

Nutrients in San Francisco Bay: RMP TRC/SCCWRP CTAG Joint Meeting March 28th, 2012



Context for Discussion

- Nutrient objectives are coming in California
 - Freshwater nutrient policy currently under development
 - Estuaries next!
- Increasing evidence that nutrient overenrichment is a problem in California
 - Cyanobacterial and other harmful algal blooms
 - Stream algal blooms among top stressors
- Increased requirements on regulated community for assessments supporting permit decisions

Why Nutrients Have Become a High Priority in SF Bay

1) SF Bay NNE development

- Diagnosis of impairment based on response indicators = NNE assessment framework
 - Assessing eutrophication through adverse effects
 - Multiple lines of evidence for more robust diagnosis
- Use of ranges to accommodate uncertainty in science
- Models to link response indicators to nutrients through NNE load-response models
 - Nutrient loads rather than ambient concentration
 - Need mechanistic understanding

Why Nutrients Have Become a High Priority in SF Bay (cont.)

- 2) Decreased suspended sediment/increased photic zone has resulted in increase of baseline chl a levels
 - Consensus among scientific community that historic resiliency to nutrient over enrichment is decreasing
 - But no framework exists to assess if Bay beneficial uses are being adversely affected by nutrient over enrichment & eutrophication
- 3) Evidence that ammonium may be inhibiting primary production in Suisun Bay
- 4) Increase in Harmful Algal Blooms (HABs)
- 5) Long-term USGS nutrient/phytoplankton monitoring program is ending

NNE Literature Review and Data Gaps Analysis: Recommended Next Steps

- Create a SF Bay assessment framework
 - Initially focus on subtidal habitat
- Develop & validate load-response models
 - Establish nutrient loads that estuary can sustainably assimilate
 - Explore efficacy of management scenarios and influence of factors outside of human control
- Develop & implement a nutrient monitoring program
 - Regular NNE assessments of SF Bay and linkage with Delta
 - Assist in development & validation of models