BEYOND 2013

1

New Croton Dam

Beyond 2013

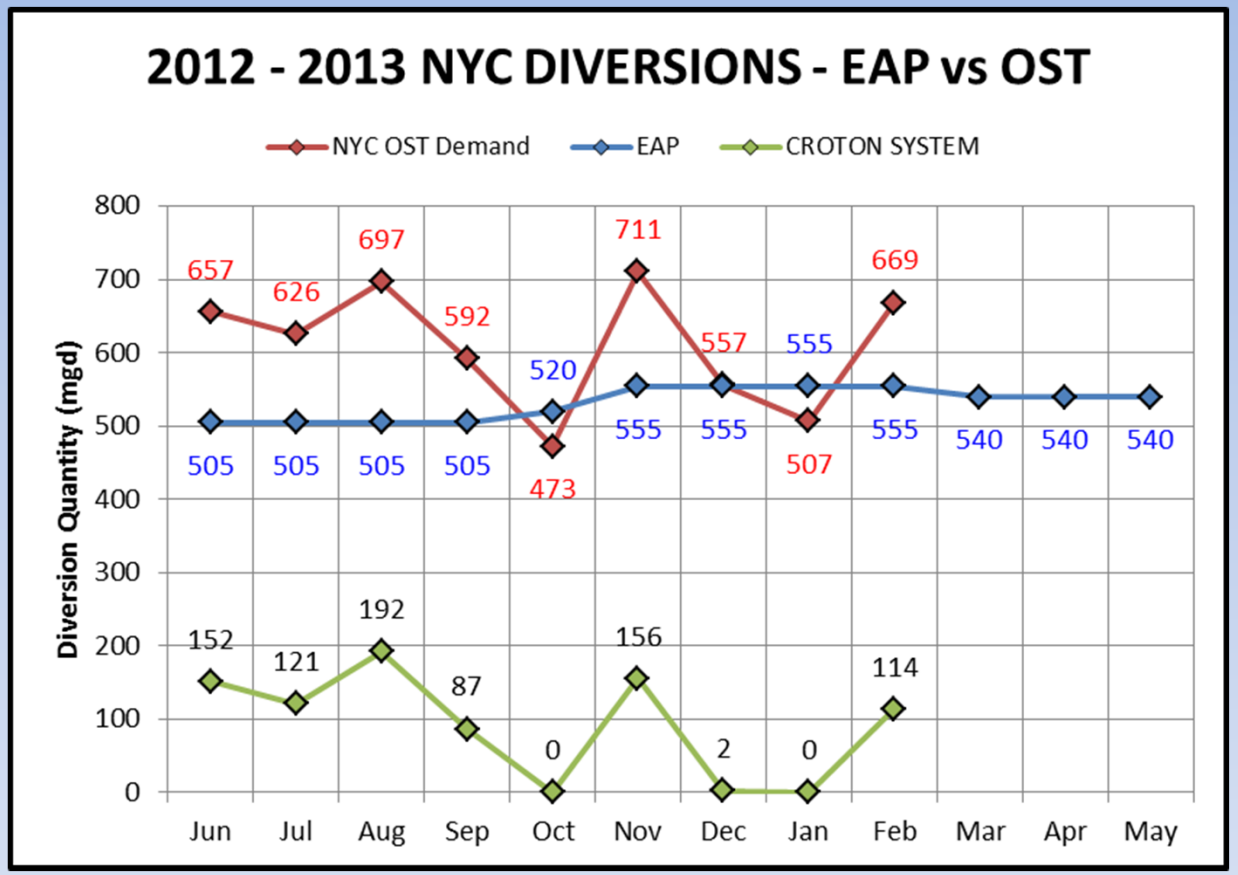
- The return of the Croton System
- The EAP
- Changes to Wallenpaupack releases
- USGS developments
- TNC developments

The return of the Croton System

The successful commissioning of the Croton Water Treatment Plant in 2013 will result in:

