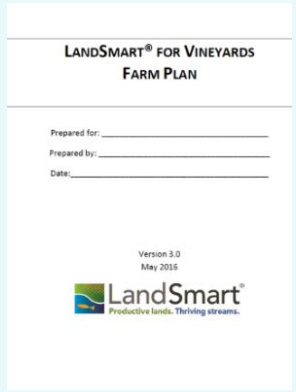
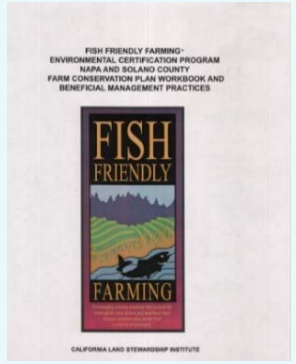
Improving Water Quality of North Bay Waters through Non-Point Source Regulations and Solutions

Mt. Veeder Area, Napa River watershed





Jim Ponton, San Francisco Bay Water Quality Control Board

8 June 2018

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Overview

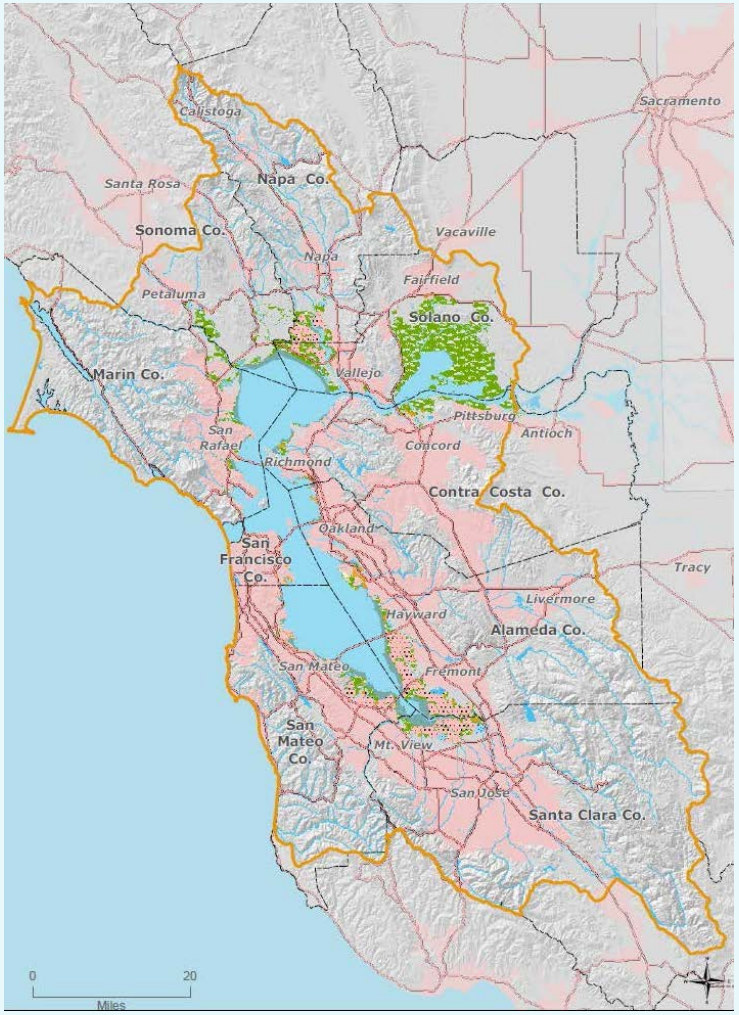
- North Bay Total Maximum Daily Loads (TMDLs)
- How TMDLs that identify NPS contributions are implemented
  - Vineyards
  - Cannabis
  - Confined Animal Facilities and Dairies
  - Grazing

Your Water Board
San Francisco Bay Regional Water Quality Control Board

State agency responsible for protecting water quality and beneficial uses of water for the use and enjoyment of its people in the Bay Area

Authorities come from:

- Federal Clean Water Act
- Porter-Cologne Water Quality Control Act
- Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin



Laws and Regulations

Porter-Cologne Act – law governing water quality

- Obligates Water Boards to address all discharges of waste that could affect water quality

- To carry out mandate, Porter-Cologne provides:
  - Planning authority to designate beneficial uses (BUs), establish WQ objectives to protect BUs, and develop implementation programs to maintain/restore BUs
  - Permitting authority
    - Waivers, waste discharge requirements or prohibitions
  - Enforcement options to ensure permit compliance

Impaired Water Bodies

- Water quality assessment required by Clean Water Act to determine if standards are met
- Waters not meeting standards are designated as “impaired”
- Impaired water bodies trigger a process to evaluate the sources of the pollutant contributing to impairment
- Total Maximum Daily Load (TMDL)
  - Plan to address water quality impairment
  - Goal – attain or maintain water quality standards

Tomales Bay Watershed

TMDLs completed:

Pathogens/Bacteria
Sediment
Mercury

Non-Point Sources:

