# State Revolving Fund Project Phase II

**Exploring the use of Clean Water and Drinking Water State Revolving Fund Programs for Land Conservation Projects in Four Western States: California, Oregon, Washington, and Colorado**

*Total Project Costs: $110,000*
*Timeline: 24 months + 9 month extension (March 1, 2013 – December 31, 2015)*

This research has been supported by the US Endowment for Forestry and Communities, Weyerhaeuser Foundation, Gates Family Foundation, and USDA Forest Service, State and Private Forestry.

The overall goal of Phase II of this project was to explore the potential to use Clean Water State Revolving Funds (CSWRF) and Drinking Water State Revolving Funds (DWSRF) to finance source water protection through land conservation in California, Oregon, Washington, and Colorado.[1] Phase II specifically focused on understanding the current use of and priorities for the SRF programs; developing strategies to motivate demand for loans; and exploring ways to overcome barriers to using SRF loans for conservation (such as loan repayment options).

This report is organized into five sections. Section A provides an introduction and brief overview of Phase I and Phase II of this project. Section B covers the work accomplished over the course of Phase II by task (Task 1 to Task 6). Section C reviews lessons learned. Section D includes a financial statement for the project, and Section E includes all of the deliverables from Phase II (SRF Overview Summary and full SRF Overview; CWSRF Historical Project Information; Mapping Methodology and Results; and Report on Using Forest Carbon Offsets for SRF Loan Repayment).

## A. Introduction

The United States Forest Service (USFS) estimates that about 180 million Americans rely on forested watersheds for their drinking water. Permanently protecting those watersheds is a top priority for drinking water protection – and even for national security. Scientific evidence indicates that maintaining forested watersheds in a healthy condition (e.g. a high percentage of forest cover) reduces drinking water treatment costs. That is, it is more cost-effective to make modest investments in watershed protection and health than it is to let watersheds deteriorate, which necessitates construction and maintenance of expensive water treatment and storage facilities.

Although protecting and maintaining the health of forested watersheds is more cost-effective than building expensive treatment and storage facilities, public funding is heavily relied upon for watershed conservation. Traditionally, conservation groups and land trusts have used federal or state grants to protect and manage watersheds. Unfortunately, these funds are diminishing or have disappeared. Unless new sources of funding can be secured, the pace of watershed conservation and management will slow, deterioration will occur, and even larger sums of money will be required to treat and store water.

The federally capitalized Clean Water State Revolving Funds (CWSRF) and Drinking Water State Revolving Funds (DWSRF; together the State Revolving Funds) have allowed states to make nearly $100

[1] For the purpose of this project, land conservation projects include those that result in the placement of lands into conservation easements or the purchase of lands in fee for preservation.

billion in low interest loans to protect water quality. Most funds (96%) have supported "grey infrastructure" projects such as waste water treatment plants, even though conservation of forested watersheds via easements or other means, are eligible.

## Overview of Phase I and Phase II

Under a contract from the Endowment, The Trust for Public Land completed Phase I: a comprehensive study of surface drinking watersheds in eight states (GA, NY, NJ, CA, WA, VA, MA and IA) that have a record of using CWSRF programs to support land conservation. Using the USFS *Forest to Faucet* project data, The Trust for Public Land identified high-priority watersheds, or those that are most important to surface drinking water and that have significant blocks of private forestland at risk of development. As the protection of important, privately-owned forested lands that supply public drinking water maybe be compelling projects for the DWSRF and the CWSRF, The Trust for Public Land identified major landowners and key community stakeholders interested in conservation within these high-priority watersheds.

Phase II consisted of a "deeper dive" into four states (CA, WA, OR, and CO). Phase I mapping was completed for the two additional states (WA and CO), and for all four, the scope of investigation was expanded to include the DWSRF, which primarily loans money to drinking water treatment plants. The Trust for Public Land believes the DWSRF, like the CWSRF, is underutilized for land conservation and that there is an opportunity to increase demand for DWSRF funds to support land conservation. Another primary focus of Phase II was collecting information identifying obstacle to securing SRF funds for source water protection projects in these states, and determining potential solutions.

# B. Work Accomplished in Phase II

## Task 1: CWSRF research for Colorado and Oregon[2] (March – June, 2013)

### Work Plan Overview

As noted above, Phase I of this project investigated eight states. Of these states, six had a track record of using CWSRF loans for land conservation (including California, but not Washington). As part of Phase II, we updated this information and included activity during recent years. Overall Task 1 included:

- Reviewing CWSRF application history (documenting conservation history) and interviewing program administrators.
- Conducting overlay mapping analysis with USFS *Forest to Faucet* data and other data sets (including state 303(d) impaired watershed lists, if prioritized for CWSRF funding), and identifying the most critical forest tracts.
- Identifying possible conservation partners.
- Sharing, discussing information, and brainstorming project lead ideas with Trust for Public Land staff in the relevant states.

### Work Product: Historical Use of Funds for Land Conservation

In this phase, The Trust for Public Land reviewed CWSRF loan activity, with a focus on Colorado and Oregon, as California and Washington had been states of focus in Phase I. However, in contrast to Phase

[2] This work had already been completed for California and Washington.

I, where the primary goal was to determine which states were best suited to pursue CWSRF funded projects, Phase II reviewed historical use of the CWSRF program (and DWSRF, as described in the next section of the report) with the goal of identifying historical activity, potential and likely future applicants, and identifying ways in which the funds are being used for related projects (such as restoration or creating buffers).

For each state, original source documents, including Annual Intended Use Plans (IUPs), Project Priority Lists (PPLs) or annual reports to the EPA, were reviewed. While project descriptions in these reports varied by state, methodologies used to identify possible land conservation projects were developed for each (these are described in Attachment 4). The general methodology included searching for key terms within these documents (such as acquisition, easement, conservation, protection, nonpoint, land and purchase). Depending upon the level of detail in project descriptions, additional information was requested and reviewed. In addition, the CWSRF program administers were interviewed.

For California, a total of 27 land conservation projects have been identified (27 in Phase I), and a total of 7 in Washington (7 in Phase I and II). As these were explored in detail in Phase I, please consult Phase I report for more information. In Washington, a total of seven potential land conservation projects were identified. Though explored in Phase I, additional findings were made in Phase II.

For Colorado, thirty-four "source water protection plan implementation" projects were identified, but after reviewing the town or county water protection (or related) plans and following with up the administrator, none of these were identified as land conservation project applications. Mike Beck, of the Colorado Department of Public Health & Environment, stated that Colorado has not funded any public land trust projects, but that they have worked (and would in the future work) with these types of organizations to try to position them for funding. As in some other states, the main barriers for these projects are (1) the applicant needs to be a governmental agency, (2) the applicant must be listed in the IUP, and (3) the applicant needs to have revenue pledge to service the debt.

For Oregon, while the Department of Environmental Quality does not maintain a list of CWSRF proposed projects with detailed project descriptions, two project applications were identified as possible land conservation projects (the applicants were the City of Cannon Beach and the City of Gold Beach). The City of Cannon Beach is a confirmed land conservation project, and while they are listed in the IUP, the City did not submit a full application. While Oregon provides principal forgiveness for nonpoint source control and estuary management projects (maximum amount is 30% of the loan or $1 million dollars), Larry McAllister, the CWSRF Program Analyst from the Department of Environmental Quality, reported that they have not made any loans for land conservation projects.

## Work Product: Identifying High Priority and Preferential Land/Parcels

The Trust for Public Land conducted a Geographic Information Systems (GIS) analysis to identify high priority lands. *Forests to Faucets* data, from USFS was used to determine which large forested landscapes are most important to protecting surface drinking water quality, are most urgently in need of protection, and where there is an opportunity to conserve private land. In addition, we investigated and included other relevant datasets for each state in order to identify other potentially strong land conservation project areas for SRF funding (this is expanded upon in the *Task 3* Section of this report). An overview of the mapping methodology, maps, and parcel lists for Colorado and Oregon can be found in Attachment 4 (California and Washington maps are not included in this attachment as a majority of mapping efforts for these two states were completed in Phase I; parcel lists for these two states were prepared in Phase II, and can be sent upon request).

These maps and priority parcel lists were instrumental in our conversations with The Trust for Public Land staff. While they have not necessarily led to specific projects (yet), we presented them as a starting point to investigate potential projects and partners. In addition, staff reported that these types of materials will be meaningful and useful tools for outreach to communities or municipalities once a project is identified. Several state administrators also noted that this type of background and supportive evidence was important to include in applications. These maps have also been shared with potential partner organizations (namely Ecotrust and New Forests). These organizations will overlay these maps with their high priority maps in order to identify common geographies or specific projects.

### Work Product: Sharing Information with Relevant Trust for Public Land Staff

For each state, we scheduled meetings with Trust for Public Land state directors and project managers in order to introduce the State Revolving Fund programs and discuss potential projects. For each state, the following materials were prepared and shared:

- A brief overview page about SRF loans. This included information about eligible applicants, eligible projects (as related to land conservation), any set-aside categories or ranking criteria that could benefit or prioritize land conservation, program characteristics (i.e. the capitalization grant amount) loan characteristics (i.e. interest rate, maximum loan amounts, loan periods, service fees), and other incentives (i.e. reduced interest rates or loan forgiveness).
- Maps of the high priority subwatershed areas.
- Lists of priority properties identified through the high priority subwatershed area mapping.

## Task 2: DWSRF research for California, Colorado, Oregon, and Washington (March – June, 2013, simultaneous with 1st activity above)

### Work Plan Overview

As part of Task 2, The Trust for Public Land examined the statutes, regulations, and application materials in each state. We also conducted interviews with DWSRF program administrators.

### Work Product: Sharing Information with Relevant Trust for Public Land Staff

For each state, we scheduled meetings with Trust for Public Land state directors and project managers in order to introduce the State Revolving Fund programs and discuss potential projects. This was done in conjunction with the sharing of information for the CWSRF (as described in the proceeding description under Task 1).

### Work Product: Use of Funds for Land Conservation:

In this phase, The Trust for Public Land reviewed DWSRF loan activity in Colorado, Oregon, California, and Washington. For each state, original source documents, including IUPs and annual reports to EPA, were reviewed. As project descriptions in these reports varied by state, methodologies used to identify possible land conservation projects were developed for each (described below). The general methodology included searching for key terms such as “acquisition,” “easement,” “protection,” and “source.” Depending upon the level of detail in project descriptions, additional documents were consulted to see if they identified land protection as a means of protecting water sources (such as application documents, source water protection plans, or master plans that had a water quantity or quality component). In addition to reviewing the DWSRF program rules, guidelines, and rating systems,

the DWSRF program administrators were contacted to determine the feasibility and availability of these funds for land conservation projects.

Similar to Washington (described below), Colorado has set asides in its DWSRF for source water protection funding. However, this funding is limited (grants for protection planning and implementation range from $5,000 to $50,000). For Colorado, we reviewed recent IUP and PPLs and identified projects listed as "Source Water Protection Plan Implementation." For these projects, we searched for the applicant's city or county Source Water Protection Plans, and then reviewed the priorities listed there (noting things such as land use or forest areas of concern) and management strategies (such as land acquisition and conservation easements). For a few cases, the project description said it was focused on Water Protection Plan Implementation, but the plan did not mention any land conservation, so the application was not included as a land conservation project.

In Colorado, a total of seven potential land conservation projects were identified, though the most relevant projects appear to be in Cucharas and Huerfano Counties. These source water protection plans include guidance for land use decisions (especially conversion to residential) and identify forest areas are of primary concern. The Town of Ridgeway, though they applied for the CWSRF program, is also a potential partner (as one of their Source Water Protection best practices includes pursing conservation easements). While Colorado does fund Source Water Protection projects, many municipalities do not include land protection in their plans as a method for mitigating risk or pollution, and therefore are not demanding SRF funding to implement these activities.

For Oregon, some land conservation projects have been funded through the Drinking Water Source Protection (DWSP) program, which is a small grant/loan program attached to one of the DWSRF set-asides. This program has $200,000 annually for grants for the protection of watersheds or drinking water sources. Furthermore, as Adam DeSemple, Program Coordinator for the DWSRF in the Oregon Health Authority, explained, while land or easement acquisition is an eligible activity, no loans have been made for projects that do not focus on infrastructure (since the project needs to demonstrate that it mitigates/solves a health or compliance issue). IUPs for Oregon's DWSRF are not available online (and the Health Authority keeps documents only going back ten years), so methods for locating historical activity were limited. To assist in the identification of these projects, the Health Authority compiled relevant information and a list of projects/applicants that have applied for the DWSP program (as of early 2014). We followed up with Adam DeSemple and Tom Pattee from Oregon Health Authority in April 2015, but there was no new information on funding for land conservation.

For Washington, no land conservation projects were identified through a review of the IUPs available online (like Oregon, Washington does not make their IUPs or PPLs available to the public, though several were located through a web search). Karen Klocke, Infrastructure Finance Lead at the Office of Drinking Water (within the Washington Department of Health), noted that the DWSRF can be used for watershed protection (or source water land protection), but that nobody has applied for this specifically in the past few years. Any land purchases or protection has to be part an integral part of a project (so land related projects would still include/be focused on infrastructure, such as a well or well house). Klocke explained that land protection (in the amount of 1 acre per well) is assumed by the Department of Health for each application (so this type of grey infrastructure-related land acquisition is not usually noted in the IUPs).

As part of the DWSRF, Washington has a Drinking Water Source Protection Fund, which is attached to DWSRF set asides. The PPL for the Drinking Water Source Protection Fund is available online, but did not include any land conservation project applications. As described above, this was confirmed by Karen Klocke and also by Kitty Weisman, who had been the Source Water Protection Program Manager at the Office of Drinking Water (Department of Health). Washington's DWSRF program is coordinating with the

Department of Ecology on using funds for land conservation. Kitty Weisman explained that the Source Water Protection set-aside has also not been used for acquisition (mainly due to maximum project funding amounts), but that there has been a lot of preparatory work done and that there are several projects that they anticipated being able to partner on in the future.

For California, ten potential projects were identified by reviewing IUPs (and these are projects that are primarily seeking to acquire and protect new sources). California lists the purchase of land, development rights, or easements as effective and best practices of source water protection. However, ranking criteria for the SRF program focus on and prioritize projects that fix contaminant problems. California's program has more money to spend over the next few years than programs typically do.

In addition to this state-specific information, there are a few general findings that emerged. These findings are presented with both SRF programs in mind.

***Finding #1: Land acquisition rules differ for the drinking water programs. However, the Source Water Protection Program does apply to relevant projects.***

While the CWSRF allows land acquisition as part of their base program (as a nonpoint source project), many DWSRF base programs require that land acquisition or conservation easements be pursued in order to provide land that is essential for an infrastructure project. However, apart from the base program, the DWSRF programs do have set-asides for Source Water Protection, which is relevant for land conservation projects. In addition, while states policies could support land conservation as a means of source water protection/plan implementation, most municipalities do not include land protection in their plans as a method for mitigating risk or pollution.

***Finding #2: There is less funding for land conservation projects through the DWSRFs.***

While the DWSRF program does have this set-aside, the total amount of money available and the amount of money available for each project is less than the CWSRF. In many cases, the maximum grant or loan amount for these projects is not sufficient to carry out a land conservation project.

***Finding #3: Land conservation projects do not rank highly due to current criteria and weighting.***

Related to Finding #1 above, the way the programs are currently set up does not prioritize land conservation projects, and tends to prioritize traditional infrastructure projects. In all states, for the DWSRF, projects that rank the highest are those which address the most serious risks to human health and ensure compliance with the Safe Drinking Water Act. Affordability and readiness to proceed are also factors that are heavily weighted. Furthermore, in some states, there are additional project types (such as projecting or restoring Salmon habitats in Washington) that are also given additional priority ranking points.

## Task 3: Identify other strong land conservation project candidates for SRF funding through investigation of additional relevant datasets (March – June, 2013, concurrent with above)

### Work Plan Overview

Under Task 3, The Trust for Public Land examined statewide datasets that represent some key high quality water areas for potential conservation and identify impaired waterbodies where restoration is necessary.

### Work Product: Identifying Additional Criteria and Factors

We reviewed ranking criteria and project characteristics that would help to improve the feasibility and success of an application in each state. We incorporated these into our GIS analysis in order to identify areas that might be more highly prioritized or that might have more incentive to pursue a loan through these programs. In addition, this information helped us to identify organizations might be interested in and posed to pursue these types of loans.

For instance, for Oregon, Trust for Public Land program manager Owen Wozniak pointed out that most municipal watersheds tend to have a high percentage of private industrial forests, where the threat is not from development, but rather from maximal timber harvest. Since it is a driver of watershed protection efforts in Oregon, we added a layer of private industry forests and also created an index of private forest importance (by multiplying the index of importance to surface drinking water by the percent private forest in each subwatershed). Oregon also had layers for scenic rivers, disadvantaged communities, and sensitive habitat (for the spotted owl). These were chosen through review of the rating system and also supported by conversations with internal and external partners (such as Ecotrust). In 2015, Owen Wozniak followed up with Karl Morgenstern from Eugene Water & Electric Board (EWEB) about the possibility of using SRF funding for municipal watershed protection, but EWEB was not interested in taking out an SRF loan to pay for conservation.

In addition, while researching historical activity for the DWSRF programs, we reviewed Source Water Assessments that identify land types that are susceptible and at risk. We noted the municipalities that had forested areas at risk in these documents. While this information did not directly impact our findings about historical activity, this information (paired with Source Protection Implementation Plans that suggest land conservation) could provide a good place to start for outreach to possible future applicants.

## Task 4: Education and Outreach to Key Stakeholders (July 2013 to Fall 2015)

### Work Plan Overview

Under Task 4, The Trust for Public Land met with CWSRF and DWSRF administrators and agency staff about next steps. For example, we met with the Washington Office of Drinking Water about partnering to expand use of state revolving funds for forest conservation to benefit water quality. The Trust for Public Land also presented information about SRF projects at land trust conferences and in other venues.

### Work Product: Reach out to agencies, organizations, applicants

Using conference calls and in-person presentations (workshops or conference presentations primarily), we shared our findings and discussed potential projects and next steps with staff, land conservation organizations/land trusts, and state program administrators. These meetings and presentations served to raise awareness and interest in these programs, and provided a venue for discussing potential policy options that could help the SRF programs become better suited for land conservation projects.

### Work Product: Speak at Workshops and Conferences

After reviewing potential applicants, we identified land trusts as a potential interested applicant (or at least a potential applicant partner in states where they are not eligible to apply directly). As such, we reached out to land trust organizations, and presented at workshops and conferences, including: the 2014 California Land Conservation Conference (on March 4, 2014 in Sacramento, CA); and the Colorado

Coalition of Land Trusts Conference: Conservation Excellence 2014 (on March 18 in Denver, CO). We also generated outreach materials for a water utility conference in Oregon in May 2015 and for use by the Washington Department of Health. These presentations and materials generated some interest and follow up discussions, but no actual SRF applications (yet).

## Task 5: Develop and Submit SRF Loan Applications (January – December, 2014) With Trust for Public Land staff and our external project partner(s)

### Work Plan Overview

For Task 5, The Trust for Public Land worked to identify viable land conservation projects to pursue CWSRF or DWSRF loans, and began providing technical assistance for potential SRF loan applications in California. We also coordinated with states and partners about potential modifications to SRF programs to facilitate funding for land conservation.

### Work Product: Meetings and Coordination for Potential SRF Loan Applications

Although we reached out to SRF programs and land trusts in each of the study states, all of the potential SRF loan projects that The Trust for Public Land worked on under this grant are in California. In 2014, we did meet with several potential applicants (or applicant partners) in Washington (Cherie Kearney, the Forestry Initiative Director at the Columbia Land Trust; Melissa Campbell, the Conservation and Finance Director at PCC Farmland Trust; Liz Johnston, Conservation Director, and Charlie Raines, Director of Forest Conservation at Forterra), but none of these organizations decided to pursue SRF loans in 2014 or 2015.

In October 2014, we met with land trust and agency staff about the possibility of a CWSRF loan for the Sierra Foothill Conservancy. The meeting was very well-attended. Meeting participants included: Trust for Public Land staff and by Bridget Fithian, Executive Director, Sierra Foothill Conservancy; Christopher Stevens, Chief/Supervising Engineer, State Revolving Fund and Special Programs section; Robert Pontureri, Senior Water Resource Control Engineer and Non-point source section; Susan Damian, Credit analysis section; Anne Hartridge, Office of Chief Counsel; Ahmad Kashkoli, Senior Environmental Scientist; Cedric Irving, Environmental Scientist; Jennifer Toney, Water Resource Control Engineer. During the meeting, The Trust for Public Land described our current research and SRF staff provided input about project eligibility and next steps. SRF staff also asked quite a few questions (which we have compiled and have used to discuss future/other potential applicant projects). We learned that SWRCB is interested in these types of projects, as well as streamlining the way the application process unfolds to non-traditional, expanded-use projects. Because the land trust did not want to take on a loan, and the SRF staff indicated that the project would not be eligible for a grant or for loan forgiveness, Sierra Foothills Conservancy decided not to move forward with an SRF application.

We worked with project partners on three other projects with potential for SRF loan applications for conservation in 2015. In one effort, The Trust for Public Land, along with Sinkyone tribal interests, made an extended attempt to purchase a 110,000-acre tract of redwood and Douglas fir known as the Ten Mile Tract. Key to the purchase was a potential $60 million loan to The Trust for Public Land from the California SRF. This would have allowed far lower harvest levels on this ecologically important tract. As part of the Sinkyone/Ten Mile Tract project, Trust for Public Land conducted an extensive assessment of the potential for using SRF loans for forest conservation. Unfortunately, the purchase did not succeed for other reasons. A second project would have conserved agricultural land in the Bay Delta, but this project also did not move forward.

Although the projects described above did not move forward with SRF loan applications, the knowledge gained from the detailed consideration of the SRF and work with California agencies have led to the proposed use of the SRF in a significantly larger redwood transaction, which would involve a $150 million SRF loan. The agencies have indicated that they see no problem with a loan on this scale and have even conceptually approved funding the purchase of a conservation easement in addition to the typical fee purchase. The proposed timberland purchase is on the Klamath River, a waterway of great concern to the State and Federal governments, adjacent to major public land tracts, and the changes in harvest regimes proposed would be beneficial to endangered salmonids in the area. The Trust for Public Land expects to sign an option to purchase these lands (which are not publicly for sale) in 2016.

### Work Product: Work with States and Partners to Modify Programs

Our research suggests that some of the rules, eligibility requirements, and ranking criteria make land conservation projects unlikely to rank high enough to be funded. Under Task 5, we began to work with states (such as Washington) or partners (such as the Land Trust Coalitions) to brainstorm or suggest modifications. For Washington specifically, we met with agency staff[3] in August 2014. We also spoke with them their program and learned about the agency's priority areas and applicants for SRF funding. As part of this meeting, we discussed possible changes to the criteria and rankings that would allow for and prioritize land conservation**.** The administrator also mentioned that they were working with their Source Water Protection program to see if there were ways to accomplish this. In these meetings with the administrators we discussed the potential for using land conservation as a means to accomplish the goals of the SRF programs. We learned more about the barriers to doing this, and these in-person meetings also gave us a chance to hear about the administrators' vision for these programs and their interest/understanding about using land conservation to protect or improve water quality. It also gave us an opportunity to share our research, and to discuss potential policy changes or places where we could collaborate. We also learned more about the circumstances in which they think land conservation is an effective and cost-effective activity, more about the types of applicants for the SRF programs, and more about the state financing programs.

In mid-2015 (May), we followed up with agency representatives in Washington (headquarters' Regional Planner and Source Water Protection Lead) and provided them with model language for policies pairing funding of grey and green infrastructure from Massachusetts (see Attachment 5). We also provided a document that could be used in outreach to potential SRF applicants covering the use of the funds for land conservation and the potential role of The Trust for Public Land as a partner or technical assistance provider.

## Task 6: Develop Payment for Watershed Services Model to Service Loan Debts (January 2014 – December 2015)

### Work Plan Overview

One of the primary barriers to utilization of DWSRF or CWSRF loans to support land conservation is the need to have a reliable source of revenue to repay SRF loans. In May 2015, in consultation with the

[3] Mike Means, the Washington Department of Health Water Quality Manager; Jeff Nejedly, the Financial Management Section Manager (Water Quality Program) of the Department of Ecology; Shelly McMurry, the State Revolving Fund Coordinator in the Department of Ecology Water Quality Program; and Alissa Ferrell, the Grant/Loan Financial Manager in the Department of Ecology Water Quality Program.

Endowment, we determined that the best way to approach Task 6 would be to analyze and report on the potential for using forest carbon credits to fund repayment of DWSRF or CWSRF loans.

### Work Product: Report on Using Forest Carbon Credits to Repay SRF Loans

The full report is included as Attachment 6.

# C. Lessons Learned and Recommended Next Steps

Some of our lessons learned and recommended next steps are described below. The recommended next steps are a starting point for discussion; we are not necessarily recommending that they be implemented by The Trust for Public Land.

## 1. Many potential applicants and potential applicant partners are unaware of SRF funding.

Many eligible applicants or potential applicant partners are unaware of the potential to use SRF funding to conserve land. There are examples/case studies of places (such as Seattle and Bremerton in Washington) where the preservation of a watershed has provided better control/management and has resulted in high water quality. However, many water providers are not pursuing these types of preventative activities to the degree that they could. Specifically, "at-risk" water providers that are not in control of their entire watershed and have (or are at risk of having) water quality compliance or contamination issues could be good potential applicants.

### Recommended Next Step

- Identify additional potential applicants with a focus on water providers (particularly those "at-risk") and communities that would be eligible for subsidies.

## 2. Potential applicants who are aware of SRF funding are often reluctant to use loans to pay for land conservation.

Through discussions with Trust for Public Land staff, other land trusts, and utilities and public agencies, we found that many potential applicants were reluctant to use loans to pay for land conservation.

### Recommended Next Step

- Work on encouraging state programs to implement the policy changes described below.
- Where appropriate, reach out to potential applicants about the possibility of using forest carbon credits to repay SRF loans.

## 3. State level policy changes could increase applications for SRF funding for land conservation.

Program policies (especially regarding project eligibility and ranking), set-asides (making funding available for specific types of projects or priorities), and offering incentives can impact the feasibility of and interest in applications for land conservation related activities.

## Policies

Non-point source projects are eligible project types in all four of the states, but these do not necessarily include acquisition of land or conservation easements. In some states, land acquisition has to be tied to a grey infrastructure project, and the language around project eligibility reads something similar to "acquisition of real property if the acquisition is integral to a project" or "needed for the purposes of locating eligible project components."

In other cases, source water protection programs are used to make planning grants rather than to fund land or easement acquisition. For example, Colorado has set asides in the DWSRF for source water protection funding, but funding is also limited (grants for protection planning and implementation range from $5,000 to $50,000). Furthermore, many municipalities do not include land protection in their plans as a method for mitigating risk or pollution, so implementing a source water protection plan wouldn't necessarily include land protection. In another example, Washington does not allow land acquisition (for conservation) in the DWSRF, but cities, towns, and special purpose districts, are eligible for the Source Water Protection (SWP) Grant Program, which provides grants up to $30,000 for local or regional source protection planning and identification of priority source-protection projects in approved water systems.

## Set-asides

In addition, few programs have set-aside funding for land conservation related projects, or even more generally, pollution prevention or source water protection projects. Those that do are not typically using them (primarily due to lack of demand). In Washington and California, CWSRF program administrators explained that non-point source projects (as long as they were otherwise eligible) would likely receive funding, regardless of how they ranked compared to grey infrastructure projects.

In California, this is because the funding is not all allocated (and the ranking system only determines funding execution if there are more project requests than funds available). In addition, the Chief of the Technical Programs Branch for the CA Drinking Water Program stated that the "DWSRF program does have an element that can offer [low] interest loans to public water systems for the purposes of source water protection [via a set-aside, which could be used to land acquisition]. Unfortunately, at this time the program does not have any funding available and has not funded such projects for some time due to a lack of demand."

