

Adopt-A-Watershed Leadership Development, Next Phase

Project Information

1. Proposal Title:

Adopt-A-Watershed Leadership Development, Next Phase

2. Proposal applicants:

Kim Stokely, Adopt-A-Watershed

3. Corresponding Contact Person:

Kim Stokely
Adopt-A-Watershed
P.O. Box 1850 98 Clinic Ave., Suite B Hayfork, CA 96041
530 628-5334
kim@Adopt-A-Watershed.org

4. Project Keywords:

Environmental Education
Local and Regional Coordination
Restoration Ecology

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:

Longitude:

Datum:

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

Student projects have not yet been identified. They will take place in locations throughout the Sacramento, San Joaquin, and Delta regions.

10. Location - Ecozone:

Code 15: Landscape

11. Location - County:

Butte, Calaveras, Fresno, Glenn, Lake, Modoc, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Tehama, Yolo

12. Location - City:

Does your project fall within a city jurisdiction?

No

13. Location - Tribal Lands:

Does your project fall on or adjacent to tribal lands?

No

14. Location - Congressional District:

2

15. Location:

California State Senate District Number: 4

California Assembly District Number: 2

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: 20%

Total Requested Funds: \$1,518,395

b) Do you have cost share partners already identified?

Yes

If yes, list partners and amount contributed by each:

Chico Watershed Education Program \$20,000

Co-Pay Fees \$120,000

c) Do you have potential cost share partners?

Yes

If yes, list partners and amount contributed by each:

State Dept. of Fish and Game \$204,403

Walter & Elise Haas Fund \$35,000

Fees for Service \$300,000

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):

01-N39 Adopt-A-Watershed Leadership Institute 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?

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)

Jack Chin	Funders Forum for Environmental Education	415-242-9445	c200gran@earthlink.net
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Laverne Potter	Los Angeles Unified School District	818-896-9551	glpotter@earthlink.net
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Jeff Hohensee	TREE People	818-623-4852	hohensee@earthlink.net
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21. Comments:

Student project locations have not yet been identified. They will take place in locations throughout the regions, but not in the county where our office is located.

Environmental Compliance Checklist

Adopt-A-Watershed Leadership Development, Next Phase

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.

Student projects are chosen during the school year and are under the guidance of resource and regulatory agencies that can guide the project with the appropriate authority.

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

CEQA Lead Agency: None

NEPA Lead Agency (or co-lead:) None

NEPA Co-Lead Agency (if applicable): None

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

CEQA

-Categorical Exemption

-Negative Declaration or Mitigated Negative Declaration

-EIR

☒None

NEPA

-Categorical Exclusion

-Environmental Assessment/FONSI

-EIS

☒None

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:	Required
Permission to access state land. Agency Name:	Required
Permission to access federal land. Agency Name:	Required
Permission to access private land. Landowner Name:	Required

6. Comments.

5. Specific activities have not yet been identified. Permission to access any property for student activities would be obtained through the resource or regulatory agency involved in the activity. School classes work under their guidance.

Land Use Checklist

Adopt-A-Watershed Leadership Development, Next Phase

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).

Student projects are done in collaboration with local experts and resource and regulatory agencies. Permission for access and any required permits will be handled under their guidance.

4. **Comments.**

Conflict of Interest Checklist

Adopt-A-Watershed Leadership Development, Next Phase

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):

Kim Stokely, Adopt-A-Watershed

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

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

Toni Rockwell	Teacher
Rob Wade	Contractor
Nancy Jones	Contractor
Emilio Williams	KOI Group
Barbara Novelli	Teacher
Sidney Post	Public Works, Fayetteville, N.C.
Barbara Brodsky	Teacher
Kevin Wolfe	Wolfe & Assoc.
Pamela Michaels	River of Words
Dr. Terri Davis	SCU Chico

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

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

Winke Sanderson Contractor

Comments:

See Table 6, Subcontractors, for a full list of the subcontractors involved with this project.

Budget Summary

Adopt-A-Watershed Leadership Development, Next Phase

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	Proj. Mgt.	1602	33,774	10,132	11,125	1,500	12,000		18,000	86531.0	17,306	103837.00
2	Leadership Institute	1685	32,625	9,787	5,750	12,526	23,425		32,780	116893.0	23,379	140272.00
3	GIS	474	10,534	3,160		3,500	11,400			28594.0	5,719	34313.00
4	Patterns	63	1,506	452			8,000			9958.0	1,992	11950.00
5	Tour	474	10,534	3,160	3,520		1,400		2,000	20614.0	4,123	24737.00
6	Conference	474	10,552	3,166	4,880	500	3,000		500	22598.0	4,520	27118.00
7	Video	474	10,550	3,165	2,000		11,400			27115.0	5,423	32538.00
8	Database	474	10,549	3,165		3,500	16,400			33614.0	6,723	40337.00
		5720	120624.00	36187.00	27275.00	21526.00	87025.00	0.00	53280.00	345917.00	69185.00	415102.00

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	Project Mgt.	2619	50,748	15,225	8,250	1,000	12,000		12,000	99223.0	19,845	119068.00
2	Leadership Institute	3370	65,249	19,575	11,500	25,053	46,850		65,560	233787.0	46,757	280544.00
3	GIS	649	12,444	3,733		1,000	1,200			18377.0	3,675	22052.00
4	Patterns	126	3,029	909			8,000		4,750	16688.0	3,338	20026.00
5	Tour	649	12,444	3,733	3,520		1,200		2,000	22897.0	4,579	27476.00
6	Conference	649	12,444	3,733	4,880	500	2,800		500	24857.0	4,971	29828.00
7	Video	649	12,444	3,733	2,000		11,200		1,000	30377.0	6,075	36452.00
8	Database	649	12,443	3,733	2,000	1,000	4,200			23376.0	4,675	28051.00
		9360	181245.00	54374.00	32150.00	28553.00	87450.00	0.00	85810.00	469582.00	93915.00	563497.00

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	Project Mgt.	2622	50,748	15,224	10,250	1,000	12,000		12,000	101222.0	20,244	121466.00
2	Leadership Institute	3370	65,249	19,575	11,500	25,053	46,850		65,560	233787.0	46,757	280544.00
3	GIS	842	16,312	4,894		1,000	2,000			24206.0	4,841	29047.00
4	Patterns						2,000			2000.0	400	2400.00
5	Tour	842	16,312	4,894	3,520		2,000		2,000	28726.0	5,745	34471.00
6	Conference	842	16,312	4,893	4,880	500	3,600		500	30685.0	6,137	36822.00
8	Database	842	16,312	4,893	2,000	1,000	5,000			29205.0	5,841	35046.00
		9360	181245.00	54373.00	32150.00	28553.00	73450.00	0.00	80060.00	449831.00	89965.00	539796.00

Grand Total=1518395.00

Comments.

Budget Justification

Adopt-A-Watershed Leadership Development, Next Phase

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

Project Director: 5200 for 3 years; Workshop Coordinator: 5200 for 3 years Administrative Director: 3900 for 3 years Administrative Assistant: 3900 for 3 years Regional Coordinators (2) 6240 for 3 years Part of the first year for the first 4 positions is funded through our 2001 CalFed ERP grant.

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

Project Director: 24.04 Workshop Coordinator: 14.42 Admin. Director: 14.42 Admin. Asst.: 12.02 Regional Coordinators: 28.58

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

Rate is 30% for all above staff.

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

Project Management: \$29,625 (\$5,625 for Project Director to meet with consultants, Coordinators, meetings, presentations, school visits in 3 regions; \$24,000 for 2 Regional Coordinators to oversee progress in tasks 3-8 for teams throughout regions and for new communities) Leadership Institute: \$28,750 (\$5,625 for Project Director to oversee progress of 25 teams throughout regions; \$20,000 for 2 Regional Coordinators to meet with teams to oversee give guidance & support; \$3,125 for spring planning attendees) Tour: \$10,560 for 3 years (44 people x \$80 = \$3,520 per year) Conference: \$14,640 for 3 years (20 teams x \$100 travel=\$2000; 4 staff x \$200, including overnight = \$800; 4 facilitators x \$200 = \$800; food for 128 people x \$10 = \$1,280; TOTAL: 4,880 per year) Video: \$4,000 for Years 1 & 2 for 2 Regional Coordinators to help gather footage throughout Bay-Delta system. Database: \$4,000 for years 2 & 3 for on-site trainings by consultant to schools in 3 regions.

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

\$78,632 total for 3 years Leadership: Instructional materials for 25 teams (\$33,882); Instructional supplies for 25 teams (\$1,875); Materials stipend for 25 teams (\$20,000; \$200/participant); AAW Computer supplies (\$4375 for 25 teams); Office supplies for 2 Regional Coordinators (\$2,500; for 25 teams). Other Supplies: Project Mgt.: \$3,500 office supplies for Regional Coordinators. GIS: \$2500 for computer supplies, first year; \$3,000 for software over 3 years. Conference: \$1,500 for 3 conferences; general supplies. Database: \$2,500 for computer supplies, first year; \$3,000 for software over 3 years.

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.

\$247,925 total Leadership Institute: Evaluation: \$25,000 (for 25 teams); Dr. Gerald Lieberman (\$600/day x 42 days) Co-facilitators: \$19,625 (for 25 teams) See Table 6 for list of contractors. (\$400/day for 36 days + 1300 travel for 60 teams) Presenters: \$12,500 (for 25 teams) (\$625/day for 16 days for 60 teams) On-site facilitators: \$60,000 (for 25 teams) (\$600/day x 4 days x 25 teams) Other Consultants: Evaluator \$39,000 Dr. Lieberman (\$21,000 over 3 years to evaluate performance

measures for tasks 3-8; \$16,000 to research implementation patterns; \$2,000 to evaluate pattern changes in year 3) GIS: \$10,000 Map design - no contractor yet Conference: \$4,800 (4 facilitators @ \$400/day; 3 years) See Table 6 for contractors. Video: \$2,000 for years 1 & 2, video design; no contractor yet. Database: \$1,500 for design; \$6,000 over 2 years for support and training; no contractor yet Project Mgt.: \$36,000 for project audit; D. H. Scott & Assoc.; (\$12,000/year)

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.

None

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 presentations, response to project specific questions and necessary costs directly associated with specific project oversight.

Project management includes benefits for Project Director, Admin. Director, Admin. Asst., and 2 Regional Coordinators. The first year of the Institute has part funding for salaries for Project Director, Admin. Director, Workshop Coordinator, and Admin. Asst. for our 2001 CalFed ERP grant. Project Director: oversees implementation of project, inspection of work in progress, writes reports, does presentations, meets with coordinators and consultants. Costs include \$5,625 for travel over 3 years. Admin. Director: maintains budget & handles all billing & financial requirements & reports; responsible for all contract and subcontract administration. Admin. Asst.: Answers questions, has contact with everyone, helps track progress of teams. Workshop Coordinator: Tracks progress of on-site workshops and institutes. 2 Regional Coordinators: Inspection of progress & oversight of tasks 3-8 (GIS mapping, database, video, conference, & tour) to be sure teams are involved & to help subcontractors. They also oversee progress in collaborative work in new communities and coordination between resource agencies and teams within their region. They write annual reports to AAW. Besides salaries and benefits, costs include travel (\$24,000) for 2 over 3 years to sites within 3 regions and rent for 2 offices (\$24,000 over 3 years).

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

Leadership Institute: Shipping: \$7,500 over 3 years Public Relations: \$5,000 over 3 years Rentals: Summer Institute: \$80,100 over 3 years (80 participants + 10 presenters x 8 days x \$89 = \$64,080 for 20 teams; 25 teams = \$80,100. Spring Institute: 40,050 for 25 teams (80 participants + 10 presenters x 4 days x \$89 = \$32,040 for 20 teams Planning: \$1,250 for 25 teams (10 planners x 2 days x \$50 = \$1,000 for 20 teams) Office rent for 2 Regional Coordinators: \$30,000 for 25 teams. Project Mgt.: Regional Coordinator rent for 2 offices: \$42,000 over 3 years (see above). Tour: \$6,000 bus rental (\$2000 for 3 years) Conference: \$1,500 facility rental (\$500 x 3 years) Video: \$1,000 for copies of video Patterns: \$4,750 for copies of book and pamphlet

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.