- ✓ Grazing
- ✓ Dairies
- ✓ Equestrian facilities

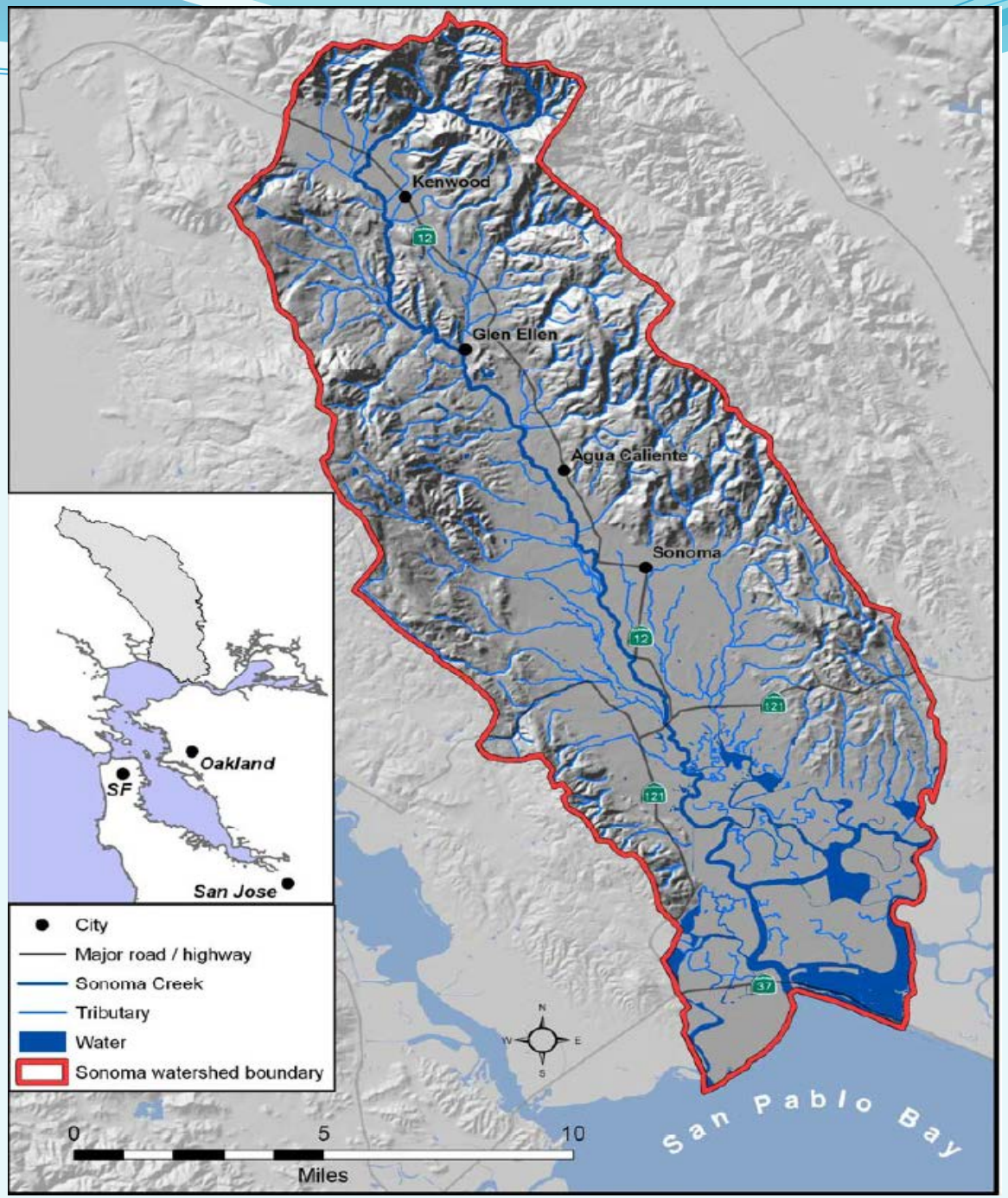
Sonoma Creek Watershed

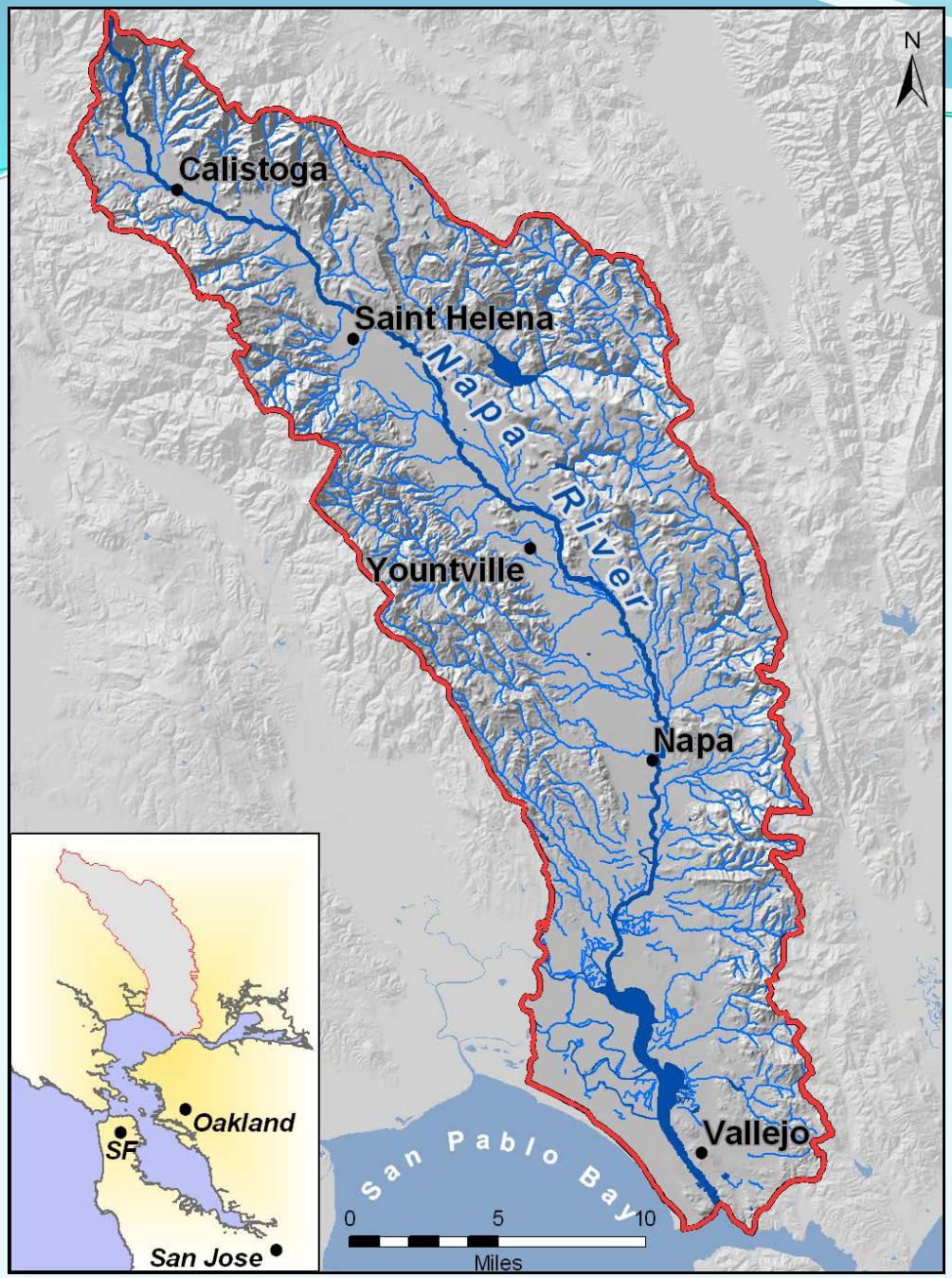
TMDLs completed:

Pathogens/Bacteria
Sediment

Non Point Sources:

- ✓ Vineyards
- ✓ Grazing
- ✓ Dairies





The Napa River Watershed

TMDLs completed:

Pathogens/Bacteria
Sediment

Non Point Sources:

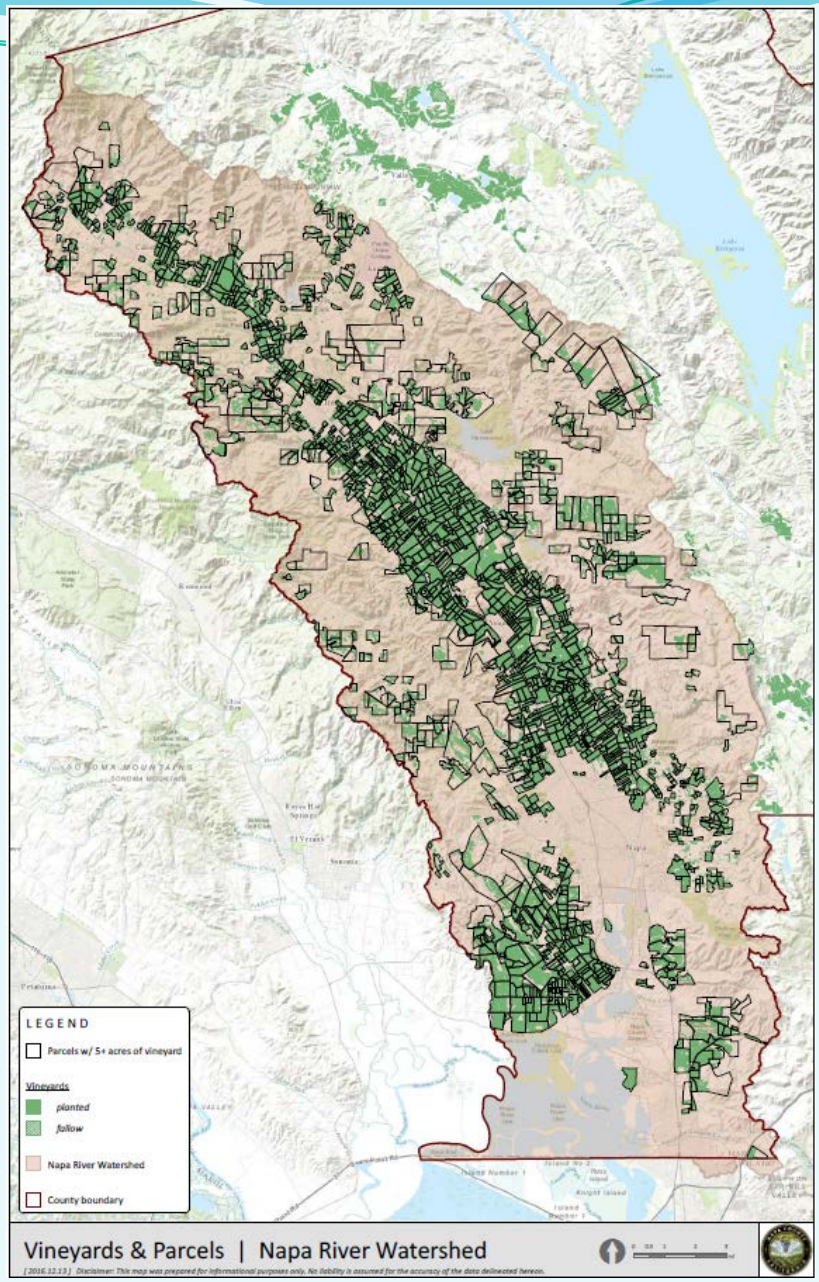
- ✓ Vineyards
- ✓ Grazing
- ✓ Confined Animal Facilities

Why a Permit for Vineyard Properties?

