



**The Next Step: Eno River Demonstration Project**

**NC Ecological Flows Science Advisory Board**

# **Eno River State Park Ecological Flow Study**

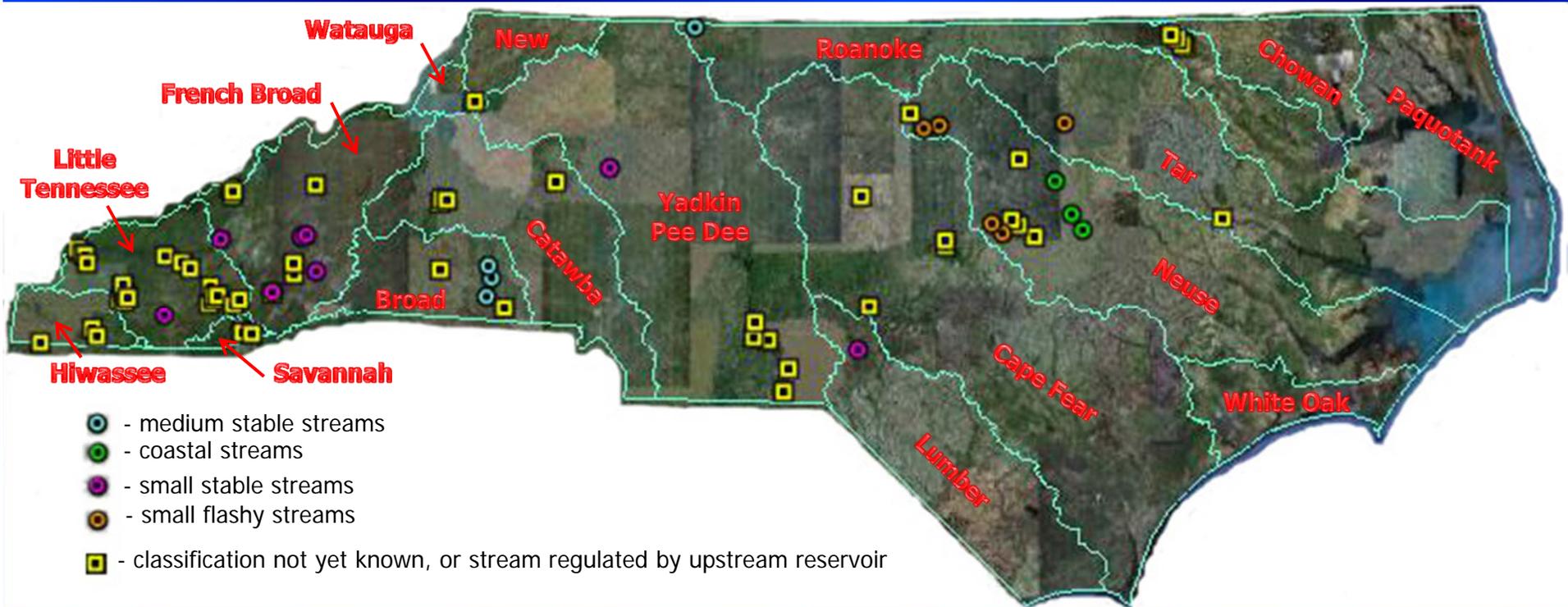
- **Data collected 7/1986 – 6/1988 at flows ranging from 1.9 to 234 cfs**
- **Existing model of physical/ hydraulic conditions will be used**
- **Habitat suitability indices will be updated with additional aquatic species and guilds**

# Eno River State Park Ecological Flow Study

- Various flow management alternatives will be evaluated for habitat effects.
- A second Eno River study site farther upstream at Hillsborough will also be evaluated using a similar approach.
- If this approach proves workable, there are other existing flow vs. habitat study sites on other types of streams that could also be analyzed.

# Aquatic Habitat vs. Flow Studies

## Existing Study Sites in NC



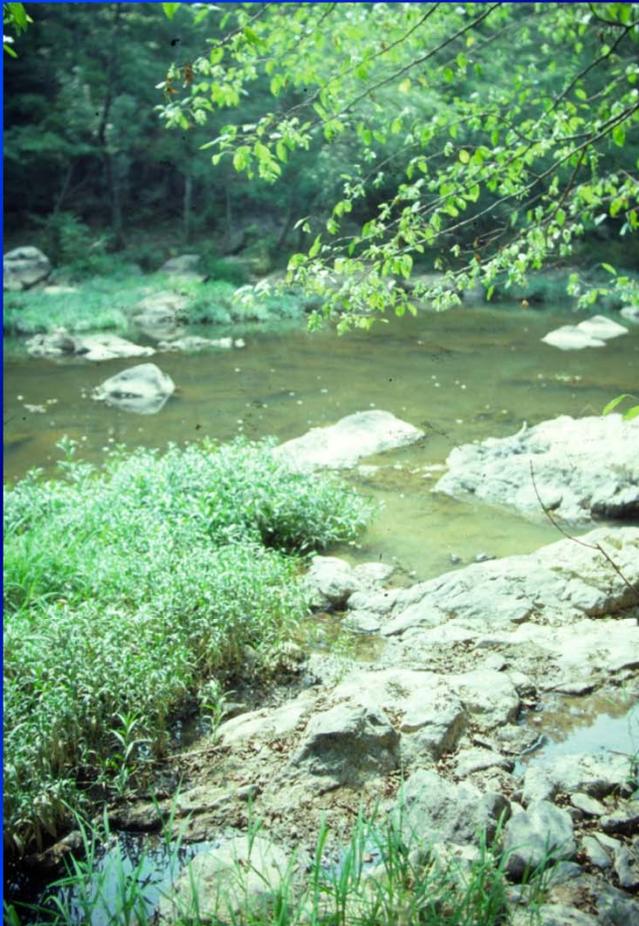
**Note: classifications are based on NC hydrologic stream classification system**

# Eno River State Park

## Ecological Flow Study - Site Characteristics

- **Drainage Area = 99.4 square miles**
- **Mean Annual Flow ~ 86.4 cfs**
- **7Q10 ~ 2.6 cfs**
- **September median flow ~ 11.2 cfs**
- **Wetted perimeter method**
  - flow recommendation = 19.4 cfs**
- *Note: All photos in the following slides are taken from the left bank as you face upstream*

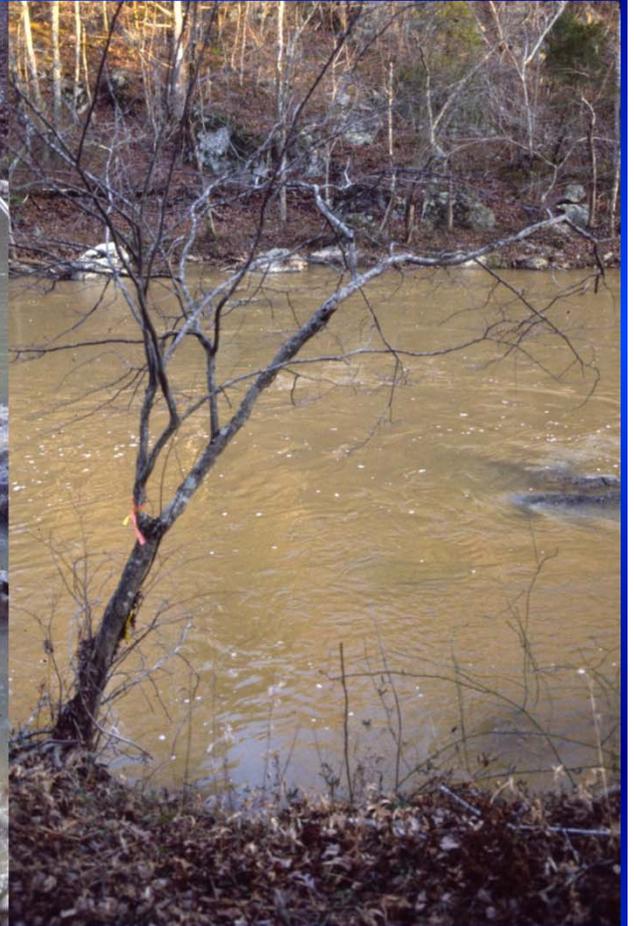
# Eno River State Park Ecological Flow Study Transect #1, Shallow Run