The overhead rate is %20 and covers office supplies for AAW, taxes, bank fees/memberships, fundraising, postage, maintenance, insurance, utilities, phone/fax, AAW office rent, copying, furniture, and other office staff.

Executive Summary

Adopt-A-Watershed Leadership Development, Next Phase

Adopt-A-Watershed provides professional development to teams of school and community members so they can build high-quality, sustainable ecosystem-restoration programs within their schools and communities. Programs act as over-arching frameworks, giving teachers and the community a collaborative structure within which to operate. Students work with local groups on real ecosystem issues, such as restoring native species or habitat restoration, which directly support the ERP and CVPIA goals. This next-phase, 3-year education proposal builds on needs identified in earlier phases of the Leadership Institute, while providing for 25 more Leadership teams in the Sacramento, San Joaquin, and Delta regions. The Institute covers skills, current education practices, content (curricula, programs, technology), and cultural competency. Hypotheses: 1. The Leadership Institute leads to high-quality, sustainable ecosystem education. 2. Students can complete significant ecosystem restoration. 3. Student participation in AAW's 5 elements leads to understanding of the ecosystem and their role in it. 4. Patterns of successful program implementation can be identified and replicated. 5. Documenting and sharing AAW successes will increase public awareness of the role of K-12 education in ecosystem restoration. 6. Networking between communities throughout the watershed will develop a "watershed" approach. 7. Teams can come to the Leadership Institute more prepared. Objectives: 1. Twenty-five community teams attend the Leadership Institute over 3 years. 2. Lead teams toward significant projects through a watershed tour and guidance from experts. 3. Up to 75,000 students participate in monitoring, restoration, and public education. 4. Research, document, and utilize successful implementation patterns. 5. Produce a documentary video and a GIS map of student projects. 6. Provide regional networking through watershed tours for teams, student/team conferences, and upgrading AAW's on-line database. 7. Provide support to teams prior to the Institute. Outcomes: Teams will implement programs more successfully and sustainably from a "watershed" perspective; students will do significant projects, have on-going learning opportunities, and understand the ecosystem and their role in it; and the public will be more aware of ecosystem restoration and K-12 education's role in it.

Proposal

Adopt-A-Watershed

Adopt-A-Watershed Leadership Development, Next Phase

Kim Stokely, Adopt-A-Watershed

A. Project Description: Project Goals and Scope of Work

1. Problem

As noted in CALFED's *Phase II Interim Report*, the Bay-Delta system contains the largest estuary in the western United States, supports over 750 plant and animal species, supplies drinking water for two-thirds of California citizens, and irrigates over 7 million acres of the most highly productive agricultural land in the world. Nested within that ecosystem are other systems, such as communities, which integrate with each other and which affect the larger ecosystem. (See Figure1) Today that ecosystem struggles with conflicting demands from economic, urban, ecological, and agricultural interests. As the demands grow, the overburdened ecosystem suffers because the feedback loop between the ecosystem and the people living in it is not working. People affect ecosystem health through their actions, but often fail to recognize when or why the system is impacted. They lack the skills and awareness to be able to hear, process, and act positively on information coming from the ecosystem. They may not even see the connection between a healthy ecosystem, their personal well-being, and the long-term health of the community. Because of this, they lack hope about maintaining ecosystem health.

Growing concern about the loss and degradation of wetlands and riparian areas, wildlife habitat, and water quality has led to a proliferation of watershed groups and private-public partnerships dedicated to ecosystem restoration and public education. In general, though, there is a disconnect between these private groups and the schools, because the groups don't know how to connect to the schools, don't understand their educational needs for academic achievement, and they often don't understand how much significant work students can do toward restoration, monitoring, and public education. Sometimes these groups do provide good environmental-education opportunities for the schools. Their programs, though, are mostly add-on programs with field projects for the students, and are usually project-specific and short-term. Efforts are often hampered by on-going needs for funding, coordination with other local efforts, long-term sustainability, and integration into the school curriculum.

At the same time, the schools are becoming increasingly aware of the need to teach students about the environment, but their programs are usually separate units with no continuity from year to year or between subjects, and with little connection to real, local issues. The study may seem unrelated to the students' lives and past learning/experiences. Many teachers have little interest in teaching about science and the environment because they feel inadequate in the field and strapped for the time and energy to teach themselves new skills. They may not realize that research shows students who work on real ecosystem problems become better, more informed and accomplished students, while their sense of self-worth and interest in learning increase.¹ Research also shows that students who do real projects in the community/environment develop civic responsibility and a sense of stewardship.² Teachers who do see value in having students tackling real issues often don't know where to start or how they can manage the extra time involved in coordination and putting a program into place. They often don't have the knowledge of ecosystem needs that local groups do, or see how they can help to address those needs.

In California, environmental education must also address the needs of a rich cultural diversity, which includes multiple races, religions, ethnicities, and social groups. Teachers working with culturally diverse students need the capacity to function effectively in situations where there is a diversity of customs, beliefs, and values, so that all students and their families can understand how their actions affect the ecosystem and can feel a part of the effort to maintain or restore its health. Not including all cultures means diminished ecosystem education and stewardship.

During Adopt-A-Watershed's 12 years of helping groups and schools develop school/community education programs, we have identified the basic building blocks needed for building community support, increasing cultural awareness, developing a strong, standards-based school curriculum, and maintaining the program over the long term. AAW trains community teams made up of members of local watershed groups, teachers, and other stakeholders through our Leadership Institute. Our program acts as an over-arching framework that includes and enhances existing programs so that teachers and the community have a structure within which to operate. Local groups benefit from our professional development guidance and introduction into the school system, and teachers gain from the expertise of their local groups and partnerships.

AAW received a 2001-2004 CALFED Ecosystem Restoration Program grant for \$592,884 to train 10 teams for 3 years through our Leadership Institute. Ten Leadership teams have begun training in the first phase of the project. This proposal is a next-phase funding request, which overlaps and enhances the current grant. Through our yearly evaluations we continually refine our training and seek to provide successful opportunities for the teams. Last year's evaluation of the Leadership Institute revealed the following aspects of our program that can be extended to further improve the chances of successful implementation of the program by the teams:

- Some teams are more successful in building their programs than others. Since early success is critical for sustainability, we need to research, document, and utilize in our professional development plan the patterns in implementation steps used by the most successful teams. These patterns have begun to emerge, and suggest there may be a sequence and timing of actions in implementation that is more likely to lead to success.
- Ecosystem restoration without a change in public perception and understanding leads to a continuation of the culture that created the problems, yet many people do not appreciate the value of education and don't know that there are educational programs that can make a real difference in long-term ecosystem restoration. AAW activities and programs need to be documented in a video and shared with the public. Resource and regulatory agencies, too, are often unaware of what kinds of activities the students are doing, where they are, and how they are helping the ecosystem. Mapping the activities will provide this information.
- Exposure to new ideas, information, and solutions to common challenges is essential for growth. Exposure on a watershed-wide basis will encourage a "watershed" perspective and approach to addressing problems. Our teams have sharing opportunities through the Institute, but we don't have an adequate networking system in place for providing on-site and in-depth sharing of experiences and areas of expertise between teams beyond the Institute. The teams have expressed an interest in an annual conference for students and teams and an annual tour of field sites and programs in other areas of their larger watershed (the Sacramento River, San Joaquin River/Delta, and Bay area). The students also need to share ideas, data, and solutions to common problems throughout the larger watershed. Currently AAW's on-line database is not being used. The students may use other databases, but they are not specific to their watershed or program. Expanding and supporting AAW's database and giving some teachers on-site support and training will encourage data entry and make the database fully functional. Basing the networking on the larger watershed will give teams and students more understanding of the larger watershed issues (environmental and cultural), how their actions can affect conditions elsewhere, and how communities can work together on ecosystem health. The teachers, too, need more knowledge of

priority issues in their watershed so that students can be involved in significant work. Increased communication between the schools and resource agencies through a Regional Coordinator who is familiar with the regional restoration effort will introduce a higher level of applicability of student projects to watershed issues.

- Leadership teams come to the Institute in various states of readiness. Some have been partnering in their community on restoration activities already and have plans and a support system in place. Others teams are sometimes overwhelmed by the number of things to do to get started. Through our evaluations, teams have shown an interest in having more support from AAW prior to the Institute to help them profile their community, develop a strategic plan, and create a common vision. This support will be provided by our Regional Coordinator.

AAW Goal: Our long-term goal is to raise community knowledge to a level where people understand how to maintain ecosystem health and why that is important, and they actively participate in maintaining its health. Our part in meeting this goal is to help communities develop high-quality, sustainable school/community watershed-education programs within their local watershed ecosystem that will lead to the community having that knowledge. This will occur through K-12 educational reform efforts that use student-directed, interdisciplinary, hands-on strategies that link student learning with real local watershed needs; that produce highly motivated teachers with the skills and knowledge to promote academic achievement, civic responsibility, and sense of stewardship toward the community and watershed; and that leave students with a developed sense of their place in nature, an awareness that they can make a difference, and a lifelong quest for knowledge about the environment. We will concentrate our efforts in major watersheds of the Bay-Delta system to have a more comprehensive effect.

Project Objectives:

1. Leadership Institute.

Twenty-five Leadership teams, representing a diversity of cultures from the Sacramento River, San Joaquin River, and Delta regions, will be provided professional development through the AAW Leadership Institute and will implement high-quality, sustainable watershed-education programs that incorporate collaboration with the community.

Hypothesis: The Leadership Institute provides professional development that increases the chances of success in implementing high-quality, sustainable watershed-education programs.

Outcome: All Leadership teams will show an increase in scores on the *Implementation and Strengthening AAW Program Evaluation Rubrics* over the school year.

2. Guide Teams Toward Significant Projects.

(a) Provide teams with opportunities to participate in, observe, and investigate significant and successful student restoration, monitoring, and public-education activities, (b) have 10 local groups working on State priority ecosystem-restoration projects, such as watershed conservancies or alliances, become an integral part of their local Leadership team, and (c) work with resource and regulatory agencies to guide teams on priority issues.

Hypothesis: Leadership participants who are exposed to real, significant restoration projects and who are fully aware of watershed needs and the ability of students to address those needs will be more likely to have their students doing significant work in the watershed.

Outcome: Up to 75,000 students will participate in significant ecosystem monitoring, restoration, and public-education projects

3. Students Participate in the 5 Elements of AAW

Up to 75,000 students (120 teachers/team x 25 teams x 25 students/teacher), from a diversity of cultures, will participate in higher-level thinking skills through experiencing the 5 elements of the AAW program, which include locally applied curricula, monitoring, restoration projects, community education, and reflection.

Hypothesis: Student participation in higher-level thinking skills will help them develop an understanding of the need for, their role in, and approaches to maintaining ecosystem health.

Outcome: 75% of the students will participate in high-level thinking skills through AAW's 5 elements, which will help them develop an understanding of the need for, their role in, and approaches to maintaining ecosystem health.

4. Research and Documentation of Patterns of Implementation

AAW will research and identify the patterns of implementation, including sequence of actions, objectives that are set, and components put in place that lead to the most successful environment for change and that create highly sustainable AAW programs. AAW will then incorporate the patterns into the professional development plan for the full Leadership Institute.

Hypothesis: There are patterns of development in community change processes that can be utilized for teaching participants how to develop highly successful and sustainable programs.

Outcome: Local program implementation will be more smooth and focused as AAW's redesigned professional development plan incorporates proven successful implementation steps.

5. Documentation of AAW

AAW will document its program in two ways: (a) production of a video that shows successful AAW programs throughout the Bay-Delta system, highlighting solutions to common challenges; student, community, and watershed change; patterns of successful implementation; and statistical results, and (b) design of a GIS mapping system that will document student projects throughout their region with accompanying photos and text.

Hypothesis: A video and GIS map that document AAW and student projects will be useful tools for public outreach for AAW and ecosystem-restoration education in general.

Outcome: Public exposure to AAW and student projects will lead to a greater awareness of the role of education in meeting ecosystem needs and possible replication of educational programs.

6. Networking and Database

AAW will provide opportunities, through a culturally diverse, annual watershed-wide student/team conference and a team tour of student-project sites, for networking and the sharing of ideas and expertise; and will provide a database system for student networking and the sharing of data throughout the larger watershed. Twenty schools that are represented by Leadership teams will have on-site training in data entry.

