



This project is being funded through the State Water Resources Control Board in California (SWB) Grant and the Advancing Potable Reuse Initiative that leverages the grant. This grant and initiative fund research to advance potable and non-potable reuse in California and across the world.

There are unique provisions associated with this funding – please review and follow the instructions in the entire RFP, particularly budget requirements (indirect costs cap) and prohibition of work in certain states. Proposals that do not follow instructions are subject to disqualification.

State Water Board (CA) and Advancing Potable Reuse Initiative RFP

Assessing the State of Knowledge and Impacts of Recycled Water Irrigation on Agricultural Crops (RFP 4964)

Project Objective

The objectives of this research project are to:

- Investigate how and to what degree the impacts of salinity, sodium (Na), and chloride (Cl) affect growth and production of different crops (including grain crops, vegetables, fruits, and other specialty crops)
- Evaluate growth and productivity of crops currently irrigated with recycled water, and the association with soil health and recycled water properties (such as total dissolved salts [TDS], sodium absorption ratio [SAR], and Na and Cl concentrations)
- Provide management guidelines for sustainable water reuse with different crops and cropping systems
- Develop communication outreach pieces such as fact sheets, guidebook, white paper, etc. that can be utilized by growers

Budget

Proposals may request WRF funds for \$120,000. WRF funds requested and total project value will be criteria considered in the proposal selection process.

Background

As growers contend with increased demand for productivity and water scarcity challenges, innovative irrigation strategies must be investigated. Recycled water can potentially be used for irrigating crops. Research is needed to investigate how current crop cultivars respond to recycled water irrigation and their corresponding salinity tolerances, as many of the studies on salinity impacts on crop yields were performed before the current cultivars were developed. Research is also needed to analyze TDS, Na, and Cl concentrations in recycled water to determine concentrations that would indicate the need for treatment and the appropriate treatment methods (such as reverse osmosis).

For certain crops and soil types, TDS, Na, and Cl can impede recycled water use in agriculture. However, actual concentrations of TDS, Na, and Cl in recycled water are not generally reported or compiled in state or federal databases. Salt buildup and formation of sodic soils are major concerns for agricultural growers and this study will also investigate those mechanisms. The overall goal of this study is to supplement existing databases and provide guidelines to farmers on growing crops using recycled water.

WRF subscribers and other stakeholders will benefit from this research through:

- Increased understanding of impacts of recycled water irrigation on various agricultural crops
- Investigating salt buildup and formation of sodic soils, which are major concerns for agricultural growers
- Identification of knowledge and research gaps to be addressed by future research

This research project is part of WRF's Advancing Potable Reuse Initiative (http://www.werf.org/c/KnowledgeAreas/WaterReuse/Potable_Reuse_Research.aspx) to establish potable reuse (indirect and direct) as a solution to the nation's water supply challenges. This initiative will sponsor research to address the regulatory, utility, and community concerns of the water industry and WRF's subscribers.

Research Approach

The proposal must include the following elements in the team's research approach:

- Task 1: Literature review that identifies current state of knowledge, knowledge gaps, and research needs surrounding the impacts of recycled water on agriculture production and growth, requirements for the level of treatment needed for various crops as well as case studies where reuse for agricultural purposes has been implemented. The literature review should also investigate the impacts of salinity, Na, and Cl on growth and production of different crops (including grain crops, vegetables, fruits, and other specialty crops).
- Task 2: Investigate risk concerns, such as TDS, Na, Cl, Boron, and other constituents associated with recycled water for agricultural irrigation. Identify what research or data is needed to address the risk.
- Task 3: Evaluate the impacts of recycled water characteristics regarding their impacts on soil health and farming sustainability in areas irrigated by recycled water. Respondents may, but are not required to, accomplish Tasks 2 and 3 by conducting a project workshop to obtain information from experts.
- Task 4: Develop a quantitative risk assessment framework and management guidelines for growers using recycled water irrigation.
- Task 5: Evaluate different strategies for sustainable water reuse with different cropping systems.
- Task 6: Develop a Final Report and Outreach Products summarizing the project findings for publication by the Foundation.

Final deliverables include:

- A **Literature Review** that summarizes the results of Task 1 for this project.
- A **Final Report** that summarizes the results from the entire project. The team is also encouraged but not required to disseminate their findings more broadly through peer reviewed publications and conference proceedings/presentations.
- **Final Outreach Products** (e.g., handouts, videos, FAQs, etc.) that translate technical findings into a useful communication piece for interested utilities, agricultural growers, and the public.

