

Case Study: Battle Creek Watershed Conservancy

Watershed: Battle Creek watershed

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Year	Grant Program	Project Title	Watershed	Award Amount
2003-2008	CalFed Watershed Program	Battle Creek Watershed Stewardship	Battle Creek	\$680,380
2004-2007	Department of Conservation-Watershed Coordination Grant	Watershed Coordination for Battle Creek Watershed	Upper Cow-Battle Watershed	\$87,918
2008-2012	Department of Conservation-Watershed Coordination Grant	Watershed Coordination for Battle Creek Watershed	Battle Creek/Upper Cow-Battle Watersheds	\$194,653

This case study covers three grants received by the Battle Creek Watershed Conservancy (BCWC) for work in the Battle Creek Watershed. The findings of this research are based on interviews with stakeholders involved and a review of documents produced for the grants. Respondents are not identified for the purpose of confidentiality.

Battle Creek Watershed

The western slopes of Lassen Volcanic National Park are the headwaters for Battle Creek. The Battle Creek Watershed drains approximately 370 square miles of public and private land and flows into the Sacramento River. Small, unincorporated communities within the watershed include the towns of Manton, Mineral, and Viola. Battle Creek is known for high water quality and year-round, high-volume flows of water. Both of these characteristics are ideal for cold-water aquatic species such as anadromous salmon and steelhead. With approximately 250 miles of fish-bearing streams, the Battle Creek Watershed has been the focus of much investment from federal, state, and local agencies and organizations because it is one of the last major streams in California with naturally reproducing populations of steelhead and salmon. Most of the efforts have targeted issues of fish passage, sediment, and water temperature owing to the potential impacts each have on fish populations.

Organization & Grants

The BCWC is a volunteer, non-profit organization of property owners established in 1997 to ensure representation of watershed residents in planning and restoration activities of Battle Creek. The BCWC was formed to give stakeholders a voice during a time of much state and federal agency involvement and significant outside investment in the Battle Creek Watershed.

The Battle Creek Watershed Working Group (BCWWG), chaired by a watershed coordinator, was formed as a consortium of stakeholder organizations and federal and state agencies to monitor ongoing and proposed activities in the watershed, including the Battle Creek Salmon and Steelhead Restoration Project (Battle Creek Restoration Project) which specifically focuses on the restoration of approximately 48 miles of salmon and steelhead habitat. The Battle Creek Restoration Project involves the modification of Battle Creek Hydroelectric Project facilities, including removal of diversion dams; construction of fish screens and ladders; and, construction of powerhouse bypass and tailrace connectors to prevent the mixing of North Fork Battle Creek and South Battle Creek Fork waters. The Battle Creek Restoration Project also involves an increase to instream flows and includes adaptive management. The BCWWG was responsible for administrative logistics for conducting meetings and using consensus-based approaches. Related to the Battle Creek Restoration Project is the BCWC's overall goal to improve water quality and watershed conditions to support fish habitat.

The BCWC received one project grant, "Battle Creek Watershed Stewardship" in 2003 under the CalFed/California Bay Delta Authority and two Department of Conservation coordinator grants, one from 2004 to 2007 and a second from 2008 to 2012. The project grant promoted collaboration between BCWC and the Lassen National Forest. The purpose of the project grant was to reduce sediment through erosion mitigation and restoration of riparian habitats, as well as build capacity of the local landowners and resource agencies. Specific goals also involved long-term monitoring, securing technical scientific support, and implementing the Battle Creek Watershed Strategy.

The purpose of the coordinator grants included facilitation and coordination of on-going riparian restoration, sediment reduction, long-term monitoring, and wildfire planning and management projects. While the project and coordinator grants did not appear to overlap directly, participants working on the project grant did overlap at times with the watershed coordinator (e.g., BCWC and BCWWG meetings) and noted the importance of the coordinator position for facilitation among agencies, organizations, and local stakeholders. The position of watershed coordinator was created prior to the coordinator grant due to the initiation of the Battle Creek Restoration Project and the need to connect state and federal agencies working in the watershed to local landowners. The California Department of Fish and Wildlife (previously known as the California Department of Fish and Game), U.S. Fish and Wildlife and the Metropolitan Water District of Southern California (MWD) were a few of the agencies involved in exploring fish restoration opportunities in Battle Creek watershed prior to the CalFed Watershed program. Local stakeholders wanted to actively participate in decisions related to the work transpiring in their creek. To share information, receive input, and improve relations with the local stakeholders, the MWD provided some financial resources to fund the watershed coordinator position preceding the CalFed funding.