Hypothesis: Networking and sharing of data between teams and between students from different communities and cultures throughout the watershed will increase knowledge and ideas for program implementation and cultural inclusion, and will lead to a "watershed" approach.

Outcome: Local communities will become part of a more-cohesive watershed approach in the Bay-Delta's educational and ecosystem-restoration efforts. Teams and students will have ongoing educational opportunities and will be more aware of watershed issues and how they influence other parts of the watershed.

7. Support for New Teams Prior to Institute

AAW will expand its role prior to the Institute through work by the Regional Coordinator with local groups and schools to find an interest in collaboration and to identify potential teams for Leadership training. They will help new teams before the Institute with such tasks as strengthening the Leadership team, profiling their community, developing a strategic plan, and creating a common vision. This preceding step will be incorporated into the professional development plan for the Institute.

Hypothesis: Helping groups and schools collaborate in identifying teams and giving teams support prior to the Institute will result in higher baseline scores on the leadership components of the evaluation rubrics at the Summer Institute.

Outcome: Teams will be stronger and more prepared to benefit from the Leadership Institute.

2. Justification

Conceptual Model:

The ecosystem suffers today because of a breakdown in the feedback loop between people and the ecosystem. Feedback about ecosystem problems is either not reaching the public, or they don't think it's important, or they don't know what to do about it, all of which results in perpetuation of the problems. Education is essential. There is also, though, a general disconnect between the groups involved in ecosystem restoration and the schools, the prime candidates for promoting education about the ecosystem. Support for the design of our program comes from a review of the literature to discover what factors lead to common decision-making about protection of water quality. Gasteyer, Flora, and Bastian have concluded, "Information about the ecosystem will lead to positive action when communities have built local capacity to create, comprehend, absorb, and utilize this information."³

AAW nurtures the relationship between the schools and community through watershed education, which in turn nurtures the relationship between the watershed ecosystem and the human population. We see the K-12/community-partner system as a pathway to both ecosystem health and academic achievement. (See Figures 1 & 2 attached) Our model can provide information to the community, and also increase the community's capacity to absorb and utilize the information through the following steps:

- Step One: During spring planning AAW uses an adaptive management process to refine the Institute design. Patterns of successful program implementation, the yearly evaluation, observation, feedback from teams, and documentation of results all feed into the planning session, and changes are made accordingly.

Uncertainties: (1) Are we timing and sequencing our Leadership Institute professional development in the most effective way, based on patterns of successful implementation of programs? (2) Are teams coming to the Institute ready to learn and fully utilize their Institute experience?

Project Objectives # 4, *Researching and Documenting Patterns of Implementation* and #7, *Support for New Teams Prior to Institute*, will address these uncertainties, and success will be measured by the appropriate performance measures below. (See also Table 2, Project Objectives)

- Step Two: AAW Leadership Institute trains Leadership teams.

At its Leadership Institute, AAW teaches community teams the building blocks for implementing a high-quality, sustainable watershed-education program. A team usually consists of 2-3 K-12 teachers, 1 Community Coordinator, and if possible, 1 higher-education representative. The structure of the Leadership Institute is based on research and observation of

what works best, and has shown success over the last 7 years of evaluations. Teams receive extensive training in 4 areas: leadership, educational practices, content, and cultural competency. (See Table #1, *Leadership Institute Objectives and Approach, Objective 1*, below for more detail)

- **Step Three:** Leadership teams develop a strong collaborative school/community system.

The teams work with the community and schools to implement the program. A school/community collaboration is established and maintained through funding efforts of the Leadership team and an Advisory Committee. Members of this collaboration are the following:

- **Teachers:** They implement the curriculum in their classes, collaborate with partners through the Leadership team, host 4 on-site workshops, and mentor other teachers from the school district who have been trained by AAW at the on-site workshops.
- **Community Coordinator:** As part of the Leadership team, the Community Coordinator acts as liaison between the watershed groups and other appropriate professionals and the schools. They help the teacher identify and plan projects and provide for enhancement of the curriculum units and assistance on field days. The Coordinator supports teachers in all projects and develops the data storage system at each school. They work with the Regional Coordinator to ensure use of Best Management Practices and identify priority project needs.
- **Regional Coordinator:** This person works toward incorporating the AAW program and Leadership training into local watershed planning region-wide where an educational component is needed, and will provide support to new teams prior to the Institute. They are also a link between regulatory and resource agencies and all AAW Community Coordinators in the region, providing direction to see that student projects reflect the watershed desires of those agencies and documenting and mapping projects. They will provide networking opportunities through annual project-site tours and student/team conferences, and will give general support to all existing teams. They are the glue in a regional watershed-education effort and will lead teams toward a “watershed” approach to ecosystem restoration.
- **Advisory Committee:** Made up of local stakeholders in each community, including Leadership team members, representative watershed groups and their education subcommittees, educators, school administrators, businesses, scientists, landowners, public officials, volunteers, natural resource agencies, and community organizations, they work together to identify needed projects, seek out new partnerships, and develop a plan to sustain the program into the future.
- **Partners:** The teachers, Community Coordinators, and Advisory Committees work with an external partnership network made up of watershed groups, businesses, government agencies, landowners, and other interested groups. Local partners lend support in terms of time; materials; expertise; and project selection, design, and guidance. All decisions regarding on-the-ground work are made locally in collaboration with these partners.
- **Higher Education Representative:** He/she introduces an AAW component into his/her teacher-preparation program during the spring semester.
- **Students:** Students collaborate with community partners to address local watershed needs through monitoring, restoration, and public-education projects.

- **Schools:** Schools must commit to developing a watershed-education program that becomes part of a “whole school” experience. They become part of the community effort to restore watershed health, and can in turn act as a catalyst for public action.

Uncertainties: Are local programs being implemented sustainably, and with high quality?

Objective # 1, Leadership Institute, and its full evaluation will assess this uncertainty.

- Step Four: In collaboration with community partners, students participate in the 5 elements of AAW, where students employ higher-level thinking skills and which include locally applied curricula, monitoring, restoration, community education, and reflection.
- Step Five: As they do their student projects, and interact with their community and communities in the larger watershed, the following will result:
 - a. The ecosystem will benefit from significant student work aimed at maintaining or restoring its health.
 - b. Students gain in their understanding of their role in ecosystem health and the need for it.
 - c. Students and teams will understand the importance of operating from a larger watershed perspective.
 - d. Students will improve academically.
 - e. Members of the community will learn of the ecosystem and its needs through student restoration, monitoring, and public-education projects, and will be aware of how education can address ecosystem needs. As community-partnering networks form around support for the schools and a common understanding of the watershed ecosystem, people will respond to a change in their perceived role in the ecosystem by engaging in positive action toward the ecosystem.

Uncertainties: (a) Do the students do significant work to restore the ecosystem and are the projects addressing priority ecosystem issues? (b) Will networking and sharing of data throughout the larger watershed lead to a “watershed” approach? (c) Are student perceptions of the ecosystem and their role in it changing in response to participating in the 5 elements of AAW?

Objectives # 2, *Team Exposure to Significant Projects*; #3, *Students Participate in 5 Elements of AAW*; #5, *Documentation of AAW*, and #6, *Networking and Database*, will address these uncertainties.

- Step Six: Finally, student/community education will restore the function of the feedback loop between the ecosystem and the community. Education will lead to restoration, which will lead to more education, which will lead to more restoration, etc. Strengthening of this feedback loop will facilitate restoration of the ecosystem/community feedback loop.

How design of model will test hypotheses: Each spring information from an extensive evaluation (See A.5 Performance Measures for detail) and documentation of student activities (mapping, video, database) will feed back into the AAW planning process prior to the next Leadership Institute. Community information feeding into the system, through the evaluation process, will demonstrate implementation of high-quality and sustainable ecosystem-restoration education, which will lead to significant restoration, an increase in knowledge of the ecosystem and our role

in it, a “watershed” perspective, improved academic achievement, community education, and positive action. All of this will finally lead to a functioning restoration-education cycle. Evaluation at any level of the model will test the hypotheses and strengthen the model through adaptive management. (See Table 3 for what success will look like at the local watershed, regional watershed, and AAW levels.)

This is a full-scale restoration project, the design of which is based on 12 years of successful experience in watershed-education program implementation and research showing our model will lead to better student achievement and an increase in stewardship of the ecosystem.

3. Approach

Objective 1—Leadership Institute

AAW’s Leadership Institute will train up to 20 teams total per year for three years (60 teams; 2003-2006) from watersheds in the Sacramento River, San Joaquin River, Delta, and Bay Area systems. This grant will fund 25 of those teams from the Sacramento River and San Joaquin River, and Delta watersheds during those three years (5 teams in 2003, and 10 teams each in 2004 and 2005). Of the remaining 35 teams, 10 are funded by our 2001-2004 ERP grant from CALFED during the last year of that grant (2003-2004). The other 25 will be funded through other sources. Several AAW partners from the Sacramento and San Joaquin/Delta regions are interested in sending teams to the Leadership Institute and are listed below.

- Farms Leadership, based in Winters, working in the Sacramento area. Farms Leadership does restoration activities with students on private agricultural land through their SLEWS (Students and Landowners Education and Watershed Stewardship) program. This partnership will lead to multiple teams, as they plan to expand to the following areas:
Butte/Glenn/Tehama counties, Stockton/Lodi, Fresno, Merced, and Yolo/Solano/Sacramento counties. They also plan to build a nature center in Winters, based on their SLEWS program.
- California Indian Education Centers:
Local Indians for Education (LIFE), Shasta City
Four Winds of Indian Education, Chico
Resources for Indian Student Education (RISE), Pit River
Lakeport Indian Education, Clear Lake
- Dutcher Magnet School, Turlock
- Chico Watershed Education Project (WEP), Sacramento River Watershed Program (SRWP), and CREEC, under the educational direction of Allen Harthorn (several teams)
- San Joaquin County Office of Education, Stockton (1 or more teams)
- Partners in Education Consortium, Butte Creek (1 or 2 teams)
- Fresno Central High, East Campus, San Joaquin River
- Glenn County Office of Education, Stony Creek

Our partners may begin the Institute with a fully developed partnership network and plans to expand with new teams into new areas, such as is the case, for example, with Farms Leadership in Winters and Allen Harthorn in Chico (Chico WEP, SRWP, and CREEC). Other partners solidify this network during the first school year and continue to expand the network in the years that follow. This project funds the professional development of the teams, while funding for their program at the local level comes through the teams’ efforts and support from their partners.

The AAW Leadership Institute breaks down into four major parts each year: AAW planning, a Summer Institute in July, on-site trainings and implementation during the school year, and a Spring Retreat in May. (See Table 1, Leadership Institute Objectives for more detail.)

Planning and Preparation (May–June)

The project begins in May with a 2-day planning session by 10 AAW staff, contractors, and partners for purposes of identifying program areas needing improvement and for developing the professional development plan. Leadership teams are selected through a competitive application process, the key criteria being the school's and community's commitment to implementing a high-quality program and the team's leadership skills.

Summer Institute (8 days in July)

AAW staff, professional presenters, natural resource professionals, and returning Leadership participants from previous years conduct the Institute, providing professional development in 4 key areas: leadership, educational practices, content, and cultural competency.

Leadership: Teams are instructed in how to gather information, shape organizational structure, identify program goals, select a watershed site, utilize a coordinator, provide professional development within the community, plan a project, develop a continuum of learning across grade levels, draft a budget, develop partnerships, involve mentors/volunteers, set objectives and design an implementation plan, evaluate their program, and network and share.

Educational Practices: Instruction covers how to implement the 5 elements of AAW, which include locally applied curriculum, monitoring, restoration projects, community education, and reflection. Teams are also taught how to incorporate the EIC (Environment as an Integrating Context) and community-based service learning models. EIC uses the school's natural surroundings and community as a framework for proven education practices using learner-centered, hands-on problem-solving and issue-based activities; interdisciplinary and integrated learning; combinations of independent and cooperative learning; and team-teaching strategies. Research done by the State Education and Environment Roundtable on the EIC model has shown a marked improvement in test scores, attendance, student behavior, and understanding and appreciation of the community's environment when using this approach.¹ Research by the Center for Human Resources has shown that using the community-based, service-learning model will lead to positive impacts on students' civic attitudes and behavior.²

Content: Teams are introduced to standards-based education, natural and social systems and their interactions, and educational resources such as curricula, programs, and technology that support the educational practices presented. Adopt-A-Watershed was built around an integrated K-12 curriculum comprised of 17 grade-level, interdisciplinary curriculum units which adhere to the California State Science Standards and which cover a full range of subjects in watershed science including aquatics, botany, ecosystems, wildlife, soils and geology, physics, and human needs and impacts. The curriculum units are sequential and spiral through the grade levels so that students are exposed to watershed ecology and science concepts in progressively greater depth over time. At present, nine of the curriculum units have worksheets available in Spanish. Teams are also introduced to other appropriate curricula and programs.

