From Sierra to Cities: Sierra Water Education Program for Urban Users

Project Information

1. **Proposal Title:**

   From Sierra to Cities: Sierra Water Education Program for Urban Users

2. **Proposal applicants:**

   Philip Chang, Sierra Nevada Alliance
   Laurel Ames, Sierra Nevada Alliance
   Kathy Haberman, Sierra Nevada Alliance

3. **Corresponding Contact Person:**

   Philip Chang
   Sierra Nevada Alliance
   PO Box 13511 South Lake Tahoe, CA 96151
   (530) 542-4546
   sierran3@sierra.net

4. **Project Keywords:**

   Environmental Education
   Fish, Anadromous
   Flow, Instream

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: 37.700 to 38.900

   Longitude: 122.550 to 120.100

   Datum:

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

In this project research, relationship building and curriculum and program development will occur in the Tuolumne and American River Watersheds and in the San Francisco and Sacramento Metropolitan Areas.

10. **Location - Ecozone:**

    9.1 American Basin, 9.2 Lower American River, 13.2 Tuolumne River, Code 15: Landscape, Code 16: Inside ERP Geographic Scope, but outside ERP Ecozones

11. **Location - County:**

    El Dorado, Placer, Sacramento, San Francisco, Tuolumne

12. **Location - City:**

    Does your project fall within a city jurisdiction?

    Yes

    If yes, please list the city: Sacramento, San Francisco

13. **Location - Tribal Lands:**

    Does your project fall on or adjacent to tribal lands?

    No

14. **Location - Congressional District:**

    4th, 5th, 8th

15. **Location:**

    California State Senate District Number: 1,3,6,8,12

    California Assembly District Number: 4,5,9,10,12,13,25

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

    1

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:	8.9%
Total Requested Funds:	39645.50

b) Do you have cost share partners already identified?

Yes

If yes, list partners and amount contributed by each:

Project Advisors (see Question C) 2500

c) Do you have potential cost share partners?

Yes

If yes, list partners and amount contributed by each:

Additional Project Advisors 1000

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?**

No

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?**

No

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?**

No

Please list suggested reviewers for your proposal. (optional)

Kate Duffin	**Upper Merced River Watershed Council, Mariposa County School District**	**(209) 966-2221**	**watershed@sierratel.com**
Karen Kroner	**Yosemite Institute**	**(209) 379-9511**	**amstutz@cwia.com**
Alan Ehrgott	**American River Conservancy**	**(530) 621-1224**	**ehrgott@arconservancy.org**
Harry Hickman	**American River Watershed Institute, Placer County School District**	**(530) 885-1537**	**hhickman@placer.puhsd.k12.ca.us**

21. **Comments:**

The suggested reviewers may not be appropriate people to review this proposal, but are all talented and experienced environmental educators. Though these people will not benefit financially if this proposal is funded, many of them are either friends of Alliance staff people or have a particular interest in the American River Watershed. Two additional people you might contact are Sarah Green of the Tahoe Watershed Education Project, e-mail sjgreen@inreach.com and Joyce Gutstein, e-mail jjgutstein@ucdavis.edu, phone (530) 652-7823.

Environmental Compliance Checklist

From Sierra to Cities: Sierra Water Education Program for Urban Users

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.

      Phase I of this project involves preparation for environmental education activities. There will be no on-the-ground work and no modifications of land and resource use or disturbances to ecosystems.

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.**

Comment on Question 5: While no permissions to access property are anticipated for Phase I of this project such permissions may be required, and will be acquired, in future Phases of the project.

Land Use Checklist

From Sierra to Cities: Sierra Water Education Program for Urban Users

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?**

   No

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).

   Education only

4. **Comments.**

Conflict of Interest Checklist

From Sierra to Cities: Sierra Water Education Program for Urban Users

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):

Philip Chang, Sierra Nevada Alliance
Laurel Ames, Sierra Nevada Alliance
Kathy Haberman, Sierra Nevada Alliance

Subcontractor(s):

Are specific subcontractors identified in this proposal? No

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Bill Center Camp Lotus

Jenna Olsen Tuolumne River Preservation Trust

Allen Harthorn Sacramento River Watershed Program

Conner Everts Urban Creeks Council

Fran Spivey-Weber Mono Lake Committee

Comments:

The other Project Advisors listed in Question B.2. (Scott Kruse, Bartshe Miller) also provided input on this proposal.

Budget Summary

From Sierra to Cities: Sierra Water Education Program for Urban Users

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**
I	Background Research	210	3613	889	1500	200				6202.0	448	6650.00
II	Build Partnerships	285	4904	1207	3250					9361.0	608	9969.00
III	Design Curriculum and Programs	285	4904	1207	3250	300				9661.0	607	10268.00
IV	Develop Plan and Proposals	260	4472	1100	400	100	1000	500		7572.0	554	8126.00
V	Project Management and Administration	132.5	2279	561				500		3340.0	1292.5	4632.50
		1172	20172.00	4964.00	8400.00	600.00	1000.00	1000.00	0.00	36136.00	3509.50	39645.50

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**
		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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**
		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grand Total=39645.50

Comments.

Budget Justification

From Sierra to Cities: Sierra Water Education Program for Urban Users

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

Watershed Program Manager: 1000 hours Executive Director: 115 hours Office Manager: 57.5 hours

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

Watershed Program Manager: $16.41 per hour Executive Director: $25.64 per hour Office Manager: 14.15 per hour

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

Watershed Program Manager: 19% Executive Director: 23% Office Manager: 19% Benefit package includes Payroll Liability, and Health Benefits

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

We predict roughly 45 trips to Sacramento, San Francisco, and Sierra destinations in the Tuolumne, American and Mono watersheds. During these trips we will conduct background research, build partnerships, design curriculum and programs in collaboration with our partners, and travel for funding proposal development purposes. We request $3565 to drive 11,500 miles at $.31 per mile. We request $3500 for 70 nights of lodging at an estimated $50 per night. And we request $1335 for meals during 92 days of travel at $14.5 per day. Total travel budget request: $8400.

