

# Bacteria Water Quality Objectives Evaluation Project

July 2020: Information Video

Ed Hancock, Environmental Scientist



Lahontan Water Board Planning Unit 

# About me.....

- Native to England, living in Tahoe ~10 years (Water Board for ~ 5yrs)
- Avid skier and mountain biker
- Master of Science in Environmental Management
- Masters Thesis: Recreational Water Quality and bacteria pollution



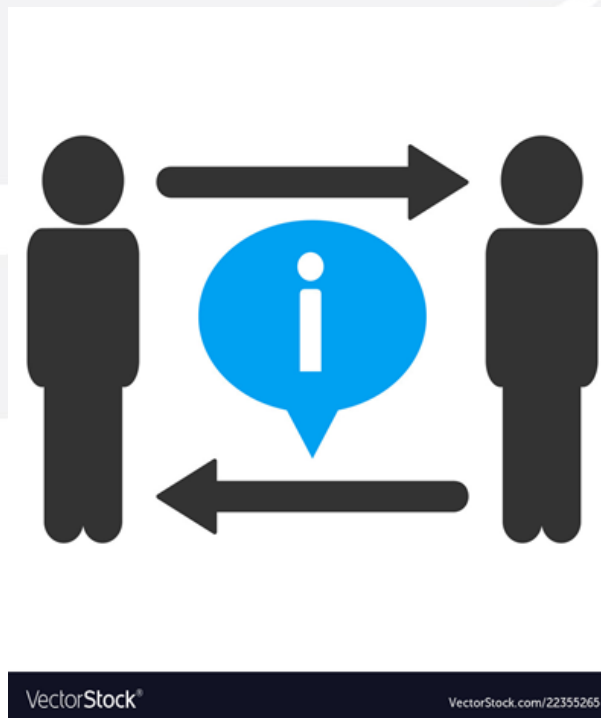


# Presentation Agenda

- Survey Results (5 mins)
- California Water Boards & Overview of Bacteria Evaluation Project (7.5 mins)
- Water Quality Objectives: What are they and why do we need them? (13 mins)
- Bacteria water quality objectives in the Lahontan Region (24 mins)
- Potential Project directions (30 mins)
- Preparation for live Q&A Session on Wednesday 8/5/20 @ 6 p.m.
- Questions/Comments? [Ed.Hancock@waterboards.ca.gov](mailto:Ed.Hancock@waterboards.ca.gov) 530.542.5574  
[LahontanBacteriaObjectives@waterboards.ca.gov](mailto:LahontanBacteriaObjectives@waterboards.ca.gov)

# Video goals

- Information sharing about project
- Engage those interested in this project
- Begin a discussion & enable collaboration



# Survey results

- ~120 combined respondents from throughout the Region
- Many groups represented: agriculture, recreation, Tribes, drinking water suppliers, cities, counties, NGOs, government agencies, private individuals
- Some respondents favor stricter regulations, other respondents favor relaxed regulations

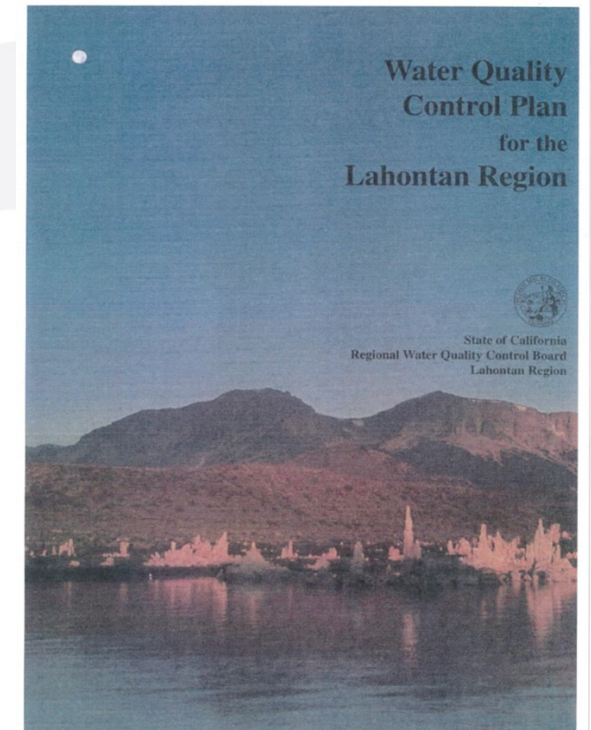


# Water Board Mission....

***“... [to] preserve, enhance and restore the quality of California’s water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.”***

## Basin Plan:

- Stipulates legally enforceable plans and policies
- Water Quality Objectives
- Beneficial Uses of water



