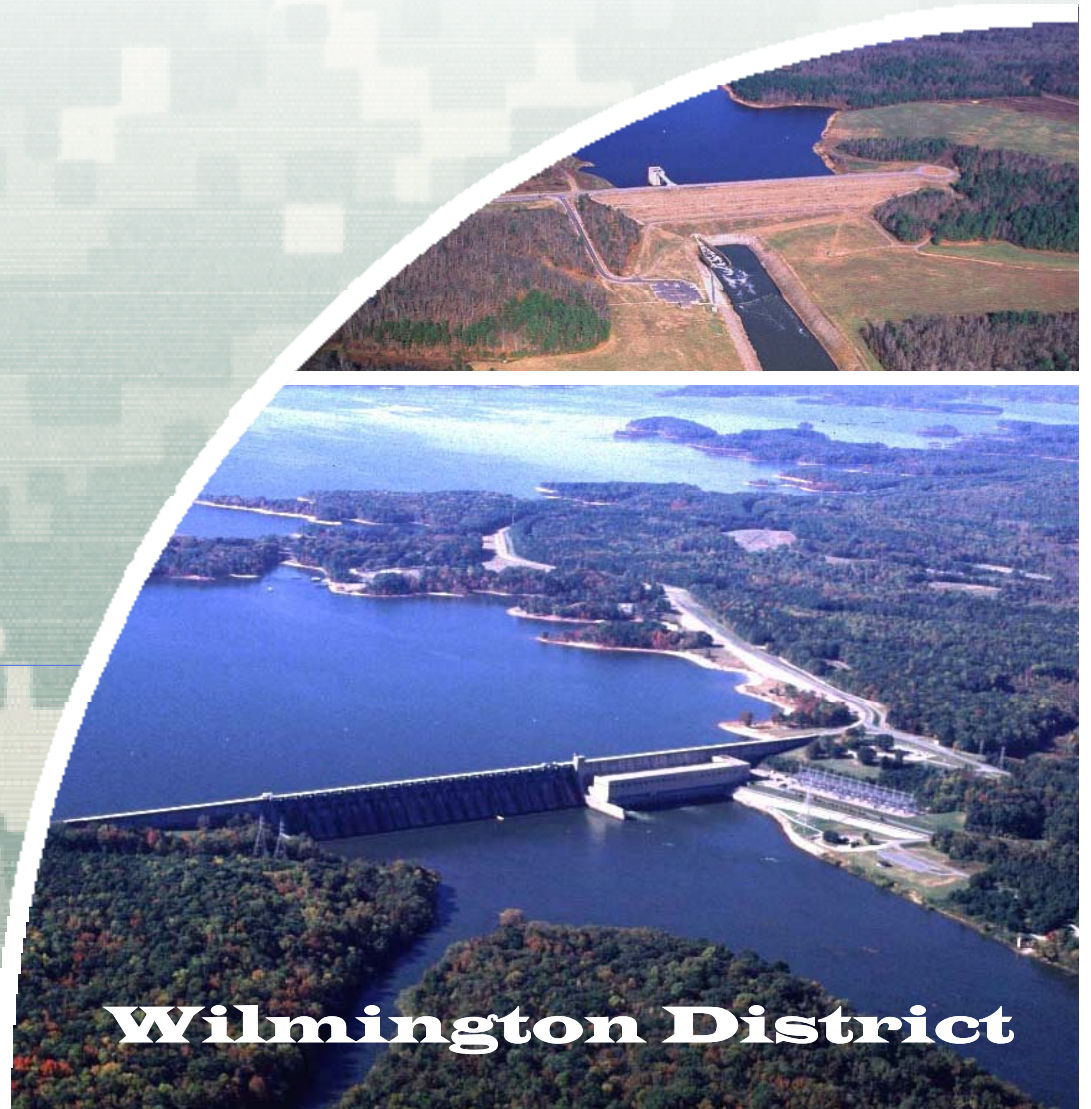
**UNRBA Board Meeting**

**16 September 2015**

**Water Management  
Wilmington District**



**US Army Corps of Engineers  
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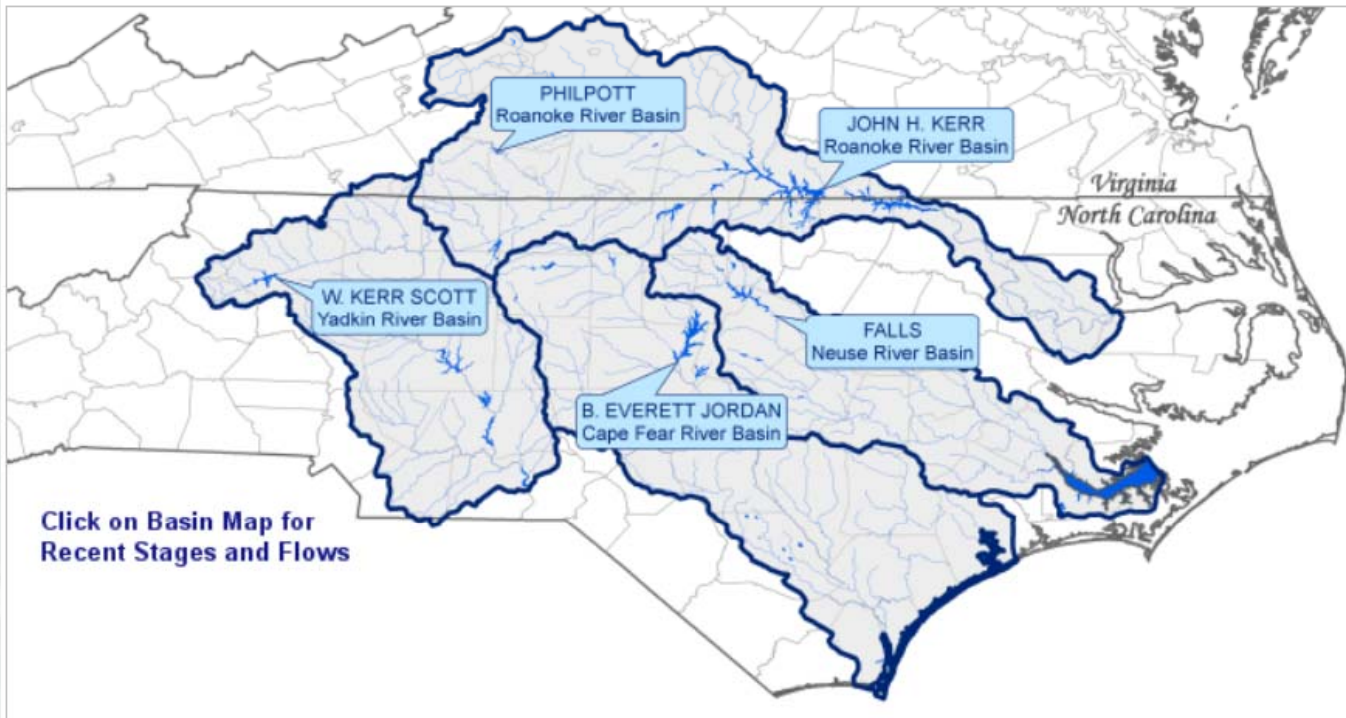


**Wilmington District**



## Water Management

[Home](#) | [Daily Report](#) | [Project Status](#) | [USGS - NC VA](#) | [NWS River Forecasts](#) | [Weather](#) | [Recreation](#)



Click on Reservoir Name Below to go to Project Webpage:

	John H. Kerr	Philpott	Falls	B. Everett Jordan	W. Kerr Scott
0800 Elevation (ft-msl)	297.01	968.92	249.05	213.12	1027.47
Guide Curve (ft-msl)	299.50	972.00	251.50	216.00	1030.00
<b>Lake and Guide Curve Levels for the past 180 days</b>					

[Join Stakeholder Distribution List](#)

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# **Water Management Mission...24/365**

**Operate Wilmington District's reservoirs to maximize Congressionally authorized purposes.**

- **“Normal” conditions**
- **Flood events**
- **Droughts**
- **Emergency situations**



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# Data Collection and Stakeholders

**USGS Cooperative Stream Gaging Program**

**National Weather Service**

**US Fish and Wildlife**

**North Carolina State Climate Office**

**North Carolina DENR**

**Water Resources**

**Water Quality**

**Wildlife Resources Commission**

**Local Governments**

**River Basin Associations**

**Others**



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# Neuse River Basin -- Falls Lake Project