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

Within our $600 supply budget we anticipate purchasing published materials and office supplies.

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.

We will contract consultants to assist with curriculum and educational program development(Task III). For the $1000 we have requested we anticipate we can get 30 hours of advice. Consultants will be sought after all background research is completed and venues for pilot educational programs have been identified.

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.

Within our $1000 budget we will design and fabricate field and indoor educational materials (displays, field visuals, etc).

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.

Project management costs include all work described in Task V and inspection of work in progress, validation of costs, report preparation, giving presentatons, response to project specific questions and necessary costs directly associated with specific project oversight.

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

None

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.

Our overhead costs include: rent, phone, insurance, equipment, furniture, postage, copying and printing, supplies, annual audit, bookkeeping and 57.5 hours of Office Manager time at the rates listed above. In our budget, the indirect costs are 8.9% of the total request.

Executive Summary

From Sierra to Cities: Sierra Water Education Program for Urban Users

The Tuolumne and American Rivers harbor remnants of once great anadromous fish runs in their lower reaches. Flow regime improvements, cleaner water, and expanded habitats could improve the viability of these fish runs. To achieve these ecosystem improvements will require a broad and motivated constituency, particularly in the Sacramento and San Francisco metropolitan areas which depend on the American and Tuolumne watersheds for water and hydroelectricity. But few residents of these urban areas understand their vital connections to source watersheds in the Sierra. The objective of this educational project is to build awareness of and a sense of attachment to the Tuolumne and American River watersheds among the urban Californians that draw sustenance from them. We believe that education can mobilize this untapped constituency to create opportunities to improve lower American and Tuolumne River flow regimes by conserving water and electricity, to support measures to improve environmental water quality in the two rivers through upper watershed management, and to support measures to expand anadromous fish habitat throughout California thus addressing multiple CALFED ERP goals. Phase I of this educational project studies the feasibility and prepares us to deliver educational programs to targeted citizens in their home cities and on their visits to the Sierra. We will research the two focus watersheds, anadromous fish restoration programs in their lower reaches, water and hydroelectricity usage in the two cities, and stewardship activities identified to benefit aquatic habitats. We will also research the successful urban watershed education programs of the Mono Lake Committee. We will identify, contact and evaluate organizations within or associated with our focus cities to find appropriate partners for pilot educational programs. We will work with our new partners to craft educational programs around four core themes and develop the program materials necessary for pilot program implementation. Finally, we will write an implementation plan and develop funding proposals to deliver programs in Phase II of the project.

Proposal

Sierra Nevada Alliance

From Sierra to Cities: Sierra Water Education Program for Urban Users

Philip Chang, Sierra Nevada Alliance
Laurel Ames, Sierra Nevada Alliance
Kathy Haberman, Sierra Nevada Alliance

A. Project Description: Project Goals and Scope of Work

1. Problem Statement

The Tuolumne and American Rivers are major tributaries to the Bay Delta and support important remnants of once major anadromous fish runs in their lower reaches. Recent restoration efforts have significantly improved anadromous fish habitat in the Lower Tuolumne and American. But the in-stream flows that support these fish runs are inadequate in volume, not optimally timed and increasingly polluted (Tuolumne River Technical Advisory Committee 1999, Sacramento Area Water Forum 2000). In coming decades, the rapidly growing populations of Sacramento and the San Francisco Bay Area must either learn to use water more efficiently or they will seek to divert ever increasing amounts of water from the Tuolumne, American and other watersheds.

These two rivers have a potent but untapped constituency — the citizens of Sacramento and San Francisco who depend on the American and Tuolumne for water supply and hydroelectricity. These urban Californians are hydrologically connected to the American and the Tuolumne, but are largely unaware of this connection and feel little sense of attachment or stewardship for the rivers that sustain them. If mobilized, these urban citizens would be an important force for improving conditions for salmon and steelhead in the American and Tuolumne Rivers.

By conserving water at the household, commercial and industrial levels, urban Californians can create opportunities to increase in-stream flows in the lower Tuolumne and lower American and also head off future demands for increased diversions. Currently, the San Francisco Public Utilities Commission diverts 230,000 acre feet from the Tuolumne River watershed for distribution in San Francisco Bay Area. The City of Sacramento diverted 50,000 acre feet from the American River watershed in 1995 and expects to divert 130,000 acre feet per year by 2030 (Sacramento Area Water Forum 2000). Similarly, by conserving electricity urban Californians can create opportunities to improve flow regimes for anadromous fish in the lower Tuolumne and lower American.

The residents of these large population centers can become an important constituency for non-point source pollution reduction programs throughout the Tuolumne and American River watersheds, supporting efforts to provide cleaner water to the lower river anadromous fish runs and to improve environmental water quality throughout the Bay-Delta system.

These same urban Californians could support efforts to expand spawning habitat for anadromous fish throughout the state, promoting everything from urban creek restoration to feasibility studies for creating fish passage around Folsom and Don Pedro reservoirs to provide access to upstream habitat on the Tuolumne and American rivers.

Few environmental education programs have attempted to foster a stewardship ethic for municipal supply watersheds among the urban Californians who draw sustenance from them. The Mono Lake Committee pioneered such efforts in California in the 1980s and 1990s, reaching out to the citizens of Los Angeles and building a sense of attachment to a remote source watershed. These educational efforts were key to the implementation of efficiency measures in Los Angeles that made it possible to reduce Mono Basin diversions. Details on these outreach and educational programs can be found on the Mono Lake Committee website: www.monolake.org.