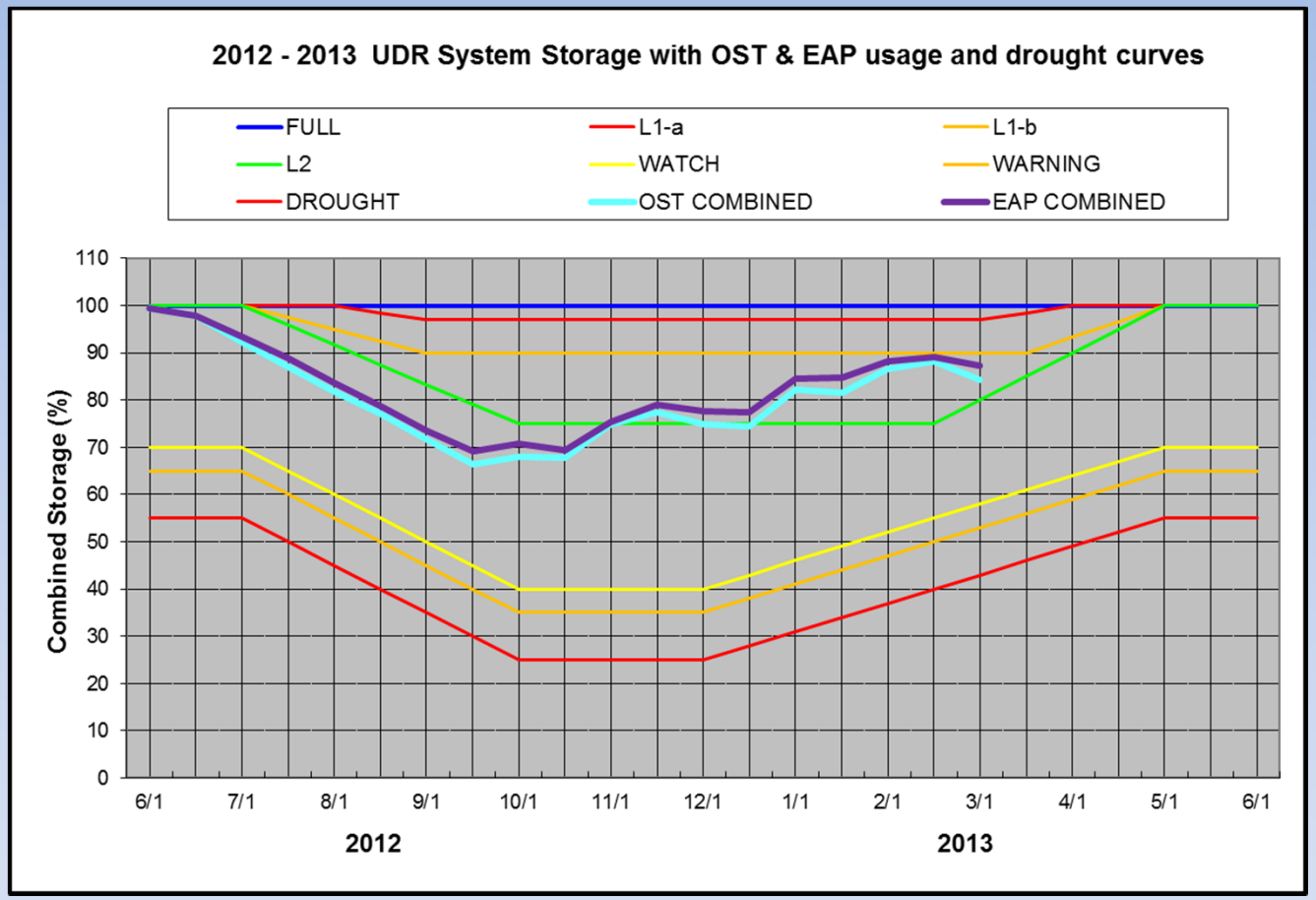
- The restoration of up to 290mgd of high quality water to the NYC Water Supply System.
- Consequential drop in NYC diversion demands from the Delaware system.
- Significantly higher UDR releases that will benefit the entire length of the river.

