

California Clean Water SRF: Nonpoint Source Project Scoping

*Developed for:
California State Water Resources Control Board
Division of Financial Assistance*

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1 Introduction and Background

This document presents the activities and findings from identifying and evaluating potential nonpoint source (NPS) projects for the California State Water Resources Control Board's (State Water Board's) Clean Water State Revolving Fund (CWSRF). NPS pollution includes pollution associated with agriculture, forestry, urban areas (not addressed by NPDES stormwater permits), marinas, hydromodification, and wetlands. NPS pollutants continue to contribute significantly to water quality degradation. As such, there is a dire need to implement projects that prevent and mitigate NPS pollution.

NPS projects in California have 2 primary sources of funding: the CWSRF Program and the NPS Pollution Control Program. The California CWSRF Program, operated by the State Water Board's Division of Financial Assistance (DFA), offers low-interest loans for a variety of water quality projects—for example, constructing publicly-owned treatment facilities, developing and implementing comprehensive estuary conservation and management plans that address pollutants, and implementing NPS projects. Funds for the program are received from the US Environmental Protection Agency (EPA) under Title VI of the Clean Water Act (CWA), 33 US Code §1383.

The NPS Pollution Control Program funds NPS projects through grants received from EPA under Section 319(h) of the CWA. These “§319 Grants” are administered by both DFA and the State Water Board's Department of Water Quality (DWQ). The CWA requires that states use the §319 funds to implement the state's current EPA-approved NPS Pollution Management Program plan. Fifty percent of each §319 Grant received must be used to implement projects that reduce NPS pollution. The 2020–2025 California NPS Program Implementation Plan (NPS PIP) is California's current plan (State Water Board 2020). The §319 Grant funding received from EPA requires a 40 percent match by the receiving state entity—the State Water Board, in the case of California. Thus, NPS projects can be funded by both the NPS Pollution Control Program and the CWSRF Program, and projects eligible for CWSRF could potentially serve as match for the state's §319 Grants.

Eligible uses of CWSRF and §319 funds are summarized with a Venn diagram in Figure 1. The diagram graphically separates eligible use of funds into 3 categories: CWSRF, §319, or both. As demonstrated, several project types eligible for CWSRF awards are not NPS projects, and therefore not eligible for §319 funding. Note that there are some exceptions to these eligible uses. For example, projects that implement measures to address diffuse stormwater runoff (e.g. green infrastructure that captures and infiltrates stormwater or stores it for reuse) can be eligible for §319 funding as NPS projects.

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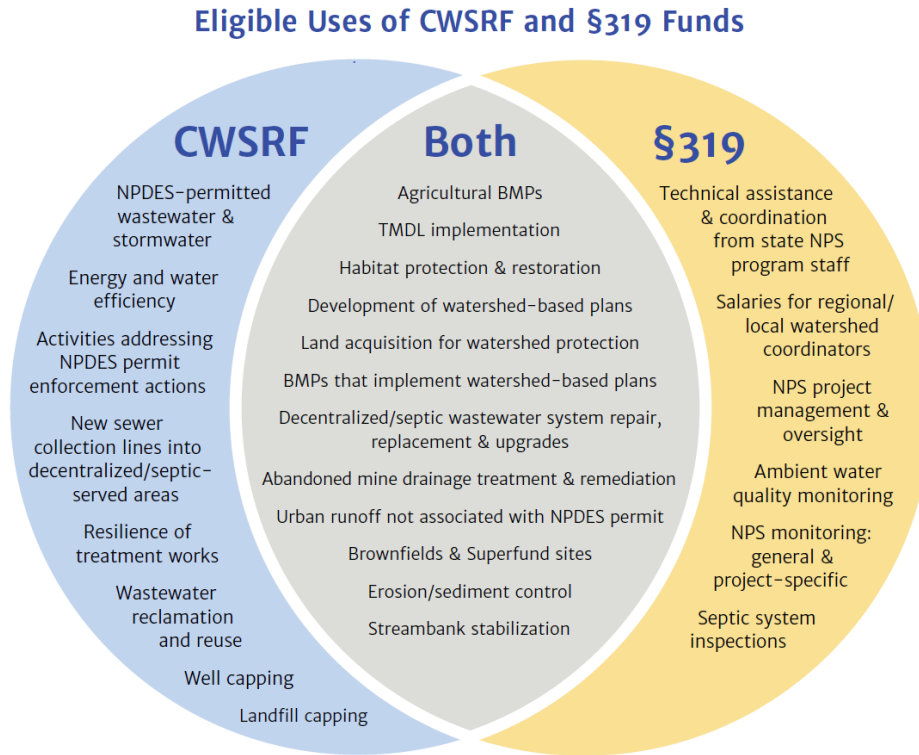