**2 cfs**

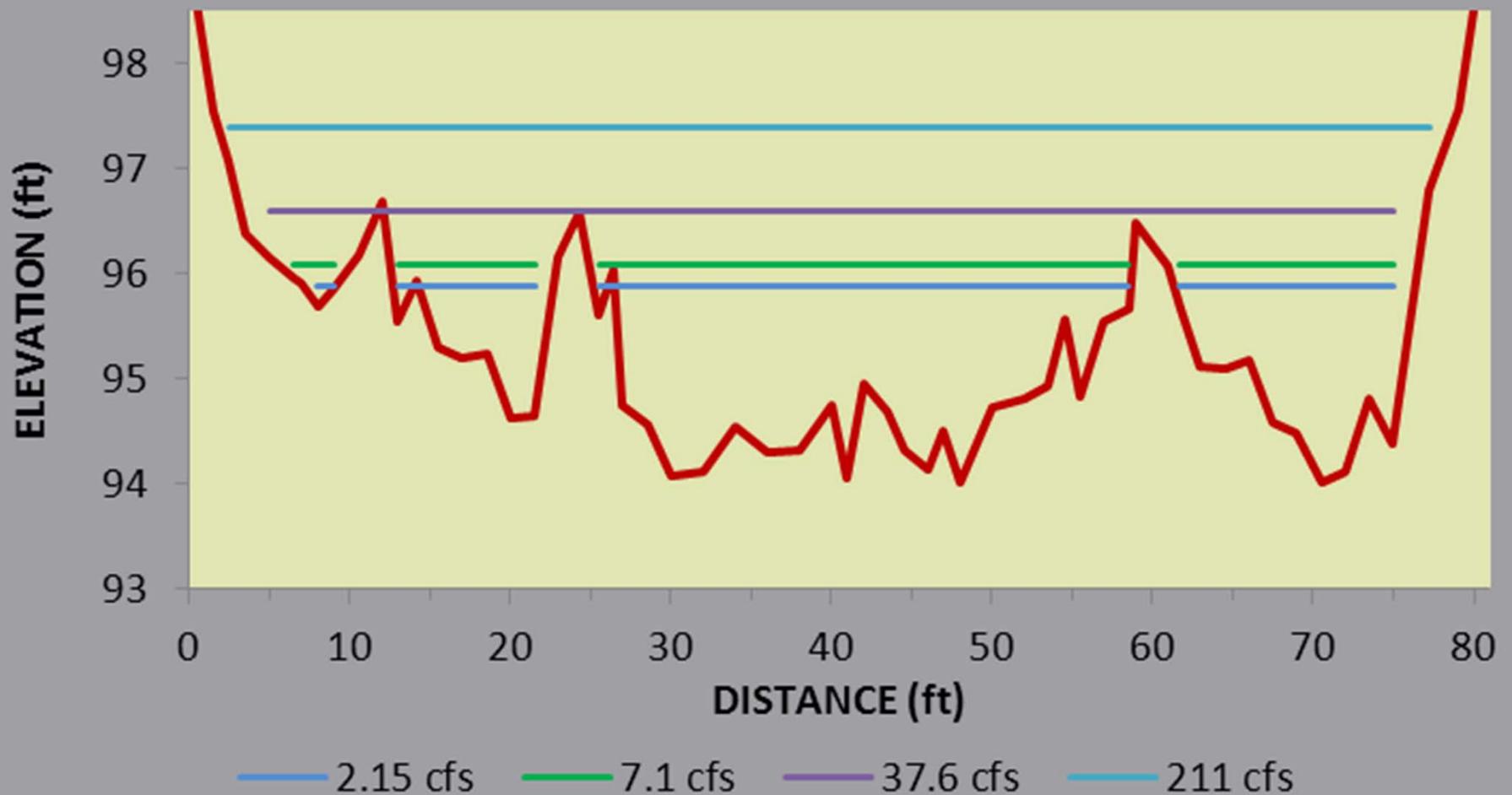


**38 cfs**



**215 cfs**

## Transect #1 - shallow run (11.8%)





**Transect  
#2, Run**

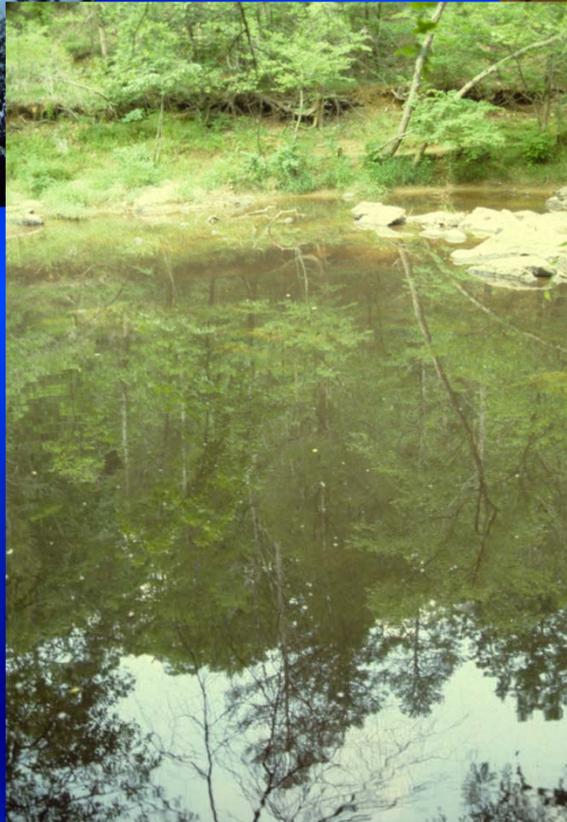
**5 cfs**



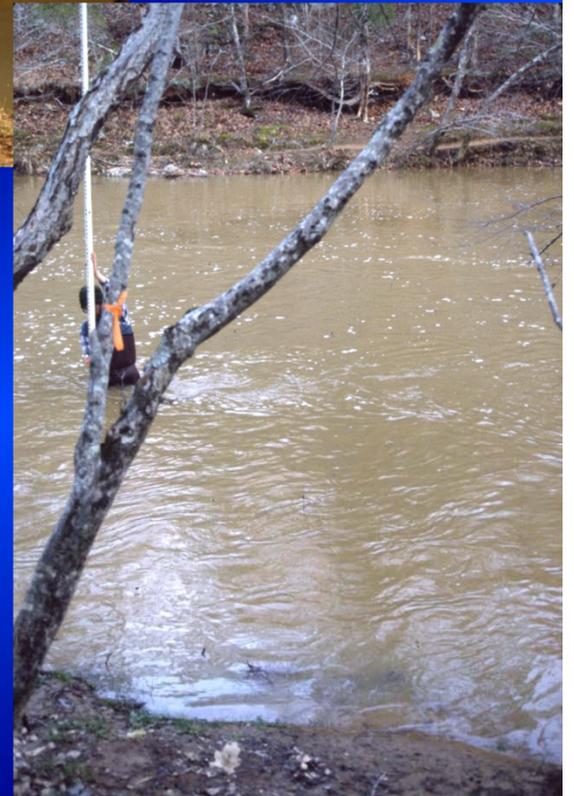
**215 cfs**



**2 cfs**



**38 cfs**



## Transect #2 - run (11.4%)



2.15 cfs