In Washington, non-point source and other projects are all ranked using the same criteria, though 20% of the total SRF fund ($25 million for the 2014 funding cycle) is set-aside for non-point source projects. So, once ranked, funding (20% of the total SRF fund) is first distributed to non-point source projects. Any funds not distributed are rolled back into the total fund and distributed to all other projects.

## Incentives

In addition to set-asides and availability of funds, subsides can impact the interest and feasibility of an application for land conservation activities. States should provide additional subsidization to CWSRF projects (principal forgiveness, negative interest rate loans, or grants) and use at least 20% and not more than 30% of the federal appropriation for these activities. The Safe Drinking Water Act allows 30% of the DWSRF capitalization grant to be used for disadvantaged communities. For 2013-2014, at least 20%, but no more than 30%, of the capitalization grant is provided for additional subsidies (in the form of principal forgiveness, negative interest loans, or grants). In most states these are used to provide principal forgiveness to disadvantaged communities (often based upon median household income or affordability of water rates) or for green projects. In Oregon, for example, principal forgiveness is

available for nonpoint source control and estuary management projects in an amount that may not exceed 30% of the principal amount or $1 million.

### Recommended Next Steps

- Pursue CWSRF applications, particularly in states with non-point source set-asides. Pursue DWSRF applications, especially in states with robust source water protection programs or where land acquisition/easements for conservation purposes are eligible for financing through the general SRF fund.
- Continue conversations with administrators to: (1) Encourage increased marketing of existing set-asides and their use for land conservation, and (2) Encourage programs to revise their policies to include increased set-asides, modified ranking criteria, or changes to rules.

## 4. Forest carbon credits can be used to repay SRF loans, but the process is complicated.

As described in the report included as Attachment 6, forest carbon credits may be very useful in some cases in helping conservation projects repay SRF loans. At least two large conservation projects in California have already paired these tools, one involving the Yurok Tribe and tribal lands in the Klamath River Basin and another involving large-scale conservation by The Conservation Fund in Big River and Salmon Creek. However, right now because of the complexity of forest carbon credits and barriers to using SRF funding, using forest carbon credits to repay SRF loans is likely to work only for very large projects with very sophisticated proponents and enough funding to cover up front costs.

### Recommended Next Step

- Work with state SRF programs to develop policies to facilitate using forest carbon credits to repay SRF loans.
- Work with state SRF programs to create policies that incentivize the use of forest carbon credits to repay SRF loans through using SRF funds to provide grants for due preliminary due diligence in creating forest carbon projects.

# D. Financial Summary

See attached.

# THE TRUST FOR PUBLIC LAND

**Clean Water SRF**

**April 1, 2013 - December 31, 2015**

| | Budget | Actuals | Variance |
|---|---|---|---|
| **PERSONNEL** | **104,000** | **109,848** | **(5,848)** |
| **OTHER EXPENSES** | | | |
| Consultants | 1,500 | 1,013 | 488 |
| Travel | 2,000 | 6,641 | (4,641) |
| Other | 2,500 | 310 | 2,190 |
| **Subtotal Other Expenses** | **6,000** | **7,964** | **(1,964)** |
| **TOTAL EXPENSES** | **110,000** | **117,812** | **(7,812)** |

# E. Additional Attachments

1. SRF Overview Summary (2013)
2. SRF Overview (2013)
3. Interim Report: CWSRF Historical Project Information (February 2014)
4. Interim Report: Mapping Methodology and Results (February 2014)
5. Massachusetts Water Infrastructure Financing Legislation
6. Report on Using Forest Carbon Offsets for State Revolving Fund Loan Repayment (January 2016)

# Attachment 1: SRF Overview Summary (2013)

# Using the SRF Programs for Land Conservation and Related Projects

## Summary

The State Revolving Fund programs provide financing for a variety of water quality related projects in the form of at or below market interest rate loans. The Clean Water State Revolving Fund program (CWSRF, though sometimes called the Water Pollution Control SRF) helps municipalities meet the Clean Water Act Requirements and aims to protect public health and the environment. The Drinking Water State Revolving Fund program (DWSRF) provides funding to help systems meet the Safe Drinking Water Act Requirements and fund projects that protect public health. While historically used to fund "grey infrastructure" projects to achieve these goals, there is increasing interest in using these funds for land conservation related projects.

There are at least two initial questions to consider with regards to pursing this type of funding. One is determining which program (the Clean Water or Drinking Water SRF) is more feasible in terms of pursuing funding for land conservation related projects. While the annual federal capitalization grant specifies guidelines and rules for each program, there is significant flexibility for each state to set criteria for ranking projects, interest rates, and loan subsidies. Therefore, the second question (for this report) is to consider which states are potentially most supportive of these types of projects.

Before delving into these questions, it is important to understand what is meant by "land conservation related projects" and how they relate to water-related funding sources. For the purposes of this report, these are projects that include acquiring land or purchasing a land conservation easement. These projects often have water quality impacts, which is essential for pursing funding from the SRF programs. By acquiring land for conservation purposes, source water areas can be protected and managed, and can also provide natural water filtration, capture, and storage. Protecting these lands can also reduce erosion and help alleviate runoff pollution problems. For more information about land conservation and potential water quality effects, please see: www.tpl.org/economic-benefits-land-conservation.

### *Which program to pursue?*

Both programs allow for land conservation related projects – both through the purchase of conservation easements or land acquisition. The CWSRF program funds non-points source control projects (including those that address stormwater runoff) and allows for wetland and riparian protection; the DWSRF allows drinking water and source water protection projects as well as those that address water storage issues. In order to determine if it is feasible to apply for funding for land conservation related projects, the requirements and project ranking criteria, the specified loan set-asides, and typical incentive programs were considered. This information was obtained by reviewing state documentation (including Intended Use Plans and Annual Reports) and contacting state Program Administrators. *A summary of criteria is in the table below.*

| **Criteria Considered** | (1) Ranking Criteria | (2) Set-Asides or Prioritized Projects | (3) Additional Incentive Programs |
|---|---|---|---|
| **Most Favorable Program** | Clean Water | Either | Clean Water |

(1) Applications for land conservation related projects have to demonstrate that they will be as (or more) effective as traditional "grey infrastructure" at increasing or maintain water quality or address water-contamination issues. For the DWSRF, the application and ranking criteria require that the project demonstrate/substantiate it will affect the specific contamination. While both programs allow for these types of projects, the ranking criteria for the CWSRF appear to be more conducive for a successful application. The Program Administrators for the CWSRF programs also appeared more optimistic about the success of land conservation related project applications.

DRAFT

(2) The CWSRF program allows for a percentage of total funds be set-aside for non-point source or estuary projects. According to a $3 billion of total CWSRF has been used for nonpoint source projects. The CWSRF FFY2013 capitalization grant requires that at least 10% of the grant be used for projects that meet the EPA criteria for being a "green project," which can include green infrastructure and fee simple land purchase or easements. In addition, the US Environmental Protection Agency (EPA) recognizes the importance and cost-effectiveness using land protection as a strategy to protect drinking water quality (through the DWSRF). In some states (notably Washington and Colorado), up to 15% of the loan is allowed to be set aside to fund source water protection, and Oregon currently spent 2.23% of the grant on these projects.

(3) The CWSRF program has more additional opportunities for loan principal forgiveness and reduced loan rates. These programs include additional loan principal forgiveness and reduced loan rates for green infrastructure projects (which there is also required set-aside funding for).

### *Which states are most supportive or feasible?*

In the first phase of this report, eight states were examined in terms of their historical use of SRF funding for land conservation related projects. At this point, most states have funded nonpoint source control projects using the CWSRF, and it was determined that California, Oregon, Washington, and Colorado might be most amenable towards funding these. California has one of the longest histories of using this funding for land conservation related projects, but from conversations with program administrators, it is clear that there is willingness to explore the possibility in other states.

In the five states considered in this report, the CWSRF current loan rates ranged from 0.94 to 2.44%, with administrative fees that range from 0.25 to 1%. For the DRWSRF, current loan rates ranged from approximately 1.5 to 3.0%, with fees that range from 0.575 to 1.0%. Both states typically have 20-year loan maximum periods, but these can often be extended to 30 years if the loan is granted to a disadvantaged community (based upon median household income and utility affordability). It should be noted that forms of repayment (which can include utility fees, developer fees, stormwater management fees, dedicated taxes or fees, or membership dues paid to nonprofit groups), eligible applicants (which include public agencies are sometimes expanded to allow for other applicants), and burden of proof should be considered for each specific project as well.

When considering feasibility in each state, the loan rates, application process and ranking criteria/priorities, and additional loan forgiveness and incentives were considered. *A summary of criteria is in the table below for the CWSRF, though the full report has detailed information about both programs.*

| **Criteria Considered (for CWSRF)** | Nonprofit/ individuals are eligible applicants | Applicable Ranking Criteria or Priorities | Loan Rates (Plus Fees) | Set-Asides for Relevant Projects* | Additional Applicable Incentives** |
|---|---|---|---|---|---|
| **California** | Yes | - CWA 303(d) listed water bodies<br>- Preventative measures against additional water quality degradation<br>- Protect environmental, recreational, or agricultural resources | 1.9% (plus 1%) | Currently 4% for nonpoint source control, estuary projects | - Disadvantaged communities loan forgiveness |
| **Oregon** | | - Help meet water quality standards<br>- Improve/sustain an aquatic habitat to support native, | 0.94-2.44% (plus 0.25-0.5%) | Reserve for small communities | - Principal forgiveness for nonpoint source control and estuary management projects |

| | | | | | |
|---|---|---|---|---|---|
| | | threatened, or endangered species<br>- Incorporate/expand green stormwater infrastructure | | | - Green Project loan forgiveness and reduced interest rate<br>- Disadvantaged communities loan forgiveness |
| **Washington** | Yes | - Must detail overall water quality impacts of project (including goals and measures of success) | 1.1-2.3% | Up to 20% for nonpoint source control and estuary projects | - Green Project loan forgiveness |
| **Colorado** | | - 303(d) listed water bodies<br>- Apply BMPs to mitigate against erosion, sedimentation, pollution runoff<br>- Incorporate innovative planning methodologies, including conservation easements and/or land use restrictions | 2.0% (plus 0.8%) | | - Additional subsidy for projects that rank highly in Financial/ Affordability and Water Quality Improvement categories<br>- Green Project reduced interest rate<br>- Disadvantaged communities reduced interest rate |

* These are in addition to the federal fiscal year (FFY) 2013 capitalization grant requirement that at least 10% of the grant be used for projects that meet the EPA criteria for being a "green project," which can include green infrastructure and fee simple land purchase or easements.

** Although historically both federal and state laws did not allow the Clean Water Revolving Fund programs to offer grants, beginning in 2009, grants, negative interest rates, and principal forgiveness started to be authorized and offered. States must now use least 20% and not more than 30% of the federal appropriation for these activities.

# Attachment 2: SRF Overview (2013)

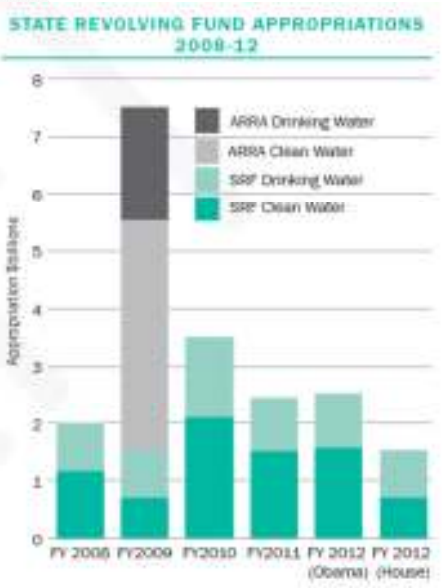
# Using the SRF Programs for Land Conservation and Related Projects

## Introduction

The State Revolving Fund programs provide financing for a variety of water quality related projects in the form of at or below market interest rate loans. In addition to loans, these funds can be used to refinancing debt, purchasing or guaranteeing local debt, and purchasing bond insurance.[1] While the annual federal capitalization grant specifies certain stipulations and rules, there is flexibility for each state to set criteria for ranking projects, interest rates, and loan subsidies.[2]

The U.S. Environmental Protection Agency (EPA) administers the CWSRF and DWSRF programs. The Clean Water (sometimes known as the Water Pollution Control) State Revolving Fund (CWSRF or WPCSRFs) help municipalities meet the Clean Water Act Requirements and aim to protect public health and the environment. These funded projects tend to focus on treatment and controlling or limiting water pollution and funds projects such as for wastewater treatment, nonpoint source pollution control, and watershed and estuary management.

The Drinking Water State Revolving Funds (DWSRF or SDWSRF) provide funding to help systems meet the Safe Drinking Water Act Requirements and fund projects that protect public health. The DWSRF programs tend to focus on treatment and source water protection projects. While these funds could be used for source water protection, the ranking criteria in the CWSRF program are seemingly more conducive for land conservation related projects (and most of the CWSRF administrators are willing and interested to try to fund these types of projects).




In terms of overall funding, the Clean Water State Revolving Fund (CWSRF) programs provides more than $5 billion annually, and over $89 billion (over 30,012 low-interest loans) to date.[3] $3 billion of this total was funding for nonpoint source projects. The chart to the left (from the American Water Intelligence site),[4] illustrates the total revolving funds provided per year.

**This report includes:**

- Part I: Basics of the Clean Water SRF Programs
  - Eligible applicants, allowed projects, and ranking criteria related to land conservation related projects
  - Comparison of each state's loan characteristics
  - Additional benefits or incentives (programs that offer principle forgiveness, reduced interest rate, and extended loan periods)
- Part II: Basics of the Drinking Water SRF Programs
  - Eligible applicants, allowed projects, and ranking criteria related to land conservation related projects
  - Comparison of each state's loan characteristics
  - Additional benefits or incentives (programs that offer principle forgiveness, reduced interest rate, and extended loan periods)
- Part III: Description of each Program – a review of the application process for both RF programs, and a review of the state's historical or likely future use of SRF funds for land conservation related projects.

[1] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/fy1213/final_ffy2013iup.pdf
[2] Ibid
[3] http://water.epa.gov/grants_funding/cwsrf/cwsrf_index.cfm
[4] www.americanwaterintel.com/archive/2/8/analysis/water-finance-under-pressure-two-fronts.html

## Part I: Basics of the Clean Water SRF Programs

### Eligible Applicants, Land Conservation Projects, and Ranking Criteria

California: In general, eligible applicants in California include "any city, town, district, or other public body created under state law, a Native American tribal government or an authorized Native American tribal organization having jurisdiction over disposal of sewage, industrial wastes or other waste, any designated and approved management agency under Section 208 of the Clean Water Act, or any 501(c)(3)'s and National Estuary Programs."[5] For non-point source projects, however, public agencies (described above), nonprofit organizations, and private parties are eligible.[6] Projects must address water quality objectives, provide protection or enhancement of beneficial uses, or comply with the Antidegradation Policy.[7] Eligible projects non-point source projects or programs must address regional or area-wide water quality problems. Each project that applies is assigned a priority category. Ranking or priority criteria potentially encouraging or enabling land conservation projects include:[8]

- Project addresses impairments of CWA 303(d) listed water bodies (2nd priority class of 5).
- Projects serves as a preventative measures against additional water quality degradation for impaired or unimpaired water bodies (4th priority class of 5).
- The project protects environmental or agricultural resources such as farm, range and forest lands; wetlands and wildlife habitats; recreational lands such as parks, trails, and greenbelts; or landscapes with locally unique features or areas identified by the state as deserving special protection (project would gain 1 extra priority point).

Oregon: Oregon loans to public agencies, which includes counties, cities, sanitary districts, soil and water conservation districts, irrigation districts, various special districts, federally recognized Indian tribal governments, and certain intergovernmental entities.[9] Non-point source water pollution control projects are allowed, and these include land acquisition for wetland habitat preservation,[10] riparian habitat restoration, source water protection, and conservation easements.[11,12] These projects must implement an element of a state or local plan directed at addressing water quality issues,[13] and all new projects are required to demonstrate environmental benefits.[14] Ranking or priority criteria potentially encouraging or enabling land conservation projects include:[15]

- Project will help meet water quality standards
- Project improves or sustains an aquatic habitat supporting native species or state or federally threatened or endangered species?
- Project incorporates or expands green stormwater infrastructure including maintaining and restoring natural hydrology by infiltrating, evapotranspiring, harvesting or using stormwater on a local or regional scale

Washington: Loans can be made to public bodies,[16] which includes "counties, cities, and towns, conservation districts, political subdivisions, municipal or quasi-municipal corporations, federally recognized tribes, Washington State institutions of higher education (provided that the project is not included in that institution's statutory responsibilities), and not-for-profit organizations that are recognized as tax exempt by the Internal Revenue

[5] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/
[6] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/downloadedstrategy.pdf
[7] Ibid; For an overiew of the Antidegradation Policy, see www.waterboards.ca.gov/academy/courses/wqstandards/materials/mod14/14caantidegpolicy.pdf
[8] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/fy1213/final_policy_0513.pdf
[9] www.deq.state.or.us/wq/pubs/factsheets/loans/cwsrfloans.pdf
[10] https://fortress.wa.gov/ecy/publications/publications/1010049.pdf
[11] www.deq.state.or.us/wq/loans/docs/SRFsolicitationMemo2013.pdf
[12] www.deq.state.or.us/wq/pubs/factsheets/loans/cwsrfloans.pdf
[13] https://fortress.wa.gov/ecy/publications/publications/1010049.pdf
[14] www.deq.state.or.us/wq/loans/docs/IUPfy2014.pdf
[15] http://www.deq.state.or.us/wq/loans/docs/ProjectRankCrit.pdf
[16] http://apps.leg.wa.gov/rcw/default.aspx?cite=70.146&full=true

Service (Section 319 only)."[17] Nonpoint source pollution control projects are allowed, and include groundwater/aquifer/wellhead planning and/or protection, lake restoration planning and implementation, riparian/wetland restoration planning and implementation, public outreach and Eeucation, and watershed planning and implementation.[18] These projects can address issues including surface water runoff from agricultural, urban, or forest areas. Low Impact Development Techniques (see http://water.epa.gov/polwaste/green/) can also be funded by this program.[19] Environmental benefits of the project must be detailed in the application.[20] Projects are given a certain number of points based upon the quality of each category, including:[21]

- The quality of the proposed scope of work and reasonableness of the project budget.
- The overall water quality and public health problem and the benefits of the proposed solution, including water quality goals and the measures of success.
- State or federal mandates that the project addresses (e.g., permit requirements, enforcement orders).
- Local government initiatives and support to ensure success (e.g., what other projects have been accomplished and what government and public support exists for the project).
- Readiness to proceed (e.g., technical prerequisites for planning, design, environmental review, permitting).
- Preference for reducing GHGs by (the applicant) adopting policies that preserve forest, agricultural, and open space lands or (the project) preventing the conversion of natural resources and rural land.[22]
- Preference is given to Evergreen Communities, which have developed "excellent urban forest management programs that include community and urban forestry inventories, assessments, plans, ordinances, maintenance programs, partnerships, and community involvement."[23]

**Colorado:** In Colorado, government agencies (municipalities, water and sanitation districts, or improvement Districts) are eligible to apply. Eligible projects include land purchases and those that improve water quality in an impaired water body, implement a watershed/nonpoint source management plan, or implement a source water protection plan.[24] In addition to non-point source projects, nontraditional projects are allowed. These are projects that have a primary purpose other than water quality, but are clearly related to the improvement or protection of water quality. However, funding for these projects is limited to the parts of the project that are related to water quality. Ranking or priority criteria potentially encouraging or enabling land conservation projects include:[25]

- Project addresses a water quality impairment identified in the 303(d) list or a groundwater standard that has been exceeded (40 points, Water Quality Improvement Criteria Category).
- Project applies BMPs to mitigate against erosion, sedimentation, pollution runoff, including: creation of riparian or vegetated buffers, floodplains, and additional stream restoration, OR supports wetland protection/restoration (10+10 points, Water Quality Improvement Criteria Category).
- Project incorporates one or several of the following planning methodologies, including: evaluation of innovative alternatives to traditional solutions or conservation easements and/or land use restrictions (5 points, Sustainability / Green Project Reserve Category).

[17] https://fortress.wa.gov/ecy/publications/publications/1010049.pdf
[18] Ibid.
[19] Ibid.
[20] http://apps.leg.wa.gov/rcw/default.aspx?cite=70.146&full=true
[21] https://fortress.wa.gov/ecy/publications/publications/1010049.pdf
[22] https://fortress.wa.gov/ecy/publications/publications/1010049.pdf
[23] http://apps.leg.wa.gov/rcw/default.aspx?cite=35.105.030
[24] www.cwrpda.com/images/Reports/WPCRF%202014%20IUP%20_%20WQCC_Final%20Version.pdf
[25] Ibid

**Montana:** Municipalities (state agency, city, town or other public body created pursuant to state law) or private persons (meaning an individual, corporation, partnership or other non-governmental legal entity) are eligible for funding.[26] The following factors will be considered when the project is ranked by the program:

- Readiness to proceed is one of the primary ranking categories
- Meet other DEQ plans

## Loan Characteristics

| | CA[27,28,29,30] | OR[31,32,33,34] | WA[35] | CO[36,37] | MT[38,39] |
|---|---|---|---|---|---|
| **Annual Capitalization Grant Allotment^** | $30 million | $10 million | $23,224,400 | $10,679,000 | $6,860,000 |
| **Total Funds Available, For 2013** | $601,000,000 | $15,082,000 | $125,000,000 | $304,610,923 | $31,665,000** |
| **% of funds for non-point source or estuary projects** | 4.0% | n/a | 20% of total funds after GPR is allocated | n/a | $52 million since May 2013 |
| **Max. Amount of Direct Loan** | n/a, but average is $11 million | $2.5 million or 15% of total available funds | 20-50% of allocated funds for project type | $2 million* | n/a |
| **Current Loan Interest Rate** | 1.9% | 0.94-2.44% (depending upon loan period) | 1.1-2.3% (depending upon loan period) | 2.0% | 3.75% |
| **Loan Fees, if applicable** | 1.0% service charge rate | 0.25-0.5% annual fee, on unpaid loan balance | --- | 0.8% administrative fee on all loans based on the original principal amount | 0.25% loan loss reserve surcharge and 0.75% administrative surcharge (included in the 3.0% above) |
| **Current Max. Loan Period** | 20 years | 20 years | 20 years | 20 years | 20 years |

**^** Each state adds at least 20% of the amount of each grant payment to the SRF.[40]

*In Colorado, loans of over $2 million are leveraged loans (which require the issuance of municipal bonds, and have subsidized interest rates at 70% of the market rates).[41]

**Montana can also transfer up to 33% of its Drinking Water SRF capitalization grant to the WPCSRF, and visa-versa.

[26] http://deq.mt.gov/wqinfo/srf/srf-who.mcpx#wpc
[27] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/fy1213/final_ffy2013iup.pdf
[28] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/
[29] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/faqs_funding.shtml
[30] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/trueinterestcost.pdf
[31] www.deq.state.or.us/about/eqc/agendas/attachments/2009oct/H-SRF.pdf
[32] www.deq.state.or.us/wq/loans/docs/IUPfy2014.pdf
[33] www.deq.state.or.us/wq/loans/docs/SRFsolicitationMemo2013.pdf
[34] www.deq.state.or.us/wq/loans/docs/FSrulemakingFOpt.pdf
[35] https://fortress.wa.gov/ecy/publications/publications/1310026.pdf
[36] www.cwrpda.com/images/Reports/WPCRF%202014%20IUP%20_%20WQCC_Final%20Version.pdf
[37] www.cwrpda.com/programs/state-revolving-funds/water-pollution-control-revolving-fund
[38] http://deq.mt.gov/wqinfo/srf/WPCSRF/Iup-ppl/2014iupFinal.pdf
[39] http://deq.mt.gov/wqinfo/srf/WPCSRF/Iup-ppl/IUP13FINAL.pdf
[40] www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=1232188e020ef4a13607afb558387427&rgn=div6&view=text&node=40:1.0.1.2.32.9&idno=40#40:1.0.1.2.32.9.142.8
[41] www.cwrpda.com/programs/state-revolving-funds/water-pollution-control-revolving-fund

## Additional Benefits or Incentives

Although historically both federal and state laws did not allow the Clean Water Revolving Fund programs to offer grants, beginning in 2009, grants, negative interest rates, and principal forgiveness started to be authorized and offered.[42] While the features of these programs vary by state, the states explored in this project do offer Green Project and Disadvantaged Community/Hardship assistance programs. In addition, The Sustainability Policy encourages individual states to offer additional subsidies that will help communities that could otherwise not afford an SRF loan,[43] and several of the states have additional subsidy programs that could benefit applicants seeking to fund land conservation related projects. This part of the paper has three sections for the CWRFs – the Green Project Reserve, Disadvantaged Communities, and Additional Subsidies.

**Green Project Reserve:** The federal fiscal year (FFY) 2013 capitalization grant requires that **at least 10% of the grant** be used for projects that meet the EPA criteria for being a "green project" (see http://water.epa.gov/grants_funding/cwsrf/upload/GPR-Crosswalk-Table.pdf).[44] This requirement is reduced from FFY 2010 and 2011, when 20% was allocated for green projects. Green projects can include green infrastructure and fee simple land purchase or easements.[45,46] In addition to setting aside funds for these types of projects, many states offer additional incentives; and the table below details what these are for each state.

| | Green Project Additional Features | |
|---|---|---|
| State | Provides Principle Forgiveness | Provides Lower Interest Rates |
| California | --- | --- |
| Oregon | 50-75%, depending upon population size.[47] | Can provide loan at 0%.[48] |
| Washington | 25% (maximum) to highest ranked priority GPR-eligible projects.[49] | --- |
| Colorado | --- | 0% interest rate for projects with 20% or more of projects cost being used for eligible green elements.[50,51] |
| Montana | --- | --- |

[42] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/fy1213/final_ffy2013iup.pdf
[43] http://water.epa.gov/grants_funding/cwsrf/upload/FY-2012-SRF-Procedures-and-Attachments.pdf
[44] Ibid.
[45] http://water.epa.gov/grants_funding/cwsrf/Green-Project-Reserve.cfm
[46] http://water.epa.gov/grants_funding/cwsrf/upload/GPR-Crosswalk-Table.pdf
[47] http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_054.html
[48] Ibid.
[49] https://fortress.wa.gov/ecy/publications/publications/1310026.pdf
[50] www.cwrpda.com/programs/state-revolving-funds/water-pollution-control-revolving-fund
[51] www.cwrpda.com/images/Reports/WPCRF%202014%20IUP%20_%20WQCC_Final%20Version.pdf

**Disadvantaged Communities:** In order to provide an extra incentive to begin an application or pursue a project, many states offer low or no interest rate loans to small and disadvantaged communities.[52] The definition and criteria for each state vary, and these are described below. The definition is often based on median household income (MHI) and includes a measure of affordability.

| State | Definition of Hardship or Disadvantaged | Disadvantaged Community Program Features | | |
|---|---|---|---|---|
| | | Provides Principle Forgiveness | Provides Extended Loan Terms (up to 30 years) | Provides Lower Interest Rates |
| California | A disadvantaged community has a MHI less than 80% of the statewide MHI.[53] *(54,55)* | X | X | |
| Oregon | Qualifying applicant is based on MHI,[56] and is determined using this formula:[57] Affordability rate = (Applicant's MHI x affordability index)/12. | X | | |
| Washington | Hardship is based upon population size and MHI.* | X | | X |
| Colorado | Based on population (5,000 or less) and MHI (if 80.0% or less of the statewide MHI, then eligible). | | | X |
| Montana | Disadvantaged when the combined monthly water and wastewater system rates are greater than/equal to 2.3% of community's MHI.[58] | X | X | |

*Program and feature are only available for certain types of projects. Washington offers principle forgives and lower interest rates for communities that are determined to have financial hardship. However, this is only available for wastewater facility construction projects or wastewater and stormwater facility preconstruction projects.[59]

**Additional Subsidization:** The 2013 federal Appropriations Act requires states to provide additional subsidization to CWSRF projects, which can be in the form of principal forgiveness, negative interest rate loans, or grants.[60] The states must use least 20% and not more than 30% of the federal appropriation for these activities.[61] In addition, some of the states have additional program types for which they set aside a percent of the capitalization grant. The table below details these and the additional features offered (not including the programs already described), which is followed by a description for each state.

