

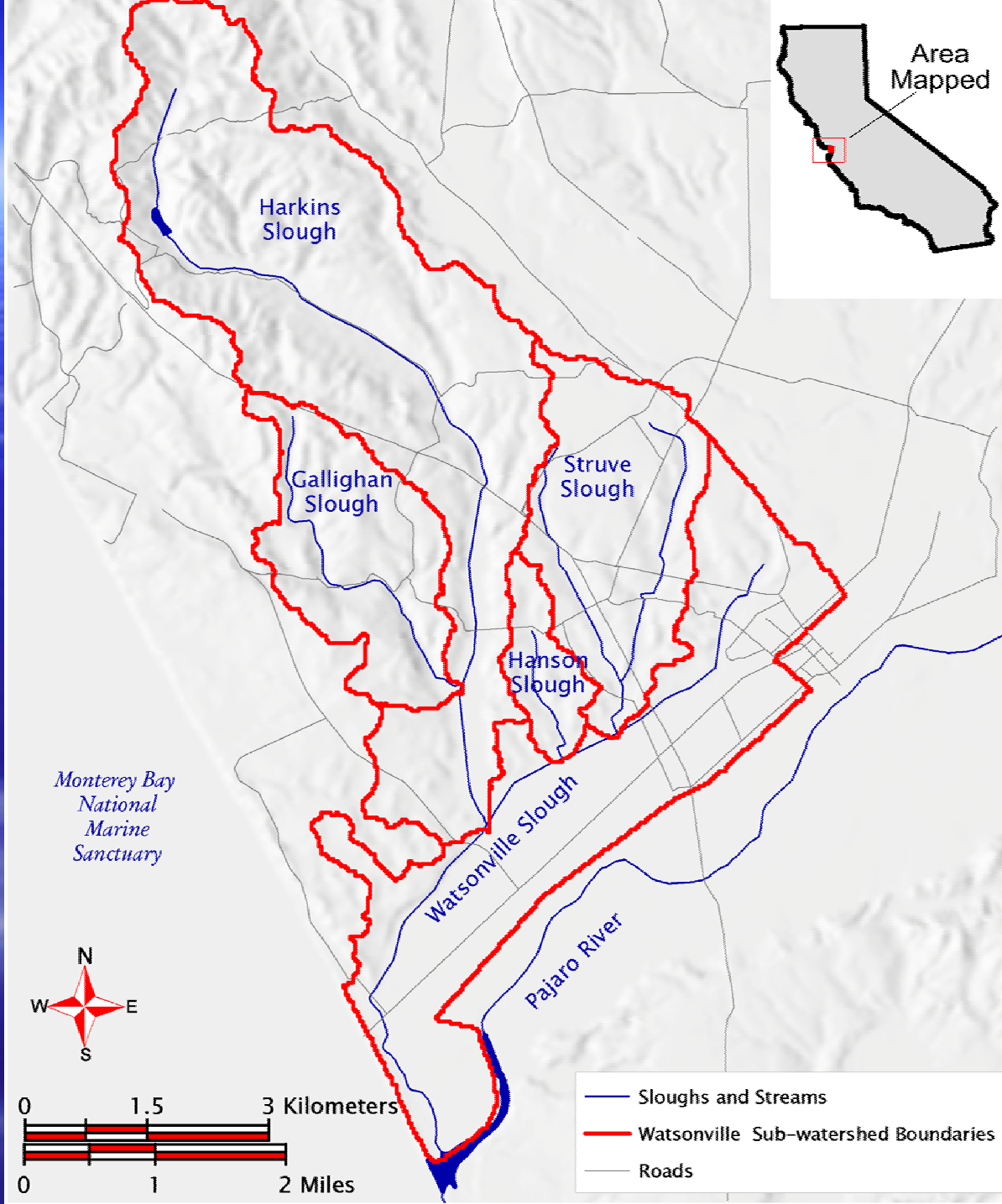
Watsonville Slough Watershed Total
Maximum Daily Load (TMDL) For
Pathogens, Livestock Waste Discharge
Prohibition, and Removal of The
Shellfish Harvesting Beneficial Use

Agenda Item #9

Presented by
Michael Buckman

Intro

- 1998 303(d) listing: Undocumented
- Impairment: Pathogens
- Impairing:
 - Water Contact Recreation (REC-1)
 - Non-Contact Water Recreation (REC-2)
 - Shellfish Harvesting (SHELL)



TMDL Targets

- Selected REC-1 Water Quality Objective
- SHELL Beneficial Use Objective Not Appropriate

TMDL Numeric Target

- Fecal Coliform Concentration
 - Geometric mean of 200 most probable number (MPN) per 100 milliliters (ml) of not less than five samples over a period of 30 days and a maximum of 400 MPN/100 ml of not more than 10% of the total samples during a period of 30 days.

Source Analysis

- Land Use Evaluation
- Ambient and Storm Grab Samples Sources
- Genetic Analysis Sources

Source Analysis (cont.)

Conclusion:

- Natural Background
 - Birds
- Controllable sources
 - Livestock
 - Land-applied non-sterile manure in irrigated agriculture
 - Pets
 - Humans

Allocations

ALLOCATIONS AND RESPONSIBLE PARTIES

WASTE LOAD ALLOCATIONS		Receiving Water Fecal Coliform (MPN/100mL) ¹
Waterbody	Responsible Party	
Watsonville, Struve, Harkins Sloughs	Santa Cruz County (Urban Stormwater)	≤ 200
Watsonville, Struve, Harkins, Gallighan, Hanson Sloughs	City of Watsonville (Urban Stormwater)	≤ 200
Harkins Slough	Santa Cruz Co. Freedom Sanitation District (Sanitary Sewer Collection System)	≤ 200
Watsonville & Struve Sloughs	City of Watsonville (Sanitary Sewer Collection System)	≤ 200
Gallighan Slough	Santa Cruz County (Landfill Stormwater)	≤ 200
LOAD ALLOCATIONS		Receiving Water Fecal Coliform (MPN/100mL) ¹
Watsonville & Harkins Sloughs	Operators or owners of irrigated lands who land-apply non-sterile manure	≤ 200
Watsonville & Harkins Sloughs	Operators or owners of livestock facilities and animals	≤ 200

¹ As log mean of five (5) samples taken in a 30-day period occurring within each season.

