



BACWA Recycled Water Committee: Nutrient Watershed Permit DRAFT Results

March 21, 2023



Agenda

- Background/Permits Overview
- Status Update
- Draft 2nd Watershed Permit Findings (Recycled Water Focused):
 - Volume/Load Projections
 - Confidence Level 4?
 - Drivers/Barriers
 - Comparing data against Nutrient Watershed Permit 1.0
- Next Steps





Background/Permits Overview

Nutrient Loads to the Bay: Refresher



BACWA
BAY AREA
CLEAN WATER
AGENCIES

BACWA is a joint powers authority formed by the five largest Bay Area Publicly Owned Treatment Works (POTWs)

7M+ SERVICE POPULATION  → **37** WASTEWATER TREATMENT PLANTS  → **~450** MILLION GALLONS PER DAY TREATED EFFLUENT  → **2/3's** OF NUTRIENT LOADS TO THE BAY 

1st Nutrients Watershed Permit 2014-2019 (R2-2014-0014)

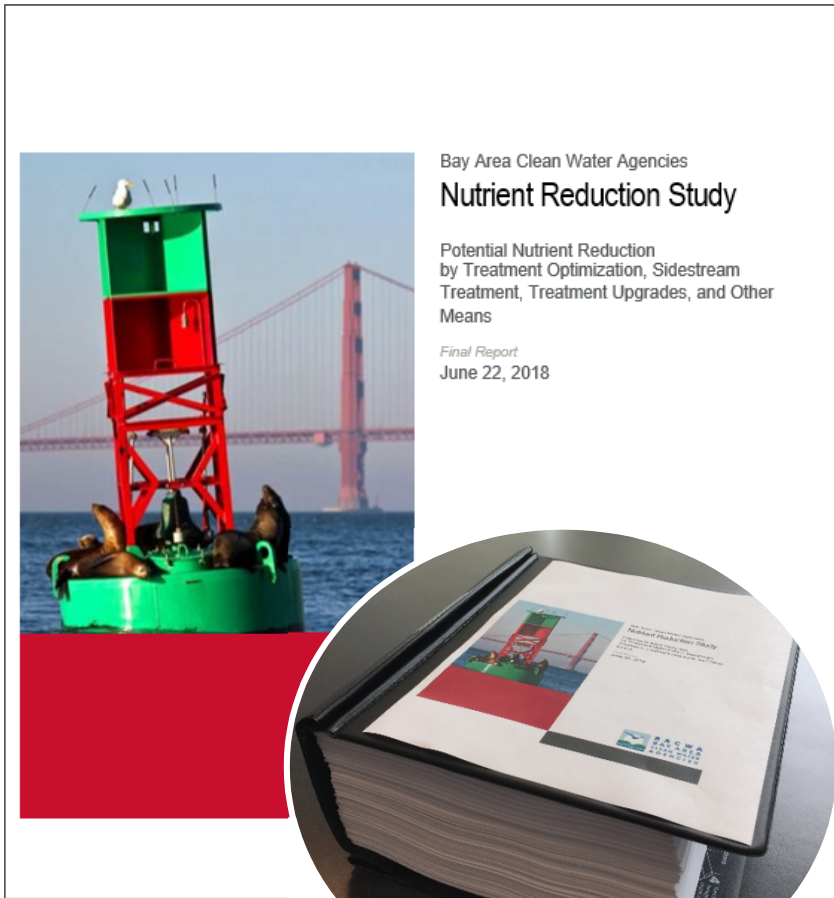
NO LOAD CAPS

SUPPORT FOR SCIENCE

GROUP REPORTING

REGIONAL STUDY

1st Watershed Permit: Key Outcomes



Strategy	Total N Load Reduction to the Bay	Total P Load Reduction to the Bay	Total Present Value (\$ Mil in 2018 \$)
Optimization	7%	34%	\$266 M
Sidestream Treatment	19%	12%	\$766 M
Upgrade Level 2 (15 mg N/L; 1 mg P/L)	57%	59%	\$9.4 B
Upgrade Level 3 (6 mg N/L; 0.3 mg P/L)	82%	88%	\$12.4 B

2nd Nutrients Watershed Permit 2019 (R2-2019-0017)

NO LOAD CAPS

**INCREASED SUPPORT
FOR SCIENCE**

Recognize Early Actors

GROUP REPORTING

**REGIONAL STUDY
(Nature-based Solutions
(NbS) and Reuse)**



Status Update

Individual Plant Reports

DONE

01

01: INITIAL RFI & INDIVIDUAL REPORT TEMPLATE

- The 1st Watershed Permit Plant Reports: used for Report Sections 1 and 2
- RFI: starting point for Section 3

DONE

02

02: SECOND RFI (RW PROJECT WRITE-UPS & COST)

- Write-Ups: agency to provide additional project descriptions
- Cost (if available): agency to provide

Drafted
42/42

03

03: DRAFT INDIVIDUAL PLANT REPORTS

- Consultant team to draft the reports
- Agency: period to review and provide comments