Proposal Preparation Instructions

Proposals submitted in response to this RFP must be prepared in accordance with The Water Research Foundation document, *Guidelines for Focus Area Program Proposals*. The most current version of these guidelines is available at

<http://www.waterrf.org/funding/ProposalDocuments/GuidelinesForFocusAreaProgramProposals.pdf>.

The guidelines contain instructions for the technical aspects, financial statements and administrative requirements that the applicant must follow when preparing a proposal.

Eligibility to Submit Proposals

This RFP solicits proposals from all technically qualified U.S.-based or non-U.S. based applicants, including educational institutions, research organizations, federal or state agencies, local municipalities, and consultants or other for-profit entities. However, for this specific project, because a portion of the funding is from California, there are territory limitations that can be reviewed at <https://oag.ca.gov/ab1887> that prohibit individuals and or organizations from certain states from participating in this project. **See Funding Provisions below.**

WRF's Board of Directors has established a Timeliness Policy that addresses researcher adherence to project schedule. The policy can be reviewed at <http://www.waterrf.org/funding/Pages/policies.aspx>. Researchers who are late on any ongoing WRF-sponsored studies without an approved no-cost extension are not eligible to be a named participant in any proposal. If you have any questions about your eligibility for WRF projects, please contact the WRF Research Manager listed at the bottom of the RFP.

Administrative, Cost and Audit Standards

WRF's Focus Area and Solicited Program standards for administrative, cost and audit compliance are based upon and comply with Office of Management and Budget Uniform Grants Guidance, 2 CFR Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, and 48 CFR 31.2 Contracts with Commercial Organizations. These standards are referenced in the WRF's *Guidelines for Focus Area Program Proposals* and include specific guidelines outlining the requirements for Indirect Cost Negotiation Agreements, Financial Statements and the Statement of Direct Labor, Fringe Benefits and General Overhead. For this specific project however, indirect costs are not allowed and will not be covered under the terms of the grant funding from the State of California.

Budget and Funding Information

The funding available from WRF for this project is \$120,000. A maximum of 35% of the WRF funding amount can be applied to indirect costs (see funding provisions for definition). A minimum 25 percent must be contributed by the applicant (i.e., the applicant's minimum contribution must equal one-third of WRF funds requested). Acceptable forms of applicant contribution include cost-share, applicant in-kind or third-party in-kind that comply with 2 CFR Part 200.306 Cost sharing or matching. The applicant may elect to contribute more than 25 percent to the project but the maximum WRF funding available remains fixed at \$120,000. **Proposals that do not meet the minimum 25 percent of the total project value will not be accepted. See Funding Provisions below**

Period of Performance

The proposed project schedule should be realistic, allowing ample time for the preparation of final reports and for review of project results. The anticipated period of investigation for this project is approximately 18 months from agreement execution. It is WRF's policy to negotiate a reasonable schedule for each research project. Once this schedule is established, WRF and its sub-recipients have a contractual obligation to adhere to the agreed-upon schedule. Under WRF's No-Cost Extension Policy, a project schedule cannot be extended more than nine months beyond the original contracted schedule, regardless of the number of extensions granted. The policy can be reviewed at <http://www.waterrf.org/funding/Pages/policies.aspx>.

Utility and Organization Participation

WRF is especially interested in receiving proposals that include both participation and contribution of resources from water utilities and organizations in the research effort. Information on utilities and/or organizations that have indicated an interest in participating in this research project are listed on the last page of this RFP. While WRF makes utility and organization participation volunteers known to applicants, it is the applicant's responsibility to negotiate utility and organization participation in their particular proposal, and the utilities and/or organizations are under no obligation to participate.

Funding Provisions

The California State Water Resources Control Board (SWB) is funding all or a portion of this project through its Proposition 1 bond funds. The agreement No. D1705003 entitled "Research to Advance Potable and Non-potable Reuse in California" between SWB and WRF was fully executed on 3/30/18.

- Indirect Costs - SWB Grant Funds may not be used for any Indirect Costs (Gov. Code, § 16727.) WRF and the Advancing Potable Reuse Initiative is funding a maximum of 35% of the total budget that can be applied to indirect costs.

Definition per SWB grant: "Indirect Costs" means those costs that are incurred for a common or joint purpose benefiting more than one cost objective and are not readily assignable to the Research (i.e., costs that are not directly related to the Research). Examples of Indirect Costs include, but are not limited to: central service costs; general administration of the Recipient; non-research specific accounting and personnel services performed within the Recipient's organization; depreciation or use allowances on buildings

and equipment; the costs of operating and maintaining non-research specific facilities; tuition and conference fees; generic overhead or markup; and taxes.

