CENTRAL VALLEY WATER BOARD

CVCWA
Executive Briefing

Patrick Pulupa, Incoming Executive Officer

CENTRAL VALLEY WATER BOARD

PROGRAM UPDATES

PRESENTATION OVERVIEW

1 PLANNING

- CV-Salts
- Delta Nutrient Plan
- Ammonia WQOs
- Triennial Review
- Mercury
- Integrated Report
- Pesticides in WW

2 PERMITTING

- Lean 6 Sigma
- SB chronic toxicity policy
- Cost of compliance
- POTW general order

3 EMERGING ISSUES

- HABs
- Climate Change
- Requesting NPDES Discharges

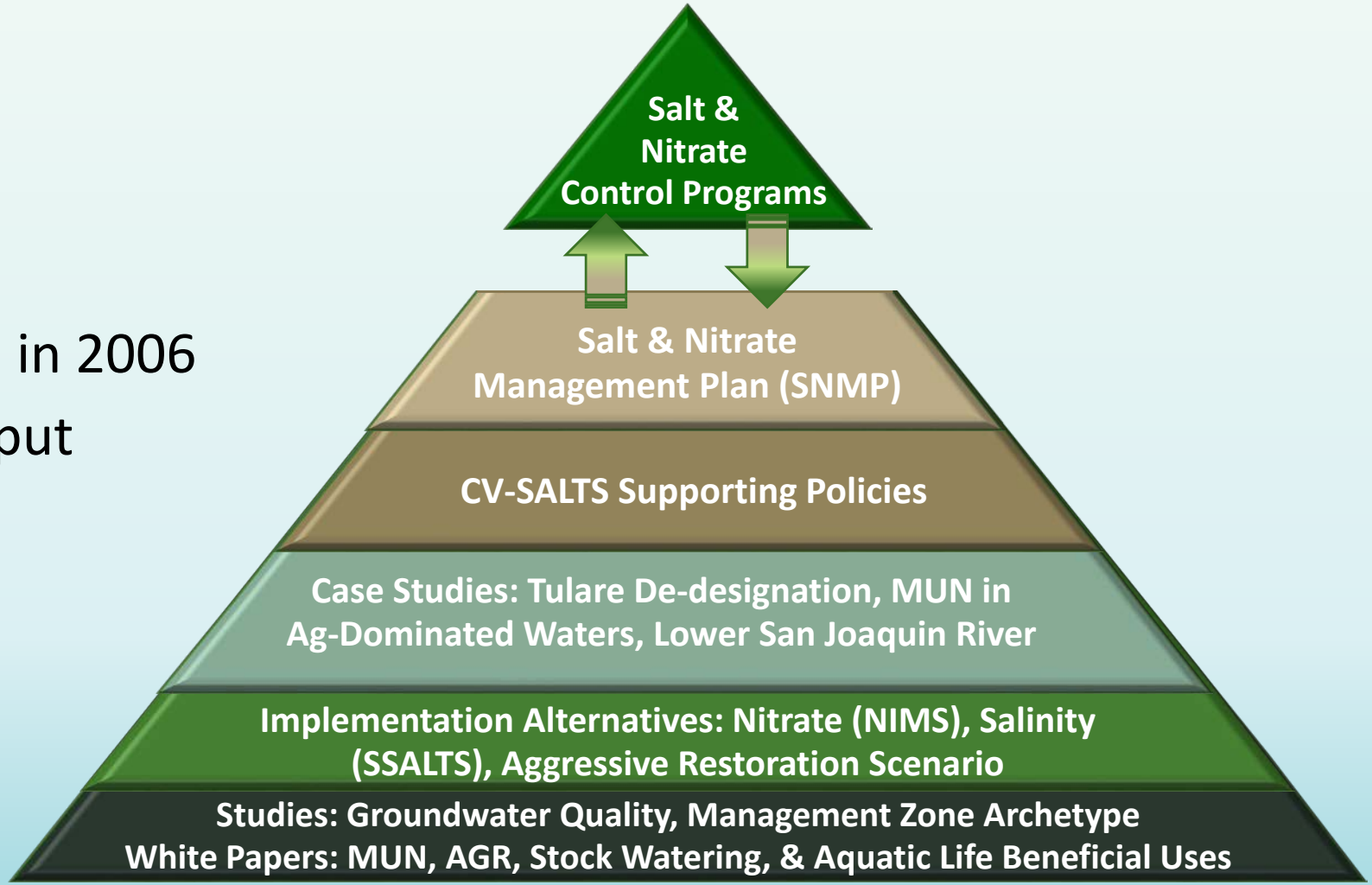
4 DELTA RMP

- Current Activities & Progress
- CECs
- SEP Considerations

CENTRAL VALLEY WATER BOARD - **PLANNING**

- **CV-SALTS**
- Draft Delta Nutrient Research Plan
- Ammonia WQOs
- Triennial Review
- Mercury
- Integrated Report
- Pesticides in Wastewater

- Stakeholder-driven
- Multi-year effort – initiated in 2006
- Agency Oversight/Public Input
- Materials posted at:
  - *www.cvsalinity.org*