In Process

04

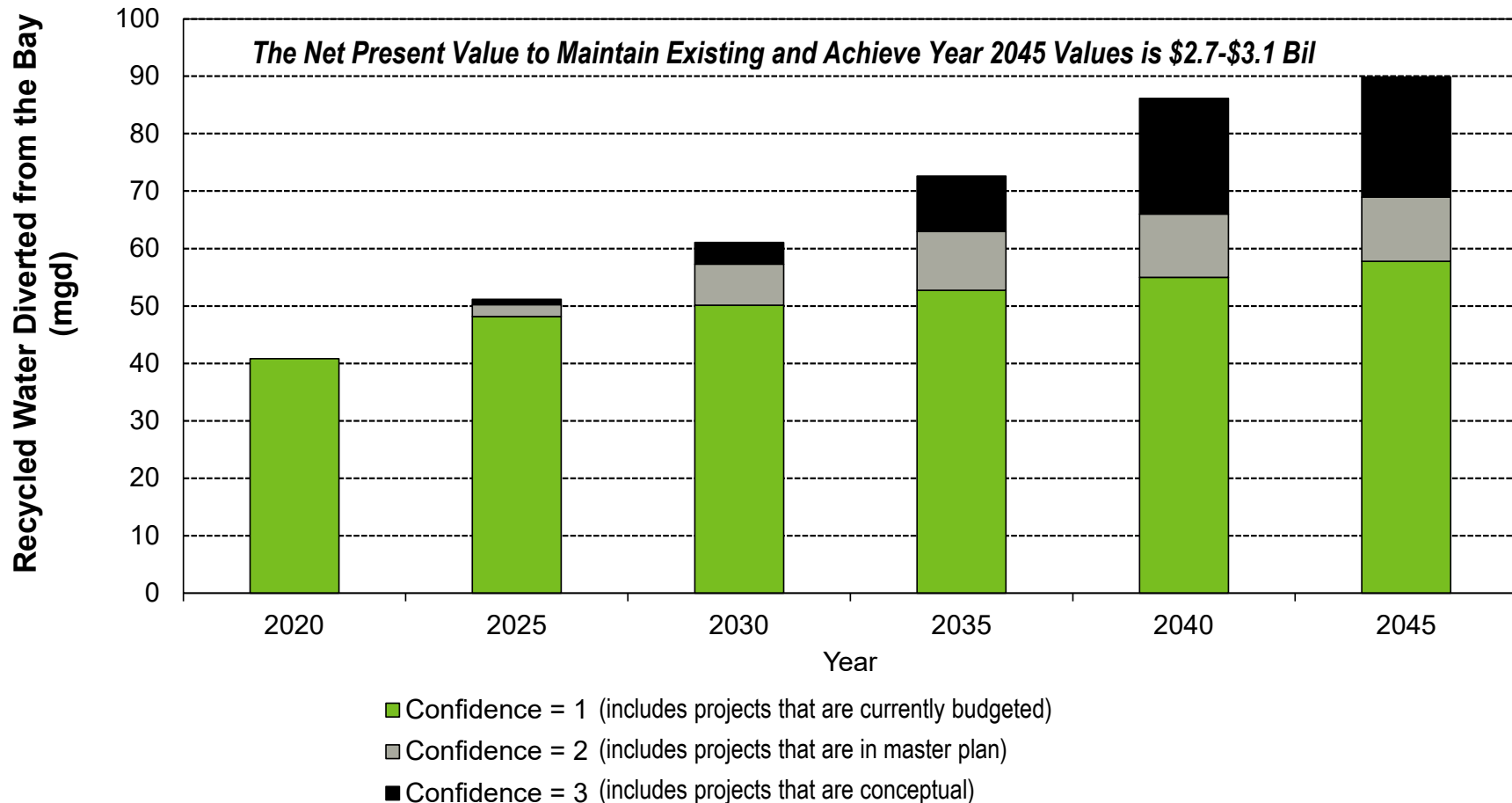
04: COMMENTS, REVIEW CALL, AND FINALIZE/SIGN

- Agency Comments: agency to review and provide consultant
- Review Call: Consultant to update report and lead a call with client
- Finalize/Sign: Consultant to finalize and Agency to Sign-Off



