



# **Chesapeake Bay TMDL Offsets and Trading Program State Mining Meeting**

November 18, 2014

# Pre-Chesapeake Bay TMDL: Bay Tributary Strategies

- ▶ Bay Tributary Strategies (2005) an attempt to avoid a TMDL, States agreed
  - To establish permitting targets for Significant Bay Sources
  - To establish reduction targets for non-point sectors
- ▶ States established trading programs
  - Virginia Point Source to Point Point Source Trading
    - Manage compliance and lower costs
  - Pennsylvania PS to PS and NPS to PS
    - Manage compliance and lower costs
    - Accelerate implementation of Agricultural BMPs

# Chesapeake TMDL - 2010

- ▶ Established Load Allocations and Load Allocations over a 64,000 sq mile watershed for sediment and nutrients
  - WLA for Significant Bay Point Sources (POTWs, Industrials, MS4s, CAFOs)
  - LA for land uses (agricultural, unregulated stormwater, etc)
- ▶ States were encouraged to set aside a portion of the LA and WLA for Growth or Offset all new or increased Loads
- ▶ Appendix S established the ground rules for Offset Program, and also implicitly for Trading.
  - State PS to PS programs unaffected
  - State NPS to PS programs significantly effected

# Appendix S Major Elements

- ▶ Adequate Legal Authority
- ▶ Baseline for Credit Generators Consistent with Assumptions of the TMDL
- ▶ Minimum Control Measures – Comply with Tech Standards
- ▶ Credit Calculation Consistent with Assumptions of TMDL
- ▶ Credit Certification and Verification
- ▶ Safeguards
  - Cause or contribute to WQS exceedance
  - Temporal consistency
- ▶ Accountability and Tracking

# Need for Interpretation of Appendix S for NPDES Context

- ▶ Technical Memorandum with Input from the States, USDA, Stakeholders were drafted
- ▶ Technical Memorandum Purpose and Include:
  - Sector Load Growth Demonstration
  - *Accounting for Uncertainty*
  - *Local Water Quality*
  - Representative Sampling
  - *Components of Credit Calculation*
  - Credit Permanence
  - *Certification and Verification Measures*
  - *Baseline Demonstration*

# Baseline Demonstration

- ▶ Baseline is what must be achieved before credits can be earned by the generator
- ▶ Baseline is determined by what is required by the TMDL either for Point Sources or Non-Point Sources
  - For Point Sources credits can only be earned after achieving the WLA
  - For NPS credits can only be earned after the land use loadings have been achieved
- ▶ It is important to consider this factor in developing a TMDL
  - Very stringent LA can restrict trading or offset opportunities
- ▶ TMDL dictates the baseline

# Credit Calculation

- ▶ Credit Calculation methodology must be consistent with the TMDL modeling tool and assumptions
- ▶ This has become a big issue in the Bay
  - Bay model is complex and large scale
  - Credit Calculation tools are generally on farm scale
  - Need to have in place a reconciliation process if using a tool that differs
- ▶ BMP efficiencies must be consistent with the TMDL also
  - Consider Bay model and reasonable assurance demonstration

# Accounting for Uncertainty

- ▶ Point Source to Point Source uncertainty ratio for a conventional source is one: flow can be measured and concentration can be measured with a high degree of accuracy.
- ▶ For non-point source or point sources that resemble non-point sources:
  - Measurement of flow is weather dependent
  - Measurement of efficiency is an approximation at best
  - Efficiency dependent: upon construction and placement characteristics and operation and maintenance.
- ▶ Uncertainty ratios vary between 1 and 7 nationally for pollutants such as nutrients
  - Degree of uncertainty dependent upon literature values

# Local Water Quality Considerations

- ▶ Nutrient Transport
  - Fate and transport characteristics can be accounted for by delivery factors
- ▶ Timing
  - Consider difference between time of releases from the credit buyer and seller.
- ▶ Coordination among different jurisdiction's regulatory authorities
  - For interstate trading, develop a coordination plan
- ▶ Impact on aggregate load
  - Multiple sources must balance the WLA among all of the sources.
  - For each individual permit issued, assess anew the cumulative impact of all trades
- ▶ ***AND THE KING OF ALL PRINCIPALS***