Figure 1. Venn diagram comparing eligible uses of CA CWSRF and §319 Grant funds (EPA 2021)

While funding of NPS projects through the State Water Board’s §319 NPS Pollution Control Program has continued, funding of NPS projects through the CWSRF program has declined since the State Water Board’s reorganization in the early 2000s. As demand for support for other eligible CWSRF projects (i.e., non-NPS projects) has expanded over the years, DFA has not championed NPS projects like the State Water Board’s Division of Water Quality (DWQ) did prior to the reorganization. Given that NPS pollution is the leading remaining cause of water quality problems and has harmful effects on drinking water supplies, recreation, fisheries, and wildlife (EPA 2022a), DFA and DWQ have expressed interest in increasing the amount of NPS projects implemented in California, particularly through the CWSRF program.

The goal of this project, therefore, was to identify priority project types that address NPS pollution, while supporting DFA in increasing the number of NPS projects funded by the CWSRF and qualifying as a match for §319 funding.

2 Methods and Findings

Staff from the Office of Water Programs (OWP) Environmental Finance Center at Sacramento State (EFC) completed the following activities in support of the project goal:

- Identified and evaluated NPS projects awarded by other state CWSRF programs
- Analyzed NPS projects awarded by California CWSRF, §319 Grants, and Proposition 1
- Tabulated and compared findings between the various state programs

2.1 NPS Projects Awarded by Other States

EPA Region 9 staff provided contact information for 6 states that oversee successful CWSRF NPS projects. Four of these states provided information about their programs: Iowa’s Water Quality Bureau and State Revolving Fund (SRF), Pennsylvania’s Infrastructure Investment Authority (PENNVEST), New York’s CWSRF, and Virginia’s Clean Water Financing and Assistance Program (CWFAP). Iowa’s SRF has approved 38 NPS projects between 2019 and 2021; PENNVEST has approved 148 projects between 2010 and 2020; the New York CWSRF has approved 50 projects between 2017 and 2021; and CWFAP has approved 151 projects between 2020 and 2022. The CWFAP differs from other state programs in that it tracks projects by the year each project is set to begin, not by the year each project is approved. Each state’s projects were sorted into 8 categories based on project type, and 7 categories based on applicant type. Table 1 below displays the project categories represented in each state’s program, and Table 2 displays applicant categories in the same fashion. Urban runoff/stormwater projects and agricultural BMP projects were the only 2 categories for which all 4 state programs granted awards.

Table 1. Categories of NPS projects funded by other state CWSRFs

Project Type	Iowa	Pennsylvania	New York	Virginia
Acid mine drainage	-	✓	-	-
Agriculture/irrigation	✓	✓	✓	✓
Brownfield	-	✓	-	✓
Erosion/sedimentation	✓	-	-	-
Restoration/conservation	✓	-	✓	✓
Stormwater ¹	✓	✓	✓	✓
Unknown ²	-	✓	-	-
OAWCF/OWTS ³	-	✓	-	✓

✓: This state’s program had an equivalent project category.

- : No equivalent project category existed in this state’s program.