The OST, the EAP, and the Croton system



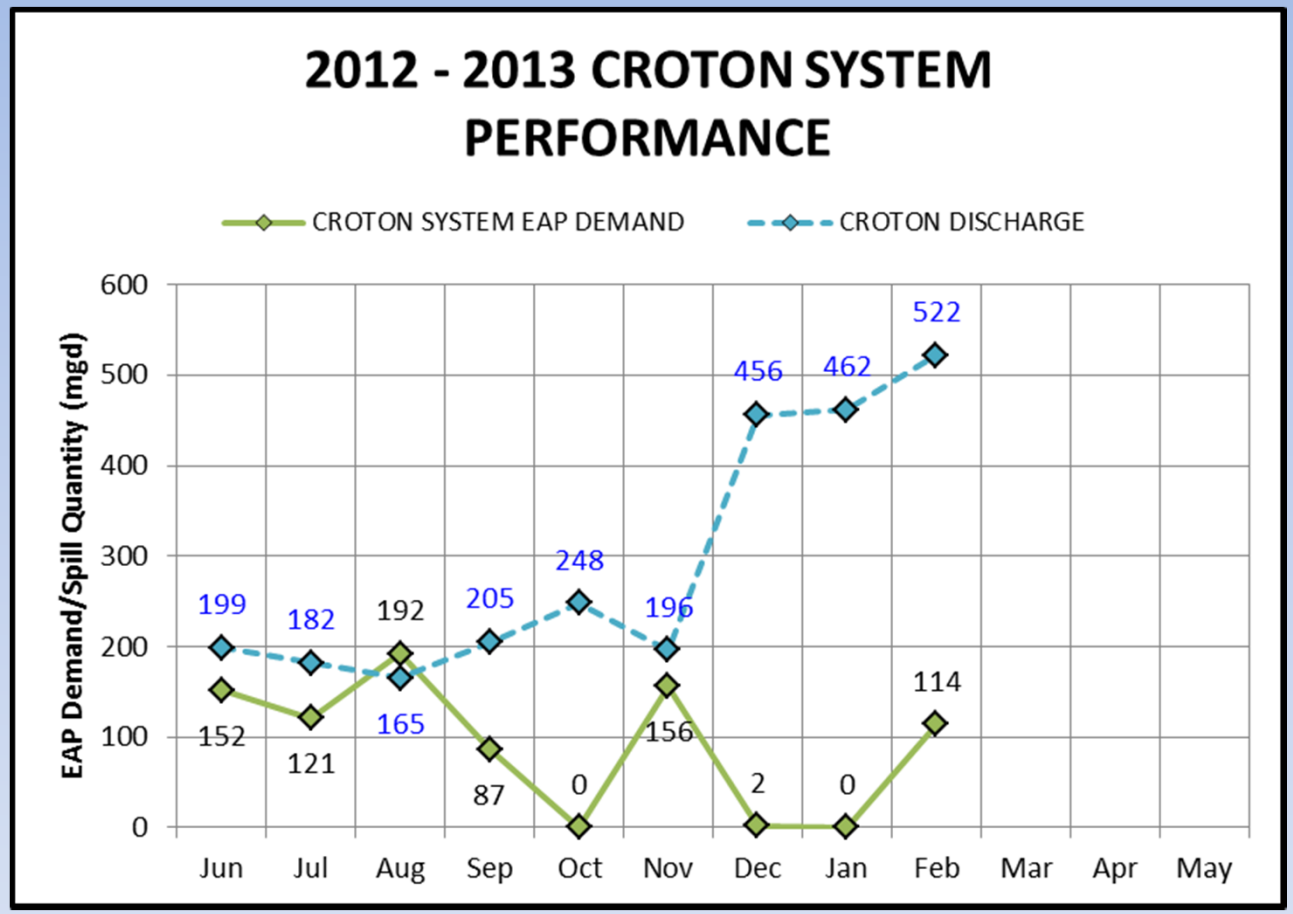
For 2012, the required **make-up quantities** from the Croton system would have remained well within the 290mgd capacity of the Croton Water Treatment Plant. (June-1 running average **make-up** = 92mgd).

