

**Water Storage Investment Program Concept Paper Form**

Please complete the questions below and return your completed concept paper by email to [cwc@water.ca.gov](mailto:cwc@water.ca.gov) by 5:00 p.m. on March 31, 2016. Completed concept papers should not exceed four pages.

**Contact Information**



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<b>Agency/Organization Name:</b> Sacramento Regional County Sanitation District (Regional San)/The Nature Conservancy
<b>Agency Type (select one):</b> <input type="checkbox"/> Public Agency <input type="checkbox"/> Nonprofit Organization <input type="checkbox"/> Public Utility <input type="checkbox"/> Tribe <input type="checkbox"/> Mutual Water Company <input type="checkbox"/> Local Joint Powers Authority <input checked="" type="checkbox"/> Other: Partnership between Public and Nonprofit Organizations

**Project Information**

<b>Project Name:</b> South Sacramento County Agriculture & Habitat Lands Recycled Water Program
<b>Project Type:</b> <input type="checkbox"/> CALFED Surface Storage <input checked="" type="checkbox"/> Groundwater Storage <input type="checkbox"/> Groundwater Contamination Prevention or Remediation <input checked="" type="checkbox"/> Conjunctive Use <input type="checkbox"/> Reservoir Reoperation <input type="checkbox"/> Local Surface Storage <input type="checkbox"/> Regional Surface Storage <input type="checkbox"/> Other:
<b>Estimated Project Cost:</b> \$250 million
<b>Estimated WSIP Funding Request:</b> \$125 million
<b>Please describe your project, including location, water source, facilities, and operations:</b> <p>An exceptional opportunity exists in southern Sacramento County to proactively manage groundwater while improving stream flow, enhancing groundwater-dependent riparian habitats, sustaining prime agricultural lands, and improving regional water supply reliability. Here, the Sacramento Regional County Sanitation District (Regional San) is proposing a recycled water project that would serve as the backbone of a multi-benefit groundwater storage project that protects and enhances the special natural and cultural values of southern Sacramento County and contributes to a more resilient water supply for the county and surrounding region. Other area stakeholders, including The Nature Conservancy, recognize the potential benefits of the project and are working with Regional San to evaluate and shape the project’s design (see attached coalition support letter).</p> <p>Regional San’s “South County Ag Program” proposes to use Title 22 tertiary-treated recycled water to irrigate agriculture lands and habitat mitigation lands through new recycled water transmission and distribution systems. Since the South County Ag Program would provide recycled water to existing agricultural lands that historically</p>

pump groundwater, it would reduce withdrawals of groundwater and allow groundwater levels in the service area to recover. This in-lieu recharge program would raise groundwater levels 20-30 feet in the parts of the Central Sacramento County Groundwater Basin (B118, South American Sub-basin) that are important for plants and animals, like the riparian habitat and wetlands of the Cosumnes River Preserve. Exact details of the program are still being developed, however, current analyses show the program has the potential to provide up to 50,000 acre-feet per year of recycled water to irrigate up to 16,000 acres of agriculture and habitat lands in south Sacramento County. More details of the South County Ag Program are available at <http://www.regionalsan.com/south-county-ag-program> .

The in-lieu recharge program backbone would be coupled with a groundwater management program that accounts for the water that is recharged, sets targets for groundwater levels that are to be maintained, and allows for withdrawals of a portion of the groundwater that is stored by the in-lieu program. With the recharge program and groundwater management plan in place, the groundwater levels will recover, resulting in additional water being stored in the aquifer that underlies southern Sacramento County. A portion of the stored, or “banked,” groundwater could then be withdrawn from the aquifer, with the location, timing, and amount of withdrawals controlled to maintain the target groundwater levels necessary to support the habitat areas.

Modeling conducted by Regional San and The Nature Conservancy suggests that withdrawal during dry years of up to 30% of the water recharged still maintains the groundwater levels and preserves the benefits for the habitat areas. This means that additional drought water supply could be provided while still recovering groundwater levels where the habitat needs it most.

The groundwater withdrawn from such a groundwater banking program could go to a myriad of uses during drought periods, including to supplement reduced surface supplies for local municipal users and/or for environmental uses, such as drought supplies for wildlife refuges that are commonly shorted during droughts.