Project Vision
We envision an environmental education program that reaches San Franciscans and Sacramentans both in their home cities and on site in their source watersheds during their visits to the Sierra.

We plan to partner with organizations that bring urban Californians to the Sierra during the summer months to provide field-based education about the Tuolumne and American River watersheds. Municipal camps, such as Camp Mather (San Francisco) and Camp Sacramento, and outdoor education programs, such as CSU Sacramento's Peak Adventures and UC San Francisco's Outdoors Unlimited, have expressed interest in partnering on such programs. Fostering a sense of attachment to remote municipal supply watersheds will be accomplished on foot or in the water on site in those watersheds.

To reach urban Californians in their home cities we will identify appropriate venues for our message and purpose, develop partnerships with the organizations that manage those venues, and deliver programs collaboratively. These programs would occur during the fall, winter, and spring months. Likely venues include: Earth Day events, regular meetings of environmental organizations, college and university campuses, evening programs at outdoor retail stores, K-12 classrooms that are already participating in some type of watershed education such as Salmon in the Classroom, meetings of local creek/watershed stewardship groups, and public events connected to important local water policy processes such as the Sacramento Water Forum or the San Francisco Municipal Utility District initiative.

Educational programs will vary tremendously according to audience, setting and other factors, but will contain a set of core themes and information:

- The Tuolumne and American River watersheds are beautiful, ecologically important, and complex systems – heavy emphasis on natural history

- These rivers are important to the lives of San Franciscans and Sacramentans – highlight beneficial uses such as domestic supply and hydroelectricity

- Salmon and Steelhead still run in the lower Tuolumne and American Rivers and specific ecosystem changes might improve their viability – review scientific analysis from current restoration programs

- There are multiple opportunities for stewardship of these watersheds: urban water use efficiency and conservation; upper watershed management to improve water quality; modified hydropower facility operation to improve flow regimes; possibilities for fish passage to upper watershed habitat – practical examples of stewardship

Programs will target both adult and youth audiences, in some cases providing whole-family educational experiences. We will emphasize experiential, active and interactive education practices that are concretely grounded in specific, if sometimes distant, places. We will also strive to provide people who have participated in our programs with continuing opportunities for learning.

Goals and Objectives
The goal of this project is to build an urban constituency for improving anadromous fish habitat, particularly in-stream flows and environmental water quality, in the Tuolumne and American river watersheds.

The Sierra Nevada Alliance's objectives for Phase I of this project are (1) to design curriculum to educate and impassion residents of San Francisco and Sacramento about their municipal supply watersheds (2) to develop partnerships with organizations associated with those cities to deliver the new educational programs and (3) to develop a plan for program delivery and grant proposals to secure funds for implementation.

To achieve our Phase I objectives we will conduct research, build partnerships, design educational programs, and develop a plan for delivery. We will research the Tuolumne and American river watersheds, water and hydroelectricity usage in San Francisco and Sacramento, anadromous fish restoration programs in the lower portions of the rivers, and stewardship activities that could benefit these aquatic habitats. We will also research the successful urban Californian watershed education programs of the Mono Lake Committee. We will identify, contact and evaluate organizations within or associated with our focus cities to find appropriate partners for pilot educational programs. We will work with our new partners to craft educational programs around our four core themes and develop the program materials necessary for pilot program implementation. Finally, we will write an implementation plan and develop funding proposals to deliver programs in Phase II of the project.

Phase I of this project is in many ways a feasibility study which will clarify the breadth of potential programs, the geographic and time constraints, and the number and demographics of people and organizations that will be involved. By completing this feasibility study before we begin to offer educational programs we will reduce the potential for miscalculations of time and costs. We will also be able to carefully select educational venues that will offer high returns for our efforts and to craft programs that are customized to those venues.

2. Justification for Project

Conceptual Model

The conceptual model for this project is graphically depicted in Attachment A and described in written form here.

Sierra Nevada rivers supply urban California with water and hydropower. This usage has degraded and diminished anadromous fish habitat in these rivers (Kattelmann 1996, Moyle 1996, Tuolumne River Technical Advisory Committee 1999, Sacramento Area Water Forum 2000). Urban Californians are largely unaware of their connection to Sierra watersheds or the impacts that their usage causes.

We hypothesize that environmental education programs that are targeted at urban Californians who depend on Sierra Nevada rivers for water and energy can inspire those urban citizens to take actions to improve the health of their municipal supply watersheds. Specifically, we believe that fostering an awareness of and an attachment to the Tuolumne and American river watersheds will motivate residents of San Francisco and Sacramento to conserve water, support upper watershed restoration and management activities that reduce non-point source pollution, and support efforts to expand habitat for anadromous fish.

The ecosystem outcomes of such stewardship actions will be improved environmental water quality in these two rivers and the Bay-Delta and enhanced flow regimes and expanded habitats for anadromous fish.

We have made an important simplifying assumption in this conceptual model that water and energy conservation in urban areas translates into more abundant and naturally timed flow regimes in the lower Tuolumne and American Rivers. We recognize that specific institutional mechanisms will need to be created in the policy arena to assure that conservation savings are converted to ecosystem improvements for anadromous fish. This education project will build the public support for such mechanisms, but will rely on other existing efforts to make policy changes.

By designing and implementing source watershed education programs for urban Californians we will be able to test our hypothesis that education can produce stewardship behavior and ecosystem benefits in the Tuolumne and American river systems. Hypothesis verification or rejection will occur in Phase II of the project when we survey people who have participated in our educational programs to evaluate changes in attitudes and behavior.