- Prohibition of travel or research in banned states – SWB Grant funds may not be used for any travel to or research in banned states that are identified by the Attorney General pursuant to Government Code section 11139.8, subd.(e), unless otherwise approved by the Grant Manager. The list of states identified by the Attorney General can be found here: <https://oag.ca.gov/ab1887>.
 - The Recipient shall not perform research in, travel to, or hold any meetings in states that are identified
 - The Recipient shall ensure that the SWB, the Governor of the State, or any authorized representative of the foregoing, will have safe and suitable access to the Research site at all reasonable times during Research work.
 - There cannot be any work on any level of the project in connection with the research – including in-kind contributions from researchers, universities, utilities, etc in banned states.

- Travel – Prior Approval and Reimbursement
 - Prior Approval – Travel to be reimbursed by grant funds requires prior written authorization. Please allow at least 2 weeks' notice for WRF to gain approval from SWB.
 - Reimbursement – Reimbursement shall be at rates not to exceed those set by the California Department of Human Resources. These rates may be found at <http://www.calhr.ca.gov/employees/pages/travel-reimbursements.aspx>.

Reimbursement will be at the State travel and per diem amounts that are current as of the date costs are incurred by the Recipient.

- Subcontracting – The Recipient shall not contract or allow subcontracting with excluded parties. The Recipient shall not contract with any party who is debarred or suspended or otherwise excluded from or ineligible for participation in any work overseen, directed, funded, or administered by the SWB program for which this funding is authorized. For any work related to this Agreement, the Recipient shall not contract with any individual or organization on the SWB's List of Disqualified Businesses and Persons that is identified as debarred or suspended or otherwise excluded from or ineligible for participation in any work overseen, directed, funded, or administered by the SWB program for which funding under this Agreement is authorized. The SWB's List of Disqualified Businesses and Persons is located at https://www.waterboards.ca.gov/water_issues/programs/enforcement/fwa/dbp.html.

The State Water Board grant agreement states that final deliverables are due by January 31, 2021. For WRF to comply with this requirement, all deliverables are due to WRF by October 31, 2020. An extension from the State Water Board is possible, however will not be determined until Summer 2019 – therefore please adhere to this deadline at this time.

Application Procedure and Deadline

Proposals are now being accepted exclusively online in PDF only format and must be fully submitted before Tuesday, January 22, 2019, 2:00 PM Mountain Time. All the forms and components of the

proposal are available online in the “Proposal Component Packet” zip file. A login is required to download this packet and use the proposal website. This information is available at <https://proposals.waterrf.org/Pages/RFPs.aspx>

The online proposal system allows submission of your documents until the date and time stated in the RFP. To avoid the risk of the system closing before you press the submit button, do not wait until the last minute to complete your submission.

Questions to clarify the intent of this Request for Proposals and WRF’s administrative, cost and financial requirements may be addressed to the Research Manager, Kristan VandenHeuvel, at (571) 699-0025 or by e-mail at kvandenheuvel@waterrf.org.

UTILITY AND ORGANIZATION PARTICIPANTS

The following utilities have indicated an interest in possible participation in this research. This information is updated within 24 business hours of when a utility submits a volunteer form, and this RFP will be re-posted with the new information. **(Depending upon your settings, you may need to click refresh on your browser to load the latest file.)**

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State Water Board Projects: Frequently Asked Questions

FAQs

Q: Are any indirect costs covered for these projects?

A: Yes, partially. SWB Grant Funds may not be used for any Indirect Costs – so these costs must be clearly identified so we ensure to adhere to that agreement. WRF and the Advancing Potable Reuse Initiative is funding a maximum of 35% of the WRF funding amount for indirect cost recovery.

Q: I am located in a banned state; can I participate on a research team?

A: No -- The SWB is funding this research, and the projects cannot be connected to work in banned states. This is even the case if services are donated.

Q: Can a project meeting or workshop be held in a banned state?

A: No, this is not allowed since SWB employees are not permitted to travel to banned states.

Q: I am located in a banned state; can my utility provide in kind service towards the project?

A: No, the SWB cannot be connected with research performed/data collected in banned states.

Q: Is prior approval for all travel, even for regular work at a utility, necessary? What is the process to gain approval?