Management Goal 1

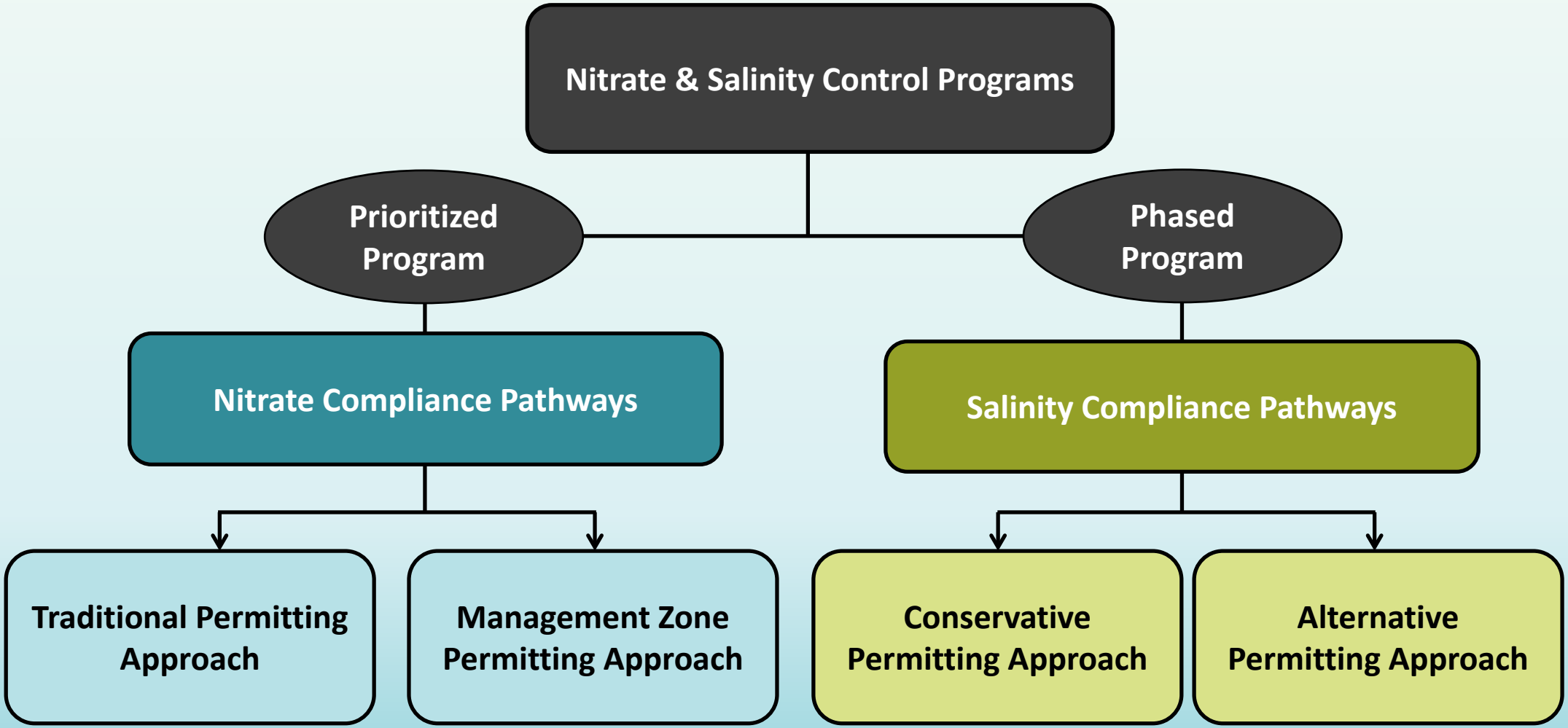
- Safe Drinking Water Supply
  - Short & Long Term Solutions

Management Goal 2

- Balance Salt & Nitrate Loading
  - Ongoing and Expanding Efforts

Management Goal 3

- Implement Managed Aquifer Restoration
  - Where reasonable, feasible & practicable


Nitrate & Salinity Control Programs
Prioritized Program
Phased Program
Nitrate Compliance Pathways
Salinity Compliance Pathways
Traditional Permitting Approach
Management Zone Permitting Approach
Conservative Permitting Approach
Alternative Permitting Approach

- **Concepts**
  - Management Zones
    - *Coordinated management for nitrate*
  - Requirements for allocating use of Assimilative Capacity
    - *Salts and nitrate*
  - Alternative Compliance Projects
    - *Prioritized focus on safe drinking water*
    - *Attention to Management Goals 2 & 3*
- **Control Programs**
  - Nitrate Control Program
  - Salt Control Program
- **Policies**
  - Variances and Exceptions
  - Drought and Conservation
  - Offsets
  - Secondary Maximum Contaminant Levels

San Francisco

- Participate in P&O Study
- Implement Reasonable, Practicable and Feasible Salt-Control Efforts
  - *Management Practices*
  - *Pollution Prevention Plans*
  - *Salt Reduction Plans*
- Maintain Current Concentration or Loading (w/ flexibility for conservation, drought, and growth)

Next Steps

Date	Deliverable/Action
22 March 2018	Draft Staff Report Released
7 May 2018	Written Comments Due
31 May and 1 June 2018	**Public Hearing to Consider Adoption**
2018/19	**State Water Board Approval Consideration**
2019	**Office Administrative Law Approval Consideration - Groundwater Components Effective Upon Approval**
2019	**USEPA Approval Consideration - Surface Water Components Effective Upon Approval**
2019	**Initiate Notice to Comply Mailings**

CENTRAL VALLEY WATER BOARD - **PLANNING**

- CV-SALTS
- **Delta Nutrient Research Plan**
- Ammonia WQOs
- Triennial Review
- Mercury
- Integrated Report
- Pesticides in Wastewater

Purpose:

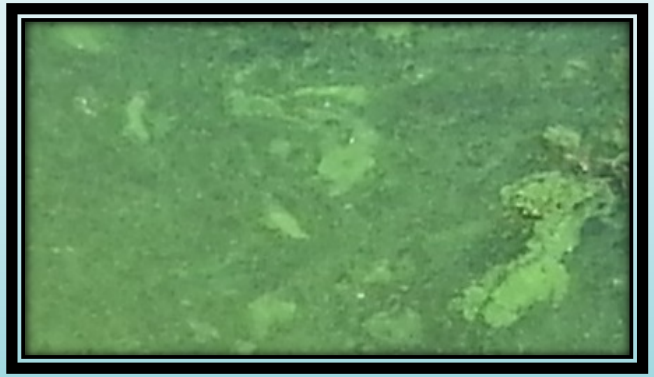
- A study plan to determine if nutrient objectives are needed

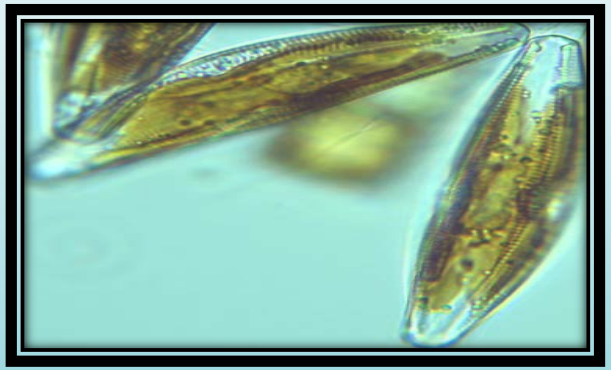
Issues:

- HABs, aquatic weeds, low dissolved oxygen & lower food web

Prioritized Recommendations:

- For research, monitoring & modeling





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- USEPA updated criteria in 2013 – *more stringent than 1999 criteria*
- Regional Board Basin Planning – *region-wide ammonia criteria based on resident mussel species*

- **CVCWA collaborative study:**
  I. State of Knowledge Report
     - *Completed in 2015*
  II. eDNA pilot study to determine presence/absence of mussels
     - *Completed in 2017*
  III. Acute toxicity testing with resident mussels and criteria recalculation
     - *Expecting end of 2018*