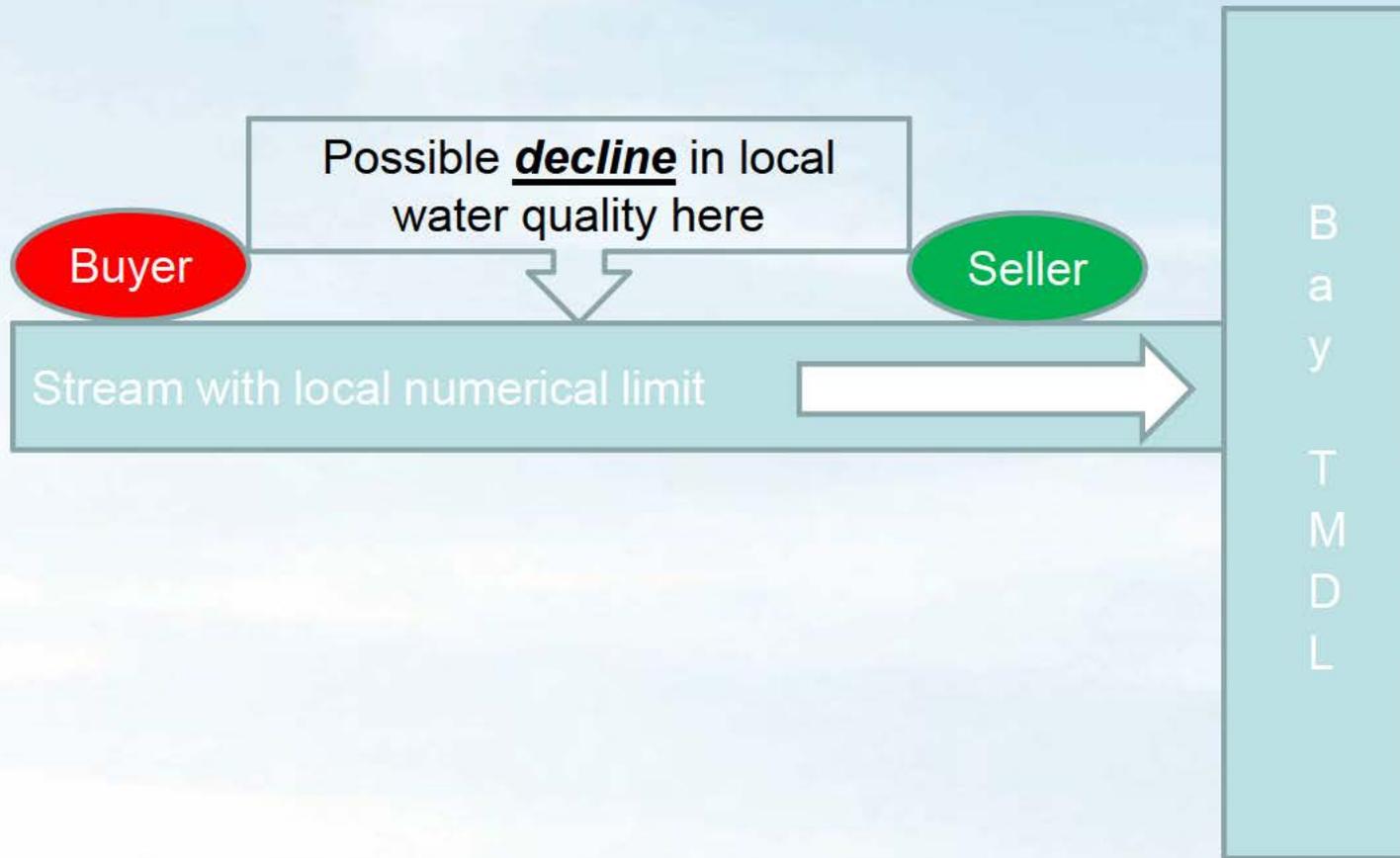
# Location, Location, Location

# Same Basin, Seller Upstream



