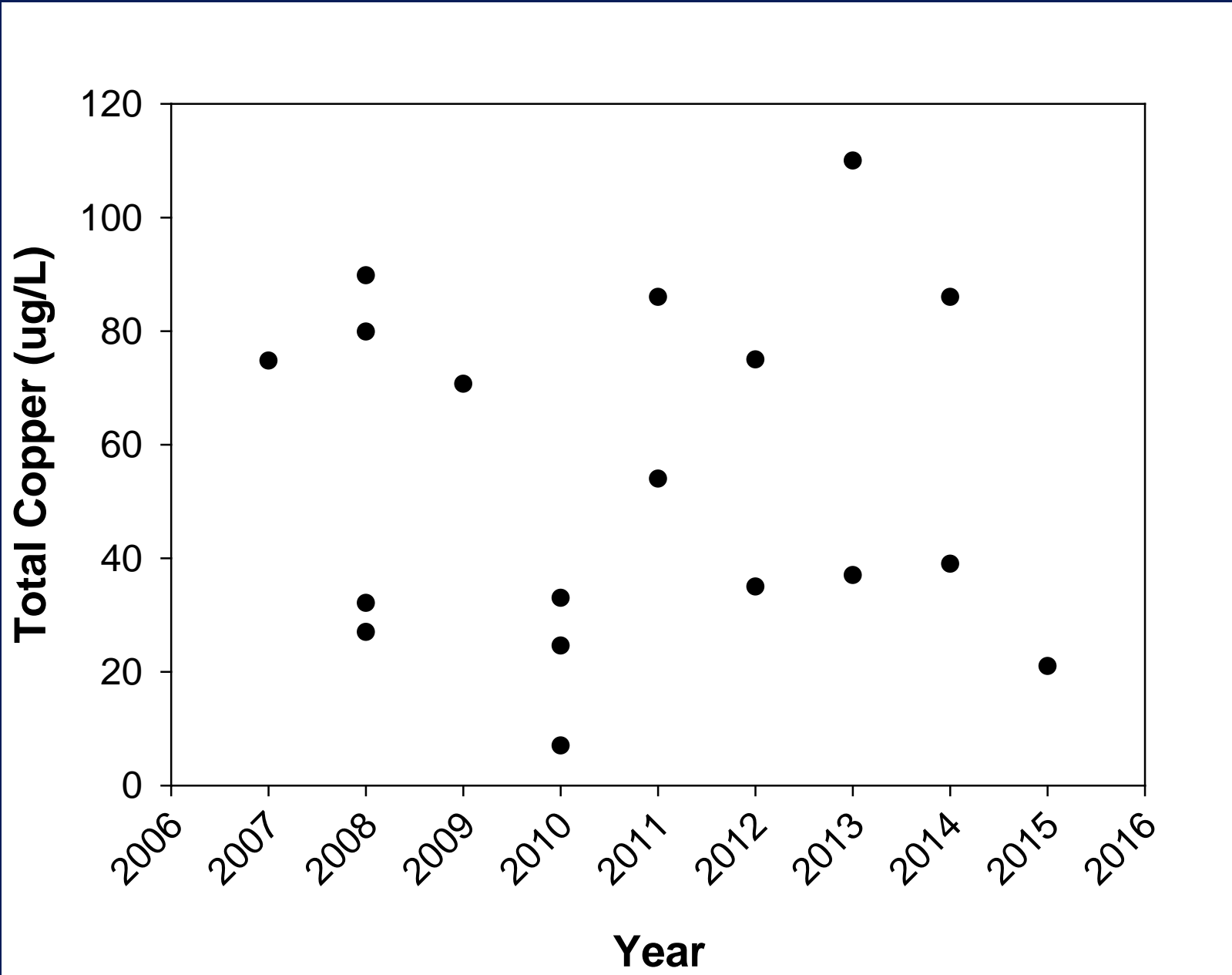


Alternative Compliance

Background

- **Stormwater regulation has evolved over the last 25 years**
- **Maximum Extent Practicable**
- **Non-stormwater prohibitions**
- **Receiving water limitations**
- **Total Maximum Daily Loads**