Implementation

- Adaptive Management
- Ten-year Attainment
- Focus Controls on Anthropogenic Sources
- Monitoring and Reporting Provide Feedback Mechanisms

Implementation (cont.)

- **Humans and Pets**

- Urban stormwater programs to include Education
- Pet Waste Ordinance

- **Livestock Operations**

- Comply with Livestock Waste Discharge Prohibition

Implementation (cont.)

- **Farms That Spread Manure**
 - Comply with Conditional Waiver for Irrigated Lands
 - Submit Documentation

Implementation (cont.)

- **Livestock Waste Prohibition**

- Discharges Prohibited from: Grazing, manure application, farm animal and livestock facilities (paddocks, pens, corrals, barns, sheds)

- Unless operator develops Implementation Plan or demonstrates no discharge

Basis for Removing the SHELL Beneficial Use

- **Use Attainability Analysis (UAA) Results**
- **Documentation of use ever existing? NO**
- **Is use being attained? NO**
- **Is water quality sufficient to attain use?
NO**
- **Do other factors preclude the attainment
of use? YES**

Issues





Questions?

Additional Slides Below

Implementation

Responsible Party	Source Category	Management Measure	Action
County of Santa Cruz and City of Watsonville	1A Human	Public Participation and Outreach	Educate the public, including the homeless, regarding sources of fecal coliform and associated health risks of fecal coliform in surface waters of the Watsonville Slough Watershed. Educate the public regarding actions that individuals can take to reduce pathogen loading in the Watershed. Revise Stormwater Management Plan and submit to Water Board for approval, monitor, and report.
	1B Human	Human Source Elimination and Prevention	Maintain the sewage collection system, including identification, correction, and prevention of sewage leaks into tributaries to Watsonville Slough. Revise Sewer System Management Plan and submit to Water Board for approval, monitor, and report.
	1C Pets	Pet Waste Management	Develop and implement enforceable means (e.g., an ordinance) of reducing/eliminating fecal coliform loading from pet waste. Educate the public regarding actions that individuals can take to reduce loading in the Watershed. Revise Stormwater Management Plan and submit to Water Board for approval, monitor, and report.

Implementation (cont.)

Operators or owners of livestock facilities and animals	2A Livestock	Farm Animal and Livestock Facilities Management	Develop and implement strategies to reduce/eliminate fecal coliform loading from farm animal and livestock facilities (e.g., pens, corrals, barns) into surface waters of the Watsonville Slough Watershed. Submit <i>Nonpoint Source Control Implementation Program</i> to the Executive Officer of the Water Board and monitor and report, or, document and report to the Water Board that no discharge is occurring from animal facilities.
	2B Livestock	Grazing Management	Protect sensitive areas (including streambanks, sloughs, wetlands, and riparian zones) by reducing direct loadings of animal wastes from grazing areas into surface waters of the Watsonville Slough Watershed. Submit <i>Nonpoint Source Control Implementation Program</i> to the Executive Officer of the Water Board and monitor and report, or, document and report to the Water Board that no discharge is occurring from grazing activities.
Operators or owners of irrigated lands who land-apply non-sterile manure	3 Land-Applied Non-Sterile Manure on Irrigated lands	Irrigated Land Management	Develop, implement and report on measures to reduce/eliminate fecal coliform loading from land-applied non-sterile manure into surface waters of the Watsonville Slough Watershed. Document and report to the Water Board that measures are in place and monitor to demonstrate effectiveness.

SHELL Beneficial Use

- **Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial or sport purposes. This includes waters that have in the past, or, may in the future contain significant shellfisheries.**

Removing a Beneficial Use

- **Use Attainability Analysis to Remove Shellfish Harvesting Use**
- **Federal Guidelines**
- **Final Approval by USEPA**

California Department of Health Service for fecal coliform standard

The **total coliform** median or geometric mean MPN of the water does not exceed **70 per 100 mL** and not more than 10 percent of the samples exceed a MPN of **230 per 100 mL** for a five-tube decimal dilution test.

The **fecal coliform** median or geometric mean MPN of the water does not exceed **14 per 100 mL** and not more than 10 percent of the samples exceed a **MPN of 43** for a five-tube decimal dilution test.

REC-1

- Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, white water activities, fishing, or use of natural hot springs.

REC-1 WQO

- Log mean concentration of fecal coliform shall not exceed 200/100mL, based on a minimum of five samples for any 30-day period. Also, no more than ten percent of the samples collected during any 30-day period shall exceed a fecal coliform concentration of 400/100mL

REC-2

- Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

REC-2 WQO

- Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 2,000/100mL, nor shall more than ten percent of samples collected during any 30-day period exceed 4,000/100mL.

WQOs

- Controllable water quality shall conform to the water quality objectives contained herein. When other conditions cause degradation of water quality beyond the levels or limits established as WQOs, controllable conditions shall not cause further degradation of water quality

Controllable Conditions

- Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled.

Some Context for Changing Standards

- 1969 to 2005 8 amendments to Uses
- Clarifying: “Anticipated,” “Existing,” “Intermittent,” “Potential”
- Corrections
- Refinements (where the use occurs); what the use means
- Assigning new swimmable/fishable uses per EPA conditions