7.1 cfs

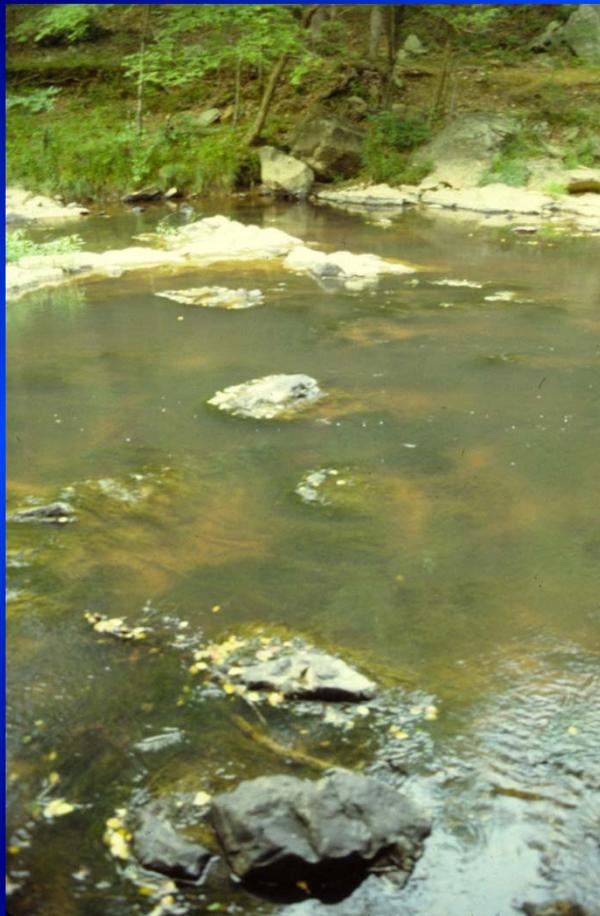
37.6 cfs

212 cfs

# Eno River State Park Ecological Flow Study Transect #3, Riffle



**2 cfs**

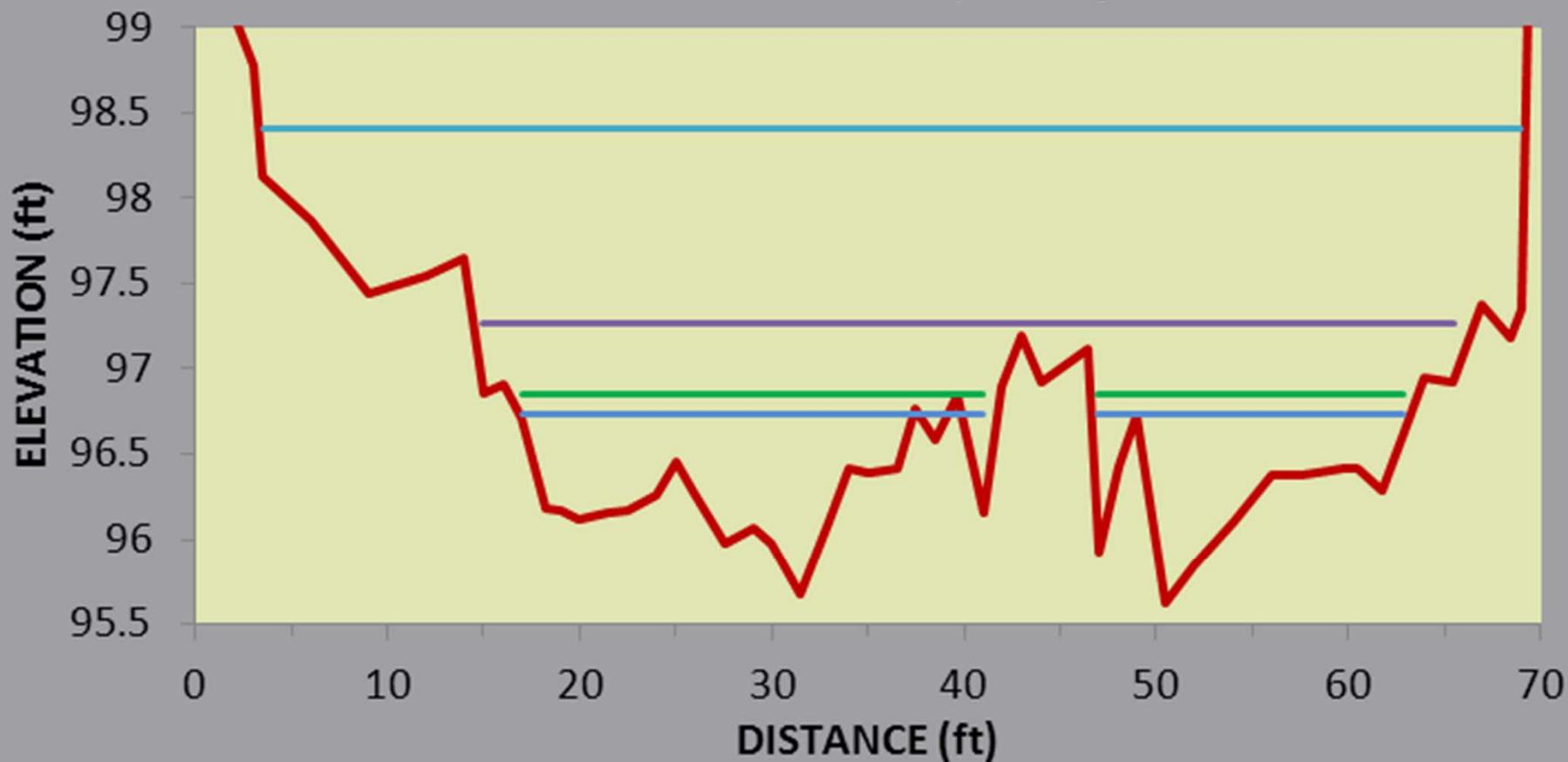


**5 cfs**



**38 cfs**

### Transect #3 - riffle (2.2%)



— 2.15 cfs    — 6.1 cfs    — 37.6 cfs    — 214 cfs