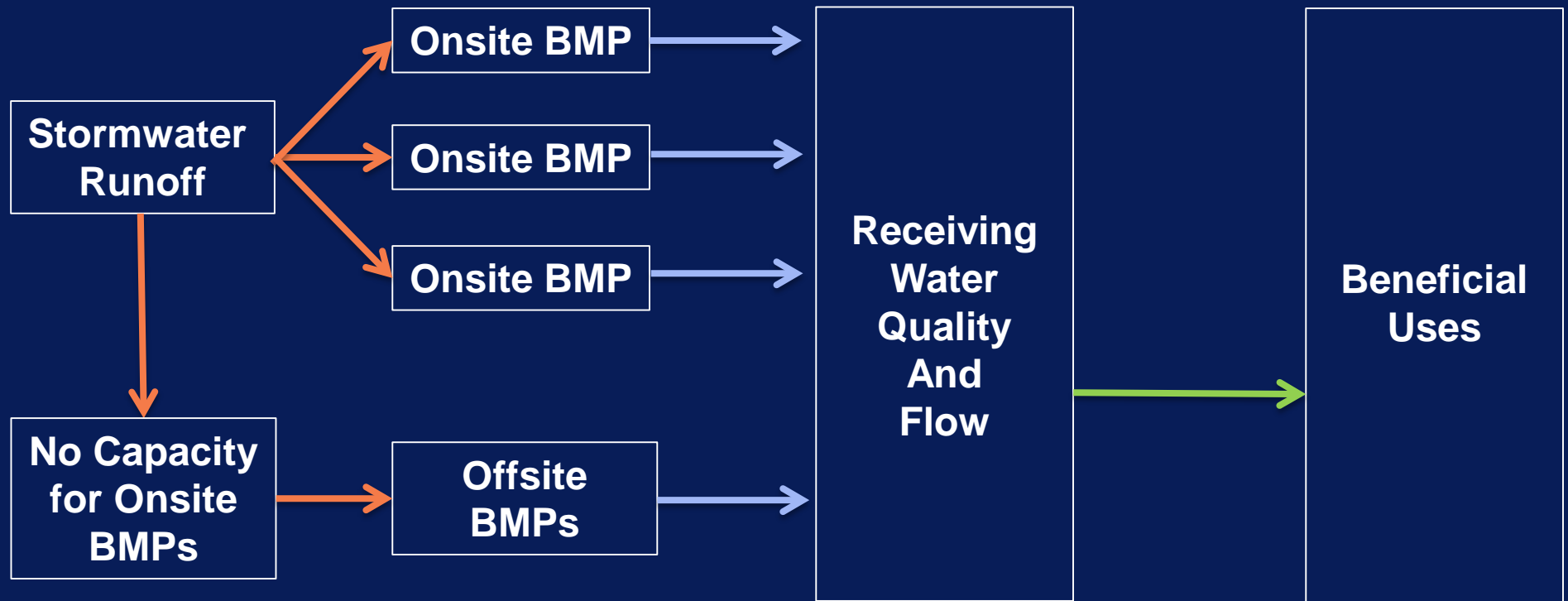
Event Mean Concentrations at Chollas Creek



The Current Evolution

- **Alternative Compliance embodies “Watershed Management”**
- **Goal is to install Best Management Practices (BMPs) on site**
 - **Stormwater can’t always be controlled on site**
- **Alternatives to control within the watershed are encouraged**
 - **Can combine into Regional BMP systems to control volume and water quality**
 - **Multiple uses are encouraged**