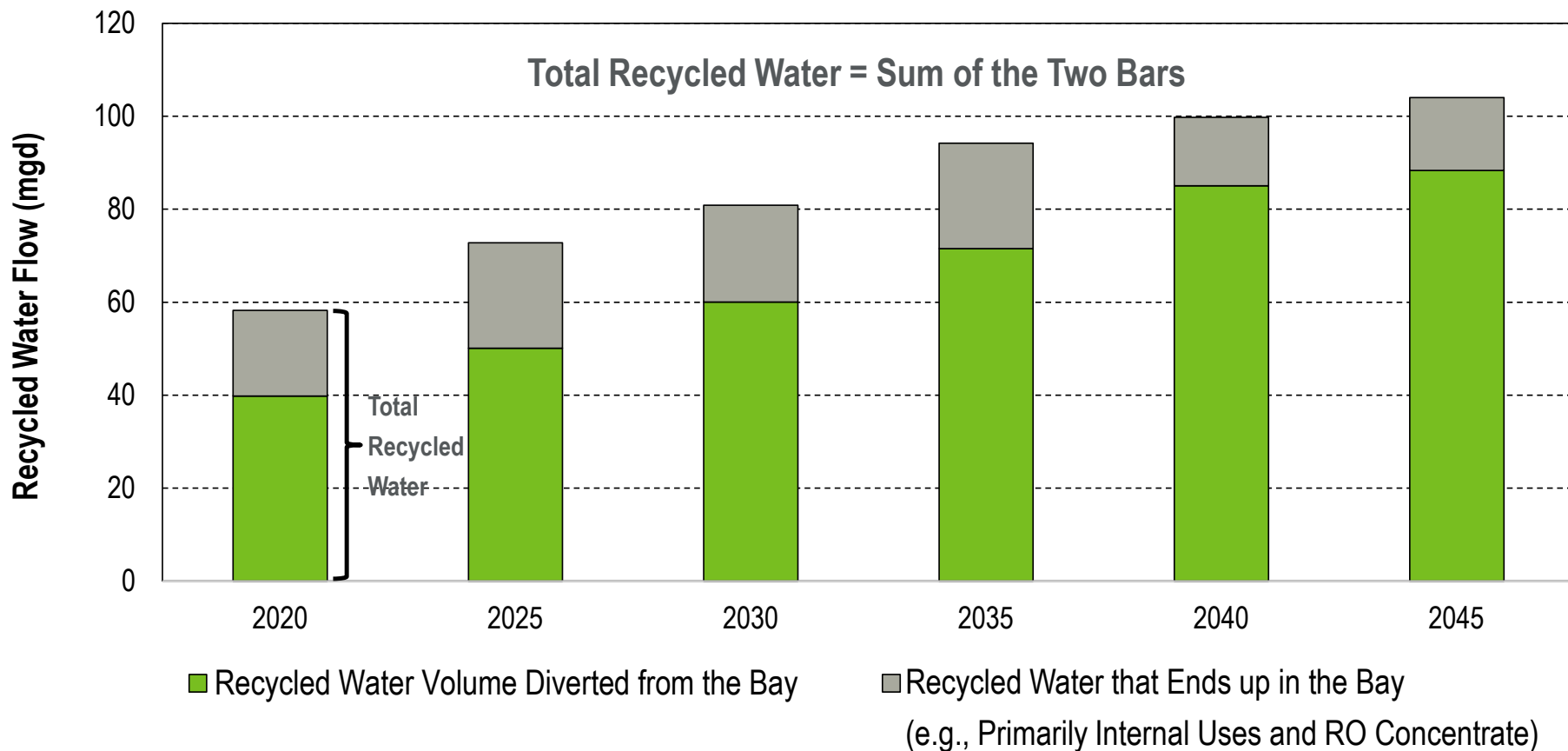
Draft 2nd Watershed Permit Findings (Recycled Water Focused)

DRAFT Recycled Water Flows Diverted from Bay Projected into the Future (Year-Round)