A: Yes, prior approval is needed, as the SWB must ultimately provide this authorization. Please request a travel authorization form from your Research Manager. If there is frequency to your travel/site visits, you can indicate so in the form to request multiple trips. Plan to submit to your research manager quarterly to avoid last minute approval requests.

Q: I see that we must submit final report/deliverable by October 31, 2020. We expect it will be a 24-month project, so this is a tight timeline. Will there be an option for a no cost extension?

A: This deadline is based on the SWB grant agreement that requires final deliverables to be submitted by January 31, 2021 (three months is needed for the WRF publication process and project closeout). This is based on expiration of Proposition 1 bond funds. This deadline is expected to be extended by the CA Governor in July 2019, however at this time we are under contract must plan for this deadline.

State Water Board Projects: Frequently Asked Questions on Budget Development

Summary

As stated in the RFP, there is a maximum allowable by project for indirect costs. It varies from 35% - 50% by project, so please carefully note this in developing your budget.

Project #	SWB Phase 2: FY18 and beyond	Budget	Research Manager	Indirect Cost Cap	RFP Release/Deadline
4953	Blending Strategies with Alternative Supplies	\$400,000	Stephanie F	\$200,000	Oct 30 / Dec 19
4954	High Frequency Performance Data for DPR	\$400,000	Grace	\$200,000	Oct 30 / Dec 19
4955	Indicator Viruses for Advanced Treatment	\$300,000	Grace	\$125,000	Oct 30 / Dec 19
4957	Pathogen Reduction through Aquifer Recharge	\$100,000	Stefani M	\$35,000	Dec 11 / Jan 22
4958	Protocols for Log Removal Credits for NF and RO	\$350,000	Justin	\$122,500	Oct 30 / Dec 12
4959	Tier 3 Validation for Membrane Bioreactors	\$25,000	Justin	\$8,750	Dec 11 / Jan 22
4960	Industrial Contaminants Review	\$200,000	Ashwin	\$70,000	Oct 30 / Dec 12
4961	NGS and Metagenomics Research	\$300,000	Stefani M	\$105,000	Oct 30 / Dec 19
4962	Wastewater Feasibility Study	\$105,000	Stephanie F	\$36,750	Dec 11 / Jan 22
4963	Developing a New Foundational Understanding of SAR	\$200,000	Kristan	\$70,000	Oct 30 / Dec 12
4964	Assessing the State of Knowledge and Impacts of Recycled Water Irrigation on Agricultural Crops	\$120,000	Kristan	\$42,000	Dec 11 / Jan 22

In order to comply with State Water Board grant terms, each proposer **and its subrecipients and subcontractors** must complete a WRF Proposal Budget Form and provide its own indirect cost rate documentation.

State Water Board Projects: Frequently Asked Questions on Budget Development

FAQs

Q: Is the indirect cost cap (as indicated above/in RFP) applicable to each participating party (prime + subs must adhere to, for example, 35% max), or is it collectively for the total budget (e.g. some can come in over/under as long as it's equal or less than 35% of total WRF budget)?

A: The latter is correct – as long as the indirect costs are equal to or less than the amount/percentage indicated in the RFP of the total WRF budget (see RFP or above chart for actual amount of cap).

Q: What if we bring cash support to the project?

A: You can bring cash to the project, however even with this added amount, the Indirect costs must be equal to or less than the % of the WRF budget indicated in the RFP (see above chart for cap). Please indicate this amount in the 'Cost Share' column of the budget spreadsheet. It can be collected and tracked by the prime recipient.

Q: What level of detail does WRF require for subrecipients? Is TOTAL BUDGET = Total eligible costs (direct, etc.) + Indirect costs sufficient?

A: No, due to the requirements of the SWB grant, we request that even sub-recipients complete the WRF budget form and provide indirect cost documentation in accordance with Section 17 of the Guidelines for Focus Area Program Proposals. This way we can ensure indirect costs are clearly delineated.

Q: Our annual FAR audited rate provides a single number that combines indirect costs + fringe benefits. Can our accounting staff use the audited schedule to break out the fringe and indirect rates?

A: Yes, please provide the fringe and indirect rates in a letter (signed by your CFO or Accounting Manager) to WRF accompanying the budget and the indirect cost documentation in accordance with Section 17 of the Guidelines. Fringe can be covered by grant funds. Indirect costs must not exceed the number indicated in the RFP/above.

Q: Can we include a fee?

A: Yes, you may, place in tab "I. Fee"