Alternative Compliance Conceptual Model



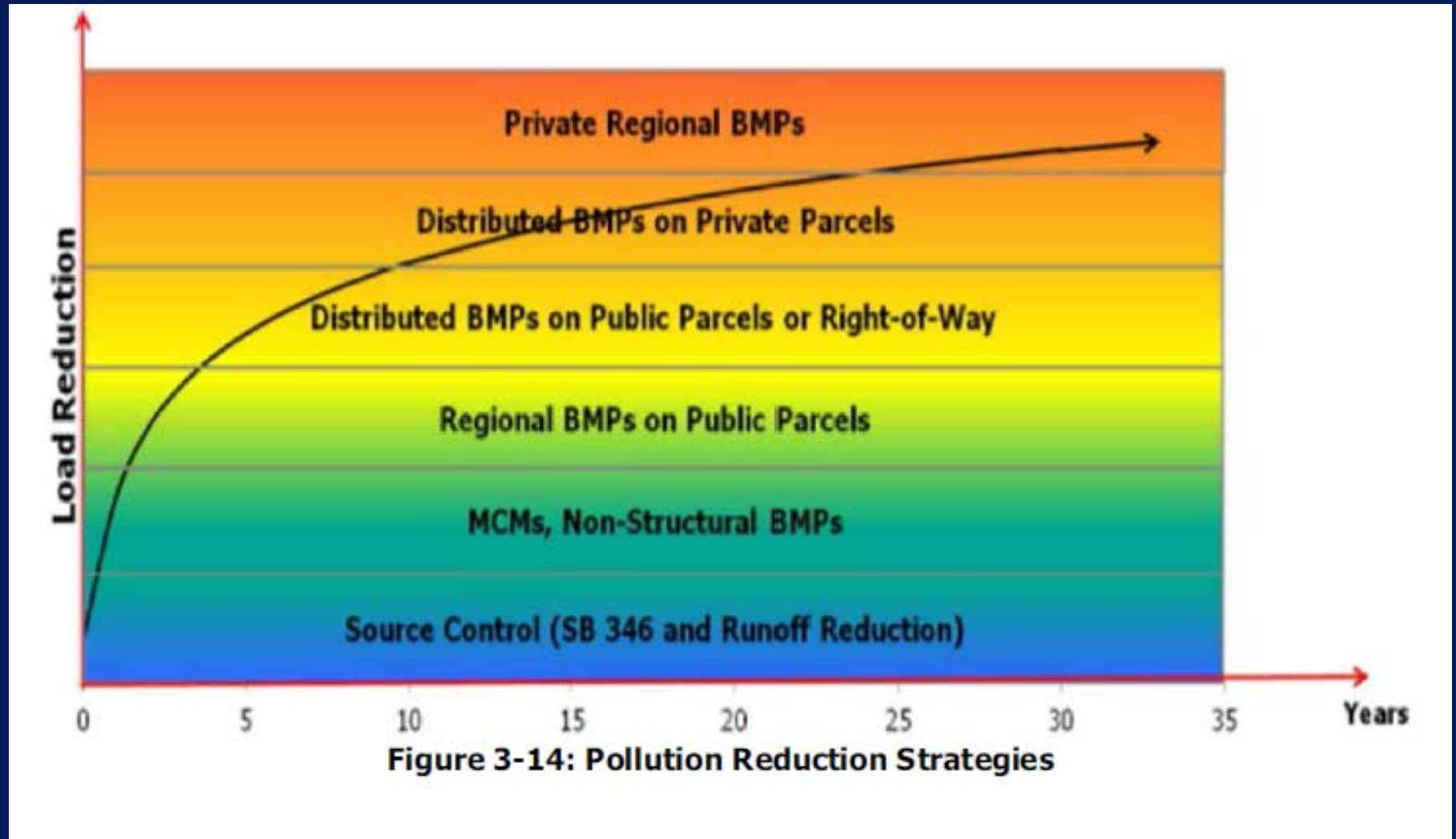
Alternative Compliance: Which One?

- There are two kinds of Alternative Compliance being used in Southern California
- Alternative Compliance for *Receiving Water Objectives*
- Alternative Compliance for *Land Development Standards*

Alternative Compliance for Receiving Water

- Use watershed-wide planning to demonstrate compliance
- Model-based, with a priority given to publicly owned structural BMPs and non-structural controls
- Uses *Reasonable Assurance Analysis* to provide confidence
 - LA RWQCB specifies model parameters, milestone monitoring, and adaptive strategies

Example Alternative Compliance Prioritization in Dominguez Channel Enhanced Watershed Management Plan