# Nine CA Regional Water Boards



## Lahontan Region – R6

- 570 miles long
- 33,131 square miles
- 700+ lakes
- 3,000+ miles of streams
- 1,500+ sq miles of groundwater basins



# Why is there a Bacteria Objectives Evaluation Project?

- Two legally enforceable objectives currently apply in the Lahontan Region
- Water Board identified bacteria objectives evaluation as a top priority



Top of Monitor Pass, Alpine Co. Photo Credit: E Hancock



# What is a water quality objective?

*“The limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.”*

*Porter-Cologne Water Quality Control Act*



*Pic: West Fork Carson River near Picketts Junction – SWAMP photo*

# What is the purpose of a bacteria objective?

- Protect water users from exposure to pathogens or viruses associated with fecal material that might have contaminated a waterbody
- Identify surface waters where beneficial uses are not being supported
- Track changes to water quality over time



# High-quality waters

- Waters where water quality is better than required to support Beneficial Uses
- Waters where water quality enhances the quality of the Beneficial Use
  - Examples: swimming in Lake Tahoe; fishing in the West Walker River; agriculture in the Bridgeport Valley
- Surface waters which require a higher level of water quality protection to ensure high-quality water and associated Beneficial Uses continue for future generations



# Outstanding National Resource Waters

- Lake Tahoe & Mono Lake
- Water quality shall be maintained and protected
- Bacteria Project would likely not change level of bacteria protections for Lake Tahoe
- Mono Lake salinity: may require a different indicator bacteria than is presently assigned



