



North Carolina Department of Environment and Natural Resources  
Division of Water Resources

Beverly Eaves Perdue  
Governor

Thomas A. Reeder  
Director

Dee Freeman  
Secretary

## **ENO RIVER ANNUAL WATER USERS MEETING**

August 25, 2011 10:00 A.M.  
Hillsborough, NC

### **Meeting Minutes**

#### **Attendees:**

Linwood Peele & Wayne Howard – Division of Water Resources (DWR);  
Emily Hill – Division of Parks and Recreation (DPR);  
Keith Nealson – Eno River State Park;  
Kevin Lindley – Orange County;  
Kenny Keel & Julie Laws – Town of Hillsborough;  
Ben Lloyd & Dale Hamby – Orange-Alamance.

- Linwood Peele convened the meeting at 10:05 a.m.;
  - Welcomed all participants and attendees.
- Introductions.

#### **Historical Operations:**

Kevin Lindley provided a brief historical summary and overview of the Eno River Voluntary Capacity Use Agreement;

- In the 80s there were times when flows in the Eno River stopped so a study was commissioned which ultimately lead to the creation of the voluntary agreement.
- Agreement established between Orange County (owner of Lake Orange Reservoir) and Orange-Alamance, Hillsborough, and Piedmont Minerals.
- Agreement requires a minimum flow be maintained in the river.
- Discussed the various stages, their enactment, and how releases are operated.

#### **Gages and Weirs:**

- Lake Orange Reservoir is currently in Stage 2 restrictions.
- Hillsborough is currently releasing 1.0 cfs to meet their minimum release requirement.
- A new control structure has been installed at the Eno gage by USGS.

- The old weir eroded, replaced with a concrete structure;
  - Shape of structure is flat versus the previous V notch weir.
  - Approximately 1 foot high and very wide.
- Kevin Lindley & Kenny Keel were not notified of the construction.
- Construction and recalibration lead to misreading and underestimated releases from the reservoirs.
- Still not 100% certain the gage has been completely calibrated.
  - At a certain point, the change in the flow varies hugely;
    - @ 1.41 feet, flow is 2.2 cfs
    - @ 1.40 feet, flow is 2.1 cfs
    - @ 1.39 feet, flow is 1.5 cfs

### **Water Use & Stream Flow Report:**

- Wayne Howard provided and discussed several graphs and tables;
  - **Graph 1:** Eno River Average Weekly Withdrawals (When Operating Average); August 2010 – July 2011 with level of restrictions.
  - **Graph 2:** Eno River Average Weekly Withdrawals (7-day Average); August 2010 – July 2011 with level of restrictions.
  - **Graphs 3 & 4:** Eno River @ Hillsborough Gage #02085000; Flow vs. Date (flow less than 10 cfs for August 2010 – July 2011).
  - **Table 1:** Summary for 2010 Stages of Restriction. (August 2010 – July 2011); Provided number of weeks at each level of restrictions. Provided average and total use for the Eno River Users.

**ENO RIVER ANNUAL SUMMARY REPORT**  
**August 2010 – July 2011**

Month	Dates of Restrictions:		
	No Restrictions	Stage 1	Stage 2
August 2010		01 – 31	
September 2010		01 – 13	14 – 30
October 2010		01 – 31	
November 2010		01 – 30	
December 2010	23 – 31	01 – 22	
January 2011	01 – 14	15 – 31	
February 2011	11 – 21	01 – 10, 22 – 28	
March 2011	05 – 31	01 – 04	
April 2011	01 – 30		
May 2011	01 – 31		
June 2011	01 – 04	05 – 30	
July 2011		01 – 31	

**August - December 2010**

Weeks of Restrictions

**STAGE 1:** 18 weeks, 1 day

**STAGE 2:** 2 weeks, 3 days

**January - July 2011**

Weeks of Restrictions

**STAGE 1:** 13 weeks, 4 days

**Hillsborough:**

Total use: 1.142 mgd  
 Avg. Eno use: 1.142 mgd  
 (when operating: 1.142 mgd)

Total use: 1.092 mgd  
 Avg. Eno use: 1.092 mgd  
 (when operating: 1.092 mgd)

**Orange-Alamance:**

Total use: 0.632 mgd  
 Avg. Eno use: 0.125 mgd  
 (when operating: 0.213 mgd)

Total use: 0.622 mgd  
 Avg. Eno use: 0.133 mgd  
 (when operating: 0.192 mgd)