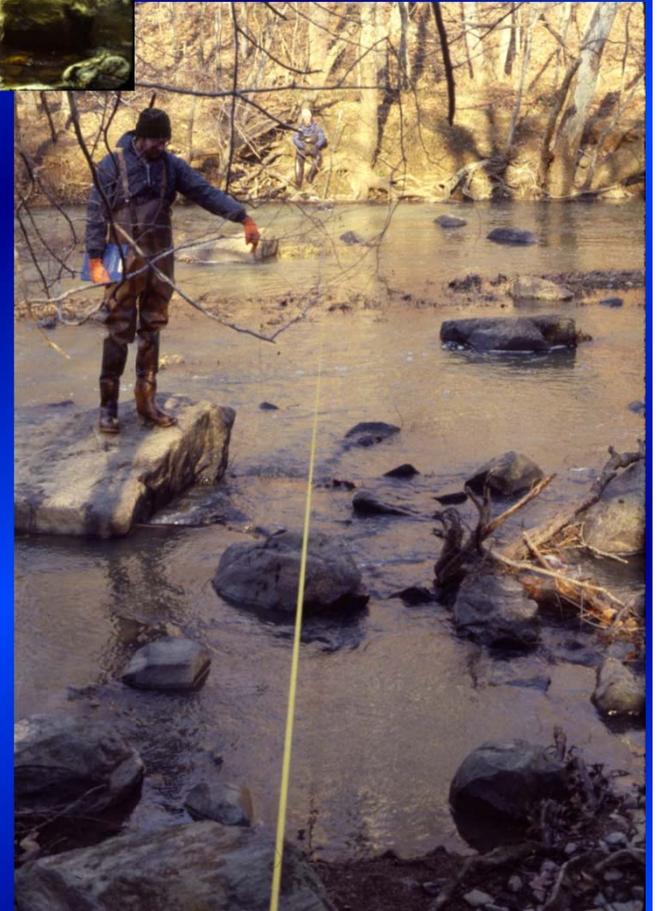
**2 cfs**



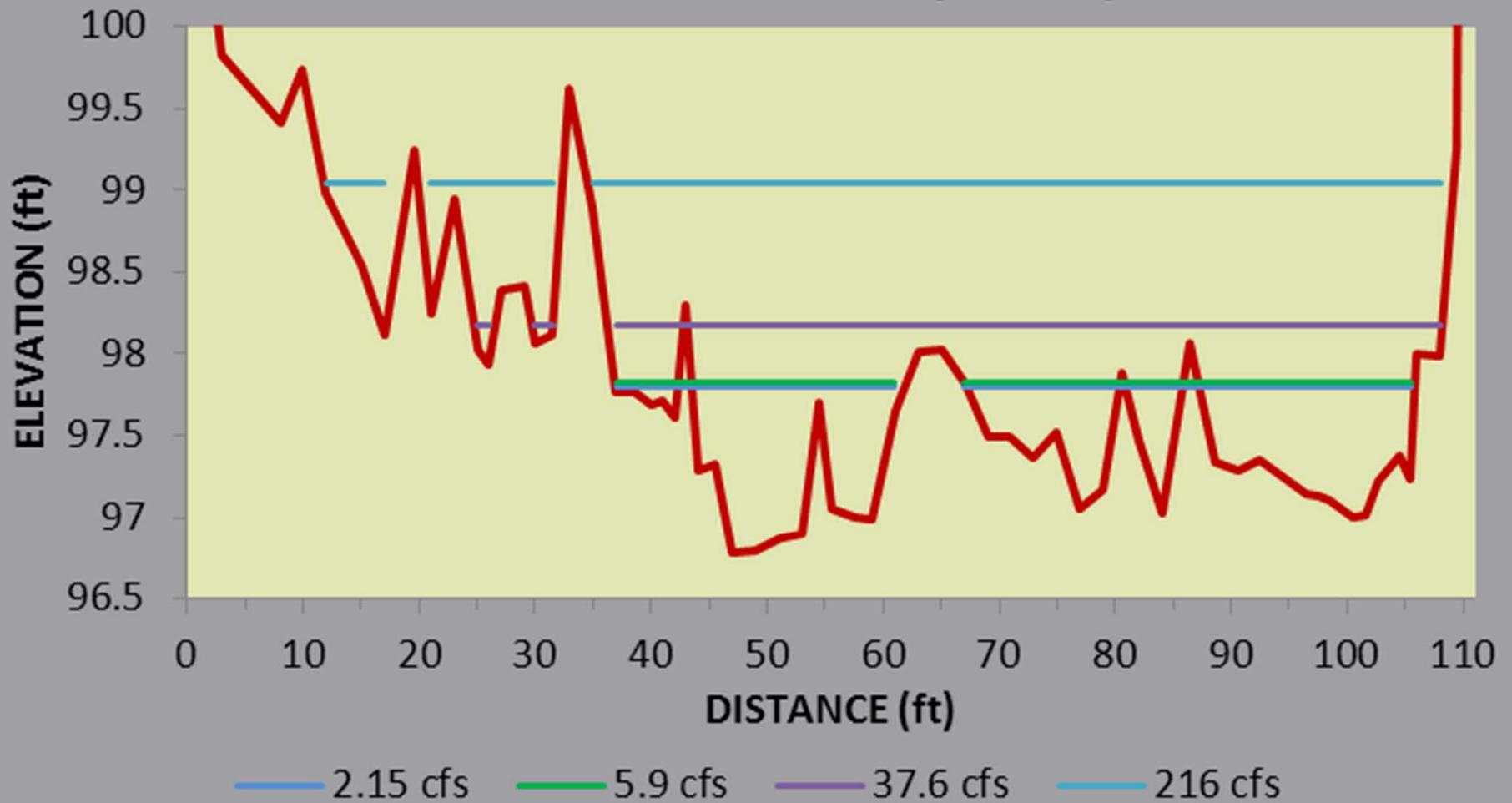
**38 cfs**

**5 cfs**

**Transect #4,  
Braided**



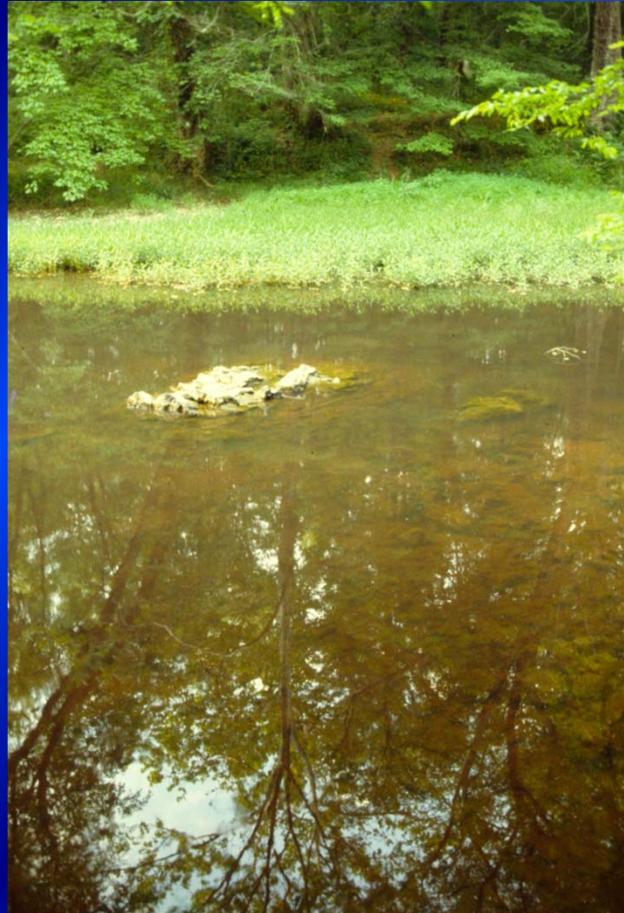
### Transect #4 - braided (16.9%)



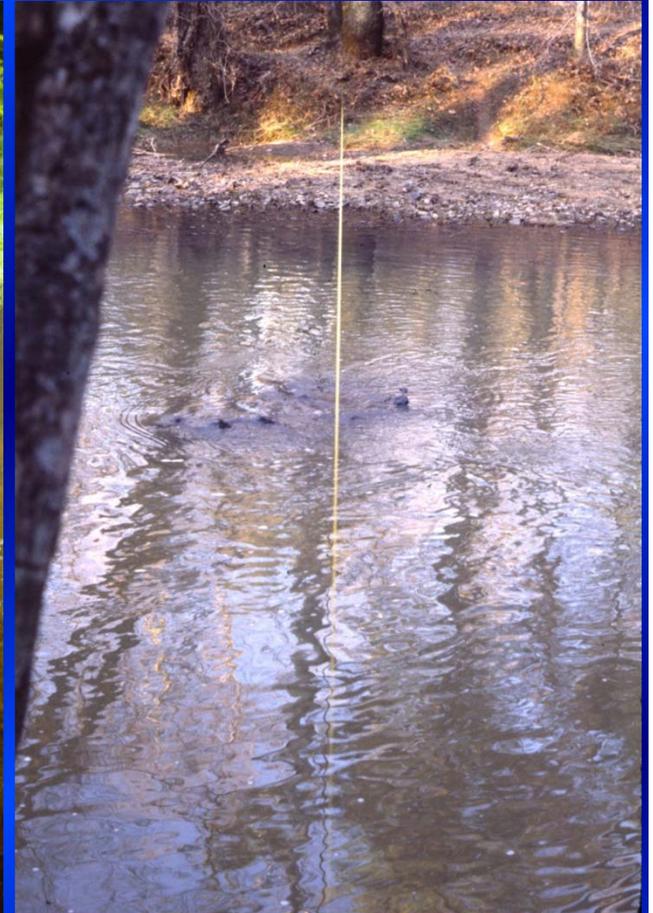
# Eno River State Park Ecological Flow Study Transect #5, Marginal Bars



