

Treated Wastewater Discharge to Wetlands: Policy Workshop

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Workshop Purpose and Goals

- Discuss scope of priority Basin Plan project
- Review current policies and permitting approach
- Exchange information
- Seek input on project direction
- Wetland fill policy issues – separate workshop



Triennial Review Project

Background

- Baylands Goals Science Update
- Wastewater plants are located in the Baylands
- Potential source of freshwater for tidal wetland habitat restoration



Triennial Review Project Scope

- Review Policy 94-086
- Clarify permitting requirements for wastewater dischargers in wetlands and sloughs
- Develop near-shore permitting strategies
- Provide guidance on level of treatment
- Consider regulatory concerns



NPDES Permits 101

- Discharge Prohibitions
- Technology-Based Effluent Limits
 - Ensure good treatment performance
 - Secondary treatment standards
- Water Quality-Based Effluent Limits
 - Maintain beneficial uses / water quality objectives
 - Reasonable potential analysis (Limits needed?)
 - Limits reflect any mixing zones / dilution
- Provisions (e.g., monitoring / reporting)



Basin Plan

Discharge Prohibition 1

- Prohibits wastewater with “characteristics of concern” that...
 - does not receive at least 10:1 dilution
or
 - goes to nontidal water, dead-end slough, confined waters



Purpose of Prohibition 1

- Discharge pollutants away from nontidal waters and dead-end sloughs
- Protect from continuous effects of discharge
- Buffer effects of temporary plant upsets
- Minimize public contact with undiluted waste
- Reduce aesthetic impacts of discharge



Allowed Exceptions

- Discharger provides “equivalent protection”
 - Providing 10:1 dilution would be inordinate burden relative to beneficial uses protected and
 - Equivalent environmental protection occurs by alternate means
- Discharge affords net environmental benefits
- Discharge is part of reclamation project
- Discharge is part of groundwater clean-up



What is Equivalent Protection?

- Alternative discharge site
- Higher treatment
 - Advanced filtration (lower TSS/BOD limits)
 - Nitrification / denitrification
- Improved treatment reliability
 - Residence time following treatment



Shallow Water Discharges

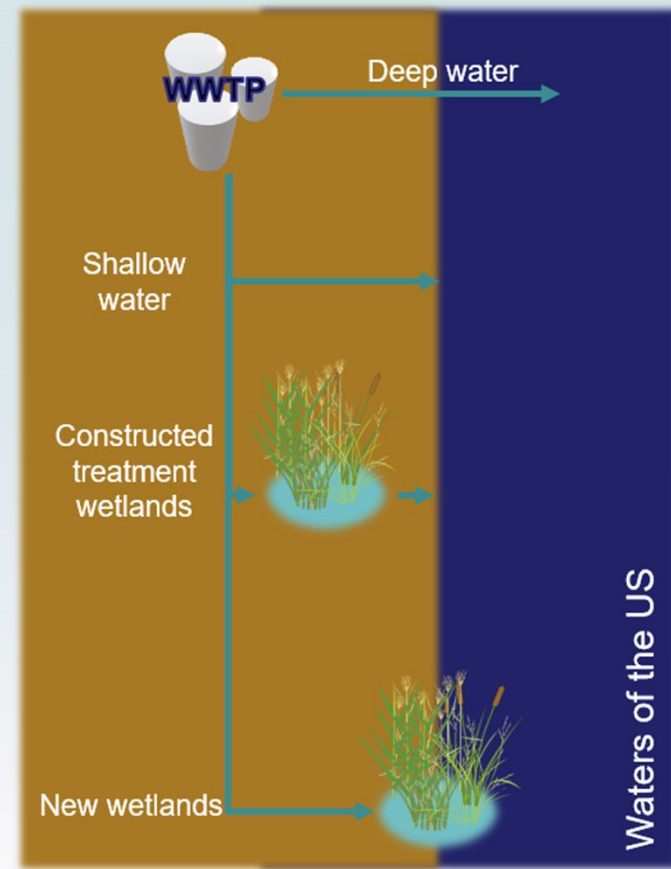
No exception needed



Permitted via “Equivalent Protection”



Permitted via “Net Environmental Benefit”



Policy 94-086 Review

1. Establishes when net environmental benefit applies

- Creation of wetlands (new waters of the U.S.) with wastewater
- Existing wetlands cannot be used as treatment systems



2. Demonstration of Net Environmental Benefit

Project proponent must demonstrate...