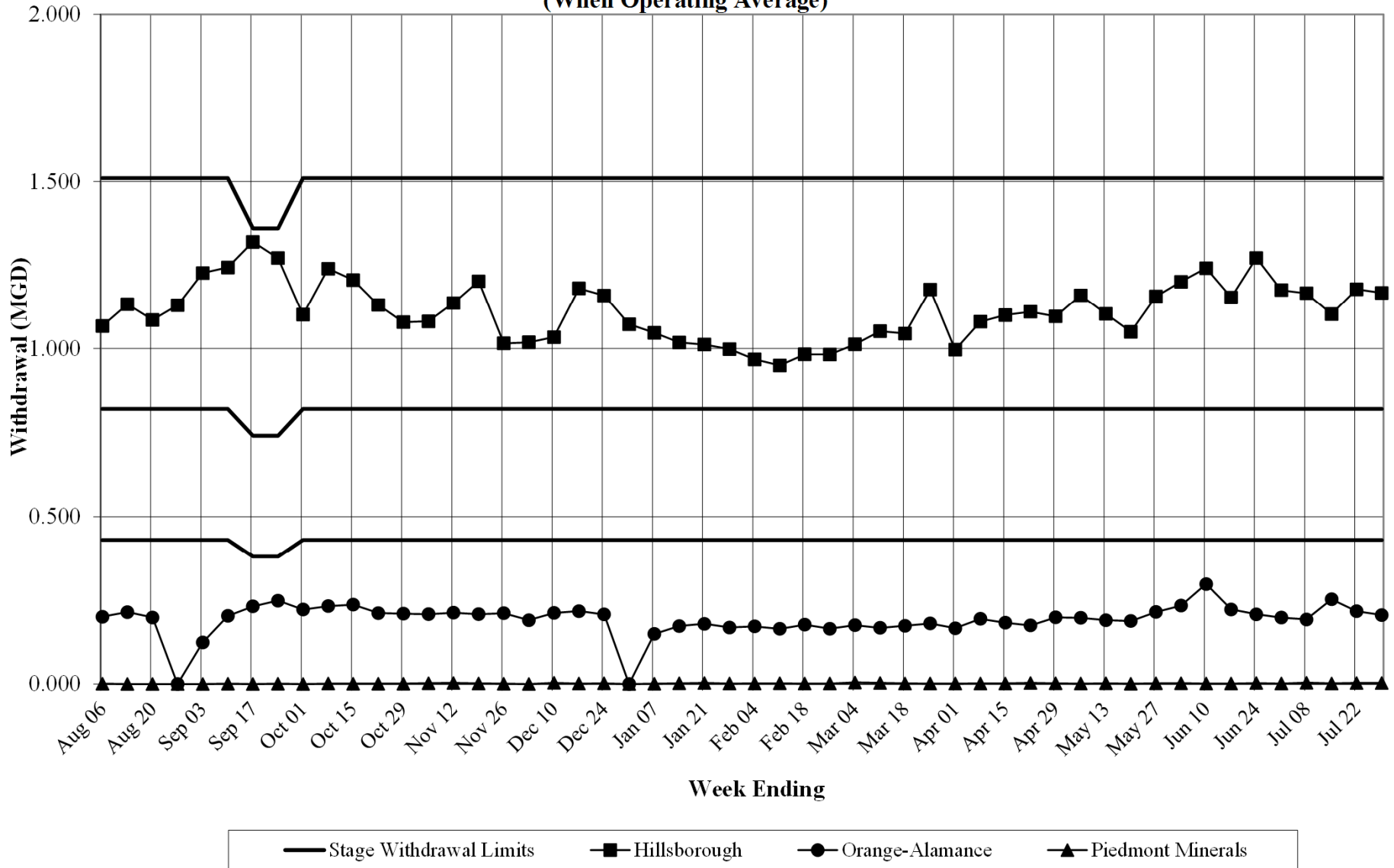
**Piedmont Minerals:**

Total use: 0.000 mgd  
 Avg. Eno use: 0.000 mgd  
 (when operating: 0.001 mgd)

Total use: 0.000 mgd  
 Avg. Eno use: 0.000 mgd  
 (when operating: 0.002 mgd)