**2 cfs**

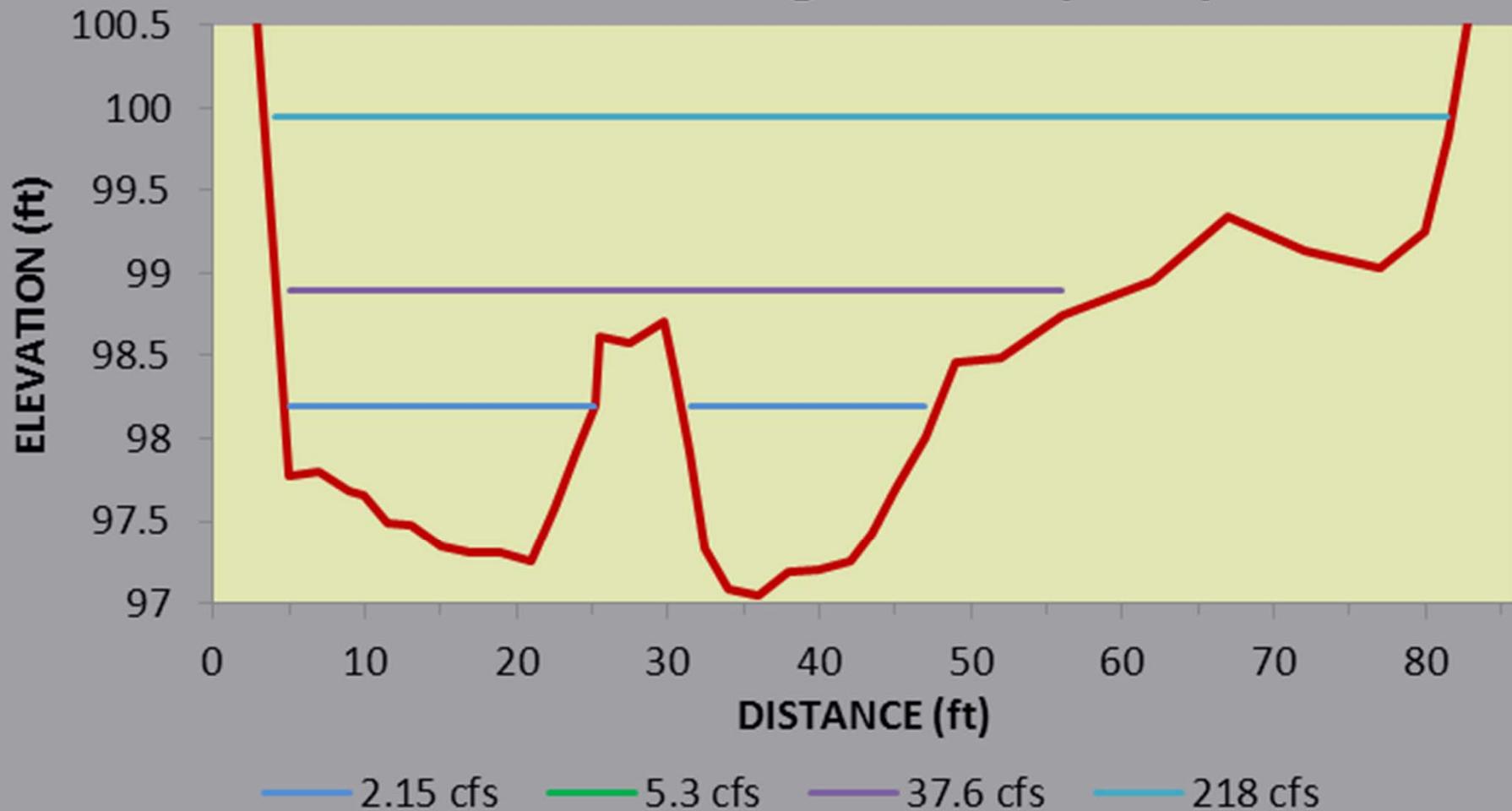


**5 cfs**



**38 cfs**

## Transect #5 - marginal bars (5.9%)

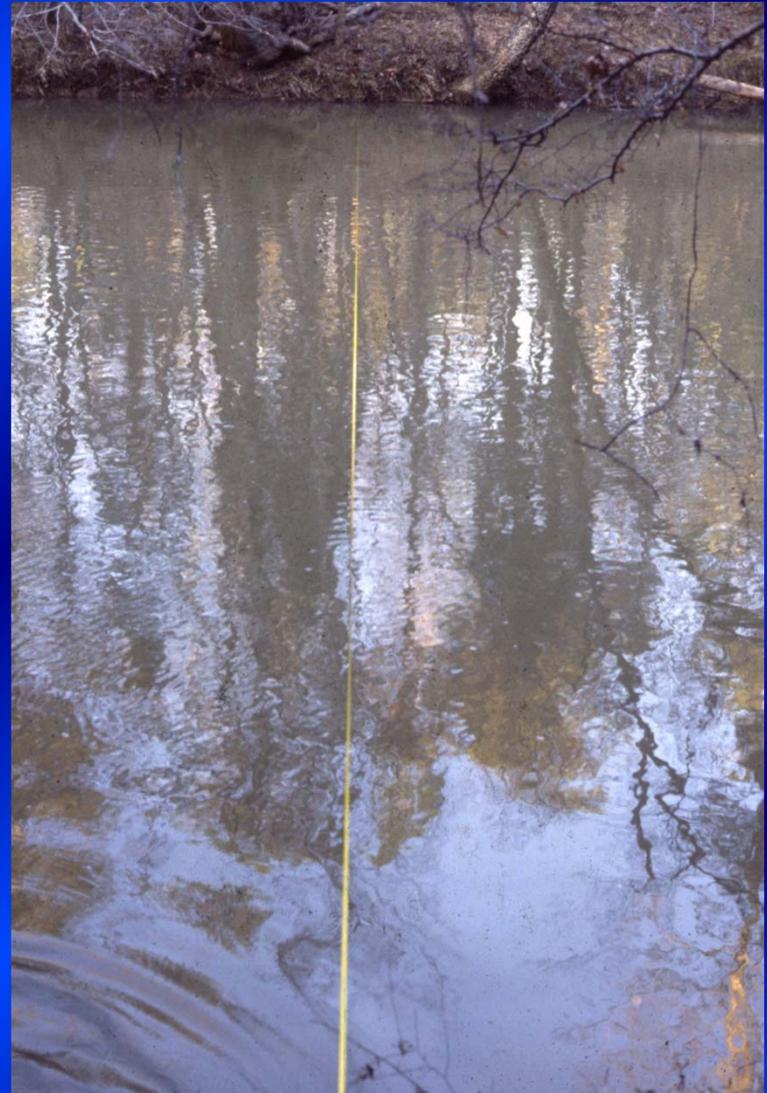


# Eno River State Park Ecological Flow Study Transect #6, Shallow Pool

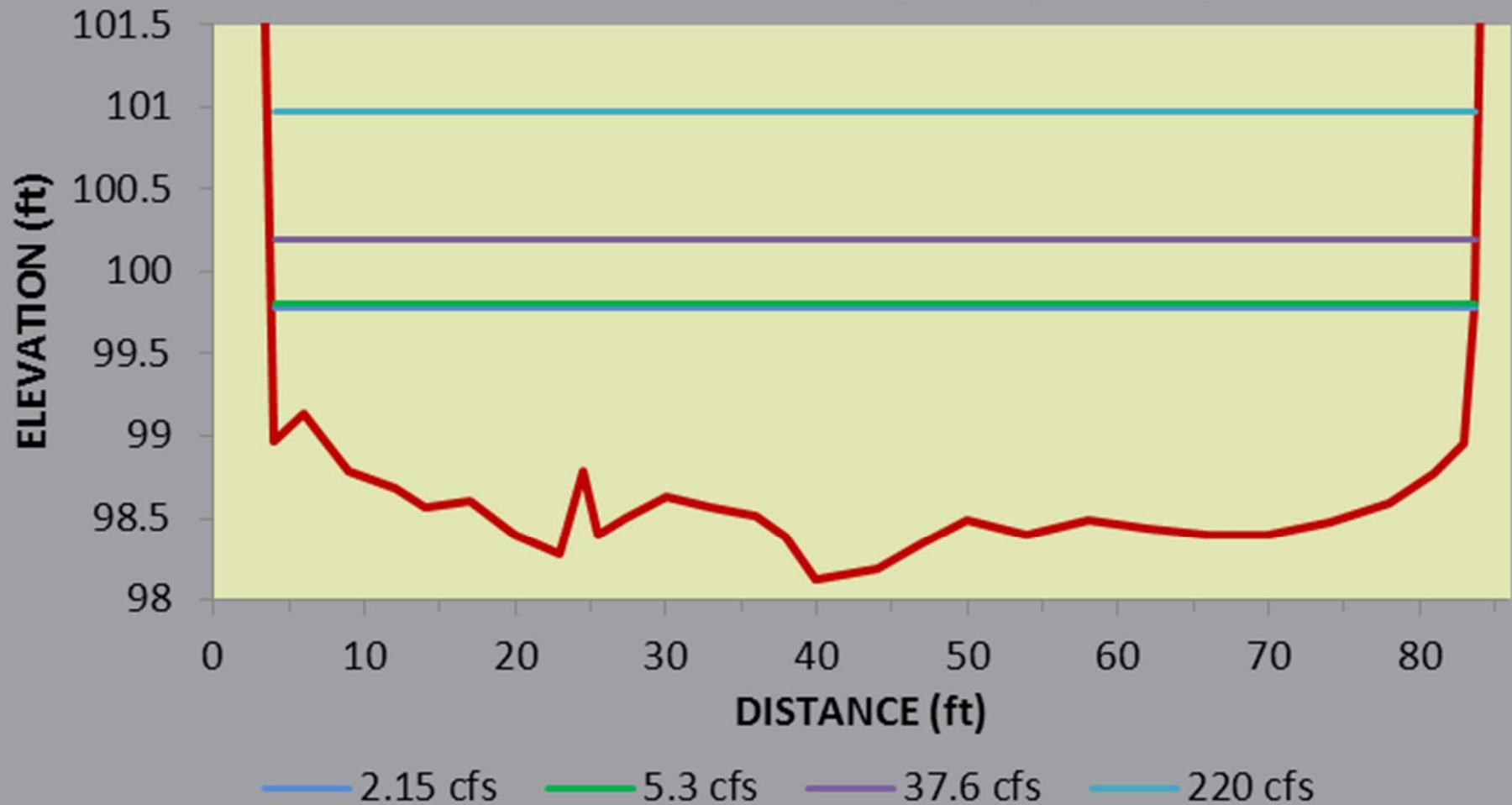
2 cfs



38 cfs



## Transect #6 - shallow pool (18.1%)

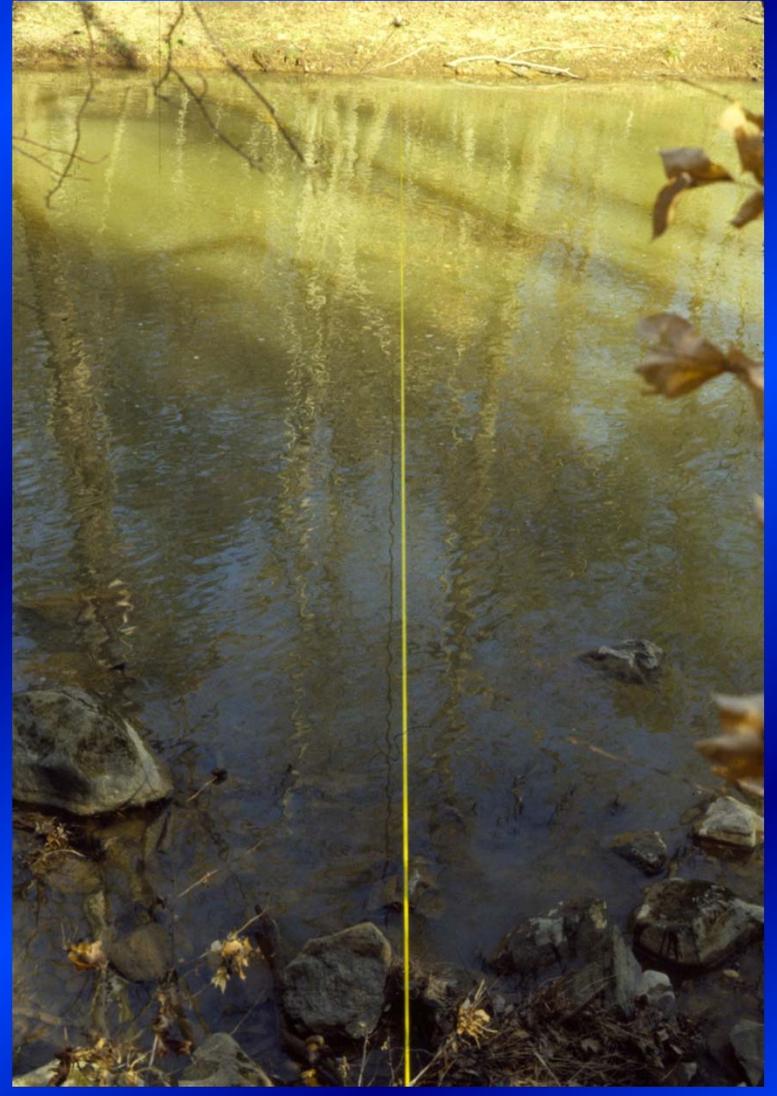


# Eno River State Park Ecological Flow Study Transect #7, Shallow Pool

2 cfs



