

Special Issue: The Delta Region Areawide Aquatic Weed Project

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This Special Issue of the *Journal of Aquatic Plant Management* is the capstone of a five-year Areawide Pest Management Program funded by the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS). Approved by ARS in 2014, five years of funding was provided for USDA ARS to work collaboratively with federal, state, university, and local agencies to improve the management of aquatic weeds in the Sacramento–San Joaquin River Delta (Delta). Traditionally, the Areawide Pest Management Programs (APMP) have funded projects on insect pests and weeds of production agriculture and rangelands. The Delta Region Areawide Aquatic Weed Project (DRAAWP) was the first targeted specifically at submersed and floating aquatic weeds.

The Areawide Pest Management Program was introduced by USDA ARS in 1994 as part of their Integrated Pest Management (IPM) Initiative. The goal was to provide a process by which existing resources and knowledge would be harnessed through a cooperative effort between government, universities, industry, and growers to improve the delivery of IPM programs. APMP is not intended for new research, but rather to take existing information and collaboratively develop on-the-ground solutions. The components of an APMP are operations, assessment, research, and education.

The Sacramento–San Joaquin River Delta was selected for the first project targeting aquatic weeds because of the critical attributes of the resource and the complexity of the social and regulatory environment. The Delta is the hub of the water delivery system in the State of California, the

California State Water Project, and the Federal Central Valley Project. Water from numerous tributaries flow into the Delta on its way to San Francisco Bay, and water is pumped from the southern end of the Delta into the California Aqueduct. Although this solution was eminently sensible as an engineering solution in the 1960s, the state did not foresee the issues that would arise caused by the growth of numerous invasive aquatic plant species. Likewise, the engineers did not fully comprehend that the Delta is also a critical habitat for a variety of species. The tension over the allocation of resources now involves numerous federal, state, and local agencies, industry, farmers, and other stakeholders. Managing these invasive aquatic weeds has been no less complex, with competing interests and viewpoints from various groups with their own specific concerns and regulatory mandates, including the Endangered Species Act and the National Environmental Policy Act.

The DRAAWP was first proposed in 2014 by Dr. Ray Carruthers, formerly of USDA ARS, and he sought the expertise of researchers and practitioners from federal agencies, state agencies, university scientists, and two county mosquito vector control districts. These core participants worked to develop and refine an IPM approach against floating and submersed aquatic weeds in the Delta that was adaptive, proactive, responsive to stakeholder needs, and effective. The following 14 papers highlight the results of the science-based effort that has improved aquatic weed control in the critical water resource nexus of the California Delta.