[52] http://water.epa.gov/grants_funding/cwsrf/upload/2002_06_28_cwfinance_cwsrf_cwsrf.pdf
[53] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/fy1213/final_ffy2013iup.pdf
[54] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/cwsrf/policy_amendment/exhibit_c_2_23.pdf
[55] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/faqs_funding.shtml
[56] www.deq.state.or.us/wq/loans/docs/IUPfy2014.pdf
[57] http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_054.html
[58] http://deq.mt.gov/wqinfo/srf/WPCSRF/Iup-ppl/2014iupFinal.pdf
[59] https://fortress.wa.gov/ecy/publications/publications/1310026.pdf
[60] Ibid.
[61] http://deq.mt.gov/wqinfo/srf/iup-ppl.mcpx

| State | Additional Subsidization Type | | | Additional Loan Set-Asides |
|---|---|---|---|---|
| | Provides Principle Forgiveness | Provides Loan Terms >20 Years | Provides Lower Interest Rates | |
| California | | X | | X |
| Oregon | X | (X) | | X |
| Washington | X | | | |
| Colorado | | | | |
| Montana | X | X | | |

**California:** California offers extended term financing for regionalization.[62] California also has the State Water Pollution Control Revolving Fund Small Community Grant (SCG) Fund, which utilizes a surcharge on CWSRF financing agreements to provide grants for wastewater projects that serve small, disadvantaged communities (defined at 60% of the statewide MHI).[63]

**Oregon:** Oregon provides principle forgiveness for nonpoint source control and estuary management projects. The maximum amount of forgiveness is 30% of the loan or $1 million dollars (whichever is less).[64,65] In addition, Oregon sets aside a maximum of 25% of the total available funds as the small community reserve. Oregon is also in the process of changing their rules to allow for the extension of loan periods for public agencies.[66]

**Washington:**

**Colorado:** Colorado offers an additional subsidy for projects that gain a certain amount of points in the Financial/Affordability and Water Quality Improvement category (see the Part 1 or page 11 in http://www.cwrpda.com/images/Reports/WPCRF%202014%20IUP%20_%20WQCC_Final%20Version.pdf). The subsidy is awarded to projects in score order (so projects that score the highest for Financial/Affordability and Water Quality Improvement will be given the subsidy first). These scores are also used to determine projects funding priorities in case of a tie in overall score. [67]

**Montana:** To determine which projects receive (additional) principle loan forgiveness and extended loan terms (up to 30 years), Montana gives priority to projects with the highest user rates relative to MHI and considers the effectiveness of the subsidy in reducing user rates. Communities can only receive principle forgiveness for one project, and they need to seek long term financing to be eligible for the additional subsidy. The maximum subsidy is $175,000 or 25% of the loan amount (whichever is less).[68]

[62] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/faqs_funding.shtml
[63] www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/fy1213/final_ffy2013iup.pdf
[64] www.deq.state.or.us/wq/loans/docs/IUPfy2014.pdf
[65] http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_054.html
[66] www.deq.state.or.us/wq/loans/docs/FSrulemakingFOpt.pdf
[67] www.cwrpda.com/images/Reports/WPCRF%202014%20IUP%20_%20WQCC_Final%20Version.pdf
[68] http://deq.mt.gov/wqinfo/srf/WPCSRF/Iup-ppl/2014iupFinal.pdf

## Part II: Basics of the Drinking Water SRF Programs

### Eligible Applicants, Land Conservation Projects, and Ranking Criteria

Under the Drinking Water SRFs drinking water sources, source water protection, and storage capacity are all eligible project types. (For most programs, dams, water rights, fire suppression, flood control, projects that do not directly address (most severe) noncompliance/health risks, and those that address future community growth beyond conventional population projections over the life of the project are not eligible). However, each state has a lot of flexibility in how projects are prioritized and defined. In addition, for any project, the applicant has to demonstrate technical capacity, financial capacity, and managerial capacity. In order to help achieve these requirements, the DWSRF programs often offer loans for technical assistance and local capacity building.

California: Eligible applicant has to be able to enter into a debt contract with the State, and can be a community water system or a non-profit non-community water system. Source water protection measures are eligible, but land acquisition (except for land or land access that is integral to the construction of source, treatment or distribution facilities) is ineligible.[69] Ranking or priority criteria potentially encouraging or enabling land conservation projects include: [70,71]

- California also offers priorities funding for Small Systems.
- Affordability (based on MHI) is used to help rank projects.
- Severity of health risk alleviated by project.

Oregon: Privately- and publicly-owned community water systems and non-profit transient and non-transient non-community water systems are eligible. [72,73] Restoration and/or conservation projects within the drinking water source area, projects for reforestation or replanting in sensitive or riparian areas, implementation of conservation easements to protect sensitive source areas, and the purchase of lands within the drinking water source area are eligible projects. [74] Oregon seeks out drinking and source water protection projects specifically (by sending out Drinking Water Protection Fund (DWPF) letters of interest).[75] These projects must have a completed completed Source Water Assessment (SWA) and are also rated on the same criteria as the other projects. These ranking or priority criteria include:

- area and level of sensitivity of the drinking water source,
- presence of high-risk sources of contamination within the drinking water source area,
- contaminant detections at the source,
- proposed reduction or prevention activities, and
- risk reduction potential.[76]
- Additional points are given to projects within sensitive areas in a watershed, and if the project has a reasonable likelihood to reduce the risk or pollutant load from identified potential sources of contamination.[77]

It is important to note that Oregon, in addition, to their Safe Drinking Water Revolving Loan Fund (SDWRLF), has a Drinking Water Source Protection Fund (DWSPF). The DWSPF provides a maximum loan of $100,000 per project, but does focus on the protection of drinking water sources.[78]

[69] http://www.cdph.ca.gov/services/funding/Documents/SRF/2013%20Funding/APPENDIXA.pdf
[70] http://www.cdph.ca.gov/services/funding/Documents/SRF/2013%20Funding/FINALSFY2013IUP.pdf
[71] http://www.cdph.ca.gov/services/funding/Documents/SRF/Ranking/2012AprilReprintSDWSRFRankingCriteria.pdf
[72] https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SRF/Pages/index.aspx#eligibility
[73] https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SRF/Documents/SP-Info.pdf
[74] Ibid.
[75] https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SRF/Documents/IUP2013.pdf
[76] https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SRF/Documents/SP-LOI.doc
[77] https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SRF/Documents/SP-Info.pdf
[78] http://www.orinfrastructure.org/Learn-About-Infrastructure-Programs/Interested-in-a-Water-or-Wastewater-Improvement-Project/Safe-drinking-water-revolving-loan-fund/

**Washington:** Eligible applicants include both publicly-owned and privately-owned public water systems. Projects are ranked according to the level of public health risk the proposed project would eliminate and the type of project being proposed to solve the identified problem. Additional points are given for items that could potentially encourage or enable land conservation projects, and these include:

- Providing regional benefits.
- Provided solutions for multiple areas of public health risk/Having multiple benefits.[79]

**Colorado:** Governmental agencies (municipalities, water and sanitation districts, improvement districts, water districts, and metropolitan districts) are eligible applicants. Private not-for-profit drinking water systems are also eligible applicants if a governmental entity assumes the debt. Land/Conservation easement acquisition for source water assessment protection is an eligible type of project but the land must be integral to the project (needed to meet or maintain compliance and further public health protection such as land needed to locate eligible treatment or distribution facilities) and from a willing seller. Land/Conservation easement acquisition for source water assessment protection are also allowed under the "Local Assistance and Other State Programs" set-aside.[80]

Priorities are based upon health risks, but within each category, points are given for the following:[81]

- Population size (up to 20 points)
- Financial Need (up to 40 points)
- Water Conservation (5 points)
- Source Water Protection (2 points)
- Health Risks (20 points)

**Montana:** Eligible applicants for DWSRF in Montana include municipalities, public or private community water systems and non-profit non-community water systems.[82] Eligible projects include source water protection. Land acquisition is possible, but it must be integral to the water system.[83] Ranking or priority criteria include:

- Documented health risks (acute health risks are ranked higher than non-acute health risks)
- Proactive compliance measures
- Affordability.[84]

[79] http://www.doh.wa.gov/Portals/1/Documents/4200/dwsrf-draft-2013-iup.pdf
[80] http://www.cwrpda.com/images/Documents/DWRF%202013%20IUP%20_%20WQCC_Final%20Version.pdf
[81] Ibid.
[82] http://deq.mt.gov/wqinfo/srf/srf-who.mcpx
[83] Ibid.
[84] http://deq.mt.gov/wqinfo/srf/DWSRF/Iup-ppl/Final_2014_IUP.pdf

## Loan Characteristics

| | CA[85,86] | OR[87,88,89] | WA[90] | CO[91] | MT[92,93] |
|---|---|---|---|---|---|
| **Annual Capitalization Grant Allotment^** | $78.77 million | $8,975,000 | $21,499,000 | $14,673,000 | $8,421,000 |
| **Total Funds Available, For 2013** | $60,652,900, will disperse approx. $200 million[94] | | $108 million | $54,083,699 | $33,108,000 |
| **% of funds for Source Water Protection** | n/a | 2.23% | 15% (maximum)^^ | 10% (maximum)* | 10% from the initial FFY97 capitalization grant |
| **Max. Amount of Direct Loan** | $2,000,000 per project per year | $6 million | $12,000,000 | $2 million** | $5M or 50% of total capitalization grant |
| **Current Loan Interest Rate** | | 80 percent of state/local bond index rate | 1.5% | 2.0% | 3.00% |
| **Loan Fees, if applicable** | --- | --- | 1% of the loan request | --- | Administrative fee is 0.575% and the surcharge is 0.75%. |
| **Current Max. Loan Period** | 20 years | 20 years | 20 years | 20 years | 20 years |

^ Washington, Colorado, and Montana transfer up to 33% between the CWSRF and the DWRF.
^^ Washington has several contractors (Evergreen Rural Water of Washington (ERWOW), Rural Community Assistance Corporation (RCAC), Sleeping Giant Environmental Consultants, LLP, and Pick of the Litter Design, Inc.) that they use to complete projects funded by set-asides.
* Colorado is entitled to set aside up to 15% ($2,388,000) from the capitalization grant for certain activities, including Source Water Assessment and Protection Program Land Acquisition (10% maximum). However, no funds are currently being put aside to acquire land or conservation easements to protect source water areas.
** In Colorado, loans of over $2 million are leveraged loans (which require the issuance of municipal bonds, and have subsidized interest rates at 70% of the market rates).[95]

## Additional Benefits or Incentives

The 2013 federal Capitalization Grant states that at least 20% not more than 30% of the grant is provided for additional subsidies, which are explored below.

[85] http://www.cdph.ca.gov/services/funding/Documents/SRF/2013%20Funding/APPENDIXA.pdf
[86] http://www.cdph.ca.gov/services/funding/Documents/SRF/2013%20Funding/FINALSFY2013IUP.pdf
[87] https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SRF/Documents/IUP2013.pdf
[88] http://www.bend.or.us/modules/showdocument.aspx?documentid=1716
[89] http://www.orinfrastructure.org/Learn-About-Infrastructure-Programs/Interested-in-a-Water-or-Wastewater-Improvement-Project/Safe-drinking-water-revolving-loan-fund/
[90] http://www.doh.wa.gov/Portals/1/Documents/4200/dwsrf-draft-2013-iup.pdf
[91] http://www.cwrpda.com/images/Documents/DWRF%202013%20IUP%20_%20WQCC_Final%20Version.pdf
[92] http://deq.mt.gov/wqinfo/srf/dwsrf/default.mcpx
[93] http://deq.mt.gov/wqinfo/srf/DWSRF/Iup-ppl/Final_2014_IUP.pdf
[94] http://www.awwa.org/home/awwa-news-details/articleid/1564/california-announces-plan-for-spending-dwsrf-resources.aspx
[95] www.cwrpda.com/programs/state-revolving-funds/water-pollution-control-revolving-fund

**Small and Disadvantaged Communities:** At least 15% of the fund must be used for loan assistance for small communities (with a population less than 10,000), and no more than 30% of the capitalization grant may be used for disadvantaged community loan subsidies.[96]

| State | Definition of Hardship or Disadvantaged | Disadvantaged Community Program Features | | |
|---|---|---|---|---|
| | | Provides Grants/ Principle Forgiveness | Provides Extended Loan Terms (up to 30 years) | Provides Lower Interest Rates |
| California | Community with MHI is 80% or less of the statewide MHI, [97] 60% or less is considered severely disadvantaged[98] | X | | |
| Oregon | Based upon the affordability rate (the ratio of the average annual water rate (based on 7,500 gal.) to the local MHI.[99] | X | X | X |
| Washington | Affordability is based upon an applicant's MHI, operational expenses, and water rates[100] | X | | X |
| Colorado | Based on population (5,000 or less) and MHI (if 80.0% or less of the statewide MHI, then eligible). | | X | X |
| Montana | Economically disadvantaged when combined annual water and wastewater system rates are greater/equal to 2.3% of the community's MHI.[101] | X | X | |

**Green Project Reserve:** While states are encouraged to fund "green projects," they are no longer required to fund them. Each state can decide to allocate portions of the capitalization grant for these projects (the criteria are the same as green projects as defined in the CWSRF program).[102] The table below details if the state funds these projects and if they offer any additional incentives.

| State | Green Project Additional Features | | |
|---|---|---|---|
| | Green Project Funding | Principle Forgiveness | Lower Interest Rates |
| California | n/a | --- | --- |
| Oregon | Yes, offers financial incentives[103] | | |
| Washington | n/a | --- | --- |
| Colorado | Yes, offers financial incentives[104] | --- | X |
| Montana | Yes, offers financial incentives[105] | X | --- |

[96] http://cwsrftraining.net/files/2._CWSRF_and_DWSRF_Program_Overview.pdf
[97] http://www.cdph.ca.gov/services/funding/Documents/SRF/2013%20Funding/APPENDIXA.pdf
[98] http://www.cdph.ca.gov/services/funding/Documents/SRF/2013%20Funding/FINALSFY2013IUP.pdf
[99] https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SRF/Documents/IUP2013.pdf
[100] http://www.doh.wa.gov/Portals/1/Documents/4200/dwsrf-draft-2013-iup.pdf
[101] http://deq.mt.gov/wqinfo/srf/DWSRF/Iup-ppl/Final_2014_IUP.pdf
[102] http://water.epa.gov/grants_funding/cwsrf/upload/FY-2012-SRF-Procedures-and-Attachments.pdf
[103] https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SRF/Documents/IUP2013.pdf
[104] http://www.cwrpda.com/images/Documents/DWRF%202013%20IUP%20_%20WQCC_Final%20Version.pdf
[105] http://deq.mt.gov/wqinfo/srf/DWSRF/Iup-ppl/Final_2014_IUP.pdf

## Part III: Description of each Program -- Application Process and Department Approaches

### California's State Revolving Funds

California's Clean Water State Revolving Fund is administered by the California EPA and the State Water Resources Control Board. Applications are accepted on a continuous basis, and the applicant begins by submitting an Environmental Package, and then submitting the Technical and Financial Security Packages.[106] In California, no initial extra step is required to be placed on the Project Priority List, as the WRCB staff will do this. After the application is submitted, it will be reviewed for review and ranking. (For more information, see www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml.)

California's Safe Drinking Water State Revolving Fund is administered by the California Department of Public Health, Division of Drinking Water and Environmental Management (CDPH). In order to apply for a loan, an applicant first needs to receive an invitation to apply and submit a complete Statement of Intent by the invitation's specified deadline. Then they need to submit the required materials, including a construction application cover letter, application for construction funds, and application for guidelines and instructions. Supplemental required materials can include an applicant engineering report, applicant's checklist, certification for water metering, and technical, managerial, financial (TMF) assessment form. From this, the projects are ranked using the specified criteria (mainly to do with health priorities), and projects are placed on the Project Priority List and Intended Use Plan.[107,108]

From Phase I of this project (conducted by Daniel Stevens in 2012-13), it was found that 10 land conservation related projects had been funded (two in the past decade). These two projects were large and included a 2007 loan to The Conservation Fund ($25 million) and a 2011 loan to the Yurok Tribe ($19 million). The largest loan made to a land conservation related project was for $88 million to Napa County in 2002. It was also found that loans to NGOs are more common than those made to municipalities, which is contrary to many other states.

In addition, as part of an EPA report on opportunities to advance sustainability within CA CWSRF program, there are several strategies and implementation ideas for how to enable and utilize land conservation (this report can be found at http://water.epa.gov/grants_funding/cwsrf/upload/CA-SRF-Pilot-Report-09-10-12.pdf).

### Oregon's State Revolving Funds

The Oregon Clean Water State Revolving Fund (CWSRF) program is administered by the Oregon Department of Environmental Quality (DEQ) and has about $50 million available each year for water quality improvement projects (planning, design and construction projects). Oregon also has the Safe Drinking Water Revolving Loan Fund (SDWRLF) for infrastructure projects and the Drinking Water Protection Fund (DWPF) for source protection projects. The Oregon Health Authority administers the SDWRLF and works with the Oregon Department of Environmental Quality on the Drinking Water Protection Program. They both encourage community-based protection, prevention, and management strategies.

For the SDWSRF, the application begins when the applicant submits a Letter of Interest to Drinking Water Program staff at the Oregon Health Authority for groundwater or Drinking Water Protection staff at the Department of Environmental Quality Water Quality Division for surface water, who review and evaluate. This process happens once per year. Next, each project is then placed on a numerically ranked DW Source Protection Project Priority List. The last step is a "One-Stop Finance meeting" with the Oregon Business Development

[106] http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/forms/financial_assist_application_instructions.pdf
[107] http://www.cdph.ca.gov/services/funding/Pages/SRFFall12-13Application.aspx
[108] http://www.cdph.ca.gov/services/funding/Pages/SRFApplication11-12.aspx

Department and Infrastructure Finance Authority. This step also provides the department with the ability to consider the project for any other department funding sources.

The SWSRF allows source water protection projects. “Source water is the water from the rivers, streams, lakes, springs and underground sources that drinking water systems use to supply communities with safe drinking water. Drinking water source protection involves taking positive steps to manage potential sources of contamination and prevent pollutants from entering, reaching or contaminating sources of public drinking water.” However, certain projects are not-eligible, and these includes the acquisition of water rights, including groundwater (unless the water rights are already owned by a system that is being consolidated), and acquisition or creation of dams or reservoirs (except is finished and part of drinking water treatment process). Furthermore, all projects are ranked based upon the following five criteria: the area and level of sensitivity of the drinking water source, the presence of high-risk sources of contamination within the drinking water source area, the contaminant detections at the source, the proposed reduction or prevention activities, and the risk reduction potential.

For the CWSRF application process, the DEQ reviews and scores all projects according to criteria. These projects are listed in rank order on the program’s project priority list. Project priority list applicants then complete all documents (such as environmental reviews, land-use compatibility statements and financial reports). Once the DEQ approves these, the project is ready-to-proceed, and can be considered for a loan (and it is listed in the Intended Use Plan (IUP), which describes the program’s plans and goals for each fiscal year, includes both the project priority list and ready-to-proceed projects).

For the CWSRF various nonpoint source projects (including restoration projects and conservation easements) are legally allowed. In addition, the CWSRF includes green infrastructure incentives (since they are eligible for Green Project Reserve set-aside monies), and these projects can include the preservation and restoration of natural landscape features, such as forests, floodplains and wetlands, coupled with policies such as infill and redevelopment that reduce overall imperviousness in a watershed. This includes activities such as wetland protection. Furthermore, nonpoint source and estuary projects can receive up to 30% forgiveness.

Projects are ranked based upon certain criteria, and some of these are supportive of land conservation or protection activities. For instance, project addresses water quality or public health issue within a "special status" water body, projects that are within a federally designated wild and scenic river or sole source aquifer, state designated scenic waterway, the Lower Columbia River or Tillamook Bay estuary, a river designated under OAR 340-041-0350, or a significant wetland and riparian area identified and listed by a local government, project improves or sustains aquatic habitat supporting state or federally threatened or endangered species are all given points. Projects are also given points if they integrate or expand sustainability or the use of natural infrastructure, or use approaches, if they are considered a unique opportunity (due to timing, finances or other limitations that would not allow this project to be implemented in the future), if they include an educational or outreach component, or if they include a partnership with other group(s), incorporating self-help, financial or in-kind support.

While discerning which projects (applied for and/or funded) were related to land-conservation activities was not possible in the IUP or annual reports, according to Larry McAllister, the Program Analyst for the CWSRF loan programs, very few land conservation projects have ever applied for funding, and none have been funded. Cannon Beach is the only applicant that has applied for a loan for a land-conservation related project, and they withdrew the application before receiving funding. However, conservation easement projects are (probably) the easiest to apply for funding for (among the land conservation-related projects).

For a successful application, projects have to demonstrate that they will be as (or more) effective as traditional "grey infrastructure" at increasing or maintain water quality (this holds true for both SRF programs). In addition, barriers to using these funds for include that only public agencies can apply for loans and only traditional water protection and wastewater projects have been funded through this program, so the precedent has not been established (yet).

### Washington's State Revolving Funds

The Washington Drinking Water State Revolving Fund (DWSRF) is jointly administered by the Washing State Department of Health, the Public Works Board, and the Department of Commerce (COM). The Clean Water State Revolving Fund (CWSRF) Loan Program is administered by the Department of Ecology. The CWSRF can also be used as a matching grant.

The DWSRF prioritizes projects that address serious risks to public health, are necessary to meet SDWA requirements, and help systems in the most need (based upon affordability).[109] In addition, projects must focus on construction or identify and address a problem related to public health or noncompliance. Examples of eligible projects include new sources or new reservoirs, and while land conservation projects are not explicable ineligibly, they do not seem to be explored. [110] For more information about the application process, see www.doh.wa.gov/Portals/1/Documents/Pubs/331-196.pdf.

For the CWSRF, applicants can apply beginning in September (and have about a month to complete the application for that year's funding source). The applicant fills out one application to be considered for three different funding sources (the CWSRF, the Clean Water Act Section 319 Grant Program, and Centennial Grant Program). All three programs can fund nonpoint source projects.[111] The Department of Ecology then ranks the projects, and then has an "evaluators' meeting" to discuss the project proposals, water quality priorities, and draft the Intended Use Plan. Ranking criteria include the overall water quality and public health benefits, the project team, and the local/state/federal mandates that are addressed. After this IUP is sent to the Governor's Office of Financial Management and the State Legislature for consideration and the public review is finished, the list is finalized, and projects are completed within five years. A successful application will demonstrate the water quality impacts, explain why this project was selected, and clearly show how funding will be spent and that the project is ready to implement. (See Water Quality Financial Assistance Guidelines for more tips about successful applications: https://fortress.wa.gov/ecy/publications/publications/1010049.pdf).

The CWSRF provides both low interest and forgivable principal loan funding nonpoint source pollution control projects (including education and outreach materials/activity, groundwater/aquifer/wellhead planning and/or protection, and lake restoration, riparian/wetland restoration, or watershed planning/implementation), and eligible Green projects.[112] Green projects include projects on a regional scale (such as the preservation and restoration of natural landscape - forests, floodplains, wetlands, and policies such that reduce overall impervious area) and local scale (site- and neighborhood-specific practices). Flood control and mitigation (unless it addresses water quality directly related to the project) are not eligible reasons for funding. Many of these projects can be located on private property, public property, public easements, or public rights-of-way through private property. In 2012, $10.2 million was loaned for nonpoint source pollution projects, and $7 million was loaned for green

[109] www.doh.wa.gov/Portals/1/Documents/4200/dwsrf-draft-2013-iup.pdf
[110] www.doh.wa.gov/Portals/1/Documents/Pubs/331-196.pdf
[111] www.ecy.wa.gov/programs/wq/funding/funding.html
[112] https://fortress.wa.gov/ecy/publications/publications/1010049.pdf (and nonpoint projects must follow EPA guidelines available at http://water.epa.gov/polwaste/nps/handbook_index.cfm and Washington's Water Quality Management Plan to Control Nonpoint Sources of Pollution available at http://www.ecy.wa.gov/pubs/0510027.pdf).

projects (out of $71.2 million available for competitive loans).[113] However, there has been very limited (only one loan since 2000) for land conservation projects.

From Phase I of this project (conducted by Daniel Stevens in 2012-13), it was found that there has not been much conservation related loan activity in Washington. Only three land conservation related projects were funded, and one only since 2000. This loan was in 2010 to the City of Vancouver (for $1.1 million). Nonprofits have not applied for or received a CWSRF loan.

### Colorado's State Revolving Funds

The Colorado Water Pollution Control and Drinking Water State Revolving Fund (the WPSRF and DWSRF, respectively) programs are administered by the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD), which partners with (1) the Colorado Water Resources and Power Development Authority (The Authority), a financing resource for water and wastewater utilities, and (2) the Department of Local Affairs (DOLA), which provides information and technical support to local governments. The WPSRF and DWSRF are low interest loans, and are "cross-collateralized with one another" so that shortfalls can be covered by surplus in either fund. Colorado also offers leveraged loans by issuing municipal bonds.

To begin applying for the DWSRF, applicants complete an eligibility assessment or submit a Notice of Intent to Apply to the SRF, and then projects are identified on Project Eligibility List in the IUP. Next, applicants must then complete any required documents (including a Technical, Managerial, and Financial Review) and submit the loan application. Applications are prioritized according to six categories, and then a credit analysis is performance. Then there are the other approvals (loan approved by Board of Directors, the Site Application, plans, and specifications approved by WQCD, and all federal requirements must be complied with). Once approved, loans can be executed.

The criteria that the projects are ranked on include acute and chronic health hazards (both current and potential risk) and future needs (equipment replacement, rehabilitation or repair in order to maintain compliance or further the public health protection goals). Within these categories, population size, financial need, water conservation, and source water protection are also considered and awarded points. Land acquisition is eligible to be funded, but land must be integral to the project ("i.e., needed to meet or maintain compliance and further public health protection such as land needed to locate eligible treatment or distribution facilities"), and it needs to be bought from a willing seller. Projects also cannot serve future growth. In addition, while Colorado is entitled to set aside up to 15% ($2,388,000) from the capitalization grant for certain activities, including Source Water Assessment and Protection Program Land Acquisition, no funds are currently being put aside to acquire land or conservation easements to protect source water areas.

For the WPSRF, the CDPHE conducts an annual SRF eligibility survey to identify 20-year capital improvement needs, which then become the Project Eligibility List in the Intended Use Plan (IUP). Any eligible applicant can participate in the survey. After this, applicants must then complete any required documents and submit the loan application. Applications are rated using criteria and prioritized only if the total funding requests exceeds the available funds. The rest of the application process is similar to the DWSRF (with credit analysis and additional approvals). As with the DWSRF application process, all loan approvals remain valid for 18 months.

The WPSRF allows for non-point source projects, which includes best management practices (BMPs), land purchases (if they are part of treatment process), and stormwater projects that provide a water quality benefits. Nontraditional projects can also be funded, and these have a primary purpose other than water quality, but are

[113] https://fortress.wa.gov/ecy/publications/publications/1010049.pdf

clearly related to the improvement or protection of water quality. However, funding for these projects is limited to the parts of the project that are related to water quality.

The criteria for ranking projects vary from the DWSRF, and certin ones could enable land-conservation related activities. For instance, project that address a water quality impairment identified in the 303(d) list or a groundwater standard that has been exceeded receive points, as to projects that apply BMPs to mitigate against erosion, sedimentation, pollution runoff, including: creation of riparian or vegetated buffers, floodplains, and additional stream restoration, OR supports wetland protection/restoration. The WPSRF also includes the Green Project Reserve, and projects that utilize an evaluation of innovative alternatives to traditional solutions, employ conservation easements and/or land use restrictions, or use Watershed Management Plans can receive additional points.