Project grant (2003-2004)

There were four major objectives of the “Battle Creek Watershed Stewardship” grant presented in the proposal, including: 1) continue to implement the Battle Creek Watershed Conservancy’s Watershed Strategy and evaluate outcomes of previously implemented projects; 2) implement and monitor erosion reduction actions and restore riparian areas in the watershed; 3) design and implement a monitoring plan for stream conditions and water quality; and 4) provide community outreach and training about watershed processes, protection needs, and restoration opportunities.

The Battle Creek Watershed Stewardship collaboration with the U.S. Forest Service, Lassen National Forest enabled the BCWC to contract with the U.S. Forest Service for technical support for work in the upper Battle Creek Watershed. The Lassen National Forest was contracted to manage sediment reduction efforts in order to reduce the impacts of sediment in the stream on anadromous fish spawning habitat. The BCWC and Lassen National Forest independently monitored sediment levels in Battle Creek. Both groups found high levels of sediment related to erosion and sediment in the upper Battle Creek. Road improvement actions and road decommissioning were approaches used to address the sediment issue.

Project grant process and outcomes

The final report submitted to CalFed in 2008 divided the scope of the project into four slightly different goals with a major addition involving the production of a public investment document in order to evaluate all of the grants awarded. The outcomes of the grant are presented through findings from in-depth interviews with several of the people involved, as well as a review of final reports and deliverables. The public investment document was not used to evaluate these grants. The performance and success measures were not included in the final report for CalFed due to the extensive timeframe for expected outcomes.

The project grant began in 2003, with most of the grant used over a three-year period to contract the Lassen National Forest for implementation of the Battle Creek Watershed Stewardship project. The purpose of the project was to increase protection, implement restoration of stream conditions, and build capacity for landowners and resource agencies to manage watershed restoration efforts. Actions to reduce sediment in the stream included decommissioning road and skid trails, improvements in road crossings of streams, and restoration of riparian vegetation. Monitoring stream conditions was used as an opportunity to include the local community. The BCWC subcontracted with Terraqua, Inc., to create a stream condition monitoring plan with oversight provided by a Technical Advisory Committee consisting of Battle Creek landowners and residents, state and federal resource agencies, the grant manager, and other interested parties. Accomplishments included 18 miles of decommissioned roads, approximately two miles of road relocation, ten acres of decommissioned skid trails, roughly 13 improved road crossings of

streams, 12 miles of outsloped roads, and 16 acres of restored aspen riparian vegetation stands (BCWC Final Project Report submitted to CalFed, 2008).

Reduction of sediment levels and restoration of runoff patterns were considered some of the most significant outcomes of the project. Measurements pre- and post-project were taken. For the Panther Creek area, pre-project pool tail fines (sediment) levels were measured at 34%. By 2008 (following road decommissioning) the sediment decreased to 17%. To measure restoration of runoff patterns, measurements of pre and post-project erosion and channel extension were taken. Channel extension is a measure of the degree to which the natural channel network is increased by connecting road surfaces that deliver runoff during storm events. Significant reduction of erosion and channel extension were documented. Table I, Table II, and Table III in Appendix D provide the measured outcomes.

The Battle Creek Watershed Strategy implementation entailed restoring riparian areas and monitoring stream conditions and water quality. The objective of community outreach was also indirectly addressed as part of the Battle Creek Watershed Strategy through community participation in the Technical Advisory Committee overseeing the monitoring of the stream.

From one informant's perspective, several local landowners participated in the project by attending community meetings held by the BCWC, but the meetings were not well attended except for those "with a financial stake." However, another informant praised the landowners who did participate and suggested why participation rates may have been low by stating:

"Anytime we are talking about small resource-based communities like Manton, land use and water use are a really big deal. I give credit for the success in developing this process to the people that lived there. Many stepped forward, took the risks that are involved with being a member of a small community, talking about change and land and water use in a small community, it's pretty brave folks."

This informant suggested that in a small community with a natural resource-based economy, speaking out is not an easy undertaking, as participants typically want to avoid tension or conflict with their neighbors.