**Per Water Code section 79753, the Commission may only fund the public benefits of water storage projects. Further, ecosystem improvements must make up 50% of the funded public benefits (Water Code section 79756(b)). What public benefits does your project provide? (select all that apply):**

- Ecosystem Improvements  Water Quality Improvements  Flood Control  
 Emergency Response  Recreation

**Please describe the magnitude of the public benefits and how the project will be operated to provide the public benefits:**

The primary public benefits provided by the project are ecosystem improvements, such as:

- 1) Supports Groundwater Dependent Ecosystems** -- Groundwater stored by the project would raise groundwater levels to better support groundwater-dependent ecosystems (GDEs) along the Cosumnes River, where the Cosumnes River Preserve protects some of the largest intact examples of riparian floodplain habitat remaining in the Central Valley. Over 150 million dollars in public and private funding has been spent to acquire, restore, and protect the Preserve since 1984. Much of this habitat depends on near-surface groundwater to thrive, but groundwater pumping for agricultural and municipal uses in the region has lowered groundwater levels, leaving the habitat less healthy and diverse than it would otherwise be. Preliminary modeling suggests the project could increase groundwater storage in the basin by approximately 200,000 acre-feet and that the increased groundwater stored would significantly improve groundwater levels underlying approximately 8,000 acres of potential habitat lands.
- 2) Enhances Streamflow** – Currently both the Cosumnes River and the Sacramento River lose water to the groundwater in this area. Because groundwater levels in the vicinity of the Cosumnes River and the Sacramento River will be raised by the project, modeling shows these rivers losing less water to the groundwater basin with long-term operation of the project. This is particularly important in the case of the Cosumnes River, which loses its entire flow during the dry parts of the year. In recent decades, the river bed remains dry well into the fall and sometimes early winter, disrupting the migration of Chinook salmon

that would otherwise move up the river to spawn. It also dries out in the spring, eliminating any chance of successful out migration for young salmon smolts. Estimates of stream flow enhancements provided by the project are still being developed.

- 3) Supplies Additional Water for Environmental Needs** – In dry years, a portion of the stored groundwater could be withdrawn to meet a wide range of needs. Preliminary modeling suggests approximately 30,000 AFY of stored water could be withdrawn in the 3 driest years out of 10. A portion of this drought-period water would be dedicated to meet environmental needs within the region or in other areas within the Delta and the Delta watershed.

In addition, with input and support from partners, the program could be a platform to leverage and phase the development of other habitat-related projects that provide additional benefits. Examples include:

- **Direct recharge basins for migratory bird habitat** – Groundwater recharge basins could be constructed on suitable lands that could be managed to provide unique habitat for migratory birds. The recharge basins could be designed to behave and function more like natural wetlands, or could be designed to accommodate seasonal use as agricultural land, allowing planting of crops in the summer and providing managed habitat in the winter.
- **Reliable water supplies for managed wetlands** – Year-round recycled water could potentially be provided to supplement water supplies for managed wetlands in the Cosumnes River Preserve or at Stone Lakes National Wildlife Refuge.
- **Other environmental enhancements** – Other future program elements to expand or enhance habitat values in the important wildlife area of the Mokelumne-Cosumnes-north Delta corridor could possibly be added as future phases to the overall program. Possibilities that have been considered include a Cosumnes pre-wetting program that could pre-wet the Cosumnes River channel in the fall to support earlier salmon migrations.

**Water Code section 79752 requires that funded projects provide measurable improvements to the Delta ecosystem or to the tributaries of the Delta. Please describe how your project provides ecosystem improvements in the Delta or tributaries to the Delta:**

The project's western boundary is located along the northeast/eastern edge of the legal Delta, in the Twin Cities Road/Franklin Boulevard area. See the attached map for program area and proximity to Delta, and other restoration projects in the Northeast Delta. Given the project's proximity to the Delta, all of the ecosystem benefits described above are relevant to the Delta and tributaries of the Delta.

