

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION**

**MEETING OF MARCH 12-13, 2015  
SOUTH LAKE TAHOE**

**ITEM:** 10

**SUBJECT:** LAKE TAHOE TOTAL MAXIMUM DAILY LOAD PROGRAM  
IMPLEMENTATION UPDATE

**CHRONOL-  
OGY:** November 16, 2010 - Water Board approved amendments to  
incorporate the Lake Tahoe Total Maximum Daily Load (Lake Tahoe  
TMDL) program into the Water Quality Control Plan.

April 19, 2011 – State Water Board approved Lake Tahoe TMDL Water  
Quality Control Plan amendments.

August 16, 2011 - United States Environmental Protection Agency  
formally adopted the Lake Tahoe TMDL at the Federal Summit.

December 5, 2011 – Water Board incorporated the first five-year Lake  
Tahoe TMDL load reduction requirements into the Lake Tahoe  
Municipal NPDES Stormwater Permit.

**ISSUES:** Do Water Board members have suggestions for improving the  
performance reporting and adaptive management process?

**DISCUSSION:** The Lake Tahoe TMDL provides a science-based 65-year  
implementation plan to restore Lake Tahoe's deep water transparency  
to historic levels. The TMDL requirements focus on reducing pollutants  
from urban storm water runoff, as it contributes more than 70% of the  
fine sediment particle load. Other significant pollutant sources include  
runoff from disturbed undeveloped forest lands, stream channel bed  
and bank erosion, and atmospheric deposition.

To determine implementation progress, the Water Board and the  
Nevada Division of Environmental Protection (NDEP) developed a  
comprehensive performance reporting and adaptive management  
program for the Lake Tahoe TMDL. With consultant support and  
stakeholder input, the Lake Tahoe TMDL Management System has  
completed the first annual performance reporting and program  
evaluation cycle. The process includes extensive stakeholder  
engagement, a synthesis of relevant research and monitoring findings,  
and a summary of implementation efforts for the previous year. A new

website provides user-friendly access to available reports and program progress information:

<https://www.enviroaccounting.com/TahoeTMDL/Program/Home>

While Lake Tahoe TMDL implementation is still in its infancy, positive progress appears to have been made in improving deep water transparency. The transparency goal of 71 feet for year 2016 has nearly been met with an annual average of 70.1 feet in 2013.

**RECOMMEND-**

**ATION:** No action required. Staff will provide a presentation (see Enclosure 1) and the Water Board may provide direction to staff regarding Lake Tahoe TMDL program management efforts.

<b>ENCLOSURE</b>	<b>ITEM</b>	<b>Bates Number</b>
<b>1</b>	Staff PowerPoint Presentation	<b>10-5</b>

