

FACT SHEET

Phytoplankton Toxicity Testing in Suisun Bay (12-07)

Deliverables: Peer-reviewed USGS data series report.

Status: Data collected for 2011 and 2012, toxicity identification evaluations performed on all data. This project is related to project **13-05 Monitoring of current-use herbicides and pesticides in Suisun Bay** and **13-07 Occurrence of current-use herbicides and pesticides in Suisun Bay**.

Primary Investigator: Kathy Kuivila

Recipient Organization: AQUA Sciences Inc.

Project Cost: \$524,915

SFCWA Funding: \$464,250

Partners: USGS (provided in-kind services of \$65,165); SFSU Romberg Tiburon Center; Bay Area Clean Water Agencies; Contra Costa Central Sanitation District; SF Bay Regional Water Quality Control Board; AQUA Sciences Inc; Michael L Johnson LLC; San Luis and Delta-Mendota Water Authority

Introduction

Suisun Bay is an area identified as critical habitat for the threatened delta smelt. Several important changes in the pelagic food web of this area have been documented over the last two decades indicating that food for delta smelt and other threatened fishes is in short supply. There is evidence that primary productivity is inhibited in Suisun Bay, and that ammonia/um is a primary cause of that inhibition. Prior work has indicated that there may be other inhibiting contaminants in the waters of Suisun Bay. The occurrence and potential effects of current-use herbicides and pesticides are a point of concern in the estuary. Previous studies have documented the occurrence of current-use pesticides entering the Bay-Delta from the Sacramento and San Joaquin Rivers; however, less than half of all herbicides and pesticides applied in the Bay-Delta watershed are analyzed for in monitoring studies. The concentrations and potential effects of these pesticides in the Delta ecosystem are unknown. Current- use pesticides represent one possible source of the inhibition of phytoplankton.

Objective

To characterize the mixtures of current-use pesticides present in Suisun Bay waters, determine their primary geographic sources, and assess the potential toxicity to phytoplankton.

Results

Initial information suggests that the herbicide diuron and its degradates are potential constituents of concern.

Relevance

Assessment of the influence of current-use herbicides and pesticides on phytoplankton in Suisun Bay is an important step in determining whether ammonia/um is inhibiting phytoplankton production, by process of elimination.

Next Steps

Preparation of USGS peer-reviewed data series report.