# ENO RIVER AVERAGE WEEKLY WITHDRAWALS

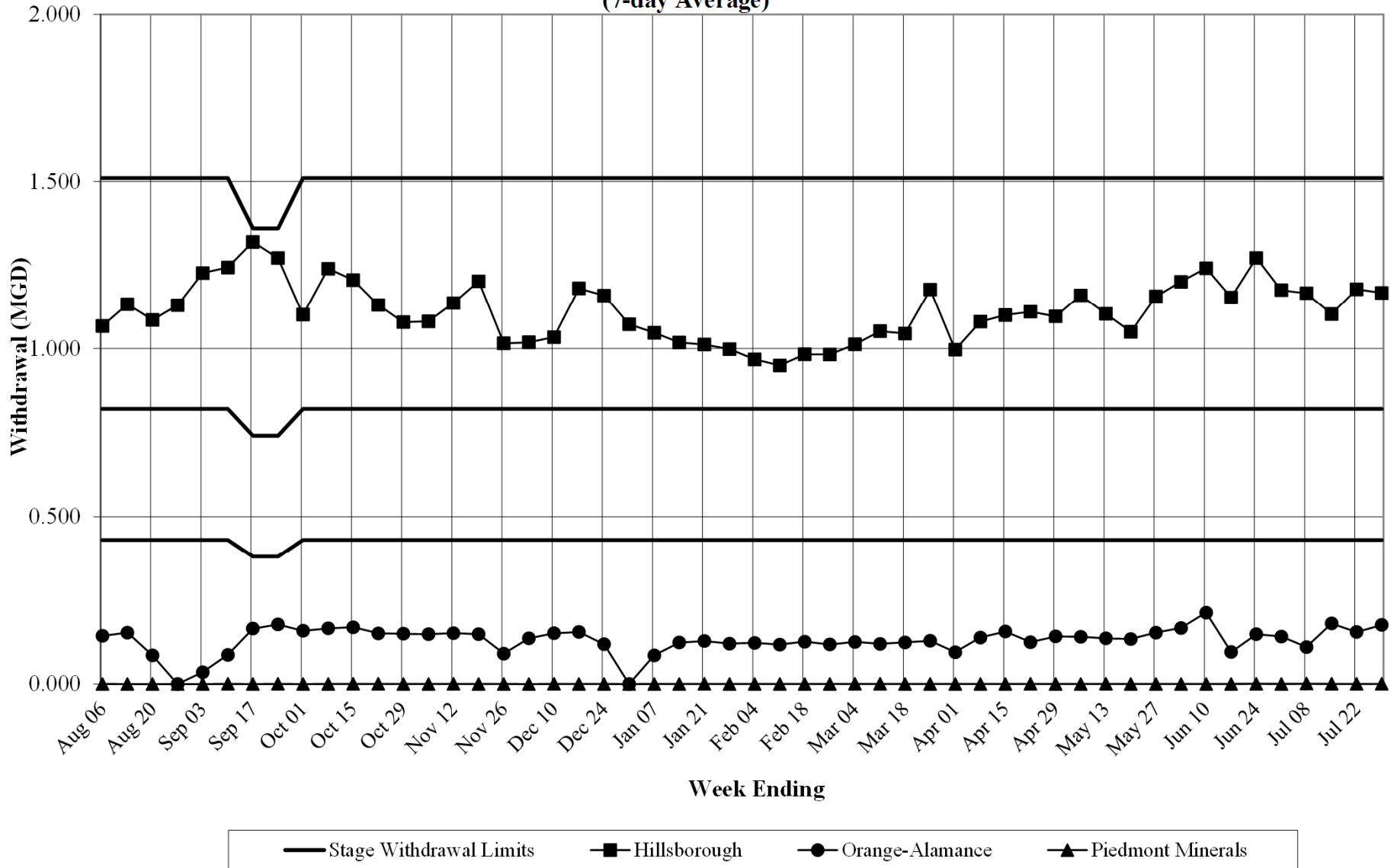
August 2010 - July 2011  
(When Operating Average)



# ENO RIVER AVERAGE WEEKLY WITHDRAWALS

August 2010 - July 2011

(7-day Average)