# **ENCLOSURE 1**

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**Item 10**

**Lake Tahoe  
Total Maximum Daily Load  
Program Status Update**

**12 March 2015**

**California Regional Water Quality Control Board  
Lahontan Region**

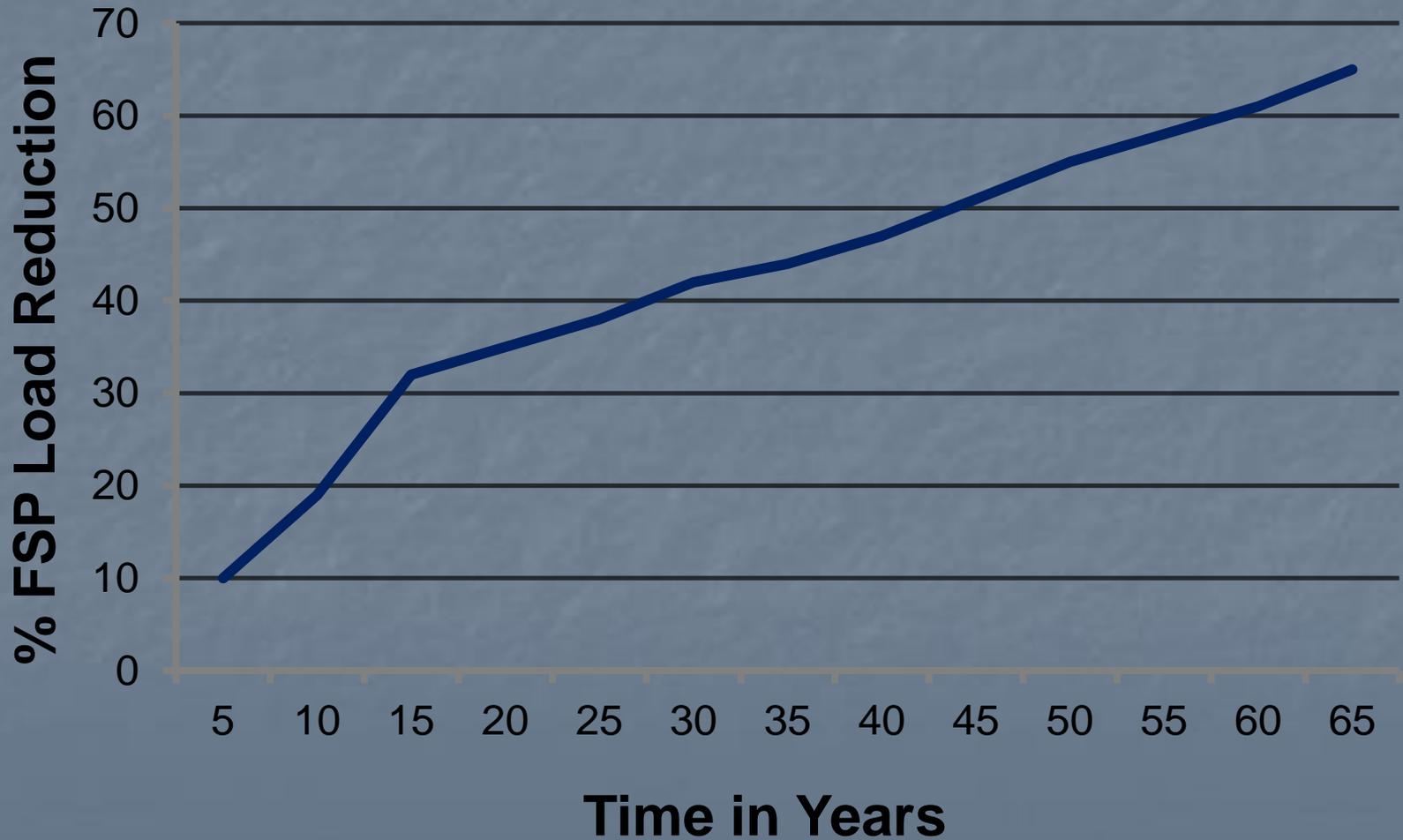
Robert Larsen  
Senior Environmental Scientist