Selection of Project Type and Adaptive Management

Phase I is primarily a research project, but also initiates a pilot program. We will research two rivers, their interactions with two cities, and their anadromous fish runs. We will examine a working model of urban Californian watershed education. And we will investigate venues and partners for educational program delivery. We will initiate a pilot program by building partnerships to deliver programs, designing educational programs and developing an implementation plan and funding proposals.

Basic research and cautious pilot program initiation are the appropriate places to start this project because the educational programs we envision are so novel. The work of the Mono Lake Committee provides a valuable example of education for urban Californians about their source watersheds. But to transfer this model to a different set of cities and watersheds will require collecting and synthesizing a great deal of information about these watersheds and cities and seeking out and building relationships with many new partners.

A great deal of information exist about the Tuolumne and American Rivers, water and hydroelectricity usage in San Francisco and Sacramento, and ecosystem modifications that can aid the recovery of anadromous fish. But this information has never before been synthesized and organized for the educational purposes envisioned by this project. Similarly, many Sierran and urban educational venues exist that are suitable for the types of programs and stewardship messages that we envision. But these venues have not been used for these purposes before.

Since educational programs will not actually be delivered until Phase II of this project there will not be opportunities to evaluate the effectiveness of activities and adapt until that time. When we undertake pilot programs in Phase II we will establish performance evaluation procedures and feedback mechanisms for those evaluation procedures to affect future activities. Still, Phase I of this project will involve a great deal of learning and we may discover that there are better means to achieve our goal of educating urban Californians about their source watersheds than the ones we envision. From the start of Phase I to the end of the final Phase, the Alliance will bring the flexibility and responsiveness to

new information to this project that is characteristic of non-profit organizations.

3. Approach

The anticipated work for Phase I of this project consists of four major Tasks: (I) Conducting Background Research for Curriculum Development; (II) Building Partnerships for Program Delivery with Organizations Within or Associated with Focus Cities; (III) Designing Curriculum and Programs; and (IV) Developing a Plan and Funding Proposals for Program Delivery. These Tasks are described in greater detail below.

A set of Project Advisors will be assembled to provide guidance on this project. Collectively, Advisors will have expertise in environmental education curriculum development and delivery, and knowledge about the American and Tuolumne Rivers and restoration projects on the lower reaches; water and energy conservation and efficiency practices, technology, and policy; water and power usage in Sacramento and San Francisco; and the Mono Lake Committee education programs for urban Southern Californians.

Task I. Conduct Background Research for Curriculum Development

I.1 Compile raw information that will be shaped into curriculum by interviewing key people, reading published materials, performing internet searches, reviewing CALFED documents and programs, and other research techniques. Topics to be researched include: natural history of the Tuolumne and American river watersheds; water and hydroelectricity usage in San Francisco and Sacramento and systems for delivery; current water and energy use efficiency programs in San Francisco and Sacramento; lower Tuolumne and American river anadromous fish restoration programs; urban water use efficiency practices and technologies; sources of non-point source (NPS) pollution in the Tuolumne and American river watersheds; local watershed programs in the Sierra that are controlling NPS pollution; policies that support local watershed program NPS control efforts; and anadromous fish passage technologies and case studies.

I.2 Research the Mono Lake Committee's educational programs for urban southern Californians to draw transferable lessons from this effective model. The Mono Lake Committee is one of the Alliance's 80 member groups so strong ties exist between the two organizations. Research will consist of interviews, program observations and reading program materials.

Task II. Build Partnerships for Program Delivery with Organizations Within or Associated with Focus Cities

II.1 Identify potential venues to reach San Franciscans and Sacramentans with educational programs about their source watersheds. Potential Sierra Nevada venues include municipal camp programs, outdoor education program trips, and local raft trip outfitters on the Tuolumne and American. Potential urban venues include Earth Day events, regular meetings of environmental organizations, college and university campuses, evening programs at outdoor retail stores, K-12 classrooms that are already participating in some type of watershed education such as Salmon in the Classroom, meetings of local creek/watershed stewardship groups, and public events connected to important local water policy processes such as the Sacramento Water Forum or the San Francisco Municipal Utility District initiative.

Additional potential venues will be identified by interviewing people who are knowledgeable about activities in these cities, analyzing events and calendar sections of local newspapers, surveying environmental education organizations that operate within the cities, and using other methods.

II.2 Contact pertinent organizations to discuss the potential for partnership in educational program delivery. Review our goals, planned curricula, and sample program ideas with organizations to determine whether there are complementary interests and potential for joint programs. Collect information on organizations that are interested in partnering and appear to offer good opportunities to meet educational objectives.

II.3 Develop a written profile for each venue and organization highlighting relevant information: size and demographic make up of audience that can be reached; types of programs desired; appropriate presentation formats for the venue; partner organizations' existing educational programs; dates, times and locations of educational opportunities; contact information for key people; and other important information.

II.4 Identify pilot programs. Evaluate potential venues and partner organizations for feasibility of program delivery and expected payoffs to educational efforts. Choose pilot programs to build curriculum around.

Task III. Design Curriculum and Programs

III.1 Work with partner organizations to craft pilot educational programs for Phase II implementation. Package information to fit the specific audiences and venues selected. Pilot educational programs are expected to be quite diverse, ranging from field-based programs in Sierra watersheds that last a full day to 3-minute speeches that will be delivered over and over again at a display booth in an urban setting, from hour long evening slide shows that will be delivered in urban meeting rooms to training modules for the staff of municipal camps in the Sierra. What will tie these diverse programs together will be their four core themes: (1) The Tuolumne and American River watersheds are beautiful, ecologically important, and complex systems; (2) These rivers are important to the lives of San Franciscans and Sacramentans; (3) Salmon and Steelhead still run in the lower Tuolumne and American Rivers and specific ecosystem changes can improve their viability; (4) There are multiple opportunities for stewardship of these watersheds. Project Advisors with expertise in environmental education will provide Alliance staff with additional guidance in program design.