Finally, the technical work with the Lassen National Forest and Terraqua, Inc. involved a watershed inventory, monitoring, and review. The work conducted by the Lassen National Forest and Terraqua was communicated to landowners by the watershed coordinator at board meetings and the BCWC membership meetings. The watershed coordinator created an avenue for public discussion regarding the watershed projects. In addition, the overlap with the project and coordinator grants allowed the coordinator to help landowners access information and, in so doing, gave voice to locals concerning the projects.

Watershed coordinator grants

The position of watershed coordinator was funded prior to the Department of Conservation's Watershed Coordinator Grant Program. The coordinator position lasted from the late 1990s until the end of the second coordinator grant in 2012. The same watershed coordinator remained throughout and continued to volunteer with the BCWC and the BCWWG following the end of the final coordinator grant. Throughout these years "the coordinator was a main pillar for the community to engage and especially important for these types of projects with the sheer amount of restoration that needed to be done."

The investment in the coordinator and associated process gave the community a powerful voice for over a decade and provided a forum for expression of diverse interests (e.g., local stakeholders, state agencies, federal agencies). Through engagement over an extensive period, and with outreach and education facilitated by the coordinator, common ground could be found. Good will was established between locals and agencies working in the watershed. Additionally, the coordinator expanded his/her role beyond the BCWWG and took on other community leadership roles at a landscape level bridging fire management and the work of fire councils with stakeholders involved in the BCWWG. As coordinator of the Manton Fire Safe Council, the watershed coordinator worked on various fire prevention, fuels reduction, and education projects in the watershed. The watershed coordinator also participated on the Tehama-Glenn Fire Safe Council. With the Ponderosa fire, the importance of fire management and the impacts fire has on the watershed were apparent. Through the watershed coordinator's participation with groups across the watershed, the coordinator acted as a key linkage among various organizations to coordinate a landscape level understanding and approach to management.

Coordinator grant (2004-2007)

The goal of the 2004-2007 watershed coordinator grant was to implement 1) the revised Battle Creek Watershed Community Strategy; 2) the stream condition monitoring plan (a shared objective with the CalFed Battle Creek Watershed Stewardship project); and 3) the Battle Creek Restoration Project. Additionally, the watershed coordinator expanded upon his/her role through initiating, funding, and implementing projects related to fire safety and management, as well as continued connecting the local community with the resource agencies working on the restoration project.

Coordinator grant process and outcomes

The watershed coordinator, in collaboration with the BCWC Board, revised and updated the BCWC Community Strategy (Strategy) and distributed the Strategy to BCWC members and

others. This Strategy is informed by discussion from a number of community meetings between 1997 and 1999. Best management practices for landowners in the watershed are presented, as well as a framework for Battle Creek watershed restoration and education activities. Around this time, the U.S Fish and Wildlife Service had initiated the Anadromous Fish Restoration Program and recognized the utility of the BCWC Community Strategy framework for including local watershed groups, improving relations between landowners and agencies, and increasing restoration efforts.

One of the major projects the watershed coordinator facilitated is the project grant, mentioned above, which was ongoing through 2008. This grant supported stream condition monitoring as one of its components. This grant also involved watershed improvement work by partnering with the Lassen National Forest in the upper watershed and the aforementioned stream-monitoring program. Multiple informants stressed the importance of a watershed coordinator in the partnership between Lassen National Forest and BCWC, as one informant stated:

“The work of the watershed coordinator was important, if not essential to making the Stewardship project work. This was a partnership, with funding coming to the BCWC. There were some very substantial administrative requirements that needed to be worked out with the USFS, in terms of bonding, billing, and reimbursement. If a coordinator had not been in place, I do not think the project would have been possible. The partnerships were instrumental in Deer, Mill and Butte Creek watersheds as well in obtaining USFS and other funding for restoration work. Partnerships did a lot of good in airing differences, agreeing on work to be done, and explaining needs. They were also a source of matching funds, which made projects more competitive for other funds. The point is: no coordinator, most likely no partnership, and less funds for restoration work.”

The coordinator also facilitated communication among community members, state, and federal agencies involved in the CalFed Battle Creek Restoration Project for over a decade. To share information and create a platform for communication between stakeholders, the watershed coordinator, with input from partners and stakeholders, updated the BCWC website. As the largest salmon and steelhead restoration project in California, transparency and information-sharing, practiced by the BCWWG with the encouragement of the coordinator, were vital for keeping the project proceeding, as indicated by one stakeholder:

“It wouldn’t have worked without the coordinator. We were on the eve of having to walk away. The BCWWG with a coordinator acted as a forum for compromise providing a structured way to identify and prioritize issues through time by participants. Without the coordinator, we wouldn’t have had the BCWWG.”