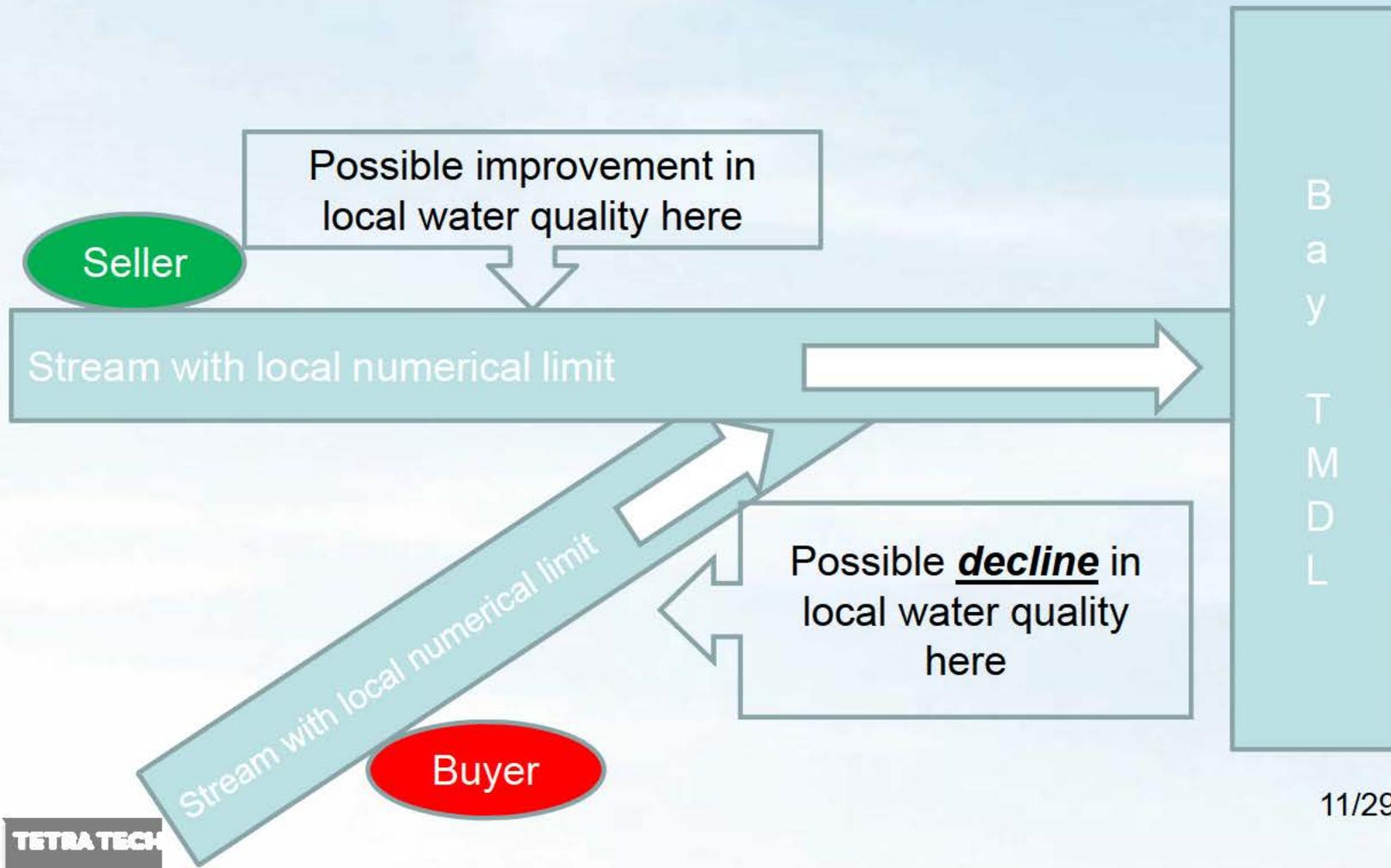
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# Same Stream, Seller Downstream