# ENO RIVER @ HILLSBOROUGH, #02085000

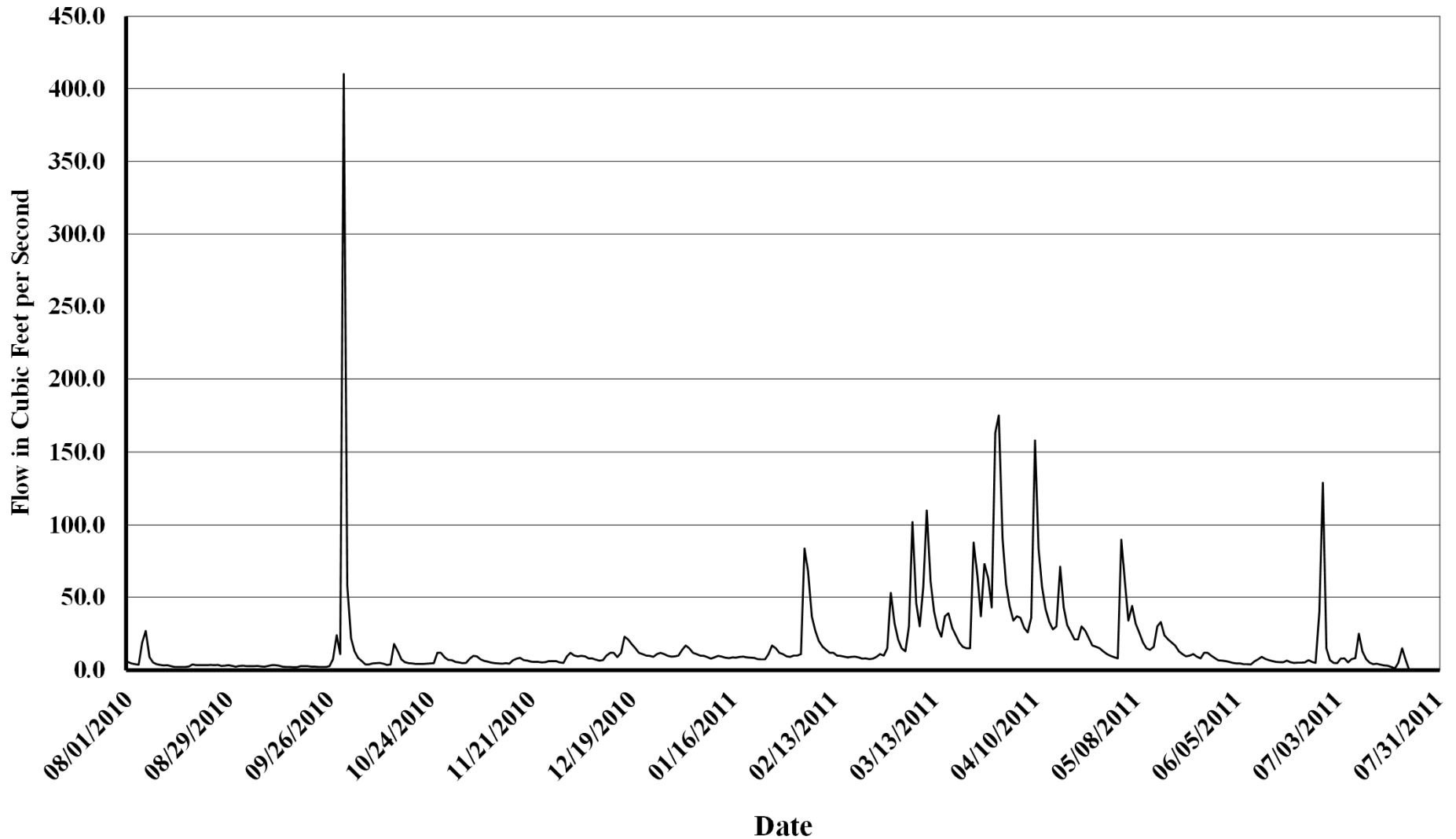
August 1, 2010 - July 31, 2011

08/01/10-10/27/10: USGS data approved for publication.

10/28/10-07/17/11,07/27/11: USGS provisional data subject to revision.

07/18/11-07/22/11: Rating being developed or revised.

07/25, 26, 28-31/11: No data.