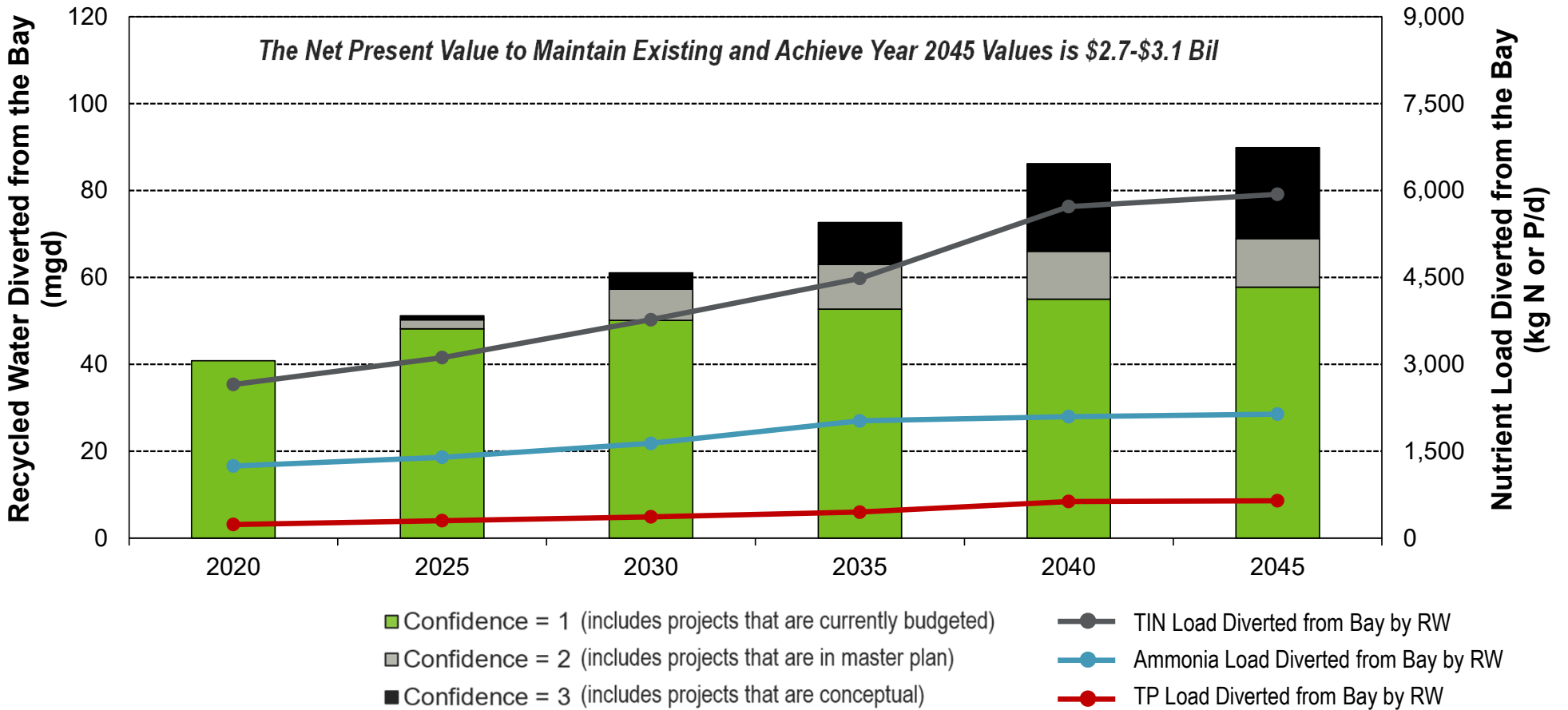


For Perspective: the Current Discharge Flows to the Bay are Approximately 400 mgd (about 9% of Effluent is Currently Recycled)

DRAFT Total Recycled Water Volumes Projected into the Future (Year-Round)