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# **Falls Lake Authorized Project Purposes**

**Water Quality**

**Water Supply**

**Wildlife Enhancement**

**Flood Control**

**Recreation**

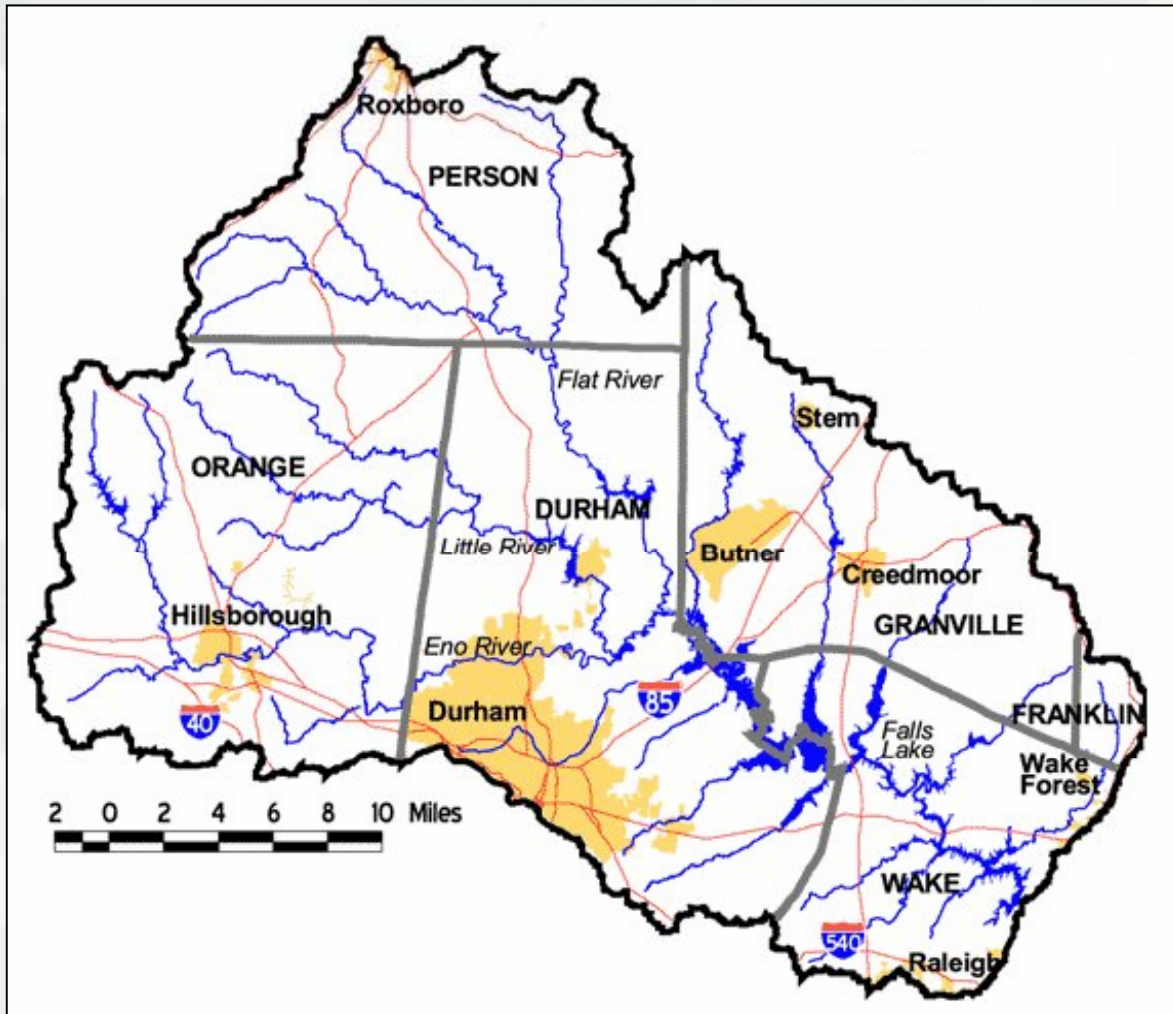


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# Falls Lake Watershed

(drainage area contributing to Fall Lake inflows)



Durham's Reservoirs	13-Sep-15 Level ft-msl	Full Level ft-msl
Lake Michie	337.8	341
Little River	347.3	355

Durham's reservoirs upstream of Falls Dam control about one-third of Fall's drainage area.





# Falls Lake – Operating Levels

## Falls Lake Project Profile

Elevation at Top of Dam is 291.5 Feet, msl —

Spillway Crest at 264.8 Feet, msl - - -

### Controlled Flood Storage

Elevation 251.5 to 264.8 Feet, msl

221,182 Acre-Feet or 5.4 Inches of Runoff Storage

Normal Operating Level of 251.5 Feet, msl

### Conservation Storage

#### Water Supply Storage

45,000 Acre-Feet or  
42.3 % of Conservation Pool

#### Water Quality Storage

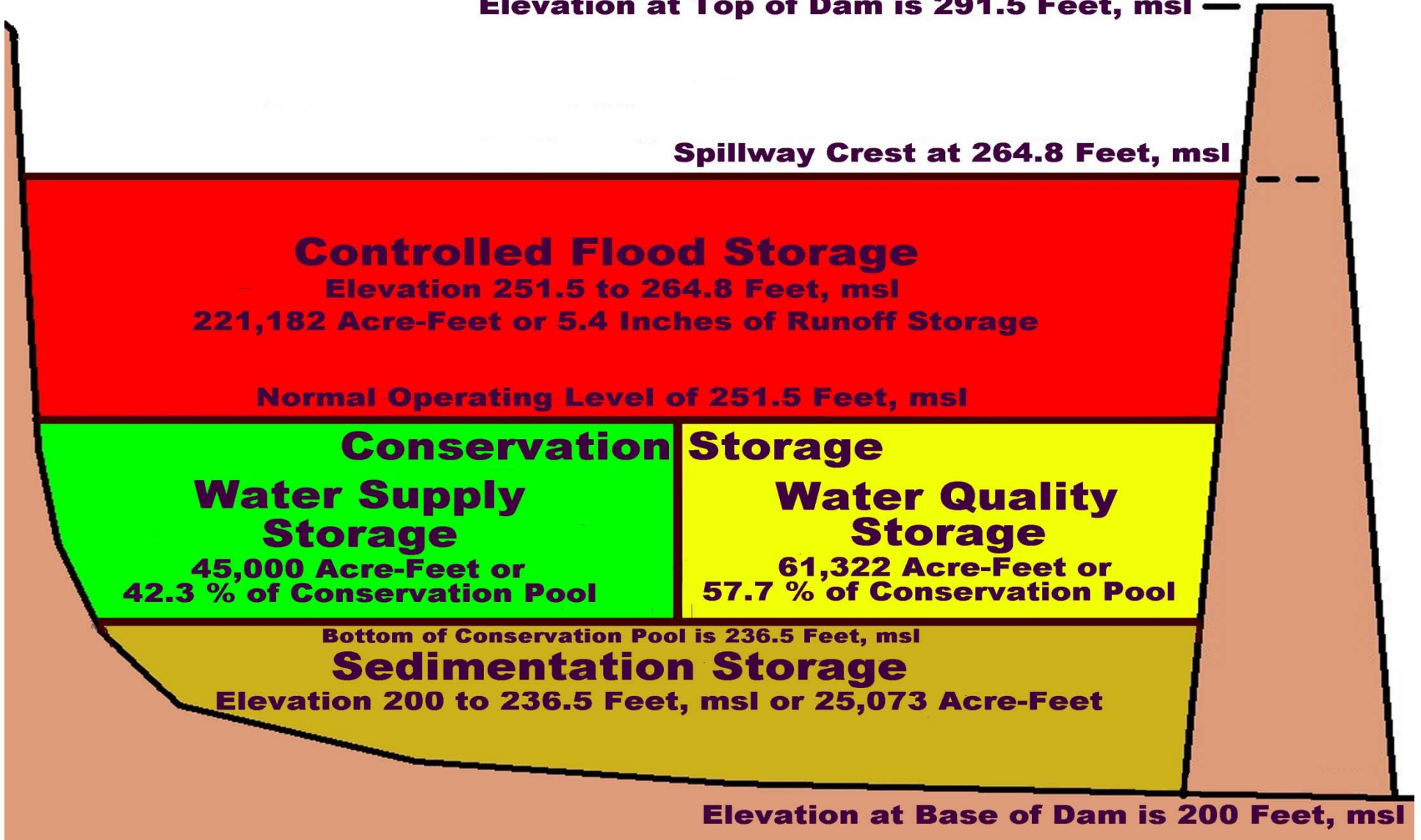
61,322 Acre-Feet or  
57.7 % of Conservation Pool