# ENO RIVER @ HILLSBOROUGH, #02085000

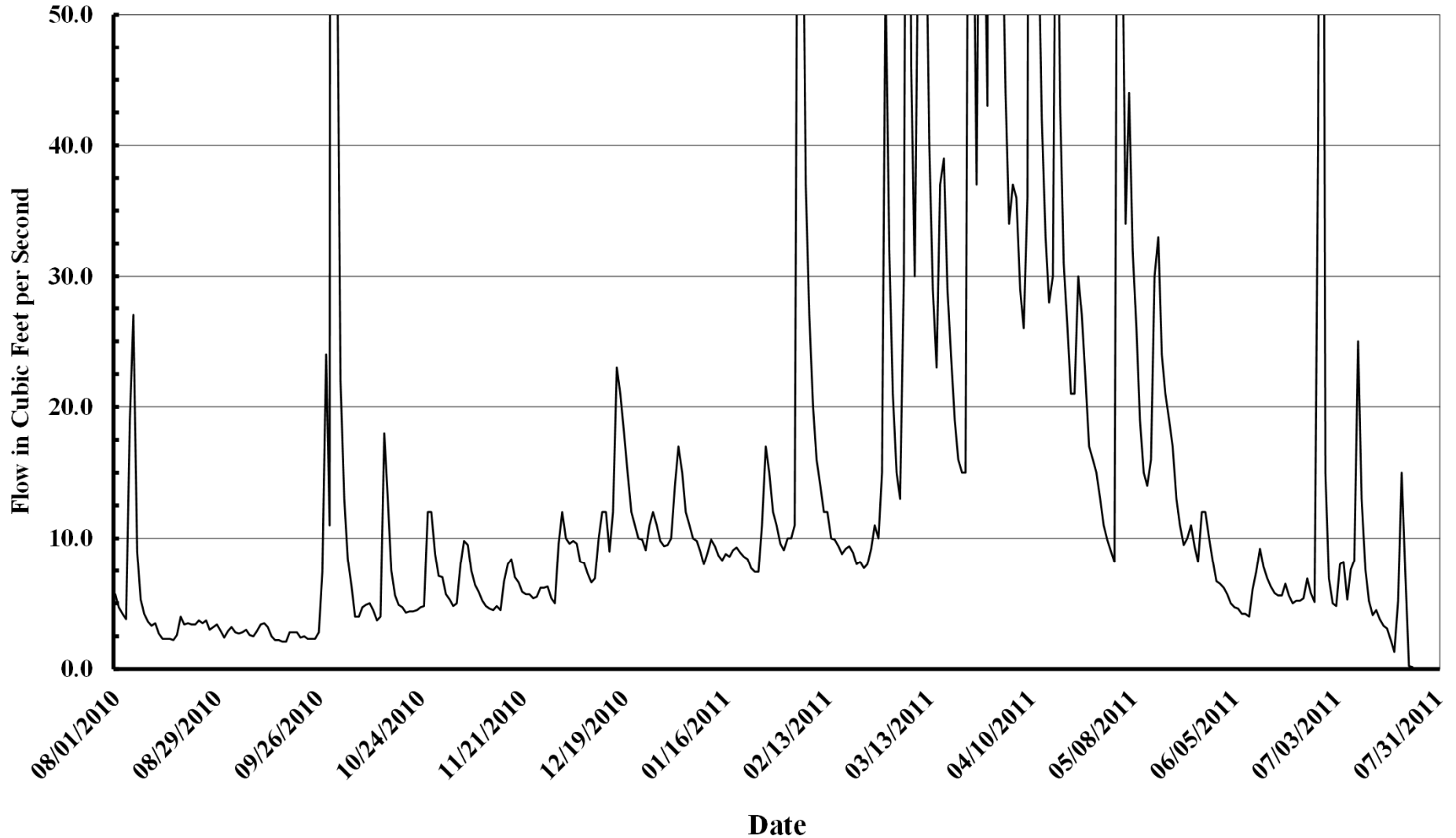
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## Status of Water Users:

### Hillsborough

- Kenny Keel provided the status of Hillsborough's WFER;
  - WFER's current level (as of 08/23/2011) is 40.8 feet (43.0 feet = full).
  - Hillsborough's average usage is approximately 1.10 mgd.
  - Approximately 1 year of supply remaining.
  - Releasing approximately 1.0 cfs (1.0 cfs is minimum release).
- Hillsborough improvements;
  - Finished work at WFER;
    - Spent \$700,000 to convert 3 of 4 ponds used to capture sediment into wetlands to comply with US Corps of Engineers regulations.
  - Beginning the work on engineering for Spring 2012 project;
    - Repairs to Lake Ben Johnston Dam,
      - Built in 1955, minor repairs only.
    - Dredging of Lake Ben Johnston.
    - Start date within 9 months, end by summer 2012.
    - A siphon will be installed to maintain flow.