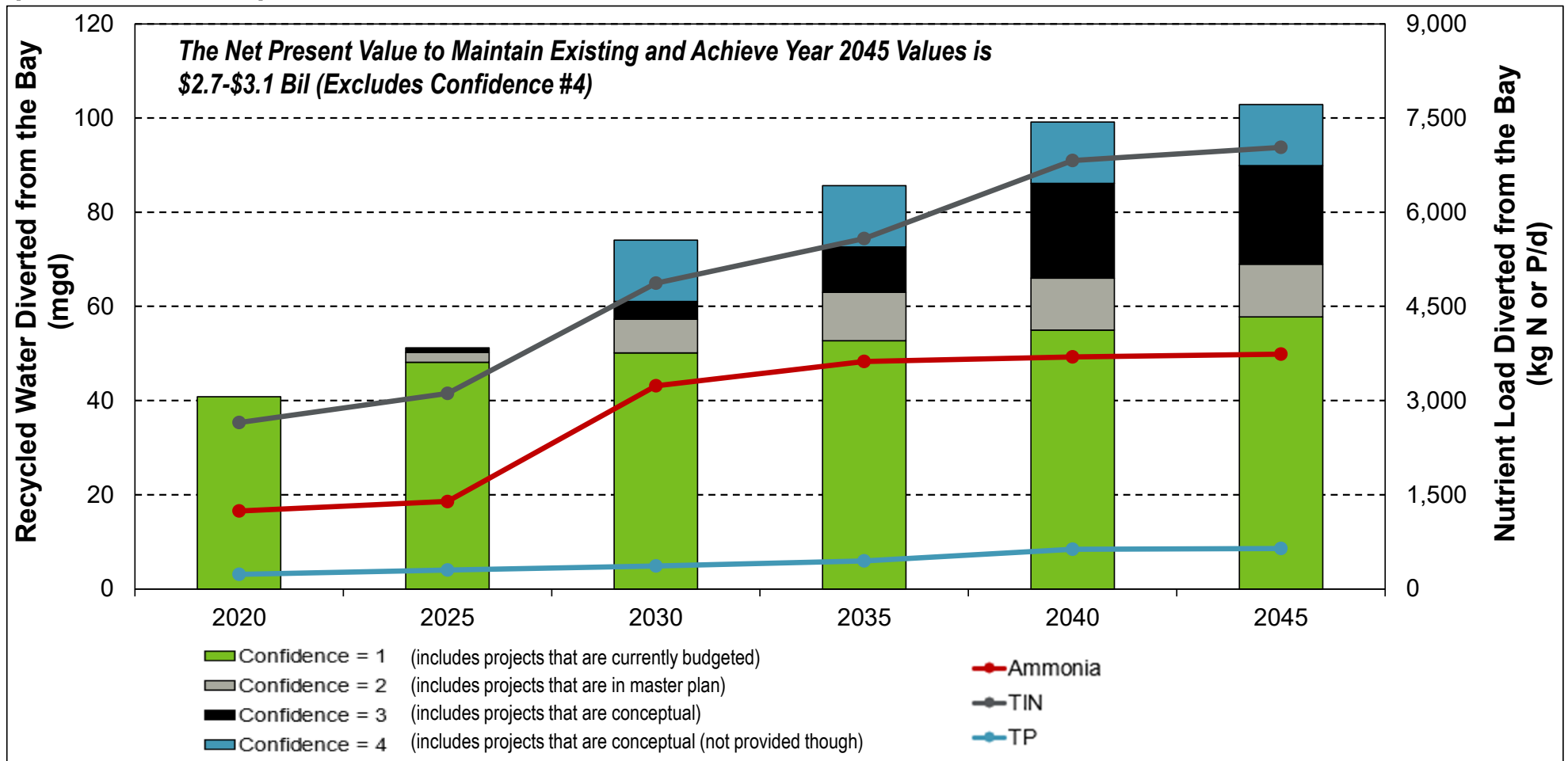


DRAFT Recycled Water Flows Diverted from Bay Projected into the Future (Year-Round)



For Perspective: the Current Discharge TIN Loads to the Bay are Approximately 44,000 kg N/d (about 6% of Effluent TIN is Currently Recycled)

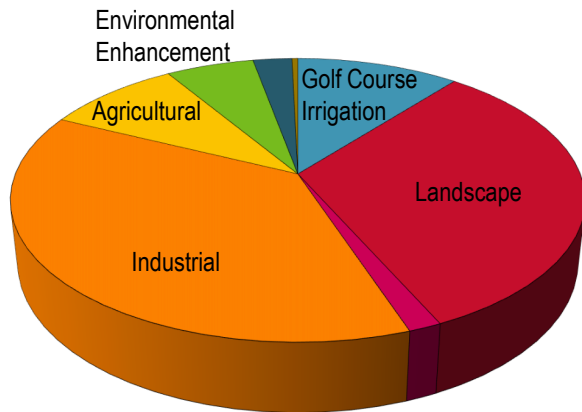
DRAFT Recycled Water Flows Diverted from Bay Projected into the Future (Year-Round)



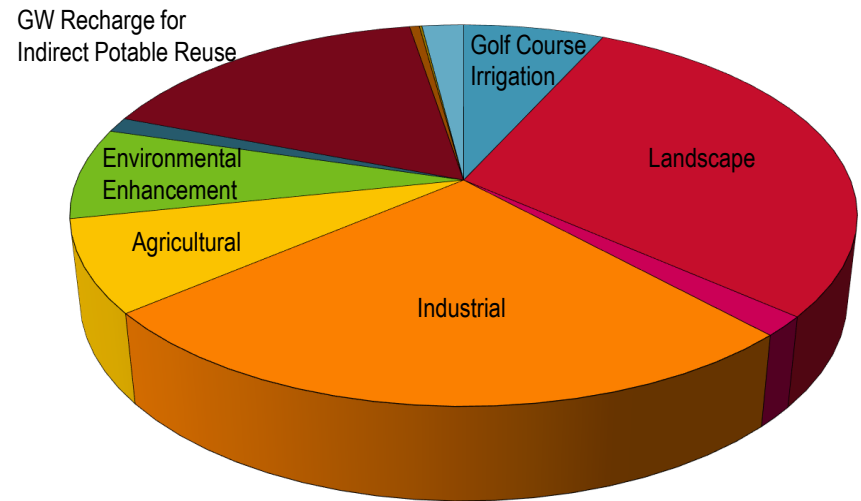
For Perspective: the Current Discharge Flows to the Bay are Approximately 400 mgd (about 9% of Effluent is Currently Recycled)

DRAFT Recycled Water User Types (2020 vs 2045)