OST vs EAP Water Usage



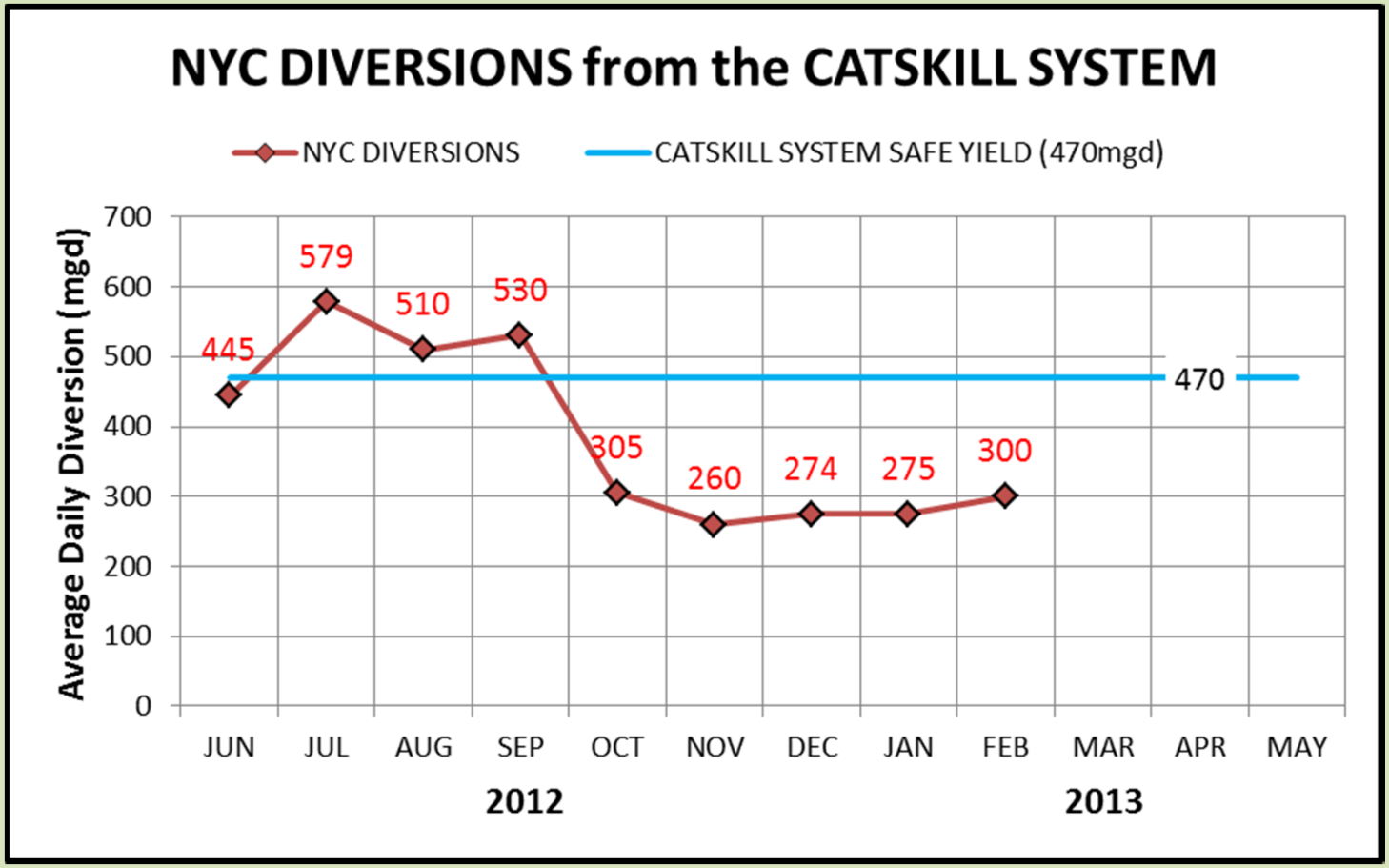
The EAP's water usage profile would have been very similar to the OST's profile in 2012; however the EAP would have used a little less water.

Croton System Water Usage



In 2012, the Croton system would have continued to spill despite the demand from the EAP. (June-1 running average **spill** = 293mgd).