Bottom of Conservation Pool is 236.5 Feet, msl

### Sedimentation Storage

Elevation 200 to 236.5 Feet, msl or 25,073 Acre-Feet

Elevation at Base of Dam is 200 Feet, msl





# Falls Lake – Sedimentation Storage

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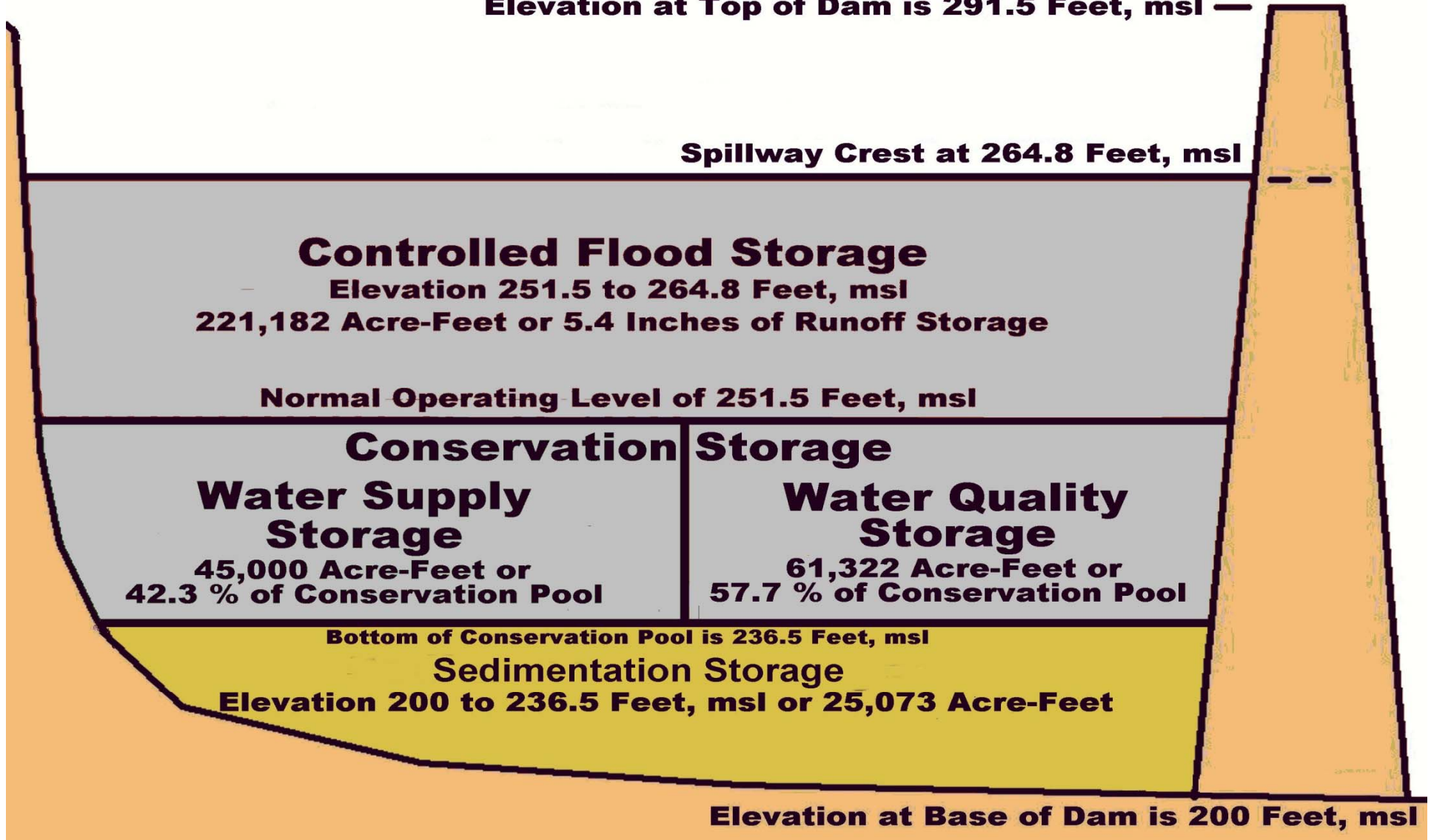
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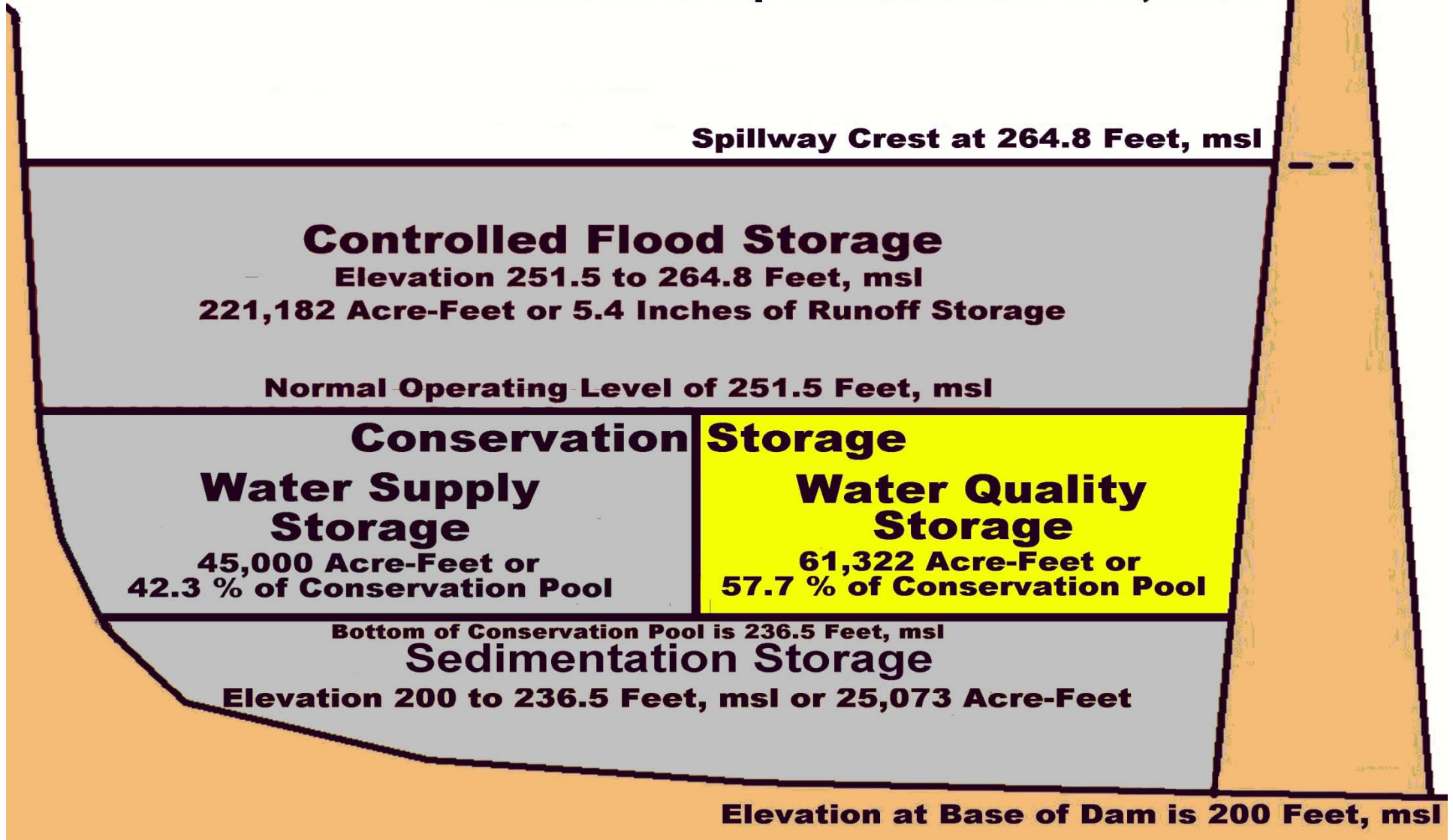
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# Falls Lake – Water Quality Operations

Water is released from WQ storage to maintain minimum flow targets at 2 downstream locations

- Immediately below Falls Dam
- USGS streamgauge at Clayton

	Below Dam	Clayton
Nov - Mar	50-62 cfs	184 cfs
Apr - Oct	100 cfs	254 cfs

Water quality storage remaining in Falls Lake is tracked for reaction points in droughts.