Discerning which projects (applied for and/or funded) were related to land-conservation activities was not possible in the IUP or annual reports. However, Michael Beck, the state's point of contact for the WPSRF loan program, stated that Colorado has not funded Public Land Trust projects. However, he has worked with local trust organizations to try and position them for funding through the WPSRF. There are several barriers that have made these applications more difficult to fund, such as that the applicant needs to be a governmental agency, the application requires a revenue pledge to service the debt, and the entity applying for funding and project has to be listed in the Annual Intended Use Plan. In addition, the application needs to clearly demonstrate the project's water quality component (or clearly answer: "does your project address protection of public health, water quality, or compliance with Colorado regulations?"). All projects (to be considered for either SRF program), must conform to state-approved plans (for example, the Water Quality Management Plan or NPS Management Plan.).

### Montana's State Revolving Funds

The Montana State Revolving Fund programs provide financing for a variety of water quality related projects in the form of at or below market interest rate loans. Generally these funds are used to finance all or a portion of a project's cost or to buy or refinance debt obligations, but these loans can also serve as matching funds for a variety of grant programs. The Water Pollution Control State Revolving Fund (WPCSRF) primarily focuses on water pollution prevention and treatment projects in order to meet the Clean Water Act Requirements and protect public health and the environment. The Drinking Water State Revolving Fund (DWSRF) is intended to help water systems meet the Safe Drinking Water Act Requirements and protect public health, and it focuses on water treatment and source water protection projects. The WPCSRF and DWSRF are jointly administered by the Montana Department of Environmental Quality (DEQ) and the Department of Natural Resources and Conservation (DNRC). The DEQ ensures that application requirements are met and sets project priorities, and the DNRC ensures loan security and issues general obligation bonds used to increase the total fund.[114]

For the WPCSRF program, municipalities (state agency, city, town or other public bodies) or private persons (meaning an individual, corporation, partnership or other non-governmental legal entity) are eligible for funding.[115] These funds can be used to finance non-point source pollution control projects. These include projects that address urban stormwater or construction runoff or protect ground water or riparian areas. $52 million have been loaned for these types of projects since May 2013. As this property is located immediately next to the Whitefish Mountain Resort and the Iron Horse golf course community – and is considered extremely vulnerable to future development, protecting the land could foreseeability prevent and control runoff and protect water quality. While the DEQ has primarily financed municipal projects, and has not historically loaned WPCSRF

[114] Montana State Revolving Fund Programs. www.deq.mt.gov/wqinfo/srf/default.mcpx.
[115] Ibid.

funds for land conservation activity,[116] the department is open to this and is willing to lend money for these purposes.[117] For a successful application, water quality needs to be the project's primary purpose (the EPA has established a lot of flexibility as to what water quality protection includes), and loan security needs to be clearly established.[118]

For the DWSRF, eligible applicants include municipalities, public or private community water systems and non-profit non-community water systems.[119] The Safe Drinking Water Act also requires that loan recipients demonstrate the technical, financial and managerial capacity to comply with drinking water laws and standards.[120] These funds can be used for source water protection, and 1.7% (or $1,714,600) of 2013 funds were set aside for this purpose.[121] While DWSRF funds have not been used to fund land conservation projects or purchase land in the past, "green infrastructure projects" are allowed. In order to fund these types of projects, the land would have to be part of the public drinking water system and follow all EPA Green Project Guidelines (which do allow for fee simple purchase of land or easements on land that has a direct benefit to water quality, such as riparian protection).[122,123] Since this property is the source of 75% of the Whitefish's municipal water supply, protecting it could maintain the drinking water quality for this city through natural infiltration, water filtration, or runoff capture.[124,125]

The application process is similar for both programs. The eligible applicant first requests that their project is added to the Project Priority List (PPL) and Intended Use Plan (IUP) by filling out a form available on the DEQ website. The PPL and IUP are updated annually, and applicants can begin the process in June each year. After the project listing-request is received, the DEQ ranks the project based upon water quality or public health benefits. The approved loans are offered on a "first come basis" until the funds are all distributed. As described previously and seen in the chart above, while both programs have the legal ability to fund land protection projects, they have different project requirements, incentives, and priorities.

[116] Montana WPCSRF Intended Use Plans and Project Priority Lists, 2000-2012. Available at: www.deq.mt.gov/wqinfo/srf/WPCSRF/IUPppl/pastiupppl.mcpx.
[117] Paul Lavigne. Section Supervisor, Water Pollution Control Revolving Fund. Personal Communication. Oct. 9, 2013.
[118] Ibid.
[119] Montana State Revolving Fund Programs. www.deq.mt.gov/wqinfo/srf/default.mcpx.
[120] Department of Natural Resources and Conservation. Chapter 23. Available at: www.deq.mt.gov/wqinfo/Laws/36-23-101.pdf.
[121] Montana DWSRF 2014 Intended Use Plan. Available at: www.deq.mt.gov/wqinfo/srf/DWSRF/Iup-ppl/Final_2014_IUP.pdf.
[122] Ibid.
[123] The EPA Guidelines for Green Projects also state that "Projects can be either publicly or privately owned and can serve either public or private purposes… it is acceptable to fund land conservation activities that preserve the water quality of a drinking water source, which represents a public purpose project... Projects must have a direct water quality benefit." water.epa.gov/grants_funding/cwsrf/upload/FY-2012-SRF-Procedures-and-Attachments.pdf.
[124] Montana DWSRF Intended Use Plans, 2000-2013. Available at: www.deq.mt.gov/wqinfo/srf/DWSRF/IUP-ppl/pastiupppl.mcpx.
[125] Mark Smith. Section Supervisor, Montana Drinking Water Revolving Fund. Personal Communication. Oct. 9, 2013.

# Attachment 3: Interim Report: CWSRF Historical Project Information (February 2014)

# Interim Report to US Endowment for Forestry and Communities

***Attachment 1: CWSRF Historical Project Information***

## Summary of CWSRF Use for Land Conservation Projects

This document includes the methodology that The Trust for Public Land developed and utilized to identify land conservation projects for each state as well as summarizes the main findings. While we began research in the same way for each state (by gathering Intended Use Plans, Project Priority Lists, and Annual Reports) and contacting program administrators, each state had varying levels of information available and used different project description formats. The table below summarizes information about the CWSRF program in Colorado, Oregon, California and Washington. This information includes the number of land conservation project applications identified (from 2000 to current).

**Data Availability and Historical CWSRF Land Conservation Activity by State for FFY 1999-2014**
*(Cells highlighted in green are years for which information is available and the number of applications per year are listed in the cells).*

| | TOTAL* | 2000 | `01 | `02 | `03 | `04 | `05 | `06 | `07 | `08 | `09 | `10 | `11 | `12 | `13 | `14 | `15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO** | **0** | | | | | | | | | | | | | | 0 | 0 | |
| **OR** | **2** | | | | | | | | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | |
| **CA** | **27** | | | | 3 | 0 | 0 | 4 | 0 | 7 | 1 | 4 | 0 | 1 | 0 | 0 | |
| **WA** | **7^** | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

***** *The total numbers for California and Washington are from Phase I research.*
**^** *There are two projects pre-2000 (identified in Phase I) that are included in Washington's total (but not listed in the individual cell counts). These include the City of Auburn Mill Creek Basin Acquisition/Restoration in 1999 and the Port Townsend Winona Wetlands project prior to 1998.*

There are three important notes about this data:

**(1)** When possible, applications were not double counted for each individual year. For instance, for California, there are 3 applications in the 2004/2005 Annual Report, but they are repeated from the 2003/2004 report, so they are not listed for '04. This explains part of the discrepancy between the total numbers and the sum of individual year's project counts.

**(2)** For this table and the analysis described in the remainder of this document, not all land acquisition projects are documented or counted as a land conservation project. Land acquisition projects that were only pursued in order to construct grey infrastructure were not included, as "land conservation projects" are taken to be those that result in the placement of lands into conservation easements or that outright purchase lands for preservation.

**(3)** In addition, "project success rate" was not considered in this phase of the project (in Phase I it was found that there is no reliable way (for all states) to determine the number of applications that have been completed, submitted for approval, and denied funding).

**This remainder of this document has the following two sections:**

- Data Collection Methodology for each state;
- Summary of CWSRF Conservation Loan Activity and a table of applicants for these projects.

## I. Data Collection Methodology

### Colorado – Water Pollution Control Revolving Fund

- Review Intended Use Plans (specifically, Appendix A: Project Eligibility Lists) and the Cumulative Eligibility List. Since these documents do not have not very detailed descriptions, identify the projects with description of "Non-Point Source," "Source Water Protection Plan Implementation" and "Green Infrastructure."

- Conduct a web search for the projects identified above.
- There were 50 "nonpoint source" projects in the 2014 IUP and 49 in the 2013 IUP *[it is currently unknown if these are repeated]*. For those that were described as "Source Water Protection Plan Implementation," look up their Source Water Protection Plans and these were reviewed for priorities (noting those that mention things such as land use, forest areas) and management strategies (such as land acquisition and conservation easements). There were 25 of these projects in the 2014 IUP and 25 in the 2013 IUP (many of these appear to be repeated, so a total of 34 applicants were identified).
- For the 34 projects described as "water protection plan implementation," the town, city or county water quality plan (or related plan – in some cases the master plan had a section about protection water quantity and quality) was reviewed to find out if any of the recommended strategies included land conservation activities. Through this, no projects were deemed to be land conservation, and this was confirmed with the state administrator, who said that no loans had been made to land trusts or these types of projects.

## Oregon - Clean Water State Revolving Fund Program

- Review Intended Use Plans. In Oregon's IUPs, there is a section entitled "Project Descriptions" that has brief paragraphs about the projects (most of the other states reviewed have a table – the Project Priority Lists – with some, if any, of this information). The Project Priority Lists for Oregon do not have project titles or descriptions.
- Scan/read project descriptions and search for key terms "land," "acquisition," "easement," and "conservation."
- ***Note:*** Oregon has several wetland enhancement and restoration projects, but these were not included in the list. The City of Ashland (Jackson County) has applied for several of these projects over the past few years. In 2013, the project "Sec. 212 Design & Construction with Sponsorship Option (11751-13)" included riparian restoration work in the Bear Creek Watershed (and DEQ waived the need to demonstrate compliance with federal cross-cutting authorities). In 2012 (and 2009), the City applied for a project to restore Ashland Creek, including natural channel restoration. In 2012 as well, the City of Cove (Union County) applied for a loan to construct and manage (treatment) wetlands. In 2009 and 2010 there were also City of Oregon City wetland enhancement and management applications. In 2007, the City of Portland (Multnomah County), also submitted an application to relocate and rehabilitate a previously channelized portion of Johnson Creek to reconnect it with the floodplain area.
- ***Note:*** Some projects also include the establishment of riparian buffers. In 2009-2011, there were several of these projects (from the City of Ashland and Clackamas County SWCD), and these type of projects are consistent with the goals of the 2000 Oregon Non-point Source Control Program Plan. ***Also to note***, there are numerous loan applications for the implementation of green streets and related projects.

## California - Clean Water State Revolving Fund Program

- Review Intended Use Plans, Annual Reports, Project Priority Lists. On some of these there are actual descriptions of the projects (but for instance, the archived IUPs do not have descriptions).
- Search for key terms "land," "acquisition," "easement," and "conservation."
- For some projects (particularly if the project description was unclear, but possibly land conservation), look up (web search) the project. Several projects were removed from the list because the project description found this way showed that the project was not land conservation.
- ***Note:*** Projects that involved restoration were not included in this list For example, the Gold Ridge Resource Conservation District's Estero Americano NPS Pollution Reduction Project involved only mitigation and restoration of eroding gullies. In the 2008/2009 Annual Report, Plumas Corporation, the Tahoe Resource Conservation District, and the Mission Resource Conservation District all received loans for these types of projects. Also this year, the Arundo control San Luis Rey: Water Conservation, Pollution Reduction, and Habitat Restoration project was funded, but according to the Army Corp Report, no or very little land acquisition will be part of the project. The City of Mission Viejo also applied for a loan for the Oso Creek Restoration & Protection Project, but this project does not seem to include any acquisition. 2009/2010 also had a project like this (Friends of the Santa Clara Rivers' Hedrick Ranch Nature Area Restoration Project).

Organizations like these might not have applied for land conservation, but they could be good contacts for pursuing future projects.

- **Phase II Update:** All years were re-reviewed (and list of identified projects from Phase II are in the table below). In addition, several projects appeared on 2013 Project Priority List (Appendix D of the Intended Use Plans), on the 2012-13 Fundable List (Appendix C of Intended Use Plans), and on the November 2012 Project Priority List. None were found in the 2011-12, 2010-11, or 2009-10 fundable lists. 2009-10 is the earliest year available and 2014 is not yet out.

### Washington - Water Pollution Control Revolving Fund

- Examine (1) Funded Projects: Past and Present, (2) Annual Reports about the Washington State Water Pollution Control Revolving Fund, and (3) the individual State Fiscal Year's Final Water Quality Funding Offer List and Intended Use Plans *(Washington has a list of publications)*. The focus was on the IUPs.
- Searched for key terms like "acquisition," "easement," "conservation," "nonpoint," "land" and "purchase." Project descriptions are more extensive that for other states, so determining if the project was considered as land conservation was relatively clear. Note that projects that include acquisition or easements, but for the purpose of constructing grey infrastructure, were not included. (In addition, Source Water Protection Planning efforts were also not included, such as one project in 2003 and one in Sammamish in 2004).
- ***Note:*** It is important to note that the last few recent IUPs include funding plans for Section 319 Grant and the Centennial Grant as well as for the WPSRF. Washington offers funding for nonpoint source projects (including riparian buffers, green infrastructure, and restoration projects) through the WPSRF but also through Section 319 Grant and the Centennial Grant. These types of projects, as well as nonpoint source projects funded by these other programs are not included either.
- **Phase II Update:** All years were re-reviewed (and list of identified projects from Phase II are in the table below).

## II. Table of Identified Land Conservation Project Applications

| State and Year | Applicant | Project Title (Tracking Number) | Funding Amount/ Status | Project Description |
|---|---|---|---|---|
| Oregon 2011[2] | City of Sumpter (Baker County) | Sec. 212 Design & Construction and Small Community. (89430-10) | $300,000 | Purchases land currently leased for effluent irrigation. |
| Oregon 2011[2] | City of Ashland (Jackson County) | Sec. 319 Design & Construction. Categorical GPR 1.2-7 (11750-09) | $315,000 | Establishment or restoration of permanent riparian buffers. Also restores Ashland Creek, including natural channel restoration. |
| Oregon 2009[4] | City of Cannon Beach (Clatsop County) | Sec. 319 Non-point Source Project. Categorical GPR 1.2-10 (20580-09) | $3,800,000 | Fee simple purchase of land or easements of 800 acres of land to preserve its existing state and prevent development, thereby protecting local area water quality. |
| Oregon 2008[3] | City of Gold Beach (Curry County) | Sec. 212/319 Sponsorship Option; Design and Construction; Small Community (37812-07) | $7,807,475 | This project includes the construction of a wetland (with a permanent conservation easement), including removal of non-native vegetation species, and revegetation. |

**Oregon Sources:**
[1] Intended Use Plan – Update #2. State Fiscal Year 2012.
[2] Intended Use Plan – Update #3. State Fiscal Year 2011.
[4] Intended Use Plan – Update #3. State Fiscal Year 2009.
[3] Intended Use Plan – Update #2. State Fiscal Year 2008.

| State and Year | Applicant | Project Title (Tracking Number) | Eligible Funding Amount/ Status | Project Description |
|---|---|---|---|---|
| California 2011/2012[5, 6] | Bay Foundation of Morro Bay | Implementation effectiveness for the Morro Bay Watershed (6701-110) | $368,926 | The only funded project in 12/13 to address non-point pollution, stormwater, and estuaries. CWSRF provided a nationally |

| | | | | |
|---|---|---|---|---|
| | | | | designated estuary sponsor, and project evaluated the effectiveness of ongoing estuary conservation and management efforts. |
| California 2010/2011[4] | Yurok Tribe | Klamath Timberland Acquisition Project/Sustainable Forestry and Protection of the Klamath River Tributaries in Humboldt (5348-110) | $18,750,000 | Land acquisition for bridge and salmon protection, and to address non-point pollution, storm water, and estuaries (improve water quality). ($18,750,000 with extended term financing – 25 years, 0% interest - The Tribe requested ETF based on their status as a DAC. Project is not wastewater related so minimum wastewater rate criterion is not applicable).<br>Troy Fletcher – contacted in Phase I |
| California 2010/2011[3] | Sacramento Valley Conservancy | Elkhorn Basin Ranch Riparian Restoration and Land Acquisition (6600-110) | $3,850,000 | |
| California (2008/09) 2010/2011[3] | City of Sacramento | Gardenland Mine/Urrutia Property Acquisition (6092-110) | $2,644,932 | Converting a Mine Site into a River Parkway Amenity for People and Wildlife |
| California 2010/2011[3] | Contra Costa Resource Conservation District | Pinole Creek Fish Passage Restoration | $250,000 | |
| California (2008/09) 2010/2011[7] | Pacific Forest Trust | Pit and Fall River Forest Conservation and Restoration (6100-110) | $18,000,000 | |
| California 2009/2010[8] | California Land Stewardship Institute | Napa River Sediment Reduction and Habitat Enhancement Plan (AGREEMENT NO. 06-167-552-0) (6312-110) | $500,000 | http://www.swrcb.ca.gov/rwqcb2/water_issues/programs/TMDLs/napasediment/NapaSedBPA090909.pdf |
| California 2009/2010[8] | Sacramento Valley Conservancy | Cosumnes or Sacramento River Watershed Restoration & Land Acquisition (5884-110) | $4,390,000 | |
| California 2009/2010[8] | Sacramento Valley Conservancy | Elkhorn Basin Ranch-Riparian Restoration and Land Acquisition (6455-110) | $3,850,000 | |
| California 2009/2010[8] | Mountains Recreation and Conservation Authority | Marsh Park (7422-110) | $2,500,000 | http://www.mrca.ca.gov/Urban/MRCA%20Los%20Angeles%20River%20and%20Urban%20Parks.pdf |
| California 2009/2010[8] | The Conservation Fund | Gualala River Forest (5955-110) | $15,000,000 | |
| California 2009/2010[8] | Mendocino County Resource Conservation District | Upper Rancheria Creek NPS Reduction Project (6131-110) | $950,000 | |
| California 2009/2010[8] | Mendocino County Resource Conservation District | Upper Russian River NPS Reduction Program (6133-110) | $2,393,925 | |
| California 2009/2010[8] | Tuolumne River Trust | Dos Rios Ranch Riparian, Wetland, and Floodplain Restoration (7349-110) | $5,000,000 | |
| California 2009/2010[8] | Orange County Water District | River Road Wetlands Project (6165-110) | $9,000,000 | The project involves the construction of 135 acres of riparian forest habitat and 11 acres of access ways and public trails.<br>http://www.sawpa.net/Downloads/Prop84/ |

| | | | | |
|---|---|---|---|---|
| | | | | rept2084.pdf |
| California 2008/2009[9] | South Coast Water District | Aliso Creek Urban Runoff Recovery, Reuse and Conservation Project (5381-110) | $3,000,000 | |
| California 2008/2009[9] | Pacific Forest Trust | Gualala River South Fork Forest Conservation and Restoration (5200-110) | $15,000,000 | |
| California 2008/2009[9] | City of Malibu | Wastewater Treatment, Stormwater and Wetlands Retrntion System Project (4959-110) | $ 25,000,000 | http://smmc.ca.gov/pdf/attachment27_Attachment3.pdf |
| California 2006/2007[1] | Four Creeks Land Trust | Carins Corner Vernal Pool Conservation Project (6060-110) | $1,250,000 | Now the Sequoia Riverlands Trust (559) 738-0211 |
| California 2006/2007[1] (2008/09) | Pacific Forest Trust | Bear Creek Forest Conservation and Restoration (6096-110) | $20,000,000 | |
| California 2006/2007[1] | The Conservation Fund | Forest Conservation, Fisheries Restoration & Water Quality Enhancement (6090-110) | $60,000,000 | $25,000,000 loan for a non-point source project (acquire 11,600 acres of forestland in the Big River watershed (Big River Tract) and 4,345 acres of forestland in the Salmon Creek watershed (Salmon Creek Tract) to help protect and restore water quality, aquatic and terrestrial habitat, and other forest resources). CF will also reduce harvest rates by about 40% from those levels allowed under current Forest Practices Rules, prepare new timber harvest plans (THPs), and implement, in cooperation with the North Coast Regional Water Board. |
| California 2006/2007[1] (2008/09) | Pacific Forest Trust | Mattole River Forest Conservation and Restoration (6094-110) | $15,000,000 | |
| California 2006/2007[1] (2008/09) | Pacific Forest Trust | Scott River Forest Conservation and Restoration (6095-110) | $20,000,000 | |
| California 2003/2004[2] | California State Coastal Conservancy | Bel Marin Keys V Acq. (6065-111) | Funded | |
| California 2003/2004[2] | Sacramento Valley Open Space Conservancy | Prairie vernal pool acq. (6055-110) | Funded | Aimee Rutledge – contacted in Phase I |
| California 2003/2004[2] | County of Napa | Flood Control and Water Property Acquisition (6061-120) | | |

**California Sources:**

[1] California - 2006/2007 State Revolving Fund Program Project Priority List
[2] Clean Water State Revolving Fund Annual Report: State Fiscal Year 2003/2004.
[3] State of California – Intended Use Plan: Federal Fiscal Year 2010.
[4] Clean Water State Revolving Fund Annual Report: State Fiscal Year 2010/2011.
[5] State of California – Intended Use Plan: Federal Fiscal Year 2012.
[6] Clean Water State Revolving Fund Annual Report: State Fiscal Year 2012/2013.
[7] California - 2010/2011 State Revolving Fund Program Project Priority List.
[8] California - 2009/2010 State Revolving Fund Program Project Priority List.

| State and Year | Applicant | Project Title (Tracking Number) | Funding Amount/ Status | Project Description |
|---|---|---|---|---|
| WA 2009[5] | City of Vancouver | Burnt Bridge Greenway Expansion and Riparian Restoration Project (SA10075) | $1,100,000 Funded | This project included wetland acquisition and preservation. |
| WA 2003[4] | Public Utility District No. 1 of Stevens County | Loon Lake Wetlands/Watershed Protection (FP03071) | $200,000 Funded | This project included the purchase and restoration to a native state of ten acres surrounding PUD's community well site. |

| | | | | |
|---|---|---|---|---|
| WA 2001[1] | City of Redmond | Idylwood Park Strem Restoration Project (L0100037) | $330,000.00 Funded | This project includes the construction of fish passage under West Lake Sammamish Boulevard and rehabilitation of 800 feet of stream channel for habitat. These required the City of Redmond to work with 23 property owners to obtain 26 permanent easements and to gain temporary construction access across eight properties. |
| WA 2001[3] | City of Lacey | Yelm Wetland Acquisition (FP01210) | $229,500 Funded | This project involves the purchase of property to be used to expand an existing wetland to remedy health and safety concerns associated with the area. It also supports the nonpoint source plans. |
| WA 2000[1,2] | Island County Public Works | Iverson Farm Acquisition (L0000013) | $521,000 Funded | Acquisition of a 300-acre farm on Northeast Camano Island for the preservation of wetlands and possible restoration of an estuary. Island County purchased the in 1999 and the former landowner, Conservation Futures, was reimbursed for the property per the terms of this loan agreement in 2000. Preservation of agricultural land is a priority for the Island County Board of Commissioners and expressed purpose for purchasing the property. One of the key/original intentions of the project was to encourage consideration of other restoration alternatives in the future. |
| WA 2000[2] | Island County Public Works | West Beach Lake Acquisition (aka Swantown Lake) (FP00112) | $408,200 Funded | The project involved the purchase of 116 acres on the west side of Whidbey Island. The site includes a freshwater lake, peat bog and creek. The project implements specific goals of the 1997-99 and 1999-2001 Puget Sound work plans and the county's North Whidbey Watershed Nonpoint Pollution Action Plan. |

**Washington Sources:**

[1] Funded Projects: Past and Present.

[2] State Fiscal Year 2000 Final Intended Use Plan.

[3] State Fiscal Year 2001 Final Intended Use Plan.

[4] State Fiscal Year 2003 Final Intended Use Plan.

[5] State Fiscal Year 2009 Final Intended Use Plan.

# Attachment 4: Interim Report: Mapping Methodology and Results (February 2014)

# Interim Report to US Endowment for Forestry and Communities

***Attachment 2: Mapping Methodology and Results***

## Overview of Mapping Methodology

The Trust for Public Land conducted a Geographic Information Systems (GIS) analysis to determine which large forested landscapes are most important to protecting surface drinking water quality, are most urgently in need of protection, and where there is an opportunity to conserve private land.

### Data Sources:

The primary reference data sets in this GIS analysis include:

- USGS National Hydrography Dataset (NHD) HUC 12 subwatersheds
- USFS Forests to Faucet attributes

Also utilized were:

- Parcels, from Parcel Point
- US Counties, from ESRI
- Private lands, from PAD-US
- Forested lands, from NLCD 2006

### General Methodology:

1. For each state, the first step was to determine HUCs that produce a high quantity of surface drinking water (land that will have the most impact on water quality), have a high percentage of private forest (these are the landscapes where there is conservation opportunity), and have a high percentage of forest land threatened by development (where there is urgency for conservation work). These layers (USFS Forests to Faucet maps) were mapped together in order to find areas of overlap. Note that the additional two "threat" outputs from the Forest to Faucets study (insects and disease, and wildland fire) are not included in our criteria.
2. HUCs were analyzed and only those that met a certain threshold were presented in the final maps. These thresholds varied by state, and are described in the next two sections (Colorado specific information and then Oregon).
3. Within these high priority HUCs, high priority parcels were then identified. This analysis was based upon the amount of land that was privately owned, large in size (50 or more acres), and have a large percentage (75% or greater) of forested land.

Additional, state specific methods are described below. Maps and partial high priority parcel lists are also included in the reminder of this document. A map for the entire area was created to show where the high priority subwatersheds are, and then close-ups were created to show additional layers and high priority parcel locations. The next section is Colorado specific, and the last section is for Oregon. California and Washington were mapped in Phase I.

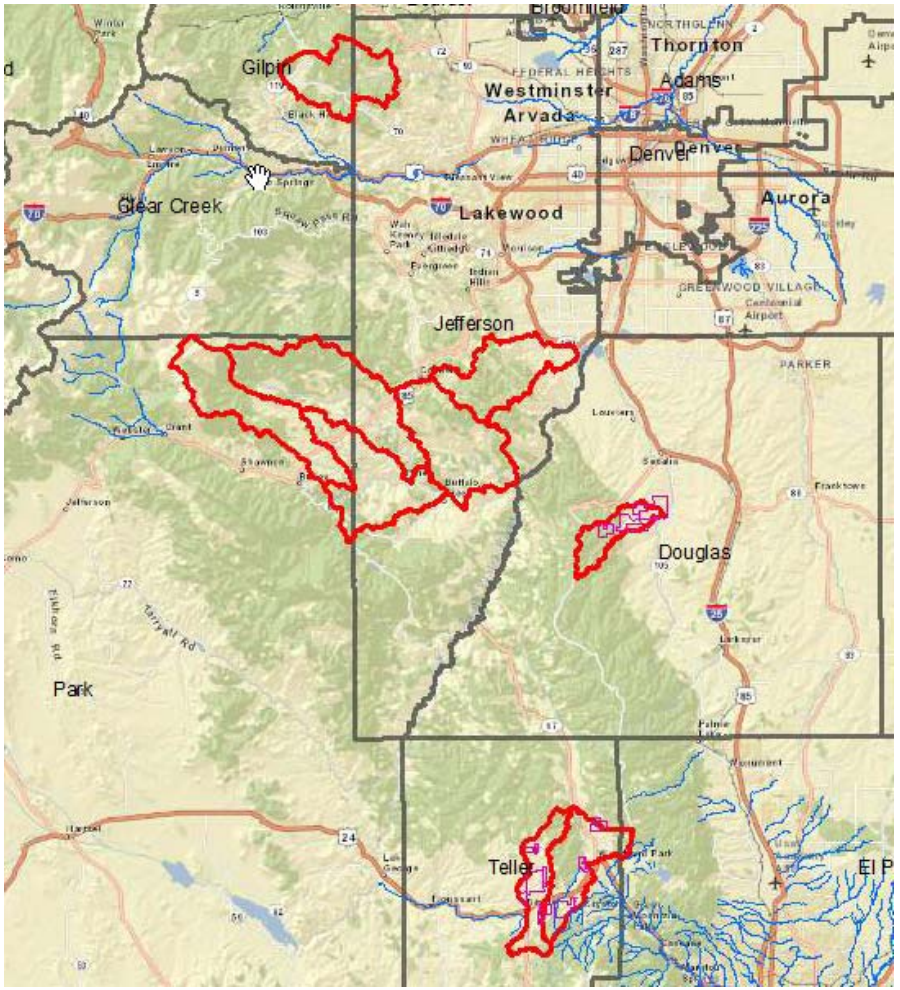
## Colorado Maps and Priority Properties

### Maps

The HUCs (from step 2 in the general methodology) were first queried to find the top 10% that are most important to surface drinking water, have 60% or more private forest cover, and have 60% or more land threatened by development.

