From: Mike Connor
To: Feger, Naomi@Waterboards; marthas@sccwrp.org
Subject: Assessment Framework Questions
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Naomi/Martha
You asked for comments on the enclosures to help you agendize your stakeholder meeting. I most closely reviewed the draft manuscript and the "Scientific Basis" document, which serve as the basis for these comments.

Relating everything to a chlorophyll concentration is a useful way to compare regional situations and perform crude environmental risk assessments (such as Bricker does with NPAA), but the process of correlating chlorophyll to the HAB or DO outcomes that concern us adds quite a bit of uncertainty to the determination of whether the ecosystem is meeting beneficial uses. It is certainly more likely that we could use predictive models to determine chlorophyll under different future nutrient scenarios than determine whether there will be unacceptable ecological or human health effects associated with those scenarios. As they say, modelling is much better at "climate" than "weather". Unfortunately, the scenarios that are crucial to the assessment are event-based, not that well captured by regional average chlorophyll concentrations.

As a result, I would emphasize a couple next steps:

1. De-couple the overall HAB-additive impact from the problems associated with individual HAB outbreaks. As I mentioned earlier, the Alexandrium issue drives the entire HAB correlation. The data cited suggested that we already have a beneficial use impact from Alexandrium 53% of the time. That conclusion would surprise everyone in the Bay Area. If it is true, we need to find out if it is sensitive to Bay nutrient discharges. There are several issues that need to be resolved:
    a. What Alexandrium concentrations cause problems inside the Bay? Should we just determine that by measuring saxitoxin in mussels every week?
    b. Are the Alexandrium concentrations due to Bay nutrient discharges or due to the relative import of oceanic water thru the Golden Gate?
    c. Can we predict what would allow Alexandrium to take off once it is seeded in the Bay?
    d. Similar relationships for Dinophysis and Pseudonitzchia should also be developed. Relationships from the literature from Scotland or other parts of the world are a nice first order approximation, but not sufficient to resolve an issue that has a consequence of $5 billion to Bay Area ratepayers.
2. Better exploit the geographic and spatial variation of DO in the entire Bay to determine how the ecosystem would function with different nutrient loadings. The trade-off of salt pond restoration, Bay circulation, and nutrient loadings will be very complex. Some small-scale regional pilot projects in different parts of the Bay might allow us to better understand the benefits associated with loading reductions. Much of the future of Bay discharges will likely include dramatic reductions in discharges with increases in water recycling and increased discharges of recycled water concentrate.

Looking forward to the stakeholder workshop.

Mike