The Watershed Education Project

Project Information

1. **Proposal Title:**

   The Watershed Education Project

2. **Proposal applicants:**

   Anne Stephens, Chico Unified School District

3. **Corresponding Contact Person:**

   Anne Stephens
   Chico Unified School District
   2253 Humboldt Road Chico CA 95928
   530- 895-4111
   anstephe@cusd.chico.k12.ca.us

4. **Project Keywords:**

   Environmental Education
   Habitat Restoration, Riparian
   Monitoring

5. **Type of project:**

   Education

6. **Does the project involve land acquisition, either in fee or through a conservation easement?**

   No

7. **Topic Area**:

   Environmental Education

8. **Type of applicant:**

   Private non-profit

9. **Location - GIS coordinates:**

   Latitude: 39.450

   Longitude: -121.489

   Datum:

   Describe project location using information such as water bodies, river miles, road intersections, landmarks, and size in acres.

Butte County

10. **Location - Ecozone:**

    3.2 Red Bluff Diversion Dam to Chico Landing, 7.5 Big Chico Creek, 7.6 Butte Creek, 7.7 Butte Sink, 8.1 Feather River, 8.3 Bear River and Honcut Creek

11. **Location - County:**

    Butte

12. **Location - City:**

    Does your project fall within a city jurisdiction?

    Yes

    If yes, please list the city: Chico, Oroville, Paradise, Durham, Gridley, Biggs

13. **Location - Tribal Lands:**

    Does your project fall on or adjacent to tribal lands?

    Yes **If yes, please list the tribal lands:** Enterprise, Mooretown

14. **Location - Congressional District:**

    2

15. **Location:**

    California State Senate District Number: 1

    California Assembly District Number: 3

16. **How many years of funding are you requesting?**

    3

17. **Requested Funds:**
    a) Are your overhead rates different depending on whether funds are state or federal?

       No

       If no, list single overhead rate and total requested funds:

Single Overhead Rate:	4.98%
Total Requested Funds:	$328,056

    b) Do you have cost share partners already identified?

No

c) Do you have potential cost share partners?

Yes

If yes, list partners and amount contributed by each:

EPA 25,000

California Department of Education 10,000

d) Are you specifically seeking non-federal cost share funds through this solicitation?

No

If the total non-federal cost share funds requested above does not match the total state funds requested in 17a, please explain the difference:

18. **Is this proposal for next-phase funding of an ongoing project funded by CALFED?**

Yes

If yes, identify project number(s), title(s) and CALFED program (e.g., ERP, Watershed, WUE, Drinking Water):

2001-I204 Watershed Education Project ERP

Have you previously received funding from CALFED for other projects not listed above?

No

19. **Is this proposal for next-phase funding of an ongoing project funded by CVPIA?**

Yes

If yes, identify project number(s), title(s) and CVPIA program (e.g. AFRP, AFSP, b(1) other).

111 Adopt-A-watershed Training AFRP

Have you previously received funding from CVPIA for other projects not listed above?

No

20. **Is this proposal for next-phase funding of an ongoing project funded by an entity other than CALFED or CVPIA?**

    Yes

    If yes, identify project number(s), title(s) and funding source.

    5 Water Quality Monitoring Sacramento River Watershed Program

    Please list suggested reviewers for your proposal. (optional)

John Icanberry	**U.S. Fish and Wildlife Service**	**209-964-4600**	**jicanberry@fws.gov**
Paul Maslin	**California State University Chico**	**530-898-4729**	**pmaslin@csuc.edu**
Dave Brown	**California State University chico**	**530-898-4035**	**dbrown@shasta.csuc.edu**

21. **Comments:**

Environmental Compliance Checklist

The Watershed Education Project

1. **CEQA or NEPA Compliance**
   a) Will this project require compliance with CEQA?

      No
   b) Will this project require compliance with NEPA?

      No
   c) If neither CEQA or NEPA compliance is required, please explain why compliance is not required for the actions in this proposal.

      This is an educational effort with K-12 students, teachers and parent volunteers. No project activities are planned that would require enviornmental review.