Special training is provided by other organizations that share a common vision for watershed education. GLOBE (Global Learning and Observations to Benefit the Environment), a NASA

project, offers training in conducting field studies and data collection at no cost to us. Through GLOBE, students collect real scientific data and share it with other students and scientists from around the world. ROW (River of Words), an annual poetry and art contest with a watershed theme, shows Institute participants how to integrate language arts and fine arts into the curriculum. Training in using the schoolyard as an outdoor classroom is provided through the National Wildlife Federation's *School Yard Habitats* program.

Cultural Competency: Teams investigate and assess their program's organizational and instructional cultural competency through activities, reading, and analysis.

Participants receive training materials; brochures; information packets; journals; art supplies; a participant's, facilitator's, and/or coordinator's manual; fundraising and portfolio manuals; 6 books; and 1 AAW curriculum unit of their choice, along with a materials stipend of \$200 for purchasing items they will need: e. g., other approved curricula that fit the local community, kits, an aquarium, water monitoring supplies, etc.

During the School Year (August–June)

During the school year AAW maintains close contact with and gives guidance to each Leadership Team. AAW staff will provide 4 days of on-site follow-up professional development or consultation by AAW staff for whatever the team's self-evaluation shows is critical to fulfilling the annual objectives that they set at the Summer Institute. Often these are workshops for other teachers in the local area. However, efforts to build a strong groundwork first are rewarded later by successful outreach in the community, so the workshops could focus on such things as building a strategic plan, partnership development, or community awareness.

The teams establish program infrastructure according to their defined roles (see *Conceptual Model* above). They work with school administration and staff to develop and implement the program, mentor other teachers, and develop partnerships. Teachers, the teams, and their partners will begin working with the students on their priority watershed projects.

Spring Retreat (May)

All teams meet for a 4-day follow-up retreat to assess and revise their programs and plan for the next year. They receive further training in public relations, fundraising, partnership development, and evaluation.

Sustainability of local programs is built through a 3-year plan. Teams are invited back to the Institute the 2 years following training for further training in evaluating their programs and building models for sustainable implementation. Over the 3-year period, growing community support will lay the foundation to maintain the program after initial funding has expired.

Objective 2—Guide Teams Toward Significant Projects

To give the teams actual experience in identifying and restoring problem areas, the teams spend 3 days planning and completing a monitoring, restoration, and public-education project in the vicinity of the Institute. Teachers are trained in a variety of monitoring protocols, from general awareness to stringent QAQC protocols.

During the school year the Regional Coordinators will conduct for all interested teams a regional watershed tour of successful and significant student projects and programs. Teams will be

exposed to new ideas and receive training in new areas. For example, Farms Leadership will introduce visiting teams to sustainable agricultural practices, a topic not covered at the Institute.

Regional Coordinators will also work with the schools and local watershed groups and agencies to be sure the schools understand their watershed needs and priorities and that student activities meet real ecosystem restoration needs while following Best Management Practices. Regional Coordinators will contact groups working on State priority restoration projects, such as watershed conservancies or alliances, to enlist them as an integral part of a Leadership team.

Objective 3—Students Participate in the 5 Elements of AAW

This includes locally applied curricula, monitoring, restoration, community education, and reflection. Using higher-level thinking skills through participation in real-life learning experiences helps them develop an understanding of the need for, their role in, and approaches to maintaining ecosystem health. Students study an adopted watershed for their whole school career, enabling them to apply concepts learned in the classroom to multi-year field studies and restoration projects so that they can comprehend the concept of a watershed and the effects of human action in an ecosystem over time. The *Soil Erosion Study*, for example, is begun in 1st grade and repeated in 4th grade, 7th grade, and high school. Past student projects have included planting native plants and trees; water quality monitoring; erosion control; raising salmon and steelhead; stream and estuary habitat inventory and restoration; and wildlife population studies and habitat restoration, among others.

Objective 4—Research and Documentation of Patterns of Implementation

During the first year of the project, Dr. Lieberman, who will be the professional evaluator for this proposal, will evaluate the implementation patterns (sequence and timing of program components) over the years of highly successful and less successful teams to find what works best. Concurrently, the Project Director will research successful community change processes in other programs, using such tools as: *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization*⁴, research for the *Systems Thinking, Systems Changing* game⁵, and WestEd⁶. AAW will produce an implementation-planning book and pamphlet, plus 500 copies of each for distribution to Leadership participants and interested public. A new professional development plan for the Institute will be based on the results of the study.

Objective 5—Documentation of AAW

Subcontracts will be developed during the first year of the project with partners who have the capability to produce (a) a high quality video of AAW successes; solutions to challenges; results; successful programs; and student, community, and watershed change; and (b) a multi-layered GIS map of projects, data, programs, and watersheds being influenced for each of the Sacramento River, San Joaquin River, Delta, and Bay regions. The GIS map is designed the first year; Regional Coordinators will organize mapping of data the following 2 years. Regional Coordinators and other AAW staff will work with schools, community partners, and the subcontractors to gather video footage, develop a storyline, and gather project data and pictures. The video will be completed in 2005 and 200 copies made available to the public and teams.

Objective 6—Networking and Database

During the school year, Regional Coordinators will organize an annual tour of significant student projects and program sites within the Sacramento, San Joaquin, Delta, and Bay regions for all existing teams within those watersheds. Teams will meet at a designated location and travel by

bus to the sites, with one overnight stay. The tour will provide exposure to topic areas not covered at the Leadership Institute, such as sustainable agricultural practices as demonstrated at the Farms Leadership nature center in Winters.

Regional Coordinators also hold an annual watershed conference for students and teams from a diversity of cultures at which they can share ideas, results, and challenges. The conference will feature a River of Words Poetry and Art Contest exhibit of student work completed before the conference and submitted to the contest after. Teams will send 2 adults and 4 student representatives from their community. The conference will emphasize cultural awareness, challenges, and appreciation. Regional Coordinators also provide general support to all previously trained teams in their region.

A subcontract will be developed with a partner who has the capability of redesigning and supporting the AAW on-line database to make it an effective tool. The subcontractor will train and support teachers in 20 schools in database use to encourage data entry. Design will be completed the first year of this project, and support and training will follow the next 2 years.

Objective 7—Support for New Teams Prior to Institute

During the first year of the project, Regional Coordinators will begin work with interested watershed groups and schools to help them define together their education program goals and identify potential watersheds, projects, and Leadership teams. Input from regulatory and resource agencies will be used to locate groups. For those teams accepted for training, the Regional Coordinators will help them profile their community, develop a strategic plan, and define a common vision in preparation for the Leadership Institute.

Criteria to be used in testing hypotheses: See *Performance Measures* below and Table 2, *Project Objectives*, for a list of objectives, hypotheses, and measures for testing each. For what success in program implementation will look like, see Table 3.

Information richness and value. AAW's ecological goals align with those of the CALFED Bay-Delta Program: assess and restore water quality; wildlife and plant populations, including native species; habitat types; and natural processes, while increasing the school and community's level of awareness, understanding, and appreciation of the natural environment. The Regional Coordinators' work will bring cohesion to the educational and restoration effort in the Bay-Delta system through their work in connecting local groups to their schools, helping them develop a strong restoration-education program, and through the outreach and networking tools provided by the video, database, GIS map, watershed conference, and watershed tour. They will also enhance the communication between resource agencies and the teams and schools.

4. Feasibility

We are entering our 7th successful year of the Leadership Institute, and we feel our approach has been tremendously successful. Independent evaluations for the last 6 years, by CSU Chico's *Education for the Future*⁷ and Dr. Gerald Lieberman, continue to report growth in the key indicators for fulfillment of AAW's programmatic goals. Questionnaires and surveys show great enthusiasm for the program. Over the last 6 years, 75% of the communities trained at the Institute are still active. Our overall design has remained relatively stable for those years, though programmatic and content changes have continually been made to improve the program.

Student activities are chosen and implemented through partnering with local experts in the field, of whom most are from natural resource or regulatory agencies. Any agency desires, permits required, land use conflicts, and regulations will be addressed locally under their guidance.

5. Performance Measures

The Leadership Institute is evaluated through a process led by Dr. Gerald Lieberman. The Evaluation Plan, designed to provide evidence regarding the effectiveness of the Institute, encompasses four widely accepted assessment methodologies: direct observation, participant reporting, portfolio development, and program evaluation rubrics.

All Leadership Institute participants complete an Evaluation Form, to review and comment on all aspects of the Institute, including but not limited to: overall satisfaction with program; achievement of goals and objectives; usefulness of information conveyed; quality of instruction; organization of the Institute; intellectual challenge and content of the Institute; usefulness of hand-out materials; availability of resource/reference materials; and helpfulness of instructors or staff members during the Institute. Dr. Lieberman reviews the forms and provides AAW with guidance based on participants' comments.

Participants also develop assessment portfolios, which provide a structured outline for documenting the progress of their AAW program during the school year and which are given to AAW staff at the Spring Retreat. In them they make in-depth observations regarding their planning and accomplishments throughout the year, and describe their goals and the progress of all their AAW work in their school and/or district. Portfolios include samples of curricular plans and materials, committee structures and memberships, community resources and partnerships, and student work.

Finally, AAW has developed and adapted a series of 17 program evaluation rubrics that allow Leadership Teams to self-evaluate their programs. These rubrics gauge both semi-quantitative analysis and qualitative analysis of the project progress and the teachers' use of the local environment and community for learning. Responses to the rubrics distributed during the Summer Institute are used as a baseline for evaluating the educational and leadership status of the participating teams. The rubrics provide a tool for evaluation of long-term objectives, along with Leadership Team interviews. They also provide a format within which teams can begin to develop their AAW plans for the coming school year.

Dr. Lieberman is in the process of extending the Evaluation Plan to incorporate a set of tools for measuring the quality of implementation of the program. The Stages of Concern (SoC) instrument was created to explain, and propose program modification for, any lack of teacher buy-in. The Innovation Configuration (IC) is a diagnostic methodology that evaluates the quality of various instructional practices as teachers implement new programs. (See Attachment 2)

Other Measures:

Objective 1: Leadership Institute

Twenty-five teams will be provided training for and will implement high-quality, sustainable ecosystem-education programs.

- Leadership Institute is conducted.
 1. Number of teams = 25

2. 5 parts of Institute completed (planning, Summer Institute, 4 on-site workshops/team, Spring retreat, evaluation)
- Local program is implemented successfully.
 1. Rubrics: Each team will have an increase in rubric scores in 4 components of the *Implementation and Strengthening AAW Program Evaluation Rubrics* with an average change of .5 or above on a 1-4 scale. The teams determine the baseline for each rubric at the Summer Institute. (See Table 5 for a list of rubric components)
 2. Team products: 3 (Implementation plan, portfolio, integration plan for college level)

Objective 2: Guide Teams Toward Significant Projects

1. Seventy-five percent of the Leadership teams will report student participation in significant ecosystem restoration, monitoring, and community-education projects through the team Progress Reports.
2. Teams will show an average increase of .5 or above on a 1-4 scale on the “environmental” rubric (#17).
3. A survey of teams participating in the watershed site tour will show 75% have an increase in knowledge and ideas for completing significant projects with students.
4. A report will be produced of Regional Coordinator communications between local groups and agencies and the Leadership teams, and will show 10 priority watershed groups involved with local Leadership teams.

Objective 3: Students participate in the 5 elements of AAW

1. Interviews and Progress Reports will show that 75% of the students participate in higher-level thinking skills that help them develop an understanding of the need for, their role in, and approaches to maintaining ecosystem health.