1. While §319 funding excludes NPDES-permitted stormwater projects, it does not exclude diffuse stormwater projects.

2. In some cases, the data provided did not explicitly state the category it would fall under.

3. OAWCF = onsite animal waste control facilities; OWTS = onsite wastewater treatment systems.

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Table 2. Categories of NPS project applicants funded by other state CWSRFs

Applicant Type	Iowa	Pennsylvania	New York	Virginia
Agency	-	✓	✓	✓
Municipality	✓	✓	✓	✓
Non-profit corporation	✓	✓	✓	✓
Private citizen	✓	✓	✓	-
Private company	✓	✓	✓	✓
Special district	-	✓	✓	✓
Utility	✓	✓	-	-

✓: This state's program had an equivalent applicant category.

- : No equivalent applicant category existed in this state's program.

The CWSRF programs most often target agriculture, stormwater, and restoration/conservation NPS projects. Examples include dairy and agricultural wastewater infrastructure improvements in Iowa, Pennsylvania, and Virginia, and source water restoration and streambank stabilization projects in Iowa and New York. Table 3 showcases specific examples of these projects from various states. A complete record of all NPS project data from each state can be found in Appendix A.

Table 3. Example NPS projects from various states

State	Project Name/Number	Project Type	Project Description
Iowa	Waste storage facility and sand lane	Agriculture and irrigation	A dairy operation in the Price Creek Watershed in Benton County had a lagoon that was undersized and at risk of overflowing. The operation used a Clean Water SRF Livestock Water Quality Program (LWQP) loan, along with federal funding, to install a new waste storage facility and a sand lane to reduce the amount of sand going to the lagoon. The new facility is a 2-stage system that separates the solid and liquid manure for improved handling, and provides increased capacity to allow the landowner to apply the manure at the appropriate time. This project will improve the operation and reduce bacteria loads to Price Creek.
New York	C4-9249-02-00	Restoration and conservation	The Albany Water Board will daylight a portion of Patroon Creek within the Tivoli Park Preserve. This project will help mitigate erosion, stabilize critical infrastructure within the preserve, and use natural resources to provide additional downstream flood protection.
New York	C7-6207-03-00	Stormwater	The City of Binghamton will make improvements to City Hall by installing a green roof, stormwater planters, and a stormwater harvest and reuse system. This project will treat and store stormwater onsite for municipal operations such as the Fire Department and Department of Public Works to utilize as a water source.

2.2 NPS Projects Awarded in California

California NPS project data was collected from 3 funding sources: California CWSRF, California §319 Grant funds, and State Water Pollution Control Revolving Fund–Proposition 1. California CWSRF projects funded by Proposition 1 were considered as CWSRF projects. There were 133 CWSRF projects in the data set, covering 1991 through 2020. §319 Grant funds have been disbursed to 154 projects between 2009 and 2020. All 287 projects were sorted into 7 categories by project type, and 5 categories by applicant type. EPA requires that §319 Grant-funded projects implement goals in the state's NPS Pollution Management Program plan active at the time. There are 17 NPS topics outlined in the California plan (e.g., the 2020–2025 PIP, State Water Board 2020), including, but not limited to, agriculture, confined animal facilities, source water protection, and onsite wastewater treatment systems.

Table 4 below summarizes the 287 California NPS projects that were awarded between 1991 and 2020 by listing project categories, category descriptions, and their occurrence frequency, while Table 5 displays applicant categories and their award frequency. A complete record of California NPS project data can be found in Appendix B.

Table 4. Categories, descriptions, and frequencies for 287 CA projects with §319/CWSRF funding

Project Categories	Category Description	Award Frequency
Agriculture/irrigation	Irrigation and other agricultural impact mitigation, through preventative best management practices (BMPs) or treatment	11.1%
BMP research/implementation	General BMP research, planning, and implementation	9.1%
Erosion/sedimentation	Includes road maintenance, contaminated sediment removal, bank stabilization, etc.	25.4%
Restoration/conservation	Post-wildfire restoration, water quality (WQ) mitigation, wildlife and landscape conservation, sustainability-focused initiatives, and public education	31.7%
Stormwater	Includes stormwater infrastructure improvements and low impact development (LID)	10.1%
Unknown¹	Information not easily available	3.8%
OAWCF/OWTS²	Wastewater and sewer system infrastructure and BMPs	8.7%