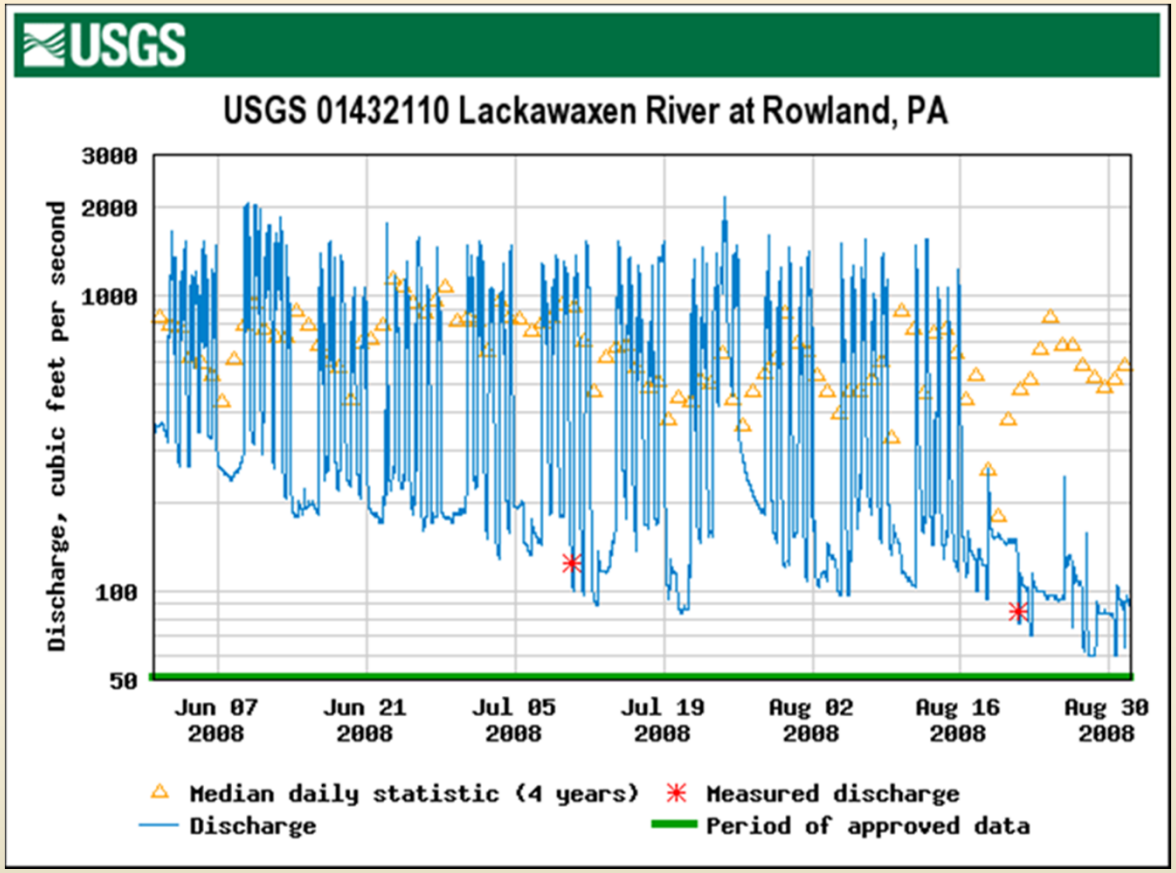
Catskill System Underutilization



Analysis of the 2012 water year, indicates the Catskill system's safe yield (470mgd) has also been underutilized.

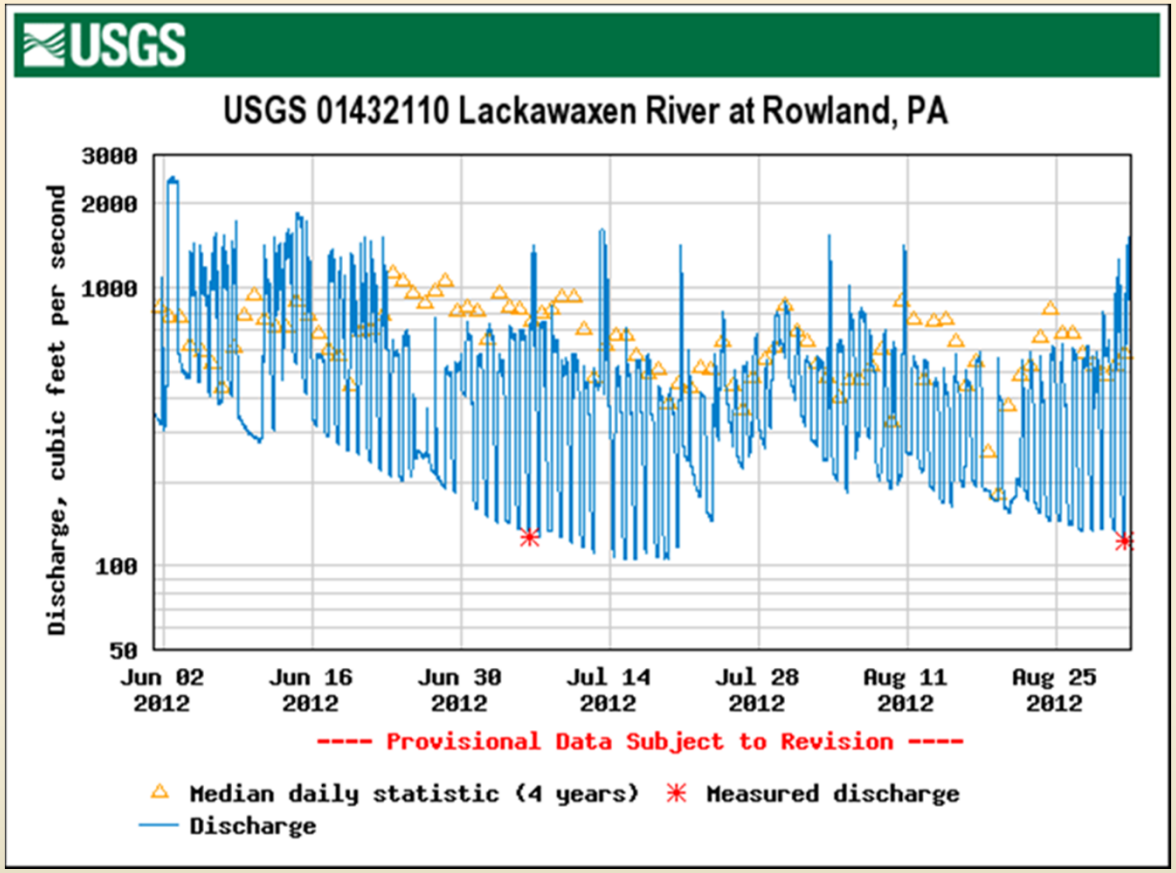
(June-1 running average **underutilization** = 84mgd)