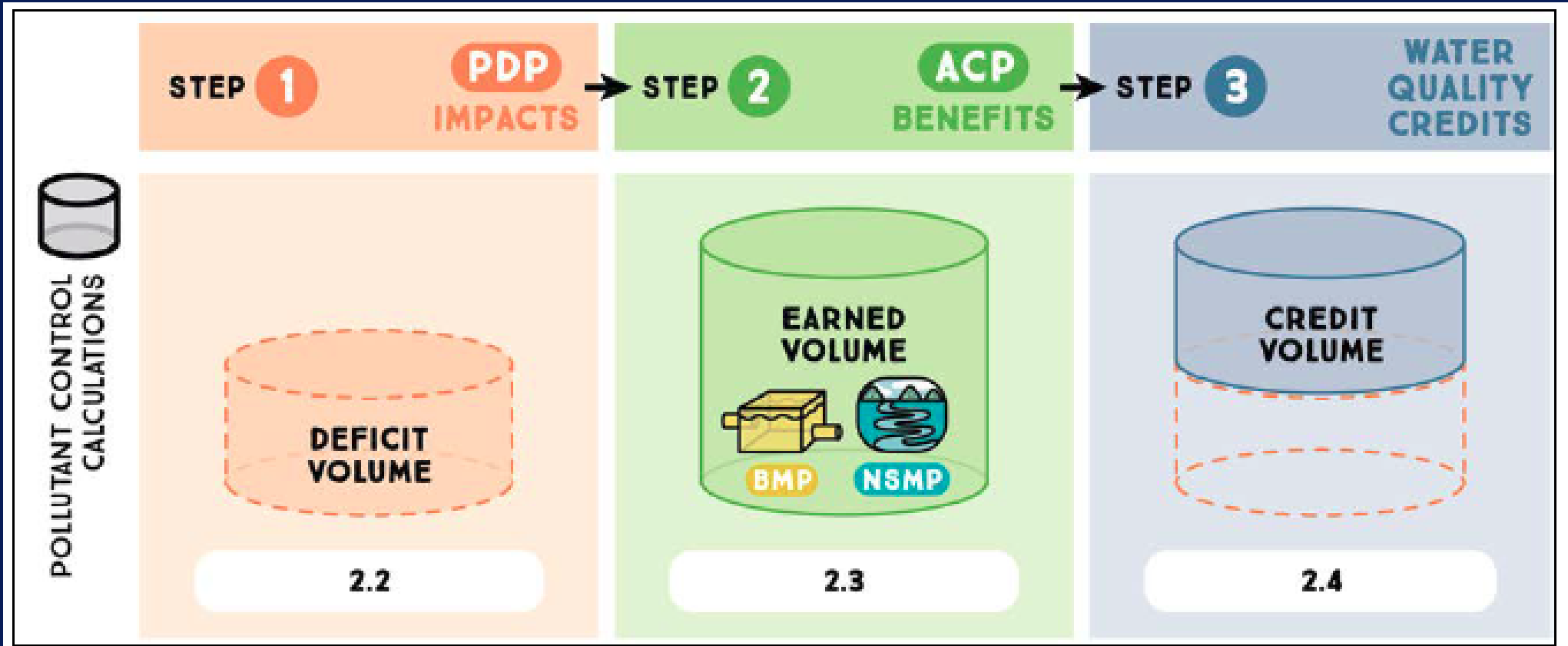


Typically aims to control 85th percentile 24-hour storm

Alternative Compliance for Land Development

- **Trades on-site BMPs for explicit off-site BMPs for compliance**
 - Specific to Planned Development Projects (PDPs)
- **Empirically based, with mandate for structural BMPs and natural resource restoration**
 - one-for-one, or many-for-regional BMP offsets
- **Pre-defined “BMP currency” provides confidence for trading**

Example Alternative Compliance For Land Development In the San Diego Water Equivalency Document