Year 2020:
41 mgd



Year 2045:
90 mgd



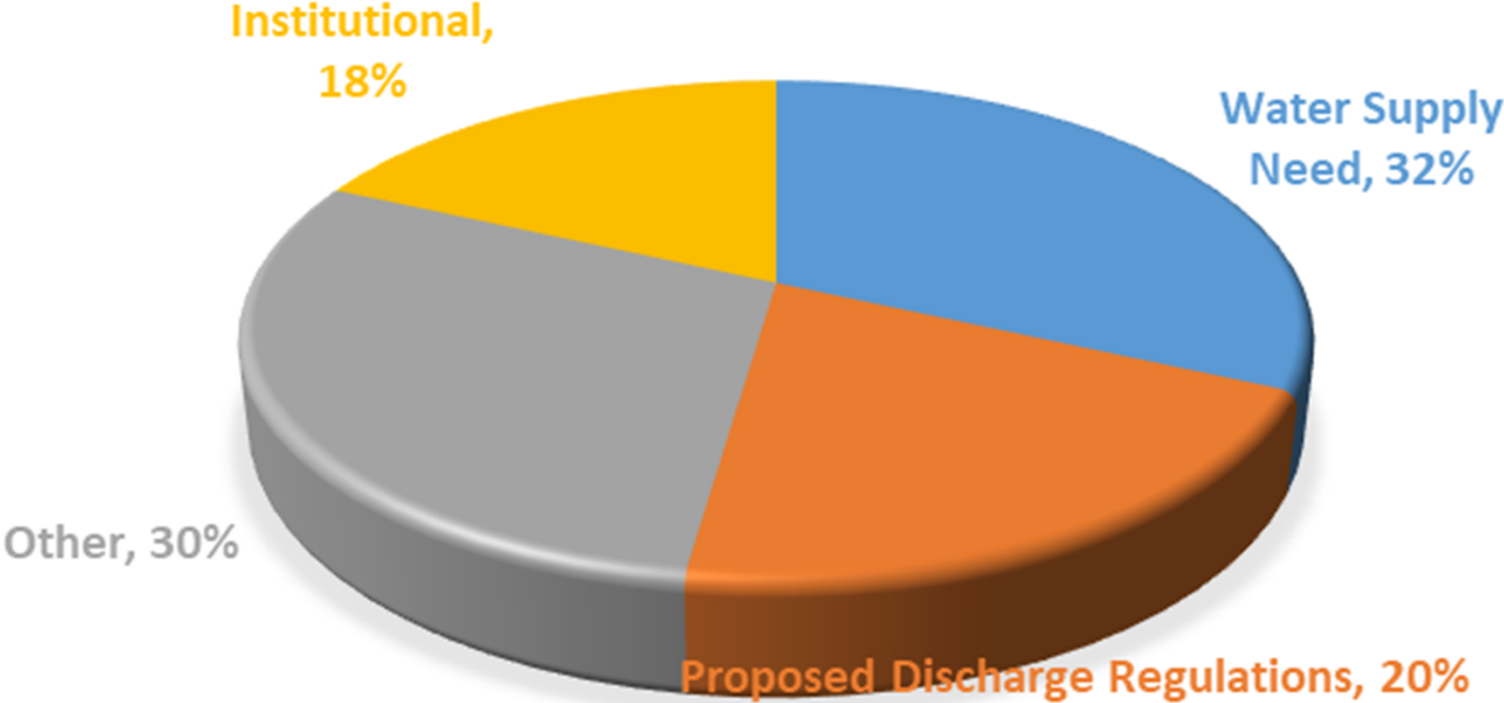
- Golf Course Irrigation
- Industrial
- Internal Use
- Direct Potable Reuse
- Not Defined

- Landscape
- Agricultural
- GW Recharge for Indirect Potable Reuse
- Other Non-potable Reuse

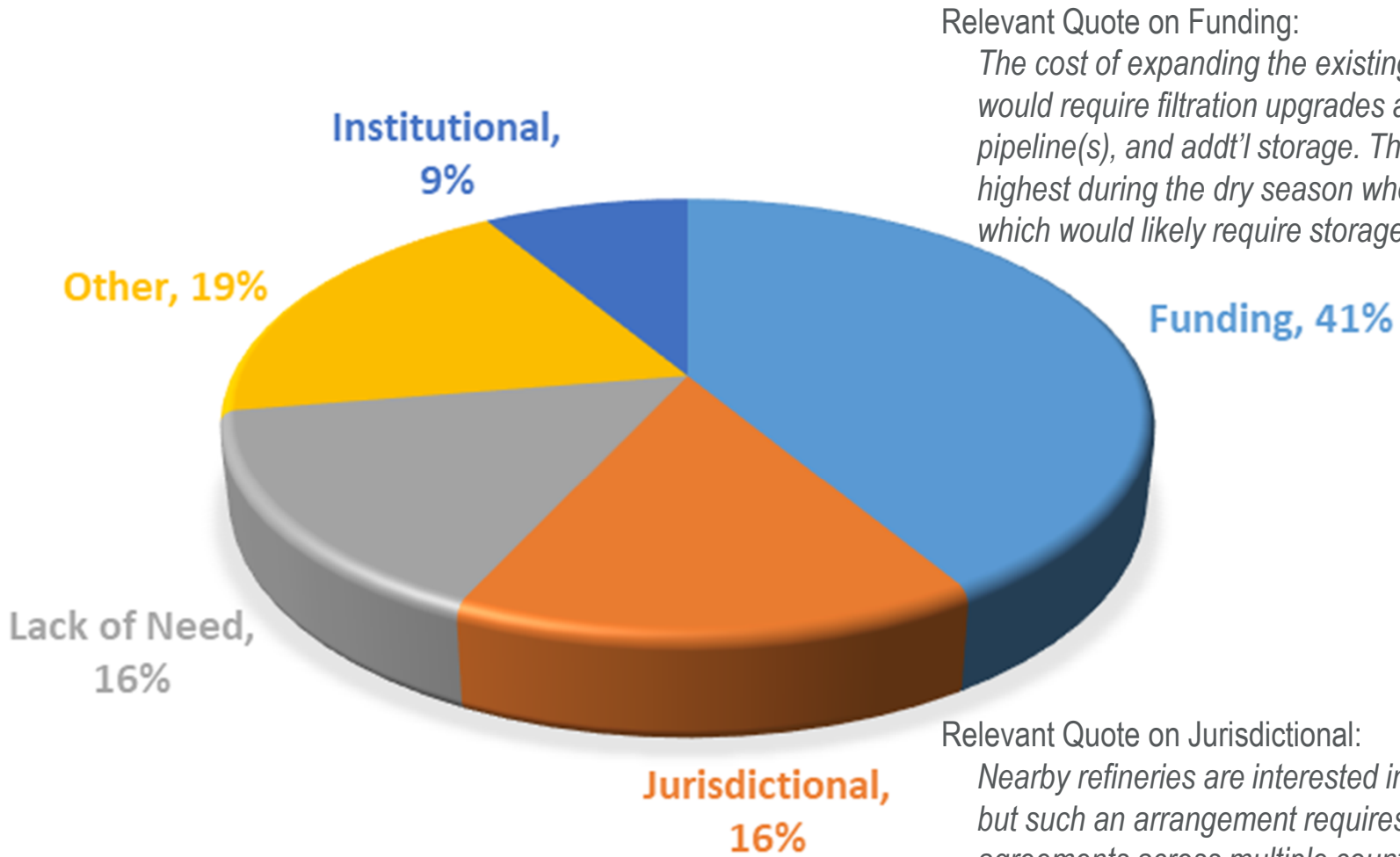
- Commercial
- Environmental Enhancement
- Surface Water Augmentation
- RO concentrate or other return flows