The Battle Creek Restoration Project is being managed by the U.S. Bureau of Reclamation in collaboration with partners U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Wildlife, and Pacific Gas and Electric Company. One consultant identified two lasting outcomes of the Battle Creek Restoration Project: 1) good will between locals and agencies and 2) the project is still moving forward and, once complete, will include 48 miles of habitat for salmon and steelhead to re-occupy.

The BCWC was suggested by one key informant as a model for how to achieve environmental restoration with the involvement of local communities. The coordination and bringing together of all of the agencies with the locals for watershed stewardship and restoration “deserves all of the credit and lasting effects.” While the coordinator was not directly involved in the day-to-day activities with the Battle Creek Restoration Project, the coordinator provided a vital link by gathering input and sharing information between stakeholder, including the BCWC, resource agencies and partners.

Coordinator grant (2008-2012)

The second coordinator grant continued to advance the goals pursued in the 2004-2007 coordinator grant received (2004-2007). The coordinator continued to organize and facilitate the various projects in the watershed and provide information to the local community regarding the long-term Battle Creek Restoration Project. The specific goals for the second coordinator grant include: 1) facilitate and coordinate collaborative restoration projects that advance stream, meadow or riparian restoration and the treatment of sediment sources in upper Battle Creek; 2) coordinate the funding and annual implementation of long-term monitoring of stream conditions; 3) coordinate wildfire planning and management; 4) coordinate technical and scientific support for BCWC and watershed constituents; and 5) implement the Battle Creek Watershed Strategy to sustain the BCWC’s core programs (DOC Watershed Coordinator Grant Program, 2007).

Coordinator grant process and outcomes

The role of the coordinator continued to be a convener between the local stakeholders and resource agencies. Designing and managing a website as a hub for information sharing on watershed projects proved to be a major accomplishment of this second coordinator grant. The watershed coordinator also continued to coordinate and facilitate the Manton Fire Safe Council to reduce fuels and promote fire safety, which is another component of protecting watershed health. Additionally, the watershed coordinator facilitated and coordinated presentations by the BCWC Science Advisor to the BCWC Board and the BCWWG.

Key Findings

While the project grant and coordinator grant did not appear to directly relate during a preliminary review of the available grant documents, following interviews with stakeholders involved, it became clear that the presence of a watershed coordinator affected the project grant. Through facilitation of the BCWC and BCWWG meetings, the coordinator created a forum for various stakeholders to communicate, share ideas, gain a better understanding, and participate in the work being conducted in their watershed. The watershed coordinator also assisted in keeping the group and project on track by managing any issues that emerged through facilitating dialogue and engaging with necessary parties to address and find solutions to challenges. The watershed coordinator was a hub for information sharing between landowners in the watershed and technical experts working on-the-ground to accomplish project goals. Finally, there is considerable reporting, monitoring, tracking, and validation of expenses with grant administration. The watershed coordinator managed all these tasks for the BCWC, which helped make the partnership work, and also provided BCWC capacity to administer the grant.

Role of a watershed coordinator

For the BCWC, an organization primarily consisting of volunteers, the watershed coordinator acted as a catalyst in developing projects in the planning stage and then moving projects from planning to implementation. The watershed coordinator connected projects to landscape-level approaches, rather than individual “piecemeal” and sometime reactive projects. Several informants, who worked on the project grant, believed conservancies with direction and encouragement provided by the watershed coordinator were the reason restoration and educational activities in the watershed were successful. The coordinator grant created opportunities for collaboration between the BCWC and government agencies, resulting in groups sharing funds for projects that BCWC could apply for that the agencies could not. The partnership enabled technical work to be accomplished for the project grant. Furthermore, a contractor hired for technical work mentioned how the contracting was kept local and as a result, the project grant helped small local businesses. “A lot of individuals locally benefited rather than huge companies.” This helped build relationships between local landowners and state and federal agencies.