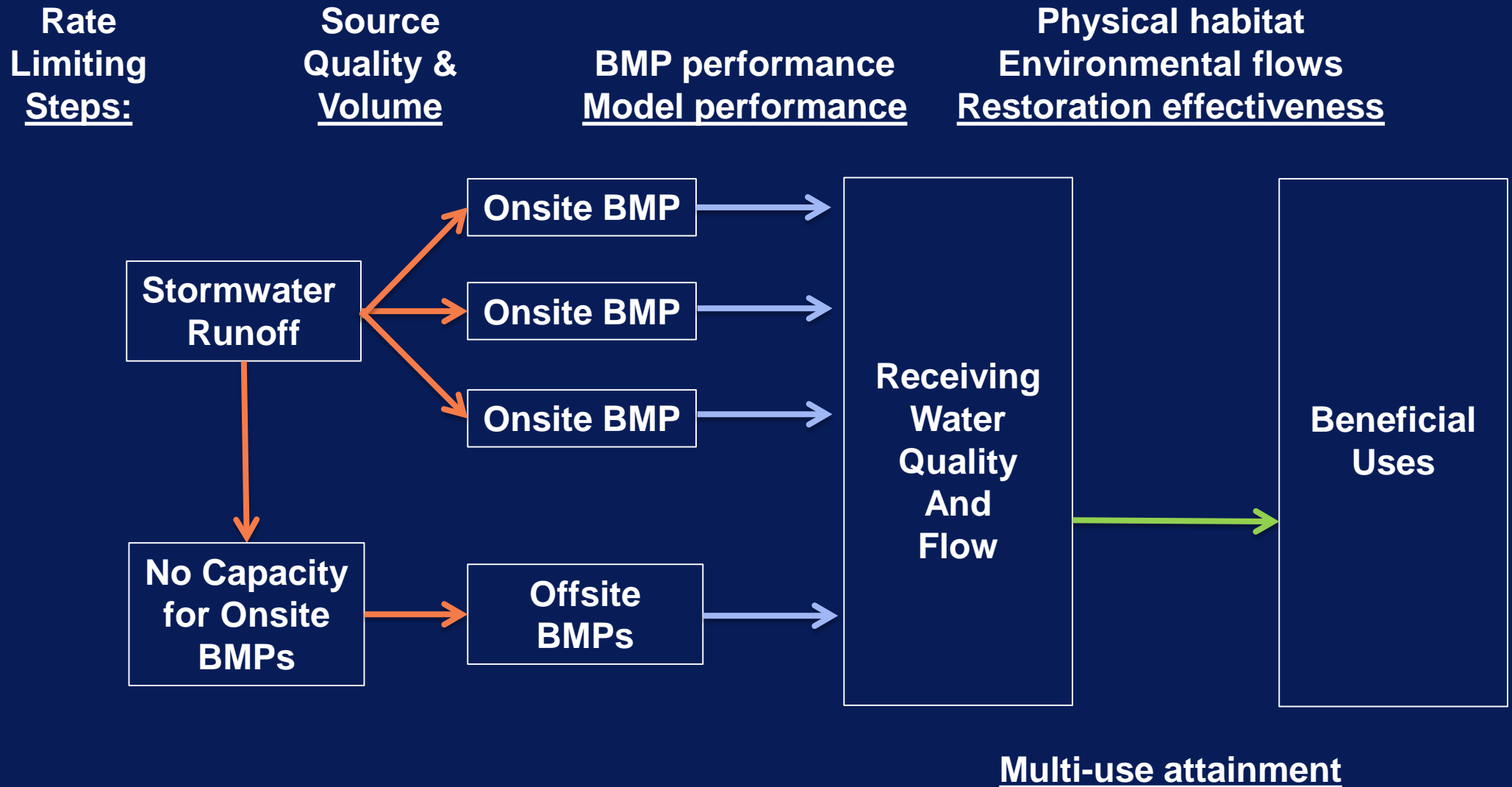


Aims to control 85th percentile 24-hour storm for capture BMPs
or 150% of design storm for flow through controls

The Two Approaches Share Similar Technical Challenges

- Stormwater inputs
- BMP performance
- Assuring BMPs will improve receiving water quality and achieve beneficial uses
 - Mantra for multiple uses