DRAFT Survey Results: Drivers to Recycled Water Projects in the Bay

Relevant Quote on Water Supply Need:
Diversifying our water supply options and volume is essential for the long-term.



DRAFT Survey Results: Barriers to Recycled Water Projects in the Bay



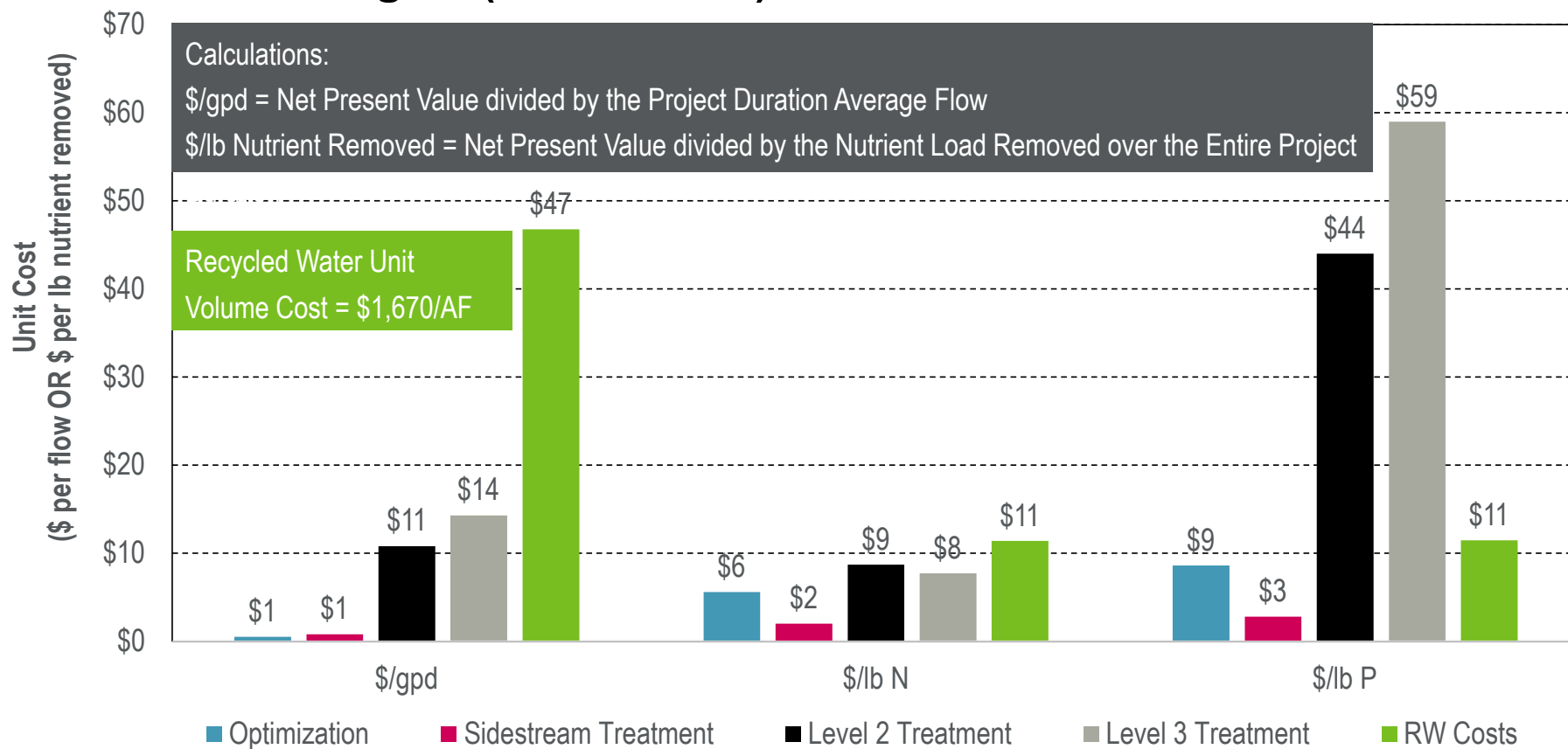
Relevant Quote on Funding:

The cost of expanding the existing Title 22 system would require filtration upgrades at the WWTP, addt'l pipeline(s), and addt'l storage. The demands are highest during the dry season when flows are lowest which would likely require storage construction.