1. In some cases, the data provided did not explicitly state the category it would fall under.

2. OAWCF = onsite animal waste control facilities; OWTS = onsite wastewater treatment systems.

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Table 5. Applicant categories and award frequencies for the 287 California NPS projects

Applicant Categories	Award Frequency
Agency	8.7%
Municipality	20.2%
Non-profit corporation	26.1%
Special district	37.6%
Utility	7.3%

2.3 Program Comparisons

To identify potential gaps in the types of CWSRF NPS projects that DWQ and DFA administer, California’s project and applicant categories were compared with these categories from other state programs. California’s NPS programs (i.e., the CWSRF program and the §319 program) have an equivalent project category for almost every project category funded by other states. Two types of projects were identified in other state programs: acid mine drainage and brownfield sites. These project types are addressed by programs other than California’s CWSRF and NPS §319 programs. California’s NPS programs award funds to mostly the same applicant types as other programs; these applicant types are listed earlier in Table 5. However, 2 common fund-recipient types that were identified only in other states’ programs were private citizens and private companies. Table 6 compares California NPS project categories with those from the other 4 states.

Table 6. Comparison of NPS project categories between California and 4 other state programs

Project Type ¹	California	Iowa	Pennsylvania	New York	Virginia
Agriculture/irrigation	✓	✓	✓	✓	✓
BMP research/implementation	✓	-	-	-	-
Erosion/sedimentation	✓	✓	-	-	-
Restoration/conservation	✓	✓	-	✓	✓
Stormwater	✓	✓	✓	✓	✓
OAWCF/OWTS²	✓	-	-	-	✓
Unknown	✓	-	✓	-	-
Acid mine drainage	-	-	✓	-	-
Brownfield	-	-	✓	-	✓

✓: This state’s program had an equivalent category.

- : No equivalent category existed in this state’s program.

1. Project types considered include NPS projects funded both by §319 grants and/or the CWSRF.

2. OAWCF = onsite animal waste control facilities; OWTS = onsite wastewater treatment systems.

The relative frequency of project type was also compared between California’s NPS Program for §319 Grant-funded projects and CWSRF-funded projects, as shown in Table 7. Common goals between the 2 funding sources tend to be reflected in award frequency. Agriculture/irrigation, restoration/conservation, and BMP research/implementation projects are awarded at similar rates in both programs, while erosion/sedimentation, stormwater, and OAWCF/OWTS projects are not. Projects that target erosion/sedimentation are eligible for both §319 funding and

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CWSRF funding, but in this report, CWSRF projects that do so were categorized according to the general project type. For example, a CWSRF project that installed sediment control basins at a farm would have been categorized as an agriculture/irrigation project. OAWCF/OWTS projects are eligible for both sources of funding, but §319 Grants are restricted to projects that target groups or entire communities of septic systems, instead of individual upgrades or replacements. §319 funding may not be used to implement National Pollutant Discharge Elimination System (NPDES)-permitted stormwater projects, while the CWSRF has no such restrictions. However, §319 funding can be used to implement stormwater projects not associated with an NPDES permit, such as installation of green roofs, stormwater harvest and reuse systems, or other projects that target diffuse stormwater runoff.

Table 7. Project categories and award frequencies for §319 Grant- and CWSRF-funded projects

Project Categories	Award Frequency §319 Grant Program	Award Frequency CWSRF Program
Agriculture/irrigation	11%	11%
BMP research/implementation	9%	9%
Erosion/sedimentation	40%	8%
Restoration/conservation	34%	29%
Stormwater	1%	21%
Unknown¹	4%	4%
OAWCF/OWTS^{2,3}	1%	17%

1. In some cases, the data provided did not explicitly state the category it would fall under.
2. OAWCF = onsite animal waste control facilities; OWTS = onsite wastewater treatment systems.
3. Four of the 23 OAWCF/OWTS projects funded by the CWSRF were septic system-related.