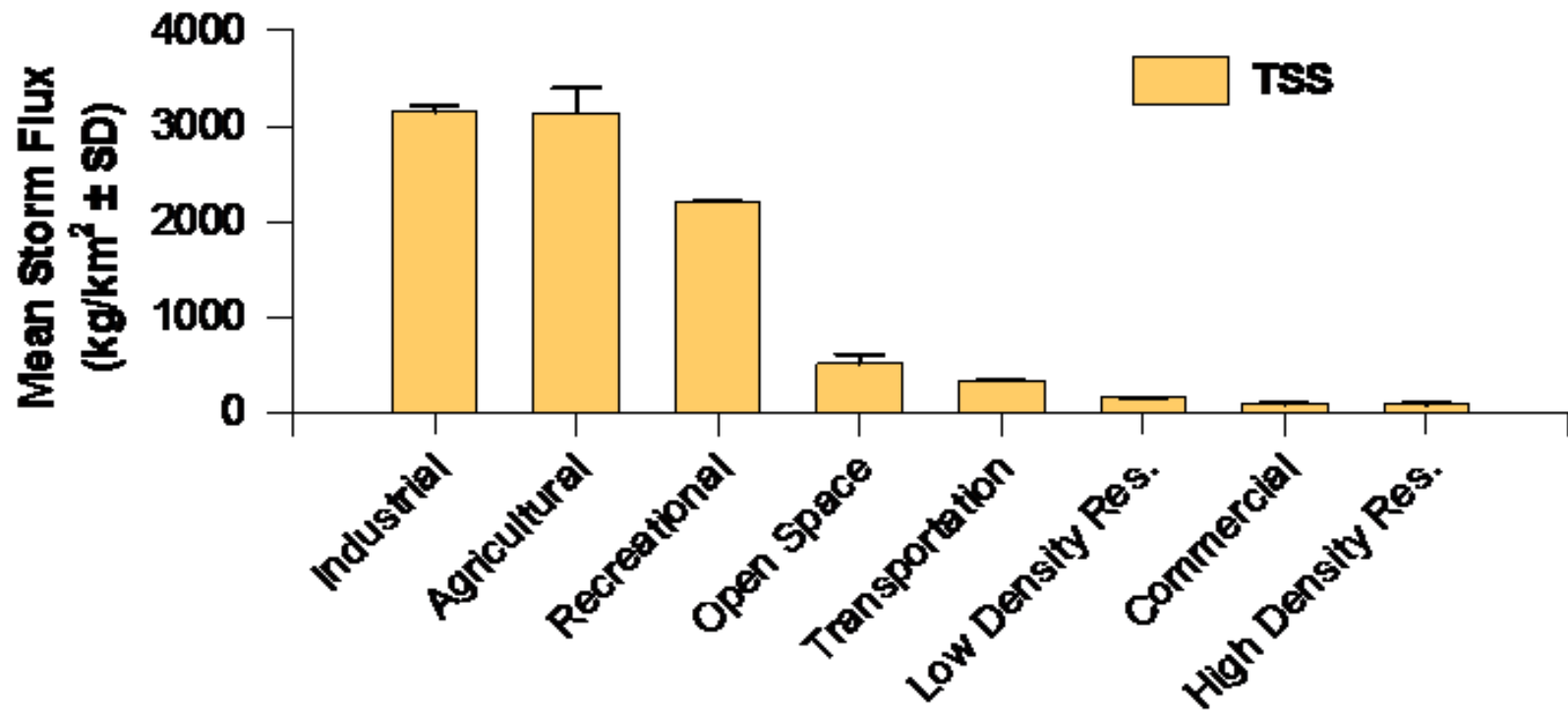
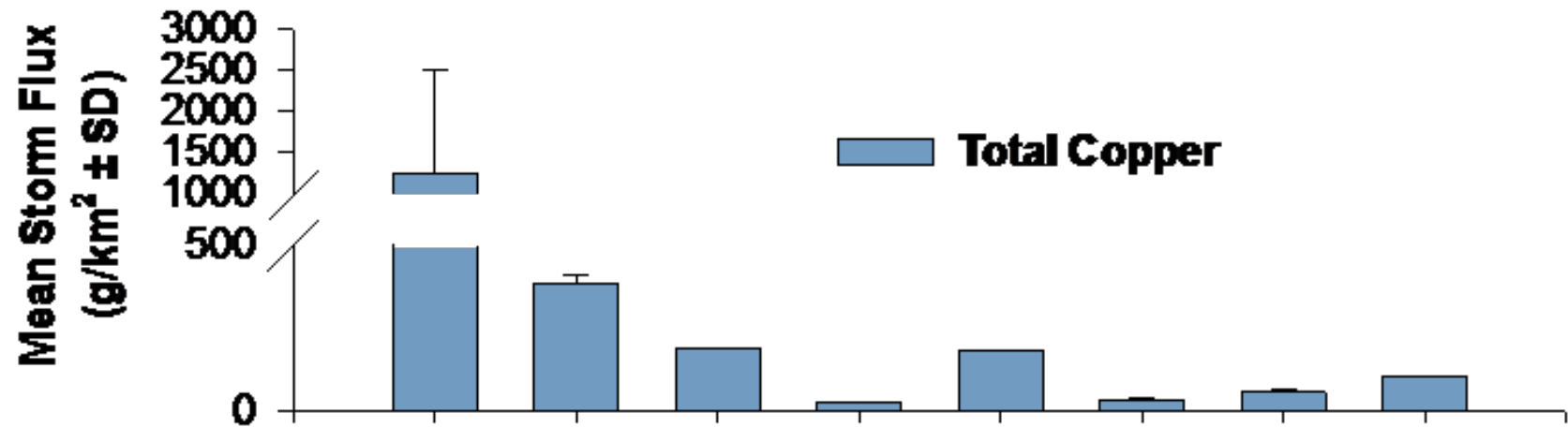
Alternative Compliance Conceptual Model



Stormwater Inputs

- **The driving force behind all source-based frameworks is knowing what washes off different land surfaces**
 - Volume and concentrations
- **Nearly all land use concentrations are derived from studies during 1998-2003**
 - Expectation that these land use coefficients have changed over the last 15 years
- **Research Needs: Updated land use coefficients for BMP specifications, credit frameworks and model calibration**