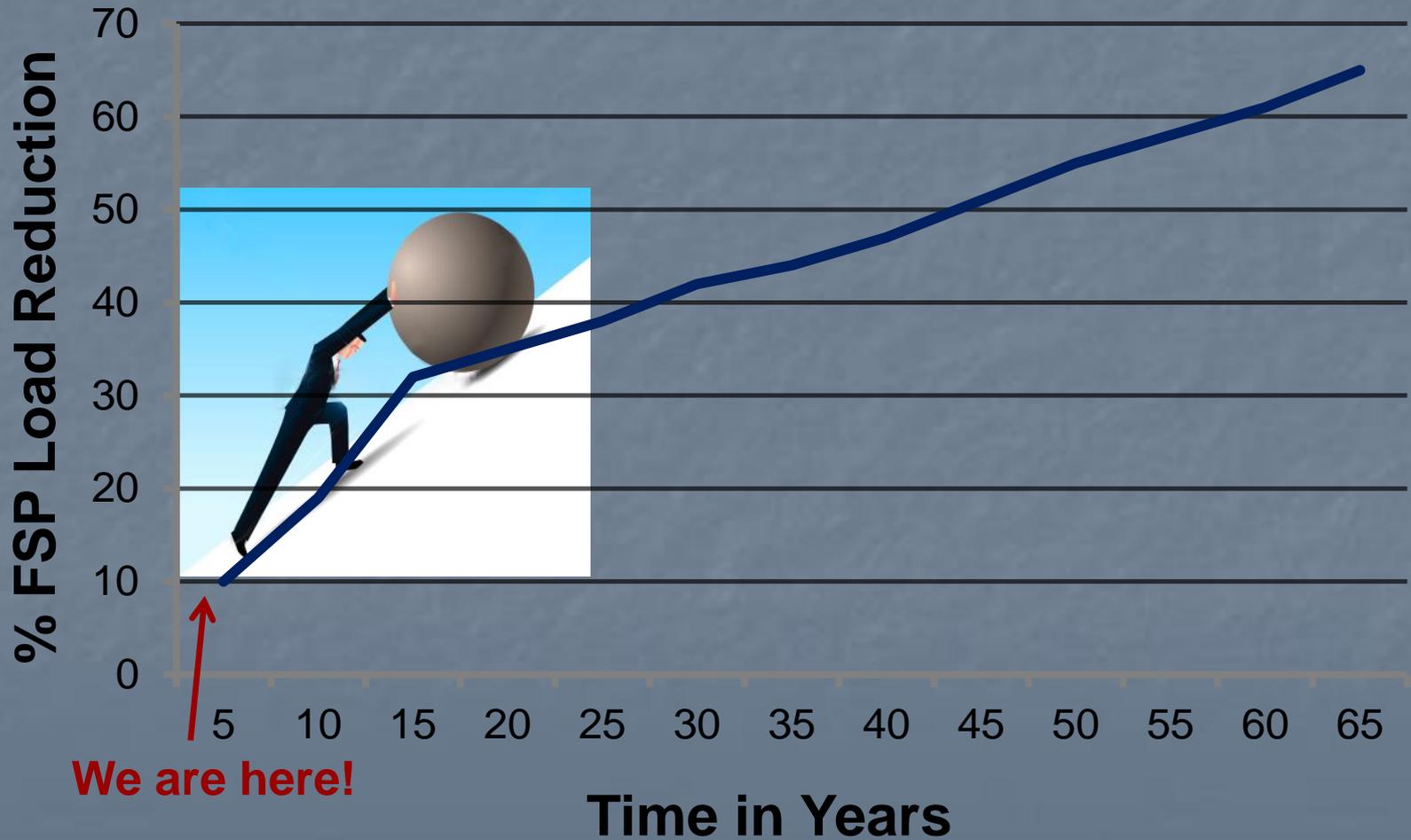
# Lake Tahoe TMDL Background

- **Water Board approved in 2010**
- **U.S. EPA approved in 2011**
- **Implementation plan emphasis on urban runoff discharges**
- **20-year target to halt clarity decline**
- **65-year plan for full restoration**

# TMDL Implementation Schedule



# TMDL Implementation Schedule



# Lake Tahoe TMDL Program Status

What pollutants are causing clarity loss?

How much of each pollutant is reaching the lake?

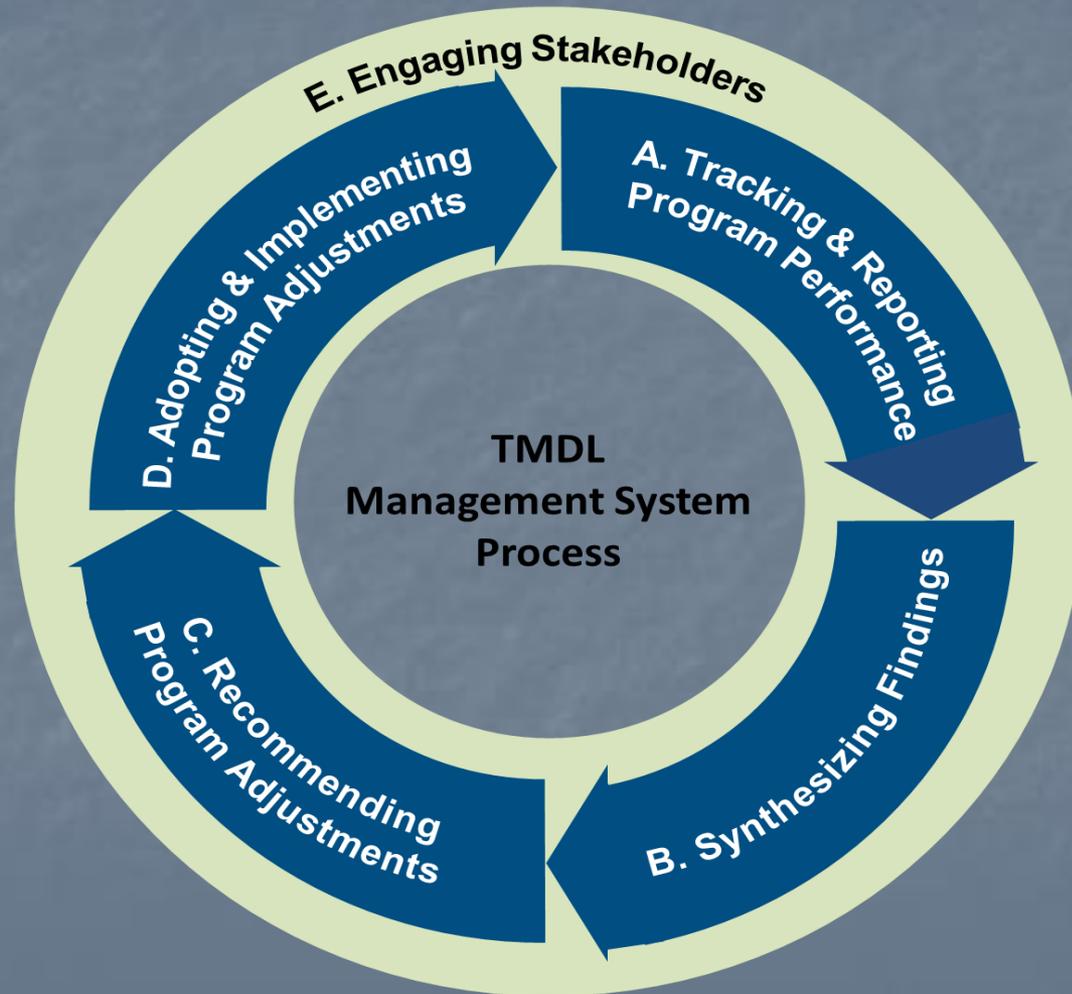
What are the options for reducing pollutant loading?

