

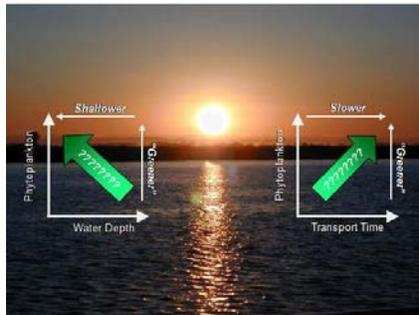
*Delta Science Program, Ecosystem Restoration Program and
Surface Water Ambient Monitoring Program Jointly Present*

Are Shallower, Slower Habitats Necessarily “Greener”? How Clams Upend Conceptual Models Guiding Ecosystem Management in the Delta

**Lisa Lucas, Ph.D.
U.S. Geological Survey (USGS)**

Monday, October 7, 2013, 12:00 – 1:00 p.m.

**Location: Cal/EPA Building, Sierra Hearing Room, 2nd Floor,
1001 “I” Street, Sacramento CA 95814**



The Delta Reform Act (2009) requires that the state protect, restore and enhance the Sacramento-San Joaquin Delta ecosystem. This complex and dynamic ecosystem is one of the least productive, compared to Chesapeake Bay, the Mississippi Delta, and other estuaries. The dominant energy source to the food web is phytoplankton. Declines in phytoplankton’s biomass and productivity are implicated as factors contributing to the multi-decadal declines in fish species. For that reason, plans for managing the future Delta include actions aimed at enhancing phytoplankton productivity. Two common conceptual models are influencing those plans. The first model maintains that shallower aquatic habitats promote higher phytoplankton biomass and productivity (i.e. the “Shallower is greener” model) while the second asserts that more slowly moving water is associated with higher phytoplankton biomass and productivity (i.e. the “Slower is greener” model). Neither model is always correct. Mathematical models and field observations show that where bivalve (mollusk) grazing is significant, as in much of the Delta, phytoplankton growth and loss rates must be considered together in estimates and expectations of algal biomass or production. Practical implications of these lessons for management of the Delta will be discussed.