31 cfs





**31 cfs**

**2 cfs**

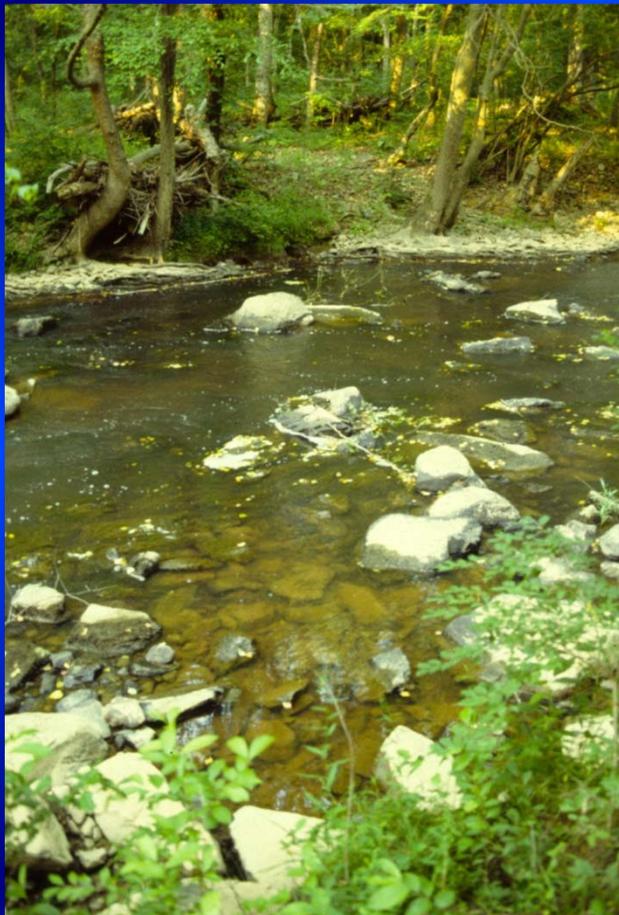
**Looking  
upstream  
from Transect  
#7**



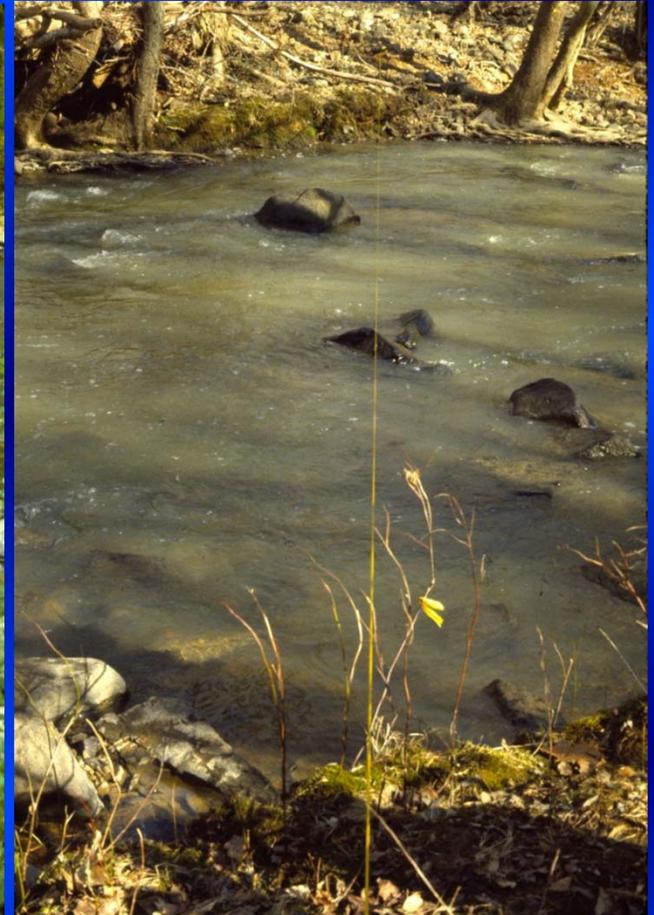
# Eno River State Park Ecological Flow Study Transect #8, Run/Riffle



**2 cfs**



**5 cfs**

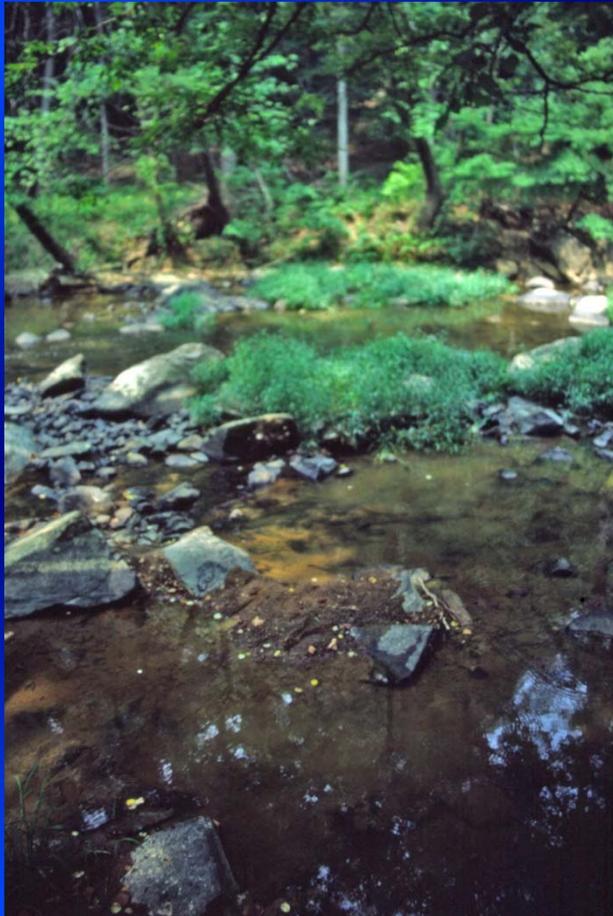


**31 cfs**

### Transect #8 - run/riffle (8.7%)



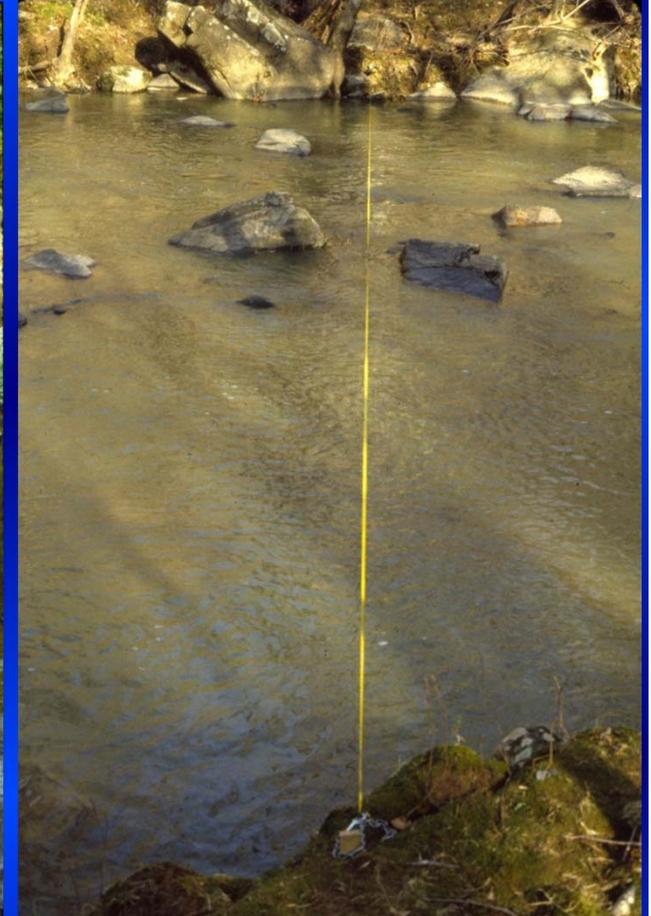
# Eno River State Park Ecological Flow Study Transect #9, Run