- Vineyards and unpaved roads are widespread sediment sources

    1. Surface erosion
    2. Concentrated stormwater discharges
    3. Unpaved roads
    4. Channel incision

- One-sixth of the watersheds is planted in grapes
- Hillslope vineyard parcels include hundreds of miles of unpaved roads
- Permit ensures effective BMPs are in-place to restore streambed conditions



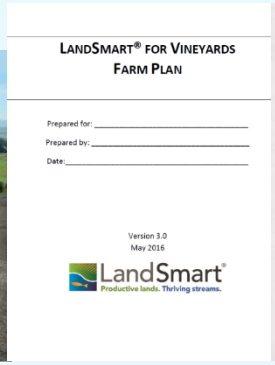
Vineyard Properties General Waste Discharge Requirements (General Permit)

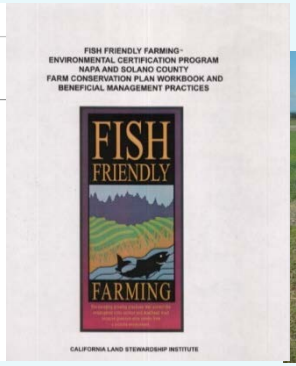
Parcels where ≥ 5 acres are planted in grapes

Tier-based (risk to water quality and permit administration)

The General Permit requires landowners to:

- Enroll in the permit – July 2018 or July 2019
- Develop a farm plan
- Get the farm plan “verified”
- Implement the farm plan to achieve performance standards
- Report and conduct monitoring to assess progress





What is a Farm Plan?

A farm plan documents natural features, developed areas, and best management practices to control pollutant discharges

What is a “Verified” Farm Plan?

A Third-Party Program has reviewed the plan to conclude upon full implementation, performance standards would be attained.

Approved Third-Party Programs

- California Land Stewardship Institute
- California Sustainable Winegrowing Alliance
- Napa County Resource Conservation District
- Sonoma Resource Conservation District

Farmers who work with a Third-Party Program to complete a verified farm plan will be in an excellent position to achieve Permit compliance

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

Performance Standards for All Vineyard Parcels

Soil erosion rate in farm area

- Below T-value (calculated tolerable soil loss) or based on implementation of an approved erosion control plan

Nutrient management

- BMPs to protect water quality (e.g., fertigation, cover crops, plant or soil testing, etc.)

Pesticide management

- Integrated pest management and BMPs to avoid discharges to surface water or wells

Performance Standards for Hillslope Vineyard Parcels

Vineyard Storm Runoff

- If discharge into unstable area, as practicable, implement additional BMPs to reduce peak runoff and control erosion

Existing Unpaved Roads

- 25 percent length or less of road is hydrologically connected
- No diversion or plug potential at culverted crossings

All New Roads

- Storm-proofed incorporates performance standards for unpaved roads (as above) plus conveyance of 100-year flow at crossings

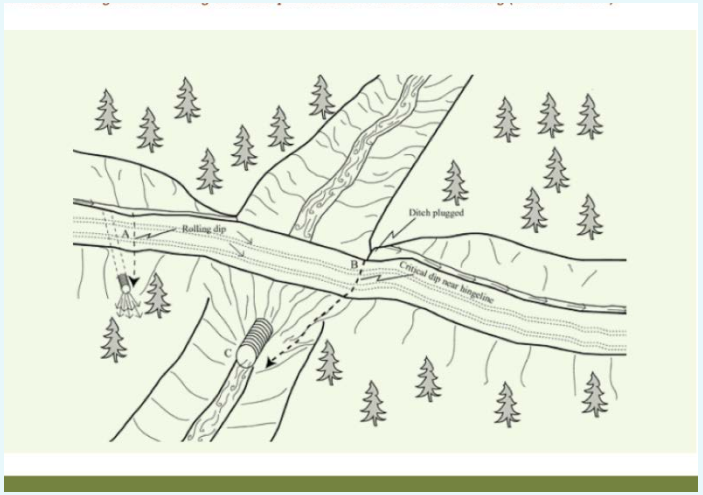
Hillslope vineyard roads example (1 of 3): Hydrologically connected roads

Problem: drainage concentrated in ditch on upslope side of road

Solution: Road reshaped/outsloped drainage is dispersed

Hillslope vineyard roads example (2 of 3): road crossing diversions

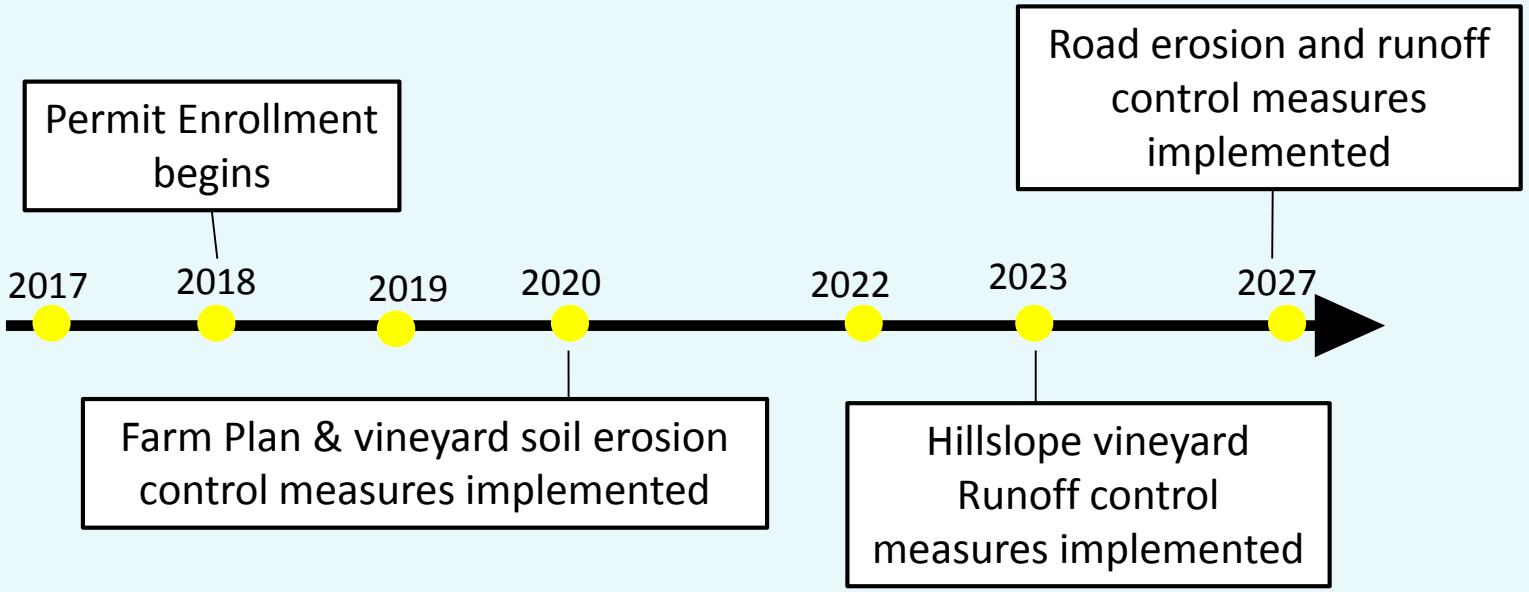
Problem: Blocked culvert, runoff diverted along road, eroding it and creating a gully downslope



Solution: constructed a critical dip

Hillslope vineyard roads example (3 of 3): Keep culvert inlets from being blocked

Compliance Timeline



Landowners will enroll in Tier 1, Tier 2, or Tier 3

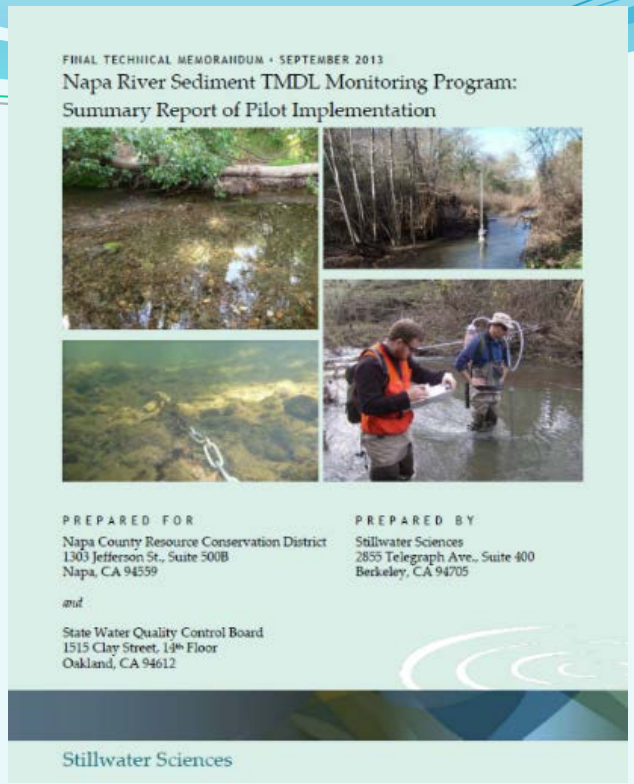
Tier determines scope of monitoring and reporting, and permit fee

Tier 1 – verified, fully implemented farm plan
Reporting once every five years, and monitoring photo-points. Eligible for group fee reduction

Tier 2 – working to complete verified farm plan, or farm plan is not fully implemented
Annual reporting, and monitoring photo-points, streambed conditions, and BMP effectiveness. Eligible for group fee reduction

Tier 3 – farm plan developed independently with Water Board for approval
Annual reporting, photo-points, streambed conditions, and BMP effectiveness
Higher permit fees

Monitoring and Reporting



- To track progress toward farm plan development and implementation
- Provide a basis for determining property acreage subject to required monitoring plan and report (streambed sediment and BMP effectiveness)

Napa County Farm Bureau will administer group monitoring

- Monitoring plan in July 2020
- Monitoring report in July 2023

Why a Cannabis Cultivation Regulatory Program?