Objective 4: Research and Document Patterns of Implementation

1. Produce a *Patterns in Implementation* book and pamphlet and 500 copies of each for AAW to use in redesigning the professional development plan for the Leadership Institute and for use by participants and interested public.
2. Produce a redesigned Leadership Institute Professional Development Plan based on the findings reported in the book.

Objective 5: Documentation of AAW

1. Produce 1 master video of AAW and student projects and 200 copies.
2. Produce 1 GIS map of student projects.

Objective 6: Networking and Database

1. A survey of Leadership teams that attend the field-site tour will show 75% of teams report an increase in knowledge and ideas for completing significant student projects, and understand more of how to take a “watershed” approach.
2. A survey of watershed conference attendees will show 75% have an increase in knowledge of watershed issues, cultural differences, and solutions to problems.
3. The AAW on-line database will be redesigned and ready to allow student data sharing.
4. Twenty schools where Leadership teams are active will be provided support and training on data entry, and 75% of those schools will enter data on the database.

Objective 7: Support for New Teams Prior to Institute

1. Twenty-five teams will receive support prior to the Summer Institute.
2. There will be an average increase of .5 or above on the baseline leadership-component rubric scores at the Summer Institute.
3. An amended professional development plan that defines the support given prior to the Summer Institute will be produced.

6. Data Handling and Storage

Data collected by the students during the year are shared with community partners and other schools and communities. Both AAW and GLOBE provide Internet data-exchange programs. This proposal will fund an update and extension of the AAW on-line database, as well as a design of a new GIS mapping system that will show student project locations along with pictures and text. Data from student field activities will be available to interested agencies and the public. Storage containers for each watershed are kept at school sites so that classes can file information on their projects (data reports, pictures, maps) for use by them and others in succeeding years. AAW student projects and programs will be shared through a video.

7. Expected Products/Outcomes

TASK 1: Project Management—PRODUCTS: Progress Reports, copies of media coverage, subcontract documentation, final report.

TASK 2: Leadership Institute

- a. Planning, preparation, and promotion; new-team support and identification—PRODUCTS: subcontract documentation; Progress Report; list of participants accepted to Institute; copies of promotional materials; list of conferences where promotional materials are sent.
- b. Summer Institute conducted—PRODUCTS: Leadership Institute schedule, objectives, and training manual; summary of Institute; subcontract documentation.
- c. AAW conducts 4 on-site workshops or consultations per team—PRODUCTS: subcontract documentation; list of teams and dates; Progress Report; copy of instructional materials used and a summary of activities.
- d. Spring Retreat held—PRODUCTS: Progress Report on planning, schedule, copy of instructional materials, list of participants, subcontract documentation, summary of Retreat.
- e. Regional Coordinators support all existing teams through guidance on priority ecosystem issues and projects, documentation, and networking (tour, conference)—PRODUCTS: Progress Reports; annual summaries will be in Final Report.
- f. Yearly evaluations of the Institute and AAW program are completed—PRODUCTS: copies of evaluations will be in the Final Report.

TASK 3: A GIS map for student projects will be designed and used—PRODUCTS: GIS map, subcontract documentation, Progress Reports.

TASK 4: Patterns of implementation of local programs are researched and introduced into the Leadership Institute design—PRODUCTS: subcontract documentation; copy of *Patterns of Implementation* book and pamphlet; copy of redesigned professional development plan; Progress Reports.

TASK 5: A watershed-based tour is held each year—PRODUCTS: schedules; lists of participants and locations; summary reports; Progress Reports, subcontract documentation.

TASK 6: A watershed-based conference is held each year—PRODUCTS: schedules of activities; lists of participants; summary reports; Progress Reports, subcontract documentation.

TASK 7: A documentary video and 200 copies are produced—PRODUCTS: copy of video; subcontract documentation; Progress Reports.

TASK 8: AAW on-line database is redesigned and supported, and 20 schools are trained in its use—PRODUCTS: subcontract documentation; Progress Reports; list of schools and dates trained.

8. Work Schedule

	<u>Start Date</u>	<u>Completion Date</u>
TASK 1: Project Management	July 2003	June 2006
TASK 2: Leadership Institute (repeated annually)	July 2003	June 2006
a. Planning, Preparation, and Promotion	January	June
b. Summer Institute	July	July
c. On-site workshops	September	June
d. Spring Retreat	May	May
e. Regional Coordinator support	July	June
f. Evaluation	July	June
TASK 3: GIS map		
a. Year 1, Design	July 2003	April 2004
b. Years 2 & 3, Mapping of data	July 2004	June 2006
TASK 4: Patterns of Implementation		
a. Year 1, Evaluation and research	July 2003	
b. Year 2, Book and pamphlet and redesigned Plan		March 2005
c. Year 3, Evaluation of changes	July 2005	June 2006
TASK 5: Annual site tour (repeats each year)	July	October
TASK 6: Annual conference (repeats each year)	July	March
TASK 7: AAW Video and copies	July 2003	June 2005
TASK 8: AAW Database		
a. Year 1, Design and support	July 2003	June 2004
b. Years 2 & 3, Support and trainings	July 2004	June 2006

All of the subtasks for the Leadership Institute are considered inseparable for the year, however each year can be funded separately. Institute planning for the first year will be funded through other sources. Tasks 3, 7, and 8 can be funded separately, however they add substantially to the richness of the program and should be begun in the first year, particularly the map and database, which the students and teams will want to utilize as soon as possible. The need for the tour and conference was revealed through evaluations of past teams funded by CALFED.

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

1. ERP, Science Program and CVPIA Priorities

The AAW program and its Leadership Institute specifically address priority MR-3 multi-regional needs, as it builds K-12 education programs in communities in the Sacramento River, San Joaquin River, Delta, and Bay regions. These programs emphasize conservation, restoration, monitoring, and public-education activities done in collaboration with local stakeholders. The teams build collaborative networks, and the teachers incorporate the most effective educational pedagogies, including using integrated and inter-disciplinary, standards-based curricula that utilize problem- and issue-based instruction, learner-centered constructivist instruction, collaborative instruction, independent and cooperative learning, and authentic assessment.

Students participating in AAW's 5 elements will complete monitoring, restoration, and public education projects that might address other specific priorities having to do with habitat restoration or prevention and control of non-native invasive species in the Sacramento River, San Joaquin River and Delta regions. In general, student projects and learning cover a variety of topic areas, including water quality; native and non-native wildlife population needs and habitats, vegetation management; soils and geology; relationships; ecosystem processes; watershed physics; and human needs and impacts. The AAW curricula are adaptable to a diversity of ecosystem types. Other appropriate curricula are also used. The students both learn from the community through their partnerships, and teach the community through school open house events, watershed fairs, science fairs, murals, brochures, interpretive walks, puppet shows, native-plant sales, endangered-species posters, plays, art shows, attending public meetings, and a watershed Congress, among other activities. The media are used extensively for increasing public awareness. Over time, the student activities will address many of the CALFED and CVPIA priorities and goals, as they and the community work on local watershed issues.

2. Relationship to Other Ecosystem Restoration Projects

Our program fills the needs of local groups desiring an education component in their ecosystem-restoration program, one that is standards-based and fully integrated into the school system. In return, we tie into their partnership network, which expands our program by adding their expertise and organizational capacity for student projects.

For example, Farms Leadership has been doing restoration on private agricultural property with students through their SLEWS program for several years. They had no educational component that was fully integrated into the schools and felt the need for professional development from AAW. They became part of a Leadership team at the 2001 Institute, and community partners and local teachers completed the team. From now on they will work as a team and with other partners to build a strong school/community system focused on watershed health. Students doing monitoring and restoration projects will be working with the large partnership network that Farms Leadership has already established. The partners are already involved with restoration projects, many of which are funded through CALFED, CVPIA, and other restoration programs. (See Table 4 for details) Farms Leadership will expand the SLEWS program to the new areas listed in Table 4, and new teams from those areas will attend the Leadership Institute. Plans also include a nature center in Winters that will be a model of sustainable agriculture. AAW has entered a formal partnership with Farms Leadership to use the nature center on the watershed site, while they receive professional development for their teams. In another case, Allen Harthorn, as educational director of Chico Watershed Education Program, Sacramento River Watershed Program, and CREEC, will work to tie new AAW teams into partner networks connected to those programs.

At the same time, AAW's Regional Coordinators will work in new areas of the regions to connect groups working on restoration to their local schools, and will facilitate communication between current teams and resource agencies regarding priority watershed needs.

3. Requests for Next-Phase Funding

AAW received funding through CALFED (Project #01-N39) to send 10 teams each year for 3 years to the Leadership Institute beginning in the summer of 2001. Twelve teams from the Sacramento, San Joaquin, Delta, and Bay regions attended the 2001 Summer Institute. The

attached *Existing Project Status* summary gives details of the design and results of this phase of the project. (See attachment 1) This current next-phase proposal overlaps Project #01-N39 in year 2003-2004, and extends its reach and effectiveness by providing professional development to 25 more teams from the Sacramento, San Joaquin, and Delta regions, and by incorporating objectives that meet needs identified as a result of feedback through our adaptive management process. (See Objectives 2, 4, 5, 6, and 7) Fulfilling these objectives will strengthen not only programs and teams from this proposal, but also those of the previously funded proposal.

4. Previous Recipients of CALFED Program or CVPIA funding

AAW received funding from the CALFED ERP for its 2001-2004 Adopt-A-Watershed Leadership Institute, Project # 01-N39. We are in the first phase of the project, having trained at the 2001 Summer Institute 12 teams from within the ERP Geographic Scope, 10 of which were funded by the 2001 ERP grant. These teams, from Red Bluff, Shasta Lake, Redding, Bella Vista, Greenville, Oakland, Chico (2), Winters (2), Grass Valley, and Stockton, are now beginning implementation of the program in their communities. (See Summary, Attachment 1)

5. System-Wide Ecosystem Benefits

Establishment of collaborative school/community partnerships within communities provides immediate opportunities for synergistic benefits: The schools can act as a conduit for public outreach for restoration groups, while the groups provide real-life activities that enhance education. The students can do significant work toward addressing what resource and regulatory agencies see as ecosystem needs, and AAW's Regional Coordinators will guide the teams in meeting those needs. The ecosystem benefits from the higher level of knowledge obtained by students and the community and from the student monitoring and restoration projects. AAW's emphasis on watershed-wide activities (project-site tour, conference, GIS map, database, and documentary video) helps to promote an understanding of the larger watershed, its needs, and possible effects from upstream activities.

6. Land Acquisition. N/A

C. Qualifications

The following key staff members are responsible for overall administration of the AAW program and project management:

Executive Director of AAW: Beth Huning brings to AAW 20 years of nonprofit program development and management in wildlife conservation. Previous experience for the National Audubon Society included managing San Francisco Bay wildlife programs, involvement in wetland issues, and direction of California's education program for Audubon. She also led in the development of National Audubon's strategic plan and recently coordinated the statewide strategic planning process for Audubon's future conservation and education programs in Nevada.

Project Director: Kim Stokely, Founder/President, is a K-12 science teacher and wildlife biologist. Her experience developing and implementing science and environmental education programs includes service as Field Studies Director at the Yosemite Institute and as Science Coordinator for the Mountain Valley Unified School District, as well as 12 years as Director of AAW. She will oversee the implementation of the project and do the project reports.

Workshop Coordinator: Carol Dawes has twenty-five years of experience in business, including merchandising, product development, and office management. She has been helping Leadership participants and been involved with Institute coordination for the past 5 years. She

will be involved with the teams and the Institute and will be responsible for coordinating the local on-site workshops.

Admin. Asst.: We are in the process of hiring this staff member. They will be tracking the teams' progress and providing general support during the project.

Administrative Director: Priscilla Henson has more than ten years' experience in the areas of human resources, accounting, and employee compensation. She will be responsible for maintaining the project budget and handling all billing and financial requirements associated with the project.

In addition to these staff, highly qualified subcontractors are responsible for various aspects of training at the Leadership Institute and at the on-site workshops. (See Table 6) In addition to these, experts from resource agencies, universities, and other cooperating groups, such as GLOBE and River of Words volunteer their time at the Summer Institute and Spring Retreat. Partnerships with resource and regulatory agencies provide technical expertise in local field projects and guidance for obtaining any permits required for an activity.

