

Project Summary: Assessment Phase

(one-page summary required under EPA 205(j) funding)

A Watershed Assessment and Management Strategy was completed for the Reclamation Ditch Watershed in northern Monterey County, California, for Monterey County Water Resources Agency (MCWRA). The project was funded by the Federal EPA (\$114,630), Monterey County Water Resources Agency Zone 9 Assessments (\$46,400), the City of Salinas (\$20,000), and in-kind contributions by stakeholders and other agencies, primarily through participation on a Technical Advisory Committee (TAC).

The Assessment found that the Watershed has a unique, nationally vital agricultural economy. Its contemporary landscape is founded on a history of reclaiming land for multiple-uses such as agriculture and urbanization, and protecting all land uses from floods. In the past few decades additional objectives have been introduced, including the need to provide flood control, reduce sedimentation, improve water quality, food safety, and special status species. Channel conditions are generally designed to facilitate runoff. The existence of dry lake beds providing valuable flood storage during the winter and valued agricultural land during other times of the year, provide a key socio-economic dynamic for the watershed. Water quality concerns exist at several sites with respect to nitrate, phosphate, dissolved oxygen, water temperature, fecal coliform indicators, suspended sediment, and the insecticides. There are fifteen Clean Water Act 303(d) listings for water quality impairment within five water bodies in the Watershed, and three listings in the receiving water body downstream (Moss Landing Harbor). The Watershed contains at least five native fish species and supports one Endangered species, two Threatened Species, and three Species of Concern.

The second part of this summary will appear in Part B - Watershed Management Strategy.

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Executive Summary

From 2003–2005, the Central Coast Watershed Studies team, of the Watershed Institute at California State University Monterey Bay (CSUMB) completed an Assessment and Management Strategy for the Monterey County Water Resources Agency (MCWRA) entitled the *Carr Lake Watershed/Reclamation Ditch Subwatershed*, which we refer to here simply as “*The Reclamation Ditch Watershed*”. The 157 square-mile watershed is almost entirely within Monterey County in California’s Central Coast Region, running from its headwaters in the Gabilan Range down to its terminus at a set of tide gates at the entrance to Moss Landing Harbor. Part A of this report contains the Assessment, comprising five elements that collectively assess the function of the watershed, including: Historical Conditions Assessment, Hydrology and Channel Conditions Assessment, Water Quality Assessment, Biological Assessment and a Botanical Assessment. Part B of this report contains the Management Strategy, comprising five main elements: Existing Plans, Public Process, Watershed Management Goals, Management Actions, and Management Strategies. Both reports then conclude with References and Appendices.

Initially, the project was entitled the Carr Lake Watershed / Reclamation Ditch Subwatershed Assessment and Management Plan whose project description stated would form the scientific basis for developing a watershed-wide, community based management plan; and for gathering specific information needed for existing studies and planning projects. Due to the limited funding available, the subwatersheds above Carr Lake (Gabilan, Natividad, and Alisal Creeks) would form the project area and become the template for a more comprehensive assessment and management plan, with extensive public input from stakeholders, for the larger Reclamation Ditch Watershed area. The project consultant, the Central Coast Watershed Studies team, of the Watershed Institute at California State University Monterey Bay (CSUMB) and the Technical Advisory Committee (TAC) recommended to MCWRA to expand the project study area to include the entire 157 square mile Reclamation Ditch watershed area, without additional resources in support. The revised project title is the *Reclamation Ditch Watershed Assessment & Management Strategy*.

The Assessment presented here is primarily a compilation of existing studies and reports, conducted within the study area or adjacent areas, and gathered from various sources. The only new information presented is data from Benthic Macroinvertebrate data acquired through targeted field sampling.

The project cost \$161,030 plus in-kind contributions. Primary funding was provided by a Federal EPA grant (#02–098–250–0) of \$114,630 through the Clean Water Act Section

205(j) with Zone-9 assessment contributions from the Monterey County Water Resources Agency (MCWRA) in the amount of \$46,400. The Watershed Institute (as Foundation of CSUMB) was sub-contracted for \$89,770 to lead the technical aspects of the project. The Watershed Institute's role also involved voluntary work. Additional financial commitments were provided by the City of Salinas (\$20,000), as well as RCDMC, CCC, CCRWQCB, Comgro, and MCFB, primarily through participation on the TAC.

This document contains Part A – Watershed Assessment. a second document will contain Part B – Watershed Management Strategy.

The primary conclusions of the work are summarized here.