For Colorado, this was then adjusted to a 25% threshold for percent of private forests and 25% land threatened by development to find 9 HUCs. These maps results in the high-priority subwatersheds, which are outlined in red (see map to the right).

In addition, impaired waterways (303(D) streams) are mapped and illustrated by the bright blue lines.



## Priority Properties

### COUNTY OVERVIEW

| County | HUC Name | Indexed Value of Importance to Surface Drinking Water | | | Mean Annual Water Supply, 1953-1994 | Percent forest in HUC | Percent protected forest (including NFS forest) in HUC | Percent private forest in HUC | Percent of HUC highly threatened by development |
|---|---|---|---|---|---|---|---|---|---|
| | | Forest | Private Forest | Development Threat | | | | | |
| **Douglas County** | Garber Creek | 58.5 | 24.3 | 54.83 | 125.2 | 0.65 | 0.38 | 0.27 | 0.937 |
| **El Paso County** | Headwaters Trout Creek | 67.89 | 39.06 | 31.96 | 106.5 | 0.73 | 0.31 | 0.42 | 0.4708 |
| **Gilpin County** | Upper Ralston Creek | 83.52 | 36.48 | 49.19 | 156.8 | 0.87 | 0.49 | 0.38 | 0.589 |
| **Jefferson County** | Deer Creek | 57.04 | 50.6 | 52.43 | 118.3 | 0.62 | 0.06 | 0.55 | 0.9192 |
| | Elk Creek | 81.7 | 40.85 | 58.91 | 106.8 | 0.86 | 0.44 | 0.43 | 0.7211 |
| | Last Resort Creek-North Fork South Platte River | 78.72 | 59.52 | 53.12 | 88.48 | 0.82 | 0.2 | 0.62 | 0.6748 |
| | Rowland Gulch-North Fork South Platte River | 80.84 | 42.3 | 54.69 | 67.42 | 0.86 | 0.41 | 0.45 | 0.6765 |
| | Upper Ralston Creek | 83.52 | 36.48 | 49.19 | 156.8 | 0.87 | 0.49 | 0.38 | 0.589 |
| **Teller County** | Headwaters Trout Creek | 67.89 | 39.06 | 31.96 | 106.5 | 0.73 | 0.31 | 0.42 | 0.4708 |
| | Rule Creek | 55.8 | 23.4 | 37.37 | 91.099 | 0.62 | 0.35 | 0.26 | 0.6697 |

*This table contains information for counties that contain a subwatershed identified as "high-priority," or large, privately owned parcels that produce a high quantity of surface drinking water, have a high % percent of private forest land, and are threatened by development. For Colorado, a 25% threshold was used for % private forests and % land threatened by development to find 9 HUCs. Also note that all of these subwatersheds have an overall indexed value of important to surface drinking water at 90 or above (range is 90 to 96). THE FOLLOWING SHEETS HAVE DETAILS ABOUT INDIVIDUAL PROPERTIES WITHIN THESE COUNTIES.*

**COLORADO HIGH-PRIORITY PROPERTIES [Only Page 1 is below; Full list can be send upon request].**

*Properties that are under 50 acres are not included in this summary. Lands owned by cities and counties are also excluded from this list.*

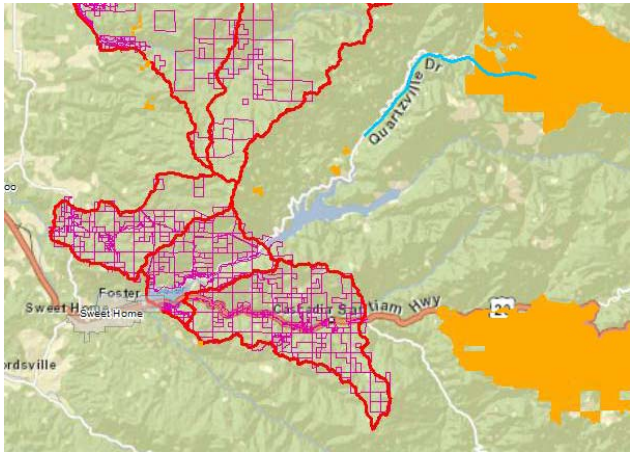
| Owner | Address | City & Zip | # parcels in property | Property Acres | Acres of forest in property | % of property that is forested | 303_D |
|---|---|---|---|---|---|---|---|
| **Douglas County** | | | | | | | |
| BILLY BAINE & ALICE BAINE | 5790 & 5800 PINE CLIFF AVE | SEDALIA, 80135 | 2 | 51.38 | 7.8 | 66% | No |
| DMI CAPITAL LLC | 5789 PINE CLIFF AVE | SEDALIA, 80135 | 5 | 3416.39 | 506.1 | 15% | No |
| JEFFREY KNIGHT & SHERRY KNIGHT | 6510 & 6520 MEADOWBROOK LN | SEDALIA, 80135 | 2 | 70.34 | 18.2 | 26% | No |
| JOHN H BAER & DIANE BAER | 8771 & 8773 JACKSON CREEK RD | SEDALIA, 80135 | 3 | 380.96 | 338.7 | 89% | No |
| OAKLANDS CATTLE COMPANY LLLP | | SEDALIA, 80135 | 2 | 586.3 | 494.8 | 84% | No |
| SCHMIDT CONSTRUCTION CO / SCHMIDT CONSTRUCTION CO A TRADEMARK FOR EDW C LVEY | | SEDALIA, 80135 | 4 | 526.99 | 371.2 | 70% | No |
| SHAMBALLA ASHRAMA INC | 7827 JACKSON CREEK RD | SEDALIA, 80135 | 6 | 172.61 | 158.4 | 92% | No |
| **El Paso County** | | | | | | | |
| MITCHELL FAMILY ENTERPRISES LLC | 11750 WOODLAND RD / LOY CREEK RD / RAMPART RANGE RD / LOGGER RD / PEAVEY PL | WOODLAND PARK, 80863 | 22 | 57.58 | 49.2 | 85% | Yes |
| PIKES PEAK COUNCIL INC & BOY SCOUTS OF AMERICA | 11050 LOY CREEK RD | WOODLAND PARK, 80863 | 3 | 119.67 | 106.5 | 89% | Yes |
| WILSEY DOUG & WILSEY CARLA | 12040 TARRYALL LN | WOODLAND PARK, 80863 | 1 | 46.93 | 40.89 | 87% | Yes |
| **Gilpin County** | | | | | | | |
| ATCHISON TIMOTHY BURNELL | 373 UPPER RALSTON WAY | GOLDEN, 80403 | 1 | 54.49 | 50.7 | 93% | No |
| BASCOM NICOLETTE L TRUSTEE | 206 PIONEER RD | GOLDEN, 80404 | 3 | 78.99 | 75.6 | 96% | No |
| BOWLING ROY | 3669 GOLDEN LEAF WAY | GOLDEN, 80405 | 4 | 61.2 | 38.2 | 62% | No |
| CANTRILL STEPHEN V & LINDA T | | GOLDEN, 80406 | 3 | 152.2 | 151.2 | 99% | No |
| CARELLI J D | 3246 HWY 46 | GOLDEN, 80407 | 7 | 85.18 | 25.8 | 30% | No |
| DOBKINS TERRELL A & NANCY N | 757 PONDEROSA TRL | GOLDEN, 80408 | 3 | 240.23 | 129.8 | 54% | No |
| GUNTER KRISTIN & BURNETT D & STUDARUS LINDA B & H* | 80 & 195 UPPER RALSTON WAY | GOLDEN, 80409 | 2 | 148.53 | 126.1 | 85% | No |

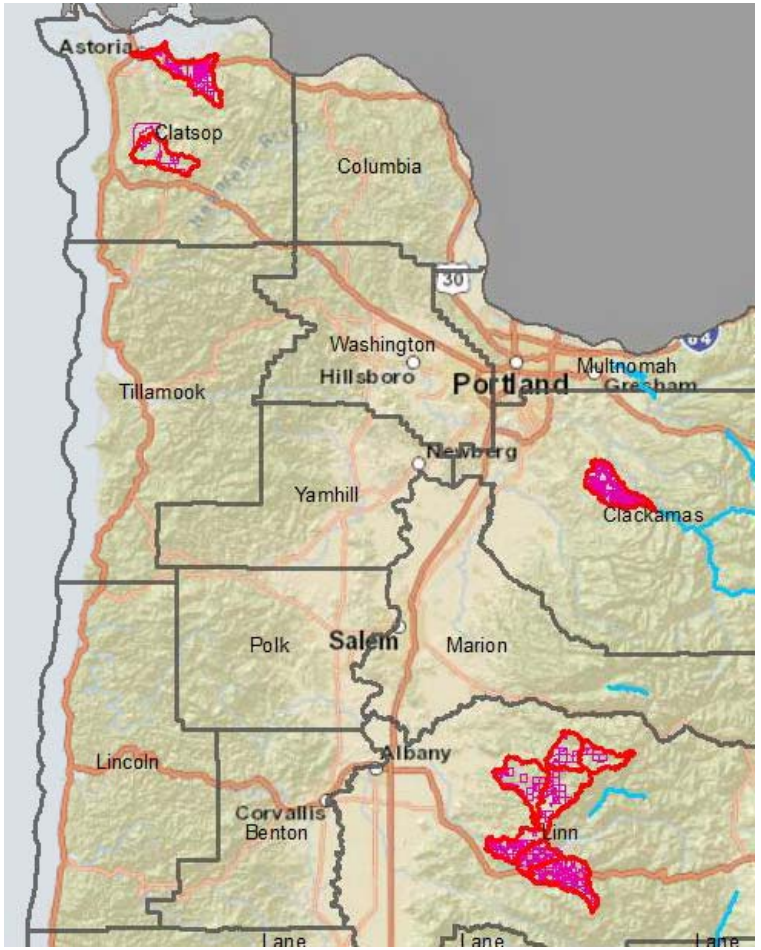
## Oregon Maps and Priority Properties

### Maps

The HUCs (from step 2 in the general methodology) were first queried to find the top 10% that are most important to surface drinking water, have 60% or more private forest cover, and have 60% or more land threatened by development. For Oregon, this was then adjusted to a 50% threshold for percent of private forests and 60% land threatened by development to find 10 HUCs. These maps results in the high-priority subwatersheds, which are outlined in red (see map to the right).

Also for Oregon, these other layers were added:
- Critical habitats (in orange and only in the close-up maps, as the example is below).
- Wild and scenic rivers (in bright blue).
- Towns with a population of 10,000 people or less are labeled (and are symbolized gray, and only in the close-up map, example seen below).



## Priority Properties

### COUNTY OVERVIEW

| County | HUC Name | Indexed Value of Importance to Surface Drinking Water | | | Mean Annual Water Supply, 1953-1994 | Percent forest in HUC | Percent protected forest (including NFS forest) in HUC | Percent private forest in HUC | Percent of HUC highly threatened by development |
|---|---|---|---|---|---|---|---|---|---|
| | | Forest | Private Forest | Development Threat | | | | | |
| **Clackamas County** | Middle Clear Creek | 56.26 | 48.5 | 34.58 | 1091.58 | 58% | 7% | 50% | 61.47% |
| **Clatsop County** | Bear Creek-Frontal Columbia River | 66.43 | 56.42 | 36.28 | 1605.83 | 73% | 11% | 62% | 54.62% |
| | Upper Lewis And Clark River | 69.75 | 63.24 | 61.85 | 2478.68 | 75% | 7% | 68% | 88.68% |
| **Linn County** | Headwaters Thomas Creek | 72 | 57.6 | 68.04 | 1773.22 | 80% | 16% | 64% | 94.50% |
| | McDowell Creek | 58.88 | 52.44 | 42.63 | 1071.70 | 64% | 7% | 57% | 72.40% |
| | Middle Crabtree Creek | 78.26 | 51.87 | 47.46 | 1231.19 | 86% | 29% | 57% | 60.64% |
| | Middle Santiam River-Foster Reservoir | 57.04 | 57.04 | 47.53 | 958.62 | 62% | 0% | 62% | 83.32% |
| | Shot Pouch Creek-South Santiam River | 65.32 | 64.4 | 33.77 | 1081.37 | 71% | 2% | 70% | 51.70% |
| | Upper Crabtree Creek | 78.26 | 53.69 | 73.38 | 1628.05 | 86% | 28% | 59% | 93.77% |
| | Upper Thomas Creek | 80.08 | 61.88 | 78.19 | 1692.79 | 88% | 20% | 68% | 97.64% |

*This table contains information for counties that contain a subwatershed identified as "high-priority," or large, privately owned parcels that produce a high quantity of surface drinking water, have a high percent of private forest land, and are threatened by development. For Oregon, a 50% threshold was used for percent private forests and percentage of land threatened by development to find 10 HUCs. (This was changed to 50% since a 60% threshold only found 5 HUCs.) Also note that all of these subwatersheds have an overall indexed value of important to surface drinking water at 90 or above (range is 90 to 97).*
*THE FOLLOWING SHEETS HAVE DETAILS ABOUT INDIVIDUAL PROPERTIES WITHIN THESE COUNTIES.*

**OREGON HIGH-PRIORITY PROPERTIES [Only Page 1 is below; Full list can be send upon request].**

*Most properties/ total acerage per owner that is under 50 acres are not included in this summary. Lands owned by cities and counties are also excluded from this list.*

| Owner | Address | City & Zip | # parcels in property | Total Acres | Acres of forest | % forested | 303_D |
|---|---|---|---|---|---|---|---|
| **Clackamas County** | | | | | | | |
| PORT BLAKELY TREE FARMS | 21630 S REDLAND RD | BEAVERCREEK, 97004 & COLTON & ESTACADA, 97023 | 41 | 1664.85 | 1394.3 | 84% | No |
| SHIBLEY FAMILY LTD PRTNRSHP | 24363 S WALLENS RD | ESTACADA, 97023 | 7 | 331.81 | 216.5 | 65% | No |
| WONSER D MARK TRUSTEE 1/2 | 24250 S RANEY LN | ESTACADA, 97023 | 9 | 329.08 | 173.3 | 53% | No |
| HARMON FAMILY LTD PRTNRSHP | | ESTACADA, 97023 | 4 | 319.78 | 310.7 | 97% | No |
| KAMMEYER ELVA M | 22209 S SPRINGWATER RD | ESTACADA, 97023 | 4 | 251.82 | 83.6 | 33% | No |
| TEDROW JAMES R CO-TRUSTEE | 26609 S TUCKER RD | ESTACADA, 97023 & BEAVERCREEK, 97004 & COLTON | 12 | 194.70 | 114.5 | 59% | No |
| WEAVER RAYMOND E & MELISSA M | 25531 S WINDY HILL RD / 23741 S SPRINGWATER RD | ESTACADA, 97023 | 5 | 192.78 | 15.8 | 8% | No |
| RYDER JOE E TRUSTEE | 24680 S METZLER PARK RD | ESTACADA, 97023 | 7 | 181.68 | 151 | 83% | No |
| BRYAN JOAN AVIS TRUSTEE | 27678 S HILLOCKBURN RD | ESTACADA, 97023 | 3 | 169.90 | 114.2 | 67% | No |
| MCCOY KENNETH A & DARLEEN D | 23651 S UPPER HIGHLAND RD | BEAVERCREEK, 97004 | 3 | 153.63 | 32.2 | 21% | No |
| CASE JUDI DAWN | 25402 S SCHOCKLEY RD | BEAVERCREEK, 97004 | 3 | 147.49 | 111.9 | 76% | No |
| BOLKAN CAROLINE | 23162 S UPPER HIGHLAND RD | BEAVERCREEK, 97004 | 2 | 138.19 | 91.8 | 66% | No |
| FARMER LESTER & SHIRLEY R | 22150 S CLEAR CREEK RD | ESTACADA, 97023 | 1 | 129.86 | 69.2 | 53% | No |
| VANDYKE PAULINE M | | COLTON | 6 | 127.30 | 64.3 | 51% | No |
| GUTTRIDGE BROTHERS INC | | BEAVERCREEK, 97004 | 4 | 118.55 | 83.8 | 71% | No |
| YULE TREE FARMS LLC | 27244 S SHECKLY RD | COLTON | 1 | 115.09 | 1.3 | 1% | No |
| ALTMAN CHARLES B & JULIA H | | ESTACADA | 2 | 113.88 | 7.8 | 7% | No |
| SMITH DONALD R & DEVONA L | 25205 & 25595 S METZLER PARK RD | ESTACADA, 97023 | 5 | 112.73 | 57.2 | 51% | No |
| FOREST HOME WOODLANDS LLC | 24750 S WALLENS RD | ESTACADA, 97023 | 3 | 112.46 | 78.9 | 70% | No |
| OSTERMAN FAMILY LLC | 22329 S CLEAR CREEK RD | ESTACADA, 97023 | 3 | 110.43 | 30.4 | 28% | No |
| WRIGHT PATRICK D & MICHAELON A M | 25031 S BEESON RD / 25800, 25798, 25802 S WARNOCK RD | BEAVERCREEK, 97004 & COLTON & ESTACADA, 97023 | 4 | 108.85 | 12.4 | 11% | No |

# Attachment 5: Massachusetts Water Infrastructure Financing Legislation

# SENATE . . . . . No. 2021

Senate, February 27, 2014 – Text of the Senate Bill improving drinking water and wastewater infrastructure (being the text of Senate, No. 2016, printed as amended)

## The Commonwealth of Massachusetts

**In the Year Two Thousand Fourteen**

An Act improving drinking water and wastewater infrastructure.

*Whereas*, The deferred operation of this act would tend to defeat its purpose, which is to provide forthwith for improvements in drinking water and wastewater infrastructure, and is hereby declared to be an emergency law, necessary for the immediate preservation of the public convenience.

*Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:*

SECTION 1. To provide for certain unanticipated obligations of the commonwealth and to meet certain requirements of law for fiscal year 2014 the sum set forth in section 2A is hereby appropriated from the General Fund, for the several purposes and subject to the conditions specified in said section 2A, subject to laws regulating the disbursement of public funds.

SECTION 2A.

EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS

*Department of Environmental Protection*

2200-0135 For planning or technical assistance grants under section 31 of chapter 21 of the General Laws; provided, that funds may be expended through June 30, 2015; provided

further, that the department shall develop a watershed permitting approach to address nitrogen management measures and the department shall report to the joint committee on environment, natural resources and agriculture by July 31, 2015 on any statutory changes it deems necessary to fully implement said watershed permitting approach…….……...$3,000,000

SECTION 3. Section 26A of chapter 21 of the General Laws, as appearing in the 2012 Official Edition, is hereby amended by inserting after the definition of "FWPCA" the following 2 definitions:-

"Green infrastructure", practices involving the management of water, stormwater and wastewater to achieve water quality mandates set forth in the federal Clean Water Act; practices designed using natural or engineered techniques to capture, remove or prevent nutrient, nitrogen and phosphorous loading to any part of a water system including groundwater deposits and discharges to surface waters from septic systems, wastewater treatment facilities and stormwater runoff.

"Green infrastructure projects", projects which shall include, but shall not be limited to: decentralized wastewater systems that infiltrate treated water; water reuse for other beneficial purposes; low impact development projects, which shall include but not be limited to, bioswales, porous pavements, green roofs, infiltration planters, trees and tree boxes, rainwater harvesting systems, rain gardens and water efficient landscaping; the conservation, enhancement and restoration of natural landscape features that naturally filter and remove silt and pollution from surface waters, maintain or restore natural hydrologic cycles, minimize imperviousness in a watershed through preservation and restoration of natural landscape buffers such as forests, floodplains, wetlands and other natural systems and restoration of natural stream channels;

projects that assist a public entity with the removal, curtailment or mitigation of infiltration and inflow issues; energy and water efficiency, renewable energy and land acquisition and restoration projects that protect and filter drinking water supplies and buffer reservoirs; and the mitigation of risks of flooding and erosion using the restoration of saltmarsh, oyster reefs and eelgrass beds from sea-level rise, storm surges and extreme weather events, including the protection and restoration of natural coastal landscapes and features and ensuring road crossings over rivers and streams are of adequate size to allow for increased flows of water; provided, that green infrastructure projects may be stand-alone and shall also be used to complement built water management infrastructure technologies such as pipes, dikes and treatment facilities; and provided, further, that green infrastructure projects may include innovative technologies that further the mandates under the federal Clean Water Act.

SECTION 4. Section 27A of said chapter 21, as so appearing, is hereby amended by striking out, in lines 2 and 3, the words “water pollution abatement trust” and inserting in place thereof the following words:- Massachusetts Clean Water Trust.

SECTION 5. Said section 27A of said chapter 21, as so appearing, is hereby further amended by striking out, in lines 10 and 12, the words “or section 6A” each time they appear.

SECTION 6. Section 31 of said chapter 21, as so appearing, is hereby amended by striking out the first sentence and inserting in place thereof the following sentence:- A public entity, including regional planning agencies, may apply to the division for a planning or a technical assistance grant by the commonwealth for the following purposes: assisting a public entity in developing a comprehensive water pollution abatement plan for the public entity; assisting a public entity in developing an integrated water asset management plan for the public

entity; or assisting a public entity identify and plan for green infrastructure opportunities for the public entity.

SECTION 6A. Said section 31 of said chapter 21, as so appearing, is hereby further amended by inserting after the first sentence the following sentence:- The division may accept and shall give preference to planning and technical grants applied for jointly by 2 or more public entities.

SECTION 6B. Said section 31 of said chapter 21, as so appearing, is hereby further amended by striking out, in line 5, the word ”fifteen” and inserting in place thereof the following figure:- 30.

SECTION 7. Said section 31 of said chapter 21, as so appearing, is hereby further amended by inserting after the word “Planning”, in line 12, the following words:- or technical assistance.

SECTION 8. Said chapter 21 is hereby further amended by inserting after section 31 the following section:-

Section 31A. Subject to appropriation, the department of environmental protection shall administer a matching grant program for communities who desire to join the Massachusetts Water Resources Authority or any other regional system or enter into a contract with any entity for wastewater, drinking water or for both wastewater and drinking water. Each grant shall match, on a 1:1 basis, money committed by a local government unit or a regional local governmental unit, as defined in section 1 of chapter 29C, to pay the entry fee established by the: Massachusetts Water Resources Authority, under section 8 of chapter 372 of the acts of 1984; regional system; or entity. The department shall award grants only to a local governmental unit

or regional local governmental unit that satisfies the department that it has committed funds to join said Authority, regional system or entity. Should the local governmental unit or regional local governmental unit fail to join said Authority, regional system or entity after receiving a grant under this section, the local governmental unit or regional local governmental unit shall return money granted under this section to the department.

For the purpose of this section, the term “regional system” shall include any system established by mutual agreement of 2 or more municipalities to provide drinking water or wastewater services, or both, through shared facilities, sources or distribution networks.

SECTION 9. Section 38 of said chapter 21, as appearing in the 2012 Official Edition, is hereby amended by inserting after the word “control”, in line 4, the following words:- , innovative water technologies, green infrastructure.

SECTION 10. Said chapter 21 is hereby further amended by adding the following section:-

Section 67. (a) For the purposes of this section, "irrigation system" shall mean any assemblage of components, materials or special equipment, which are constructed and installed underground or on the surface, for controlled dispersion of water from any safe and suitable source for the purpose of irrigating landscape vegetation or the control of dust and erosion on landscaped areas and shall include integral pumping systems and required wiring within that system and connections to a public or private water supply system; provided, however, that an irrigation system shall not include plumbing, as defined in section 1 of chapter 142, or a plumbing system.

(b) The department of environmental protection shall promulgate regulations that require system interruption devices for newly installed or renovated irrigation systems to override and suspend the programmed operation of the irrigation system during periods of sufficient moisture. The department shall specify the criteria for the system interruption devices. The regulations shall: (i) be in accordance with generally accepted standards of irrigation practice; (ii) include a requirement that system interruption devices be inspected at least every 3 years by an irrigation contractor certified and in good standing with a nationally recognized association; and (iii) require each irrigation contractor to complete and submit documentation, along with a reasonable fee, which shall reflect the costs of accepting and processing such documentation, to the municipality for each newly installed or renovated irrigation system within the municipality. The department may impose reasonable fines on an irrigation contractor for a violation of the regulations promulgated under this section.

(c) This section shall not apply to systems operating on agricultural lands.

SECTION 11. Section 13 of chapter 21A of the General Laws, as appearing in the 2012 Official Edition, is hereby amended by inserting after the first paragraph, the following 3 paragraphs:-

With regard to the enforcement of this section, including requirements related to forms utilized by septic system inspectors or local boards of health, the commissioner shall evaluate practices, which would minimize the paperwork burden for individuals, small businesses, contractors, state and local governments and their agents, and strive to ensure the greatest possible public benefit from and maximize the utility of information collected, created,

maintained, used, shared and disseminated by or for the purpose of the code and to reduce the number of copies required for official use.

For the purposes of this section, the term “burden” shall mean the time, effort or financial resources expended by persons to generate, maintain or provide information to or for a governmental agency, including the resources expended for: reviewing instructions; acquiring, installing and utilizing technology and systems; adjusting the existing ways to comply with any previously applicable instructions and requirements; searching data sources; completing and reviewing the collection of information; and transmitting or otherwise disclosing the information.

SECTION 12. Section 10 of chapter 23L of the General Laws, as so appearing, is hereby amended by adding the following subsection:-

(c) This chapter shall not apply to section 39M of chapter 40.

SECTION 12A. Section 11I of chapter 25A of the General Laws, as so appearing, is hereby amended by striking out subsection (j) and inserting in place thereof the following subsection:-

(j) Payments under a contract for energy management services may be based in whole or in part on any cost savings attributable to: a reduction in energy and water consumption; any improved system accuracy due to the contractor’s performance; revenues gained as a result of the contractor’s services that are aimed at energy and water cost savings; metering or related equipment; or energy or water conservation-related improvements or equipment.

SECTION 13. Section 2L of chapter 29 of the General Laws, as so appearing, is hereby amended by striking out, in line 5, the words “water pollution abatement trust” and inserting in place thereof the following words:- Massachusetts Clean Water Trust.

SECTION 14. Section 2QQ of said chapter 29, as so appearing, is hereby amended by striking out, in line 5, the words “water pollution abatement trust” and inserting in place thereof the following words:- Massachusetts Clean Water Trust.

SECTION 15. Said chapter 29 is hereby further amended by inserting after section 2KKKK the following section:-

Section 2LLLL. There shall be established and set up on the books of the commonwealth a separate fund to be known as the Regional Water Entity Reimbursement Fund, in this section called the fund. The fund shall be administered by the state treasurer and shall be funded by the commonwealth, by and through the state treasurer and subject to appropriation, to reimburse the Massachusetts Water Resources Authority for its costs: in providing cities and towns, within its sewer service area, financial assistance in the form of interest free grants and loans to rehabilitate collection systems in cities and towns; and to structurally reduce infiltration and inflow into the tributary to the treatment facilities owned by the authority. Such reimbursement shall be in addition to the contract assistance amounts in section 6 of chapter 29C, subject to the limit set forth in said chapter 29C, but shall not be greater than 10 per cent of the maximum amount set forth in said chapter 29C. An equivalent amount of funding shall be appropriated to reimburse non-MWRA communities and districts for their costs incurred to rehabilitate collection systems and reduce inflow and infiltration tributary to their respective wastewater treatment facilities.

