

**Modeling Delta Alternatives To Improve Drinking Water Quality Work Plan:  
Part 1: Examining Drainage Control Options, Costs, and Benefits**

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An analytical framework for ranking research and monitoring actions pertaining to the selection of a Delta alternative and its components is described. The work plan conducted by the DWR Municipal Water Quality Investigations Program consists of field, experimental, and computer modeling studies of: (1) drainage control options, (2) wetlands and shallow water storage options, and (3) the relocation of water supply intakes or points of diversion as methods to reduce organic carbon concentrations and loads at municipal water intakes.

The results of the drainage control studies are described. The results included:

1. estimated regional drainage volume and organic carbon mass loads
2. on-island treatment methods and costs for reducing organic carbon loads prior to discharge
3. candidate regions for on-island treatment
4. computer model predictions on DOC reduction at Delta water supply intakes as a result of reducing DOC at the candidate regions

**Modeling Delta Alternatives To Improve Drinking Water Quality Work Plan:  
Part 2: Experiments on Designing Wetlands With Minimal Impacts on Drinking  
Water Quality**

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The results of experiments that study water quality changes related to flooded peat soil environments are presented. The series of experiments examine the relationship among peat soil depth, water depth, and water exchange rate as controlling factors of water quality. The experiments are conducted at the new DWR SMARTS (Special Multipurpose Applied Research Technology Station) facility at Bryte. A factorial designed experiment was used. The first trial experiment ran for three months in the summer of 1998. Experiment #2 began in January 1999 and will run for at least one year. The results will be used to help design, construct, and operate wetlands with minimal impact on drinking water quality and yet hopefully meet the ecological needs desired for the Delta. A computer simulation of hypothetical wetlands in the candidate regions for treatment will be made to compare DOC loads in the Delta.