2. **If the project will require CEQA and/or NEPA compliance, identify the lead agency(ies).** *If not applicable, put "None".*

   CEQA Lead Agency:
   NEPA Lead Agency (or co-lead:)
   NEPA Co-Lead Agency (if applicable):

3. **Please check which type of CEQA/NEPA documentation is anticipated.**

   CEQA
   -Categorical Exemption
   -Negative Declaration or Mitigated Negative Declaration
   -EIR
   Xnone

   NEPA
   -Categorical Exclusion
   -Environmental Assessment/FONSI
   -EIS
   Xnone

   If you anticipate relying on either the Categorical Exemption or Categorical Exclusion for this project, please specifically identify the exemption and/or exclusion that you believe covers this project.

4. **CEQA/NEPA Process**
   a) Is the CEQA/NEPA process complete?

      None

   b) If the CEQA/NEPA document has been completed, please list document name(s):

5. **Environmental Permitting and Approvals** (*If a permit is not required, leave both Required? and Obtained? check boxes blank.*)

LOCAL PERMITS AND APPROVALS

Conditional use permit

Variance

Subdivision Map Act

Grading Permit

General Plan Amendment

Specific Plan Approval

Rezone

Williamson Act Contract Cancellation

Other

STATE PERMITS AND APPROVALS

Scientific Collecting Permit

CESA Compliance: 2081

CESA Compliance: NCCP

1601/03

CWA 401 certification

Coastal Development Permit

Reclamation Board Approval

Notification of DPC or BCDC

Other

FEDERAL PERMITS AND APPROVALS

ESA Compliance Section 7 Consultation

ESA Compliance Section 10 Permit

Rivers and Harbors Act

CWA 404

Other

PERMISSION TO ACCESS PROPERTY

Permission to access city, county or other local agency land.
Agency Name:

Permission to access state land.
Agency Name:

Permission to access federal land.
Agency Name:

Permission to access private land.
Landowner Name:

6. **Comments.**

Land Use Checklist

The Watershed Education Project

1. **Does the project involve land acquisition, either in fee or through a conservation easement?**

   No

2. **Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?**

   Yes

3. **Do the actions in the proposal involve physical changes in the land use?**

   No

   If you answered no to #3, explain what type of actions are involved in the proposal (i.e., research only, planning only).

   Occasional restoration planting of native species will be done.

4. **Comments.**

Conflict of Interest Checklist

The Watershed Education Project

Please list below the full names and organizations of all individuals in the following categories:

- Applicants listed in the proposal who wrote the proposal, will be performing the tasks listed in the proposal or who will benefit financially if the proposal is funded.
- Subcontractors listed in the proposal who will perform some tasks listed in the proposal and will benefit financially if the proposal is funded.
- Individuals not listed in the proposal who helped with proposal development, for example by reviewing drafts, or by providing critical suggestions or ideas contained within the proposal.

The information provided on this form will be used to select appropriate and unbiased reviewers for your proposal.

Applicant(s):

Anne Stephens, Chico Unified School District

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

If yes, please list the name(s) and organization(s):

Allen Harthorn	Watershed Education Program
None	None
None	None
None	None
None	None

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

If yes, please list the name(s) and organization(s):

Anne Stephens	**Watershed Education Programant**
Allen Harthorn	**Watershed Education Program**

Comments:

Budget Summary

The Watershed Education Project

Please provide a detailed budget for each year of requested funds, indicating on the form whether the indirect costs are based on the Federal overhead rate, State overhead rate, or are independent of fund source.

Independent of Fund Source

Year 1												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Coordination	2080	40,000	10,000	5,000	5,000		2,000		62000.0	3088	65088.00
2	Professional development	300	9000		1000	1000	5000	1000		17000.0	847	17847.00
3	Community Outreach	300	9000		1000	1000	3000	1000		15000.0	747	15747.00
4	Field Study	300	9000		2000	3000		2000		16000.0	797	16797.00
5	Administration	240	3600			1000		1000		5600.0	279	5879.00
		3220	70600.00	10000.00	9000.00	11000.00	8000.00	7000.00	0.00	115600.00	5758.00	121358.00

Year 2												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Coordination	2080	40,800	10,200	2,000	2,000		1,000		56000.0	2784	58784.00
2	Professional development	300	9180		1000	1000	2000	1000		14180.0	706	14886.00
3	Community Outreach	300	9180		1000	1000				11180.0	567	11747.00
4	Field Study	400	12240		1000	1000		2000		16240.0	809	17049.00
5	Administration	240	3672			1000		500		5172.0	256	5428.00
		3320	75072.00	10200.00	5000.00	6000.00	2000.00	4500.00	0.00	102772.00	5122.00	107894.00