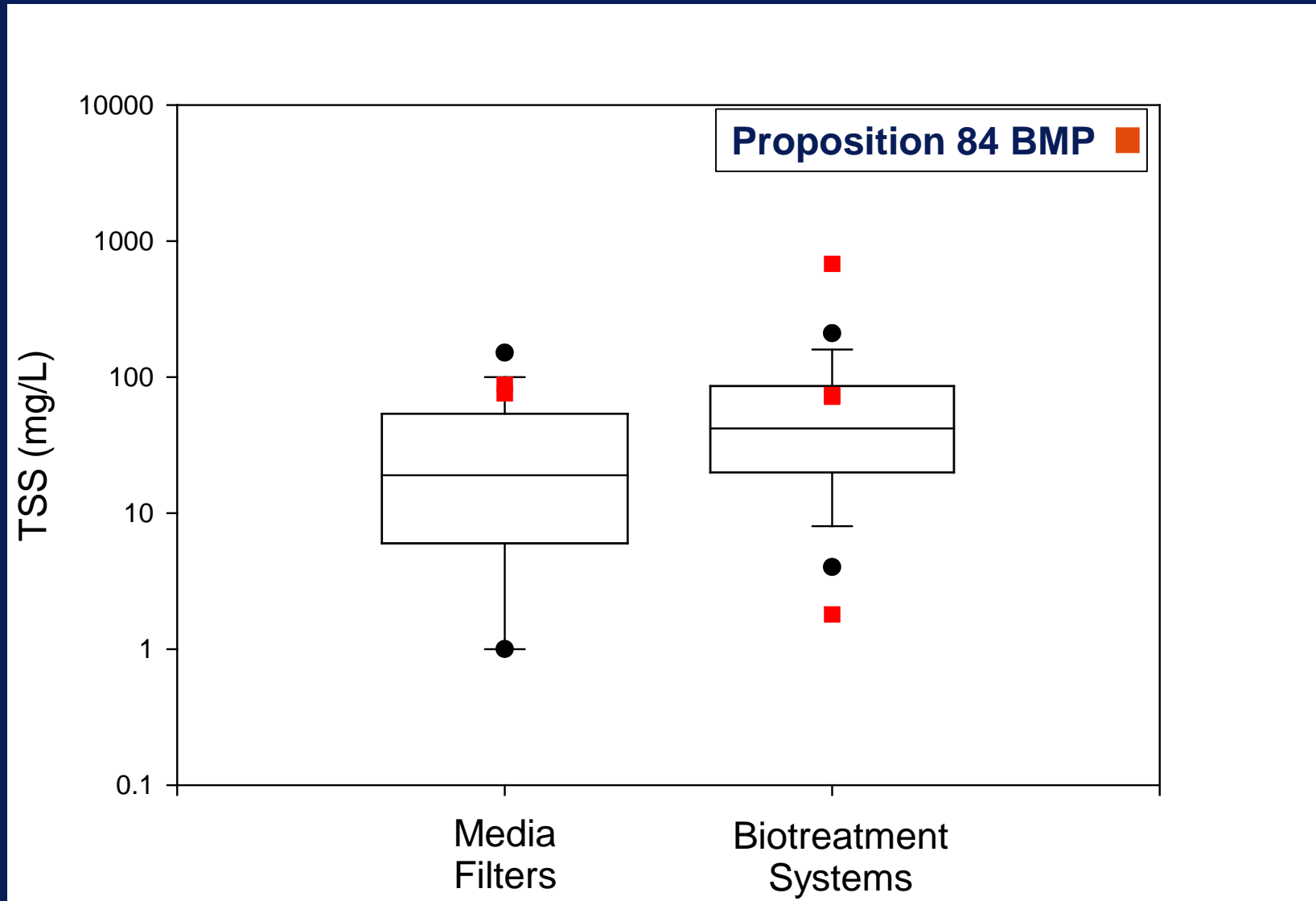
Pollutants By Urban Land Use



BMP Performance

- **Currently, almost all BMP performance information comes from the International BMP database**
- **Not all of these BMP studies are in California**
 - **Newer BMP types not included**
 - **Almost no information on pollutant removal from restoration projects**
- **Research Needs: Updated, So Cal specific performance specifications**
 - **Include new technology and maintenance requirements**

California-Only Effluent Concentrations From the International BMP Database Compared to Proposition 84 Funded BMP Monitoring Results