Relevant Quote on Jurisdictional:

Nearby refineries are interested in recycled water, but such an arrangement requires partnerships/agreements across multiple counties/industries.

DRAFT Recycled Water Costs against Nutrient Reduction Costs by Treatment Strategies (Year-Round)



Source on Non-RW Data: Bay Area Clean Water Agencies (2018) Bay Area Clean Water Agencies Nutrient Reduction Study: Potential Nutrient Reduction by Treatment Optimization, Sidestream Treatment, Treatment Upgrades, and Other Means. Prepared by HDR. Oakland, CA. https://bacwa.org/wp-content/uploads/2018/06/BACWA_Final_Nutrient_Reduction_Report.pdf

Next Steps

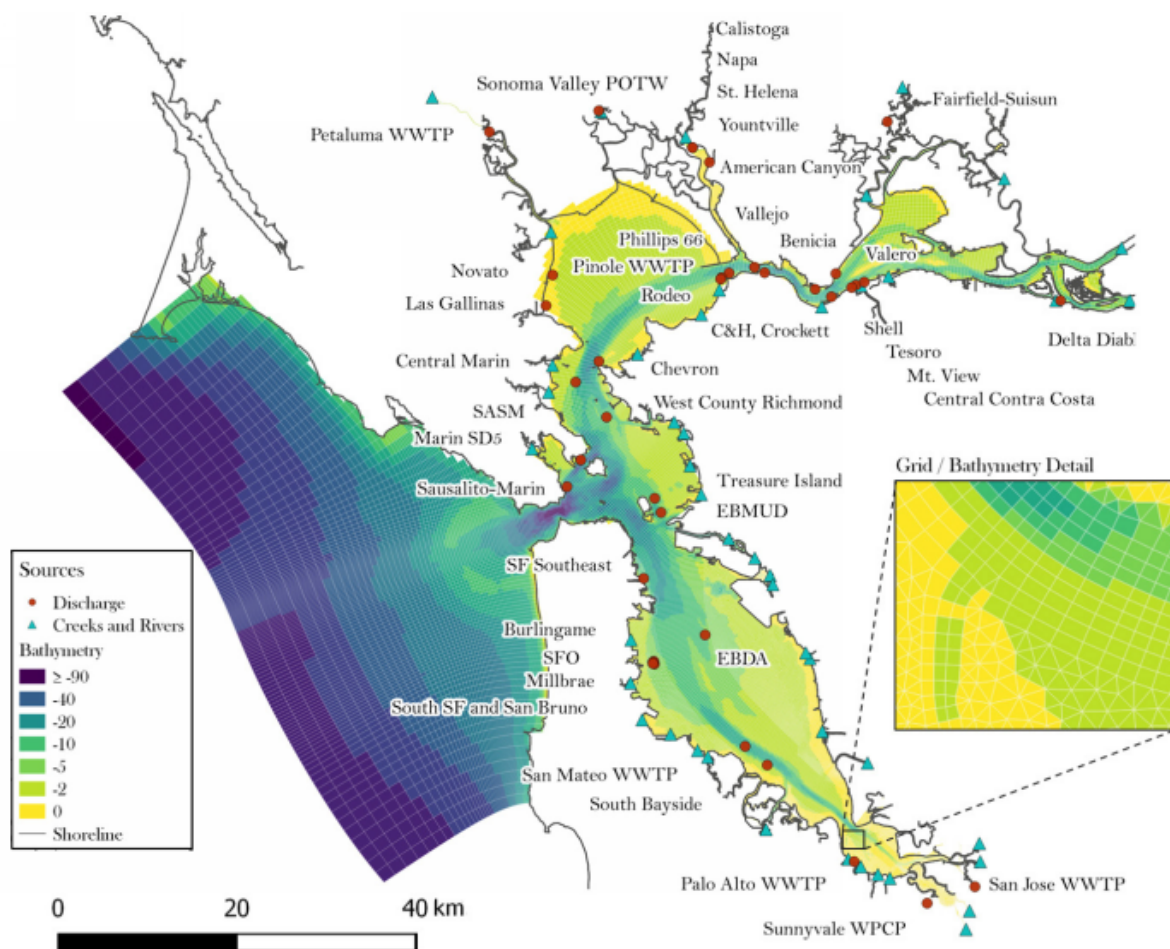
- Review Individual Plant Reports (Finalize/Sign-Off)
- Distribute the Overall Report to BACWA to Review (April 2023)
- Receive Comments and Finalize Overall Report (need signatures; May-June 2023; due on 6/30/23)

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Baywide Model Developed by SFEI for Advancing the Science



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