NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

Nevada Department of CONSERVATION & NATURAL RESOURCES

Program Update Tahoe Basin Water Quality and "TMDL"

Legislative Committee for the Review and Oversight of the TRPA and Marlette Lake Water System

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Program Implementation – Bi-State Partnership

Clean Water Act ~ Total Maximum Daily Load (TMDL)

"Establishes the maximum amount of a pollutant allowed in a waterbody and serves as a starting point or planning tool for restoring water quality" (epa.gov/tmdl)

Tahoe TMDL Program Executives

Dr. Danilo Dragoni
Deputy Administrator

Ben Letton
Executive Officer
Lahontan Region

The Problem - 2001

How do we get back to lake clarity of the late ‘60s?

TAHOE TMDL TIMELINE

2000-2001 TMDL science plan development

2001-2005 Phase 1 – Science plan execution

2005-2009 Phase 2 - Implementation plan development

2009-2011 TMDL document preparation and peer review
US EPA approved TMDL August 2011

2011-2015 Implementation tracking tools and process

2016-2076 ***Phase 3 – TMDL Implementation,*** progress assessment and adaptive management

- Implementation through 5-year milestones in permits and cooperative agreements
- ***2031*** – Target to achieve ***80' Clarity Challenge***

Key Framing Questions

- What pollutants are causing clarity loss?
- How are pollutants reaching the lake?
- What pollutant load reductions are needed to achieve clarity goals?
- What is the best strategy to achieve clarity goals?
- How will progress be assessed?

These key questions are as relevant today as they were 25+ years ago due to the current challenges of a changing environment.

What pollutants are causing clarity loss?

Fine Sediment Particles (FSP)

- **<16 microns in size!**

  Smaller than fine sand or human hair

- **Light Scattering Effect**
- **New: Organisms that act like FSP**

Nitrogen and Phosphorus

- Feeds algal growth

How are pollutants reaching the lake?

Pollutant Source Breakdown

What pollutant load reductions are needed?

Bi-State pollutant load reductions needed to attain lake clarity goals.

2031 – 78’ Clarity Challenge Goal
2076 – 97.4’ Transparency Standard Achievement

Pollutant	Clarity Challenge	TMLD Numeric Target
Fine Sediment Particles (< 16 µm)	***32%***	*65%*
Phosphorus	***14%***	*35%*
Nitrogen	***4%***	*10%*

What pollutant load reductions are needed?

What is the best strategy to achieve clarity goals?

Urban Stormwater Crediting Program

Quantifies and tracks pollutant controls implemented to reduce the load of fine sediment particles, nitrogen and phosphorus from urban stormwater.

Pairs load reduction estimates with inspection methods and is a Credit accounting system.

TMDL Credit Projects include:

- Stormwater Treatment Facilities
- Road Operations
- Parcel BMPs*

*Best Management Practices

TMDL Crediting Program – Projects At a Glance

What is the best strategy to achieve clarity goals?

Non-Urban Activities

Non-urban sources make up 71% nitrogen and 43% phosphorus loading.

Forest Upland Source Category

- Forest Roads Decommissioned or Retrofitted
- Forest Roads Inspected and Maintained
- Forest Roads Created
- Disturbed Area Restored, Enhanced, or Created
- Facilities Retrofitted for Stormwater

Stream Channel Erosion Source Category

- Stream Channel Restored or Enhanced by Lake Clarity Projects

Atmospheric Deposition Source Category

- Non-Compliant Wood Stoves Removed or Retrofitted
- Miles of Street Sweeping
- Miles of Pedestrian and Bicycle Routes Improved or Constructed

How is progress Tracked & assessed?

Progress assessment includes following elements:

- Consistency in tracking implementation performance
- Regular and transparent results reporting
- Tracking monitoring efforts and evaluating data
- Continuous improvement and adaptive management

