Draft Compatibility Determination

Research

Refuge Use Category

Research and Surveys

Refuge Use Type(s)

Research, Groundwater Monitoring, Groundwater Monitoring Well Installation

Refuge

Stone Lakes National Wildlife Refuge

Refuge Purpose(s) and Establishing and Acquisition Authority(ies)

Stone Lakes National Wildlife Refuge (NWR) was established in 1994 under the authority of the Emergency Wetlands Resources Act of 1986 (16 U.S.C. 3901(b)), Fish and Wildlife Act of 1956 (16 U.S.C. 742f(a)(4)), Migratory Bird Conservation Act (16 U.S.C. 715d), and Endangered Species Act of 1973 (16 U.S.C. 1534).

Stone Lakes was established for the following purposes:

- "... for the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions ..." (Emergency Wetlands Resources Act of 1986)
- "... for the development, advancement, management, conservation, and protection of fish and wildlife resources ..." (Fish and Wildlife Act of 1956)
- "... for the benefit of the United States Fish and Wildlife Service (Service), in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ..." (Fish and Wildlife Act of 1956)
- "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." (Migratory Bird Conservation Act)
- "... to conserve (A) fish or wildlife which are listed as endangered species or threatened species .... or (B) plants ..." (Endangered Species Act of 1973)

A map of Stone Lakes NWR is attached as Figure 1.

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System, otherwise known as Refuge

System, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife,and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (Pub. L. 105-57; 111 Stat. 1252).

Description of Use

Is this an existing use?

No

What is the use?

The Sacramento Regional Sanitation District (Regional San) is initiating a Harvest Water Program to supply safe, reliable, tertiary-treated wastewater for agricultural operations to reduce groundwater pumping and allow aquifers to recharge in the Sacramento-San Joaquin Delta. Recycled water deliveries are scheduled to begin in 2025. Regional San has contracted The Freshwater Trust and Woodard & Curran (collectively referred to as the Applicants) to implement elements of the Harvest Water Program Ecological Plan, specifically to monitor groundwater elevations in the areas surrounding delivery locations. A portion of Stone Lakes NWR is within the Harvest Water Program area (Figure 2).

Beginning groundwater monitoring on the refuge prior to 2025, will provide a before-and-after snapshot of groundwater elevations as they relate to recycled water deliveries. The information collected will be useful for the Applicants to measure the program's success as well as to demonstrate ecologically beneficial land management practices.

The Applicants are proposing installation of two shallow groundwater monitoring wells to begin as soon as the project is approved and monthly monitoring thereafter, through the duration of any granted special use permits (SUP). All overhead and maintenance costs and work would be completed by the Applicants.

Is the use a priority public use?

No.

Where would the use be conducted?

On the Rauscher Property, the Gallagher Unit of the Stone Lakes NWR (Figure 3). The management unit where this use is proposed is primarily grassland with an irrigation ditch meandering through. There are plans to extend a riparian corridor along the access road on the east edge of the unit and restore the former path of the swales that the ditch creates. These future projects have been accounted for when selecting the well locations.

When would the use be conducted?

Installation of the monitoring wells would begin as soon as possible in 2022. Monitoring of these wells will occur monthly and will be conducted by the Applicants or contracted staff. Monitoring of these wells is intended to be a long-term project, measuring groundwater trends overtime. If the use is found compatible, a SUP would be issued for up to 5 years, with the option to renew the SUP.

How would the use be conducted?

The Applicants have submitted a proposal that outlines various portions of the study, including the objectives; justification; research personnel required; costs to the Service; and data records that will be made available to the refuge. Once the proposal has been evaluated, it may be approved or denied; if approved, a SUP will be issued. SUPs are only issued for projects that contribute to the enhancement, protection, preservation and management of native refuge plant and wildlife populations and their habitats. The Applicants' proposal will be evaluated using the following criteria:

1. Research that will contribute to specific refuge management activities will be given higher priority over other research requests.
2. Research that will conflict with other ongoing research, monitoring, or management programs will not be granted.
3. Research projects that can be accomplished off-refuge are less likely to be approved.
4. Research that causes undue disturbance or is intrusive will likely not be granted. Level and type of disturbance will be carefully evaluated when considering a request.
5. The refuge requires the submission of annual or final reports and any/all publications associated with the work done on the refuge. All information, reports, data, collections, or documented sightings and observations, that are obtained as a result of a permit are the property of the Service and can be accessed by the Service at any time from the permittee at no cost, unless specific written arrangements are made to the contrary.
6. If staffing or logistics make it impossible for the refuge to monitor researcher activity in a sensitive area, the research request may be denied, depending on the specific circumstances. The length of the project will be considered and agreed upon before approval. Projects will be reviewed annually.
7. If proposed research methods are evaluated and determined to have potential adverse impacts on refuge wildlife or habitat, then the refuge would determine the utility and need of such research to conservation and management of refuge wildlife and habitat. If the need is demonstrated by the research permittee and accepted by the refuge, then measures to minimize potential impacts (e.g., reduce the numbers of researchers entering an area, restrict

research in specified areas) would be developed and included as part of the study design and on the SUP. SUPs will contain specific terms and conditions that the researcher(s) must follow relative to activity, location, duration, seasonality, etc. to ensure continued compatibility.

8. All refuge rules and regulations must be followed unless otherwise accepted in writing by refuge management.
9. Extremely sensitive wildlife habitat areas will be avoided unless sufficient protection from research activities (i.e., disturbance, collection, capture and handling) is implemented to limit the area and/or wildlife potentially impacted by the proposed research, as approved by the refuge manager. Where appropriate, some areas may be temporarily/seasonally closed so that research would be permitted when impacts to wildlife and habitat are no longer a concern.
10. Research activities will be modified to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise.
11. Refuge staff will monitor researcher activities for potential impacts to the refuge resources and for compliance with conditions on the SUP. The refuge manager may determine that previously approved research and SUPs be terminated due to observed impacts. The refuge manager will also have the ability to cancel a SUP if the researcher is out of compliance with the conditions of the SUP.

The expected well design will include two wells; one well screened from 5-10 feet below ground surface (BGS) and a second well screened from 10-30 feet BGS. The two wells would be co-located in each of the well locations for a total of four wells. The well locations would be in a position agreeable to the Stone Lakes NWR staff that would allow for safe access by the drill rig and would not interfere with conservation and other actions at the subject property (Figure 3).

Each Schedule 40 polyvinyl chloride, or PVC, pipe used to install the well's pump will be completed with a sanitary seal and will be a diameter of 2 inches for its length. The wells would have appropriate protective bollards and locking cover and would be mounted a few feet above ground surface. Wells will require power from either a small solar panel or a nearby powerline for telemetry to report the elevations electronically. If power is pulled from a nearby powerline, a trench from the pole to the well will be dug to bury the wire. The Applicants will need to coordinate with the local electric company to accomplish this task.

The installation could take up to 9 days: one day for utility mapping, one day for equipment and supply mobilization, two days for well installation, one day for telemetry installation, one day for bollard and cap installation and one day for demobilization. If cattle are using the site a hotwire fence will need to be setup and removed, adding two more days. The drilling services will be contracted, and the well drilling rig is a truck-mounted hollow stem auger, with a Mobil B53 drill, typically 25

feet long, 7-foot wide with a 24-foot working height. The drilling will be supervised by a California-licensed geologist.

Regional San would provide the well elevations annually to Stone Lakes NWR staff following quality assurance and quality control. Regional San would also provide the operations and maintenance for the life of the wells. If the SUP is term-limited, Regional San would provide a request for renewal, subject to the same terms, to ensure consistency of data collection. If, in the future, the Harvest Water Program no longer needs the wells, Regional San would contact Stone Lakes NWR staff to provide timely notification of this change and provide the refuge the opportunity to take control of the wells for its purposes. Otherwise, the Harvest Water Program would properly abandon the wells in accordance with the Sacramento County requirements.

Why is this use being proposed or reevaluated?

The National Wildlife Refuge System Administration Act directs the Service to "...ensure that the biological integrity, diversity, and environmental health of the System are maintained ..." and to "...monitor the status and trends of fish, wildlife, and plants in each refuge..." Monitoring and research are an integral part of the Refuge System's management process. Plans and actions based on research and monitoring provide an informed approach, which analyzes the effects of management actions on refuge resources. Research is an ongoing use of the Refuge System; it was determined to be a compatible use in 2007 when we issued the Final Comprehensive Conservation Plan (USFWS 2007).