3 Conclusions

The review of other states' CWSRF projects and applicant types identified only 2 types of projects that other states fund but California does not: acid mine drainage and brownfield sites. Other state programs in California address these project types. With this perspective, the project team identified several opportunities to further support the development and implementation of NPS projects that are funded by the CWSRF, and that qualify as a match for California's NPS Program CWA §319 Grants. Staff from DFA, DWQ, EPA Region 9, and the OWP EFC comprised the project team. The opportunities they identified are discussed in more detail below.

Conservation/restoration projects comprised almost a third of California's NPS projects (Table 4)—giving them the greatest representation of all NPS projects that California's NPS and §319 programs support. Each program has funded conservation/restoration projects at similar frequencies, relative to other project types (34 percent for the §319 program and 29 percent for the CWSRF program, Table 7). Past conservation/restoration projects have included post-wildfire restoration, water quality mitigation, wildlife and landscape conservation, sustainability-focused initiatives, and public education. Given California's growing occurrence and risk of wildfires, there is already a considerable statewide and national effort to develop and fund projects and to implement projects that mitigate and reduce wildfire risk.

Stormwater projects can be difficult to obtain due to required sustainable revenue, as well as limitations from Proposition 218 (Prop 218, 1997)—which requires a community vote to approve property taxes and fees not associated with waste management, drinking water, or sewer services. Subsequent case law ruled that fees for stormwater services are not included in the exemption ([HJTA vs. COS, 2002](#)). While more recent legislation (SB 231, 2017) has clarified that stormwater services are included in Proposition 218's definition of "sewer," municipalities have been reluctant to use SB 231 for exercising stormwater utility fees due to potential lawsuits, although efforts are underway to "test the waters." Moreover, stormwater grants have become more common from California funding sources, EPA, and others.

Consequently, the project team decided not to focus efforts at this time on promoting conservation/restoration projects and stormwater projects. Instead, the project team recommends the State Water Board focus on the following opportunities to promote on-site wastewater treatment system (OWTS, i.e., septic tank) projects in California:

- Support OWTS identification and mapping components of California's 2020–25 NPS PIP (State Water Board 2020)
- Coordinate with Regional Water Quality Control Boards and local agencies, as listed in the NPS PIP, to identify and implement pilot studies for septic-to-sewer conversions, septic-to-sewer consolidations, or OWTS upgrades and maintenance. Support could

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include walking stakeholders through a grant/principal forgiveness process to develop an application for construction funding. Additional support could include partnering with local or regional agencies to provide pass-through loans to communities in need or with local banks to provide linked deposit loans (EPA 2022b).

- Incorporate NPS considerations into DFA’s scoring and ranking scheme so such projects are more likely to be included in annual CWSRF Intended Use Plans (IUPs). IUPs document DFA’s intent for funding CWSRF projects during each fiscal year. NPS considerations to incorporate should include OWTS needs, priority total maximum daily loads [TMDLs] that identify NPS pollution as a primary problem, and targeted waterbody-pollutant combinations from the 2020–25 NPS PIP.

DWQ staff also indicated interest in the types of agricultural projects other states have been implementing, so they might consider promoting these types in California.

Summaries of each of these potential next steps is provided herein, along with suggestions of how OWP EFC staff may assist.

3.1 Support OWTS Identification and Mapping

Section N of the 2020–25 NPS PIP (State Water Board 2020) summarizes plans for addressing OWTS (septic tanks), and outlines 4 objectives/milestones to advance implementation of California Senate Bill-1215 (SB1215, 2018). Table 8 lists these objectives and their current status on a statewide basis. A logical step in planning for large outreach efforts is to support identifying disadvantaged communities that have septic tanks throughout California, and prioritizing them according to need—including impacts to water quality and community/homeowner maintenance capacity. DWQ is in the first stages of conducting a Water Needs Assessment to evaluate and prioritize needs for wastewater systems, including OWTS. The assessment will likely include identification and prioritization of potential septic projects. The assessment will be similar to the State Water Board’s Division of Drinking Water (DDW) recent Drinking Water Needs Assessment, and can serve as a basis for planning state-wide projects to assist, in particular, small and disadvantaged communities, as well as reduce impacts to water bodies throughout California. A crucial part of this effort is defining priorities and defining what constitutes an OWTS in need or at-risk.