- Preservation and creation of beneficial uses

Rationale:

- The discharge cannot degrade the site
- The site must be improved



3. Constructed or Existing Wetland Distinction

- Consider exception when wetlands are constructed systems
- Enhancement or restoration of existing wetlands with wastewater only in exceptional cases:
 - Existing wetlands unlikely to be restored by other means
 - Discharge will both maintain existing beneficial uses and create new beneficial uses
- No discharge allowed to existing wetlands; no use as treatment systems



4. Waters of U.S. Wetlands versus Treatment Wetlands

- Portion of wetland that is a water of the United States
 - Net environmental benefit applies
 - Subject to Basin Plan water quality objectives
- Portion of wetland that is treatment
 - Located upstream of point of compliance
 - Subject to the best management practices specified in the NPDES permit



5. Maximum Benefit

- The maximum benefit must be derived from available quantity and quality of water
- Inherent trade-off between environmental benefit gained and additional risk due to:
 - lack of dilution relative to a deep water discharge
 - greater ecological sensitivity of the shallow waters, inter-tidal zones, and wetlands
- Determination of maximum benefit by Water Board



6. Demonstration of Commitment

Project proponent must demonstrate...

- Adequate land
- Commitment to manage wetland to provide for maximum environmental benefit
- Acceptable reclamation or disposal facilities for any wastewater not committed to wetland creation, restoration, or enhancement



7. Wetland Management

- Wetland will be managed to
 - avoid creating vector problems
 - minimize the occurrence of avian botulism and other infectious diseases
- Monitoring to show pollutants do not harm wildlife (direct toxicity or food chain bioaccumulation)



8. Wetland Design

- Priority will be given to proposals which:
 - Reflect historical wetland types
 - Are consistent with ongoing regional wetlands planning
- Wetland design should not be based on the most convenient wetland type available due to financial or land area limitations.



Policy Elements 9, 10 & 11

9. Mitigation: generally, projects shouldn't satisfy mitigation requirements but there are a few exceptions

10. Pilot Investigations required to assess

- Optimum land area
- Management techniques
- Impacts of discharge on adjacent waters

11. Management Plans – submit prior to granting exception

- Facility, O&M, and Monitoring Plans Required



Wastewater Case Studies

Wetland Location	Wetland Type	Includes Treatment Wetland	Discharge Prohibition Exception				Level of Treatment
			Inordinate Burden/ Equivalent Level of Protection	Reclamation Project	Net Environmental Benefit	Groundwater Cleanup Site	
Moorhen Marsh	Freshwater and brackish wetland	Yes	X		X		Advanced secondary
Hayward Marsh	Freshwater and brackish wetland	Yes			X		Secondary
Ellis Creek	Freshwater wetland	Exclusively	X	X			Secondary
Bel Marin Keys	Brackish and tidal marsh (to be developed)	Yes		X	X		Secondary
Suisun Marsh	Brackish marsh	No	X		X		Advanced secondary
Napa-Sonoma Marsh	Slough and brackish marsh	No	X	X	X		Tertiary (secondary with additional filtration)
Renzel Marsh	Freshwater pond and saltmarsh	No	X	X			Advanced secondary

SFEP Report: NPDES Case Studies on Use of Wastewater

Hayward Marsh



Figure prepared by Water Board staff for reference purposes only.
Location of outfall E-3 is approximate.
Data Sources: ESRI, SFEI, SF Bay Water Quality Control Board