Providing a voice, developing trust

While the project grant focused specifically on sediment reduction and had discernible performance measures, the coordinator grant had less obvious performance measures, but did lay the foundation for a successful project grant. The coordinator grant provided capacity to pursue funding opportunities and facilitated an environment in which landowners in the community could develop a trusting relationship with agencies working in their watershed. The development

of trust ensured lasting collaboration among these various groups. While quantifiable measures of “success” are difficult to identify for the coordinator grant, qualitative success is clear: the watershed coordinator created a cohesive, functional working group. Informants perceived the coordinator grant as “invaluable” in giving a voice to the community: “Battle Creek Watershed residents had access to leaders of the community that were involved in the Working Group and the Working Group gave them a voice.”

The BCWWG and the BCWC gave community members an opportunity to participate and better understand the decisions being made in their watershed. Landowner participation in the BCWWG meetings allowed for work to be carried out in the watershed, and helped avoid a litigious approach to conflict. The meetings facilitated by the watershed coordinator provided for critical information sharing and communication among the various stakeholders, and addressing conflicts that may have evolved. The approach taken by the watershed coordinator echoes an important component encouraged by the CalFed Watershed Program and expressed by one informant, “before the grants are pursued, you make sure you have willing landowners.” One of the major roles of a watershed coordinator is outreach to and education of stakeholders in the watershed.

When funding ended, the watershed coordinator continued to volunteer for several months until it was no longer possible to continue. A void was left when the watershed coordinator was no longer funded. “The Department of Conservation investment was crucial” stated one respondent, as many volunteer groups in watersheds do not have the fiscal capacity to support a watershed coordinator. A lesson that extends beyond this case is when the coordination funding ceased, many watershed groups folded. The watershed coordinator links stakeholders together. With the loss of a watershed coordinator, a gap is created and the community may not be included in watershed projects, significantly reducing the capacity of the organization. Informants are looking for other mechanisms to support watershed coordination in order to prevent more local watershed groups from closing their doors and to continue the collaborative approaches to restoration and advancing watershed health promoted by the watershed coordinator.

Appendix A. Methods

One researcher traveled to Greenville and Quincy, and two researchers traveled to Sacramento to conduct three in-person interviews. Four other interviews were conducted over the phone. Interview participants included representation from the BCWC, BCWWG, U.S. Forest Service (Lassen and Plumas National Forests), U.S. Bureau of Reclamation, Terraqua Consulting Inc., California Department of Fish and Wildlife, and Metropolitan Water District of Southern California. Researchers reviewed all available documents related to the grants.

Appendix B. Interview Participants

Representatives from:

BCWC

BCWWG

U.S. Forest Service (Lassen and Plumas National Forests)

U.S. Bureau of Reclamation

Terraqua Consulting Inc.

California Department of Fish and Wildlife

Metropolitan Water District of Southern California

Appendix C. Available Grant Documents

Battle Creek Watershed Council	Individual Grant Proposal	Catalogued Description	Annual Update(s)	Individual Final Report	Catalogued Report	Other	
Project (2003-2008)		x		x		x	Lassen National Forest Service Report
Coordinator (2004-2007)			x	x	x		
Coordinator (2008-2012)	x			x	x		

Appendix D. Results

Table I. Pre and post Sediment Monitoring Results from Panther Creek

Pool Tail Fines (%)			% particles <2mm		
Pre	2007	2008	Pre	2007	2008
34	Dry	17	5	2	4.7

Table II. Estimates of Pre and Post Project Road Erosion

Sub-Watershed	Erosion Source (Cubic Yards)				
	Rill/Gully		Surface		Channel Diversion
	Pre	Post	Pre	Post	Post (avoided)
Onion	40	0.1	6.1	1.3	670
Panther	3	0.1	2.2	0.4	1574
Martin	69.9	16.6	4.8	0.8	1063
Nanny	80.5	0.4	57.7	23.4	3519
Summit	12.2	1.1	8.3	1.7	175
Total	205.6	18.3	79.1	27.6	7001

Table III. Estimates of Pre and Post Activity Channel Extension

Sub-Watershed	Natural Channel Length (mi)	Channel Extension			
		Miles		Percent ¹	
		Pre	Post	Pre	Post
Onion	8.2	0.7	0.1	8.7	1.3
Panther	13.9	0.3	0.1	1.9	0.5
Martin	14.2	1.0	0.2	7.2	1.3
Nanny	11.9	2.4	0.1	19.9	0.4
Summit	4.97	0.5	0.3	9.3	7.0

¹ Percent Channel Extension is the natural stream (miles) + road extension (miles)/natural stream (miles)