**2 cfs**



**5 cfs**



**31 cfs**

### Transect #9 - run (3.5%)

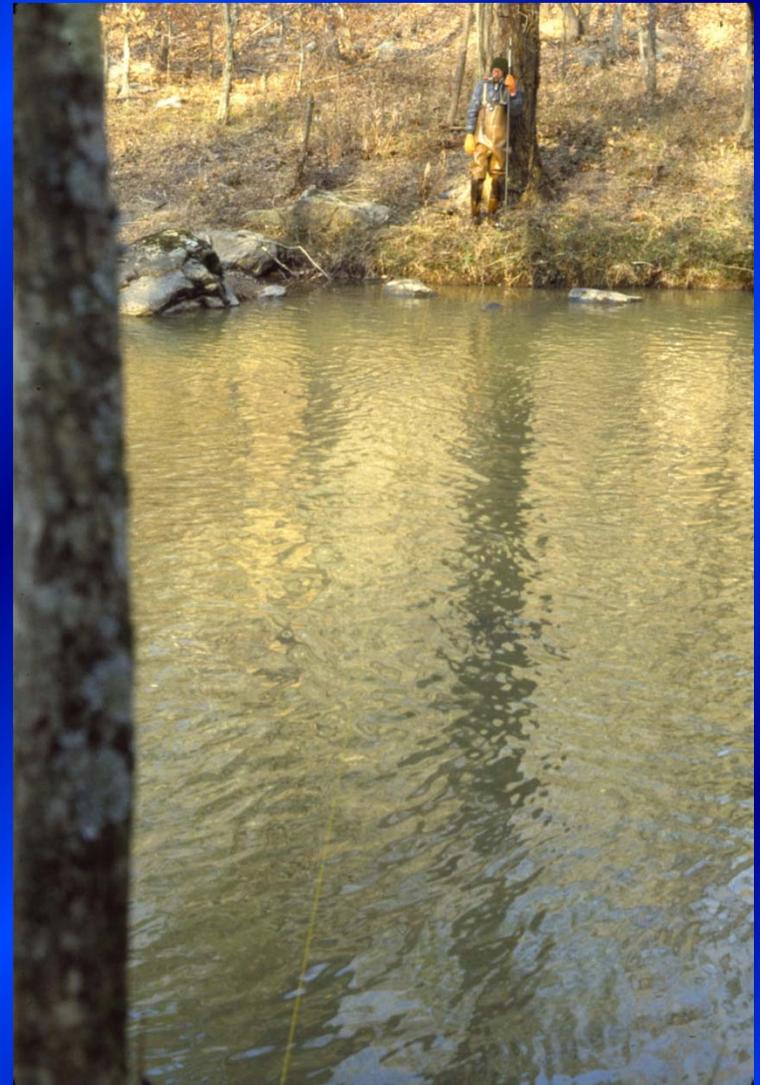


# Eno River State Park Ecological Flow Study Transect #10, Shallow Pool

2 cfs



31 cfs



## Transect #10 - shallow pool (8.1%)



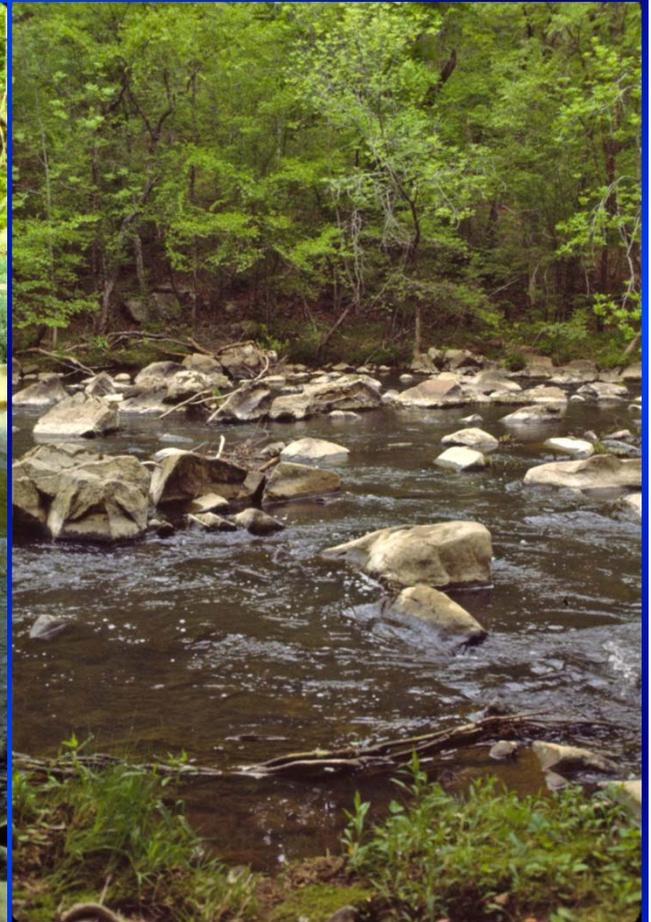
# Eno River State Park Ecological Flow Study Transect #11, Boulder Riffle