LEGEND

- NPDES Outfall
- Hayward Marsh

SAN FRANCISCO BAY REGIONAL
WATER QUALITY CONTROL BOARD

**NPDES PERMIT CASE STUDIES
HAYWARD MARSH**

FIGURE 2.3

0 500 1,000 Feet

1 in = 1,000 feet

N

April 2017

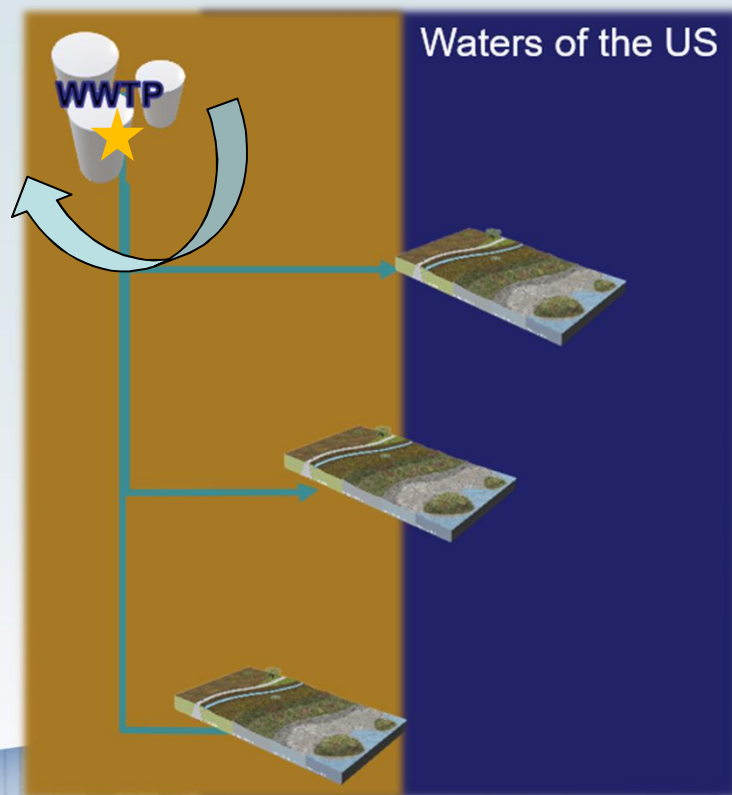
Proposed Projects

- Oro Loma/Castro Valley Sanitary Districts
 - Horizontal levee – mile long [60% design 2019]
- West County Wastewater District
 - Horizontal levee [2023 timeframe]
- San Leandro WWTP
 - Convert a 4.3 acre wastewater storage basin to multi-benefit treatment wetland
- City of Palo Alto
 - Renzel Marsh Rehabilitation and Expansion
 - Horizontal levee



Discussion Topic

Horizontal Levees



Any portion considered a treatment wetland?

When are these considered

a. New wetlands

b. Waters of the U.S.?

Which prohibition exception applies?

NPDES vs WDRs?



Discussion Topics

- New Issues since 94-086 Policy adopted
 - Nutrients – incentivize load reductions
 - CECs – engineered wetlands demonstrate removal capabilities
- Revise Policy?
 - Update based on current practices
 - Identify shoreline adaptation as benefit
 - Incentivize/encourage engineered wetlands
 - Provide credits for nutrient reduction for non-treatment wetlands



Discussion Topics

- Is there need to develop near-shore permitting strategies?
 - Clarify application of mixing zones in wetlands?
- Update definition of equivalent protection?
- Update definition of reclamation exception?
- Provide guidance on level of treatment for different classes of wetlands?
- Define enhancement – e.g., adding freshwater?



Discussion Topics

- Other Issues to be addressed
 - Governance
 - Long-term maintenance
 - Performance standards
- Role of Management Plan
- Other Regulatory Concerns?