The Applicants' hypothesis is that the Harvest Water Program will improve the groundwater conditions by lowering groundwater extraction rates in the Stone Lakes NWR, and that there will be ecological indications of that benefit. The anticipated groundwater improvements are expected to improve ecological conditions for several thousand acres of groundwater-dependent wetland and riparian forest ecosystems throughout the Harvest Water Program area (Figure 2).

Availability of Resources

Refuge operational funds are currently available through the Service's budget. However, researchers will be required to furnish their own materials and supplies. Supplies and staff time associated with this cooperative study, involving the refuge and other agencies, is covered by appropriate refuge funds.

Anticipated Impacts of the Use

Potential impacts of a proposed use on the refuge's purpose(s) and the Refuge System mission

Use of the refuge to conduct research will benefit the refuge's fish, wildlife, and plant populations—as well as their habitats. Monitoring and research investigations are an

important component of adaptive management. Research investigations would be used to evaluate habitat restoration projects and ecosystem health (CVJV 2009a, 2009b, 2009c, 2010; Gardali et al. 2006; Golet et al. 2003, 2008, 2013; RHJV 2004).

Short-term impacts

Installation of the proposed monitoring wells is expected to have short term impacts, mainly wildlife and vegetation disturbance. Installation disturbance is likely to also include the trampling of plants and animals, soil compaction (Kuss 1986; Roovers et al. 2004; Hammitt and Cole 1998) and introduction of invasive organisms (e.g., non-native weeds) into the environment (McNeely 2001). Monitoring disturbance may include actions that could alter wildlife behavior and habitat potentially causing shifts in reproductive success, habitat abandonment, and increased energy demands (MacDonald 2015, Snetsinger and White 2009, Reed and Merenlender 2008, Gill et al. 2001, Miller et al. 1998, Gill et al. 1996, Schulz and Stock 1993, Knight and Cole 1991, Arrese 1987). However, most of these effects would be short-term and localized to designated, agreed-upon locations, with prior disturbance, to limit impacts to surrounding wildlife and their habitats.

Long-term impacts

The long-term effects of the wells would be mostly eliminated or reduced because refuge staff and the Applicants would ensure adequate safeguards to avoid or minimize impacts. The wells would require monthly monitoring and occasional maintenance. Long-term impacts that may alter wildlife behavior and disturb habitats will be due to site visits to collect groundwater data and to service the wells. However, the events causing the impacts would be infrequent, short in duration and could be monitored by the refuge staff. Additionally, the SUP would include conditions to further ensure that impacts to wildlife and habitats are avoided and minimized.

Public Review and Comment

Determination

Is the use compatible?

Yes

Stipulations Necessary to Ensure Compatibility

1. The criteria for evaluating a research proposal, as outlined in the How Would the Use be Conducted section above, will be used when determining whether a proposed study will be approved on the refuge.
2. If proposed research methods are evaluated and determined to have potential adverse impacts on refuge wildlife or habitat, the refuge will either deny the request or restrict research activities. These restrictions would be outlined in the SUP, if granted.
3. All refuge rules and regulations must be followed unless otherwise accepted in writing by refuge management.
4. Extremely sensitive wildlife habitat areas will be avoided unless sufficient protection from research activities (i.e., disturbance, collection, capture and handling) is implemented to limit the area and/or wildlife potentially impacted by the proposed research, as approved by the refuge manager. Where appropriate, some areas may be temporarily/seasonally closed so that research would be permitted when impacts to wildlife and habitat are no longer a concern.
5. Applicants will replace an existing barbwire gate with a new, standard 7-bar 14 ft wide gate.
6. Researchers will be required to obtain appropriate state and Federal permits and complete all environmental compliance requirements; for example, if the proposed research activity may affect listed species deemed endangered, the researcher is responsible for ensuring compliance with Section 10 of the Endangered Species Act.
7. Research activities will be modified to avoid harm to sensitive wildlife and habitat when unforeseen impacts arise.
8. Refuge staff will monitor researcher activities for potential impacts to the refuge and for compliance with conditions on the SUP. The refuge manager may determine that previously approved research and SUPs be terminated due to observed impacts. The refuge manager will also have the ability to cancel a SUP if the researcher is out of compliance with the conditions of the SUP.