OWP EFC staff are currently coordinating with staff from the University of California, Los Angeles’ Luskin Center and DWQ to scope, budget, and begin implementation of the wastewater needs assessment.

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Table 8. The 4 SB-1215 objectives in the NPS PIP¹ and current statewide status

Objective/Milestone	Status
List, categorize, and prioritize disadvantaged communities that have septic tanks that can be consolidated with a neighboring existing collection system	In progress as part of the Clean Water Needs Assessment ²
Identify and develop a list or map of disadvantaged communities with inadequate or failing septic systems	In progress as part of the Clean Water Needs Assessment ²
Develop and adopt a Statewide Policy Handbook	Will be revisited as the first 2 milestones are reached
Provide Policy Handbook implementation training	Will be revisited as the first 2 milestones are reached

1. State Water Board 2020.
2. DWQ is currently planning a needs assessment to evaluate and prioritize needs for wastewater systems, including OWTS. The assessment will likely include identification and prioritization of potential septic projects.

3.2 Coordination to Identify and Implement OWTS Pilot Projects

The NPS PIP (State Water Board 2020) identifies several water regions of California where Regional Water Board and local agency staff are coordinating efforts to address the impacts of OWTSs on groundwater and surface water. Coordinating with these stakeholders may lead to pilot studies that could be implemented while the statewide mapping and prioritization effort (Section 3.1) is completed. The specific Regional Water Boards include:

- Region 1, North Coast
- Region 6, Lahontan
- Region 7, Colorado River
- Region 8, Santa Ana

To support this effort, OWP EFC staff could coordinate with staff from the State Water Board and Regional Water Boards to identify and implement these pilot studies.

3.3 Incorporate NPS Goals into CWSRF Project Scoring Scheme

The NPS PIP identifies multiple goals to address NPS pollution impacts to California water bodies, including those for OWTS. To promote projects that support these goals, DFA’s project scoring system, which determines which projects are eligible for CWSRF awards each year, should be re-evaluated and updated as appropriate. DWQ staff, who lead development of the NPS PIP, plan to coordinate with DFA staff to do this.

OWP EFC staff could provide consultation services to support this effort, such as providing mark-ups of DFA’s CWSRF Policy to better promote NPS program inclusion and ranking, and other elements of the NPS PIP.

3.4 Consider Future Agricultural Projects

DWQ expressed interest in further promoting other NPS projects for funding through the CWSRF program, particularly those associated with agriculture. Table 9 presents agricultural projects that California and other states have implemented, including example projects for each agricultural subcategory. DFA and DWQ may consider looking further into these types of projects in the future, as well updating elements of the CWSRF and §319 funding programs as appropriate. Table 10 presents specific agricultural projects that have been funded in California.

To increase the number of agricultural projects funded by the CWSRF program, OWP EFC staff could work with stakeholders to develop and implement pilot projects addressing TMDL issues, where agricultural runoff is identified as a contributing source.

Table 9. Agricultural project subcategories, examples, and states that fund these subcategories

Agricultural Project Subcategories	Examples	States That Fund This Project Subcategory
Irrigation and drainage improvements	Drip irrigation systems, runoff reclamation	California, Pennsylvania, New York
Confined animal facilities and livestock	Manure storage, waste control facilities	California, Pennsylvania, Virginia, Iowa
Land management	Riparian habitat restoration, agricultural BMPs, stream exclusions systems	California, Pennsylvania, Virginia, Iowa

Table 10. Agricultural project titles, relevant subcategories, and states that implemented these projects

Agricultural Project Title	Agricultural Project Subcategory	State
Interactive Irrigation Management to Reduce the Leaching of Nitrogen (IIMRLN)	Irrigation and drainage improvements	California
Waste storage facility and sand lane	Confined animal facilities and livestock	Iowa
Cobham Park farms shoreline stabilization	Land management	Virginia

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Appendix A: Complete Record of NPS Project Data from Other States

(Electronic Only)

Appendix B: Complete Record of NPS Project Data from California

(Electronic Only)