Year 3												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Coordination	2080	41616	10404	2000	2000		1000		57020.0	2844	59864.00
2	Professional development	200	6242		1000	1000		1000		9242.0	460	9702.00
3	Community Outreach	200	6242		1000	1000				8242.0	410	8652.00
4	Field Study	300	9364		2000	1000		2000		14364.0	715	15079.00
5	Administration	240	3746			1000		500		5246.0	261	5507.00
		3020	67210.00	10404.00	6000.00	6000.00	0.00	4500.00	0.00	94114.00	4690.00	98804.00

Grand Total=328056.00

Comments.

Budget Justification

The Watershed Education Project

Direct Labor Hours. Provide estimated hours proposed for each individual.

2080 hours for the Education Coordinator per year. 1140 hours for Project Manager/Assistant Year 1. 1240 hours for Project Manager/Assistant Year 2. 940 hours for Project Manager/Assistant Year 3.

Salary. Provide estimated rate of compensation proposed for each individual.

$40,000 per year for Education Coordinator plus 2% COLA $30/ per hour for Project Manager/Assistant plus 2% COLA

Benefits. Provide the overall benefit rate applicable to each category of employee proposed in the project.

25% benefits for Education Coordinator

Travel. Provide purpose and estimate costs for all non-local travel.

Non-local travel would include trips to Sacramento and Redding to coordinate with agencies and network associates. Additionally a trip to the Adopt-A-Watershed Leadership Institute and Spring Retreat would be required. Estimated costs for this travel would be approximately $3500 per year.

Supplies & Expendables. Indicate separately the amounts proposed for office, laboratory, computing, and field supplies.

Yr1 Yr2 Yr3 Office $7000 $4500 $4500 Laboratory $2000 $2000 $2000 Computing $4000 $2000 $2000 Field Supplies $5000 $2000 $2000

Services or Consultants. Identify the specific tasks for which these services would be used. Estimate amount of time required and the hourly or daily rate.

Professional Development Education Training Approximately 10-14 full-day training events at $500 to $700 per day.

Equipment. Identify non-expendable personal property having a useful life of more than one (1) year and an acquisition cost of more than $5,000 per unit. If fabrication of equipment is proposed, list parts and materials required for each, and show costs separately from the other items.

No equipment purchased will cost more than $5,000 per unit.

Project Management. Describe the specific costs associated with insuring accomplishment of a specific project, such as inspection of work in progress, validation of costs, report preparation, giving presentatons, reponse to project specific questions and necessary costs directly associated with specific project oversight.

The Project Management costs will be part of the responsibility of the Education Coordinator, Project Manager and Project Assistant. Approximately 20% of the salaries, wages, benefits, supplies, and travel will be dedicated to management of the project.

Other Direct Costs. Provide any other direct costs not already covered.

No other direct cost are indicated.

Indirect Costs. Explain what is encompassed in the overhead rate (indirect costs). Overhead should include costs associated with general office requirements such as rent, phones, furniture, general office staff, etc., generally distributed by a predetermined percentage (or surcharge) of specific costs.

Indirect costs are the associated costs of the Chico Unified School District for accounting and oversight.

Executive Summary

The Watershed Education Project

The Watershed Education Program, located in Butte County, is an extension of previously funded efforts to expand implementation of comprehensive watershed education through local school districts in this area. The project began in Chico, Durham and Paradise in 1996; is currently funded to expand efforts in Durham and Paradise, and the future objective is to seek funding to further develop the project as an institutional program for all Butte County Schools. The approach used will be a continuation of the successful training for teachers with curriculum, tools and equipment lending, and partnership development that has been the cornerstone of the current program. With a county-wide program at all grade levels, improvement in ecosystem stewardship should occur rapidly. CALFED ERP and CVPIA goals include developing educational programs affiliated with conservation, restoration and monitoring efforts including curriculum development and hands-on educational activities for adults and K-12. This program intends to expand the existing successful effort county-wide.