III.2 Develop educational materials for pilot program delivery in Phase II. Write outlines and 'scripts' for programs. Assemble archives of slides and digital images. Create weatherproof visual materials (charts, pictures, diagrams) for field use and 'props' for kids' activities. For expensive items such as traveling displays or brochures to be handed out in conjunction with programs, we will prepare schematic plans for Phase II production.

Task IV. Develop Plan and Funding Proposals for Program Delivery

IV.1 Write an implementation plan for educational program delivery. The plan will clearly articulate the goals and objectives for Phase II and will include background information on target audiences; an

assessment of existing, complementary educational programs; a discussion of curriculum components; a description of venues selected for pilot programs; a description of pilot programs; and a list of potential fund sources for implementation.

IV.2 Develop grant proposals for Phase II implementation. Research environmental education funding sources and write proposals to implement pilot educational programs.

Task V. Project Management and Administration

V.1 Provide all technical and administrative services needed for project completion; monitor, supervise, and review all work performed; and coordinate budgeting and scheduling to assure that the project is completed within budget, on schedule, and in accordance with approved procedures, applicable laws and regulations. Ensure that contract requirements are met through submission of regular progress reports and financial reports.

Replicability and Dissemination

The program materials developed in Task III of this project will be the key to replicating these programs for additional audiences of Sacramentans and San Franciscans. These program materials will clearly outline and script out curriculum and provide supporting visuals and information. With slight modifications, these programs could be delivered for other audiences within the San Francisco Public Utilities Commission (SFPUC) service area, but outside of San Francisco. Much of the South and East Bay Area receives Tuolumne River water through the SFPUC system. In addition, these programs could be adapted to satellite cities in the broader Sacramento area that draw water from the American River watershed.

The Mono, American and Tuolumne watersheds are not the only Sierra watersheds that provide substantial amount of water and power to large metropolitan areas. This educational program model could also be disseminated to the Feather, Mokelumne, Owens, Kings and Truckee watersheds and the urban populations they sustain in southern California, Stockton, the East Bay Area, Fresno, and Reno. By building awareness and personal connection to remote source watersheds among urban populations throughout the state, educational projects like these can build a powerful constituency for conserving water, reducing non-point source pollution, andenhancing aquatic habitats.

4. Feasibility

This project will build upon and adapt the successful educational model developed by the Mono Lake Committee to reach out to distant municipal water and power consumers in Los Angeles. It will be executed by staff and guided by Project Advisors with a strong background in environmental education. The Sierra Nevada Alliance has a significant network of contacts in the arenas of water and watershed education and management. We will tap this network for information, advice and contacts as necessary to complete this project.

The major contingency we can foresee for Phase I of this project is building partnerships with organizations within or associated with our focus cities. We have contacted several of these organizations

during the visioning stage of this project and found strong interest in and support for our project concept. Consequently, we do not believe that building the necessary partnerships will be a significant challenge.

No environmental compliance procedures or landowner permissions are required for this project.

5. Performance Measures

Phase I of this project will produce a range of deliverable outputs, including

- A project bibliography that documents the sources of information that were used to develop the curriculum for the pilot educational programs and explains what information was drawn from each source

- Profiles of each potential educational venue and partner organization that documents audiences that can be reached, types of programs desired, appropriate presentation formats, existing educational programs, times and locations of educational opportunities, and contact information

- Program materials that embody the pilot educational programs, such as outlines, scripts, slides, digital images, visual materials, props, and schematic plans for brochures and displays

- An implementation plan that includes goals, objectives, background on target audiences, assessments of existing educational programs, curriculum components, lists of potential fund sources, and descriptions of pilot programs and the venues through which they will be delivered.

- Funding proposals for Phase II implementation

These deliverable outputs will reflect the successful completions of the project activities described in Tasks I – IV.

The significant outcomes of this project will not be realized until Phase II, when actual educational programs will be delivered at the pilot project level. At that point we will develop measures of actual changes in attitudes, awareness and behavior among people who participate in our educational programs using surveys and other evaluation techniques.

6. Data Handling and Storage

All information and publications acquired during the research phase of this project will be stored in the files and library at the Sierra Nevada Alliance office. This information will be made directly accessible to anyone who wishes to view it at the office. A description of the project will be outlined on our website as a guide to the information we have compiled.

The educational programs and materials developed during Phase I of the project will synthesize and encapsulate much of the information collected. These materials will also be available at the office. A

limited number of copies of the implementation plan will be available upon request.

7. Expected Product/Outcomes

The immediate outcomes of Phase I of this project will be the deliverable outputs described in question 5: a project bibliography, profiles of potential venues and organizational partners, numerous program materials, an implementation plan, and funding proposals.
The pilot educational programs delivered in Phase II of this project will build awareness of, appreciation for, and attachment to the Tuolumne and American River watersheds among the citizens of San Francisco and Sacramento. These programs will cultivate a particular concern for the salmon and steelhead that spawn in the lower Tuolumne and American Rivers and will provide urban Californians with concrete ideas about how they can assist those anadromous fish runs. Armed with this knowledge, this new constituency for anadromous fish will conserve water and electricity and support programs to reduce non-point source pollution through watershed management and expand habitat for salmon and steelhead.

At the ecosystem level, the outcomes of these stewardship activities will be improved flow regimes for anadromous fish, cleaner water in the Tuolumne and American Rivers, and expanded habitat for salmon and steelhead through measures such as fish passage.

