

Proposed Agenda

Delta Nutrient Objectives

Initial Stakeholder Process Planning Meeting

Central Valley Regional Water Board Offices

June 17, 2014

1:30 to 3 PM

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| 1. Welcome and Introductions | 1:30-1:35 |
| 2. Purpose of the meeting | 1:35-1:40 |
| a. To provide input regarding stakeholder process for Delta Nutrient objectives effort | |
| 3. Overview of Regional Water Board's direction re Delta nutrient objectives | 1:40-1:50 |
| 4. Discussion of overall process and schedule for development of Delta nutrient objectives | 1:50-2:00 |
| 5. Discussion of process for stakeholder engagement for this effort | 2:00-2:40 |
| a. Guiding Principles | |
| b. Roles and Responsibilities | |
| c. Other stakeholders/outreach | |
| 6. Recommended next steps | 2:40-2:55 |
| 7. Next meeting | 2:55-3:00 |



Delta Stewardship Council

Recommendation WQ R8

- **The State Water Resources Control Board and the San Francisco Bay and Central Valley Regional Water Quality Control Boards should prepare and begin implementation of a study plan for the development of objectives for nutrients in the Delta and Suisun Marsh by January 1, 2014. Studies needed for development of Delta and Suisun Marsh nutrient objectives should be completed by January 1, 2016. The water boards should adopt and begin implementation of nutrient objectives, either narrative or numeric, where appropriate, for the Delta and Suisun Marsh by January 1, 2018**

Potential nutrient related impairments

- Increase in the abundance & distribution of macrophytes.
- Increase in the frequency & magnitude of cyanobacteria blooms.
- Shifts in abundance and composition of algal community
- Low dissolved oxygen in back sloughs



2014 Delta Strategic Plan

Chris Foe

7 February 2014

Nutrient Study Plan

Tasks & Deliverables

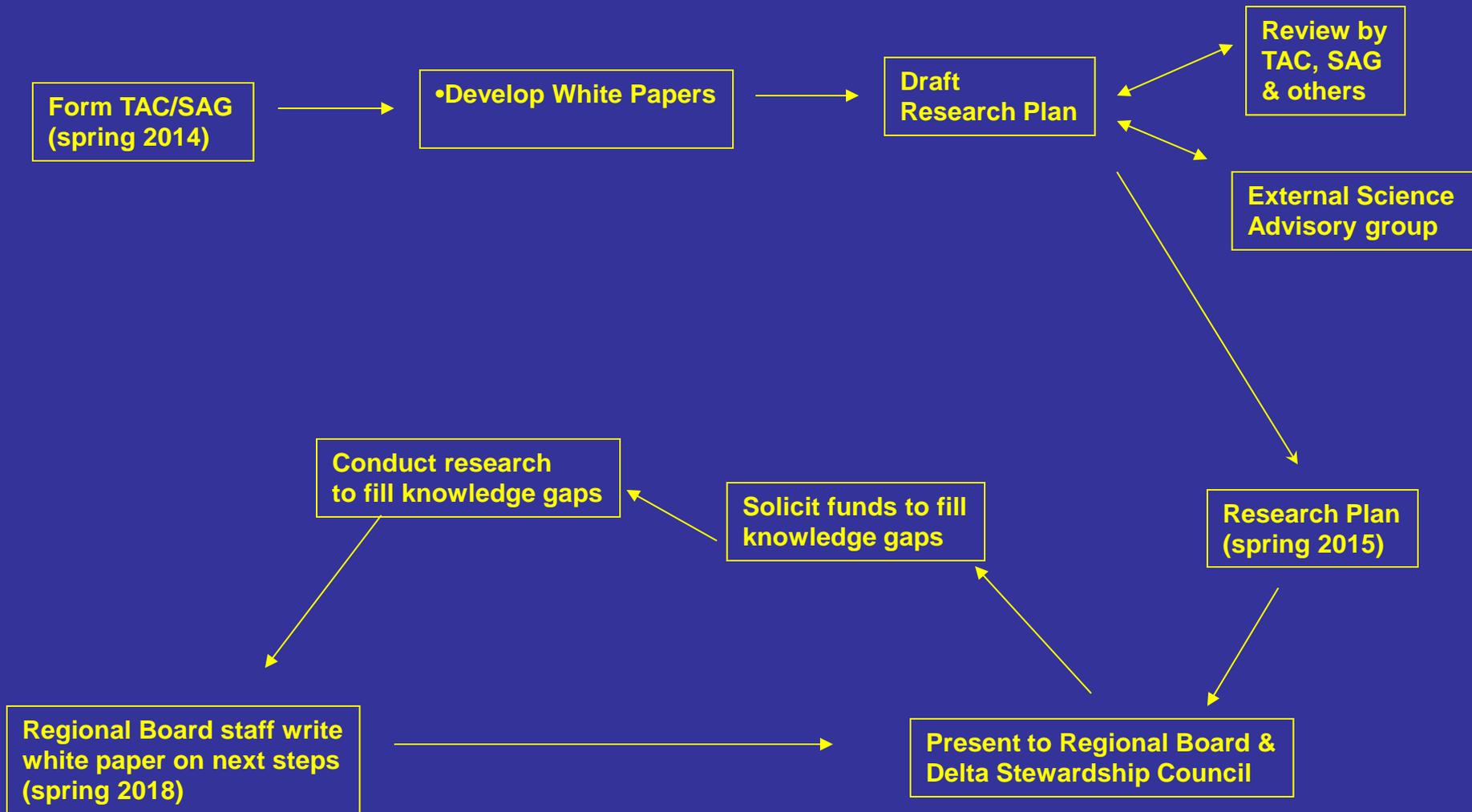
-Spring 2014 Assemble Technical Advisory Committee (TAC) & Stakeholder Advisory Group (SAG) to develop study plans.

