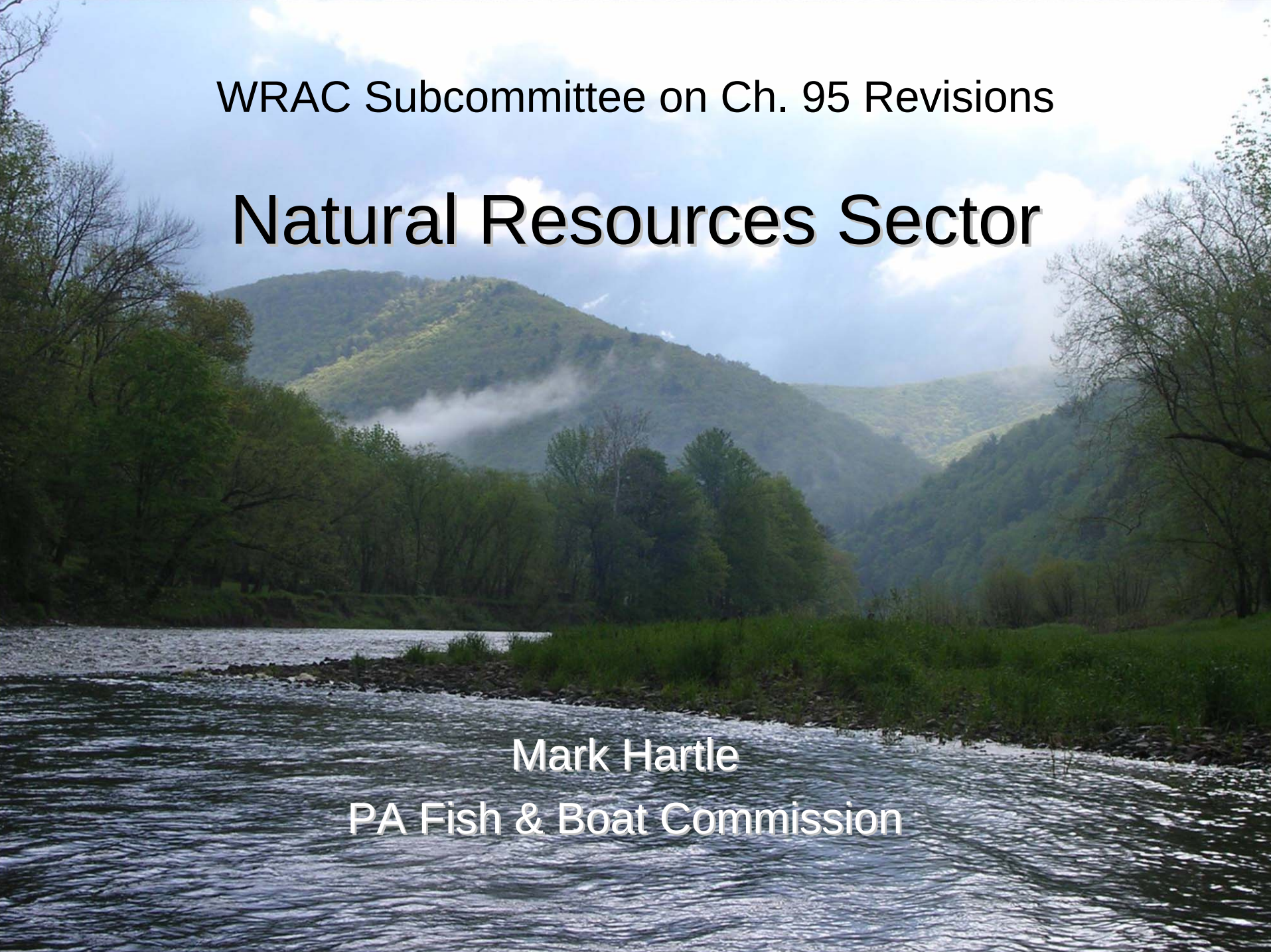


WRAC Subcommittee on Ch. 95 Revisions

# Natural Resources Sector

Mark Hartle
PA Fish & Boat Commission

# Reportable issues

Modified to reflect sector as receptor instead of user

- Discharges
- Environmental benefits
- Environmental costs
- Uncertainty
- Residuals produced

Values/Costs

What do they mean for Natural Resources Sector?