Milestone	Date
CVCWA California Mussel Recalculation	*December 2018*
Draft Staff Report for Peer Review	*May 2019*
Draft Staff Report for Public Review	*August 2019*
Regional Board Hearing & Meeting	*December 2019*
State Board Approval	*April 2020*
OAL Approval	*June 2020*
USEPA Approval	*September 2020*

Impact for POTWs

- Potential facility upgrade
- Compliance Schedule
- **Variance**

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- Work plans will be released in July 2018
- Board hearing in August 2018
- Big issues: Tribal Beneficial Uses, Implications for Permits

Tribal Beneficial Uses – A Tough Challenge

Tribal Traditional/Culture (CUL)

Tribal Subsistence (T-SUB)

Subsistence Fishing (SUB)

- May 2017 Revision to State Board's Inland Surface Water Plan
- Objectives are methylmercury in fish tissue, translates to total mercury in water for RP and effluent limitations
- Standards as low as 1 ng/L (slow moving) to 4 ng/L (flowing)

CENTRAL VALLEY WATER BOARD - **PLANNING**

- CV-SALTS
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- **Mercury**
- Integrated Report
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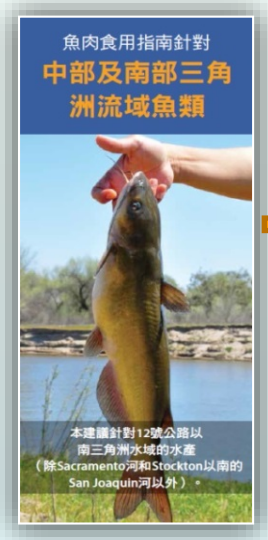
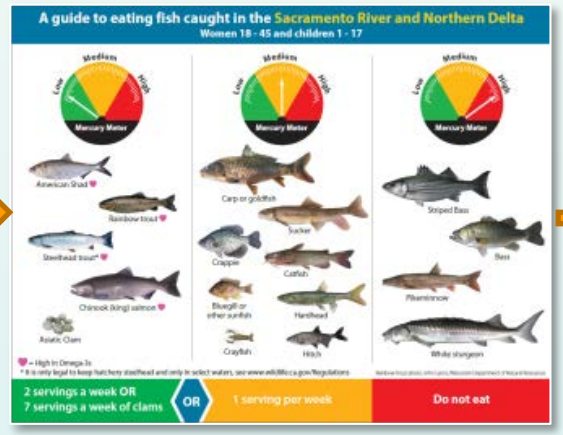
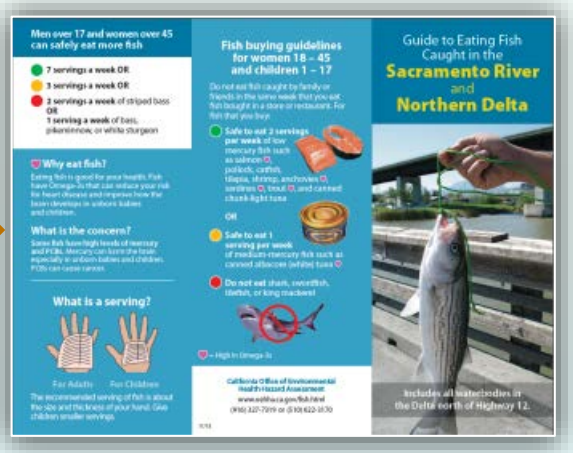
Phase 1 studies Due: October 2018
TMDL Review Schedule: 2019-2020
Develop Mercury Offset Program
Mercury Exposure Reduction Update