- SB 837 – June 2016

Medicinal Marijuana Safety Act

- Commercial cannabis
- State Water Board + Dept. of Fish and Wildlife
  - Adopt principals and guidelines for diversion and use of water
  - Cannabis Cultivation Policy – October 2017

- Proposition 64 – November 2016

Recreational Marijuana Use

- SB 94 – June 2017
  - Consolidated provisions of SB 837 and Prop. 64
  - Established the Medicinal and Adult Use Cannabis Regulations Safety Act
  - (MAUCRSA)

State Water Board Responsibilities

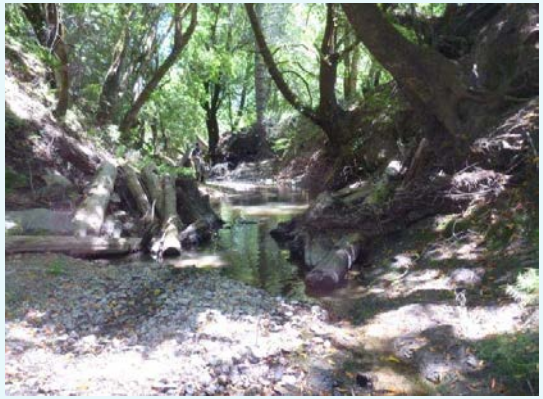
"The state board or appropriate regional board shall address discharges of waste resulting from cannabis cultivation under [MAUCRSA] and associated activities, including by adopting a general permit, establishing waste discharge requirements…"

Water Code Section 13276(b)

State Water Board Responsibilities
(continued)

Ensure individual and cumulative effects of water diversion and discharge associated with cannabis cultivation do not affect instream flows needed for fish spawning, migration, and rearing, and flows needed to maintain natural flow variability

Business and Professions Code Section 26060.1(b)(1)



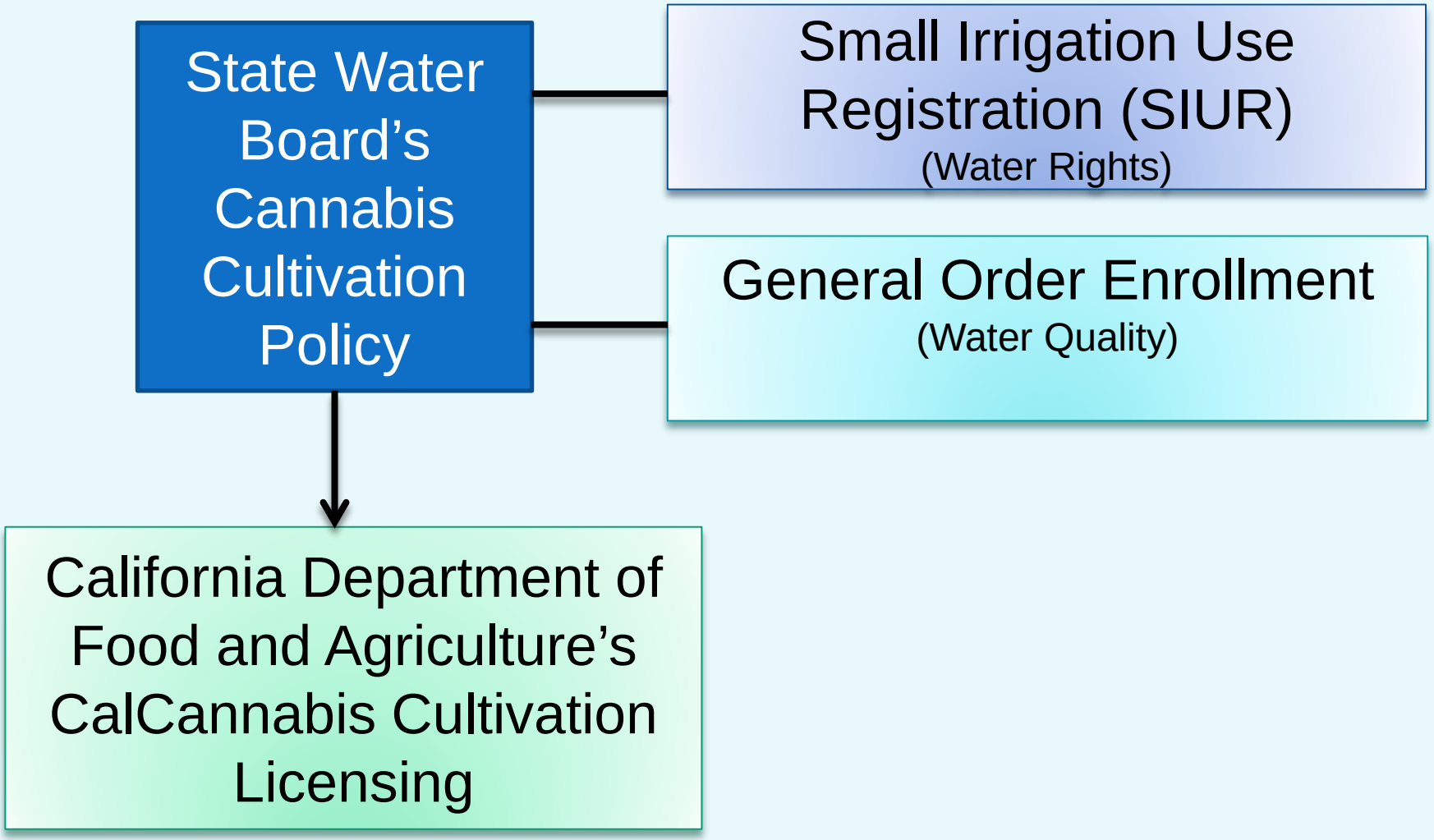
State Water Board Responsibilities
(continued)

Develop policy for water quality control to establish principles and guidelines (requirements) for cannabis cultivation:

- Shall include measures to protect springs, wetlands, and aquatic habitat from negative impacts of cannabis cultivation
- May include requirements for groundwater extractions

Water Code Section 13149(a)(1)(A)

Cannabis Cultivation Policy Regulatory Flow



General Order

- Implements Cannabis Policy requirements
  - Waste discharge associated with cultivation
- Requirements are tiered based on threat to water quality
  - Disturbed area, site slope, and setbacks
  - Conditional exemptions apply for some cultivation activities
- All cannabis-related activities must comply with applicable Best Practicable Treatment or Control (BPTC) requirements in Attachment A

Attachment A

Specific requirements for cultivation activities, such as:

- General erosion control measures for cultivation site
- Stream crossings, culverts, road development
- Management of fertilizers, pesticides, and petroleum
- Cleanup, restoration, and mitigation on existing sites
- Soil, cultivation, and human waste disposal
- Control of irrigation runoff
- Methods of water diversion and storage
- Winterization

Disturbed Area

- Where natural conditions have been modified in a way that may result in an increase in turbidity discharged from a site
- Disturbed area includes:
  - Areas where natural plant growth has been removed, or natural grade has been modified for any purpose
  - All activities associated with developing or modifying land for cannabis cultivation related activities or access
- Access roads that are designed, constructed, and maintained consistent with *Handbook for Forest, Ranch, and Rural Roads*, are not considered disturbed areas for purpose of tier determination

Tier 1 and Tier 2 Risk Designations (Slope and Setback Compliance)

Low Risk	Moderate Risk	High Risk
No portion of the disturbed area is located on a slope greater than 30 percent **AND** All of the disturbed area complies with the setback requirements	Any portion of the disturbed area is located on a slope greater than 30 percent, **AND** All of the disturbed area complies with the setback requirements	Any portion of the disturbed area is located within the setback requirements