Wallenpaupack Releases



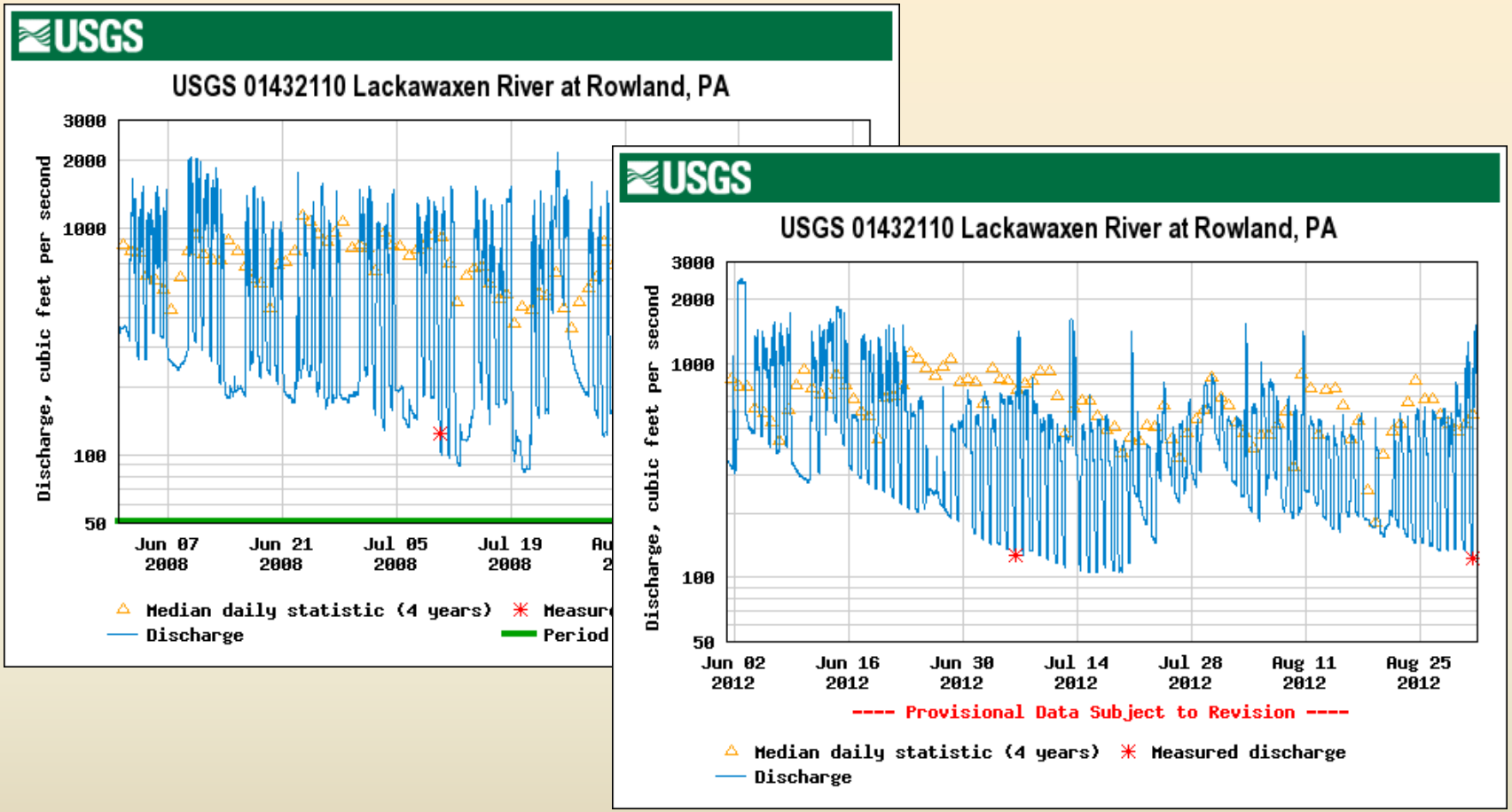
PP&L's traditional 5-days/week (weekdays) power generation regimen has often required significant disruptive (yo-yo) releases to be made from the Upper Delaware river (UDR) system in order to maintain the Montague flow target during the 2-day (weekend) lull in power generation.