D. Cost

1. See Budget.

2. Cost-Sharing

Commitments:

CALFED ERP Grant for 2001-2004 (10 teams for 2003-2004 overlap this project): \$197,628

Chico Watershed Education Program: \$20,000

Team Co-Pay Fees (4/team x 60 teams x \$500): \$120,000

Requested Funding Still Pending:

State Department of Fish and Game for 2002: \$204,403 (received grant for 2001)

Walter and Elise Haas Fund: \$35,000 (received grant for 2001)

Fees for Service: \$300,000

In-Kind Match:

On-Site Training Facilities (4 trainings/team x 25 teams x \$500): \$50,000

Volunteer Presenters (5 people x 12 days x \$200 x 3 years): \$36,000

Participant Release Days (16 days x 4/team x 25 teams x \$100): \$16,000

GLOBE (2 people, travel, computers, equipment x 3 years): \$30,000

E. Local Involvement

Within communities, our plan for public outreach is our Leadership Institute and its implementation. The teams work closely with other stakeholders in the community through the Advisory Committee and partnership network. Teams may come to the Institute with a fully developed partnership network, such as is the case with Farms Leadership. For example, they will work in Yolo, Solano, and Sacramento counties with the Audubon Society, Yolo RCD, Yolo Basin Foundation, Ulati RCD, CAFF (Community Alliance with Family Farmers), UC Davis, Solano County Water Agency, and Lower Putah Coordinating Committee to do AAW restoration activities with students in riparian, rangeland, and grassland areas. Coordination with, and outreach to, local stakeholder groups or individuals for a particular project will be handled by the teams' Community Coordinators at the appropriate time.

At the same time, Regional Coordinators will work with restoration groups and their local schools to identify common educational needs and help them develop a plan for professional development from AAW. They will also work with resource agencies to guide the teams in

watershed issues and Best Management Practices, and to promote AAW through the video, GIS map, and database. This proposal funds 25 teams. Partners who have expressed a strong interest in professional development and have given letters of support are listed in *Approach, Objective 1* above. Additional teams will be chosen from the Sacramento River, San Joaquin River, and Delta regions.

F. Compliance with Standard Terms and Conditions

AAW will comply with the Standard Terms and Conditions.

G. Literature Cited

¹ *Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning* by Gerald A. Lieberman, Ph.D. and Linda L. Hoody, M.A. Science Wizards, Poway, CA, 1998.

² *National Evaluation of Learn and Serve America School and Community-based Programs, Interim Report* by Alan Melchior, Center for Human Resources, Brandeis University, Waltham, MA, 1997.

³ *Assessing the Waters: A Comparative Analysis of Water Quality Protection Initiatives* by Stephen P. Gasteyer, Cornelia B. Flora, Stacy Bastian. Presented at Decision Support Systems for Water Resources Management, American Water Resources Assn/UCOWR Joint Summer Specialty Conference, Snowbird, UT, June 27-30, 2001.

⁴ *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organization* by Peter Senge, Art Kleiner, Charlotte Roberts, Richard Ross, and Bryan J. Smith. Doubleday Dell Publishing Group, Inc., NY, 1994.

⁵ *Systems Thinking, Systems Changing: A Simulation of Organizational Transformation*, created by Susan Mundry and Carol Bershad. ST&C Assoc., Dept. 15, 25 Hammond Rd. Natick, CA 01760; 508-652-9954.

⁶ WestEd Eisenhower Regional Consortium for Science and Mathematics Education, 730 Harrison St., San Francisco, CA 94107-1242; 415-565-3000.

⁷ *Adopt-A-Watershed Leadership Institute Evaluation Report, July 1998*, by Mary Tribbey, Education for the Future, CSU Chico.

Figure 1

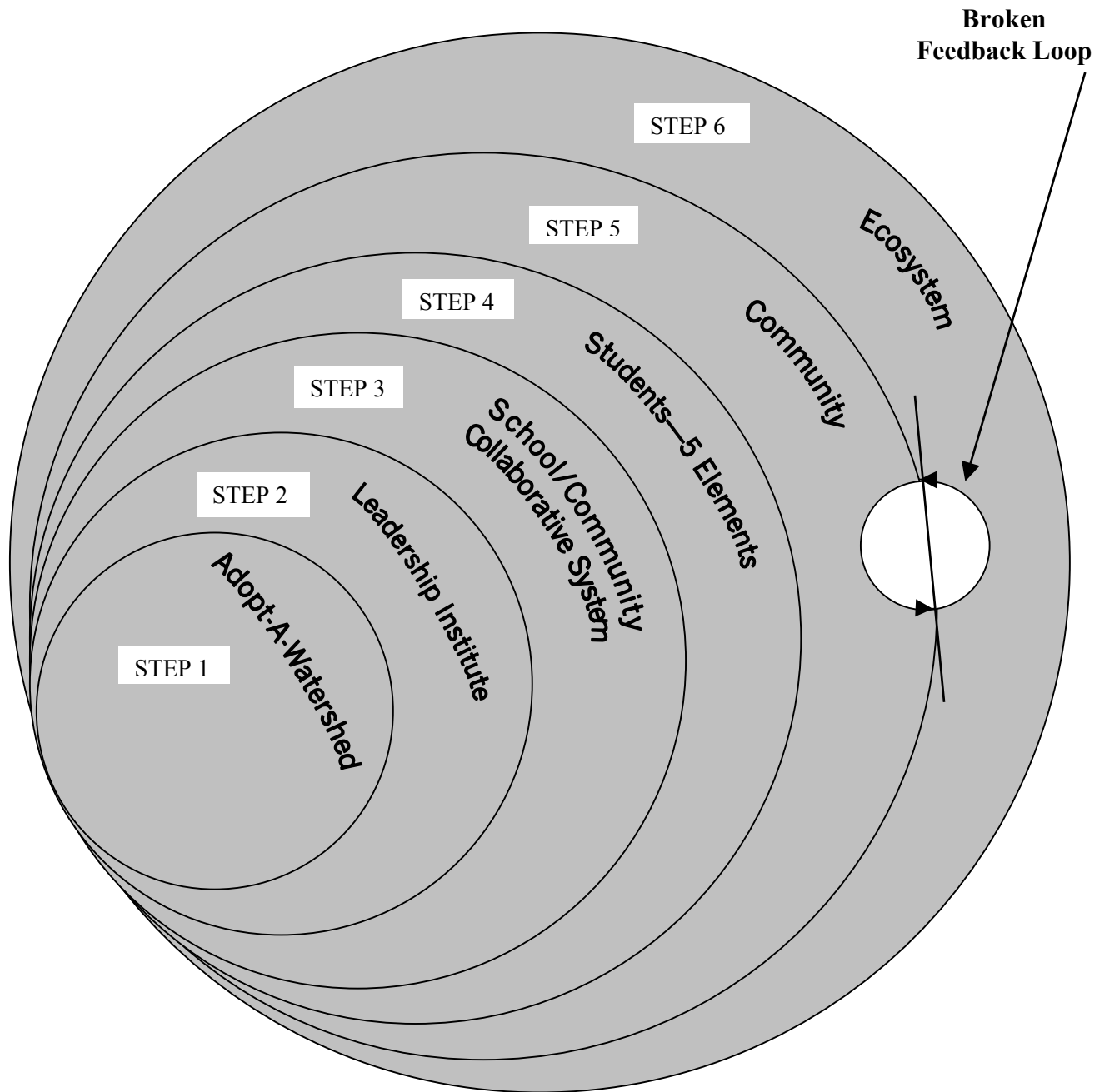


Figure 2

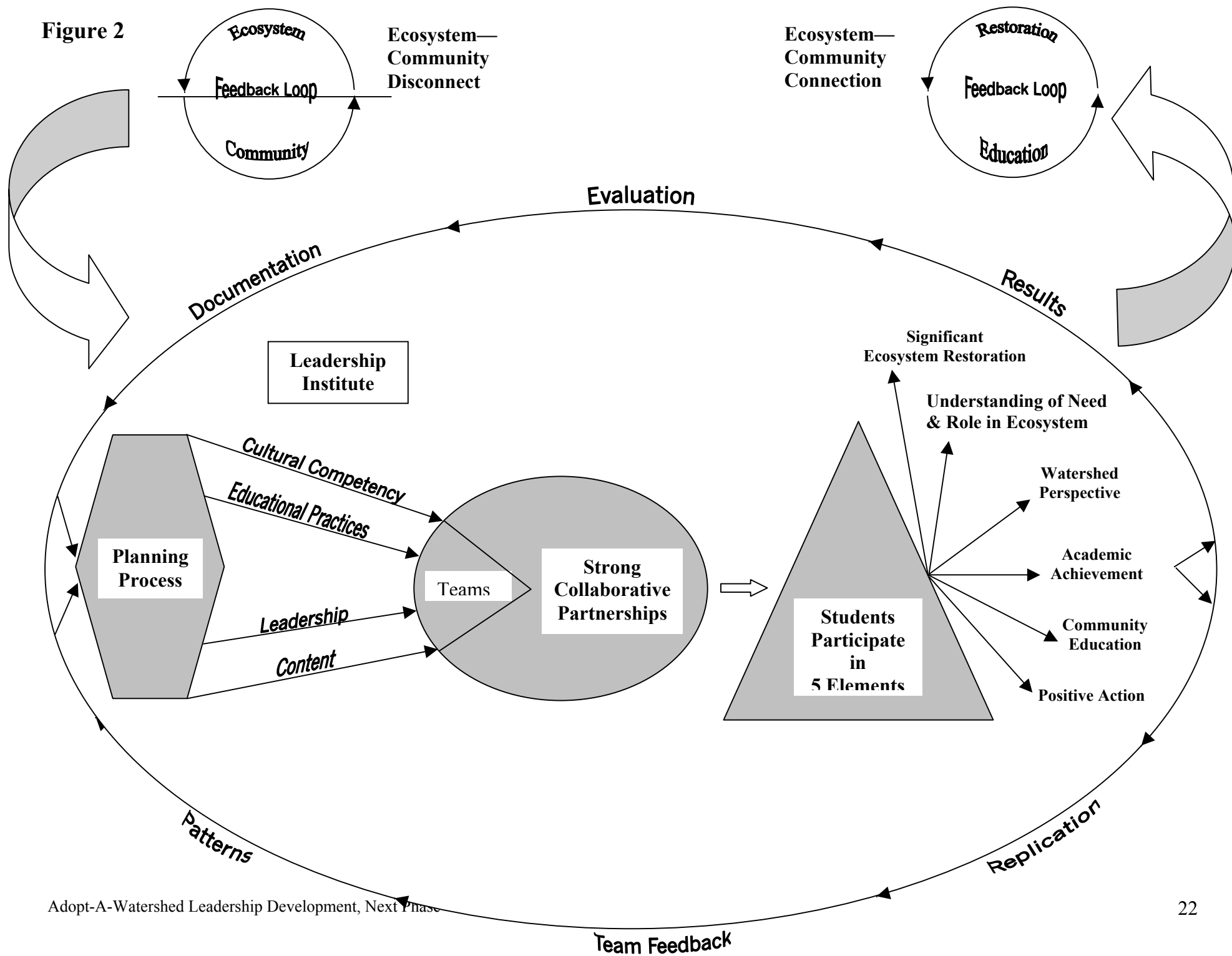


TABLE 1

Leadership Institute Objectives

AAW Leadership Institute Vision: Communities around the world that are implementing and supporting sustainable, effective, community-based, watershed education programs. These community educational systems engage students in meaningful activities that lead them to an understanding of sustainable systems and their responsibilities and choices in maintaining or building community well-being.

AAW Leadership Institute Mission: To support the development of community-based leadership teams that have the skills needed to implement and support sustainable, effective, community-based, watershed education programs

Purpose of LI: To provide community-based leadership teams with the skills, dedication, and enthusiasm to develop and support sustainable, effective, community-based, watershed education programs

**Learning Objectives:
Summary**

**Objectives: Community-based
leadership teams will be able to:**

Outcomes

**Activities and processes
conducted at LI and follow-
up leading to fulfillment of
objectives**

Educational Practices

5 Elements of Student Action

Apply AAW's 5 elements of student action including:

Understand the 5 elements: Educational concepts and standards applied to the local environment; watershed monitoring, watershed restoration, community education, reflection.