**2 cfs**



**5 cfs**



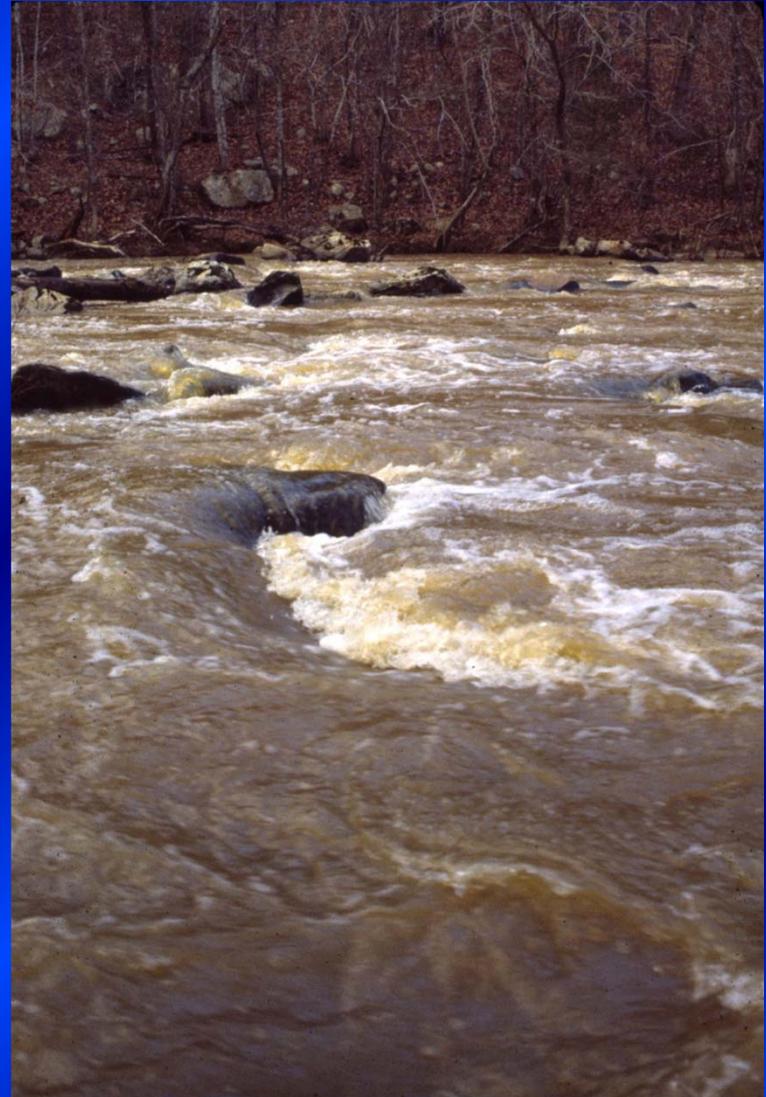
**25 cfs**

# Eno River State Park Ecological Flow Study Transect #11, Boulder Riffle cont'd

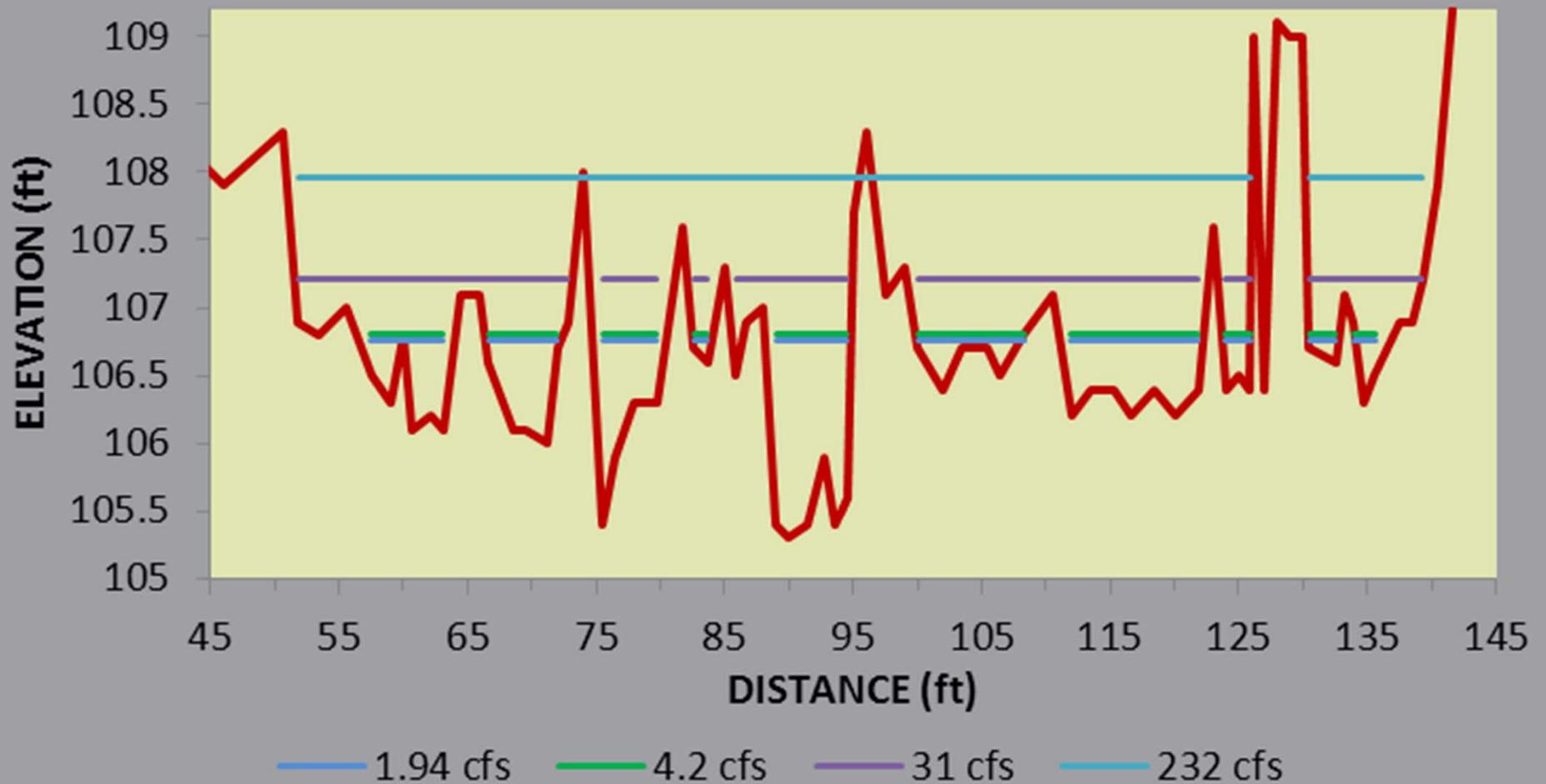
31 cfs



232 cfs



## Transect #11 - boulder riffle (6.1%)



# Eno River State Park Ecological Flow Study Transect #12, Deep Pool



**2 cfs**

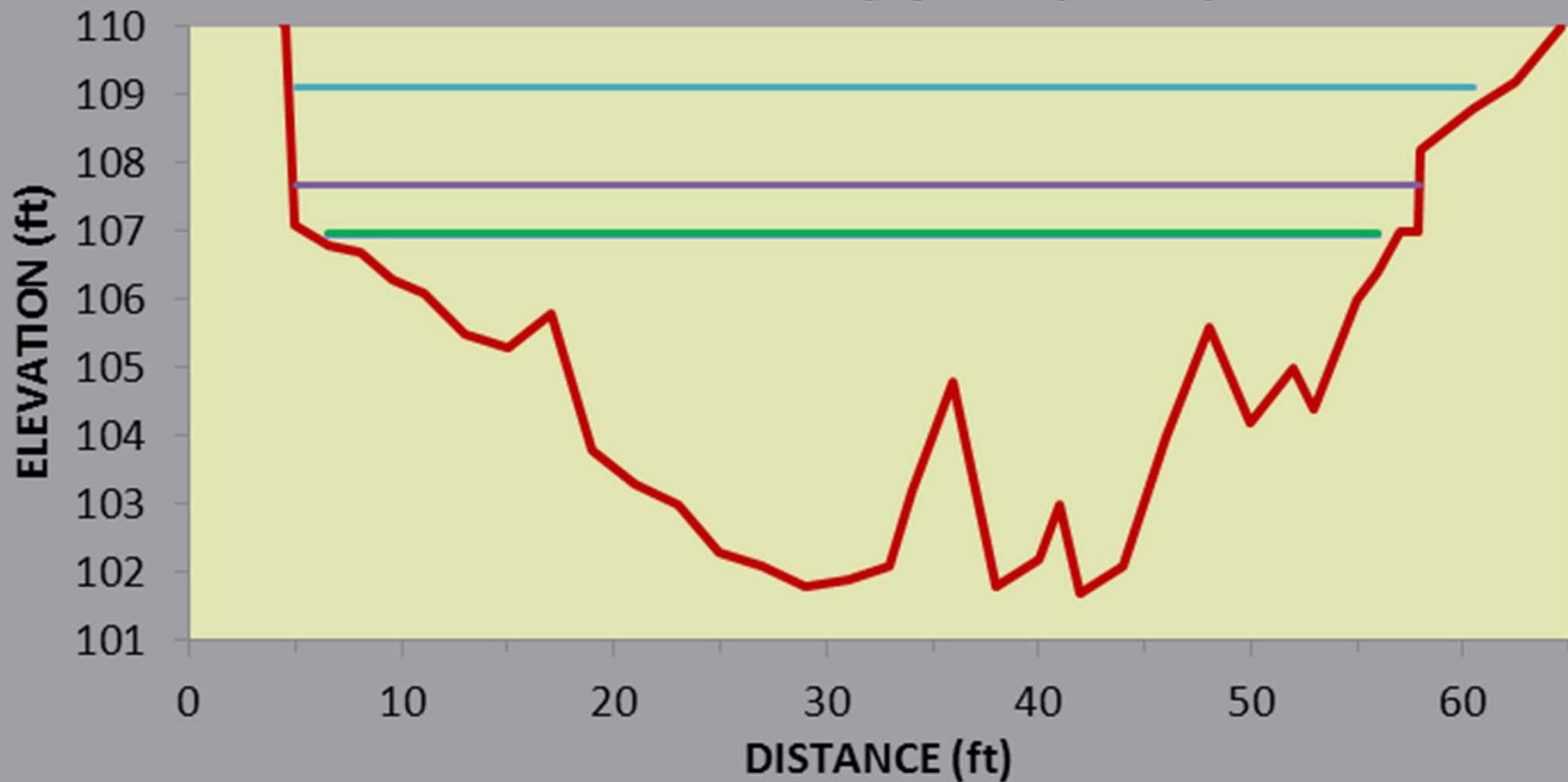


**5 cfs**



**31 cfs**

## Transect #12 - deep pool (7.3%)



1.94 cfs    4.2 cfs    31 cfs    232 cfs