Wallenpaupack Release Changes



The recent introduction of a 75°F max allowable water temperature at Rowland (approx. 8 miles below Wallenpaupack's discharge), has changed the release profile to a more even 7-days/week regimen. Whether or not this pattern will continue in subsequent years, remains to be seen.

Wallenpaupack Releases



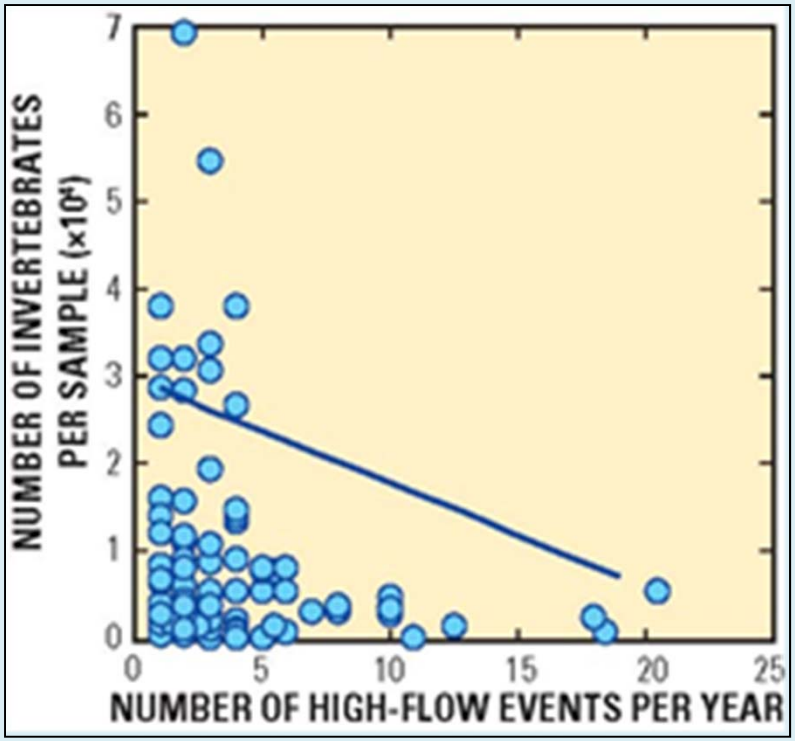
Fingers crossed for the future.

USGS developments

- **Adaptive Management Decision Support System** which includes:
  - improved species and habitat criteria
  - improved temperature modeling
  - incorporation of 2010 data
- A **beta version of the new DSS** is available for a workshop training session – time & location TBD.