# Falls Lake – Water Supply

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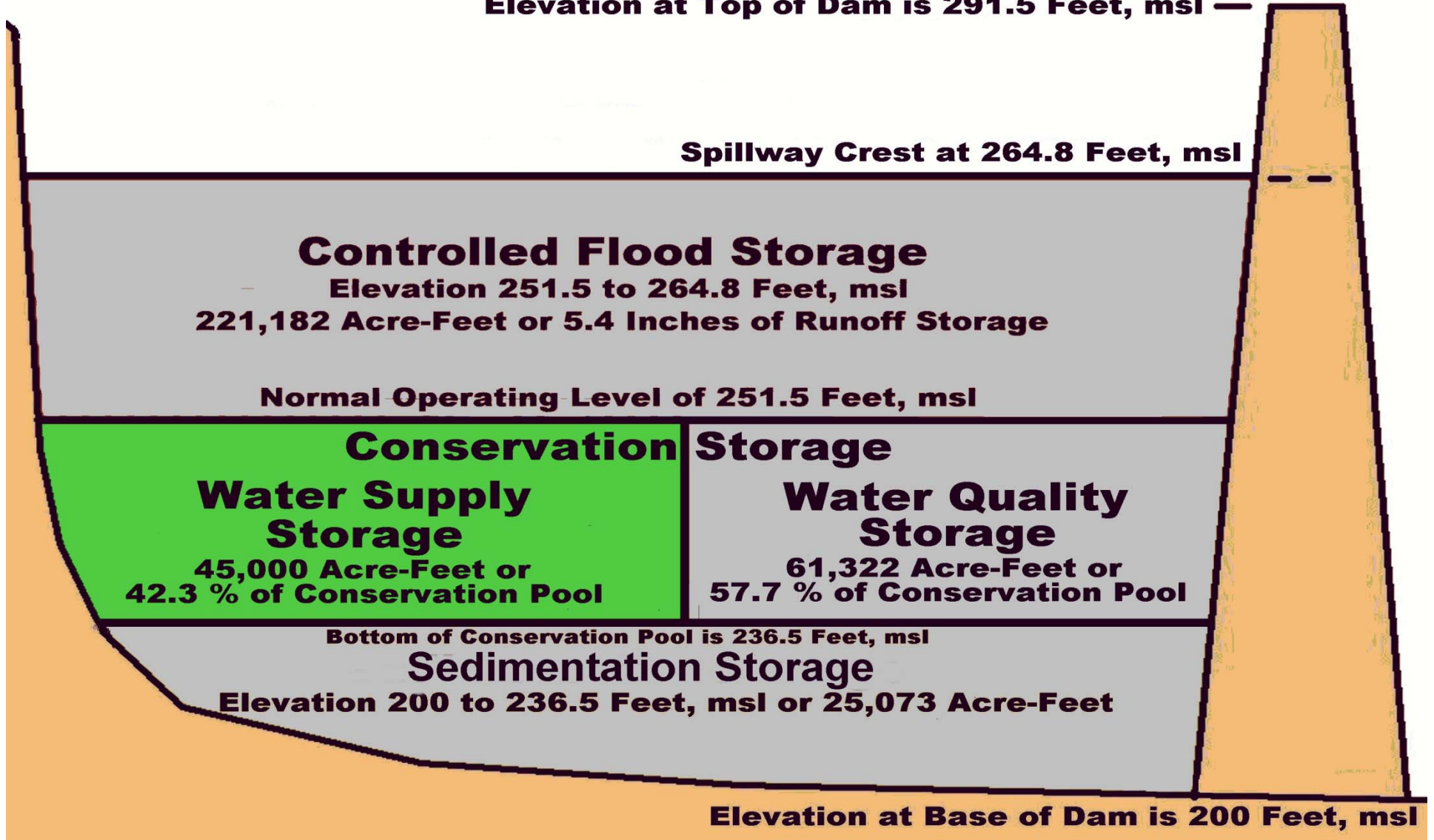
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# Falls Lake – Water Supply

- **City of Raleigh has a contract for the total 45,000 acre-feet water supply storage in Falls**
- **Yield is about 66 mgd**
- **Water supply storage tracked to keep City apprised (City responsible for implementing water use restrictions during droughts)**
- **Reallocation study just started to evaluate reallocating a portion of WQ pool to WS pool as alternative to Little River Reservoir.**



# Falls Lake Flood Control

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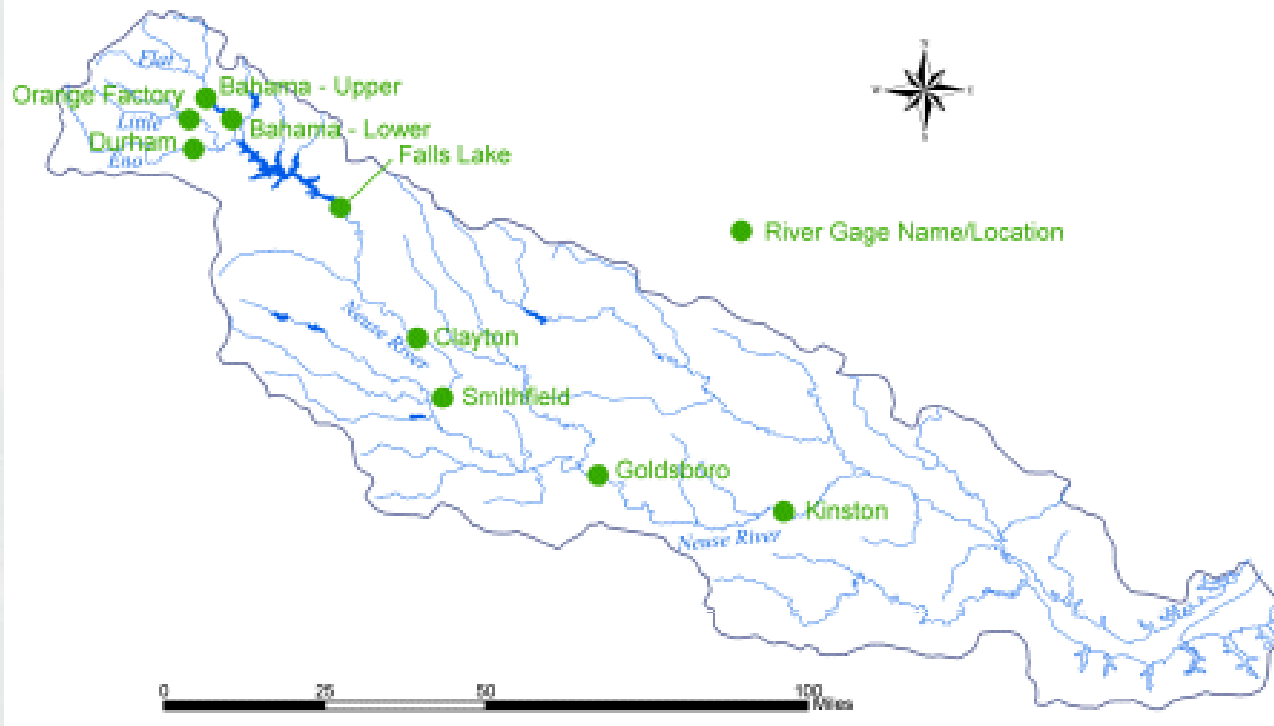
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# Falls Lake – Flood Control Operations

- Key is to hold back floodwaters coming into Falls Lake until uncontrolled floodwaters downstream recede—then make non-damaging releases from Falls whenever possible.
- Flood operation at Falls Dam focuses primarily on stage and flow at Clayton gage.
- River stages and flows at Smithfield, Goldsboro & Kinston also considered.
- Situational awareness of downstream neighborhoods