Proposal

Chico Unified School District

The Watershed Education Project

Anne Stephens, Chico Unified School District

Watershed Education Program

Applicant:
Anne Stephens
Marsh Junior High School
Chico Unified School District
2253 Humboldt Road
Chico CA 95928

Participants and Collaborators:
California Regional Environmental Education Community Network
Northern California Regional Land Trust
Butte Creek Watershed Conservancy
Butte County Office of Education
Friends of Butte Creek
Streaminders

Adopt-A-Watershed
Feather River Nature Center
Big Chico Watershed Alliance
Sacramento River Discovery Center

California Department of Fish and Game
Mendocino National Forest
State Water Resources Control Board

Applicant Information:
certified nonprofit organization
exempt tax status
Federal ID#: 94-1591650

Technical contact person:

Anne Stephens, Education Coordinator
anstephe@cusd.chico.k12.ca.us
530-895-4115

A. Project Description

1. Problem

The creeks and rivers of Butte County, all tributaries to the Sacramento River, flows from their headwaters in the Plumas and Lassen National Forest, through Sierra/Cascade foothills to the Central Valley. Many of the reaches in this Central Valley have levees with adjacent intensive agricultural development. Butte Creek is the most important streams remaining in California for the conservation of spring-run Chinook salmon and steelhead with historic salmon populations recorded at over 22,000 adults. This Butte Creek population was one of California's largest spring run, the Sacramento, Feather, and San Joaquin River being the largest with nearly a million fish each. They are all dammed and the runs decimated. Over the last 30 years, with the exception of 1995, 1998, 1999, 2000, and 2001, the Butte Creek population has ranged from around fifty to just over a thousand. Restoration and education have contributed to the recent increases. Big Chico Creek, another important spring-run Chinook salmon stream, has seen similar declines. The Feather River was once the most significant spring-run Chinook river in the area. Hatchery operations have likely diluted the genetic purity of these fish, although salmon matching the life history of spring-run continue to return to the river and may be pure and reproducible. Honcut Creek, Little Butte Creek, Little Chico Creek and Dry Creek (Cherokee Canal) have all had reported runs of spring-run salmon and/or steelhead trout. The decline of these populations reflect the effects of stressors such as hydromodification, dams, loss of the deep cool pools, shaded riverine habitat, excess sediment transport, agricultural runoff and other physical, chemical and biological changes. Similar declines in population have occurred for other species of concern to CALFED due to similar stressors.

Most of the problems associated with these stressors are the direct results of human decisions that did not recognize the ecosystem value and the resilience of the plant and animal resources. The resources were endless and all efforts to tame the environment and utilize resources for development and recreation were acceptable. Only in the recent decades have the costs of the exploitation in terms of threatened and endangered species and degraded water and ecosystem quality, been clearly articulated. The hypothesis of this proposal is that a County-wide team approach in K-12 programs that focus on the environment as a context across disciplines with active hands-on problem solving and community-based activities will have greater student achievement across learning styles, less discipline problems, and will develop knowledge, understanding, and appreciation for the local environment, community and natural surroundings.

The primary goal of the project is to raise awareness of the value of this approach to education. Education is the key to raising the level of awareness of important resource issues and the stressors on the ecosystem. This is especially true when parent volunteers are encouraged to participate in the program, or students bring home the messages about protecting our resources. This project will increase public awareness, knowledge and appreciation of the natural resources of our communities and ecosystem restoration activities, foster active participation in conservation programs, and encourage individuals to wisely use natural resources. This project will focus on the goals of the overall CALFED program and the Strategic Plan Goals of this Ecosystem Restoration Program solicitation.

The objectives of the project are to coordinate teachers, trainers, community volunteers, and resource agency personnel and resources to work together, form partnerships and cooperatively develop an integrated, community-based educational program using the environment as the

theme. A significant part of that is providing professional development opportunities for teachers which will be increased county-wide.

An additional objective is to raise community awareness and engage the public in the educational system as volunteers, docents, and teachers aides. This will greatly increase the local opportunities to share the purpose and value of protecting, restoring and enhancing the ecosystem.

The next objective is implementation of the educational program in the field. Students who visit a restoration or monitoring site on a daily or weekly basis over a period of years will have an understanding of long term trends if they learn a basic foundation in ecosystem science concepts. Most schools in Butte County are within walking distance, or a short trip with parent volunteers and/or buses, of a creek or stream which facilitates field study and restoration work. By engaging thousands of additional students in field study activities such as restoration projects, tree planting, and erosion control, we can enhance stream and wetland habitat in a much more widespread manner.