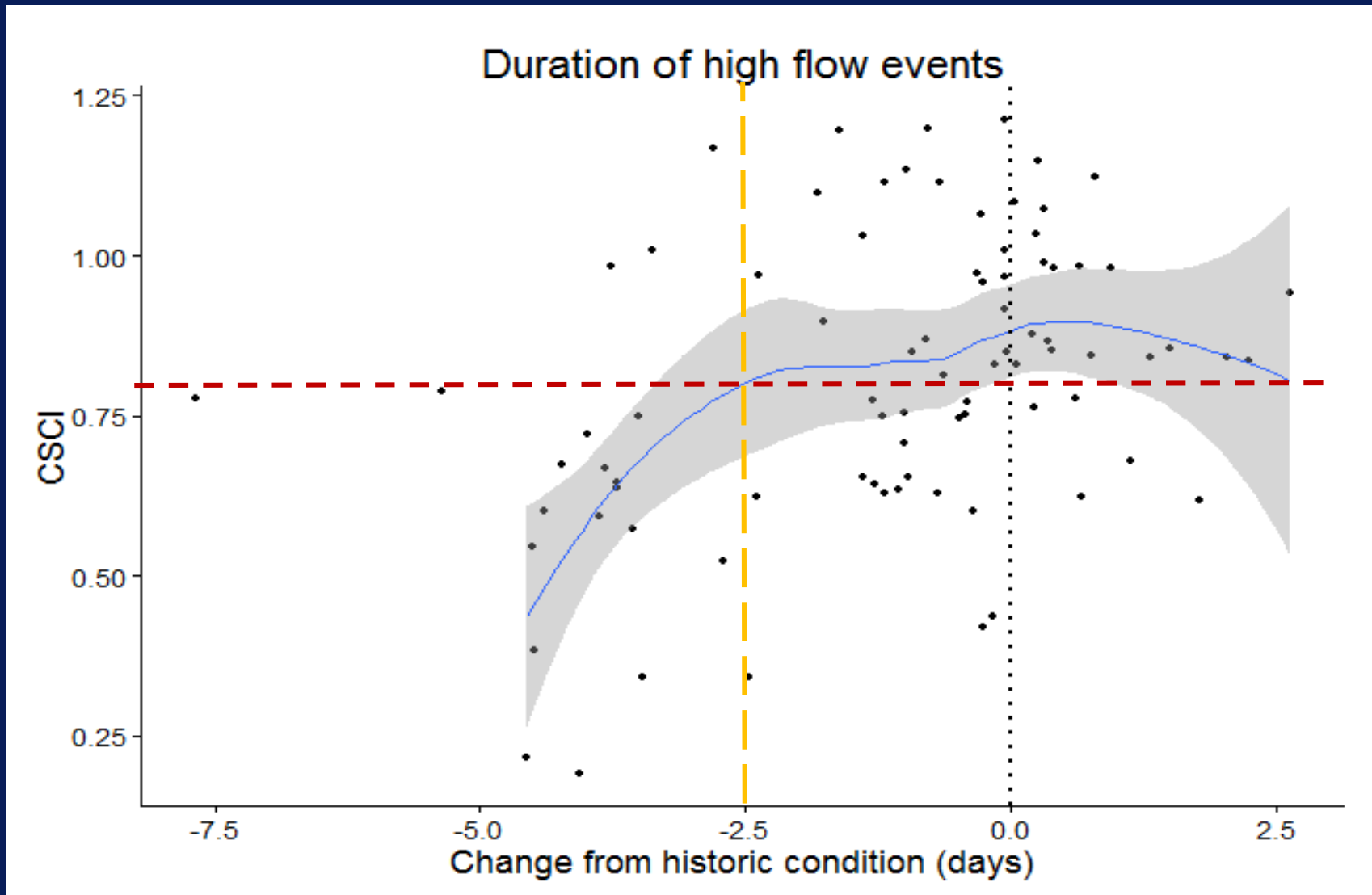


Achieving Beneficial Uses

- **Linking watershed improvements to improved beneficial uses is the ultimate aim**
- **No examples of a demonstration project that follows model predictions to receiving water improvements**
 - Nobody is really sure if it is going to work
- **Research needs: Develop predictive tools and case studies**
 - Information feedback loops to assess success and stoke adaptive management

Effect of Stream Flow on Aquatic Life Uses

California Stream Condition Index CSCI



Non-Technical Issues Might Be Larger Than Technical Issues

- **Who pays?**
 - Upfront and ongoing maintenance
- **Who is responsible?**
 - Non-MS4 portions of a watershed
 - BMPs installed on private properties
- **Timing and implementation schedule?**
 - Function of affordability
- **Credits and Mitigation banking**
 - Accumulated pollutants