Location	Total Drainage Area (sq. mi.)	Uncontrolled Drainage Area Downstream Of Falls Dam (sq. mi.)	Uncontrolled Drainage Area Downstream of Falls Dam (percent of Total area)	Distance Below Falls Dam (river miles)	Travel Time from Falls Dam (days)
Falls Dam	770	---	---	---	---
Clayton	1150	380	33	32	0.5 to 0.75
Smithfield	1206	436	36	56	0.75 to 1
Goldsboro	2399	1629	68	99	3 – 5
Kinston	2692	1922	71	144	5 – 10

# Falls Lake – Flood Operations

## Annual Flood Damages Prevented

**1996**            **\$259,422,000**

**1999**            **\$139,919,200**

**1998**            **\$ 70,656,100**

**Average Annual**            **\$ 20,179,300**

**Cumulative (1983-2014)**            **\$645,736,700**



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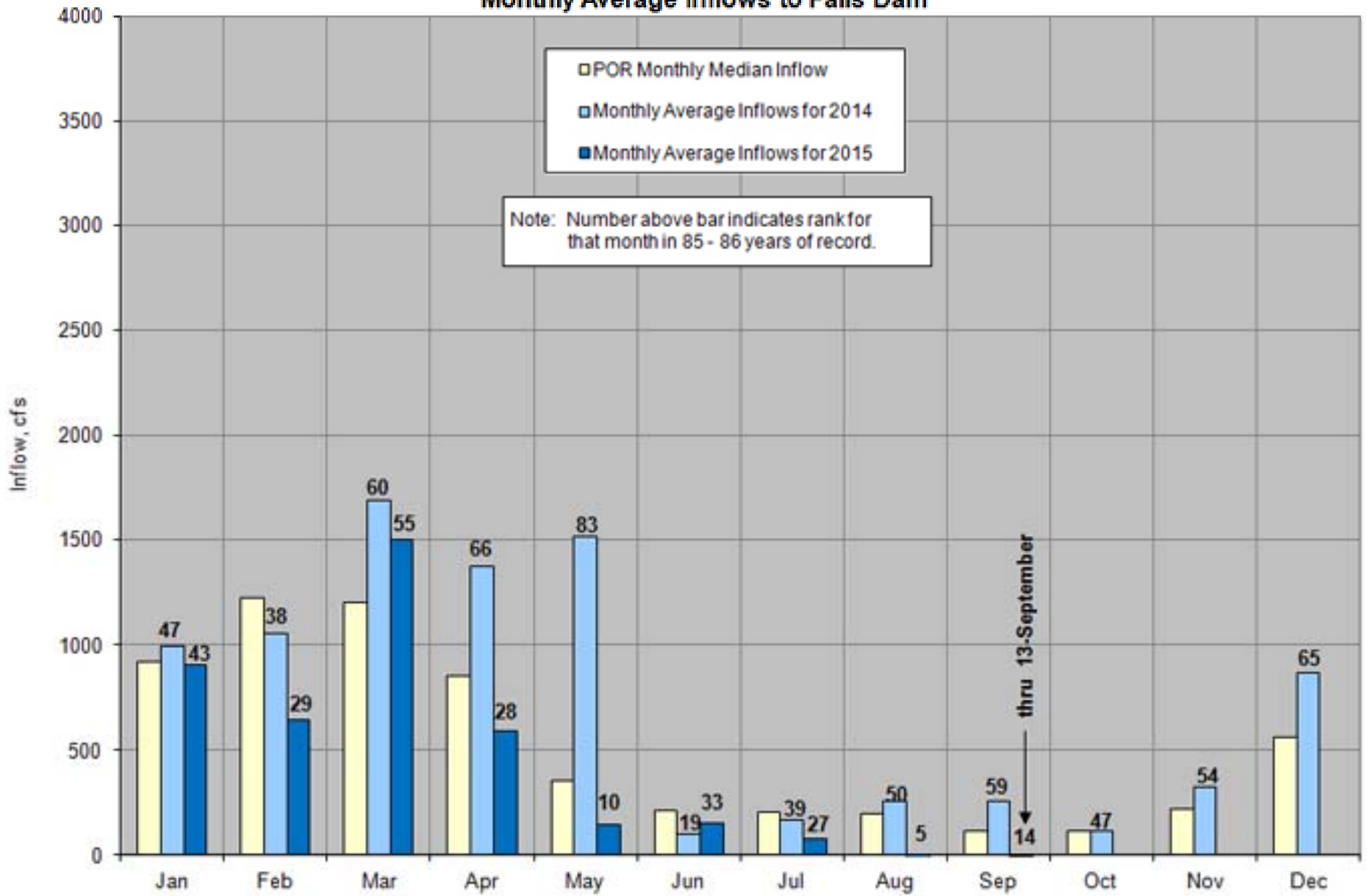


# Falls Lake – Drought Operations

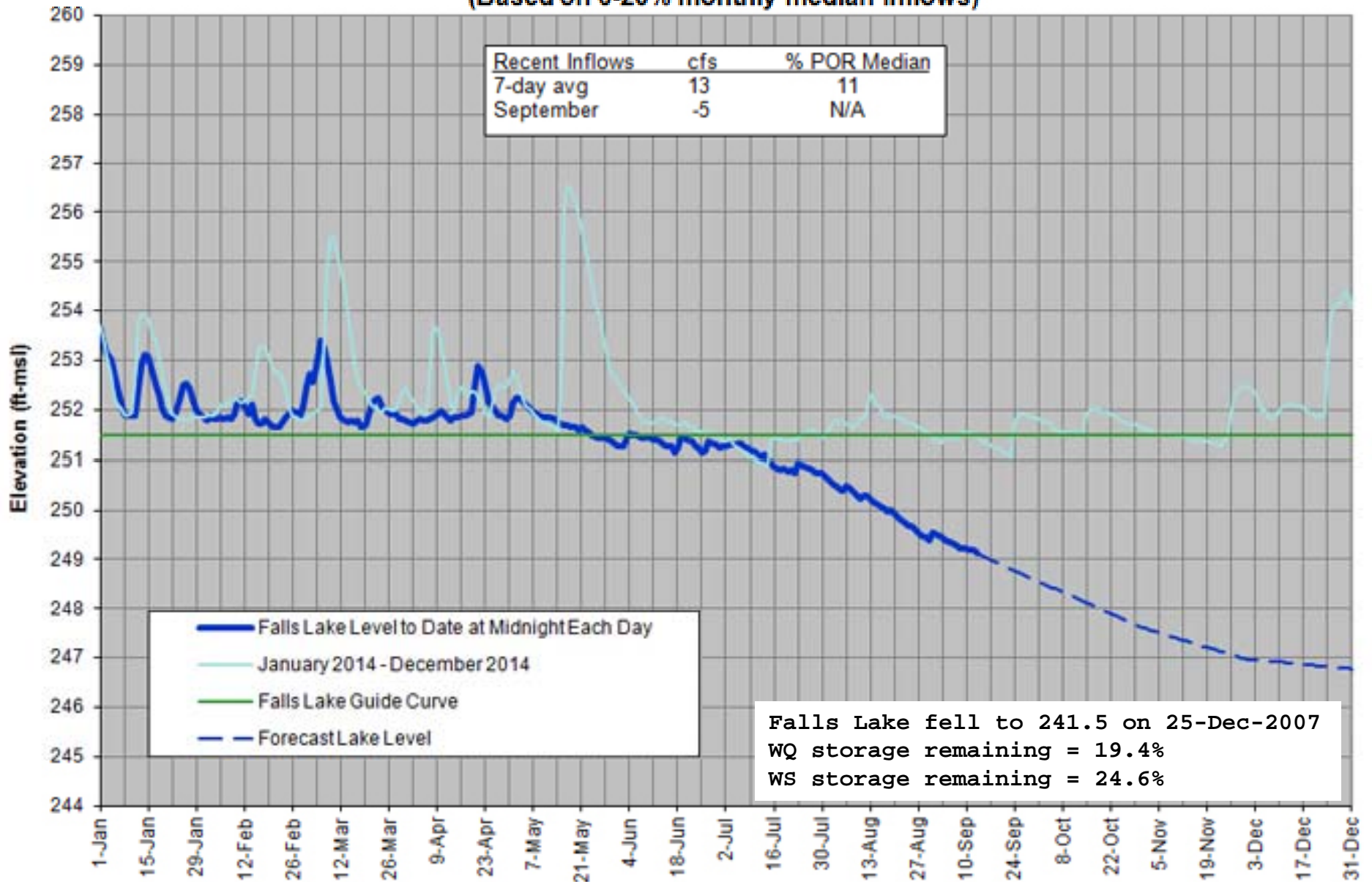
- Drought Contingency Plan updated in 2008
- Activated when WS or WQ storage < 80%
- Increased stakeholder coordination
  - weekly stakeholder call (normal)
  - face-to-face meetings as needed
- Allows for reduced downstream water quality flow targets
- Currently <75% WQ storage remaining (WS only slightly higher)