USGS developments (continued)

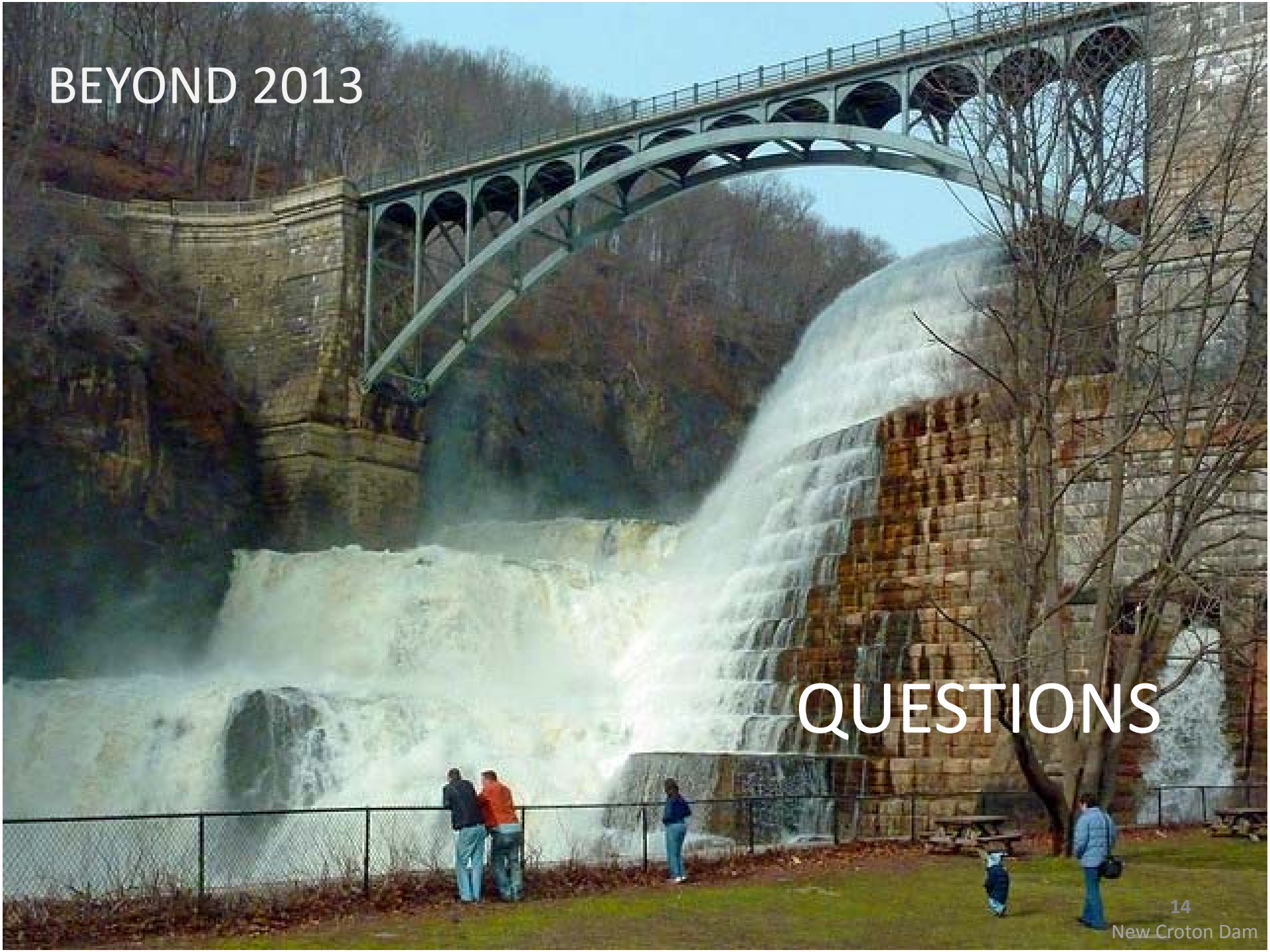
- Relationships between stream flow, substratum, water temperature, aquatic species, and their habitats



Benthic invertebrate density vs high-flow events

The Nature Conservancy

- **Delaware River Basin Conservation Initiative**
  - A biodiversity-driven conservation blueprint for the Basin to help ensure a healthy Delaware River and Bay. Includes studies of: fish, mussels, macro-invertebrates, reptiles, amphibians, birds, and mammals.
- **Delaware River Basin Ecosystem Flow Study**
  - Recommended flows to protect the species, natural communities, and key ecological processes relevant to ecosystem protection, including extreme low and drought flows, seasonal (and monthly) flows, and high flows.
- **Groundwater-surface water interactions**



New Croton Dam