Minimum Riparian Setbacks

Common Name	Watercourse Class	Distance
Perennial watercourses, waterbodies (e.g., lakes and ponds), or springs	I	150 ft.
Intermittent watercourses or wetlands	II	100 ft.
Ephemeral watercourses	II	50 ft.
Man-made irrigation canals, water supply reservoirs, or hydroelectric canals that support native aquatic species	IV	Established Riparian Vegetation Zone
All other man-made irrigation canals, water supply reservoirs, or hydroelectric canals	IV	N/A

General Order Discharger Classifications

- **Non-Commercial**
  - Personal use exemption
    - Not required to enroll or pay a fee
- **Commercial**
  - Conditional Exemption (indoor & outdoor)
    - Requires coverage under Waiver and payment of one-time fee
  - Tier 1 and Tier 2 enrollees
    - Requires coverage under General Order, payment of one-time fee, and payment of annual fee thereafter

Personal Use Exemption

- Exempt from CDFA licensing requirements
- Exempt from the General Order provided:
  - Max 1,000 ft^2 disturbed area on slope ≤ 20%
  - Contiguous cultivation area
  - Complies with setback requirements
  - Implements all applicable requirements in Attachment A
  - Subject to applicable water rights requirements
- Coalitions or cooperatives cannot claim this exemption

Conditional Exemption (Indoor)

- Commercial cultivation – CDFA license required
- Cultivation within a structure with a permanent roof and relatively impermeable floor
- Discharge industrial wastewater to:
  - Community sewer consistent with their requirements
  - On-site wastewater treatment system - separate permit
- No cultivation size limits
- Enrollment under Waiver of WDRs
- Implements all applicable requirements in Attachment A
- Subject to applicable water rights requirements

Image source: Region 3 Water Board

Conditional Exemption (Outdoor)

- Commercial cultivation – CDFA license required
- Max 2,000 ft^2 disturbed area on slope ≤ 20% slope
- Contiguous cultivation area
- Complies with setback requirements
- Enrollment under the conditional Waiver of WDRs is required
- Implements all applicable requirements in Attachment A
- Subject to applicable water rights requirements

Tier 1 and Tier 2 Enrollees

- Commercial cultivation – CDFA license required
- Tier determination is based on disturbed area
  - Tier 1 disturbs more than 2,000 ft^2, less than 43,560 ft^2
  - Tier 2 disturbs more than one acre
- Implements all applicable requirements in Attachment A
- Enrollment under the General Order is required
- Sites are further characterized by risk
  - Low, moderate, high
- Subject to applicable water rights requirements

Technical Reports (Submitted Once)

Technical Reporting Requirement	Cond. Exempt	Tier 1			Tier 2		
	NA	Low	Medium	High	Low	Medium	High
Site Management Plan		x	x	x	x	x	x
Site Erosion and Sediment Control Plan			x			x	
Disturbed Area Stabilization Plan				x			x
Nitrogen Management Plan					x	x	x
Site Closure Report	x	x	x	x	x	x	x

See Cannabis General Order Attachment D for Technical Report guidelines.

- Reports due 90 days after application is submitted to SF Bay Water Board
- Except Site Closure report which is due 90 days prior to ending cultivation.

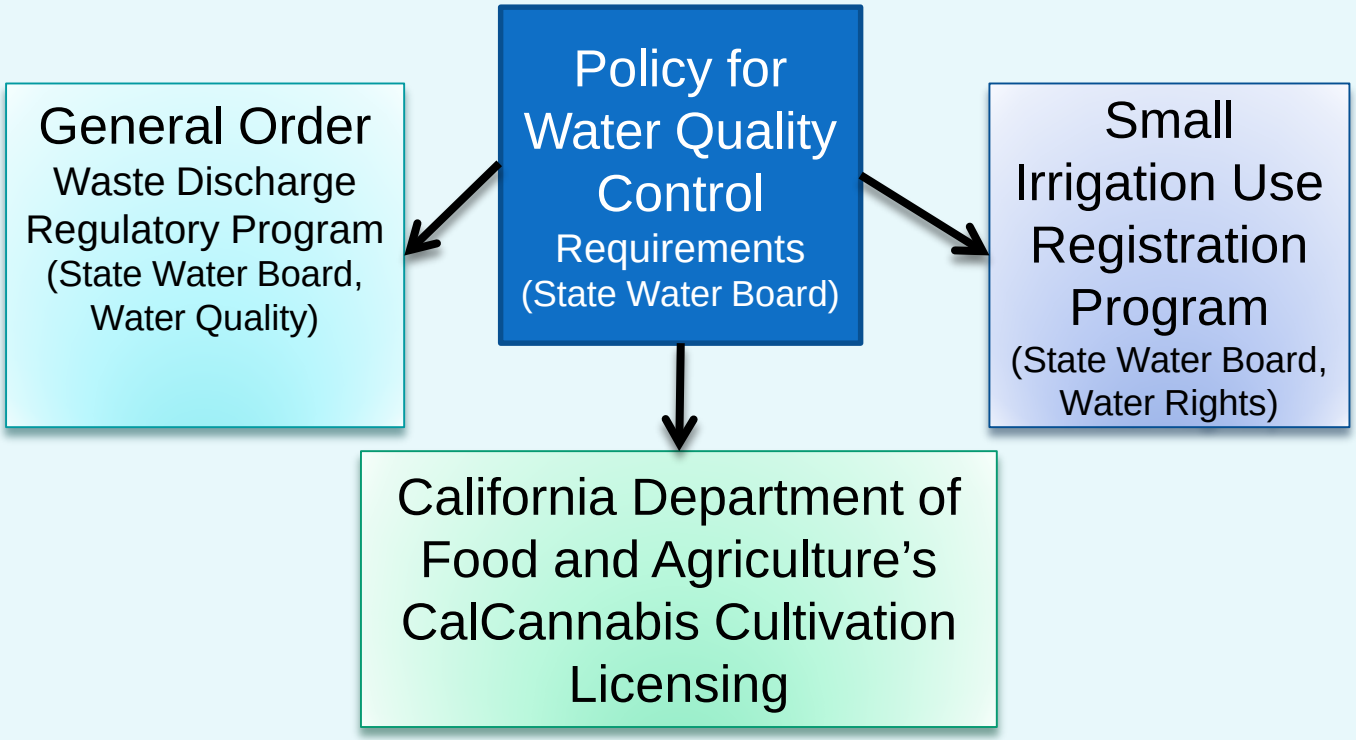
Annual Reporting

Annual Monitoring Requirement	Tier 1			Tier 2		
	Low	Medium	High	Low	Medium	High
Winterization Measures Implemented	x	x	x	x	x	x
Tier Status Confirmation	x	x	x	x	x	x
Third Party Identification	x	x	x	x	x	x
Nitrogen Application				x	x	x
Surface Water Runoff					x	x
Soil Erosion Control					x	x
Sediment Capture					x	x
Erosion/Sediment Capture Maintenance					x	x
Stabilization of Disturbed Areas					x	x
Material(s) Storage Erosion/Spills Prevention					x	x
Holding Tank, Septic, Chem. Toilet Servicing					x	x

See Cannabis General Order Attachment B for Monitoring and Reporting Guidelines.

Reports due <u>March 1</u> of each year.

Cannabis Policy Regulatory Flow



Cannabis Cultivation Policy
(Numeric and Narrative Instream Flow Requirements)

Narrative Instream Flow Requirement:

- 50% of streamflow shall be bypassed past point of diversion
- Surface water forbearance period: April 1 – October 31, possibly later depending on precipitation
  - Initial diversion before December 15 may not commence until after seven consecutive days with flow above numeric instream flow

Numeric Instream Flow

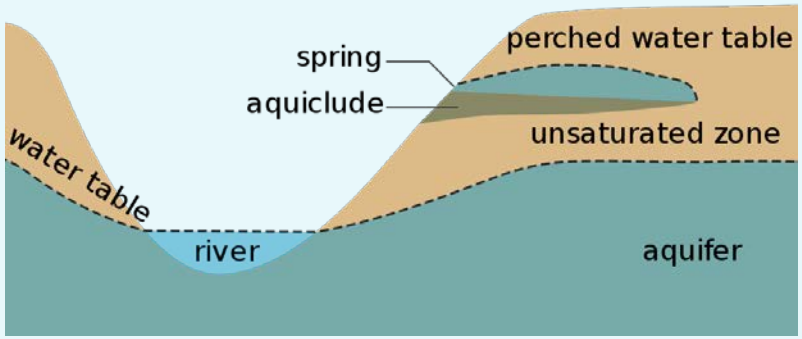
- Diversions can only occur when daily average flow at assigned gage is above minimum instream flow requirement
- Diverters shall measure and record daily water diversion and use