8. Work Schedule

TASK		COMPLETION DATE
I. Background Research for Curriculum Development		
I.1	Research on focus rivers and cities and on water use efficiency, NPS reduction, and fish passage practices and policy	Month 3
I.2	Research Mono Lake Committee education programs	Month 3
II. Build Partnerships for Program Delivery		
II.1	Identify potential program venues	Month 5
II.2	Contact potential partner organizations	Month 5
II.3	Develop written profiles for venues and organizations	Month 5
II.4	Identify pilot programs	Month 6
III. Design Curriculum and Programs		
III.1	Develop an array of pilot programs with partners	Month 8
III.2	Develop accompanying educational materials	Month 9
IV. Develop Plan and Funding Proposals for Program Delivery		
IV.1	Write implementation plan	Month 11
IV.2	Develop grant proposals	Month 11
V. Project Management and Administration		
V.1	Project support, oversight, reporting, and coordination	Month 11

Please see Attachment B for the 11-month timeline for this project.

We believe the tasks outlined in this proposal should not be separated for incremental funding. Research, partnership building, and program development are highly dependent upon each other and will ideally be completed in a concentrated time period.

One way to disggregate this project for funding in smaller pieces would be to provide funding to work with only one of the two cities and its associated source watershed. However, we believe there is an economy of scale in working on both the Tuolumne and American systems at once, since much of the research will be relevant to both watershed systems and program development in the two places will be mutually supportive. Consequently, if funding was provided for only one city and associated source watershed we would likely need more than half of the requested amount to complete the smaller project.

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

1. ERP, Science Program and CVPIA Priorities

This project addresses the following draft Stage 1 PSP priorities:

MR-3) Implement environmental education actions throughout the geographic scope

MR-5) Ensure that restoration is not threatened by degraded environmental water quality

SR-1) Develop and implement habitat management and restoration actions in collaboration with local groups such as the Sacramento River Conservation Area Non-Profit Organization

SR-2) Restore fish habitat and fish passage particularly for spring-run Chinook salmon and steelhead trout and conduct passage studies

SR-4) Restore geomorphic processes in stream and riparian corridors

SJ-1) Continue habitat restoration actions including channel-floodplain reconstruction projects and habitat restoration studies in collaboration with local groups

Phase I of the project builds the curriculum and the organizational linkages to implement novel environmental education programs (MR-3) in Phase II. These environmental education programs will build an urban constituency for improving anadromous fish habitat in the Tuolumne and American river watersheds.

Through more efficient use of water and energy, residents of Sacramento and San Francisco will create opportunities to improve the flow regimes in the lower Tuolumne and American rivers. By delivering greater volumes of water at key times the institutions that manage these lower rivers can alter channel dynamics and sediment transport to benefit anadromous fish and improve conditions for riparian vegetation (SR-1, SR-4, SJ-1). Improving water use efficiency would also address CALFED's long term interest in supply reliability by managing demand.

This new urban constituency will support efforts to expand anadromous fish habitat, including activities such as fish passage studies (SR-2).

They will also support efforts to reduce non-point source pollution through improved watershed management in the American and Tuolumne watersheds, potentially becoming voters who would support measures like Prop 13, the Water Bond of 2000. Improved watershed management in the American and Tuolumne watersheds would reduce discharges of sediment, nutrients, pathogens, toxic trace metals, and pesticides into the rivers, the lower river anadromous fish habitats, and ultimately the Bay-Delta. (MR-5)

2. Relationship to Other Ecosystem Restoration Projects

An educational project that builds source watershed awareness and attachment among citizens of San Francisco and Sacramento will complement and enhance multiple other initiatives that maintain and enhance the health of the Tuolumne and American River watersheds and the Bay-Delta. Specifically, the project will augment anadromous fish habitat restoration efforts on the Lower Tuolumne and American Rivers, non-point source pollution control efforts in the upper watersheds, and water and energy conservation programs in San Francisco and Sacramento.

Anadromous fish habitat restoration efforts are underway in association with the Habitat Restoration Plan for the Lower Tuolumne River (Tuolumne River Technical Advisory Committee 1999) and the Sacramento Area Water Forum Agreement (Sacramento Water Forum 2000). The Tuolumne River Restoration Project and the Sacramento Water Forum Successor Efforts are intended to improve flow regimes for fish by altering magnitude, timing, frequency, and duration of flows; to improve water quality in the rivers; and to expand available anadromous fish habitat. Educational programs can promote conservation and efficient use of water and energy and can foster public support for upper watershed management efforts to reduce pollution and for expanded fish habitat. Reduced water and energy demands create opportunities to improve flows for fish and public support for clean water and fish habitat can lead to governmental programs to advance those goals.

The upper watersheds of the American River are stewarded by the American River Watershed Group (North and Middle Forks) and the South Fork American River Watershed Group. These two groups are working actively to reduce non-point source pollutant discharges into the American River system. Expanded public support for upper watershed management such as these will lead to improved water quality in the American River and the Bay-Delta.

Finally, public water and power providers in San Francisco and Sacramento are already working to promote conservation and more efficient use among metropolitan residents. We will work to coordinate educational programs with conservation outreach by the San Francisco Public Utility Commission, the Sacramento Metropolitan Water Authority, and the Sacramento Municipal Utility District for maximum effectiveness. We believe that the conservation programs of these public entities will be strengthened by the message that water and power conservation benefits precious rivers and salmon and steelhead in the Sierra and Central Valley.