See the connections among the elements

Value the elements individually and collectively

Perceive the benefits of the elements to students and the community

Ability to explain the elements and their benefits to others

Students will develop a sense of stewardship and civic responsibility toward their community and watershed

Watershed projects will be completed that are significant to the community.

Watersheds will receive a direct, positive impact from student projects.

Students will apply higher level thinking processes.

Student learning will relate to the real world and will be relevant to students lives.

First hand experience in the 5 elements through participation in problem-based learning Unit Training at LI

Provide a graphic illustrating the 5 elements

Explore and reflect on how the elements help to unify previously disparate programs

Reflect on the benefits of the elements to students and community, e.g., stewardship, higher order thinking skills, improved academic achievement, etc.

Presentation about the elements and their benefits to students and the community

Use rubrics to review the status of their program in re: the AAW elements

4 Follow-up, on-site trainings based on needs defined by leadership team and advisory committee

Participants develop skits for opening presentation

Standards-Based EIC Pedagogy	Develop a standards-based, EIC pedagogy. EIC pedagogies Integrated, interdisciplinary instruction; hands-on learning experiences, problem-solving and issue-based service-learning practices; collaborative instruction involving team teaching and community involvement; learner-centered, constructivist (student-constructed learning with teacher as coach) approaches; knowledge, understanding and appreciation of their community's environment and natural surroundings; and independent and cooperative learning. Participants will:	Students with: better performance on standardized measures of academic achievement in all core subject areas, increased engagement and enthusiasm for learning, and greater pride and ownership of accomplishments.	First hand experience in the 6 EIC pedagogies through participation in problem-based learning workshop at LI
	Understand how the 6 pedagogies interact to form the EIC construct	Greater understanding of natural and social systems and their interactions	Provide a graphic about the EIC pedagogy
	See the connections among the pedagogies within the EIC construct		Explore and reflect on how the EIC pedagogy helps to create a comprehensive education program
	Value the EIC pedagogy individually and collectively		Reflect on the benefits of the EIC pedagogy to students and community, e.g., stewardship, improved student achievement
	Perceive the benefits of the EIC pedagogy to students and the community		Presentation about the EIC pedagogy and their benefits to students and the community
	Ability to explain EIC pedagogy and its benefits to others		Use rubrics to review the status of their program in reference to the EIC pedagogy
			4 Follow-up, on-site trainings based on needs defined by leadership team and advisory committee
			Tribes training in cooperative learning
			Participants develop skits for opening presentation

Community-Based Learning Opportunities

Assess, identify and coordinate learning opportunities at the school site as well as community and natural surroundings including:

Understand opportunities for using the school campus, public lands, and private property as service-learning project sites and outdoor classrooms.

Students learn from and in their community. that help them develop a sense of place in their environment and understand their role in sustaining community and environmental well being

Community builds capacity and knowledge from student involvement.

Increases awareness of opportunities and ease of teaching and completing projects in the outdoors with students.

Workshops by groups such as School Yard Habitats, Children's Forest, and Sacramento River Discovery Center

Assessment through use of evaluation rubrics on how much the outdoors and local environment is being used as a site for learning.

Participation in using a school or built site as an in-depth field study and project site.

Reflection on opportunities each school has available in local environment.

4 Follow-up, on-site trainings based on needs defined by leadership team and advisory committee

Community Mapping

Content

Educational Resources

Assess, select and apply the most effective of the diverse models of curriculum, technology and programs that support teachers in implementing the pedagogical model

More effective application of educational resources to instructional practice.

Presentations and workshops by selected groups that represent programs of excellence that compliment the 5 elements, EIC pedagogies, and educational standards being addressed. For example, River of Words, School Yard Habitats, GLOBE, Adopt-A-Watershed.

Training to become facilitators in selected programs of excellence.

Reading the book, Nature Journaling, and practicing nature journaling and reflection throughout the week

Standards-Based Instruction

Participants will integrate their required educational standards into EIC pedagogy and 5 elements.

Educators will feel comfortable in using the environment as an integrating context while still meeting their required educational standards. They will feel confident that they can increase student achievement while using the educational practices being introduced.

Provide Closing the Achievement Gap and California Student Assessment Project: The Effects of Environment-Based Education on Student Achievement to all participants to help them understand research that illustrates that this form of education encourages increased student achievement. They can also use the reports to prove to interested parties at their site that this form of education is successful.

Participants will be asked to bring a copy of the educational standards for their grade level. These will be used to design performance tasks to build a unit for a specific grade level through the problem-based learning workshop process. Participants will then experience the depth of learning that takes place around the standards chosen.

4 Follow-up, on-site trainings based on needs defined by leadership team and advisory committee. These trainings may include workshops on integration of local standards to the educational practices being introduced.

Understanding Natural and Social Systems

Participants and the students they work with will develop an increased understanding of natural and social systems.

Participants and the students they work with will develop an increased understanding of natural and social systems.

Participants will be exposed to natural and social systems through their explorations, activities, and contact with resource professionals during the problem-based learning workshop.

Participants will be given the book Seeing Nature, which provides causes readers to change their perception of nature.

4 Follow-up, on-site trainings based on needs defined by leadership team and advisory committee

Reading the book, Nature Journaling, and practicing nature observation, journaling and reflection throughout the week

Leadership

Community Vision

Create a community vision

Unified understanding and broad community support for program

Read quotes about vision and its importance

Model/present what a vision looks like

Have teams write a vision statement

Discuss inclusion of community members in vision development process

Implementation Strategy	Develop an implementation strategy including:	A strategic plan that the leadership team and its community partners can successfully implement	Use rubrics to evaluate current program and set objectives
	Identify areas of strength and weakness through self assessment and identify program needs		Provide 4 days of follow-up workshops and technical support to leadership team based on community needs
	Identify stakeholders at different stages of implementation		Provide time at LI for participants to work on implementation plan.
	Set clear, achievable objectives		Grant writing workshop where implementation planning is included.
	Define and assign work tasks		Require teams to commit to 2 days of implementation planning upon return to site.
	Establish roles and responsibilities		Introduction and graphic on implementation steps
	Establish a timeline		Networking session and case studies on implementation steps
	Develop a budget		Reading the book, Sourcebook for Watershed Education
Leadership Skills	Apply leadership skills in the community to foster community change toward their vision and objectives including:	Active involvement and support of the community in a process of continuous improvement toward the community vision through shared and sustainable leadership with strong community partnerships, community advisory committee, and school/district wide program implementation.	Complete leadership evaluation rubrics with teams and introduction to implementation steps
	Ability to coordinate projects	Regional implementation of environment-based learning through regional Leadership Institutes and workshops.	Coordinator training workshop

Learn to facilitate AAW workshops and other programs of excellence

Facilitate integration of educational practices introduced into teacher preparation programs

Understand how to form and manage an advisory committee

Form and sustain strategic community partnerships

Develop communication and collaboration skills

Understand and apply change processes within the school system and community

Coordinate 4 Follow-up, on-site trainings based on needs defined by leadership team and advisory committee conducted by AAW staff

Demonstrate dedication, enthusiasm and energy in developing the program

Facilitator training workshop and co-facilitation opportunities at Leadership Institute and 4 follow-up trainings.

Workshop on integrating environmental service-learning into teacher preparation programs.

Workshop on forming an advisory committee, setting agendas, and running a good meeting

Partnership development workshop

Introduction to 7 Habits of Highly Effective People and Tribes

Participation in the Systems Thinking/Systems Changing simulation game; read the book Change Forces by Michael Fullan; reflect on leadership and creating an environment for change at the walk-talk-reflect session.

Conduct 4 follow-up workshops and complete evaluation rubrics with teams. Need further training on how to plan and design a follow-up workshop based on defined needs.

Model enthusiasm, dedication, enthusiasm; read quotes on leadership and the power of this idea; read quotes on change, show slides and videos showing this type of program working; preferably visit programs that are successfully using educational practices introduced.

Understand how to develop high school mentor and community volunteer programs

Understand the importance of and acquire tools for program assessment and evaluation

Understand value and benefits of developing a continuum of learning across the grade levels and understand how to create the environment for change and support systems to implement this

Develop ability and skills for facilitating Leadership Institutes

Share ideas on developing mentoring programs at networking session; workshop on developing mentoring and volunteer programs by seasoned professionals

Provide tools for program assessment including portfolios, progress reports, and evaluation rubrics; model and present value of assessment and evaluation for program improvement, provide sample assessment tools for program and student assessment; model evaluation methods in problem-based learning workshop; model daily evaluation and continuous improvement.

Peer mentor training workshop; Systems Thinking/Systems Changing simulation game; participation in the problem-based learning workshop; sharing at the networking sessions

Cultural Competency	Delve into and assess their program's cultural competency	Inclusiveness and cultural perspectives are taken into account in all aspects of the program	Tribes training
			Reading and reflection on cultural competency throughout week Developing a vision for cultural competency for their site Inclusion activities Analysis of partnerships and project inclusiveness as part of partnership development workshop
Networking	Participate in a network of Adopt-A-Watershed communities	Continuous improvement of program through sharing of ideas, challenges and solutions	Follow-up letters to all participants throughout year and continued communication through Leadership Institute list serves. All participants signed-up on list serve before leaving Leadership Institute. NAAEE reunion, workshop and presentations

TABLE 2 PROJECT OBJECTIVES

Problem	Hypothesis	Objective	Outcome	Approach	Measurement
Objective 1: Leadership Institute					
There is an interest in ecosystem education, but it is often not sustainable, is often individual-project based and not integrated into the school curriculum and programs. Often ecosystem-restoration groups and K-12 education are disconnected and do not know how to connect or how they can help accomplish each other's goals, such as improved ecosystem health and improved academic achievement.	The AAW Leadership Institute provides professional development that increases the chances of implementation of high quality, sustainable ecosystem education in K-12 schools and their communities.	25 teams representing a diversity of cultures will be provided professional development through the AAW Leadership Institute and will implement high-quality, sustainable watershed education programs that incorporate collaboration with the community.	100% of the Leadership teams will show an increase in the <i>Implementation and Strengthening AAW Program Evaluation Rubric</i> scores.	Leadership Institute (See detailed Leadership Institute Objectives, Table 1) Participants are provided professional development, leading to students participating in AAW's 5 elements of student action. Professional development is in four key areas: cultural competency, leadership, educational practices, and content.	- Leadership Institute is conducted. 25 Leadership Teams trained 5 parts of Leadership Institute completed. - Local program is implemented successfully. Each team will have an increase in rubric scores in four components of the <i>Implementation and Strengthening AAW Program Evaluation Rubrics</i> with an average change of .5 or above on a 1-4 scale.
Objective 2: Guide Teams Toward Significant Projects					
Students who participate in meeting real community needs through service learning develop civic	If LI participants are provided with opportunities to participate in,	A) Provide teams with the opportunity to participate in, observe, and	Up to 75,000 students, representing a diversity of	A) Leadership teams will participate in an authentic monitoring	75% of Leadership teams will report student participation in significant ecosystem

Problem	Hypothesis	Objective	Outcome	Approach	Measurement
responsibility and a sense of ecosystem stewardship. However, many environmental-education programs do not include opportunities for students to participate in real-life, priority ecosystem problems/issues and solutions, such as environmental monitoring, ecosystem restoration, and public education. Educators often can't envision the projects that are possible. They also need the leadership components of a successful K-12 ecosystem education program in place, such as a coordinator, partnerships with restoration groups, etc. Conversely, the watershed/ecosystem restoration groups that are working toward accomplishing priority watershed projects are not connected to the educational system and do not understand the significance of the work that can be accomplished by	observe, and investigate significant student ecosystem restoration, monitoring, and community-education projects that are in place and successful, they will be more likely to plan significant ecosystem restoration, monitoring, and community-education projects for their students.	investigate significant student restoration, monitoring, and community education projects that are in place and successful. B) To have 10 local watershed groups that are working on State priority ecosystem restoration projects, such as local watershed conservancies or alliances, be an	cultures, will participate in significant watershed restoration, monitoring, or community-education projects. B) Watershed groups' needs for priority watershed projects will be communicated to the Leadership teams, and the watershed groups will be aware of student ecosystem	and restoration project during the Leadership Institute. AAW will sponsor a networking tour (see Networking objective #6 below) that provides participants the opportunity to investigate significant student projects being accomplished by other teams, such as the Farms Leadership SLEWS projects taking place on agricultural private lands. B) Regional coordinators will work with both the leadership teams and the local watershed groups to make sure the schools understand the needs and priorities for ecosystem	restoration, monitoring, and community education projects through team progress reports and an increase of an average of .5 or above on a 1-4 scale using the "environmental" component (# 17) of the <i>Implementation and Strengthening AAW Program Evaluation Rubrics</i>. 75% of teams participating in the watershed tour will show an increase in knowledge and ideas for completing significant ecosystem projects with students. B) Documentation of the Regional Coordinator communications between local groups and the Leadership teams will show 10 priority groups