Attachment A, Section 3

Cannabis Cultivation Policy
(Numeric and Narrative Flow Requirements)

Groundwater Requirements:

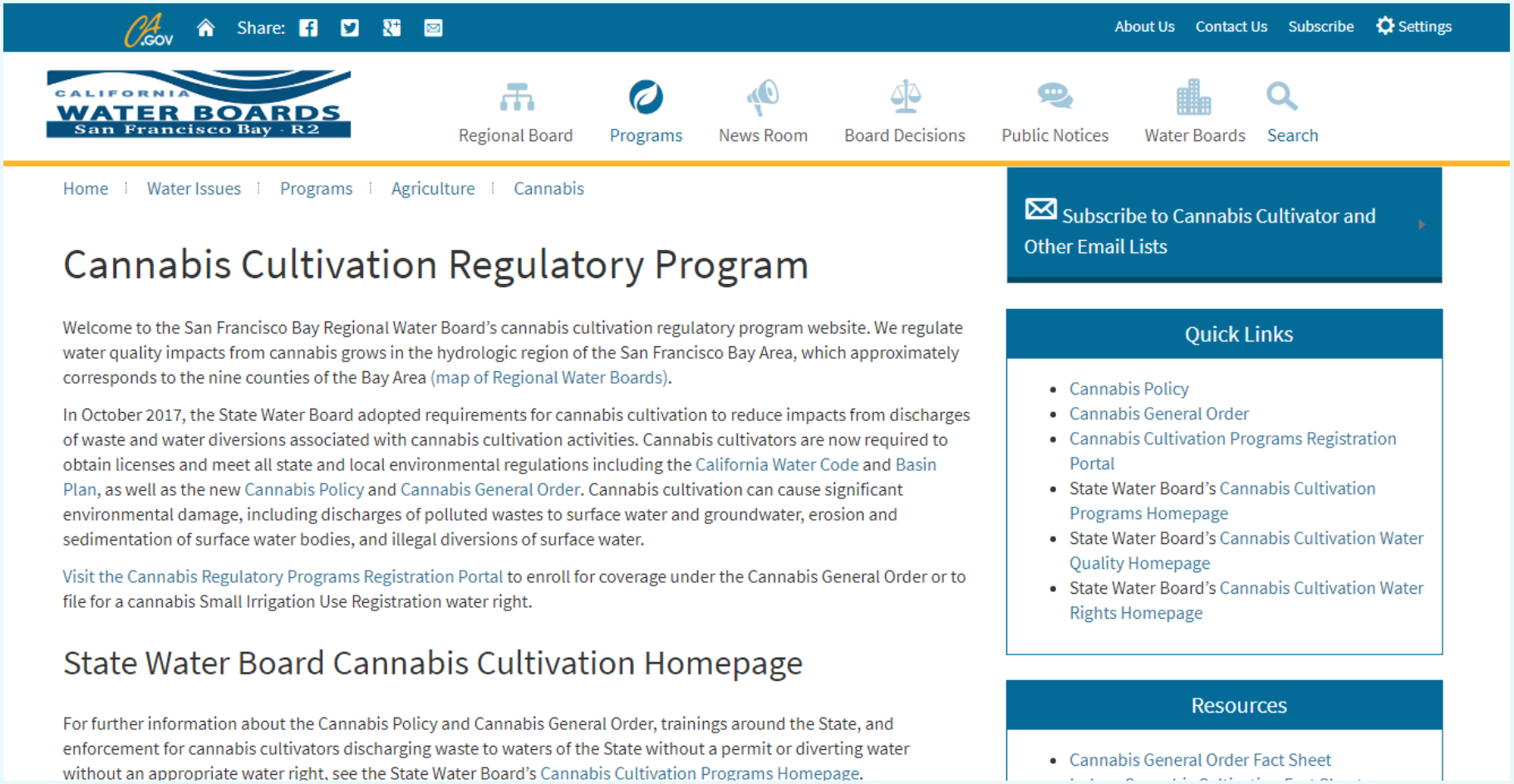
- Aquatic base flow thresholds established as one mechanism to help monitor whether groundwater diverters are having a cumulative negative impact on instream flows
- If it is determined that groundwater diversions have potential to significantly affect surface water supply, forbearance periods or other measures may extend to groundwater diverters



Attachment A, Section 3

Regional Water Board Cannabis Website

https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/agriculture/Cannabis/index.html



Cannabis Programs Portal Process

APPLICANT

- ✓ Enters information
- ✓ Obtains Cannabis Programs Portal account
- ✓ Answers water quality and water rights questions
- ✓ Self-certifies compliance with General Order, SIUR, Cannabis Policy

CANNABIS PROGRAMS PORTAL

- ✓ Generates Notice of Receipt with fee invoice for General Order & for SIUR as applicable
- ✓ Stores information for upload to CIWQS & eWRIMS

APPLICANT

- ✓ Pays fees to State Water Board within 30 days

WATER BOARDS

- ✓ Sends Notice of Applicability to applicant
- ✓ Sends Small Irrigation Use certificate to applicants
- ✓ Adds technical report(s) required to eSMR

WATER BOARDS

- ✓ Review reports for compliance
- ✓ Inspects facilities for compliances and answers applicant questions

Water Board's Confined Animal Facility Program

Permits for Animal Sources

- Conditional Waiver of WDRs for Dairies
  - ✓ Renewed in June 2015 for 5-year term
  - ✓ 43 dairy producers enrolled; 17 located in Marin Co.
- General WDRs for Confined Animal Facilities
  - ✓ Renewed in June 2016
  - ✓ 15 enrollees
- Conditional Waiver of WDRs for Grazing
  - ✓ Tomales Bay (2013), Napa River and Sonoma Creek watersheds (2017)

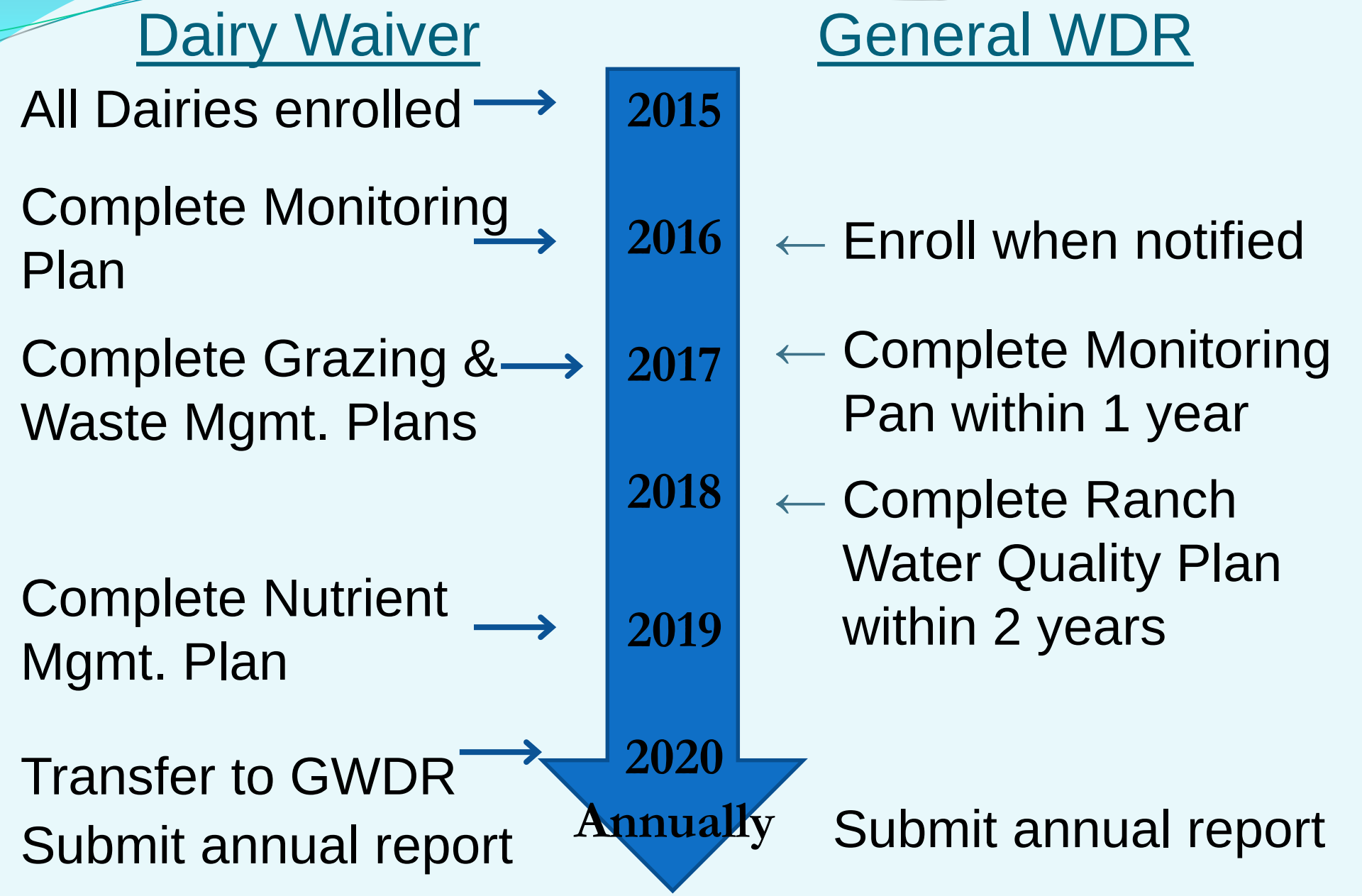
State CAF Regulations and Permit Requirements