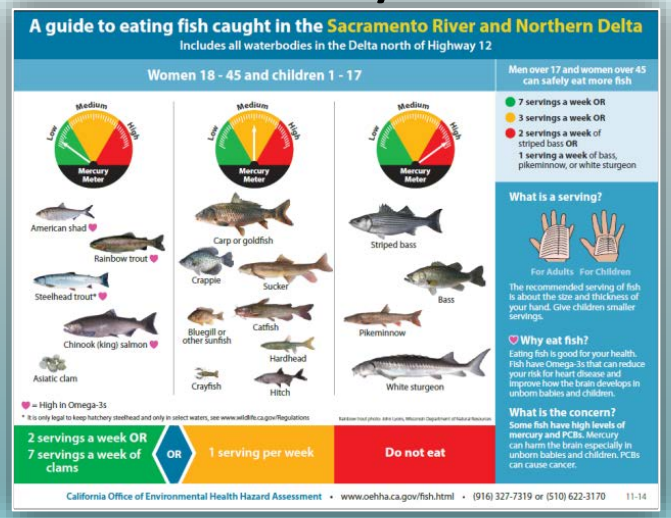
Brochures







Kiosk Flyers



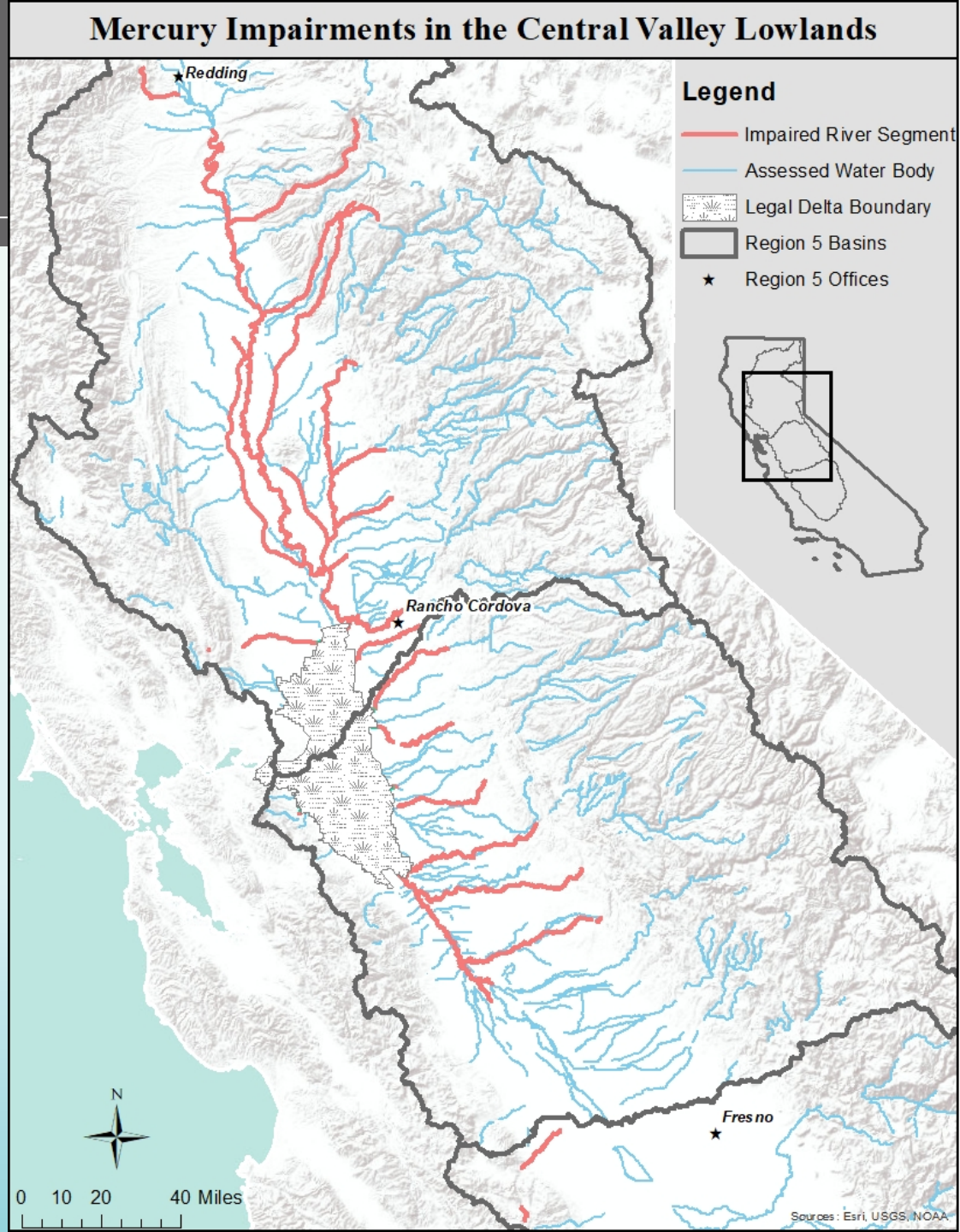
Languages:

English
Khmer (Cambodian)
Chinese
Hmong
Lao
Russian
Spanish
Tagalog
Vietnamese

Fish Consumption Advisory Signs

Central Valley Rivers TMDL

- New TMDL project for 32 creeks and rivers tributary to the Delta
- Downstream of major dams



CENTRAL VALLEY WATER BOARD - **PLANNING**

- CV-SALTS
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- Triennial Review
- Mercury
- **Integrated Report**
- Pesticides in Wastewater

- 2014/16 INTEGRATED REPORT
  - ✓ Approved by USEPA

309 New Listings:

- Added to 303(d) List (978 total)

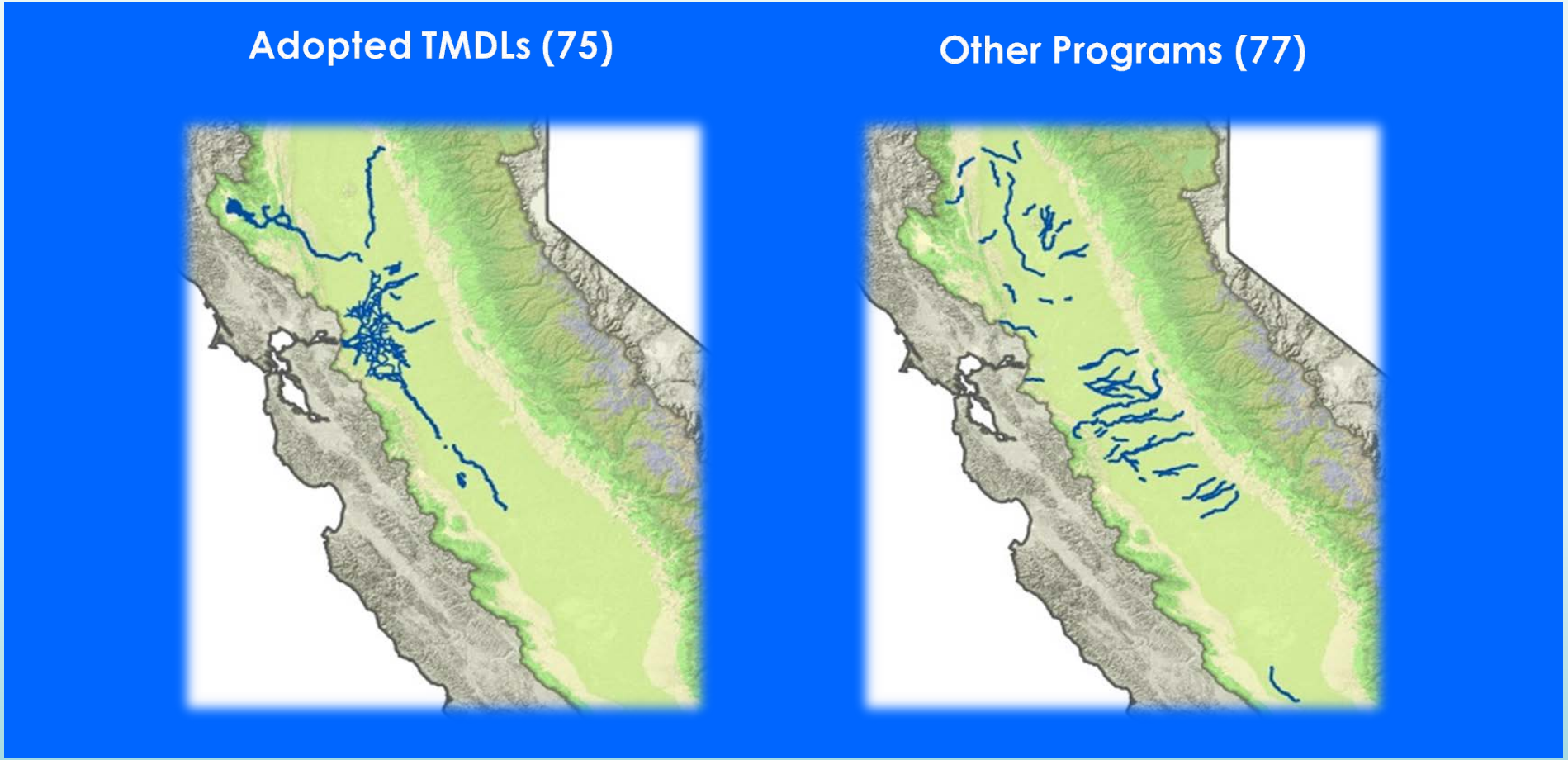
38 Delistings:

- 38 water body – pollutant combinations removed from 303(d) Listing

152 Cat. 4b

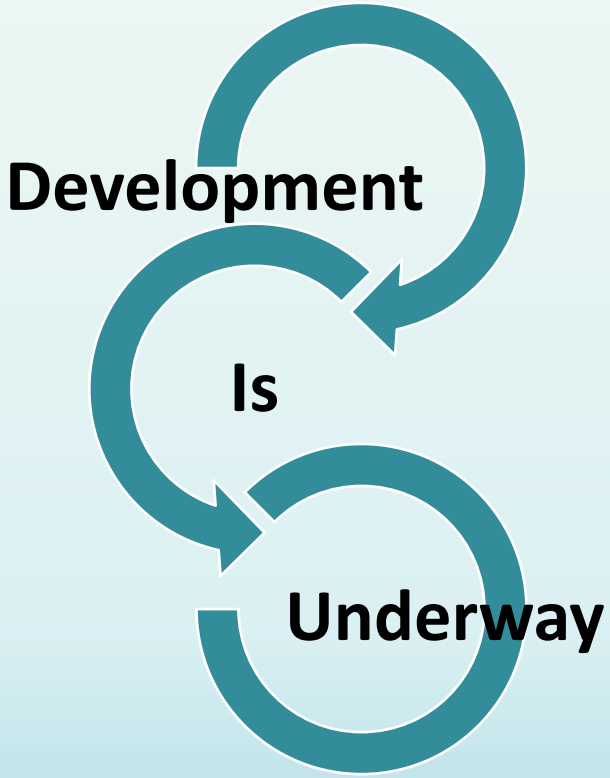
- Addressed by TMDLs or other Regulatory Programs

- Impairments Being Addressed



2018 Integrated Report

In-progress – select high priority assessments



2020 Integrated Report

Next full data assessment for Region 5

CENTRAL VALLEY WATER BOARD - **PLANNING**

- CV-SALTS
- Draft Delta Nutrient Research Plan
- Ammonia WQOs
- Triennial Review
- Mercury
- Integrated Report
- **Pesticides in Wastewater**

In development since 2012

Adopted June 2017

SWRCB ~ June 2018

OAL & EPA ~ Late June 2018

Conditional Prohibition

- *Discharges above numeric triggers without an approved management plan prohibited*

- Requirements for POTWs

– Monitoring
  - *Pyrethroids in effluent*
  - *Pyrethroids and toxicity to Hyalella in receiving water*
  - *Pyrethroid alternatives*

– Management Plans
  - *When pyrethroid discharges are above prohibition triggers*
  - *Part of pollution prevention plans*

- POTW – Timeline for Implementation

Baseline Monitoring:

- Due 2 years from effective date

Management Plans:

- Due 3 years from effective date

Board Review:

- Of all aspects of the program in 15 years

Fipronil and Imidacloprid

- *Many uses, including flea medicines*
- *Low % removal in treatment systems (<35%)*
- *Concentrations above invertebrate toxicity thresholds in effluent, other discharges and surface waters*
  - ➢ *Media attention in San Francisco Bay area*
- *Encourage support for pollution prevention efforts and use regulation*
  - ➢ *DPR increased wastewater focus*

SETAC PRESS

Environmental Toxicology and Chemistry, Vol. 9999, No. 9999, pp. 1–10, 2016

Environmental Chemistry

PASSAGE OF FIPROLES AND IMIDACLOPRID FROM URBAN PEST CONTROL USES THROUGH WASTEWATER TREATMENT PLANTS IN NORTHERN CALIFORNIA, USA

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(Submitted 19 May 2016; Returned for Revision 22 July 2016; Accepted 1 November 2016)

Abstract: Urban pest control insecticides specifically fipronil and its 4 major degradates (fipronil sulfone, sulfide, desulfinyl, and amide), as well as imidacloprid were monitored during drought conditions in 8 San Francisco Bay (San Francisco, CA, USA) wastewater treatment plants (WWTPs). In influent and effluent, ubiquitous detections were obtained in units of ng/L for fipronil (13 88 ng/L), fipronil sulfone (1 28 ng/L), fipronil sulfide (1 5 ng/L), and imidacloprid (58 306 ng/L). Partitioning was also investigated; in influent, 100% of imidacloprid and 62 ± 9% of total fiproles (fipronil and degradates) were present in the dissolved state, with the balance being bound to filter-removable particulates. Targeted insecticides persisted during wastewater treatment, regardless of treatment technology utilized (imidacloprid: 93 ± 17%; total fiproles: 65 ± 11% remaining), with partitioning into sludge (3.7 151.1 µg/kg dry wt as fipronil) accounting for minor losses of total fiproles entering WWTPs. The load of total fiproles was fairly consistent across the facilities but fiprole speciation varied. This first regional study on fiprole and imidacloprid occurrences in raw and treated California sewage revealed ubiquity and marked persistence to conventional treatment of both phenylpyrazole and neonicotinoid compounds. Flea and tick control agents for pets are identified as potential sources of pesticides in sewage meriting further investigation and inclusion in chemical-specific risk assessments. *Environ Toxicol Chem* 2016;9999:1 10. © 2016 SETAC

Keywords: Insecticide Water quality Persistant organic pollutants (POPs) Fate and transport Pesticides

INTRODUCTION

Over the last decade, 2 newer insecticides, fipronil and imidacloprid, have gradually replaced older active ingredients in common urban pest control applications, such as pet flea treatments and professional insect control products [1,2]. The phase-out of most organophosphate insecticides for urban uses in the early 2000s opened markets that soon were filled by fipronil and imidacloprid formulations. Continued growth of urban uses is likely in the present decade in large part because of the replacement of pyrethroids, an older class of insecticides that are widely detected in urban streams and have come under scrutiny for adverse impacts on the health of aquatic invertebrates [3–6], findings that triggered federal and state regulatory responses [7,8]. Fipronil, a phenylpyrazole insecticide, has multiple urban uses including sprays for the outdoor perimeter of buildings to control ants and other insects, underground injections to control termites, pet treatments for fleas and ticks, gels for crack and crevice treatment, insect control baits, and, except in California, landscape maintenance [1,9,10]. Imidacloprid, a neonicotinoid insecticide, has urban applications in lawn and landscape maintenance, outdoor structural pest control, indoor bedbug and nuisance insect control, underground injections to control termites, and pet treatments for fleas and ticks [1,11]. Imidacloprid is also used as an insecticidal component of manufactured materials such as polystyrene insulation, vinyl siding, adhesives, sealants, textiles for outdoor uses, and pressure-treated wood decking [11–13].