3. Requests for Next-Phase Funding

Not Applicable

4. Previous Recipients of CALFED Program or CVPIA Funding

Not Applicable

5. System-Wide Ecosystem Benefits

The suite of stewardship actions promoted by this educational project will complement and reinforce each other to synergistically benefit the Tuolumne and American River watersheds and the Bay-Delta. Mobilized citizens will conserve water and energy and support policies to improve upper watershed management and expand anadromous fish habitat. The results of these stewardship activities will be improved flow regimes, cleaner water, and improved fish passage. These ecosystem improvements complement each other to enhance the viability of anadromous fish and bolster the health of the Bay-Delta and its tributaries.

This educational project complements on-the-ground restoration projects and water and energy conservation programs as detailed in Question B.2.

6. Additional Information for Proposals Containing Land Acquisition

Not Applicable

C. Qualifications and Organization of Project

Background research, relationship building, program and curriculum development, and implementation plan and proposal writing will be conducted by the Alliance's Watershed Program Manager. The Executive Director will provide direction and assistance to the Watershed Program Manager in executing the project. The Alliance's Administrative Assistant will provide administrative support to the project.

The Alliance has also assembled a team of Project Advisors for the project. These Advisors bring extensive knowledge about the Tuolumne and American River watersheds and the cities that draw water and power from them and particular expertise in environmental education, water use efficiency and conservation, anadromous fish habitat restoration, and other pertinent topics for this project. The Watershed Program Manager will individually tap these Advisors for guidance and information throughout the project at key times.

Brief Biographical Sketches of Staff

Phil Chang is the Watershed Program Manager for the Sierra Nevada Alliance. He holds a B.A. in Cultural Anthropology and Environmental Studies from Columbia and an M.A. in Environmental Science, Policy and Management from U.C. Berkeley. Phil has six years of experience in designing, delivering and overseeing field-based environmental education programs as an Interpreter for the National Park Service, an Instructor and Education Facilitator for the Yosemite Institute, and as a Crew Leader and Northwest Regional Program Manager for the Student Conservation Association High School Program. He also has classroom teaching experience as a Graduate Student Instructor for undergraduate environmental policy courses. As Watershed Program Manager, Phil has traveled throughout the Sierra providing community education about watersheds for the past year and a half.

Laurel Ames, the Executive Director of the Sierra Nevada Alliance, holds a B.A. in English Literature from U.C. Berkeley and a Masters in Public Administration from the University of San Francisco. Laurel has worked to promote watershed awareness in California at the policy level for eight years through several policy processes, including the CALFED Watershed Work Group and the start-up California Watershed Network. She has particular technical expertise in watershed management measures to reduce Non-Point Source pollution in Sierra watersheds.

Project Advisor Roster

Bill Center is owner of Camp Lotus, a leading member of the American River Recreation Association, a former County Supervisor of El Dorado County, and is involved with many field-based educational activities in the South Fork American River watershed. Bill will provide our project with policy insights and an intimate knowledge of the American River watershed and opportunities to restore its ecological function.

Jenna Olsen is the Executive Director of the Tuolumne River Preservation Trust. Jenna has an intimate understanding of the Tuolumne river ecosystem and its linkages to the San Francisco Bay Area, with particular knowledge of the lower River anadromous fish recovery efforts and the distribution systems and conservation programs of the San Francisco P.U.C. She will guide our research efforts, point us to potential partnership opportunities, and evaluate our draft educational curriculums and programs.

Scott Kruse is a biophysical geographer and environmental educator. He is both a trainer and a regional leader and promoter of the Global Learning and Observations to Benefit the Environment (GLOBE) project in the Sierra. Scott will assist the Alliance in synthesizing the diverse information collected in the research phase of this project into curriculum and educational programs.

Bartshe Miller is the Education Director for the Mono Lake Committee. He will provide the Alliance with an overview of the Committee's educational programs for urban Southern Californians, explain how this program was started, and offer advice on launching programs for the Tuolumne and American river systems. Other Committee staff will also advise the Alliance on coupling such educational programs to water use efficiency programs in urban areas.

Allen Harthorn is a key founder of the Butte Creek Watershed Conservancy, the Education Coordinator

for the Sacramento River Watershed Program, and the Regional Coordinator for Northeast CREEC (California Regional Environmental Education Community). Allen will provide guidance and expertise on anadromous fish habitat restoration to the project and, in the later stages, will provide advice on teaching about anadromous fish.

Conner Everts is the Convener for the California Urban Water Conservation Council (CUWCC), the Executive Director of the Southern California Watershed Alliance, and has just joined the staff of the Urban Creeks Council. Connor has assisted water purveyors with implementing water use efficiency and conservation programs for 30 years. He will advise the Alliance in educating citizens about water use efficiency and conservation measures.

We will work to recruit additional Project Advisors from groups that are working to promote water and energy use conservation in San Francisco and Sacramento and from groups that are providing watershed education in the cities.

D. Cost

1. Budget

Please see web-based Budget Form for the 11-month budget for this project

2. Cost-Sharing

Project Advisors will contribute their time to this project at no charge. We estimate this contribution to be worth $2500.

E. Local Involvement

Phase I of this project is in many respects a feasibility study in preparation for actual educational program delivery. The people and organizations who will need to be involved in this project are separated by significant physical distances and presently have few communication channels. Consequently one of the primary tasks of Phase I will be building new relationships between local groups in San Francisco, Sacramento, and the Sierra and creating the support network to effectively implement programs in later Phases (see Task II).

We are in contact with local watershed groups in the Tuolumne and American River watersheds and have made new contacts with municipal camps and outdoor education programs that bring Sacramentans and San Franciscans to the Sierra and environmental groups within the focus cities. All of these parties are supportive of our project concept and are willing to work with us in exploring program possibilities in Phase I.

