

FACT SHEET

Nutrients in Estuaries and Coasts: Perspectives Beyond Eutrophication Conference

Deliverables: A 4-day Chapman Conference, talks and posters will be synthesized in a special publication of the *Journal of Experimental Marine Biology and Ecology*.

Status: Active. In planning stages of the workshop.

Primary Investigator: Patricia Glibert

Recipient Organization: University of Maryland, Environmental Science Center

Project Cost: \$200,000

SFCWA Funding: \$100,000

Partners: Delta Science Program



Introduction

The emerging field of ecological stoichiometry recognizes that at the base of the food web, the elemental composition of the primary producers is affected by nutrient composition whether nutrients are limiting or not. Ecological stoichiometry – and especially stoichiometric imbalances- bear significantly on the debate of whether aquatic ecosystem restoration efforts should focus on N or P removal, or both.

Objective

Host a 4-day Chapman Conference in California in order to bring scientists, managers, and regulators together to address the issues related to ecosystem changes following nutrient reduction—with a focus on biogeochemical and food web changes in estuarine environments in states of nutrient imbalance.

Expected Results

After the conference takes place, results will be published in a special edition of the *Journal of Experimental Marine Biology and Ecology*. One or more publications are expected to be produced for each of the questions that will be addressed at the conference. These include:

- What are the consequences of nutrient reduction on the food web and on biogeochemical processing of nutrients?
- Are there unintended or long-term unanticipated consequences of nutrient reduction or oligotrophication?
- Do comparable systems where nutrients have been controlled have similar outcomes?
- How can comparison of systems where effective nutrient reduction has been put in place inform the ongoing process of nutrient criteria development?
- What key metrics are required for management or modeling of ecosystems undergoing nutrient change?
- How do abatement costs for nutrients compare to losses of ecosystem services with excess nutrient loads?

Conclusions

Awaiting completion of the conference

Relevance

Cultural eutrophication is one of the most pressing problems affecting both coastal and freshwater ecosystems worldwide. However, nutrient loads are not necessarily changing proportionately. Many systems have undergone eutrophication, however others are showing signs of a lack of primary production (re-oligotrophication) due to single nutrient reduction controls. Nevertheless, even when many eutrophication symptoms such as hypoxia and algal blooms are reduced, systems may only appear to partially recover; their food webs do not appear to return to their pre-eutrophic state.

Next Steps

Host the conference in Early 2015.