Dave Bubenheim
David.L.Bubenheim@nasa.gov
NASA Ames Research Center

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Title: Remote sensing and modeling for improving operational aquatic plant management

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Abstract - Presentation

The California Sacramento-San Joaquin River Delta is the hub for California's water supply, conveying water from Northern to Southern California agriculture and communities while supporting important ecosystem services, agriculture, and communities in the Delta. Changes in climate, long-term drought, water quality changes, and expansion of invasive aquatic plants threatens ecosystems, impedes ecosystem restoration, and is economically, environmentally, and sociologically detrimental to the San Francisco Bay/California Delta complex. NASA Ames Research Center and the USDA-ARS partnered with the State of California and local governments to develop science-based, adaptive-management strategies for the Sacramento-San Joaquin Delta. The project combines science, operations, and economics related to integrated management scenarios for aquatic weeds to help land and waterway managers make science-informed decisions regarding management and outcomes. The team provides a comprehensive understanding of agricultural and urban land use in the Delta and the major water sheds (San Joaquin/Sacramento) supplying the Delta and interaction with drought and climate impacts on the environment, water quality, and weed growth. The team recommends conservation and modified land-use practices and aids local Delta stakeholders in developing management strategies. New remote sensing tools have been developed to enhance ability to assess conditions, inform decision support tools, and monitor management practices. Science gaps in understanding how native and invasive plants respond to altered environmental conditions are being filled and provide critical biological response parameters for Delta-SWAT simulation modeling. Operational agencies such as the California Department of Boating and Waterways provide testing and act as initial adopter of decision support tools. Methods developed by the project can become routine land and water management tools in complex river delta systems.

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