Both pesticides are toxic to sensitive aquatic invertebrates at low parts-per-trillion concentrations (<100 ng/L) [14,15]. In 2007, the US Environmental Protection Agency (USEPA) established aquatic life benchmarks for fipronil (11 ng/L), as well as its degradates fipronil sulfone (37 ng/L), fipronil sulfide (110 ng/L), and fipronil desulfinyl (590 ng/L) based on chronic exposure studies of multiple freshwater invertebrates [16]. Recently published invertebrate toxicity data [15] show chronic effects to aquatic invertebrates at concentrations of 7 ng/L to 8 ng/L for fipronil sulfone and 9 ng/L to 11 ng/L for fipronil sulfide, lower than the USEPA's 2007 benchmarks. Fish appear to be less sensitive to fipronil and its degradates; USEPA chronic aquatic life benchmarks for freshwater fish range from 6600 ng/L for fipronil to 590 ng/L for fipronil desulfinyl [16]. In 2008, the USEPA established an aquatic life benchmark of 1050 ng/L for imidacloprid based on chronic exposure studies of *Daphnia magna* [11]. However, a recent summary of chronic toxicity data indicates that mayflies can experience effects such as immobilization after long-term exposure at concentrations of less than 100 ng/L and that the majority of other invertebrates studied are 100 to 1000 times more sensitive to imidacloprid than *D. magna* [14]. A more recent evaluation by the European Union of imidacloprid toxicity data [17] has established a predicted no-effect concentration (PNEC) of 4.8 ng/L; this was based on species sensitivity distribution information incorporating recent toxicity data, such as the mayfly nymph immobilization effective concentration, 10% (EC10) value of approximately 30 ng/L [18]. Fish are less sensitive to

This article includes online-only Supplemental Data.
* Address correspondence to halden@asu.edu
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DOI: 10.1002/etc.3673

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CENTRAL VALLEY WATER BOARD - **PERMITTING**

- **Lean 6 Implementation Update**
- State Board's Chronic Toxicity Policy
- Cost of Compliance Updates
- POTW General Order

Lean 6-Sigma

Regional Board	Lean 6 Sigma	Goal
• Working to improve permitting efficiencies	• Process conducted last year	• Develop draft permit in 45 days

Lean 6-Sigma Methodology

Eliminate Waste

- Identify and eliminate waste in a process and improve quality by reducing defects in a process.

Streamline the Process

- Process changes are made based on statistical analysis of the data.

New Standardized Process

- Staff equip to make decisions how management wants decisions made.

Implementation

- Identify issues early
  - Review data every other year
  - Report of Waste Discharge due 1-year prior to expiration
- Centralized location for data and reports
  - Technical reports submitted via CIWQS

CENTRAL VALLEY WATER BOARD - **PERMITTING**

- Lean 6 Implementation Update
- **State Board's Chronic Toxicity Policy**
- Cost of Compliance Updates
- POTW General Order

- Statewide Toxicity Policy

June 15th Issued for public review

July 2018 Workshop and oral comments

August 3rd Comments due

December 2018 Adopt policy

Move forward with remaining backlogged permits

Statewide Toxicity Policy

Policy Requirements

- Include Narrative & Numeric Limits
- Reasonable Potential Procedures
- Monitoring Schedules
- TST

Concerns

- May limit flexibility in RPAs
- limit ability to reduce monitoring frequency
- Restrictive for small disadvantaged communities

CENTRAL VALLEY WATER BOARD - **PERMITTING**

- Lean 6 Implementation Update
- State Board's Chronic Toxicity Policy
- **Cost of Compliance Updates**
- POTW General Order

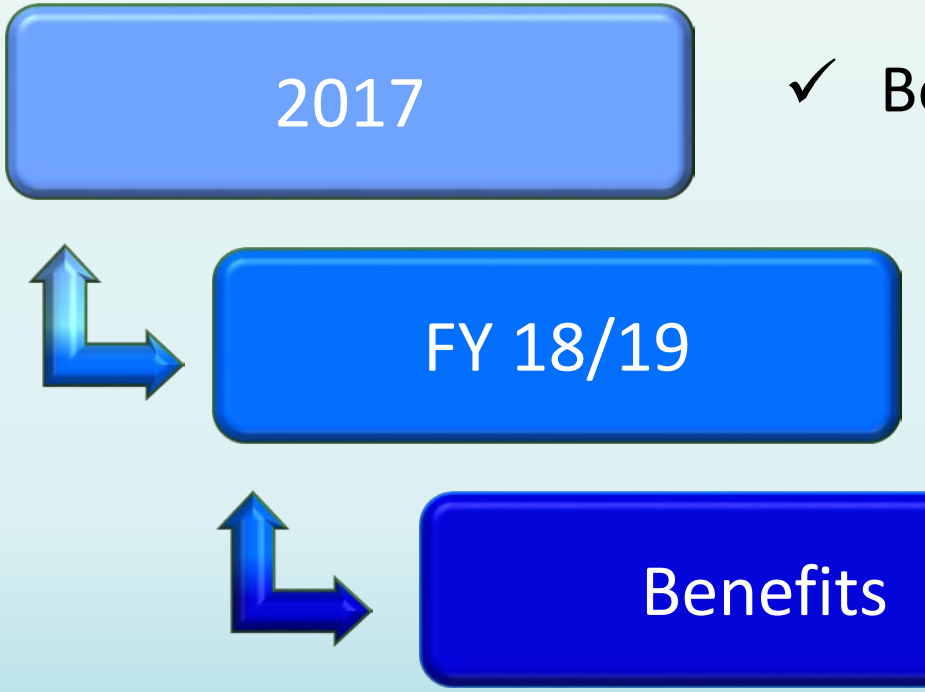
- Cost of Compliance Considered in Permitting
- Reduced monitoring frequency
  - *Consistent compliance*
  - *Consistent data*
- Remove unnecessary reports
  - *e.g., Salinity Evaluation and Minimization Plan Annual Progress Reports*

- *Reduction in Effluent Limits*
  - *Flow limit changed to discharge prohibition*
  - *For Tertiary Facilities*
    - *BOD/TSS maximum daily limits removed*
    - *BOD/TSS mass limits removed*