2. Justification

The conceptual model for this project is based on studies that show that a team approach to an interdisciplinary K-12 education program that uses the environment as an integrating context significantly improve student achievement and raises awareness of ecosystem issues that affect our lives and the health of our watersheds.[1] Anthropogenic disturbance of the primary habitats in our watersheds of the priority species identified by CALFED is a continuing concern. Many of these disturbances have been modified or restored by CALFED and CVPIA to protect these habitat resources with tremendous results. It is not quite so simple to effectively change public attitudes toward how we utilize the habitats of other species. Many of the habitats were rich with resources that helped fuel the development of the area. Recognizing the responsibility to use resources wisely is critical to change perceptions and fuel the enthusiasm to restore and enhance them. Further developing and expanding an integrated K-12 and public education program partnered with the local conservation groups, other private and public community groups, and agencies that are promoting the efforts is critical to the long term success of CALFED, CVPIA and other programs. This project will further the efforts funded by EPA, FWS , SRWP, CREEC and to provide a balance between humans and the priority habitats and species of CALFED.

The hypothesis of this proposal is that a county-wide team approach in K-12 programs that focus on the environment as a context across disciplines with active hands-on problem solving and community-based activities will have greater student achievement across learning styles, less discipline problems, and will develop knowledge, understanding, and appreciation for the local environment, community and natural surroundings. This hypothesis has been tested on a district scale in Chico with some success in surrounding districts of Paradise and Durham. The current CALFED funding for the Watershed Education Project (WEP) is facilitating the dedicated expansion of the project into those districts. So far the success of the project has been excellent in terms of professional development and field studies. The current funding will enhance this foundation and provide a clear model for this project as the emphasis broadens to the whole county. Many more partners and resources are available on the county level.

The major uncertainties of the project are whether teachers have time and interest to complete training and implement a team approach with active field study, and whether community partners can be engaged to build and sustain the effort. In results of previous training programs, where incentives such as substitute reimbursement is made available, the ability to register 20 or more teachers for a training is greatly enhanced. This has been and will continue as an incentive for teachers. In addition many districts require a certain amount of professional development and where possible the WEP will try to provide all the training resources possible.

3. Approach

The approach of this program is to continue the successful efforts of the steering committee teachers and the education coordinator, expand the coordinator function to full-time covering all of Butte County, provide continued training in appropriate curriculum and field study protocols, continue and expand restoration activities and enhance linkages with watershed education efforts in the region. The program tasks are to: 1) Expand the efforts of the education coordinator to full-time covering all of Butte County; 2) Provide for enhanced professional development and curriculum materials for teachers; 3) Enhance linkages with private industry, community and agency partners; 4) Maintain existing and expand new restoration areas and field study opportunities for students, 5) Project management. The schedule is for the project to begin in November 2002 and continue through October 2005.

The Watershed Education Project has provided coordination and training for the development and implementation of watershed curriculum to teachers primarily in the Chico, Durham and Paradise School Districts. The program, with initial funding from the U.S. Fish and Wildlife Service (FWS), CALFED and the National Fish and Wildlife Foundation (NFWF), established a core group of teachers who reviewed curriculum and developed a strategy to provide training and materials to a broader group of K-12 educators. With subsequent funding from EPA 319h, the program began the implementation of curriculum, establishment of a resource library, development of audio-visual materials, training for appropriate curriculum, and field studies that include restoration work and water quality monitoring on several sites on Butte Creek, Little Chico Creek and Big Chico Creek. More than forty teachers have received training in 1999 in Adopt-A-Watershed (AAW) and twenty four in Project Wet. In 1998, more than a dozen teachers completed three-day courses in Rapid Bioassessment of aquatic macroinvertebrates. In the four years of its existence, WEP has provided training for 75 teachers from 4 school districts and 25 schools in Butte County.

WEP has carefully structured the program to address the five components of comprehensive watershed education. They include: 1) the introduction of grade-level appropriate, standards based science concepts; 2) long-term field study; 3) restoration activities; and 4) community service action; and (5) reflection. An education coordinator was chosen who is a secondary science teacher, a member of the Chico Unified Science Task Force and a staff developer for the California Science Project. The coordinator has been funded to coordinate the project (one-fifth position) for the 2001-2003 school years.