### Monthly Average Inflows to Falls Dam

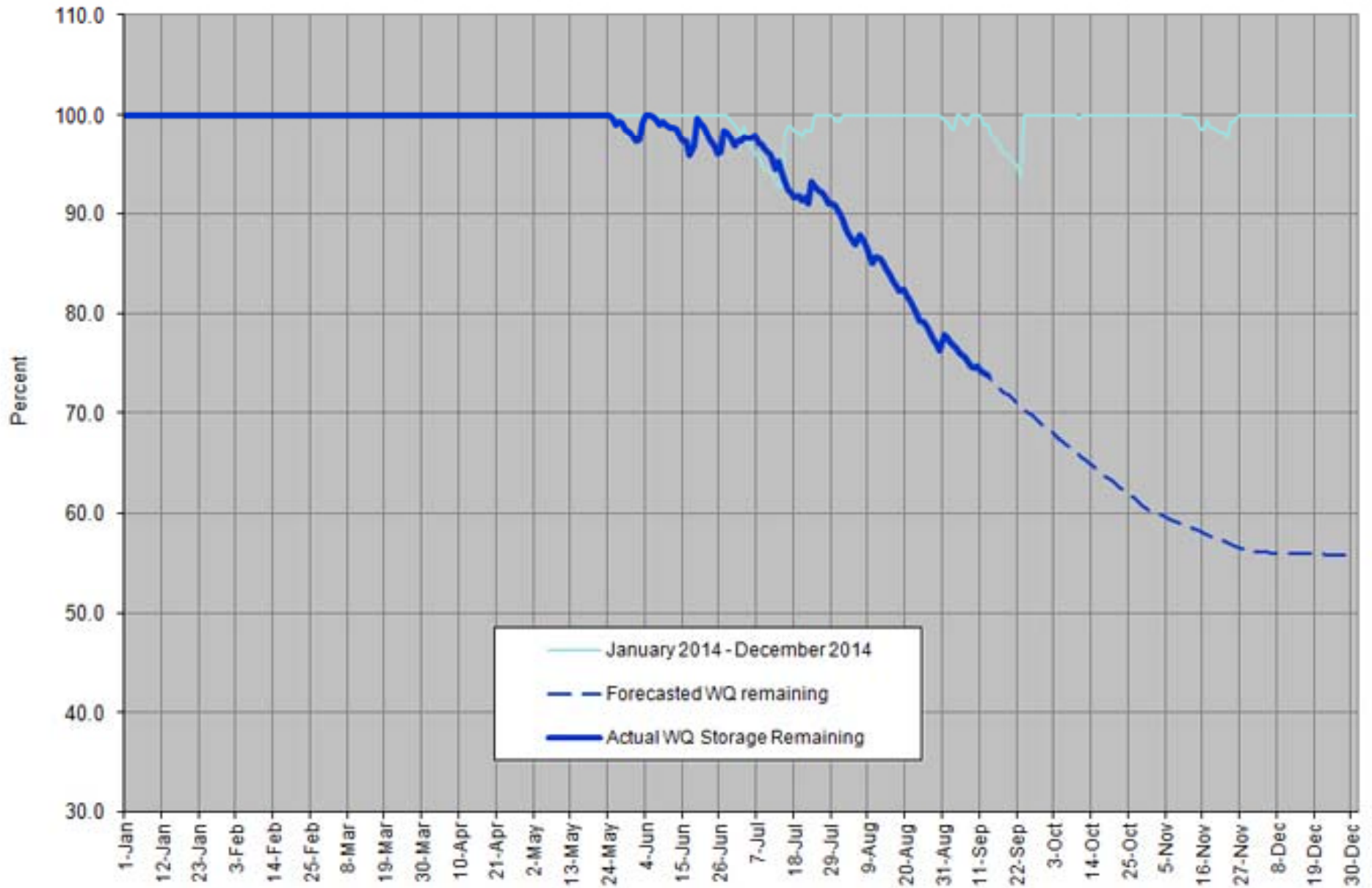


### Falls Lake Level - 14 September 2015 (Based on 0-20% monthly median inflows)

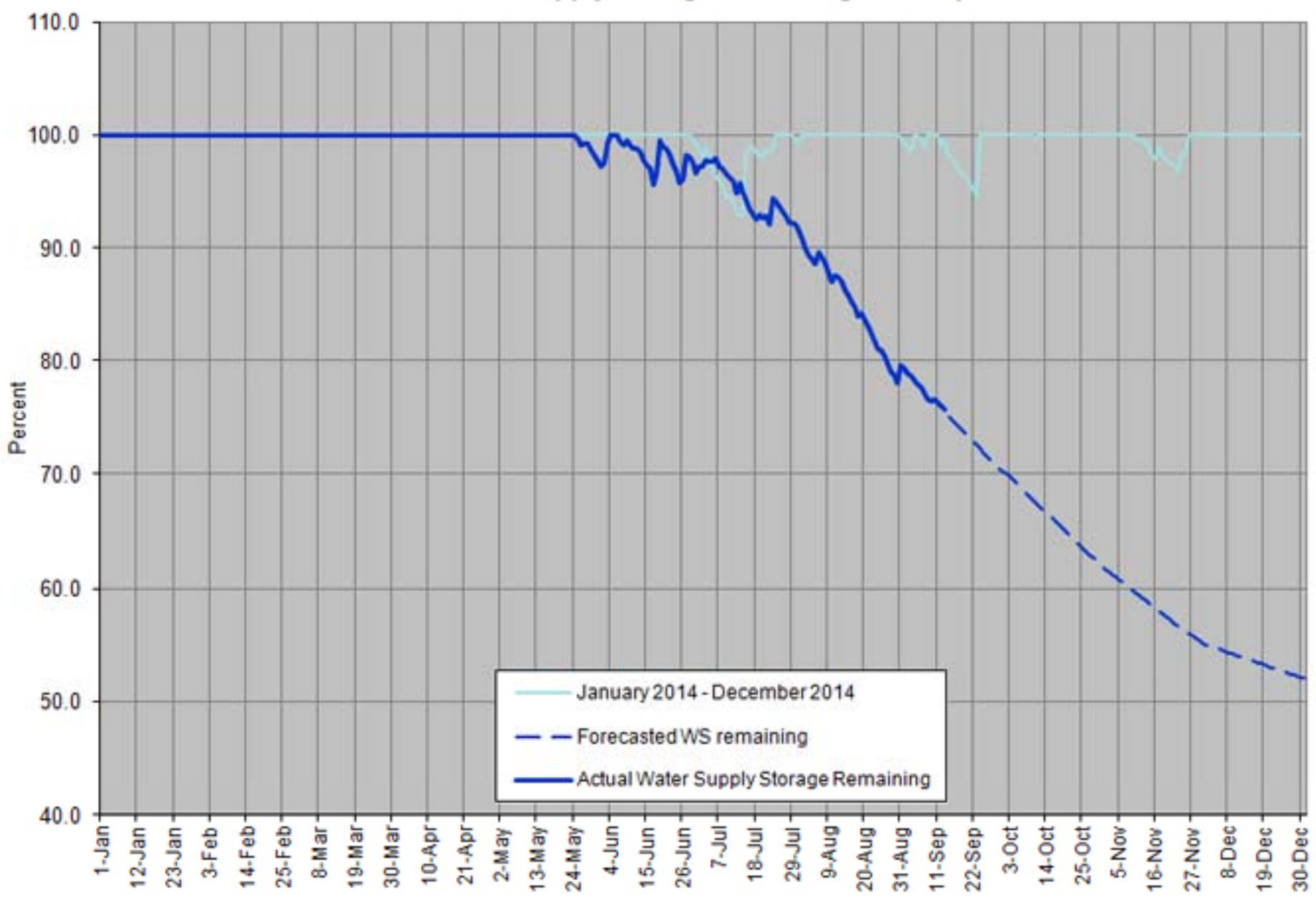




Falls Lake Water Quality Storage Remaining -- 14 September 2015



### Falls Lake Water Supply Storage Remaining -- 14 September 2015



# NORTH CAROLINA Drought Management Advisory Council

Home

Current Conditions

News

About

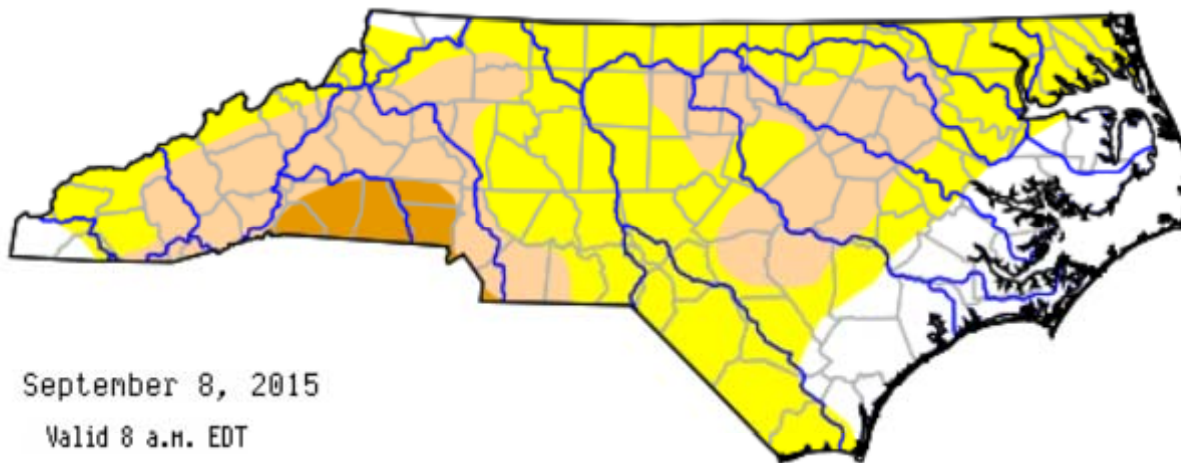
Contacts

Education

Archives

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## US Drought Monitor of NORTH CAROLINA



September 8, 2015

Valid 8 a.m. EDT