### Orange-Alamance

- Ben Lloyd gave a brief history of Orange-Alamance Water System, Inc.;
  - In business since 1969.
  - Serves approximately 3,400 customers.
  - Has the best employees in the country.
- Dale Hamby gave the status update;
  - No significant changes in usage over the past year.
  - Treatment plant operates 5 days per week.
  - Eno River withdrawals are approximately 200,000 gpd.
  - Purchase water from Haw River.
  - Additional water withdrawn from wells at Kimrey;
    - Well water used at WTP to help out with TOC.

### Piedmont Minerals

- There was no representative for Piedmont Minerals present to provide an update.

### Orange County

- Kevin Lindley discussed operational difficulties;
  - The monitoring gage is located eight miles downstream of Lake Orange Reservoir, making adjustments to the releases hard to judge;
    - For example: A change to the release on Monday won't affect the gage reading until late Wednesday or early Thursday.
- Provided the status of Lake Orange Reservoir;



- Lake Orange Reservoir down by 35” as of this morning.
- Estimates the releases as best as possible to maintain reservoir levels as well as meet the gage flow requirements.
- Orange County releases are now automated, no longer manual.
- Spillway repairs are being planned for Lake Orange Reservoir;
  - Mend cracks and eroded seals.
  - Replace flashboards.
  - Work shouldn’t affect flow.

#### Eno River State Park

- Keith Neelson would love to see increased water flow through the Park;
  - Eno River Association is working with Piedmont Minerals to receive a transfer of allocation to increase flow.
- Expressed concern over the abundance of hydrilla in the river;
  - Worst invasion not only in the Eno, but in most NC rivers.
  - Issue discussed by Ecological Flow Science Board.
  - Increased flow wouldn’t remove hydrilla completely, and biomass could go into Falls Lake.
- Spoke with Rob Emens (DWR-Aquatic Weeds Program) about using chemicals to treat hydrilla;
  - Concern over use of chemicals in Eno as well as their effectiveness.
- Any control effort in the river is difficult, best control is at the sources.
- Current low flows are having an ecological impact;
  - Has not noted any fish kills.
  - Cannot speak to the impact on other species within the river habitat.
- Interested in touring both West Fork Eno and Lake Orange Reservoirs.
- Appreciates the notification of flow changes and reservoir repairs by Orange County and the users and asks that it please continue.

#### Division of Parks and Recreation

- Emily Hill has discussed hydrilla problems with Rob Emens and Rob Richardson;
  - Chemical to be used works on plants, but not directly on fish and wildlife,
    - Issue with chemicals is maintaining the necessary concentration;
      - More difficult in flowing situations.
      - Very few places where it is in flowing places.
      - Need to schedule a test plot.
      - Need to conduct an Environmental Assessment and call a meeting of the stakeholders to discuss.
      - Have reservations to using herbicide, but nothing is worse than inaction.
      - When frost hits, hydrilla decays and dies, resulting in lower dissolved oxygen.
    - Recommended Orange-Alamance considers stocking their lake with grass carp.
  - Noted an alternative to chemical treatment would be to conduct a drawdown of the sources.
  - Linwood Peele noted Rob Emens is working with Faye Metcalf of Orange-Alamance to stock Corporation Lake with sterile grass carp.
  - Linwood Peele confirmed that all requests to change the agreement must be made to the EMC by the users.

## Follow-up Items:

- Linwood Peele noted there are instream flow concerns at DWR;
    - When groundwater drops due to drought conditions,
      - Stream flow is impacted.
      - Only happens at certain times.
  - Linwood Peele recommended Kenny Keel and Ben Lloyd speak with Darren England of DWR about applying for a cost-share with their dredging projects.
  - Linwood Peele noted the Upper Neuse River Basin is one of the most sensitive areas in NC;
    - Falls Lake Reservoir, Littler River Reservoir, and Lake Michie Reservoir are dropping.
    - Decrease in any reservoir creates a compounding issue.
    - Added factor is the increasing population in the Triangle area.
  - Linwood Peele pointed out that customers don't always understand the relationship between a reservoir's "days remaining" and the conservation measures employed to extend supply;
    - Measures make systems better prepared than before.
  - Linwood Peele asked Keith Neelson and Emily Hill to keep everyone posted on the study.
  - In response to discussions by Ben Lloyd and Linwood Peele, Kenny Keel stressed the importance of continuing to act responsibly as a group.
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- Linwood Peele adjourned the meeting at 11:30 a.m.