Important linkages have been established with other watershed focused education projects throughout the region. The Sacramento River Discovery Center (SRDC) has coordinated several

of the initial AAW training for WEP and provided several teachers with specific programs including guided raft trips on the river to visit farms, forest, natural and rip-rapped section of river banks. In addition, the project has developed a strong relationship with the Izaak Walton League local group, Streaminders . They have been involved in education and restoration projects in the Chico area since 1980. They will provide the technical support for the restoration activities with the education project. Americorp has provided three stipend education program members to provide services in the classroom and in the field in the past. Another important partners is the Chico Unified School District Learn and Serve program which has provided matching funds for teacher training, field activities and community educational events. Butte County Office of Education has offered support for expanding the program to other school districts and housing classroom kits at the Instructional Resource Center. Interest in coordinating with Glenn County and the Colusa High Environmental Education Academy has been developed. The Butte County Fish and Game Commission has provided $1000 in materials to raise native riparian plants for the restoration projects and the Red Bluff Department of Water Resources office has agreed to provide quality assurance assistance for the water quality monitoring program.

The approach of this project is to continue the successful efforts of the core teachers and the education coordinator, expand the coordinator functions to other school districts, provide continued training in appropriate curriculum and field study protocols, continue and expand restoration activities and enhance linkages with watershed education efforts in the region. AAW received a CALFED grant to conduct a Leadership Institute in the teams from the Sacramento Valley. The WEP team was one of 10 from the Sacramento river Watershed. This has provided an opportunity for local leaders to meet, work together and further coordinate educational activities throughout the region. Sacramento River Watershed education teams will be conducting a coordinating meeting at the Sacramento River Discovery Center in Red Bluff and joining with all the AAW leadership teams in April in Santa Cruz.

The specific activities and elements to be funded by this grant would be to supplement the personnel services, operating expenses and professional and consultant services of the WEP. The project tasks are to:
1) Expand the efforts of the education coordinator;
2) Provide professional development and curriculum materials for teachers;
3) Enhance linkages with watershed and conservation groups and other public and private community partners;
4) Maintain existing and expand new restoration areas and field study opportunities for students;
5) Project management.

The specific deliverables are by task: 1) Education coordinators annual report; 2) Training summaries and certificates; 3) Advisory committee meeting minutes and membership; 4) Photo monitoring of restoration and field study activities; 5) Quarterly and final reports. The project has been ongoing and will proceed in a single continuous phase. The schedule is for the project to begin in November 2002 and continue through October of 2005. The coordinator would be funded for the 2002-2005 school years in Butte County. University faculty would focus on production of important informational components needed for the education project such as

implementation and restoration planning. The project manager would assist in the coordination of the process and public involvement through the Friends of Butte Creek and other public and private interests in the watershed. The educational coordinator will be responsible for the development of curriculum linkages and audio-visual materials. Staff, student assistants, volunteer coordinators and consultants would contribute to the acquisition of information, increasing public involvement and developing the advisory committee for the WEP. If available, Americorp will provide classroom and field support for all of the activities.

4. Feasibility

The WEP has been developing for five years in the local school districts of the Butte Creek and Big Chico Creek Watershed. Linkages with other local programs throughout the region has allowed for the program to develop in Butte County consistent with State Standards for science education.

5. Performance Measures

The project team is constantly monitoring and evaluating its process. Monitoring and evaluation for the proposed project includes: (1) core teacher evaluations (2) teacher workshop evaluations (3) records of the numbers of teachers, students, and visitors involved in the program and the hours of involvement (4) education coordinators annual reports, (5) photo monitoring of restoration projects and (6) water quality monitoring data(quality assured by the State Water Resource Control Board through the Citizen Water Quality Monitoring Program).

6. Data Handling and Storage

Macroinvertebrate insect sampling to assist in determining water quality. Data will be generated by students and parent volunteers, and archived by WEP and DWR.

Amphibian/ Butterfly/ Bird Surveys will be completed bi-annually. Data will be generated by students and parent volunteers, and archived by WEP.

Plant transect inventory will be completed once in spring. Data will be generated by students and parent volunteers, and archived by WEP.