### Drought Classifications

- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought
- D3 - Extreme Drought
- D4 - Exceptional Drought

[Hi-Resolution Image](#) | [Print Version](#) |

**Current NC Drought Assessment**

**NEW**

## Counties Under Current Advisory

### D2 - Severe Drought

Cleveland County  
Gaston County  
Lincoln County  
Polk County  
Rutherford County

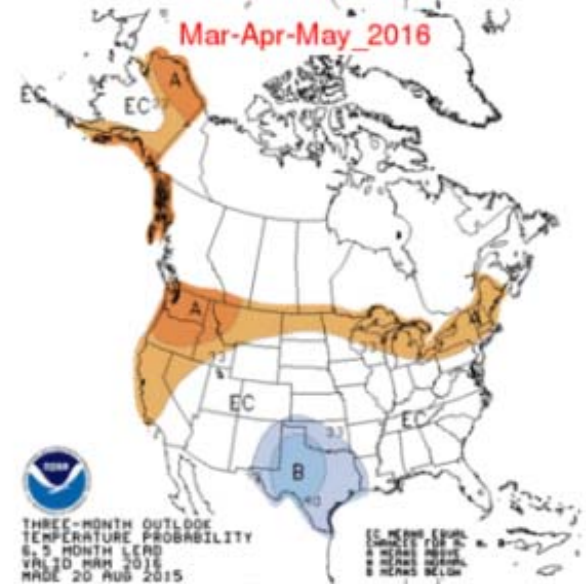
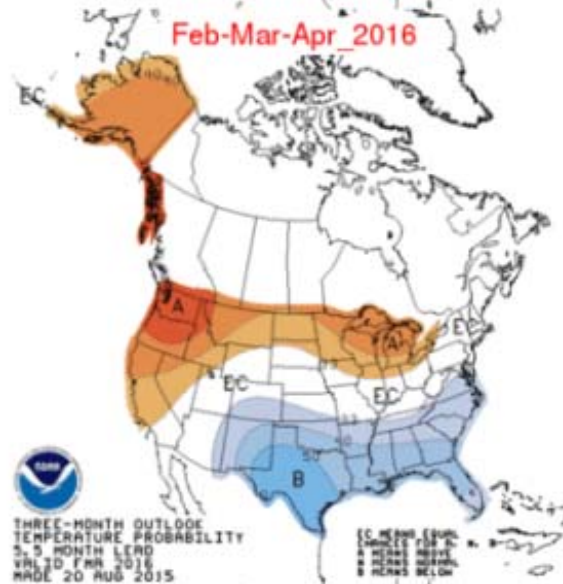
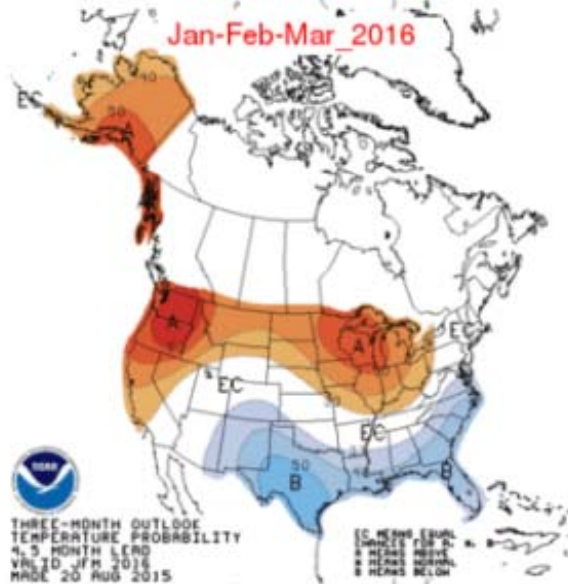
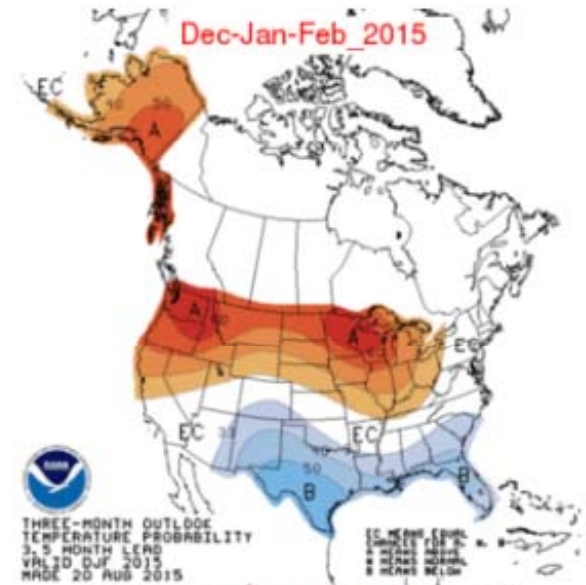
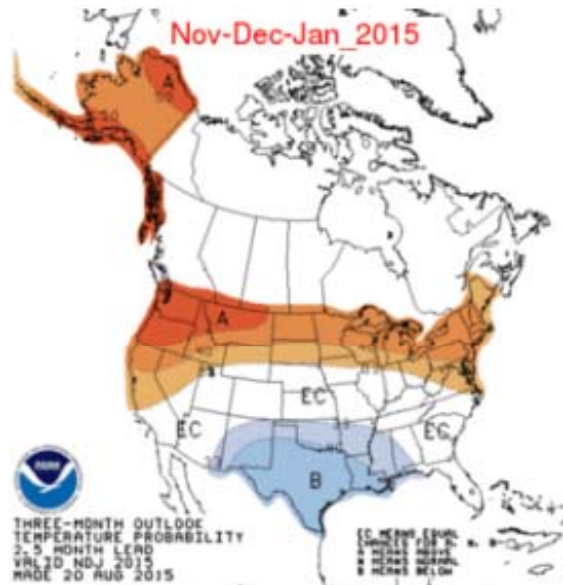
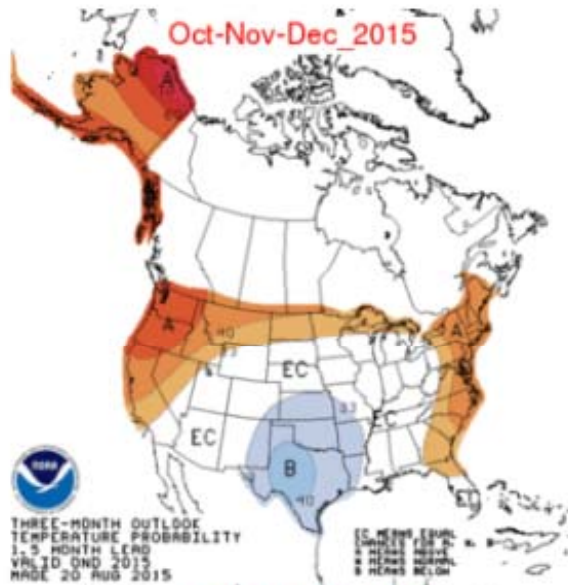
**Total: 5**