Specifically, the habitats of the Cosumnes River Preserve are partly within the legal Delta, and those portions not physically within the Delta are contiguous or nearly contiguous with habitats in the Delta. The Cosumnes River Preserve, along with nearby Delta wetlands of the Stone Lakes National Wildlife Refuge, the soon to be restored McCormack-Williamson Tract, and nearby areas form vital wetlands and an associated habitat complex that is widely recognized as being one of the more important habitat areas in the Delta. A 2014 Delta Stewardship White Paper on "Restoring Habitat with Science and Society in Mind" identifies the nearby Cosumnes and Mokelumne Rivers confluence as a high priority habitat restoration area, specifically for creating riparian habitat.

Raising groundwater levels in the vicinity of the Cosumnes River Preserve and other riparian habitats helps to:

- 1) Maintain or restore groundwater and surface water interconnection to support instream benefits and groundwater dependent ecosystems;
- 2) Enhance flow regimes or groundwater conditions to improve the quantity and quality of riparian and floodplain habitats for aquatic and terrestrial species; and
- 3) Improve the temporal and spatial distribution and diversity of habitats to support all life stages of fish and wildlife species.

Modeling results show that recovered groundwater levels of up to 25 feet in the project area result in increased flows over time in the Cosumnes River, a tributary of the Mokelumne River, which is a major tributary of the Delta. Such flows can improve habitat conditions for native fish including in-river rearing and downstream migration of juvenile salmonids and potentially increase attraction flows during upstream migration to reduce straying of anadromous species into non-natal tributaries.

In addition to these direct habitat benefits to the Delta, water stored by the project can be withdrawn in drought years to provide a wide variety of water supply benefits to the Delta and its tributaries, such as increasing Delta outflow to provide low salinity habitat for Delta smelt, longfin smelt, and other estuarine fishes in the Delta, Suisun Bay, and Suisun Marsh or provide drought period supplies to enhance seasonal wetlands, permanent wetlands, and riparian habitat for aquatic and terrestrial species on State and Federal wildlife refuges and on other public and private lands.

**Water Code sections 79755 and 79757 require the Commission to make a finding that a project will advance the long-term objectives of restoring ecological health and improving water management for beneficial uses in the Delta prior to allocating funding for a project. Please describe how your project could help advance the long-term objectives of restoring ecological health and improving water management for beneficial uses in the Delta:**

All of the ecosystem benefits described in the previous section are applicable to advancing the long-term objectives of restoring the ecological health of the Delta. Several properties that are part of Cosumnes River Preserve were protected and restored through prior CalFed funding. In addition to the ecosystem benefits described above, withdrawals of stored water during drought periods can reduce future water demand on the Delta watershed and improve regional water self-reliance.

**Please describe any other benefits provided by your project, such as water supply reliability benefits, and the potential beneficiaries:**

**Increasing Local and Regional Water Supply Reliability** – As described earlier, a portion of the stored groundwater (approximately 30,000 AFY) could be withdrawn in dry years to meet a wide range of needs. The specifics of how withdrawals of stored water would be allocated during drought years is still to be determined, but such withdrawals could be used to provide drought water supplies for local municipal and/or agricultural users to contribute to local or regional drought resilience. Similarly, drought water supplies could be withdrawn and provided to more distant water users. For water supply not met as part of the project, raised groundwater levels will also reduce pumping costs for area farmers.

**Preserving working farmlands** - The preservation of farmland with annual crops surrounding the Cosumnes River Preserve is an important element of the Preserve’s long-term strategy. This is important to a number of key target species of the Preserve, such as Swainson’s hawk. Exploring voluntary arrangements with farmers, along with complementary incentives to preserve prime agricultural lands within the South County Ag Program area could help encourage wildlife-friendly farming practices. In this way the Project can also support regional planning efforts, such as American River Basin Integrated Regional Water Management Planning and the Sacramento Area Council of Governments’ 2035 Metropolitan Transportation Plan/Sustainable Communities and Rural-Urban Connections Strategies.

**Improving groundwater dependent ecosystem science** – Combined with extensive research into GDEs at the Preserve by UC Davis and TNC, including an existing well monitoring program and associated Ecosystem Restoration Program grant from California Department of Fish and Wildlife, this project provides an unparalleled opportunity to improve the science of determining what levels of groundwater recharge are most beneficial for a riparian forest response. Results can then help guide long-term adaptive management of the Project, particularly in potential future groundwater banking scenarios. Studies will also inform development of broader SGMA related GDE standards for beneficial uses, thresholds and undesirable results.