SECTION 16. Chapter 29C of the General Laws, as appearing in the 2012 Official Edition, is hereby amended by striking out the title and inserting in place thereof the following title:-

MASSACHUSETTS CLEAN WATER TRUST.

SECTION 17. Section 1 of said chapter 29C, as so appearing, is hereby amended by striking out, in line 3, the words “water pollution abatement trust” and inserting in place thereof the following words:- Massachusetts Clean Water Trust.

SECTION 18. Said section 1 of said chapter 29C, as so appearing, is hereby further amended by inserting after the definition of “Bonds” the following definition:-

“Committed contract assistance”, in any year, the sum of: (i) the amount of contract assistance that the commonwealth has committed to provide during the year with respect to bonds of the trust issued, subsidy funds established and all other board-approved financial assistance established or committed prior to such year; and (ii) the amount of contract assistance that the board determines will be required to be committed during the year in order to provide subsidies or other financial assistance, including, without limitation, with respect to bonds of the trust expected to be issued in such year.

SECTION 19. Said section 1 of said chapter 29C, as so appearing, is hereby further amended by striking out the definition of “Trust” and inserting in place thereof the following definition:-

“Trust”, the Massachusetts Clean Water Trust; provided, however, that the Massachusetts Clean Water Trust shall be the successor to the water pollution abatement trust.

SECTION 20. Section 2 of said chapter 29C, as so appearing, is hereby amended by striking out, in lines 5 and 6, the words “water pollution abatement trust” and inserting in place thereof the following words:- Massachusetts Clean Water Trust.

SECTION 21. Said chapter 29C is hereby further amended by striking out section 6, as so appearing, and inserting in place thereof the following section:-

Section 6. (a) Subject to limitations in other laws respecting the use of particular monies in the fund and any trust agreement for bonds of the trust, the board may also apply and disburse monies and revenues in the fund or segregated accounts therein: (i) after taking account of any grant made by the department under section 33E of chapter 21 to provide, and enter into binding commitments to provide, a subsidy for, or to otherwise assist local governmental units in the payment of, debt service costs on loans and other forms of financial assistance made by the trust; and (ii) to provide reserves for, or to otherwise secure, amounts payable by local governmental units on loans and other forms of financial assistance made by the trust under this chapter.

(b) The board shall apply and disburse monies in the fund and in the Drinking Water Revolving Fund, established under section 18, as applicable, including contract assistance provided in this section, or shall otherwise structure the debt service costs on loans and other forms of financial assistance made by the trust to provide a subsidy or other assistance to local governmental units or other eligible borrowers in the payment of debt service costs on such loans and other forms of financial assistance that shall be the financial equivalent of a loan made at an interest rate equal to 2 per cent. Notwithstanding the foregoing, but subject to the limit on contract assistance provided in this section and the availability thereof after taking into account committed contract assistance, the board may commit such available contract assistance to provide additional financial assistance to local governmental units or other eligible borrowers that shall be the financial equivalent of a loan made at an interest rate less than 2 per cent and which additional subsidy may include principal forgiveness; provided, that principal forgiveness committed under this section in any year shall not exceed 25 per cent of the total costs of all

projects on that year's applicable clean water or drinking water intended use plan; and provided further, that a loan or other form of financial assistance that qualifies for an additional subsidy shall receive such additional subsidy in the amount and at a rate as determined by the board, which shall not exceed the financial equivalent of a 75 per cent subsidy as compared to a market rate loan as calculated at the time of board approval of such loan or other form of financial assistance.

(c) The department of environmental protection shall promulgate regulations, under section 7 establishing the types of eligible projects and criteria that the department shall use to evaluate applications for additional subsidies equivalent to a loan made at an interest rate of less than 2 per cent. The additional subsidies shall be made available to eligible projects appearing on the department's 2014 intended use plan and subsequent years. The criteria shall be reflective of the board's current priorities and of best management practices. Notwithstanding the foregoing regulations, all permanent loans and other forms of financial assistance made by the trust, which finance the costs of certain water pollution abatement projects on the department's intended use plan for calendar year 2009 to calendar year 2069, inclusive, and meet the criteria listed below, shall provide for an additional subsidy or other assistance in the payment of debt service such that the loans and other forms of financial assistance shall be the financial equivalent of a loan made at a 0 per cent rate of interest; provided, that the costs of water pollution abatement projects on an intended use plan that are eligible for a permanent loan or other financial assistance from the trust at the financial equivalent of a loan made at a 0 per cent rate of interest shall not exceed 35 per cent of the total costs of all water pollution abatement projects on the intended use plan.

(d) Projects shall be eligible for 0 per cent rate of interest loans if the department verifies that:

(1) the project is primarily intended to remediate or prevent nutrient enrichment of a surface water body or a source of water supply;

(2) the applicant is not currently, due to a violation of a nutrient-related total maximum daily load standard or other nutrient based standard, subject to a department enforcement order, administrative consent order or unilateral administrative order, enforcement action by the United States Environmental Protection Agency or subject to a state or federal court order relative to the proposed project;

(3) the applicant has a Comprehensive Wastewater Management Plan ("CWMP") approved under regulations adopted by the department;

(4) the project has been deemed consistent with the regional water resources management plans, including, but not limited to, a current area-wide water resources management plan adopted under section 208 of the federal Clean Water Act, if such a plan exists; and

(5) the applicant has adopted land use controls, subject to the review and approval of the department in consultation with the executive office of housing and economic development and, where applicable, any regional land use regulatory entity, intended to limit wastewater flows to the amount authorized under zoning and wastewater regulations as of the date of the approval of the CWMP.

(e) The department shall promulgate regulations under section 7 establishing the types of eligible projects and criteria that the department shall use to evaluate applications for additional financial assistance, including principal forgiveness and additional financial incentives. The financial assistance and financial incentives provided under these regulations shall be made available to projects appearing in the department's 2014 intended use plan and subsequent years. Such criteria shall include, but not be limited to, the following requirements, any 1 of which shall be sufficient to qualify the project for assistance: (i) the project is pursuant to a regional wastewater management plan that has been adopted by a regional planning agency with regulatory authority; (ii) the project is necessary to connect a local or regional local governmental unit to a facility of the Massachusetts Water Resources Authority, if the local or regional local governmental unit has paid or committed to pay the entry fee of that authority; (iii) the project is a green infrastructure project, as defined in section 26A of chapter 21, with consideration being given to projects that effectively combine green infrastructure with wastewater infrastructure and drinking water infrastructure projects; (iv) the project uses regional water resources to offset, by at least 100 per cent, the impact of water withdrawals on local water resources in the watershed basin of the receiving community; (v) the project is a direct result of a disaster affecting the service area that is the subject of a declaration of emergency by the governor; (vi) the project is intended to provide public water supply to consumers whose groundwater or public or private wells are impacted by contamination; or (vii) the program is an innovative water project utilizing new technology, which improves environmental or treatment quality, reduces cost, increases access and availability of water, conserves water or energy or improves management, in the areas of drinking water, wastewater, stormwater, groundwater or

coastal resources; provided, that the project has not been fully implemented, other than as a pilot project, previously in the commonwealth.

(f) To provide the subsidy or assistance the state treasurer, acting on behalf of the commonwealth, shall enter into an agreement with the trust. Under the agreement, the commonwealth shall provide contract assistance for debt service obligations on loans and other forms of financial assistance made by the trust, up to a maximum amount of $138,000,000 per fiscal year. The agreement shall provide for payments by the commonwealth to the trust at such times during each fiscal year and upon such terms and under such conditions as the trust may stipulate. The trust may pledge such agreement and the rights of the trust to receive amounts thereunder as security for the payment of debt obligations issued to the trust. Such agreement shall constitute a general obligation of the commonwealth, for which the faith and credit of the commonwealth shall be pledged for the benefit of the trust and of the holders of any debt obligations of the trust which may be secured by the pledge of such agreement or of amounts to be received by the trust under such agreement.

(g) Each year, the trust shall commit contract assistance for debt service obligations on loans and other forms of financial assistance made by the trust in an amount that is at least 80 per cent of the limit set forth in subsection (f). If, in any year, the trust is unable to satisfy the 80 per cent threshold, the trust shall file a written report with the office of the state treasurer, the department, the chairs of the house and senate committees on ways and means and the house and senate chairs of the joint committee on the environment, natural resources and agriculture, not later than January 1 of that fiscal year, explaining the reasons why the 80 per cent threshold will not be satisfied in that year.

(h) With respect to projects appearing on the department's intended use plan for calendar year 2016 and subsequent years: (i) the board shall not commit contract assistance to provide for the additional subsidy or other form of financial assistance referred to in subsections (c), (d) or (e) to any local governmental unit unless it has established a sewer enterprise fund or water enterprise fund, as applicable, under section 53F1/2 of chapter 44, or in lieu of the applicable enterprise fund has established a separate restricted account that is the equivalent of such fund; and (ii) any local government unit that transfers or otherwise uses money from its enterprise fund or restricted account for its local governmental operating budget, other than to pay or reimburse, valid expenses or obligations related to such fund or restricted account, will not be eligible to seek new commitments of contract assistance to provide for the additional subsidy or other form of financial assistance referred to in subsections (c), (d) or (e) for a period of 5 years following the date of such transfer or other use; provided however, this clause shall only apply if the disqualifying event occurred after January 1, 2015.

SECTION 22. Section 6A of said chapter 29C is hereby repealed.

SECTION 23. Section 18 of said chapter 29C, as appearing in the 2012 Official Edition, is hereby amended by striking out subsection (g).

SECTION 24. Chapter 40 of the General Laws is hereby amended by inserting after section 39L the following 2 sections:-

Section 39M. (a) Notwithstanding any general or special law to the contrary, a city, town, water district, wastewater district, stormwater utility or statutory authority created to operate a water distribution or wastewater collection system or stormwater system, which accepts this section, may, subject to a vote by the city council and approval of the mayor or in a town by a

vote of the town meeting or by a vote of the governing body of any water district or wastewater district, as defined in section 1A, for any municipality or districts that accept this section, collect a reasonable fee to be used exclusively for measures to remedy and offset the impacts on the natural environment of new or increased water withdrawals, sewering, wastewater discharges, including those from onsite disposal systems, stormwater discharges or impairment of recharge of groundwater through depletion of ground or surface waters and to sustain the quantity, quality and ecological health of waters of the commonwealth. Such measures to remedy and offset these impacts include, without limitation: local recharge of stormwater and wastewater; redundant water sources; reductions in loss from drinking water systems; treatment of drinking water or interconnections with other systems for the purposes of optimizing water supply sources for environmental benefit; expansion of stormwater treatment and wastewater treatment systems; reuse of water; removal of sewer infiltration and inflow; water conservation; retrofits of existing buildings and parking lots with low impact development methods; removal of dams; improvements to aquatic habitat; the pumping, repair, maintenance and replacement of onsite subsurface disposal systems installed pursuant to Title V of the state environmental code as well as systems considered to be cesspools; development of an integrated water resource management plan, study or plan to mitigate environmental impacts; and land acquisition for the protection of public water supply sources, siting of decentralized wastewater facilities, stormwater recharge sites or riparian habitat. The fee, which may be based on retaining within the basin or saving at least 1 gallon, but not more than 10 gallons, for every gallon of increased water or sewer demand or net impairment of recharge, shall be assessed in a fair and equitable manner and separate fees may be established for different types of uses, such as residential and commercial uses. Any fees charged to mitigate the impact of onsite disposal systems may be based on the expected cost to

pump, maintain and replace such systems as determined by the governmental unit assessing the fee. Any person subject to a fee established by this section who installs, or had installed within the 12 months prior to the effective date of this act, any low flow fixtures or water efficient appliances may receive up to a 25 per cent reduction in said fee, as determined by the applicable city, town, water district, wastewater district, stormwater utility or statutory authority created to operate a water distribution or wastewater collection system or stormwater system.

(b) When adopting this section, the city, town, district or statutory authority shall designate the board, commission or official responsible for assessing, collecting and expending the fee. Fees assessed under this section shall be deposited by the designated board, commission or official in separate accounts, established under section 53F1/2 of chapter 44, and classified as "Sustainable Water Resource Funds" for drinking water, wastewater or stormwater. The principal and interest thereon shall be expended at the direction of the designated board, commission or official without further appropriation. These funds shall not be used for any purpose not provided in this section. These funds may also receive monies: from public and private sources as gifts, grants and donations to further water conservation, water return or water loss prevention; from the federal government as reimbursements, grants-in-aid or other receipts on account of water infrastructure improvements; or from fines, penalties or supplemental environmental projects. Any interest earned from whatever source shall be credited to and become part of the fund.

(c) A city, town, district or authority that has accepted this section may in the same manner revoke its acceptance; provided, however, that monies remaining in the fund shall be expended in a manner consistent with this section.

Section 39N. (a) Notwithstanding chapter 59 or any other general or special law to the contrary, any city or town, which accepts this section in accordance with subsection (f), may impose a water infrastructure surcharge on real property at a rate up to, but not exceeding, 3 per cent of the real estate tax levy against real property, as determined annually by the board of assessors. The amount of the surcharge shall not be included in a calculation of total taxes assessed for purposes of section 21C of said chapter 59.

(b) All exemptions and abatements of real property authorized by said chapter 59, or any other law for which a taxpayer qualifies as eligible, shall not be affected by this section. A taxpayer receiving an exemption of real property under a clause of section 5 of said chapter 59 specifically listed in section 59 of said chapter 59 shall be exempt from any surcharge on real property established under this section. The surcharge to be paid by a taxpayer receiving any other exemption or abatement of tax on real property authorized by said chapter 59 or any other law shall be reduced in proportion to the amount of such exemption or abatement.

(c) Any amount of the surcharge not paid by the due date shall bear interest at the rate per annum provided in section 57 of said chapter 59.

(d) A person claiming an exemption from a surcharge under subsection (b) may apply to the board of assessors, in writing, on a form approved by the commissioner of revenue, on or before December 15 of the year to which the tax relates, or 3 months after the date the bill or notice was sent, whichever is later. Any person aggrieved by a decision of the assessors or by their failure to act upon such application may appeal, as provided in sections 64 to 65B, inclusive, of said chapter 59. Applications for exemption under this section shall be open for inspection only as provided in section 60 of said chapter 59.

(e) Notwithstanding section 53 of chapter 44 or any other general or special law to the contrary, a city or town that accepts this section shall establish a separate account to be known as the Municipal Water Infrastructure Investment Fund. All monies collected from the surcharge, under this section, shall be deposited into said fund. The municipal treasurer shall be the custodian of the fund. The treasurer may invest the monies of the fund in separate accounts in the manner authorized by sections 55 and 55A of said chapter 44. Any interest earned thereon shall be credited to and become part of such separate account. The authority to approve expenditures from the fund shall be limited to the local legislative body and the municipal treasurer shall pay such expenses in accordance with chapter 41. The expenditures of revenues from the fund shall be exclusively used for maintenance, improvements and investments to municipal drinking, wastewater and stormwater infrastructure assets.

(f) This section shall only take effect in a city or town upon the approval of the legislative body and the acceptance of the voters of a city or town on a ballot question at the next regular municipal or state election; provided, however, that this section shall take effect on July 1 of the fiscal year after such acceptance or a later fiscal year as the city or town may designate.

(g) Upon acceptance of this section and upon the assessors' warrant to the tax collector, the accepted surcharge shall be imposed.

(h) After receipt of the warrant, the tax collector shall collect the surcharge in the amount and according to the computation specified in the warrant and shall pay the amounts so collected, quarterly or semi-annually, according to the schedule for collection of property taxes for the tax on real property, to the city's or town's treasurer. The tax collector shall cause appropriate books

and accounts to be kept with respect to the surcharge, which shall be subject to public examination upon reasonable request.

(i) The remedies provided by chapter 60 for the collection of taxes upon real estate shall apply to the surcharge on real property pursuant to this section.

(j) A city or town that has accepted this section may revoke its acceptance, or amend the amount of the surcharge, in the manner outlined in subsection (f); provided, however, that it may not amend the applicable surcharge rate more often than once in any 12 month period. Any monies remaining in the fund upon revocation shall be expended in a manner consistent with this section.

SECTION 25. Chapter 44 of the General Laws is hereby amended by adding the following section:-

Section 73. Any design and construction services included in a public-private partnership development agreement seeking assistance under chapter 29C shall receive input from the public-private partnership infrastructure oversight commission, established by section 73 of chapter 6C, on all requests for proposals for design-build-finance-operate-maintain or design-build-operate-maintain services.

SECTION 26. Section 12A of chapter 132A of the General Laws, as appearing in the 2012 Official Edition, is hereby amended by striking out, in line 1 the words “twelve B to sixteen E, inclusive, and section eighteen” and inserting in place thereof the following words:- 12B to 16J, inclusive and section 18.

SECTION 27. Section 12B of said chapter 132A, as so appearing, is hereby amended by inserting after the definition of “Adjudicatory hearing” the following definition: -

“Advanced treatment”, enhanced physical, chemical or biological treatments that are used in part to remove nutrients including nitrogen or phosphorus.

SECTION 28. Said section 12B of said chapter 132A, as so appearing, is hereby further amended by striking out, in line 7, the words “alternative forms” and inserting in place thereof the following words:- any form.

SECTION 29. Said section 12B of said chapter 132A, as so appearing, is hereby further amended by striking out, in line 8, the word “variance” and inserting in place thereof the following words:- new or modified discharge.

SECTION 30. Said section 12B of said chapter 132A, as so appearing, is hereby further amended by inserting after the definition of “Coastal embayment” the following 2 definitions:-

“Comprehensive Wastewater Management Plan” or “CWMP”, a municipal or regional study, conducted in accordance with appropriate department of environmental protection guidance, regulations and policies, which evaluates alternatives and recommends an appropriate implementation strategy to properly manage wastewater in order to provide protection for the public health and safety and the environment, including, water quality standards and TMDLs, if any TMDLs exist.

“Department”, the department of environmental protection.

SECTION 31. Said section 12B of said chapter 132A, as so appearing, is hereby further amended by inserting after the definition of “Facilities plan” the following 2 definitions:-

“Modified discharge”, an increase in volume or change in location of an existing discharge from a publicly owned treatment works or combined sewer system.

“New discharge”, a discharge from a publicly owned treatment works not approved under the act prior to February 1, 2014 nor authorized by the appropriate federal and state agencies prior to February 1, 2014.

SECTION 32. Said section 12B of said chapter 132A, as so appearing, is hereby further amended by striking out the definitions of ”Proposed discharge” and “Publicly owned treatment plant” and inserting in place thereof the following 2 definitions:-

“Publicly owned treatment works” or “POTW”, a sewage or septage treatment plant owned by a public entity.

“Total maximum daily load” or “TMDL”, the sum of a receiving water’s individual waste load allocations and load allocations and natural background, which, together with a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality, represents the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards in all seasons.

SECTION 33. Section 12C of said chapter 132A, as so appearing, is hereby amended by striking out, in line 1, the word “The” and inserting in place thereof the words:- Unless otherwise specified in this chapter, the.

SECTION 34. Said section 12C of said chapter 132A, as so appearing, is hereby further amended by inserting after the word “programs”, in line 4, the following words:- and agencies responsible.

SECTION 35. Section 15 of said chapter 132A, as so appearing, is hereby amended by inserting after the word “wastes”, in line 28, the following words:- provided, however, that the department may approve a new or modified discharge of municipal wastewater from a POTW in accordance with section 16G;.

SECTION 36. Section 16 of said chapter 132A, as so appearing, is hereby amended by striking out, in lines 21 and 22, 23 and 24 and 27, the words “twelve B to sixteen F, inclusive, and said section eighteen” each time they appear and inserting in place thereof, in each instance, the following words:- 12B to 16K, inclusive and section 18.

SECTION 37. The second paragraph of said section 16 of said chapter 132A, as so appearing, is hereby amended by striking out the first sentence and inserting in place thereof the following sentence:- Notwithstanding any general or special law to the contrary, municipal wastewater treatment facilities may discharge into the ocean sanctuary if the discharge is approved under section 16G and approved and licensed by the appropriate federal and state agencies.

SECTION 38. Sections 16A to 16F, inclusive, of said chapter 132A are hereby repealed.

SECTION 39. Said chapter 132A is hereby amended by inserting after section 16 the following 5 sections:-

Section 16G. The department may approve a new or modified discharge of wastewater from a POTW to an ocean sanctuary only when clauses 1 through 10, inclusive, are met.

(1) The new or modified discharge shall be consistent with the intent and purpose of the act. Any discharge shall meet the water quality standards of the receiving water body

and the standards of the act to protect the appearance, ecology and marine resources of the waters of the sanctuary.

(2) The new or modified discharge shall meet the United States Environmental Protection Agency's approved TMDL, if any, on the receiving water body.

(3) The applicant shall have adopted and implemented a plan approved by the department requiring the pretreatment of all commercial and industrial wastes discharged to the POTW.

(4) The applicant shall have adopted and implemented a program for water conservation according to the guidelines established by the water resources commission.

(5) The applicant shall have adopted and implemented a plan, approved by the department, to control and minimize inflow and infiltration.

(6) The applicant shall have adopted and implemented a plan, approved by the department, to control any combined sewer overflows.

(7) The new or modified discharge shall not significantly affect the quality or quantity of existing or proposed water supplies by reducing ground or surface water replenishment.

(8) The new or modified discharge is consistent with the policies and plans of the Massachusetts coastal zone management program.

(9) The new or modified discharge and treatment plans are consistent with all applicable federal, state and local laws, ordinances, by-laws, rules and regulations protecting the environment, including but not limited to, the requirements of chapters 21, 91, 130 and 131.

(10) The proposed discharge and outfall structure will not adversely impact marine fisheries or interfere with fishing grounds or the normal operation of fishing vessels.

In addition to meeting the requirements in clauses 1 through 10, inclusive, new discharges in the Cape and Islands Ocean Sanctuary, the Cape Cod Ocean Sanctuary and the Cape Cod Bay Ocean Sanctuary shall receive advanced treatment, disinfection and such other treatment to remove nutrients, pathogens or other pollutants to avoid degradation of the ecology, appearance and marine resources of the designated sanctuary and to meet water quality standards and any applicable TMDLs. Chlorinated disinfection shall not occur unless it is followed by dechlorination prior to discharge.

Section 16H. Discharges may occur within estuaries or coastal embayments from facilities designed to abate existing discharges exclusively from combined sewer overflows, where such facilities have been approved by the division of water pollution control and where such existing discharges from combined sewer overflows degrade or threaten to degrade the designated ocean sanctuary. Nothing in this chapter is intended to alter the effect of the previous exemptions granted under chapter 120 of the acts of 1981 and chapter 369 of the acts of 1984.

The seaward boundary of the Plymouth-Kingston Duxbury coastal embayment shall be a line between Gurnet Point and Rocky Point; provided, however, that no discharge may be authorized in a depth of water which at mean low tide is less than 30 feet.

Section 16I. An application for a new or modified discharge shall, at a minimum, include:

(1) a final CWMP approved by the department and a final environmental impact report and certificate;

(2) an evaluation of the receiving water body, including a benthic survey and fish habitat evaluation;

(3) a minimum of 24 months of baseline nutrient related water quality monitoring;

(4) development of a site specific hydrodynamic model illustrating tides, bathymetry, mixing zones and seasonal variations; and

(5) a hydrologic evaluation of the aquifer, including evaluation of the effects of the new or modified discharge on the recharge of the affected aquifer.

Section 16J. Upon receipt of an application for a new or modified discharge, the department shall provide public notice, an opportunity for comment and shall hold a public hearing on the application. Individual notice shall be provided to all municipalities bordering the affected sanctuary. Following the public hearing, the department shall prepare a proposed final decision and provide public notice of the proposed final decision, including individual notice to any person commenting on the application and to all municipalities bordering the affected sanctuary. The proposed final decision shall take effect within 30 days of the public notice unless any person aggrieved by the decision requests an adjudicatory hearing prior to the expiration of the 30 days. Following an adjudicatory hearing, the commissioner of environmental protection shall make the final decision and provide notice to all parties. The final decision shall take effect within 30 days, unless an appeal is taken under section 14 of chapter 30A prior to the expiration of the 30 days.

Section 16K. Any condition adopted by the department in approving a new or modified discharge shall become a condition of the discharge permit issued by the division of water pollution control under chapter 21.

SECTION 40. Section 18 of said chapter 132A, as appearing in the 2012 Official Edition, is hereby amended by striking out, in lines 6 and 7, the words “sixteen B through sixteen F” and inserting in place thereof the following words:- 16G to 16K.

SECTION 41. The first paragraph of said section 18 of said chapter 132A, as so appearing, is hereby further amended by adding the following sentence:- The department shall establish regulations to the extent needed for the proper administration of the act and to preserve and protect the appearance, ecology and marine resources of the waters of the sanctuary and meet the water quality standards and goals of the federal Clean Water Act and Massachusetts Clean Waters Act.

SECTION 42. Said section 18 of said chapter 132A, as so appearing, is hereby further amended by inserting after the word “permit”, in line 14, the following words:- , approval, certificate.

SECTION 43. Said section 18 of said chapter 132A, as so appearing, is hereby further amended by inserting after the word “licenses”, in line 20, the following words:- or on department permits or approvals of new or modified discharges of wastewater from POTWs.

SECTION 44. Sections 26 and 27 of chapter 203 of the acts of 1992 are hereby repealed.

SECTION 44A. Section 14 of chapter 33 of the acts of 1998 is hereby amended by striking out section 14 and inserting in place thereof the following section:-

Section 14. All contracts made by the board of sewer commissioners shall be made in the name of the district and shall be signed by the board of sewer commissioners. The board of sewer commissioners may acquire, merge, consolidate, partner, combine, organize, reorganize, associate or otherwise join together or act in concert with any municipality, district,

governmental unit or any other form of governmental body, company or other entity under any form of agreement, contract, compact, consent or accord, including, without limitation, an intermunicipal agreement under section 4A of chapter 40 of the General Laws, for any and all purposes which would further the interest of the inhabitants of the district, as those interests may be determined by the board of sewer commissioners.

SECTION 45. Section 420 of chapter 194 of the acts of 1998 is hereby amended by striking out, in line 2, the words “water pollution abatement trust” and inserting in place thereof the following words:- Massachusetts Clean Water Trust.

SECTION 46. Said section 420 of said chapter 194 is hereby further amended by striking out, in line 11, the words “or section 6A”.

SECTION 47. Said section 420 of said chapter 194 is hereby further amended by striking out, in lines 13 to 16, inclusive, the words “or said section 6A; provided, however, that the total amount of contract assistance paid by the commonwealth over the life of such loan shall not exceed the amount of contract assistance that would have been paid if such loan had been made for a 20-year period”.

SECTION 48. Section 32 of chapter 312 of the acts of 2008 is hereby amended by striking out, in line 7, the words “or section 6A”.

SECTION 49. Notwithstanding any general or special law to the contrary, not later than 1 year from the effective date of this act, the board of the Massachusetts Clean Water Trust established in chapter 29C of the General Laws, in consultation with the division of local services within the department of revenue, established in section 1 of chapter 14 of the General Laws, and with input from a stakeholder group, including representatives of municipal and

district drinking water, wastewater and stormwater systems, financial managers of such systems and environmental organizations, shall establish and publish guidelines for best management practices in water management. These guidelines shall include, but not be limited to, the practice of full cost pricing, including which direct and indirect costs shall be included in full cost pricing, sound financial management, the use and protection of enterprise funds, the coordination of intra-municipal and intermunicipal projects involving inter-related infrastructure to reduce project costs, the adoption of an asset management plan and a plan for leak mitigation. The demonstration of adoption of these best management practices shall be considered favorably in decisions about wastewater and drinking water project funding made under that chapter.