Chemical water quality tests will be done quarterly. Data will be generated by students and parent volunteers, and archived by WEP and the SWRCB.

Plant succession study will be completed once per year. Data will be generated by students and parent volunteers, and archived by WEP.

Please note that the data collected is for educational purposes and is not yet intended to be submitted for use by state or federal agencies. After quality assurances are made by appropriate agencies the data will be available on the internet

7. Expected Products/Outcomes

This project is expected to produce students with a greater awareness, knowledge, and involvement in the restoration of ecosystem components of the bay-delta watersheds. Also the

project will produce a model for a county-wide coordinated education program using the community and natural resources as the integrating context. The expected outcomes are better educated and trained citizens in the region.

8. Work Schedule

The full-time education coordinator will work throughout the project (November 2002-October 2005) to further develop the program in the rest of Butte County. The Chico Coordinator is currently funded for 2 years (one/fifth position) and the other district coordinators for 1 year. AAW, Project WET, Project Wild and Wild Aquatic, Project Learning tree and other workshops will occur in the spring and fall of 2003 and 2004. Restoration projects, field studies and coordination with other education projects (AAW, SRDC,) will occur throughout the project. Rapid bioassessment training and water quality training, funded by other grants, will occur in the fall of 2002 and spring of 2003. Community outreach and partnership building will follow the project schedule, November 2002 - October 2005.

B. Applicability to CALFED ERP, Science Program Goals and Implementation Plan, and CVPIA Priorities

1. ERP, Science Program and CVPIA Priorites

This project fits with ERP priorities MR3, pg 21, for education programs, and SR7 pg. 29, developing conceptual models to support restoration. It also fits with ERP Goals 2, 4, 5, 6 as a way to accomplish goals of rehabilitating natural processes, protect and restoring habitats, preventing the establishment of non-native species, and reducing sediment and improving water quality. It meets several Science Program Goals related to conducting adaptive management strategies, in this case environmental education, advancing process understanding, coordinating and extending monitoring, and addressing societal issues related to restoration. The project is also consistent with CVPIA Goals of protecting, restoring, and enhancing fish and wildlife, improving habitat, and involving partnering with agencies, and conservation and other community groups.

2. Relationship to Other Ecosystem Restoration Projects

Indirect relationship to all ecosystem restoration projects

This environmental education proposal complements several other related CALFED-funded projects within the greater Butte County watersheds. This proposal will study, restore and monitor watershed areas for the spring-run chinook and Central Valley steelhead which are the target species for the following projects on Butte Creek:

A. Butte Creek/Sanborn Slough Bifurcation Upgrade Project (2001-E204),
B. Lassen National Forest Watershed Stewardship within the Anadromous Watersheds of Butte, Deer, and Mill Creeks (2001-H200),
C. Butte Creek, Big Chico Creek and Sutter Bypass Chinook Salmon and Steelhead Evaluation (2001-K218),
D. White Mallard Dam and Associated Diversions (2001-L203), and
E. Lower Butte Creek Project: Phase III Facilitation/Coordination and Construction of Three Fish Passage Modification to Sutter Bypass West Side Water Control Structures (2001-

L205).

F. Cherokee Watershed Water Quality Monitoring, Prop 13

G. Little Chico Creek Management Planning, Prop 204

3. Requests for Next-Phase Funding

At the present time it is anticipated that the program will be somewhat self-sustaining after this project is completed in October 2005.

4. Previous Recipients of CALFED

WEP has received two previous award, an initial $50,000 start-up, and $100,000 expansion.

5. System-Wide Ecosystem Benefits

Awareness, knowledge, and action

C. Qualifications

Director: **Allen Harthorn, MS,** has completed degrees in Geography, BA, Agriculture, BS and MS, and has received a Agricultural specialist credential, as well as credential certifications in Life Sciences, Social Sciences, and Multiple Subjects. He has many years of experience managing agricultural training projects for CSU Chico. He is an avid fisherman and his personal involvement with and love for the Butte Creek Watershed led him to start the Butte Creek Watershed Conservancy. He was personally responsible for obtaining the initial FWS, CALFED and NFWF grants to develop a Management Strategy for the Butte Creek Watershed and the For the Sake of Salmon grant to hire a watershed coordinator. He has written proposals and received funding for two research projects, one restoration project, one four-partner acquisition and restoration of a 93 acres parcel on Butte Creek, and the Watershed Education Project. He is currently the Education Coordinator for the Sacramento River Watershed Program and Regional Coordinator for Northeast CREEC serving the nine northeastern counties of California. As Project Director, he will continue his coordination and public outreach efforts, as well as continuing to develop the expansion of the program throughout Butte County.