-Winter 2014 Present plans to Water Board & Delta Stewardship Council.

-2015 and Beyond Solicit external funding & implement plans.

-Spring 2018 Staff write white paper for Water Board assessing whether nutrients negatively impact beneficial uses. Seek Board direction on next steps

Strawman for Developing & Implementing Research Plan



Questions to address in the review:

1. What is the relative importance of nutrients versus other factors in promoting cyanobacteria dominance and/or cyanotoxin production in aquatic ecosystems globally?
2. What are the spatial and temporal trends in cyanobacteria dominance and/or cyanotoxin production in the Delta?
3. What is the relative importance of nutrients versus other factors in promoting cyanobacteria dominance and/or cyanotoxin production in the San Francisco Bay-Delta?
4. What are the key data gaps and recommended future studies?

Review Outline

1. Executive Summary
2. Introduction, Purpose of Review, and Key Questions
3. Ecology of Cyanobacteria
 - a. Basic photophysiology (pigments, light capture, photosynthesis)
 - b. Nitrogen fixation
 - c. Toxin production
 - d. Cyanobacterial ecotypes
 - i. Filamentous
 - ii. Unicellular
 - iii. Freshwater
 - iv. Marine/Estuarine
 - v. HABs
4. Ecological Characteristics that promote cyanobacteria in Freshwater/estuarine environments (emphasis on mechanistic description of how factors promote blooms/toxic production)
 - a. Temperature
 - b. Nutrients
 - c. Water column stability/mixing
 - d. Water clarity
 - e. Irradiance
 - f. Others...
5. Factors contributing to development of cyanobacterial blooms in the San Francisco Estuary-Delta region
 - a. Summary what species are found, their physiological tolerances along a fresh-marine continuum
 - b. Summary of spatial and temporal patterns in cyanobacterial blooms and cyanotoxins concentrations
 - c. Relative importance of nutrients versus other factors in controlling cyanobacterial dominance
 - d. Summary of key data gaps and recommended studies

Rooted and Floating Macrophyte Review Outline
05-21-2014 Draft

Katharyn Boyer (SFSU) and Martha Sutula (SCCWRP)

Questions to address in the review:

1. What are the general conceptual models of rooted or floating aquatic vegetation in relation to both impacts to and support of beneficial uses?
2. What is known about the spatial and temporal trends in floating and rooted aquatic vegetation in the Delta?
3. What is the relative importance of nutrients and organic matter accumulation versus other factors in promoting observed trends in floating and rooted aquatic vegetation in the Delta?
4. What are the key data gaps and recommended future studies?

Review Outline

1. Executive Summary
2. Introduction, Purpose of Review, and Key Questions
3. General Ecology and Trends in the Distribution of Floating and Rooted Aquatic Vegetation in the Delta
 - a. Definitions
 - b. Overview of genus/species found in the Delta
 - c. Habitat types in which they are characteristically found
 - d. Spatial and Temporal trends in their distribution and abundance
4. Conceptual models of linkage with beneficial uses (if there is a problem—what is it?)
 - a. General conceptual model
 - i. Organic matter subsidy/accumulation
 - ii. Limitation of phytoplankton and native SAV
 - iii. Trophic support
 - iv. Habitat alteration
 - v. Navigation and industry
 - vi. Aesthetics
 - b. Documentation of adverse effects in the Delta
5. Factors contributing to spread of floating and rooted aquatic vegetation in the San Francisco Estuary-Delta region
 - a. Conceptual models of growth, propagation and environmental characteristics that enhance or limit growth
 - b. Relative importance of nutrient subsidies versus other factors in promoting observed trends
6. Summary of key data gaps and research needs