CENTRAL VALLEY WATER BOARD - **PERMITTING**

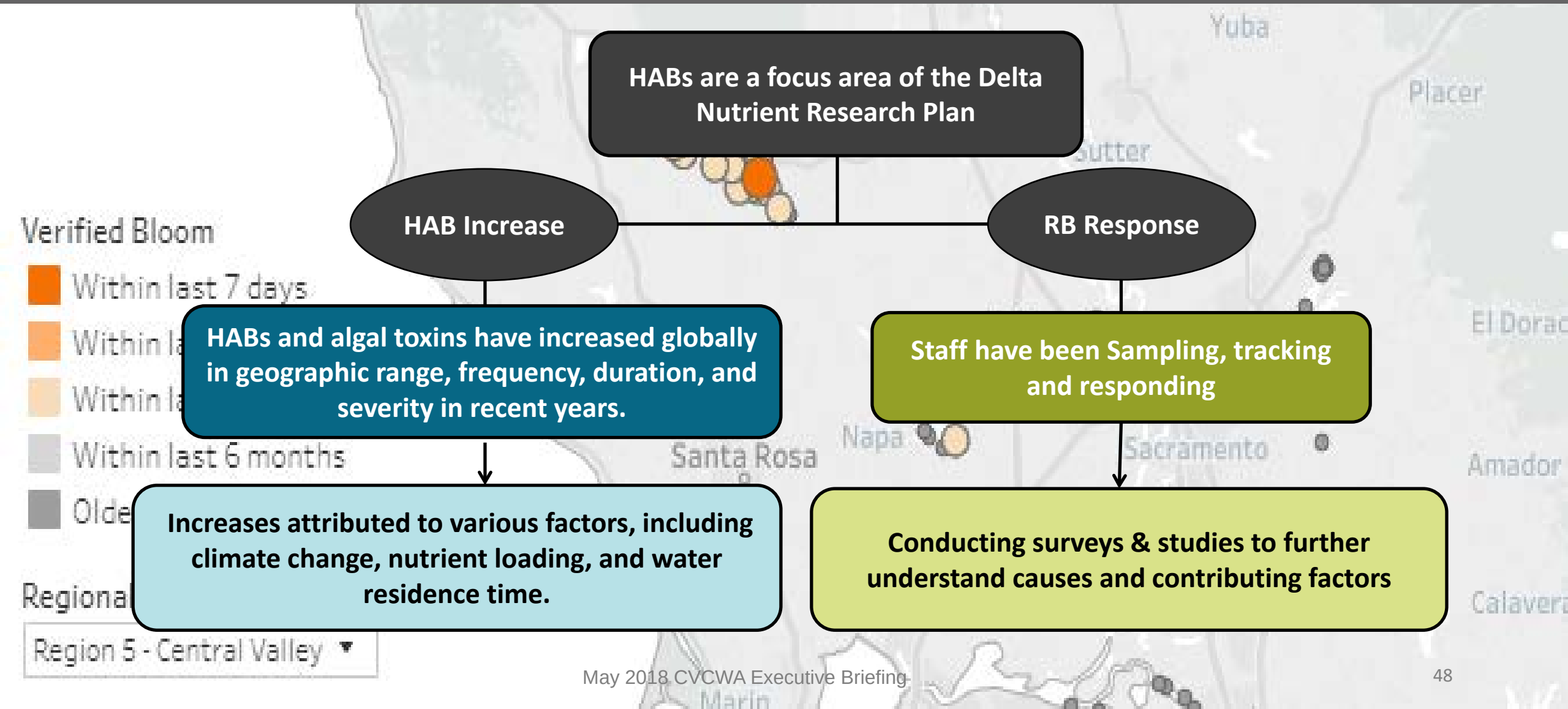
- Lean 6 Implementation Update
- State Board's Chronic Toxicity Policy
- Cost of Compliance Updates
- **POTW General Order**

- POTW General Order



CENTRAL VALLEY WATER BOARD – EMERGING ISSUES

- **Harmful Algal Blooms**
- Climate Change
- Requesting NPDES Discharges


HABs are a focus area of the Delta Nutrient Research Plan
HAB Increase
RB Response
HABs and algal toxins have increased globally in geographic range, frequency, duration, and severity in recent years.
Staff have been Sampling, tracking and responding
Increases attributed to various factors, including climate change, nutrient loading, and water residence time.
Conducting surveys & studies to further understand causes and contributing factors
Verified Bloom
Within last 7 days
Within last 6 months
Region 5 - Central Valley
Yuba
Placer
Napa
Sacramento
Santa Rosa
Amador
Marin