Mono Lake from Navy Beach. Photo credit: E Hancock

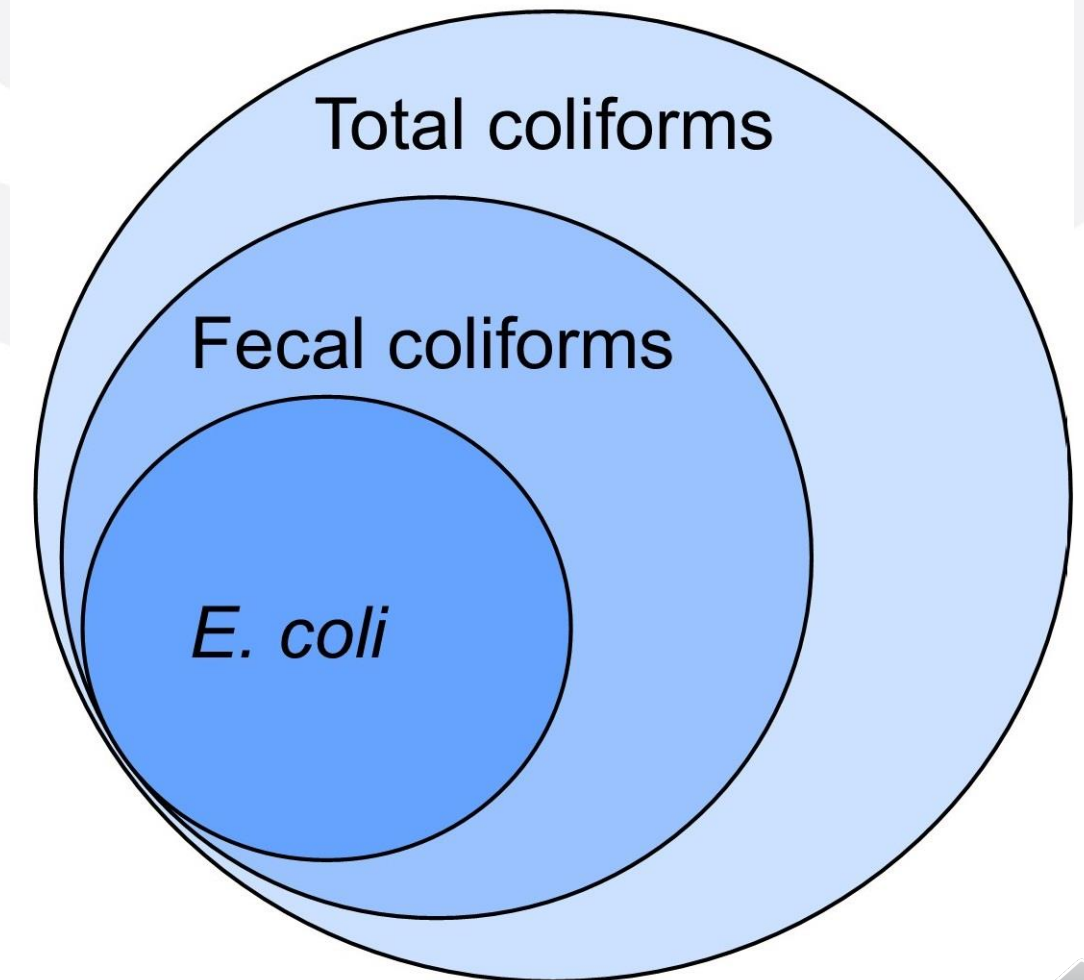


# How does sampling surface waters for bacteria work?

- Pathogens and viruses are difficult to test for
- Scientists use indicators of the likely presence of pathogens or viruses
- Surface water moves all the time, averaging many samples collected over time is good approach to determine if there is a bacteria contamination issue
- Lahontan Region is large which makes it challenging to collect regular bacteria samples from many of the regions surface waters

# What are some similarities and differences between the two objectives?

- Fecal coliform and *E. coli* are part of the same Total coliform bacteria family
- Fecal coliform objective: <1 illnesses in 1000 exposures; *E.coli* objective: 32 illnesses in 1000 exposures



# Bacteria objectives: fecal coliform

“The fecal coliform concentration during any 30-day period shall not exceed a **log mean of 20/100 ml**, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml”

Lahontan Basin Plan, Chapter 3

# Bacteria objectives: *E. coli*

“...a six-week rolling GEOMETRIC MEAN of *E. coli* **not to exceed 100 colony forming units (cfu) per 100 milliliters (mL)**, calculated weekly, and a STATISTICAL THRESHOLD VALUE (STV) of 320 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a CALENDAR MONTH”

Recreation Bacteria Objectives, State Water Board 2018



# Bacteria Objectives: Current Issues

- Two different thresholds of water quality protection
  - Problematic for 303(d) List assessments and permit issuance
- Fecal coliform indicator bacteria represents outmoded science
  - *E. coli* better correlated with the presence of pathogens

# Possible Project Options (1)

- Remove fecal coliform objective & use the *E. coli* objective only;  
Take no further action for high-quality waters
  - This option would address some of the existing issues, but would also leave many high-quality waters susceptible to bacteria pollution and degradation

# Possible Project Options (2)

- Remove fecal coliform objective and use REC-1 *E. coli* objective to protect human health; Apply a numeric guideline to certain high-quality waters in the Region, such as high alpine lakes and streams.
  - This non-binding numeric guideline would recognize Lahontan surface waters that are valuable for recreational, ecological, or cultural uses but would not be used to determine if Beneficial Uses were supported.

# Possible Project Options (3)

- Use the REC-1 *E. coli* objective to protect human health; Update the existing fecal coliform objective to use *E. coli* as the indicator bacteria, and remove the updated objective from specific waterbodies in the Region



# Potential Project Options (4)

- Use REC-1 *E. coli* objective to protect human health; Develop a new Beneficial Use with *E. coli*-based water quality objective analogous to the current fecal coliform objective.
  - The new Beneficial Use and objective would be designated to high-quality surface waters in the Region, such as high-elevation alpine lakes and streams

Let's take a second....



Baldwin Beach, Lake Tahoe. Photo Credit: E Hancock

# Project timeline 2020

- Winter/spring 2020: Evaluation of bacteria data and pertinent information; development of Project Options
- July 2020: Engage with interested parties in the Lahontan Region
- Fall/winter 2020: Present a selection of strategies for updating bacteria objectives to Lahontan Water Board

# Project timeline 2021/22

- January/February 2021: Begin official CEQA process
- Spring/Summer 2021: CEQA; Project work
- 2022: Amend Basin Plan with updated water quality objective..?



# Next steps after watching this video:

- Ask questions about project any time via email or telephone
  - [Ed.Hancock@waterboards.ca.gov](mailto:Ed.Hancock@waterboards.ca.gov) / 530.542.5574
  - [LahontanBacteriaObjectives@waterboards.ca.gov](mailto:LahontanBacteriaObjectives@waterboards.ca.gov)
- Live Q&A session – **Wednesday, August 5 @ 6pm**
- Look out for more information about this project by subscribing to the '**Basin Planning – Regionwide**' email subscription list [www.waterboards.ca.gov/resources/email\\_subscriptions/reg6\\_subscribe.html](http://www.waterboards.ca.gov/resources/email_subscriptions/reg6_subscribe.html)

# Thanks for listening!

- [Ed.Hancock@waterboards.ca.gov](mailto:Ed.Hancock@waterboards.ca.gov)
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- 530.542.5574
- [www.waterboards.ca.gov/lahontan/water\\_issues/programs/basin\\_plan/#basin](http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/#basin)

Pic: West Fork Carson River – Cindy Wise