# ➢ Discharges

# ➢ Discharges

- Cumulative loading/impacts of multiple discharges must be considered (e.g. DRBC limits change to 133% of background for TDS < 500 mg/l)
- Near field/mixing zone impacts of point discharges undefined with Ch. 95 changes. Request clarification and minimal or no mixing zone impacts for high quality waters.
- How did DEP construct baseline conditions? (WQN assumed + what else?)
- Water quality excursions and high variability - What natural and human induced excursions in water quality were considered?

# ➢ Discharges

- Adequate protection not present in dilution calculation unless continuing withdrawals are subtracted from $Q_{7\text{-}10}$ flows
- WETT testing can be added to permit requirements for high TDS discharges due to nature and potential variability of discharges
- Iowa requires WETT testing if instream chloride concentrations reach chronic (230 mg/l) or acute (860 mg/l) toxicity levels or instream TDS concentrations exceed 1000 mg/l threshold
- Chronic and acute toxicity considered in other states

# ➢ Discharges

- Iowa and Illinois concluded that individual component ion testing rather than TDS criteria is more appropriate to characterize TDS toxicity.
- Disconnect perceived between very good quality of effluent applicable technology can produce and DEP Chapter 95 requirements.

# ➢ Environmental benefits

## Meeting Needs in an Environmentally Responsible Manner

### Water Supply and Wastewater Management

Many Pennsylvanians rely on wells, but the majority of consumers depend on public systems to provide their water. There are more than 2,100 community water supply systems in the state serving over 10.5 million people. While the water source for the majority of these systems is groundwater, surface water also plays an important role, especially in our larger metropolitan areas.

When properly planned and operated, wastewater collection and treatment systems allow water to be reused again and again. Innovative water treatment technologies continue to provide new opportunities for wastewater reuse.

The State Water Plan will help planners determine how to meet current and future water supply and wastewater disposal needs by projecting community growth and development. Comprehensive land use planning, where available, is also an excellent tool to help those assessing the wastewater disposal needs of a community or group of communities.

*Constructed wetlands receiving reuse water*
*University Area Joint Authority*
*State College, Centre County*

*Bowman's Hill Wildflower Preserve*
*Bucks County*

# ➢ Benefits

- Water quality regulated at point of discharge instead of point of downstream use
- Byproduct reuse can reduce waste discharge
- New & increased discharges will be subject to new limits
- Existing NPDES permits could lead to reduced loading if new standards applied – Not addressed in regs and DEP’s intent sought

- Tourism supported by effective regulation

- Pennsylvania's 2nd largest industry
- Pennsylvania is 4th most visited state in U.S.
- Generated $28 billion in 2007
- source: PA Tourism and Lodging Association www.patourism.org
- Dependent on clean water, healthy environment
  example: PA Wilds

# ➢ Environmental costs

## Water Planning: Then, Now and in the Future

### Our Heritage

Pennsylvania has a rich history that helped shape our nation. Coal, lumber and fertile farmlands prepared our forefathers with the necessary ingredients to build a vibrant economy. Water played a key role in the establishment of the first settlements and since has been essential to the development of the commonwealth, just as its natural beauty has forever been a source of inspiration to its residents. A diverse land, connected by miles of rivers and streams and dotted with lakes and ponds, comprises the essential elements that sustain a quality way of life.