CENTRAL VALLEY WATER BOARD – EMERGING ISSUES

- Harmful Algal Blooms
- **Climate Change**
- Requesting NPDES Discharges

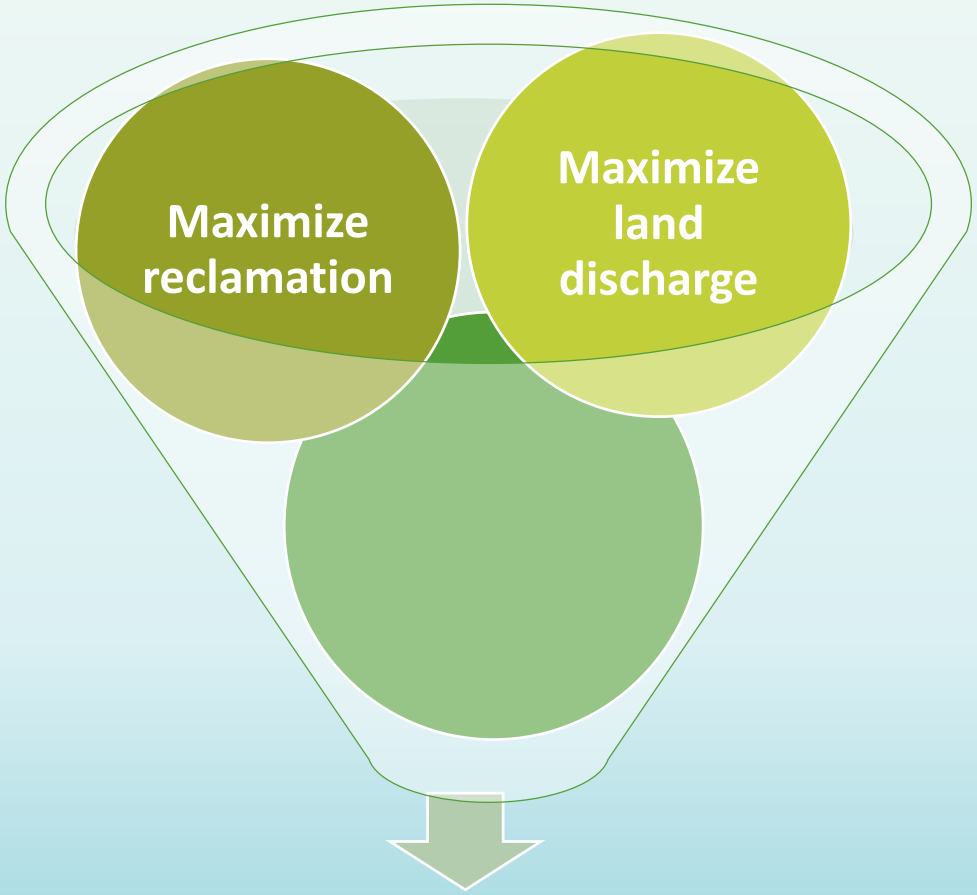
Climate Change

- Climate Change Work Plan
  - Adopted December 2017
- NPDES and Non-15 Climate Work Plans
  - Work with Dischargers on potential requirements

CENTRAL VALLEY WATER BOARD – EMERGING ISSUES

- Harmful Algal Blooms
- Climate Change
- **Requesting New NPDES Discharges**

Must first fully evaluate feasibility



CENTRAL VALLEY WATER BOARD – DELTA RMP

- **Current Activities and Progress**
- CEC's Update
- SEP Considerations

Current funding level:

- ~ $1 million/year

Steering Committee:

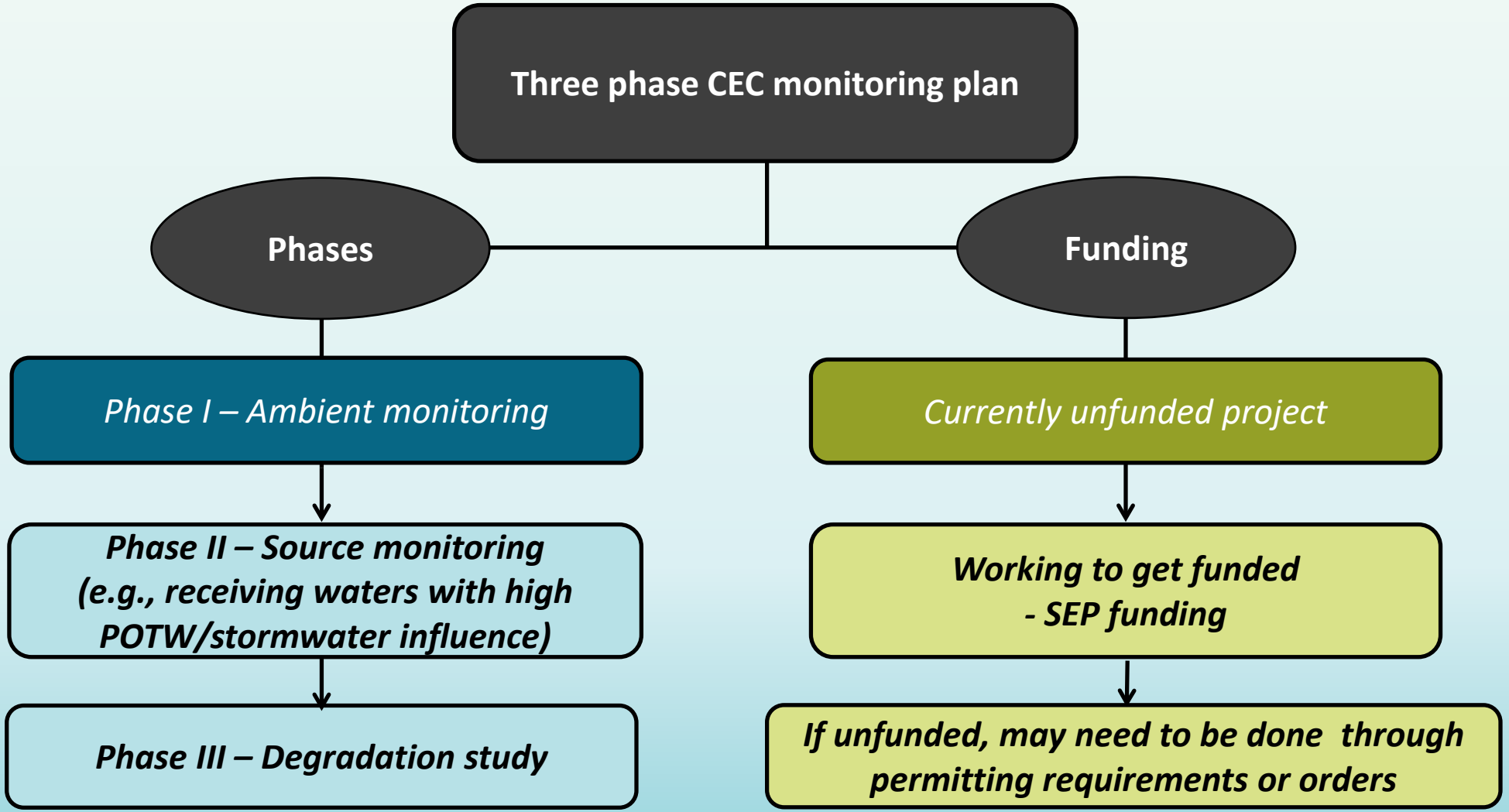
- POTWs, stormwater, dredging, irrigated lands, supply, resource agencies, EPA, water boards

Current Activities:

- Pesticide interpretive report
  - 2 yrs. comprehensive pesticide/toxicity testing
- Mercury/nutrient monitoring continues
- CEC monitoring plan

CENTRAL VALLEY WATER BOARD – **DELTA RMP**

- Current Activities and Progress
- **CEC's Update**
- SEP Consideration


Three phase CEC monitoring plan
Phases
Funding
Phase I – Ambient monitoring
Phase II – Source monitoring (e.g., receiving waters with high POTW/stormwater influence)
Phase III – Degradation study
Currently unfunded project
Working to get funded - SEP funding
If unfunded, may need to be done through permitting requirements or orders

- New NPDES Program Manager (Jim Marshall)

- New NPDES Enforcement Program Manager (Kim Sellards)

QUESTIONS?


CV-SALTS
Ammonia
Delta Nutrients
Lean 6 Sigma
Tribal Beneficial Uses
HABs
Mercury
Climate Change
NPDES Dischargers
Integrated Report
SEP
Pesticides
Delta RMP Activities
CECs
Cost of Compliance
Chronic Toxicity