- ✓ Divert clean storm water away from areas with animals and/or manure
- ✓ Contain manure/bedding & storm water contacting it
- ✓ Apply solid/liquid wastes at appropriate rates for soil & crops with no discharge
- ✓ Manure/bedding must not be stockpiled or applied within 100 ft. of surface waters unless alternative practice is used.

State CAF Regulations and Permit Requires

- ✓ Protection of groundwater
- ✓ Keep animals out of creeks within confined areas
- ✓ Contain non-storm water and other wastes
- ✓ Manage grazing lands to reduce bacteria and sediment runoff

Compliance Timeline



Water Quality Monitoring

- Surface water sampling
  - 3 storm events annually
- Measure of “residual dry matter” for grazing lands over 50 acres
- Visual inspections with photos
- Option for individual or watershed sampling program
- Groundwater sampling for 2 years
  - If using waste retention ponds

Visual Inspections

Everyone:

- Pre-rainy season preparations and photos
- Animal housing, corrals, manure storage areas, wash racks, etc. – daily
- Before, during and after storm events
- Document problems and corrective actions

Visual Inspections

If using ponds:

- Measure freeboard and evaluate integrity – weekly during wet season; monthly during dry season

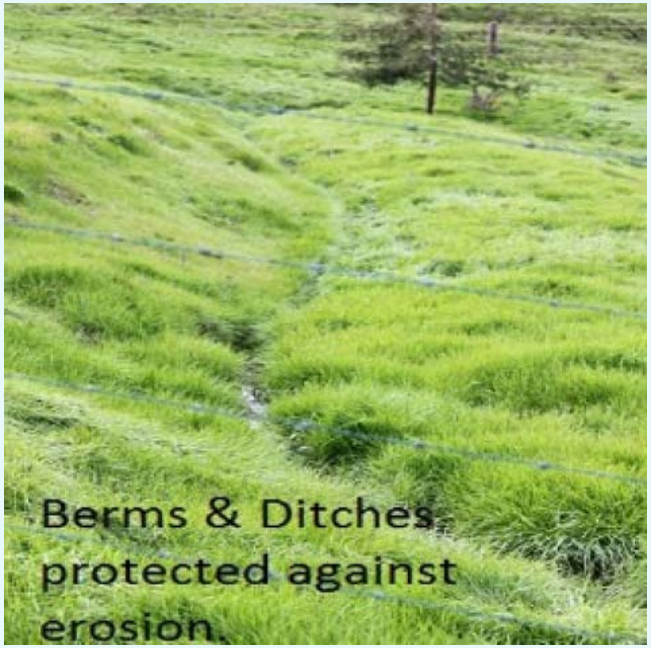
If grazing 50 acres or more:

- Monthly during rainy sea
- Twice during dry season
- RDM measurement in Fa

If manure or compost is applied to land:

- Each day of application
- Record dates, location, volumes

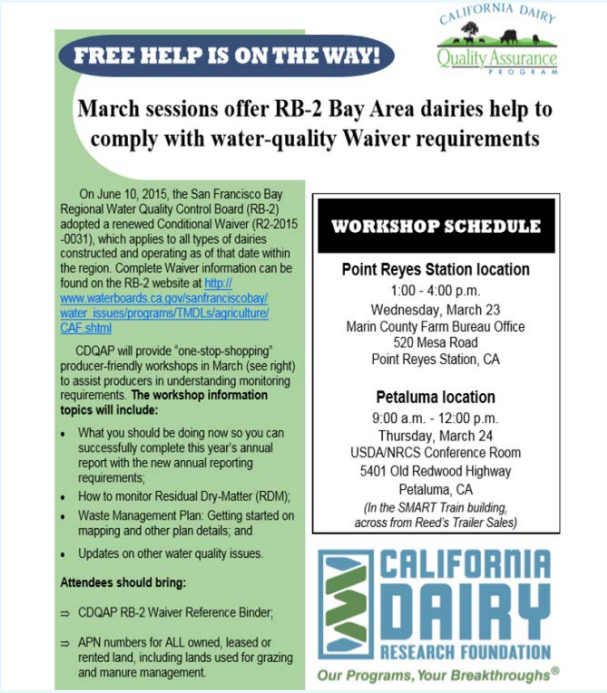
Examples of Best Management Practices



Examples Best Management Practices (continued)

Ongoing efforts

- Review annual reports
- Notify of deficiencies
- Inspections
- Complaint response
- Educational outreach
- Non-filer outreach



FREE HELP IS ON THE WAY!

CALIFORNIA DAIRY Quality Assurance PROGRAM

March sessions offer RB-2 Bay Area dairies help to comply with water-quality Waiver requirements

On June 10, 2015, the San Francisco Bay Regional Water Quality Control Board (RB-2) adopted a renewed Conditional Waiver (R2-2015-0031), which applies to all types of dairies constructed and operating as of that date within the region. Complete Waiver information can be found on the RB-2 website at http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/agriculture/CAF.shtml

CDQAP will provide "one-stop-shopping" producer-friendly workshops in March (see right) to assist producers in understanding monitoring requirements. **The workshop information topics will include:**

- What you should be doing now so you can successfully complete this year's annual report with the new annual reporting requirements;
- How to monitor Residual Dry-Matter (RDM);
- Waste Management Plan: Getting started on mapping and other plan details; and
- Updates on other water quality issues.

Attendees should bring:

⇒ CDQAP RB-2 Waiver Reference Binder;

⇒ APN numbers for ALL owned, leased or rented land, including lands used for grazing and manure management.

WORKSHOP SCHEDULE

Point Reyes Station location
1:00 - 4:00 p.m.
Wednesday, March 23
Marin County Farm Bureau Office
520 Mesa Road
Point Reyes Station, CA

Petaluma location
9:00 a.m. - 12:00 p.m.
Thursday, March 24
USDA/NRCS Conference Room
5401 Old Redwood Highway
Petaluma, CA
(In the SMART Train building, across from Reed's Trailer Sales)

CALIFORNIA DAIRY RESEARCH FOUNDATION
Our Programs, Your Breakthroughs®

Grazing Waiver Program
Status Summary

Why Regulate Grazing?

Improperly managed grazing activities have impaired the beneficial uses of the Tomales Bay, Napa River, and Sonoma Creek watersheds with pathogens, nutrients, sediment, and/or mercury

Program Scope

Two Conditional Waivers of Waste Discharge Requirements

- Tomales Bay Watershed (2013)
  - 73,550 acres enrolled
  - 247 parcels
  - 50-acre threshold
  - Grazing on forage conducted 45-days or more of the year
- Napa River and Sonoma Creek watersheds (2017)
  - 14,670 acres enrolled
  - 123 land parcels
  - 100-acre threshold
  - Grazing on forage conducted 45-days or more of the year

Permit Requirements

- **Develop a Ranch Water Quality Plan**
  - Property Info
  - Pasture inventory and assessment
  - Stream assessment
  - Management practices
  - Future water quality projects
  - Ranch map
  - Pasture use records
- **Manage to Minimize Impacts**
  - Implement management practices
- **RDM Monitoring (Performance Standard)**
  - Must use methodology described in UC ANR Rangeland Monitoring Series Publication 8092 - *Guidelines for Residual Dry Matter on Coastal and Foothill Rangelands in California*
- **Annual Certification**
  - Annual submittal confirming implementation of management practices and monitoring