# Lake Tahoe TMDL Program Status

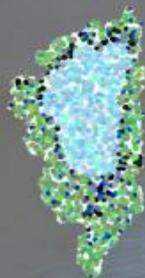
**Are pollutant load  
reductions being  
achieved?**



# Adaptive Management Cycle



# Performance Report



LAKE TAHOE TMDL PROGRAM:  
**2014 PERFORMANCE REPORT**

*Guiding Efforts to Restore Lake Tahoe's Historic Clarity*

# Performance Report Objectives

- **Summarize annual implementation accomplishments using consistent metrics**
- **Document overall program progress**
- **Increase transparency and demonstrate accountability**
- **To be released annually in April**

# Urban Upland Accomplishments

- **Ongoing actions are expected to achieve 2016 milestones**
- **Crediting Program tools improvement project nearly complete**
- **Catchment registration to begin Spring 2015**
- **2016 Performance Report will include Lake Clarity Credit awards and load estimates**

# Urban Upland Featured Projects



# Non-Urban Performance

## Forest Uplands

**Miles of Roads Treated**

**Miles of Roads Inspected & Maintained**

**Miles of Roads Created**

**Acres of Disturbed Area Restored, Enhanced or Created**

**Parcels With Stormwater Retrofits**

## Stream Channel Erosion

**Linear Feet of Stream Channel Restored or Enhanced**

# Non-Urban Performance Featured Projects



# Findings and Recommendations

- **Summarize relevant scientific and technical findings**
- **Recommend adjustments to improve the TMDL Program or Policy**

## **Lake Tahoe TMDL Program**

2014 Synthesis of Findings & Program Adjustment Recommendation Memo

October 2014



# Key Findings – Urban Stormwater

- **Traction abrasive are the primary source of FSP and PM10**
- **Treatment BMP maintenance is lacking across basin**
- **Enhanced operation and maintenance practices can improve the efficacy of treatment BMPs and reduce maintenance needs**

# Key Findings – Non-Urban

- **Active unpaved roads yield much greater sediment than inactive unpaved roads**
- **Pollutant inputs did not significantly increase as a result of the Angora Fire**
- **Appropriate forest management mitigation techniques minimizes sediment generation**
- **Substantial FSP load reductions may result from restoring floodplain connectivity and geomorphic function in riverine systems**

# Key Findings – Overall TMDL

- **Average annual lake clarity levels have stabilized**
- **Long-term funding to support monitoring is lacking**
- **Strong correlations exist between field turbidity and FSP**
- **Nearshore conditions are expected to improve**



# Program Adjustment Recommendations

- **Advocate for funding for road operations and maintenance**
- **Update the Lake Clarity Crediting Program Handbook**
- **Track and report floodplain restoration as a new TMDL Performance Measure**
- **Support nearshore status & trend monitoring**



# Decision Record Memo

- **Annual product released in November**
- **Capture program adjustment decisions made by TMDL Executives**
- **Timed to ensure stakeholder feedback is considered**
- **Circulated to stakeholders and posted to the TMDL Online Interface**



# Stakeholder Engagement Process and Products

- **Stakeholder Feedback Form**
  - Ongoing solicitation (electronic submission)
- **Stakeholder Feedback Capture Sheet**
  - Compiled feedback (spreadsheet) - May
  - Includes TMDL Program Manager's response
- **Annual Stakeholder Meeting**
  - Share and solicit feedback on Findings and Recommendations and Performance Report - October