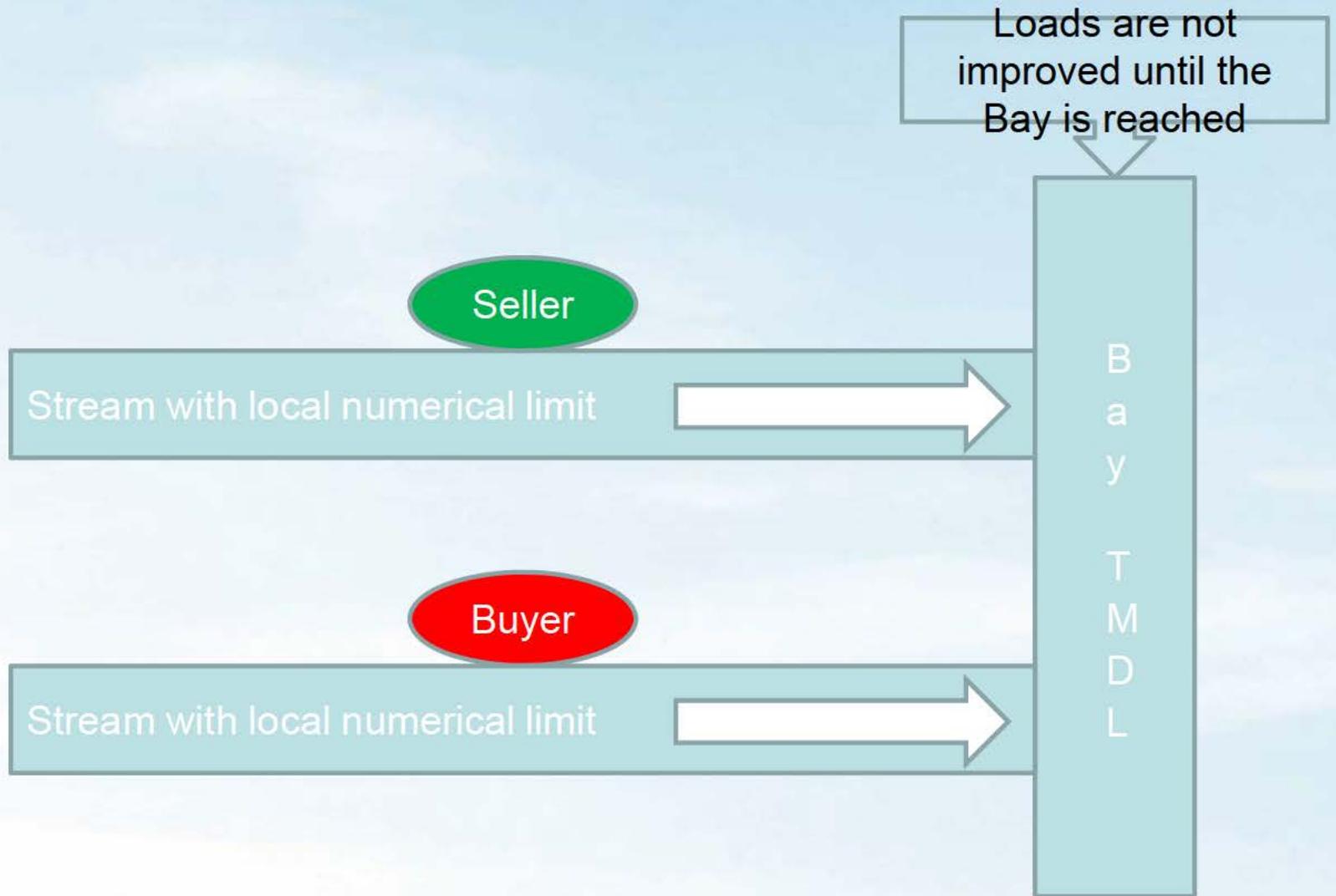


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# Same Basin, Different Streams



# Different Basins



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# Certification and Verification

## ▶ Certification

- Consistent with the assumptions of the TMDL
- Credit generating projects available to the public for comment
- Adequate Documentation at the time of certification

## ▶ Verification

- Process to ensure that project is in place
- Adequate O&M
- Periodic inspection and verification

## ▶ Accounting

- System in place to track certification and verifications

## ▶ Ultimate Liability is with the Permittee

# EPA Oversight

- ▶ Permit Review
- ▶ Compliance Inspections
  - Source
  - Credit Generators
- ▶ Periodic Audits of State Programs

# Mining Application Challenges

- ▶ Scale of listed area
  - Limits opportunities for effective trading and offsets
  - Locational limitations
- ▶ Credit Calculation Tool
  - Tools congruent with the TMDL
  - Agreed upon BMP efficiencies
  - Acceptable baseline
- ▶ Establishing a certification and verification process