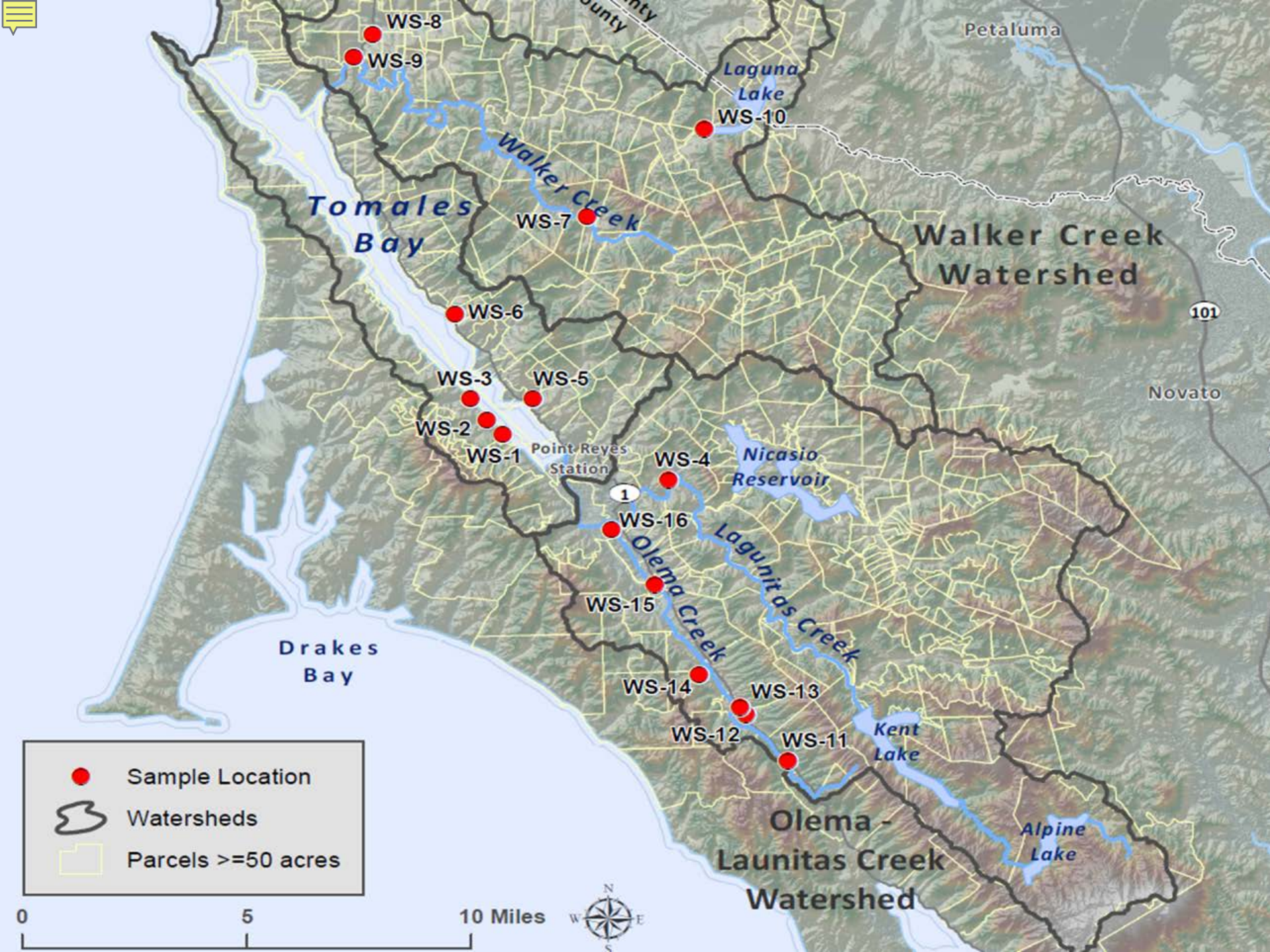
Management Practices

Off Line Watering Facilities

Controlling Stream Bed and Bank Erosion

Protected Stream Crossings

Riparian Exclusion Fencing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WS-4
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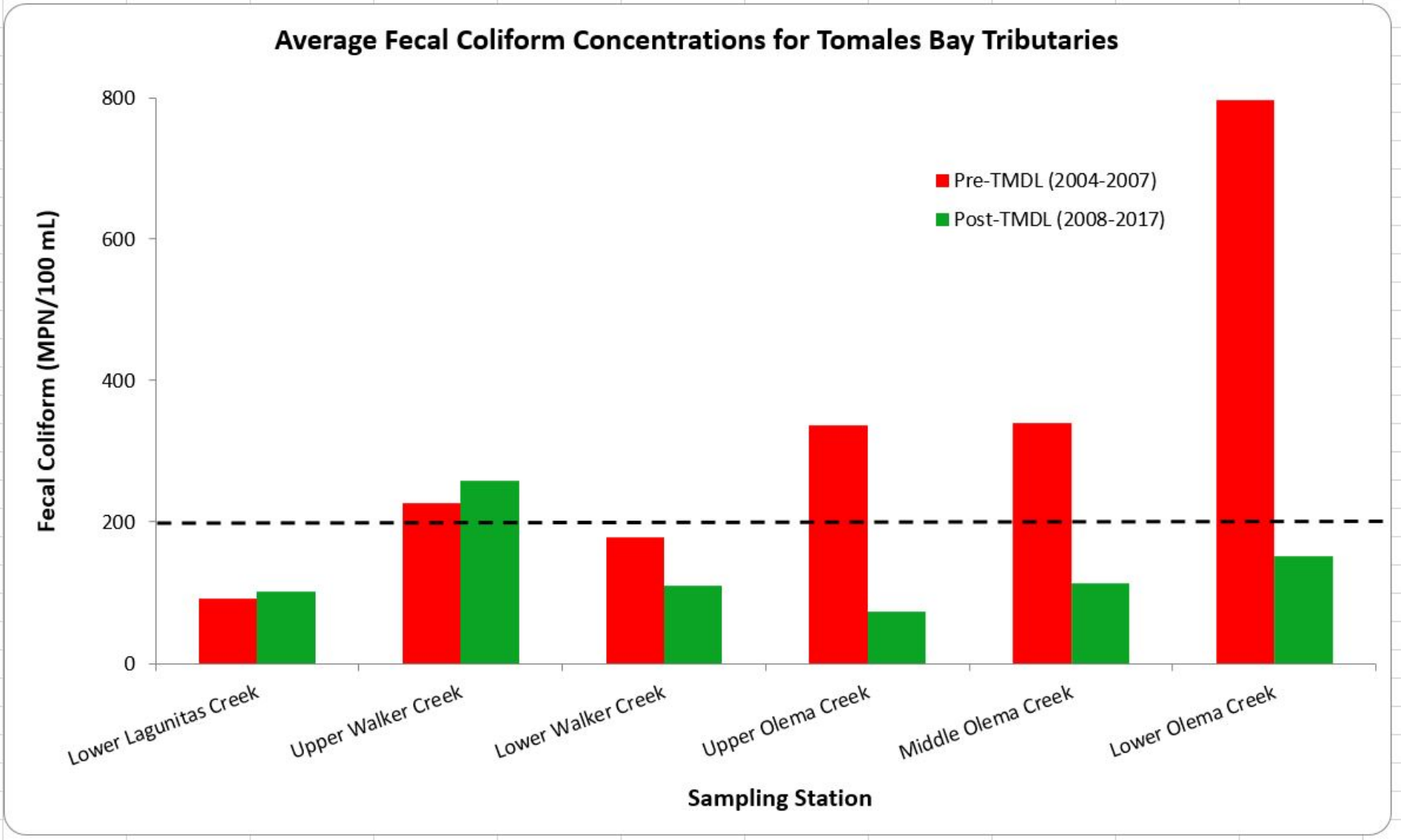
WS-15
WS-14
WS-13
WS-12
WS-11
Petaluma
Laguna Lake
Walker Creek
Tomales Bay
Walker Creek Watershed
101
Novato
Point Reyes Station
1
Nicasio Reservoir
Olema Creek
Lagunitas Creek
Drakes Bay
Kent Lake
Alpine Lake
Olema - Launitas Creek Watershed
Sample Location
Watersheds
Parcels >=50 acres
0
5
10 Miles
N
W
E
S


Average Fecal Coliform Concentrations for Tomales Bay Tributaries
Fecal Coliform (MPN/100 mL)
800
600
400
200
0
Pre-TMDL (2004-2007)
Post-TMDL (2008-2017)
Lower Lagunitas Creek
Upper Walker Creek
Lower Walker Creek
Upper Olema Creek
Middle Olema Creek
Lower Olema Creek
Sampling Station

Questions?