SECTION 50. Notwithstanding any general or special law to the contrary, nothing in this act is intended to, or shall be construed to, affect in any way the existing commitments of contract assistance or other amounts heretofore provided by the Water Pollution Abatement Trust under general or special law. All agreements and obligations heretofore made under sections 6 or 6A, subsection (g) of section 18 or any other provision of chapter 29C of the General Laws, sections 26 and 27 of chapter 203 of the acts of 1992, section 420 of chapter 194 of the acts of 1998 or any other general or special law shall remain in full force and effect under their terms.

SECTION 51. The department of environmental protection shall promulgate regulations not later than July 1, 2016 and shall evaluate applications using the statutory criteria until regulations are promulgated under subsections (c) and (e) of section 6 of chapter 29C of the General Laws.

SECTION 52. The Massachusetts Water Resources Authority, in consultation with the department of environmental protection, shall file a report regarding the matching grant program

established under section 31A of chapter 21 of the General Laws with the state treasurer, the department of environmental protection, the chairs of the house and senate committees on ways and means and the house and senate chairs of the joint committee on the environment, natural resources and agriculture, not later than 2 years after the effective date of this act. The report shall include, but shall not be limited to: (1) the number of towns that have applied for a matching grant under said section 31A; (2) the total grant funding awarded by the department under said section 31A; and (3) the change in rates paid by members of the Massachusetts Water Resources Authority, if any.

SECTION 53. The department of environmental protection, in consultation with the Massachusetts Clean Water Trust, shall evaluate the loan and financial application process for towns with not more than 10,000 inhabitants to determine if greater efficiencies and cost reductions can be achieved in the application process without compromising the accountability for the financial assistance offered. The department shall submit its findings, together with any legislative recommendations, to the clerks of the senate and house of representatives and to the joint committee on environment, natural resources and agriculture not later than June 15, 2015.

# Attachment 6: Report on Using Forest Carbon Offsets for State Revolving Fund Loan Repayment (January 2016)

# Using Forest Carbon Offsets for State Revolving Fund Loan Repayment

*This research has been undertaken with the support of the US Endowment for Forestry and Communities, Weyerhaeuser Foundation, and Gates Family Foundation.*

## 1. Introduction

This report assesses the potential for using forest carbon offsets (also known as forest carbon credits) to repay loans from Clean Water State Revolving Funds (Clean Water SRFs) and Drinking Water State Revolving Funds (Drinking Water SRFs). The report is part of a larger research effort examining how to expand opportunities to use SRF funding to pay for large-scale land conservation.[1]

Nonpoint source pollution is the leading cause of water quality impairment in the United States (EPA 2015).[2] As demonstrated by the success of New York City's efforts in the Catskill and Delaware watersheds, land conservation can be an extremely effective way to prevent nonpoint source pollution from reaching water supplies. Land conservation projects may be eligible for SRF loans when there is a strong case showing preservation will prevent water quality degradation through reducing erosion and runoff and protecting natural water filtration.

In this phase of the project (Phase II), The Trust for Public Land has explored four states (California, Oregon, Washington, and Colorado) that were deemed to have the strongest potential for using SRF loans (both Clean Water and Drinking Water) for land conservation. There were four interconnected goals for Phase II: (1) Understanding the current use of and priorities for these funds; (2) Exploring ways to increase demand for SRF loans for land conservation; (3) Coordinating with states about potential policy changes to support using SRF loans for land conservation projects; and (4) Examining ways to overcome barriers to using SRF loans for land conservation.

One especially important barrier to using SRF loans for land conservation is the need for a dedicated source of funding to repay SRF loans. This report addresses the potential for income from forest carbon offsets to serve as this dedicated source of funding. There have been carbon credit markets for over a decade, and in 2012, California created the first economy-wide cap-and-trade compliance-based market for carbon offsets in the United States. This is the first compliance-based market through which forest projects in the four study states are eligible to sell offsets. As described below, though there are some major challenges, participation in carbon markets can allow forest owners to create a new forest product "out of thin air" to finance land conservation and climate-friendly stewardship (Best 2014).

## 2. State Revolving Funds

SRF programs provide financing for a variety of water quality related projects in the form of loans. Each state has a great deal of flexibility in developing criteria for ranking projects, setting interest rates, and providing loan subsidies. While the Clean Water and Drinking Water SRFs have the potential to play an

[1] For the purpose of this project, land conservation projects include those that result in the placement of lands into conservation easements or the purchase of lands in fee for preservation.

[2] Nonpoint source pollution is caused by water (from rain and snow) moving over and through the ground collecting and carrying diffuse pollutants including sediment, fertilizers, salts, pesticides from agriculture; bacteria and nutrients from septic systems; and oil and other toxic runoff from various industrial sources.

important role in reducing nonpoint source pollution, funding for land conservation in particular has been very limited (TPL 2011).

There are a number of important barriers to using SRF funds for land conservation. These include:

- **Priority setting** – there is an absence of a federal mandate to create consistent policies promoting land conservation for water quality protection, and a lack of consistent motivation or latitude at the state level to promote such projects;
- **Legal barriers** – some states do not allow funding for land conservation or do not allow loans to private entities like land trusts;
- **Financial and economic barriers** - too much competition for loans with point source projects, difficulty of demonstrated revenue stream;
- **Technical and administrative barriers** – higher transaction costs, difficultly in monitoring and quantifying nonpoint source pollution abatement, absence of set-asides for land conservation/nonpoint source projects; and
- **Lack of awareness** – little outreach from state programs to let potential project proponents know when funding is available for land conservation.

The Clean Water SRF was created in the 1987 amendments to the Clean Water Act to "provide communities a permanent, independent source of low-cost financing for a wide range of water quality infrastructure projects" (EPA 2015a). According to one estimate, the Clean Water SRF loan program has $1 trillion in financial capacity (Curley 2015). In 2009, less than 4% of all Clean Water SRF funding had gone to reduce nonpoint source pollution (TPL 2011). SRF loans are available to projects that protect water quality, but the vast majority of funded projects are for expansion of grey infrastructure such as water treatment plants rather than green infrastructure such as watershed land conservation.

Several states including Ohio, Georgia[3], New Jersey[4], and Virginia[5] have specific SRF programs to finance land conservation as a means to address nonpoint source pollution. The Ohio Water Resource Restoration Sponsorship Program in particular has provided over $162 million in funding for conservation of stream corridors and wetlands and is widely considered a model for linking grey and green infrastructure projects (Ohio EPA 2014). Ohio's sponsorship program resolves the credit risk issues that make many SRF programs reluctant to make loans for land conservation.

The Drinking Water SRF was created by the 1996 amendments to the Safe Drinking Water Act to "provide financial support to water systems and to state safe water programs" (EPA 2015b). Like the Clean Water SRF, Congress appropriates funding and then the EPA awards capitalization grants to each state. In the case of the Drinking Water SRF, capitalization grants are based on the results of the most recent Drinking Water Infrastructure Needs Survey and Assessment. For both the SRF programs, states make a 20% match to the capitalization grants available for loans.

The Clean Water SRF program allows for a percentage of total funds to be set-aside for nonpoint source or estuary projects. As compared with the Drinking Water SRF program, the Clean Water SRF program tends to have more opportunities for loan principal forgiveness and reduced loan rates. While the Drinking Water SRF program can set-aside funds for source water protection, this funding is often either

[3] Georgia Land Conservation Program

[4] New Jersey Environmental Infrastructure Financing Program

[5] Virginia Land Conservation Loan Program

used for small planning grants or is untapped by applicants. In addition, ranking criteria for Drinking Water SRF programs are typically less conducive to funding land conservation projects than those for Clean Water SRF programs.

## State Programs: California, Oregon, Washington, and Colorado

As noted previously, the four states evaluated in Phase II of this project are California, Oregon, Washington, and Colorado. Tables 1 and 2 below compare the basic characteristics of the Clean Water and Drinking Water SRF programs in each of these states.

| **Table 1. Clean Water SRF Program – State Comparison** | | | | |
|---|---|---|---|---|
| **Program Element** | **California** | **Oregon** | **Washington** | **Colorado** |
| Administering Agency | California EPA, State Water Resources Control Board | Oregon Department of Environmental Quality | Department of Ecology | Colorado Department of Public Health and Environment Water Quality Control Division in partnership with Colorado Water Resources and Power Development Authority and Department of Local Affairs |
| Annual Capitalization Grant Allotment (2013) | $30 million | $10 million | $23.2 million | $10.7 million |
| Total Funds Available (2013) | $601 million | $15 million | $125 million | $304.6 million |
| Loan Rates (Plus Fees) | 1.9% (plus 1%) | 0.94%-2.44% (plus 0.25-0.5%) | 1.1-2.3% | 2.0 %( plus 0.8%) |
| Nonprofits Eligible to Apply | Yes | No | Yes | No |
| Eligible Applicants | Any city, town, district, or other public body created under state law, a Native American tribal government or an authorized Native American tribal organization | Public agencies | Public bodies and not-for-profit organizations | Public agencies |
| Ranking Criteria | - CWA 303(d) listed water bodies<br>- Preventative measures against additional water quality degradation<br>- Protect environmental, recreational, or agricultural resources | - Help meet water quality standards<br>- Improve/sustain an aquatic habitat to support native, threatened, or endangered species<br>- Incorporate/expand green stormwater infrastructure | - Must detail overall water quality impacts of project (including goals and measures of success) | - 303(d) listed water bodies<br>- Apply BMPs to mitigate against erosion, sedimentation, pollution runoff<br>- Incorporate innovative planning methodologies, including conservation easements and/or land use restrictions |
| Conservation/Nonpoint Source Project Requirements | Projects must address water quality objectives, provide protection or enhancement of beneficial uses, or comply with the Antidegradation Policy. Eligible non-point source projects or programs must address regional or area-wide water quality problems. | Non-point source water pollution control projects are allowed, and these include land acquisition for wetland habitat preservation, riparian habitat restoration, source water protection, and conservation easements. These projects must implement an element of a state or local plan directed at addressing water quality issues. All new projects are required to demonstrate environmental benefits. | Nonpoint source pollution control projects are allowed, and include groundwater/aquifer/wellhead planning and/or protection, lake restoration planning and implementation, riparian/wetland restoration planning and implementation, public outreach and education, and watershed planning and implementation. These projects can address issues including surface water runoff from agricultural, urban, or forest areas. | Eligible projects include land purchases and those that improve water quality in an impaired water body, implement a watershed/nonpoint source management plan, or implement a source water protection plan. |
| Additional Incentives | - Loan forgiveness available to disadvantaged communities<br>- Loan forgiveness for green projects | - Principal forgiveness for nonpoint source control and estuary management projects | - Principal forgiveness for nonpoint source control and estuary management projects | - Additional subsidy for projects that rank highly in Financial/ Affordability and Water Quality Improvement |

| **Table 1. Clean Water SRF Program – State Comparison** | | | | |
|---|---|---|---|---|
| **Program Element** | **California** | **Oregon** | **Washington** | **Colorado** |
| | | - Green Project loan forgiveness and reduced interest rate<br>- Disadvantaged communities loan forgiveness | - Green Project loan forgiveness and reduced interest rate<br>- Disadvantaged communities loan forgiveness | ranking criteria categories<br>- Green Project reduced interest rate<br>- Disadvantaged communities reduced interest rate |
| Disadvantaged Communities Definition | A disadvantaged community has a MHI less than 80% of the statewide MHI. | Qualifying applicant is based on MHI, and is determined using this formula: Affordability rate = (Applicant's MHI x affordability index)/12. | Hardship is based upon population size and MHI | Disadvantaged when the combined monthly water and wastewater system rates are greater than/equal to 2.3% of community's MHI. |
| Disadvantaged Communities – Program Features | - Principal forgiveness<br>- Extended loan term | - Principal forgiveness | - Principal forgiveness<br>- Lower interest rates | - Lower interest rates |

| **Table 2. Drinking Water SRF Program – State Comparison** | | | | |
|---|---|---|---|---|
| **Program Element** | **California** | **Oregon** | **Washington** | **Colorado** |
| Administering Agency | California EPA, State Water Resources Control Board | Oregon Health Authority administers the Safe Drinking Water Revolving Loan Fund and works with the Oregon Department of Environmental Quality on the Drinking Water Protection Fund. | Washington State Department of Health, Public Works Board, and the Department of Commerce | Colorado Department of Public Health and Environment Water Quality Control Division in partnership with Colorado Water Resources and Power Development Authority and Department of Local Affairs |
| Annual Capitalization Grant Allotment (2013) | $78.77 million | $8.98 million | $21.5 million | $14 million |
| Total Funds Available (2013) | $60.6 million will disperse approx. $200 million in new loans | Maximum loan of $100,000 per project | $108 million | $54 million |
| Loan Interest Rate | | 80% of state/local bond index rate | 1.5% | 2.0% |
| Percent of Funds for Source Water Protection | n/a | 2.23% (set aside in 2013) | 15% (maximum) | 10% (maximum) |
| Eligible Applicants | - Utilities<br>- Eligible applicant has to be able to enter into a debt contract with the State, and can be a community water system or a non-profit non-community water system. | - Utilities<br>- Privately- and publicly-owned community water systems and non-profit transient and non-transient non-community water systems are eligible. | - Utilities<br>- Eligible applicants include both publicly-owned and privately-owned public water systems. | - Utilities<br>- Governmental agencies (municipalities, water and sanitation districts, improvement districts, water districts, and metropolitan districts) are eligible applicants. Private not-for-profit drinking water systems are also eligible applicants if a governmental entity assumes the debt. |

| **Table 2. Drinking Water SRF Program – State Comparison** | | | | |
|---|---|---|---|---|
| **Program Element** | **California** | **Oregon** | **Washington** | **Colorado** |
| Relevant Ranking Criteria | - Priority funding for small systems<br>- Affordability (based on MHI)<br>- Severity of health risk alleviated by project | Program does focus on protection of drinking water resources, as demonstrated by criteria such as:<br>- Area and level of sensitivity of the drinking water source<br>- High-risk sources of contamination within the drinking water source area<br>- Risk reduction potential<br>- Projects within sensitive areas | - Level of public health risk the proposed project would eliminate and the type of project being proposed<br>- Providing regional benefits<br>- Providing solutions for multiple areas of public health risk | Based on health risks, points for:<br>- Population size<br>- Financial need<br>- Water conservation<br>- Source water protection<br>- Health risks |
| Requirements for Nonpoint Source Projects | Source water protection measures are eligible, but land acquisition (except for land or land access that is integral to the construction of source, treatment or distribution facilities) is ineligible. | Restoration and/or conservation projects within the drinking water source area, projects for reforestation or replanting in sensitive or riparian areas, implementation of conservation easements to protect sensitive source areas, and the purchase of lands within the drinking water source area are eligible projects. | Land/Conservation easement acquisition for source water assessment protection is an eligible type of project but the land must be integral to the project and from a willing seller. | |
| Definition of Hardship or Disadvantaged Communities | Community with MHI is 80% or less of the statewide MHI, 60% or less is considered severely disadvantaged | Based upon the affordability rate (the ratio of the average annual water rate (based on 7,500 gal.) to the local MHI. | Affordability is based upon an applicant's MHI, operational expenses, and water rates | Based on population (5,000 or less) and MHI (if 80.0% or less of the statewide MHI, then eligible). |
| Disadvantaged Community Program Features | - Grants/Principal Forgiveness | - Grants/Principal Forgiveness<br>- Extended Loan Terms<br>- Lower interest rates | - Grants/Principal Forgiveness<br>- Lower interest rates | - Extended Loan Terms<br>- Lower interest rates |

# 3. Forest Carbon Offsets

## Why Forest Carbon Offsets?

Forests can both emit and sequester carbon dioxide (CO2), a major driver of climate change (CARB 2011). Through photosynthesizing CO2 and storing carbon as biomass, trees act as a sink for greenhouse gas (GHG) emissions. Carbon is also stored in forest soils, understory plants, and organic matter on the forest floor (CARB 2011). When forests are disturbed and trees are harvested, stored carbon is oxidized and CO2 is released. Nearly two-thirds of forests in the United States are privately owned and potentially threatened by over-harvesting or conversion that would create additional GHG emissions (Forest Service 2015). Forest loss currently accounts for an estimated one fifth of GHG emissions worldwide, making it the second largest contributor after fossil fuel combustion (van der Werf et al. 2009).

Carbon markets have been created in order to enable transactions that set costs for activities that increase GHG emissions and reward activities that sequester carbon (Ecotrust 2015). A wide variety of polluting industries generate GHG emissions. In contrast, letting trees grow older and larger, accelerating reforestation, and preventing forest loss help sequester carbon. As stated by one advocate, forest carbon credits provide landowners with the opportunity to "derive an ongoing income from growing trees rather than cutting them" (Wroblicka 2014).

## Market Types

There are two kinds of markets for forest carbon credits: compliance and voluntary. In compliance markets, GHG emissions are controlled through regulations. In voluntary markets, companies and individuals can purchase carbon credits for a variety of voluntary reasons and are not bound by the same regulatory standards (Ecotrust 2014).[6]

In 2005 the multilateral Kyoto Protocol established a cap-and-trade system for participating countries (Johnson 2011).[7] Under the Protocol, the 15 original European Union (EU) member states created the EU Emissions Trading Scheme (EU-ETS). The EU-ETS now covers approximately 45% of the GHG emissions from 28 current EU countries (European Commission 2015). The EU-ETS is the world's largest compliance-based cap-and-trade program for GHG emissions (CORE 2015). However, the EU-ETS does not allow the use of carbon offsets from forestry projects because of concerns about reversibility, high transaction costs, and uncertainties about quantification, monitoring, and verification (Carbon Market Watch 2015, European Commission 2015, UK Forestry Commission 2015).

The Regional Greenhouse Gas Initiative (RGGI) was the first compliance-based cap-and-trade program in the United States. The program began auctioning emissions permits in 2008, and nine northeastern and Mid-Atlantic states are current participants in the program (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont) (IETA and EDF 2013). The RGGI

[6] For an example of a voluntary market transaction, see http://www.ecosystemmarketplace.com/articles/disney-to-expand-br-voluntary-carbon-offset-buying/.

[7] The United States did not ratify the Kyoto Protocol treaty and is not a participant.

allows approved US forest projects to generate carbon offsets through reforestation,[8] improved forest management, and avoided conversion (RGGI 2015).[9]

California's cap-and-trade program is the first compliance-based carbon market open to forest projects in California, Oregon, Washington, and Colorado. California's cap-and-trade market was created as part of implementing California's Global Warming Solutions Act of 2006 (AB 32). The goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020. The cap-and-trade market began selling offsets in 2013. The program is now the second largest compliance-based carbon market in the world, after EU-ETS, and offsets approximately 85% of the state's carbon pollution (Hsia-Kiung 2014). The California cap-and-trade market allows offsets to cover up to 8% of regulated emissions and is open to landowners in 48 states. By June 2015, the California cap-and-trade market had raised $2.2 billion dollars (Carroll 2015).

Because it was preceded by several major climate credit registries, the California Air Resources Board created a program for existing registries to assist projects in participating in California's compliance-based market (Early Action Offset Programs) (CARB 2015d). Carbon credit registries convert verified emissions reductions into assets that can be sold in carbon markets (Markit Group 2009). Ideally, registries improve the credibility and transparency of forest carbon offset transactions. Several major carbon offset registries pre-date the creation of California's Compliance Offset Program and its Forest Carbon Protocols. These registries include the American Carbon Registry, Climate Action Reserve, Verified Carbon Standard, and the Gold Standard. The first three of these have been approved for the California Air Resources Board to issue and track credits that can be transitioned to California's cap-and-trade program (CARB 2015c).

## Market Value

The global market for forest carbon offsets reached a high of $237 million in 2011 (Peters-Stanley et al. 2013). In 2012, voluntary offset buyers were responsible for 95% of all market activity (27 $MtCO_2e$[10]) and 92% of the value of the offset market ($198 million) (Peters-Stanley et al. 2013). Compliance-driven purchases represent an increasing share of the market as new regulation-based markets such as California's cap-and-trade program expand (Forest Trends 2014).

California's cap-and-trade program and other compliance-based markets have influenced voluntary offset prices (Forest Trends 2015, Best 2014). The global average for voluntary carbon credits has consistently declined since 2011 when participant nations failed to ratify another phase of the Kyoto Protocol (Forest Trends 2015), and prices of voluntary offsets reached an all-time low of $3.8/$tCO_2e$ last year (Gonzalez 2015).

The table below shows 2012 and 2013 volumes, values, and average prices for carbon offsets in global voluntary and compliance markets. According to Ecosystem Marketplace, in average prices for offsets in the United States from the California Air Resources Board ranged from $9.50 to $15 in 2013; for the American Carbon Registry prices were $7.50 to $12; for Climate Action Reserve they were approximately $10; and for Verified Carbon Standard they were $4 to $18 (Forest Trends 2014).

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8 In New York and Connecticut only.

9 Another regional effort to create cap-and-trade programs, the Western Climate Initiative, subsequently became a non-profit coordinating body. Only California, British Columbia, Ontario, Quebec, and Manitoba are current participants (WCI 2016).

10 Million tonnes of carbon dioxide equivalent.

According to New Forests (2015), $4,205,000,000 in allowances were sold in California's cap-and-trade market between November 2012 and February 2015, but the supply of offset credits in the market is constrained relative to demand.[11] The general assumption is that it is relatively easy to find buyers for credits in compliance markets, and prices in the California cap-and-trade market are expected to rise as the cap is tightened and regulated sectors increase (Ecotrust 2015).

**Table 3. Comparison of 2012 and 2013 Forest Carbon Markets' Transactions, Volumes, Values, and Average Prices, All Markets**

Table 1: Comparison of 2012 and 2013 Forest Carbon Markets' Transactions Volumes, Values, and Average Prices, All Markets

| MARKET* | Volume | | Value | | Average Price | |
|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 |
| Voluntary | 22.3 M | 29.0 M | $147 M | $140 M | $7.6 | $4.8 |
| California** | 1.5 M | 1.7 M | $12 M | $16 M | $8.2 | $9.4 |
| Australia CFI** | 2.9 M | 1.5 M | $38 M | $32 M | $13.3 | $20.8 |
| CDM/JI | 0.5 M | 0.0 M | $0.6 M | $0.2 M | $1.1 | $8.0 |
| NZ ETS | 0.2 M | 0.0 M | $1.9 M | - | $7.9 | - |
| Other | 0.6 M | 0.4 M | $15.6 M | $3.9 M | $25.3 | $9.8 |
| Voluntary Total | 27 M | 29 M | $198 M | $140 M | $7.7 | $4.8 |
| Compliance Total | 1 M | 4 M | $18.1 M | $52.4 M | $10.5 | $9.7 |
| Grand Total | 28 M | 32.7 M | $215.8 M | $192.1 M | $7.8 | $5.2 |
| Primary Market | 22 M | 30 M | $137 M | $153 M | $7.5 | $5.0 |
| Secondary Market | 6.3 M | 2.2 M | $57 M | $16 M | $9.8 | $6.9 |

Notes: Based on 32.7 $MtCO_2e$ in transactions reported by 136 forest carbon offsets project developers and retailers.
*See acronyms list for explanation of market abbreviations. Totals in this chart may not add up perfectly due to rounding.
**The California and Australia markets were pre-compliance in 2012 but transitioned to compliance in 2013.

Source: Forest Trends' Ecosystem Marketplace. *State of the Forest Carbon Markets 2014.*

## How do Forest Carbon Credits Work?

There are three types of forest projects that can generate forest carbon credits: (1) Reforestation; (2) Avoided Conversion; and (3) Improved Forest Management (Yankel 2014). Avoided Conversion and Improved Forest Management projects are generally the most relevant to funding land conservation. Avoided Conversion projects are those in which areas that could be converted to agriculture or housing are permanently protected for forest use, usually through the use of conservation easements. Practices that fall under the umbrella of Improved Forest Management include extending harvest rotation; retaining more green trees and snags at harvesting; using thinning or partial harvest rather than clearcutting; adopting wider buffers around streams and/or drinking water source areas; retaining harvest residues or "slash" onsite (depending on wildfire risks); limiting or stopping harvest in areas with steep or unstable slopes; and creating "reserves" or "wild" areas with little or no commercial harvesting

[11] California Carbon Allowances are auctioned quarterly and trade in secondary commodity futures markets. California carbon offsets trade over the counter at a discount of 15-25% (NewForests 2015).

(Ecotrust 2015). See Figure 1 below for a representation of Avoided Conversion projects. Figure 2 shows Improved Forest Management Projects.

**Figure 1. Avoided Conversion (TPL 2014)**

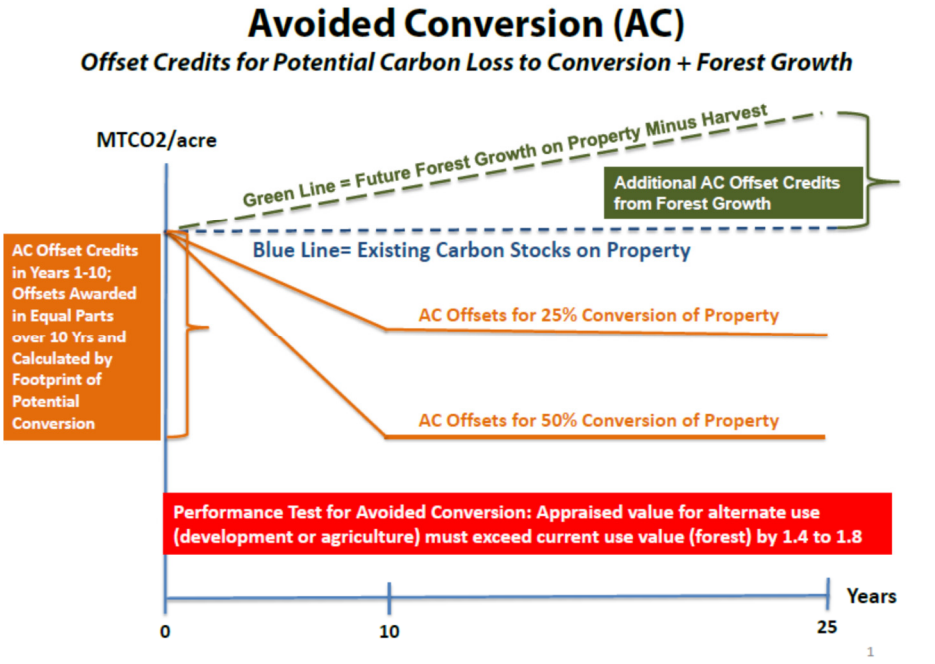
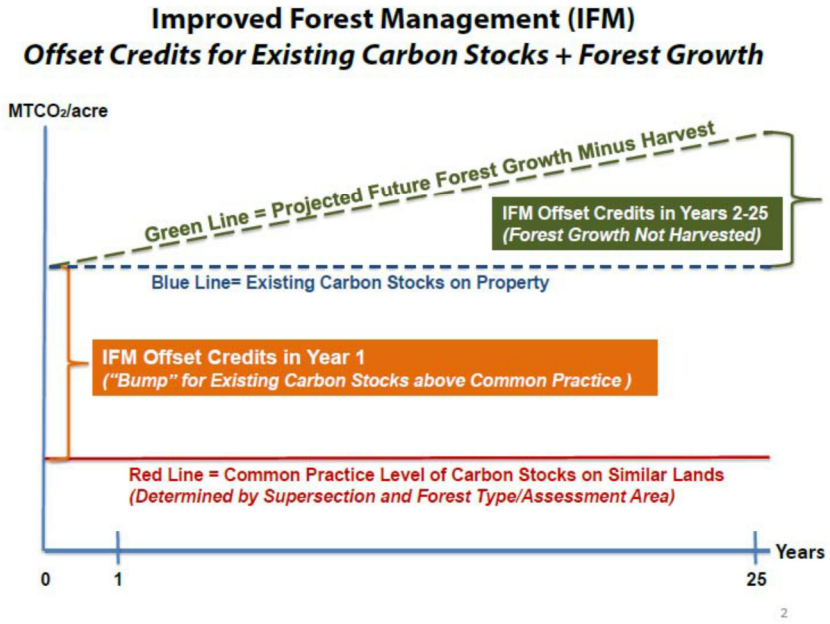



**Figure 2. Improved Forest Management (TPL 2014)**




Carbon offsets are measured in metric tons of carbon dioxide equivalent (tCO2e). Tree biomass is 50% carbon, and CO2 is 27% carbon; therefore, two tons tree biomass is equivalent to one ton of carbon and 3.67 tCO2e (Ecotrust 2015).