Education Coordinator: Anne Kinney Stephens received a BS in Biological Sciences from the University of California Davis with an emphasis in botany. She worked at the U.C. Davis Arboretum, co-producing the 1986 international seed exchange catalog, propagating native plants and accessioning records. Anne worked for four years teaching outdoor education with Exploring New Horizon s Environmental Education Project in Loma Mar, California and also acting as a school district liaison for the program. She has been a secondary science teacher since 1987 and staff developer for the California Science project since 1996. She has been coordinating the Watershed Education Project since its inception in 1996, is a member of the Science Task Force for Chico Unified School District and has been trained as an Adopt-A-Watershed facilitator.

D. Cost

1. Budget

The budget for the WEP is $328,456. No negative third party impacts would be realized from this project. Third party beneficiaries would include a broad spectrum of the general public as children and their parents learn more about the concerns for protecting the watershed resources.

Education will be the sustainable legacy of CALFED.

2. Cost-sharing
Tremendous amounts of volunteer time are involved in the education project. Using volunteer parent drivers for restoration and field study trips reduces cost to the program and provides an opportunity to share the program with adults. This greatly reinforces the education for the students. Americorp is providing a significant portion of the costs for a an 14 person education team and a 14 person restoration team to assist in classroom and outdoor activities. Student interns from CSU Chico will also provide in-kind services to assist in the project. Learn and Serve will provide additional support for training and Butte county Office of Education will provide support for loan of AAW materials through the Instructional Resource Center. Adopt-A-Watershed will provide the bulk of the cost for the AAW training through a CALFED grant currently being submitted.

E. Local Involvement

The Butte County Office of Education (BCOE) has enthusiastically supported this opportunity to expand this high-quality, standards-based science curriculum to all its schools. BCOE will host Adopt-A-Watershed trainings for the WEP and offer its Instructional Resource Center as a repository for field study kits and curriculum. Materials will then be conveniently available to Butte County teachers through the inter-district loan program.

Streaminders Environmental Education Program has been working with local school children since 1980 providing the Salmon in the Classroom program and creek ecology/restoration field trips. They will continue to work with the WEP facilitating the restoration component of watershed education. The Chico Unified School District s Learn and Serve Program (funded by CALSERVE) has been a partner with the WEP since its inception in 1996. The long-term field study, restoration, and community action components of watershed education offer a perfect avenue to carry out service learning objectives. The Learn and Serve office has provided funding for teacher release time for teachers to attend Adopt-A-Watershed and Project WET training and to take their classes on field trips. It has also provided funding to purchase tools and equipment for propagating riparian plants to be used in revegetation projects. In return the WEP has coordinated the training and field work opportunities for teachers interested in service learning.

The California Science Project of Inland Northern California (funded through the University of California Subject Matter Projects Office) provides professional development in science to teachers in the nine northeastern counties of Siskiyou, Modoc, Trinity, Shasta, Lassen, Tehama, Plumas, Glenn and Butte. The content focus for the next three years is water and watershed studies. This focus was selected for many reasons: because it encompasses all of the sciences, it addresses issues of real life importance for this region, it can utilize the many waterways of Northern California as living laboratories, it provides for long-term field study, problem-based and service learning. Another important consideration was the availability of quality curricula and the support offered by organizations such as the WEP.

Local Watershed Groups such as the Little Chico Creek Work Group and the Big Chico Creek Watershed Alliance along with the Friends of Butte Creek, the Butte Creek Watershed

Conservancy, Cherokee Watershed Group, and the Feather River Nature Center focus on the Butte County area. These groups are united in supporting the Education Project.

F. Compliance with Standard Terms and Conditions

Chico Unified School District will comply with standard terms and conditions associated with CALFED grant award.

G. Literature Cited

1. Lieberman, G.A, Hoody, L.L., *Closing the Achievement Gap, Using the environment as an Integrating Context for Learning,* A report of the State Education and Environment Roundtable, Science Wizards Publisher, 1998.