*Chambersburg, Franklin County*

### Vast Natural Resources

With more than 86,000 miles of streams and over 1,400 lakes, reservoirs and ponds, Pennsylvania still enjoys the plentiful natural resources that played such an important role throughout our history. Lake Erie and the rivers that flow though our great cities help drive the economic engine that creates jobs and supports our fertile farms, while offering recreational opportunities and the water necessary for everyday life.

Sustaining that quality of life we all enjoy requires careful attention to the issues surrounding our water resources. The following pages provide an overview of how Pennsylvania's State Water Plan can be used to help carefully balance the needs of all users and avoid the potential conflicts that can develop. By providing better information to make better decisions, we can continue to make our commonwealth a great place to live, work and play, and still be surrounded by our rich natural resources.

*Oil Creek & Titusville Railroad, Titusville, Venango County*

## ➢ Costs

- Under current strategy, pollution reduction occurring at great cost to dischargers and the public can enable more pollution to occur (e.g. W. Br. Susq. improved water quality and proposed new brine treatment plants)

- More economical for discharger to bear treatment costs that all users affected by altered water quality (e.g. public water suppliers)

## ➢ Costs

- New or increased AMD treatment of high TDS discharges may be unable to meet new standards.  Does Ch. 95 or Ch. 87 apply?