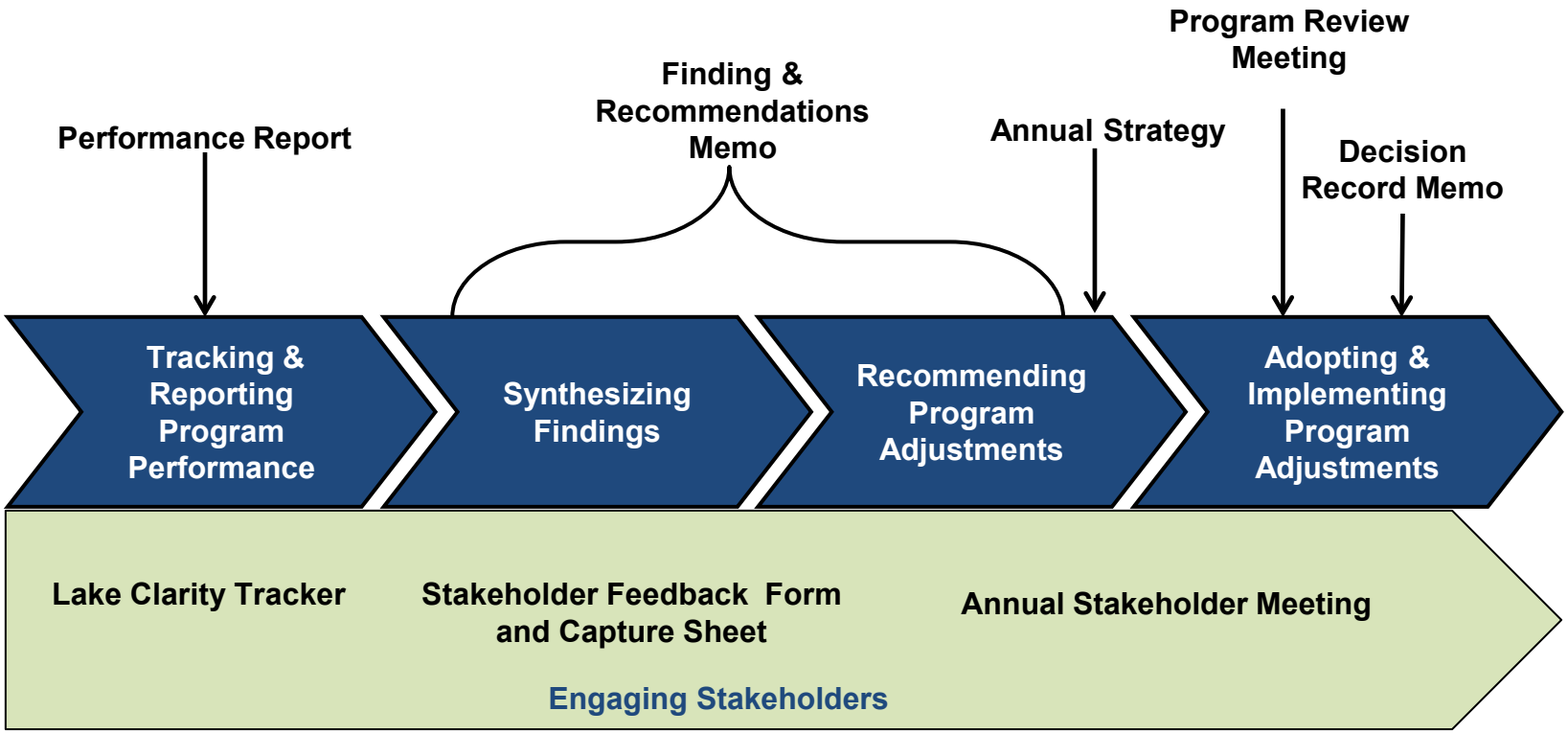
URBAN POLLUTANT LOAD REDUCTION TRACKING & REPORTING

Non-Urban Activity-Based Load Reduction Reporting

Non-urban implementation supports achievement of established load reduction goals

TMDL Management System

Annual cycle of assessment, input and deliverables provides opportunity for incorporating new information and science.



Working to Study Information in New Ways

Key Findings from Recent Science Coordination:

- Gaps in biology/ecology monitoring data limit ability to understand influence on system
- Further confirmation on the role and importance of climate change
- Validation of current implementation approach focused on particle reduction (inorganic, organic)
- Wildfire impact
- Data collection needs and recommendations to assess clarity conditions

Where are we now?

Current Science Investigations

- An assessment of particle composition, concentration and sources in runoff and in the lake water column
- An investigation of zooplankton distribution, composition and communities in Lake Tahoe
- A rigorous time-series statistical analysis of clarity and associated measurements
- A review of the lake monitoring parameters (parameters, methods, frequencies and data accessibility)

Where are we now?

Conclusions and Future Work

- Science has been crucial in TMDL development and will continue to play a key role in adaptive management of the program.
- New information and science are emerging, and ways of the past are being tested.
- A better understanding of in-lake biological and physical processes is needed to determine their effect on clarity.
- NDEP and Lahontan WB are actively engaging with the Tahoe Science Advisory Council to better understand factors driving recent lake clarity trends.
- The TMDL Management System enables the program to appropriately respond to new information.

For more information and to stay up-to-date on the TMDL Program progress visit:

https://clarity.laketahoeinfo.org/

Nevada Land Bank

- Addressed in TRPA's Regional Plan.
- NDSL serves as an agent for TRPA to reduce coverage on the NV side of the Basin as one strategy within the Regional Plan. This is operated through an MOU and is known as the Nevada Land Bank program.

- Impervious surfaces, referred to as land coverage, in the Basin are known to impact water quality if not appropriately managed.
- Coverage mitigation is a best management practice included in the TMDL.

Questions?

Contact

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