Executive summary of Part A – Watershed Assessment:

- The assessment of the watershed sits within a socio-economic context whereby the need to meet environmental objectives is tempered by the need to do so at 'reasonable cost' to dischargers (such as agriculture, and the City of Salinas). Determination of reasonable cost must take into account the critical role in feeding the nation that is played by the agricultural lands within the watershed, and by the City as the socio-economic center of agriculture in Monterey County. The City is the County seat, and County agricultural production exceeds \$3 billion annually, including about 44% of the nation's lettuce, 43% of its broccoli, and 22% of its strawberries. Nearly one-third of County jobs are accounted for directly by agriculture.
- In the past century, the Watershed has undergone dramatic change. The natural grassland and woodland landscape has been largely replaced by agriculture and urban land. Ditches and lake-bottom farms have replaced most of the natural swamps and lakes. Elements of the native fauna have been extirpated or are extinct. Agricultural production in the lowlands has shifted from grain crops and grazing to a nationally vital vegetable crop industry.
- Any Watershed Assessment sits within the context of defined objectives for the Watershed. For the Reclamation Ditch Watershed, these objectives are numerous, including most importantly:
 - The need for urban land
 - The need for agricultural land
 - The need for effective flood control
 - The need for clean water in support of various beneficial uses as regulated under the Clean Water Act and with respect to initiatives by downstream entities such as the Monterey Bay National Marine Sanctuary

- The need to comply with relevant laws protecting special status species and/or critical habitat
- The modern Reclamation Ditch essentially attempts to fulfill a community expectation of a flood control system. This expectation exceeds the original intention of the system as simply a means of reclaiming land.
- Current channel conditions predominantly meet agricultural and urban uses. The channels are maintained as excavated, straightened ditches that remove water. However, such needs are not entirely met, since flooding of agricultural and urban land occurs, due to: increased runoff from expanding impervious areas; sub-optimal functioning of the various flow control structures throughout the Ditch system; channel sedimentation from a variety of sources, and; the fact that much of the flood-prone farmland is within the geomorphic floodplain. Flooding is most prevalent during extreme events.
- Channel conditions facilitate delivery of quality-impacted water to downstream areas. Riparian habitat is removed by property owners, from the ditch system adjacent to agricultural lands, primarily as a deterrent to wildlife and natural habitat features.
- A water quality concern is defined as not meeting a water quality objective. This definition is uncertain. Objectives were set during the present project based on regional numeric standards, if they existed, or otherwise, on national standards most commonly used by State and Federal regulators. It is important to note that the existence of 'concerns' may change in the future, simply as a result of changes in the objectives as more becomes known about the relationship between water quality and beneficial uses.
- Relative to current water quality objectives, there are several water quality concerns at sites throughout the middle and lower parts of the watershed. Water quality data were collated from previous studies since 1999. These data were collected under various sampling designs, at various times of year. The following summary statements are thus, biased toward the conditions that were prevalent during sampling. In order to minimize this, sites with fewer than five samples were excluded.
- There are fifteen Clean Water Act 303(d) listings for water quality impairment within five water bodies in the Watershed, and three listings in the receiving water body (Moss Landing Harbor) downstream of the watershed.
- A complete source analysis is beyond the scope of this present study.
- Water quality data suggest that pollutant concentrations decrease with distance away from the most intensively used land. This supports the common understanding that water quality concerns are reduced by increasing residence time in the channel and/or wetland environment – through environmental processes such as deposition, dilution, nutrient uptake, oxygenation, and molecular decomposition.

- Sedimentation of channels and lakes is of concern primarily because it leads to increase flooding risk, necessitating channel maintenance activities.
- The aquatic fauna of the Watershed have shown resilience to the water quality concerns listed above. The lower, more impaired reaches are home to at least five native fish species, as well as at least transient use by one adult steelhead trout. The existence of an actual run or population of steelhead is unknown. The upper reaches support both rainbow trout, and an invertebrate fauna that is typical of intact upland Californian aquatic ecosystems.
- The Watershed contains at least five native fish species and supports one Endangered species, two Threatened Species, and three Species of Concern.
- Observations of the federally threatened California red-legged frog were made in the headwaters, although this species appears to have been extirpated from the lowlands in the Watershed. Observations of the tiger salamander, a federally threatened species, are restricted to pond sites near oak woodland habitat.
- Similarly, bird and mammal diversity is correlated with remaining natural habitat – being lowest in the most intensely developed urban and agricultural areas. Much of this change probably occurred during the creation of the modern landscape in the early 1900s.