### D1 - Moderate Drought

Alamance County  
Alexander County  
Anson County  
Avery County  
Buncombe County  
Burke County  
Caldwell County  
Catawba County  
Chatham County  
Cumberland County  
Durham County  
Edgecombe County  
Franklin County  
Granville County  
Guilford County

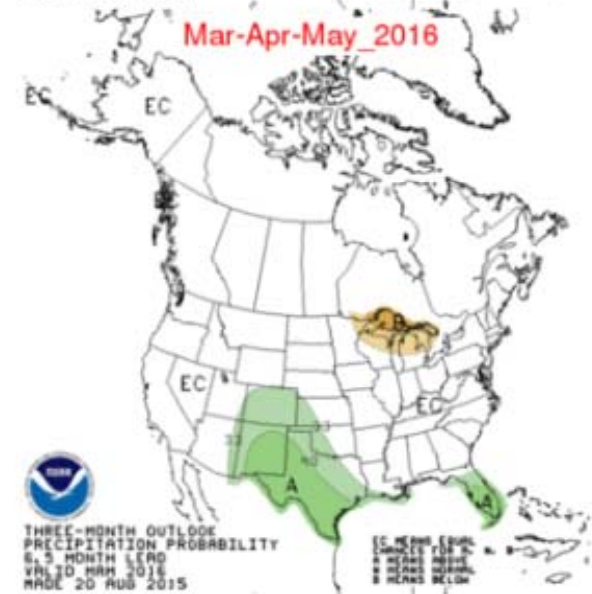
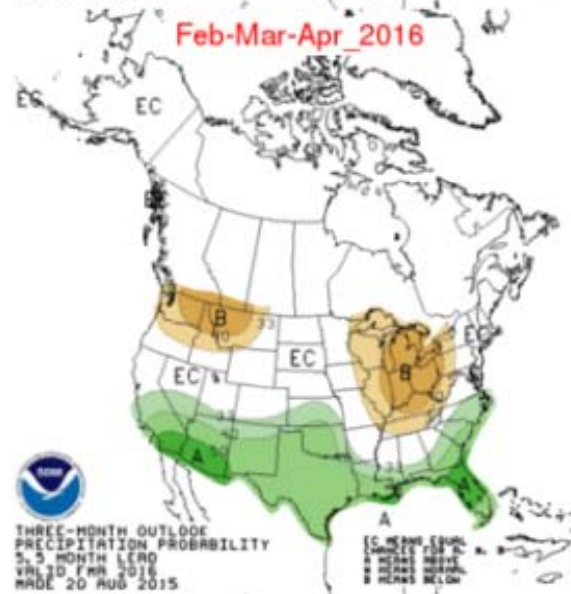
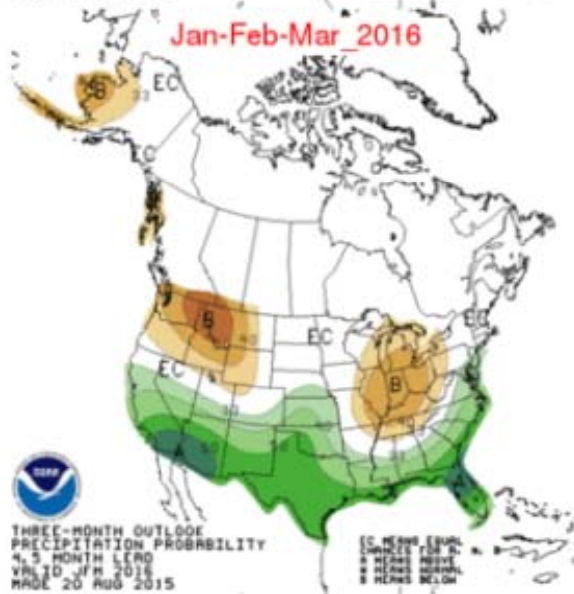
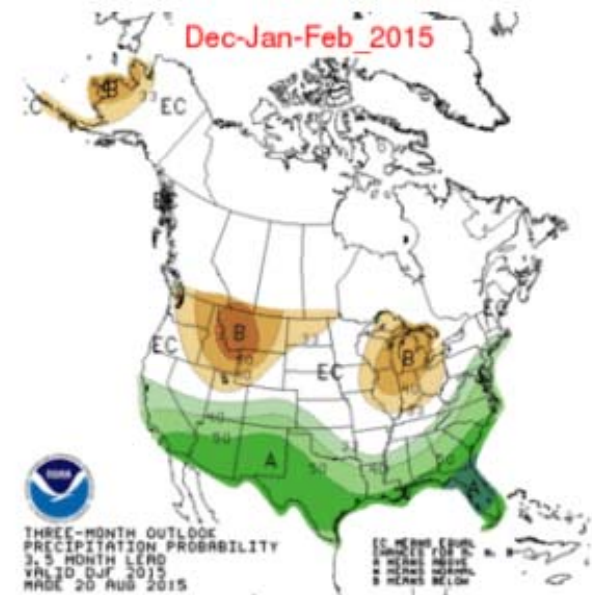
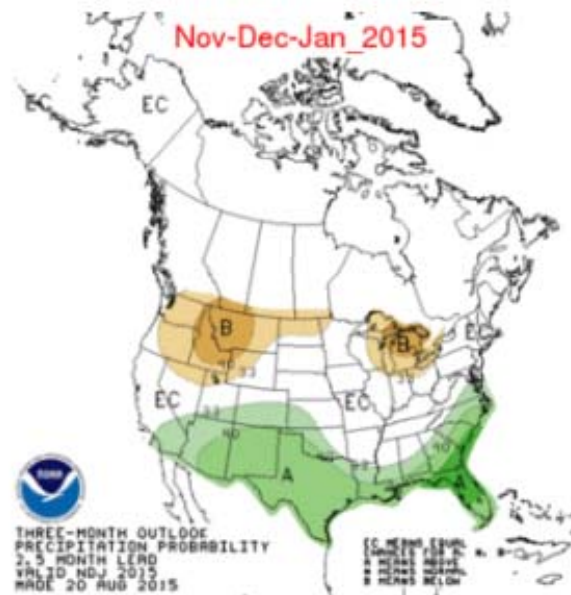
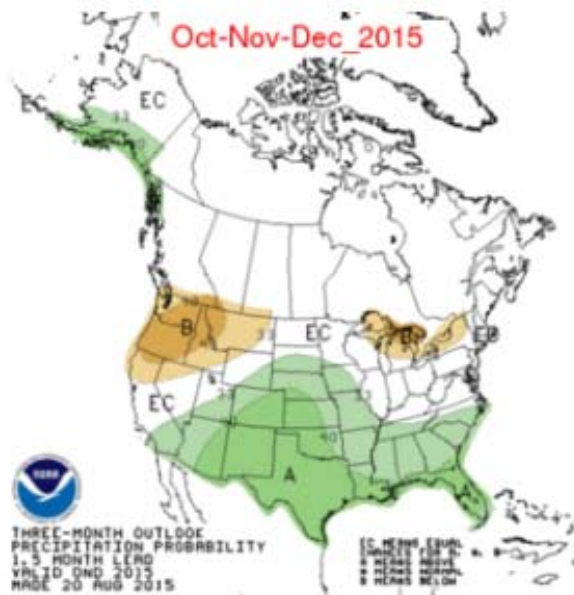


# Seasonal Temperature Outlooks (strong El Nino this winter)





# Seasonal Precipitation Outlook (strong El Nino this winter)



# Questions



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