Justification

This program, as described, is determined to be compatible. Based upon impacts described in the Comprehensive Conservation Plan (USFWS 2007), it is determined that installation of groundwater monitoring wells and follow up monitoring within the refuge, as described herein, will not materially interfere with or detract from the purposes for which the refuge was established or the mission of the Refuge System. Refuge monitoring and research will directly benefit and support refuge goals,

objectives and management plans and activities. Fish, wildlife, plants and their habitats will improve through the application of knowledge gained from monitoring groundwater. The wildlife-dependent, priority public uses (wildlife viewing and photography, environmental education and interpretation, and hunting) would also benefit as a result of increased biodiversity and wildlife and native plant populations from improved restoration and management activities associated with groundwater monitoring.

Signature of Determination

Refuge Manager Signature and Date

Signature of Concurrence

Assistant Regional Director Signature and Date

Mandatory Reevaluation Date

2037

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Figure(s)

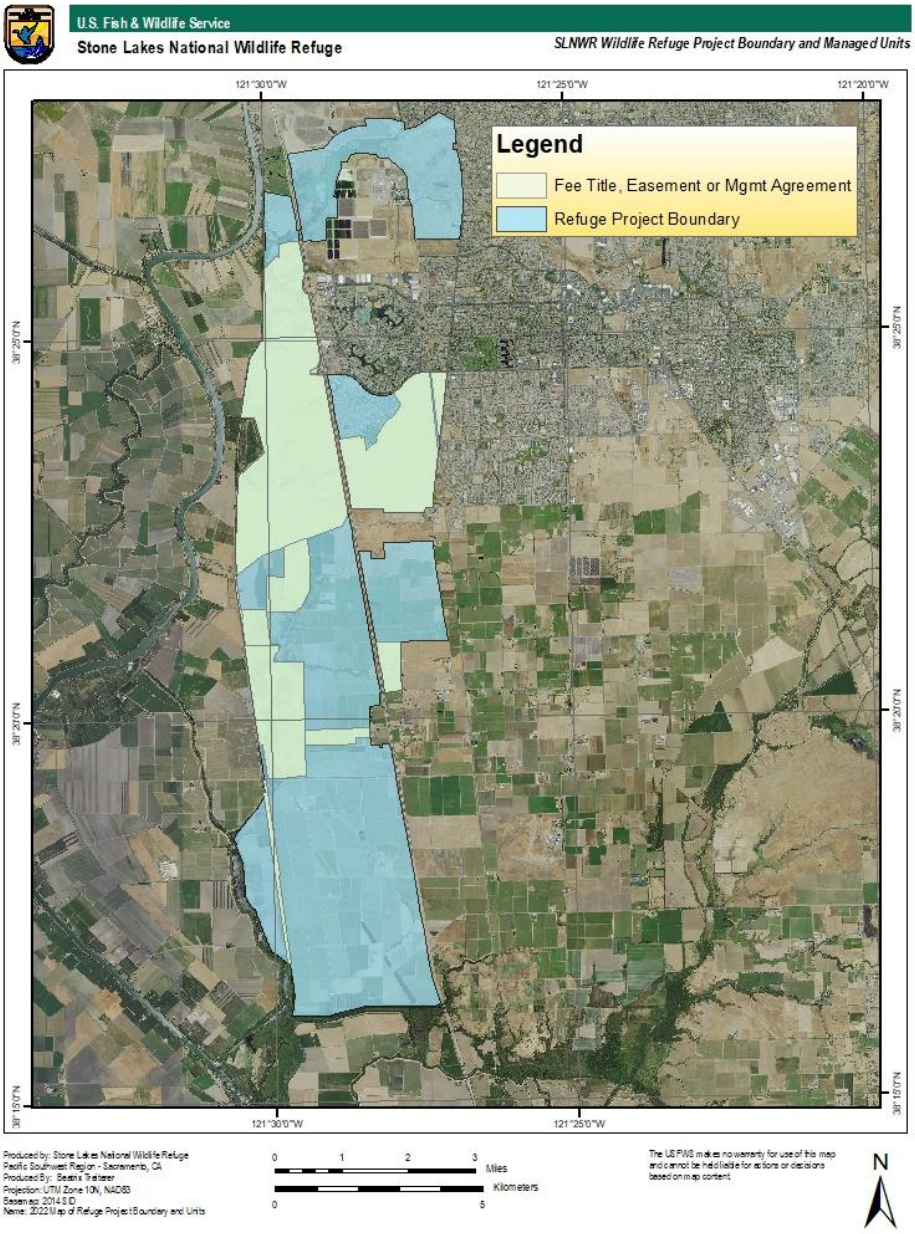

Figure 1: Map of Stone Lakes National Wildlife Refuge

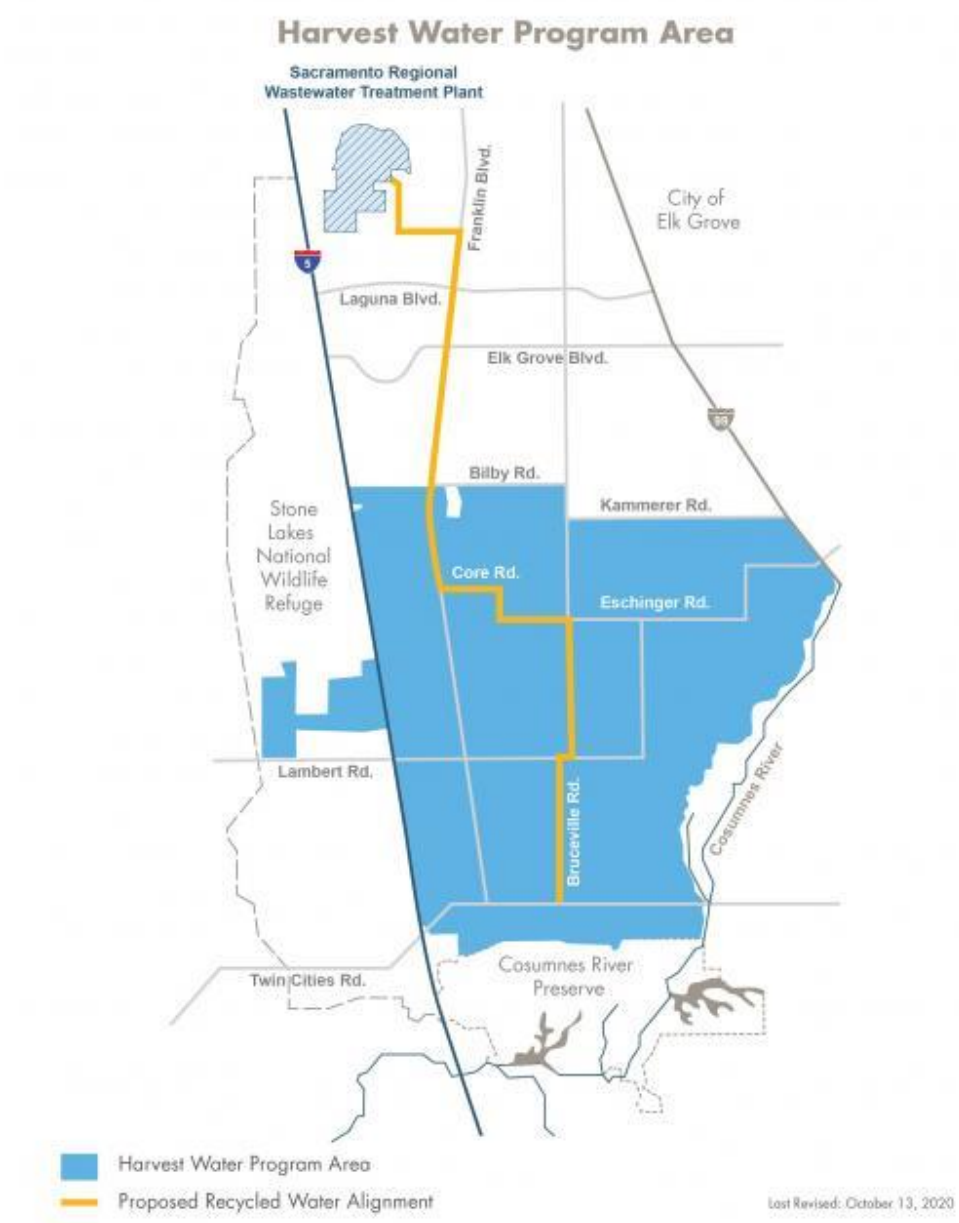

Figure 2: Map of the Harvest Water Program Area

Figure 3: Map of approximate well locations