- Higher level of treatment will produce more solids that require disposal

# ➢ Uncertainty

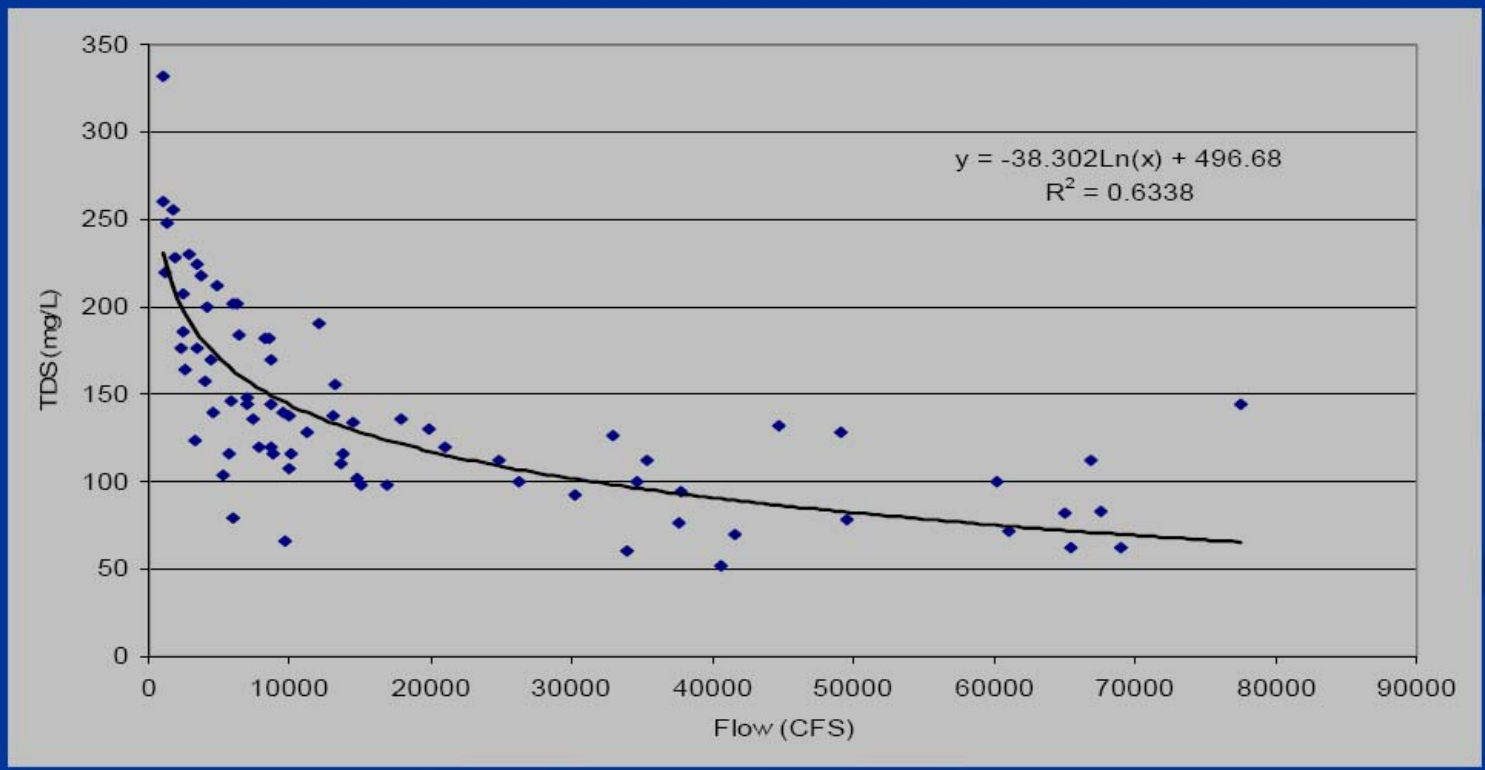
More questions than answers

# West Branch
## Susquehanna River

- TDS in the West Branch is already 48% of the 500 mg/L water quality criterion during design-flow conditions.

**TDS REGRESSION WQN 401 WEST BRANCH**
**FLOW DATA FROM WEST BRANCH AT LEWISBURG, PA**

**Q7-10 of 764 cfs is equivalent to 242 mg/L TDS**




Slide courtesy Dana Aunkst, PA DEP

# ➢ Uncertainty

- Monthly $Q_{7\text{-}10}$ flows to calculate loading are inherently less protective than annual $Q_{7\text{-}10}$. Causes water quality and aquatic life to bear <u>all</u> additional uncertainty over traditional approach.
- Is monthly $Q_{7\text{-}10}$ approach acceptable to US EPA?
- New discharge requirements are monthly averages and did not include instantaneous and daily maxima. Effluent variability may be large.
- Variability and excursions occur in stream water quality (as represented in previous slide)
- Did DEP analyze impact of pollutant excursions on aquatic life?

# ➢ Uncertainty

- Altered water quality may change aquatic community, even if discharge criteria are met (extreme example is high chlorides in Dunkard Creek, Greene Co. allow invasive brackish water golden algae to bloom)
- How does DEP plan to consider low and high TDS discharges on waters that are impaired? (e.g. Mon. R. and Green Earth Wastewater Processing proposal on Dunkard Creek)
- New and increased discharges will drive TDS toward 500 mg/l. Possible conflict with antidegradation requirement of Ch. 93.

# ➢ Uncertainty

- Natural resource sector uncertain of extent and rigor of analysis of chronic biological effects of new criteria and anticipated loadings.
- Interim TDS strategy does not appear to be compatible with development of Best Available Technology to treat to 500 mg/l TDS under Ch. 95 treatment requirements. What is purpose of interim strategy?
- Impact on shallow groundwater, unconfined aquifers and wetlands possible from elevated concentrations in receiving waters and poor housekeeping

## ➢ Uncertainty

- TDS trading concept perceived to have limited value.  Pollutant hotspots may be created. Scale of benefits from trading are not likely to make ecological sense, esp. on local level.

- Residuals produced

## ➢ Residuals produced

- Higher level of treatment will produce more solids requiring disposal
- Radioactive components of waste may be concentrated by treatment process
- Treatment processes that produce a marketable waste are preferred
- Discharged metals (barium and strontium) may accumulate in stream sediments at levels that cause aquatic risk

## ➢ Residuals produced

- Sludge must be adequately characterized and handled according to characteristics (e.g. Coal-fired power plants cannot take pollutants from the air and improperly dispose of wastes that may contaminate soil and water)
- Proper storage and handling of waste is critical
- Waste recipients must have adequate technology, facilities and monitoring