In order to meaningfully offset GHG emissions, forest carbon credits need to meet the following criteria outlined by World Resources Institute (2011) and corroborated by others (Calmut et al 2010, CARB 2011 and 2014, Ecotrust 2015, Forest Trends 2011). The benefits of forest carbon offset projects must be:

- **Real**. Projects have to meet standards for actually reducing emissions, including avoiding/minimizing negative leakage. "Leakage" refers to unanticipated CO2 emitting activities that are shifted to other areas as a result of a forest carbon project.
- **Additional.** Additionality means that CO2 sequestration would not have happened without the project. The project must reduce emissions/increase sequestration beyond "business as usual." Activities that are required by law,[12] that are part of common practice,[13] or that save landowners money should not be considered part of the project in order to generate credits.
- **Verifiable.** The offset project needs to be monitored and verified regularly by a qualified and independent third party. The CO2 offset has to be quantified accurately and precisely based on extensive information about forest carbon inventory and the impacts of management practices.
- **Permanent.** Emissions reductions cannot be temporary and reversible. This is somewhat complicated since forests are biological systems subject to natural events that can release carbon, such as pest infestations or wildfires. One way to address this is by creating "buffer pools" setting aside offset credits in case of future (unintentional) reversals. For Avoided Conversion projects, the use of conservation easements also contributes to permanence.[14]
- **Enforceable.** Credit ownership has to be clearly established and tracked to avoid double counting. Most standards rely on registries to track credits and facilitate enforcement. The California Air Resources Board's Compliance Offset Protocol requires 100 years of annual monitoring, forest carbon inventories, and reporting to third-party auditors.

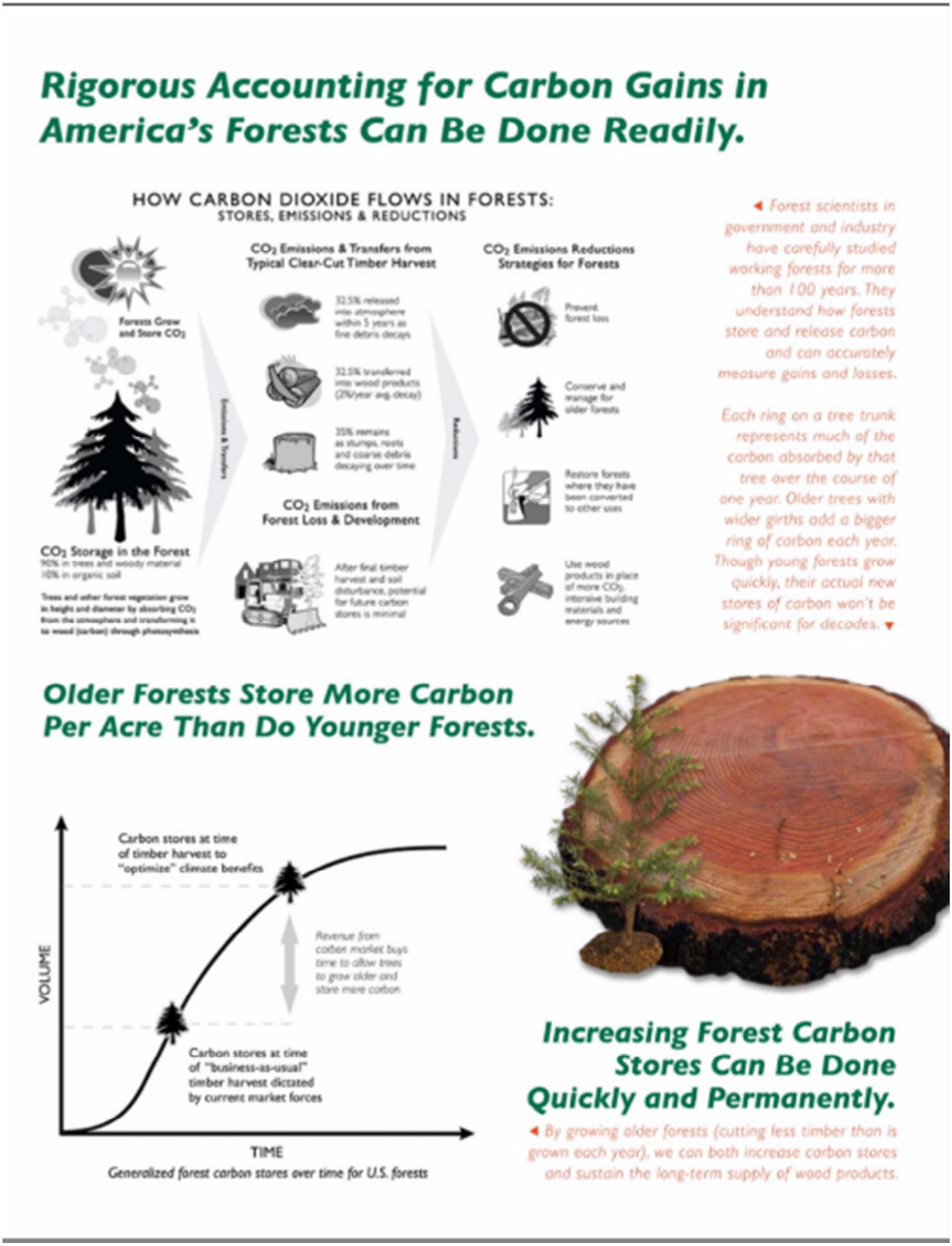
See Figure 3 for a general overview of accounting for carbon sequestration in carbon offsets (Pacific Forest Trust 2007).

[12] For example a Habitat Conservation Plan created in compliance with the federal Endangered Species Act could restrict timber harvest.

[13] The average stocks of the standing live carbon pool from within the Forest Project's Assessment Area, derived from USDA Forest Service Forest Inventory and Analysis Program plots on all private lands within the defined Assessment Area (CARB 2011).

[14] The California Air Resources Board's Compliance Offset Protocol for US Forest Projects requires landowners to record "Qualified Conservation Easements" against properties involved in Avoided Conversion Projects (CARB 2011).

**Figure 3. Accounting for Carbon Gains in Forests (Pacific Forest Trust 2007)**



## How to Use Carbon Credits to Fund Land Conservation

As indicated above, the process of developing a carbon project can be very complicated. Here is a brief outline of the steps involved in generating carbon offsets through the California cap-and-trade market based on an internal process developed at The Trust for Public Land:

### Questions to Answer

***A. What Project Type is Most Appropriate?***

**Improved Forest Management** may be most appropriate if:

- **Property has better carbon stocks than common practice**.[15] The property should be better stocked with timber than comparable private lands within the same area and forest type. A history of timber harvest will leave more room for increasing carbon stocks.
- **Landowner is willing to forgo timber revenue and management flexibility**. Landowner must agree to practice "natural management" forestry or meet other sustainability tests defined in the rules.
- **Property is large.**

**Avoided Conversion** may be most appropriate if:

- **Property can be encumbered by a conservation easement or transferred to public ownership.** Land must be in private hands before the project start date and must be placed under a "Qualified Conservation Easement" or transferred to non-federal public ownership.
- **Appraised market value under development or agriculture is at least 1.4 times (ideally more than 1.8) times higher than under forest use.** Real estate appraisal determines a property's highest alternative land use and the potential acreage that could otherwise be lost to conversion (to development or agriculture).
- **Forest is productive enough to claim credits from future growth.** Avoided Conversion projects can also claim credits from future forest growth. They must meet the sustainable harvest and natural forest management requirements.

***B. Is the Landowner Willing to Commit to the Carbon Offset Terms?***

**Landowner must comply with project terms for 125 years.** Landowners must be willing to commit to compliance with the terms of a carbon project over its entire 125-year life; this includes a 25-year carbon offset crediting period and a 100-year permanence period during which carbon stocks have to be maintained. Compliance with the carbon project includes: (1) following harvest constraints and sustainable management regimes; (2) adhering to "natural forest management" standards; (3) setting aside funding for and complying with ongoing monitoring and reporting requirements; and (4) accepting liability for "intentional reversals" and invalidation of credits sold from the project.

[15] Common practice is a standardized value, expressed in metric tons of carbon dioxide per acre, which is used to compare carbon stocks on forest ownerships to carbon levels on similar lands. Common practice is determined by the U.S. Forest Service using data from its annual Forest Inventory Analysis (FIA). The common practice numbers used to evaluate a project will be specific to the project's geography (determined by "Supersection"), forest types (grouped into "Assessment Areas" of naturally associated tree species), and Site Class (rated as high or low for each forest stand, largely determined by the quality of forest soils).

**Landowner must be able to find an acceptable balance of timber harvest revenue and carbon offset revenue.** During the 125-year period, landowners may not harvest below the volume of carbon stocks that were present on the property at the carbon project's starting point (Year 1). If that occurs, the project is cancelled and the landowner is liable for replacing offset credits under an "intentional reversal."

### *C. Can Revenues Fund Conservation Work?*

Improved Forest Management offsets are front-loaded into Year 1 if the property has very high existing carbon stocks relative to common practice. These existing carbon stocks are the basis for the potentially large "first-year bump" of carbon credits that provides the majority of revenue for most Improved Forest Management projects. This potential for front-loaded revenue could theoretically align well with demand for capital to integrate into a conservation project. Improved Forest Management projects can generally deliver these Year 1 carbon credits to the landowner within 18-30 months from the time the landowner agrees to proceed with the carbon project.

Avoided Conversion offsets are awarded in equal parts over the first 10 years of the carbon project, and are, therefore, not as helpful for meeting near-term project capital needs in Year 1 of a conservation project. This is true regardless of the projected rate of conversion (how quickly forest on the property would be cleared) or the property's carbon stocks relative to common practice (there is no first year "bump" of offsets possible for Avoided Conversion projects even if carbon stocks are well above common practice). Avoided Conversion projects generally have the same 18-30 month timeline for delivering Year 1 carbon credits to the landowner, and then will deliver the same amount of carbon credits to the landowner in Years 2-10. Small amounts of additional credits will accrue from forest growth in Years 11-25.

Since offsets for Improved Forest Management projects are "front-loaded" into Year 1, they may be more helpful in conservation projects that require large amounts of capital up front. In the case of a project that receives a State Revolving Fund (SRF) loan covering up front capital costs, Avoided Conservation offsets may also be helpful in providing a guaranteed revenue stream over 25 years.

## Steps in the Project Development Process

The carbon project development process involves numerous steps including initial consultation, forest carbon inventory, forest carbon modeling, development of project documentation, third-party carbon verification, issuing and selling of carbon credits, and ongoing monitoring/inventory/verification (Ecotrust 2015). The following steps are based on The Trust for Public Land's internal process for assessing and developing carbon projects to help finance land conservation.

- **Step 1. Identify Potential Project.**
  - Determine potential project boundaries and conduct preliminary analysis of forest characteristics
  - Identify if the carbon project is intended to provide capital for the conservation project? Or generate additional ongoing revenue? Or both?
  - Determine whether project would fall under "Improved Forest Management" or "Avoided Conversion" (see above).
- **Step 2. Conduct Preliminary Carbon Assessment.**

- Work with a consultant or a carbon developer to estimate carbon credit potential and possible financial returns.
- Map property to determine which geographic "Supersection" and "Common Practice Values" must be used to compare the carbon stocks on the property to stocks on similar lands.
- Conduct forest inventory by forest type and site class. Determine acres of each "Assessment Area" on the Property (e.g., "Northern Hardwoods Assessment Area").

**■ Step 3. Determine Potential for Project to Aid in Financing Conservation Project.**

- Estimate the value of potential offsets and when carbon credits would be awarded.
- Assess project funding needs.
- Determine if there are any agency policies that might prohibit ecosystem services payments or any issues related to the timing of carbon payments.

**■ Step 4. Conduct Full Feasibility Assessment.**

- Carbon developer conducts full project and baseline scenario modeling.
- Additional research into assessed property values (key basis for Avoided Conversion projects) and/or testing of carbon stocks.

**■ Step 5. List the Project on Carbon Registry and Submit for Third Party Verification.**

- List the project with an Offset Project Registry approved by the California Air Resources Board: American Carbon Registry, Climate Action Reserve, or Verified Carbon Standard.
- Once a carbon project has been listed, the carbon developer and landowner will develop detailed project documents and have the project reviewed and approved by a California Air Resources Board-approved Project Verifier.
- Project Verifiers review modeled carbon reductions for all projects and appraisals for Avoided Conversion projects.

**■ Step 6. Full Project Development and Offset Credit Sales.**

- Once the project has been verified by the Project Verifier, it will be officially registered on the California Air Resources Board offset registry and awarded an initial amount of Year 1 offset credits that can be sold to businesses in California covered by its carbon cap and trade system.
- The carbon developer will generally sell the awarded offset credits as part of its contract with the landowner, and deliver revenues to the landowner minus its fee. This is when the first revenues may be available to fund a conservation project or repay an SRF loan.

**■ Step 7. Ongoing Verification.**

- Periodic third-party verification for the period during which offsets are being generated and during the 100-year permanence period.

## Challenges for Forest Carbon Credits and Conservation

Although there is great potential for using forest carbon credits to fund conservation and to pay back State Revolving Fund (SRF) loans, the cost, complexity, and long time horizon for forest carbon offset projects may limit the usefulness of this tool for many landowners and land trusts. In addition, lands that are currently managed for relatively low timber harvests for conservation reasons may be ineligible for carbon credits because "business as usual" is already maximizing carbon sequestration (Hay 2009).

According to one guide for landowners, "the costs and practical implications of ongoing forest carbon inventory and monitoring for 100 years after a project's last carbon credit is issued (during which time no additional carbon revenue would be coming in) makes certification using standards such as ARB and CAR financially infeasible for most smaller and non-industrial private forestland owners" (Ecotrust 2015). Similarly, according to Forest Trends (2011), "developing forest carbon projects is complex and often daunting for project proponents, whether they are from the private sector, government, or civil society" and "successful project development requires complying with rigorous standards of analyzing and documenting carbon benefits, working through an array of legal, business, and community relations issues, and actually carrying out the challenging work of reforestation and forest and land management activities that go beyond business as usual in order to create carbon benefits."

Even when a project is managed by a professional carbon project developer, it can often take two or more years from the time of initial conversations with landowners to the first credits being issued (Ecotrust 2015). One advocate reports that while "several land trusts have had success with registering forest projects…others are finding the process daunting, expensive or are waiting on the sidelines before wading in" (Wroblicka 2014). In another example, when Placer Land Trust in California's Sierra Foothills tried to register a carbon offset project for their Harvego Bear River Preserve, they were unable to make a strong enough case because the growth rate and decay rate for the western oaks on the property have not been as well-studied as those of faster growing commercial species (Wroblicka 2014).

The substantial costs for developing a forest carbon project include the following (as estimated by Ecotrust [2015]):

| | |
|---|---|
| ■ $1,000-$5,000 Forest Management Plan<br>■ $10-$15 per acre for Carbon Inventory (to be updated every 5-7 years)<br>■ $50,000-$100,000 for Baseline Modeling and Documentation for Third Party Verification | ■ $15,000-$25,000 Contracts with Third-Party Carbon Verifiers<br>■ Fees from Carbon Standards to Register Projects<br>■ Annual Disturbance and Harvest Reporting<br>■ Periodic Third-Party Verification (every 5-7 years) |

Many of these costs are incurred before any carbon credits can be sold (Hay 2009). In fact, total number of credits generated by a project may not even be quantified until after significant costs have been spent in the implementation process. While carbon developers may agree to take on some or all of these expenses, there may be unrecoverable costs for landowners even when potential projects are not eligible for enrollment or when they generate fewer credits than expected (Hay 2009).

Finally, the long time horizon of these projects is a challenge. Land trusts cannot currently predict whether future carbon offset sales will cover ongoing verification costs; therefore, it's likely that they would need to retain some income as an endowment to cover these long-term expenses (Wroblicka 2014). One legal commentator worries that "saddling future property owners with significant monitoring and report obligations may provide a disincentive to enroll properties in the program" (Hay 2009).

## Case Studies: Using SRF Loans and Forest Carbon

The projects below used funds from carbon offsets to repay SRF loans.

### Big River and Salmon Creek

In 2006, The Conservation Fund purchased 16,000 acres of redwood and Douglas-fir forest surrounding Big River and Salmon Creek in California's North Coast. Primarily because of the value of redwood timber, the North Coast of California generates a third of California's timber and nearly half of its timber revenue (TCF 2005). The ecologically rich temperate rainforests protected by the project contain critical habitat for several endangered species including the northern spotted owl, marbled murrelet, and coho salmon. In the face of reduced timber inventories resulting from years of industrial harvests, the area was threatened by potential conversion to vineyards or ranchlands (NCFCP and TCF 2011).

The purchase of the Big River and Salmon Creek area was financed in part by a $25 million loan, at a 2.3% interest rate, from the California Clean Water SRF program (TCF 2015, TPL 2011).[16,17] Annual loan payments were set at $1.6 million. In order to obtain the loan, The Conservation Fund had to demonstrate that it could generate adequate income from the project for loan repayment. Initially the loan was approved based on modeling showing that sustainable timber harvesting would generate enough income. Then in 2007 the Climate Action Registry adopted Forest Project Protocol version 2.1, which allowed California forest projects to generate income from selling forest carbon offsets on the voluntary market (NCFCP and TCF 2011).

When the 2008 recession began, timber prices dropped and The Conservation Fund began relying more heavily on carbon offsets to generate income for loan repayment and forest management (Kelly 2016). From 2006 through 2009 carbon offsets represented 43% of the project's forest revenues (NCFCP and TCF 2011). More recently, carbon offsets have begun to be the dominant source of income for the project (Kelly 2016).

The offsets being generated by the Big River and Salmon Creek project were initially being sold on the voluntary market. They were subsequently rolled into the California Air Resources Board's Early Action Offset Program and are now being fully transferred to the compliance cap-and-trade market (Kelly 2016). This transition requires reconciling the initial requirements of the 2007 voluntary Forest Project Protocol from Climate Action Registry with the California Air Resources Board's current protocol. Although the conversion process is fairly daunting, project leaders estimate that compliance offsets are worth double the value of voluntary offsets (Kelly 2016).

According to The Conservation Fund, "Carbon sales have provided significant additional support for the forests, enabling us to repay the loans we took out to protect the properties, defer harvests when log prices are low and accelerate restoration activities for fish and wildlife" (TCF 2015). The Conservation Fund expects Big River and Salmon Creek to generate $7 million in credits over 10 years (Rademacher 2013), which a representative says "allow us to be very patient and essentially wind back the clock to

[16] The project also involved $14.5 million in state government grants (State Coastal Conservancy and Wildlife Conservation Board) and $8.5 in capital from The Conservation Fund (North Coast Conservation Project and The Conservation Fund 2011).

[17] Conservation easement equivalent restrictions cover the entire property: an "Offer to Dedicate" and "Notice of Unrecorded Grant Agreement" required by California Coastal Commission and California Wildlife Conservation Board (Kelly 2015).

the way these forests were in the middle of the 20th century. Over time, we could harvest much more closely to the annual growth, but the carbon offsets let us take a break." (Rademacher 2013).

According to The Conservation Fund (NCFCP and TCF 2011), their forest management practices for Big River and Salmon Creek include the following:

- Use primarily single-tree selection silviculture to produce forests with trees of all age and size classes. All harvests are designed to encourage natural regeneration and retain and develop critical wildlife habitat features, such as snags, downed wood, and trees of significant size.
- Generate revenue sufficient to repay the SRF loan and cover annual costs of operations and, to the extent feasible, reinvest in restoration and enhancement measures.
- Harvest at levels significantly less than growth over the next few decades to increase timber inventory and carbon storage, resulting in at least a 34% increase in standing inventory over the next two decades.
- Expand riparian buffers to improve habitat conditions and water quality protection by increasing canopy retention requirements for all classes of streams.
- Maintain certification under the Forest Stewardship Council and Sustainable Forestry Initiative standards and report carbon sequestration increases through the California Climate Action Reserve.

Chris Kelly, California Program Director for The Conservation Fund, contends that the ability to use SRF loan funds has been "terrific" and that loan repayment using timber harvests in tandem with forest carbon offsets has worked extremely well (Kelly 2015). However, he noted that it has not been easy. The Conservation Fund has five full time staff managing forests in the project area. In addition, $25 million is an enormous amount of debt. While The Conservation Fund was able to obtain a "no recourse" loan making them liable for only $2.4 million (150% of a $1.6 million annual payment) in case of default, this may not always be possible, and millions of dollars of debt could pose an "existential threat" to many non-profits (Kelly 2015). Kelly believes that use of SRF funding for conservation is likely to work best when a conservation organization maintains ownership, in part because dealing with successor owners could be a major issue for loan repayment.

### Yurok Tribe, Klamath River Basin

In 2011, the Yurok Tribe was able to purchase over 22,000 acres of culturally and ecologically important land in the Klamath River Basin through an SRF loan that included the proposed use of forest carbon offset funds for loan repayment and project management (Voegeli 2016). This was the first SRF loan in California awarded to a tribe. The Yurok Tribe is California's largest Indian Tribe with over 5,000 enrolled members (Eco Partners 2013). Yurok tribal lands follow both sides of the Klamath River through Douglas-fir and mixed hardwood forests from the Pacific Ocean and 44 miles to the north (Business Wire 2014).

Beginning in 2009, the Yurok Tribe worked with Western Rivers Conservancy to apply for a 30-year SRF loan for nearly $19 million to purchase 22,237 acres of forest along the Lower Klamath River in Humboldt County from Green Diamond Resource Company, an industrial timber company (SWRCB 2010). Because the Tribe qualified as a "Disadvantaged Community" under California's SRF policies, they received a zero percent interest rate on the loan. As part of the loan, the Tribe agreed to a cooperative agreement with the North Coast Regional Water Quality Control Board, State Water Board, California Department of Forestry and Fire, and Bureau of Indian Affairs to manage the land to protect water quality.

Carbon offset revenue is currently being generated by about 21,000 of the acres acquired with SRF loan funds. The original carbon offsets for the project were created through the Climate Action Reserve's voluntary offset program under its Forest Project Protocol Version 3.1 (Climate Action Reserve 2014). Offsets initially approved through the Climate Action Reserve were subsequently folded into the California Air Resources Board's Early Action Offset Program. The Yurok Tribe is now in the process of transitioning the project into the cap-and-trade compliance program to manage in conjunction with its other compliance project (Voegeli 2015). During the application process, to convince the SRF loan program of the viability of the project, Western Rivers and the Tribe found buyers for their voluntary carbon offsets before the loan was approved. Project partners do not think this would be necessary now that the market for forest carbon offsets in the United States is so much better established.

While carbon offsets have played a large role in the early financing of this project, the Yurok Tribe intends to repay the SRF loan primarily through sustainably harvesting timber. Carbon revenue has been used to "smooth out" financing for loan repayment for the first several years as the Tribe transitions to "light touch," uneven aged timber management and increases capacity for timber harvesting by tribal land managers (Voegeli 2016). Funds generated by additional carbon offsets are dedicated to loan repayment and to restoration and improvements in sustainable forest management. Partners in the Klamath River Basin project expressed the belief that forest carbon offsets are better suited to financing stewardship and restoration than land acquisition because carbon offset markets are relatively risky and harvest limitations under carbon offset requirements make it difficult to generate adequate timber revenue (Voegeli 2016).

Under its Project Implementation Agreement with the Climate Action Reserve, which establishes the Tribe's compliance obligations, the Tribe negotiated permanence terms that did not require the creation of any conservation easements on tribal lands. This was important in part because of tribal concerns about potential conservation easements affecting the ability of the Tribe to take the land into trust.

In April 2015, the California Air Resources Board issued the Tribe approximately 800,000 offset credits worth several million dollars under its cap-and-trade system (Barboza 2014). According to one project partner, while using carbon offsets "looks great from the outside" and has helped with loan repayments, it added a challenging layer of complexity to assembling the project and applying for the SRF loan that was "not for the faint of heart" (Doroff 2015). Still, according to the Chairman of the Yurok Tribe, "We have lost many of our old trees to deforestation, and numerous native plant and animal species, especially deer and elk, are struggling because of it…This forest carbon project enables the Tribe to help transition these acres back into a tribally managed natural forest system where wildlife and cultural resources like tanoak acorns, huckleberry, and hundreds of medicinal plants will thrive" (Gonzalez 2014).

# 4. Recommendations

## SRF Loans for Land Conservation

Earlier reports from The Trust for Public Land have made recommendations for increasing the use of SRF loans for land conservation. These recommendations are summarized in Table 4 below.

**Table 4. Recommendations for State Revolving Fund Policies to Promote Land Conservation**

| Policy Type | Policy Recommendation |
|---|---|
| **Federal** | |
| Federal Mandate | - Create a federal mandate for more funding conservation projects through State Revolving Funds |

**Table 4. Recommendations for State Revolving Fund Policies to Promote Land Conservation**

| Policy Type | Policy Recommendation |
|---|---|
| **State** | |
| Loan Policies | - Ensure that, where appropriate, programs allow loans to private entities (e.g., land Trusts)<br>- Ensure that full fee land acquisition and conservation easement acquisition are both allowed |
| Funding | - Allow large-scale funding for acquisition projects, rather than only smaller planning grants<br>- Create set-aside funding for land conservation projects<br>- Create additional subsidies (principal forgiveness, negative interest rate loans, or grants) for land conservation<br>- Make revolved funds available for technical assistance to loan applicants |
| Ranking Criteria | - Modify ranking criteria to prioritize land conservation and other nonpoint source pollution prevention<br>- Revise policies so that nonpoint source projects are funded first<br>- Develop and improve systems for monitoring nonpoint source pollution so that potential benefits are clear<br>- Incorporate cost efficiency/abatement efficiency as ranking criteria |
| Program Model | - Encourage expanded use of sponsorship programs for SRF loans like the Ohio Model, which pairs traditional utility borrowers with land conservation partners<br>- Adopt linked deposit loan systems |
| Outreach | - Increase marketing of opportunities for land conservation loans – especially when set-asides and incentives are available. |

## Conclusion: Forest Carbon Credits for SRF Loan Repayment

It can work. At least two large conservation projects in California, the Big River/Salmon Creek and Yurok Tribe case studies described in Section 3, have already used funds generated by carbon offsets to repay SRF loans. However, there are major obstacles both to using SRF loans to fund conservation and to creating forest carbon offset projects. As a result, using both together is very complicated. In the case of very large projects with very sophisticated proponents and enough funding to cover up front costs and coordinate the complexities of both the SRF and carbon offset processes, these tools can be a good match.

However, as one conservation group leader indicated, the process is “not for the faint of heart” (Doroff 2016). This is true in part because there are very serious consequences if everything does not go as planned. That is, project proponents will be financially liable if they default on an SRF loan or if there is any “intentional reversal” that undermines carbon offset obligations. In addition, the current compliance market is based on emissions targets through 2020, and there is no guidance yet for future reduction targets. This creates a lot of uncertainty in the longer term market for compliance offsets – a serious problem if an organization wants to use offsets to pay back a long-term loan.

Still, it is definitely worth advocating for policy changes that would make it easier to fund projects like the Big River/Salmon Creek and Yurok Tribe case studies. In addition to the recommendations for SRF loan programs listed in Table 3 above, state policies should specifically address using forest carbon offsets to provide a dedicated revenue stream to repay SRF loans so these dollars can be available for high-impact projects. In particular, states should pay for due diligence for potential forest carbon projects through SRF funds. Ideally, the goals of the Clean Water and Drinking Water SRF programs and markets for forest carbon offsets can all be met through permanent preservation and sustainable management of large expanses of threatened forests. This could be a major win-win-win for water, climate, and forest resources.

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