F. Compliance with Standard Terms and Conditions

The Sierra Nevada Alliance agrees to comply with all state and federal standard terms.

G. Literature Cited

Kattelmann, R. 1996. Hydrology and Water Resources. In *Sierra Nevada Ecosystem Project: Final Report to Congress*, Vol. II, Chapter 30. Davis: University of California, Centers for Water and Wildland Resources.

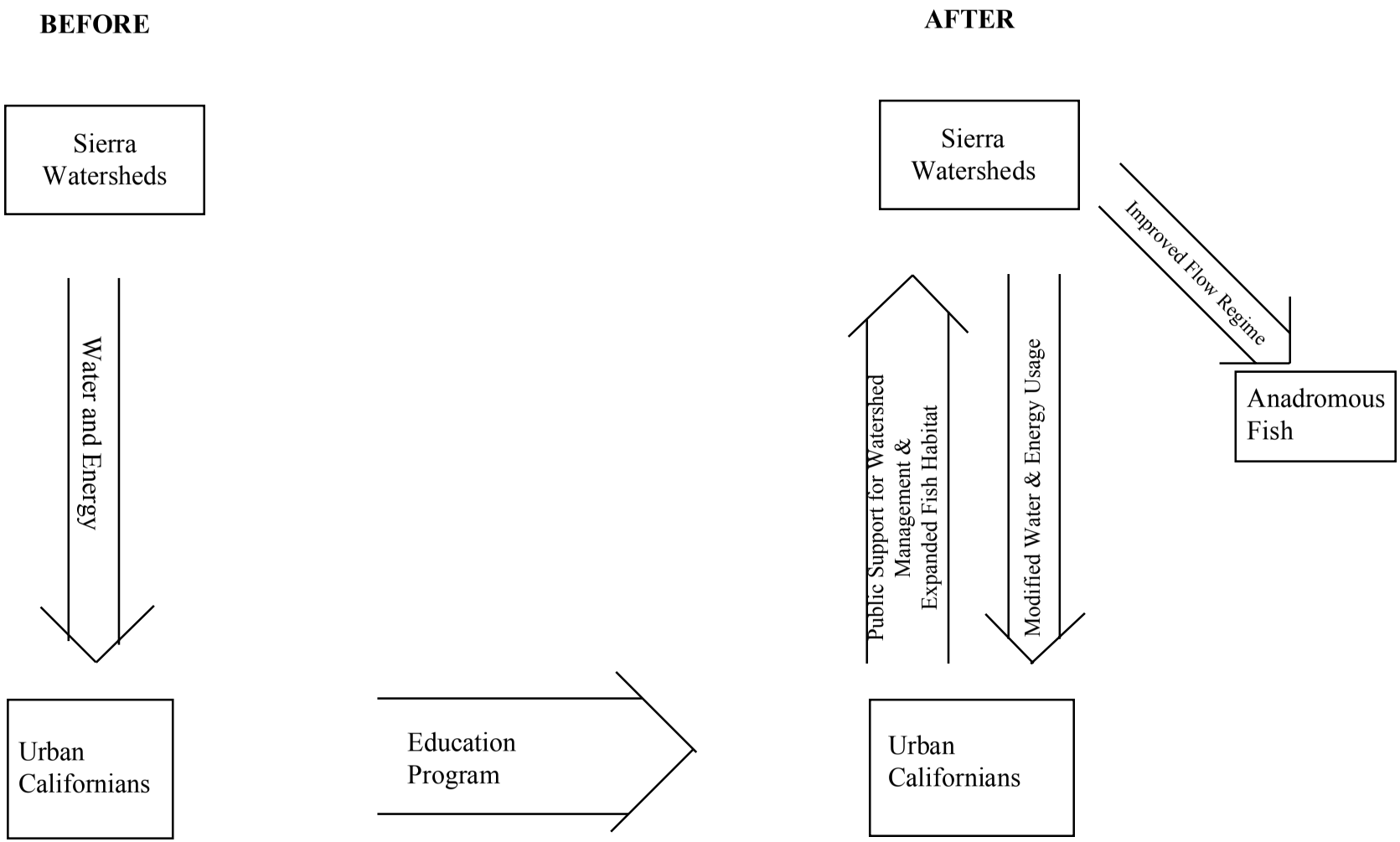
Moyle, P, R. Yoshiyama, R. Knapp, 1996. Status of Fish and Fisheries. In *Sierra Nevada Ecosystem Project: Final Report to Congress*, Vol. II, Chapter 32. Davis: University of California, Centers for Water and Wildland Resources.

Sacramento Area Water Forum. 2000. Sacramento Area Water Forum Agreement. The Agreement can be viewed at www.waterforum.org/wfagree.html.

Tuolumne River Technical Advisory Committee. 1999. Habitat Restoration Plan for the Lower Tuolumne River. The Plan can be viewed at www.delta.dfg.ca.gov/afrp/documents.asp.

Attachment A

From Sierra to Cities: Sierra Water Education Program for Urban Users
Conceptual Model



Attachment B

Elapsed Time in Months

TASK ID	TASK	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
I.1	Research on focus rivers and cities and on water use efficiency, NPS reduction, and fish passage practices and policy											
I.2	Research Mono Lake Committee education programs											
II.1	Identify potential program venues											
II.2	Contact potential partner organizations											
II.3	Develop written profiles for venues and organizations											
II.4 1/	Identify pilot programs											
III.1	Develop an array of pilot programs with partners											
III.2	Develop accompanying educational materials											
IV.1	Write implementation plan											
IV.2	Develop grant proposals											
V.1	Project support, oversight, reporting and coordination											

From Sierra to Cities: Sierra Watershed Education Program for Urban Users
Contract Execution to Completion Timeline -- 11 Months