# TMDL Online Interface



## Lake Tahoe TMDL Program: The TMDL Online Interface

The Lake Tahoe Total Maximum Daily Load (TMDL) is a science-based plan to restore Lake Tahoe's famous clarity. One of the most robust efforts of its kind, the Lake Tahoe TMDL was initiated to better understand the causes of clarity loss, determine how much pollution needs to be reduced and develop a sensible implementation approach that is capable of reinstating historic clarity within the lake. The Lake Tahoe TMDL Program seeks to guide the effective implementation of the TMDL so that people

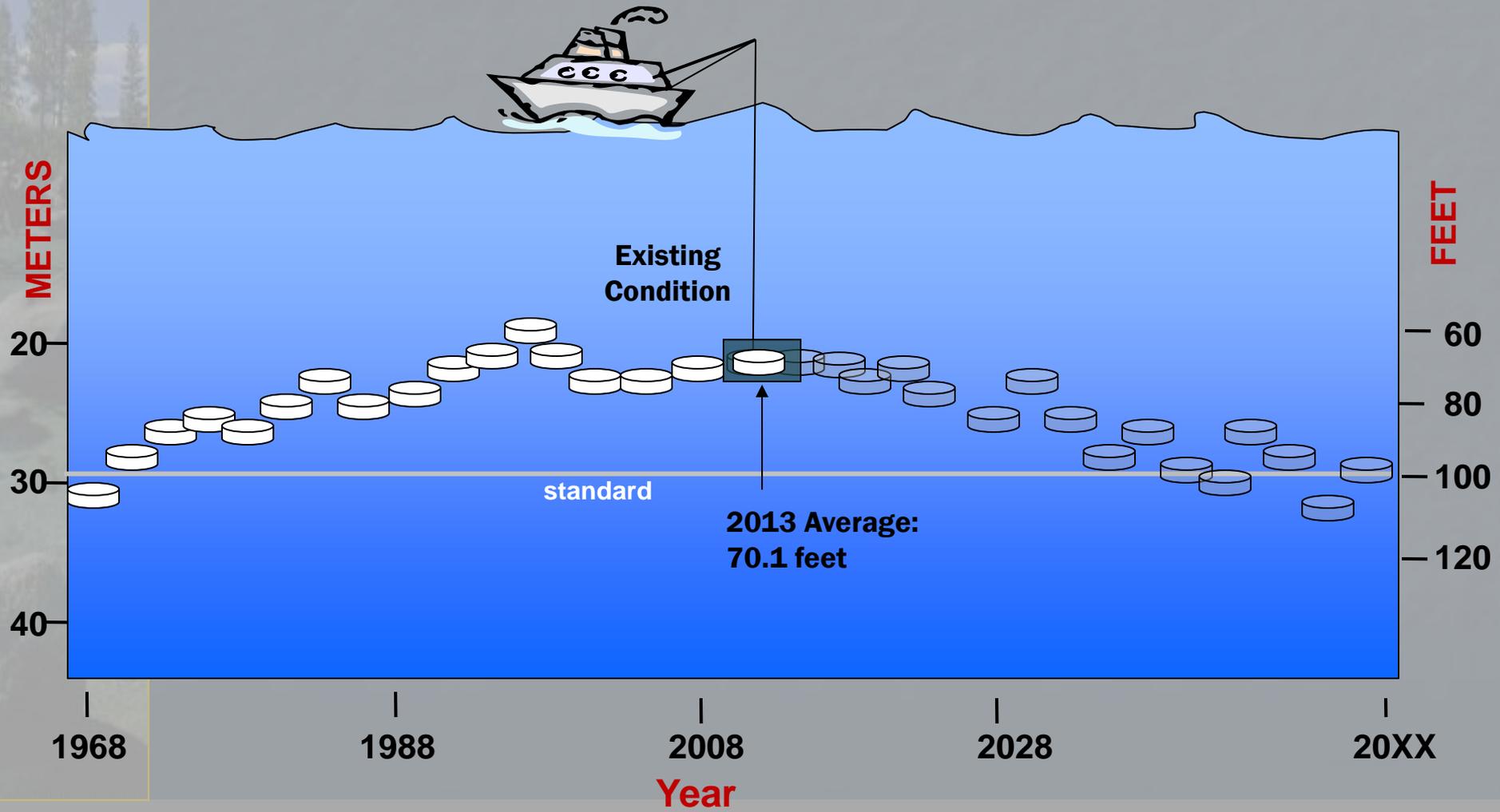
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## News & Announcements

- OCT 22** 2014 Synthesis of Findings and Program Adjustment Recommendation Memo now available
- 2014** The annual Synthesis of Findings & Program

<https://www.enviroaccounting.com/TahoeTMDL/Program/Home>

# Clarity Status





**Questions?**