Problem	Hypothesis	Objective	Outcome	Approach	Measurement
students. AAW successfully introduces the leadership components, but needs to provide further opportunities for participation, observation, and investigation into significant student projects.		integral part of their local AAW leadership team. C) Regional Coordinators will work with resource and regulatory agencies to guide teams on priority issues and Best Management Practices.	restoration projects. C) There will be a closer connection between the natural resource agencies' priority ecosystem-restoration needs and student projects.	restoration in their watershed, and the watershed groups understand the potential and opportunities for accomplishing their priority projects by working with the schools. C) The Regional Coordinator will work with the appropriate groups to ensure that monitoring and restoration is being done with the appropriate quality and Best Management Practices and will enlist participation of 10 priority groups for team involvement.	involved with local Leadership teams.
Objective 3: Students Participate in 5 Elements of AAW					
There is a general lack of understanding about the relationship between the	Student participation in higher-level	Students from a diversity of cultures will participate in the	75% of students from a diversity of cultures will	Students work collaboratively with community partners	Interviews, surveys, Progress Reports, portfolios, and the

Problem	Hypothesis	Objective	Outcome	Approach	Measurement
health of the environment and the long-term health of communities and personal well-being. People affect the health of their ecosystem through their actions and often fail to recognize when or why it is impacted or the significance of this impact to the human population. There is a disconnect in the feedback loop between the ecosystem and the human population. Information coming from the ecosystem such as water quality problems or wildlife population depletion is not reaching the general population.	thinking skills will help them develop an understanding of the need for, their role in, and approaches to maintaining ecosystem health.	5 Elements of AAW.	participate in higher-level thinking skills through AAW's 5 elements, which will help them develop an understanding of the need for, their role in, and approaches to maintaining ecosystem health.	to participate in AAW's 5 elements of student action, including locally applied curricula, monitoring, restoration projects, public education, and reflection.	rubrics will show that 75% of the students participated in higher-level thinking skills through participation in AAW's 5 elements.
Objective 4: Research and Documentation of Patterns of Implementation					
AAW knows the needed components for high quality and sustainable programs. In the past 12 years of implementing programs, patterns have begun to emerge that demonstrate that there is a sequence of actions and components that are put in place that create the most	There are patterns of development in community change processes that can be identified and utilized for teaching participants to develop their programs.	AAW will research and identify the patterns of implementation, including sequence of actions, objectives that are set, and components that are put in place that lead to the most	A more defined system for implementing successful programs and a redeveloped professional development plan for the Leadership Institute that	Evaluate implementation patterns in teams that have been implementing the AAW program for different numbers of years, comparing successes and failures and	Produce a <i>Patterns in Implementation</i> book and pamphlet and 500 copies of each for AAW to use in redesigning the professional development plan for the Leadership Institute and for use by

Problem	Hypothesis	Objective	Outcome	Approach	Measurement
successful environment for change and that cause highly sustainable programs. Documentation of the patterns needs to take place and then be applied to the Leadership Institute professional development plan.		successful environment for change and that create highly sustainable AAW programs. AAW will then incorporate the patterns found into the professional development plan for the Leadership Institute.	incorporates this system. The long-term outcome is teams that are implementing with more success, more smoothly, and with more focus. Measurement for this will occur in future years after time to test the results has passed.	correlating to implementation patterns. Research successful community-change processes in other programs and apply to the knowledge base for implementation patterns for AAW. Write an implementation-planning book and pamphlet.	participants and interested public. Redesign the Leadership Institute professional development plan based on the findings reported in the book.
Objective 5: Documentation of AAW					
Ecosystem restoration, without a change in public perception and understanding through education, leads to a continuation of the culture that created the ecosystem problems, yet many people continue to not appreciate the value of education or that there are educational programs that can make a real difference in long-term ecosystem restoration The positive results of AAW need	Production of a video and maps that document the results of AAW will provide useful tools that will demonstrate the results of AAW and provide outreach for ecosystem-restoration education in general.	Production of a video that documents successful AAW programs in the Bay-Delta system, including solutions to common challenges; student community, and watershed change; patterns of successful implementation; and statistical results.	Greater awareness of results of program will lead to further replication. Public exposure to successful projects accomplished by students will make them more aware of ecosystem problems and the value and	A subcontract will be developed with a partner who has the capability of producing a high-quality video. The Regional Coordinators and other AAW staff will work with schools, community partners, and the subcontractor to develop the	One video and 200 copies will be produced, sharing successes, solutions to common challenges, results of projects, successful programs, and student, community, and watershed change. One GIS map will be produced of projects, data, programs, and

Problem	Hypothesis	Objective	Outcome	Approach	Measurement
to be mapped, shared, and documented, including documentation of student understanding and change in perspectives. Many student projects are taking place and watershed groups and agencies are often unaware of these activities, locations, impacts, or value. How many projects are going on, what kind of projects are they, and what is the significance of the projects to ecosystem restoration?		Production of a GIS map with accompanying photos and text by watershed that documents and illustrates student accomplishments, including projects being completed, programs being implemented, and sub-watersheds influenced.	importance of education in correcting the situation.	storyline, gather video footage, and produce the video. Develop a sub-contract with a partner who has the capability of designing GIS maps. Regional Coordinators will collect project data from community coordinators and work with the partner to produce a multi-layered map that links projects with pictures and data.	watersheds being influenced for each of the Sacramento River, San Joaquin River, Delta, and Bay regions.
Objective 6: Networking and Database					
Solutions to common challenges and new ideas in ecosystem-restoration education are available, and teams need networking opportunities for on-site and in-depth sharing on a regional basis. Also, AAW wants to strengthen our program by exposing teams to other areas	Networking between teams and between students from different communities and cultures throughout the watershed will increase knowledge and ideas for program	Provide an annual tour of student project sites for Leadership teams throughout the watershed. Provide a cultural student conference that is watershed-	Local communities will become part of a more-cohesive “watershed” approach in the Bay-Delta’s educational and ecosystem restoration efforts.	Regional Coordinators will hold an annual student-project site tour for teams in the Sacramento, San Joaquin, Delta, and Bay regions. Teams will be exposed to areas of expertise	A survey of Leadership teams after attending the watershed site tour will show 75% of the teams report an increase in knowledge and ideas for program implementation and cultural inclusion, and will have more

Problem	Hypothesis	Objective	Outcome	Approach	Measurement
of expertise, such as sustainable agricultural practices and restoration on private agricultural lands. Teams and students need to understand how they influence and are influenced by other events in their watershed. AAW's on-line database is not currently being used for "watershed" sharing of data, partly because it needs to be expanded and supported, and partly because some teachers are reluctant to use it and need on-site training. Because of California's rich cultural diversity, teams need deeper exposure to other cultures in their watershed and approaches to including other cultures.	implementation and cultural inclusion. Database use will serve to document the work that students are doing, allow students to share information and solutions to common problems, and create more of an understanding of the watershed as a system.	based and includes a River of Words Poetry and Art Contest exhibit. AAW's on-line database, where students share projects, data, and solutions to watershed issues will be redesigned and updated to make it an effective tool. Training and database-entry support will be provided to 20 schools that are represented by Leadership teams in order to encourage data entry.	Teams and students will have on-going educational opportunities and be more aware of how their actions can influence other parts of the watershed as they are exposed to the ideas and expertise of other groups and as they share common solutions to challenges.	not covered by the Leadership Institute and to significant and successful projects. Coordinators will also hold an annual, culturally diverse and watershed-wide conference for 2 adults and 4 students from each team. Emphasis will be on cultural awareness and the River of Words Poetry and Art contest. A subcontract will be developed with a partner to upgrade and support AAW's on-line database and give training to 20 schools on an on-site basis.	knowledge of watershed issues. A survey of watershed conference attendees will show 75% have an increase in knowledge of watershed issues, cultural differences, and solutions to problems. 75% of schools receiving database training will have students entering data from their project results.
Objective 7: Support for New Teams Prior to Institute					
Past Leadership teams have asked through evaluations for help with such tasks as	Helping groups and schools collaborate in	AAW will work with watershed groups and schools to identify	The teams will be stronger and more prepared to	The Regional Coordinators will work with schools	25 teams will have support prior to the Leadership Institute.

Problem	Hypothesis	Objective	Outcome	Approach	Measurement
profiling their community, developing a strategic plan, and defining a common vision prior to the Institute.	identifying teams and giving new teams support prior to the Institute will result in higher baseline scores on the evaluation rubrics at the beginning of the Institute.	common needs and potential teams for Leadership training. This preceding step will be incorporated into AAW's professional development plan for the Leadership Institute. Teams accepted to the Institute will be given support in profiling the community and defining a common vision and strategic plan.	benefit from the Leadership experience.	and watershed groups in new communities to find common collaborative educational needs and identify potential teams for Leadership training. They will work with teams accepted to the Institute on profiling their community, developing a strategic plan, and defining a common vision.	There will be a team average increase of .5 on a 1-4 scale in the baseline scores in the leadership components of the evaluation rubrics. The professional development plan of the Institute will be amended to define how support will be extended prior to the Institute.

Table 4. Cultivating Environmental Stewardship Education and Restoration Program Sites and Partners

Education Site/ CALFED Region	Partner	CALFED Program Title And Grant Number (If applicable)	Applicability to ERP Strategic Goals	Link to FARMS/SLEWS	Ecozone
Yolo/Solano/ Sacramento Sacramento Valley Region	Audubon California	Willow Slough Watershed Rangeland Stewardship Program (ERP 01-N31) and Union School Slough Watershed Improvement Program (ERP 98 –E13)	ERP Goals 1,3,4,5,6	Audubon will provide ecological restoration sites for FARMS and SLEWS field days on private farms and ranches throughout Willow Slough (including access to private property through their ongoing program); funds for all plant supplies and materials; technical expertise, and mentors for student research projects.	Yolo Basin 10.4 – Willow Slough
	Yolo Resource Conservation District	Sustaining Agriculture and Wildlife Beyond the Riparian Corridor (ERP 01-N25)	ERP Goals 1,2,3,4,5,6	Yolo RCD will provide assistance with program coordination (especially the Yolo RCD Education Coordinator), mentors, technical assistance, and additional educational resources.	Yolo Basin 10.4 – Willow Slough
	Same as above	Capay Valley Watershed Improvement Program (Watershed 2001–140)	Addresses all 6 Watershed Program Objectives	Through additional 319-H funds, this program will provide restoration sites on Cache Creek (property access), implementation funds, technical expertise, and mentors. Any educational materials created will be used for SLEWS.	Yolo Basin 10.1 – Cache Creek
	Solano County Water Agency and Lower Putah Creek Coordinating Committee	Putah Creek Watershed Program (Watershed 01-0128) and... <u>Submitting - ERP 2002</u>	Addresses all 6 WP Objectives ERP Goals 1,2,3,4,5,6	LCPPC will provide restoration sites on Putah Creek (property access) for student groups, implementation funds, technical expertise, and mentors. LCPPC will also be developing Putah Creek educational materials based on ERP goals to support teachers and students involved in SLEWS.	Yolo Basin 10.2 – Putah Creek
	Community Alliance with Family Farmers and Ulati RCD	Educating Farmers and Landowners in Biological Resource Management (ERP 01-N42)	ERP Goals 4,6 and CALFED educational objectives	Will provide restoration sites in Solano County (Pleasants Creek, etc., access to private property), implementation funds, technical assistance, and mentors.	Yolo Basin 10.3 - Solano
	Yolo Basin Foundation	Discover the Flyway (ERP 01-N40)	ERP Goals 1,2,3,4,5,6, and ERP educational objectives	Will provide SLEWS and FARMS teacher professional development programs (especially their summer “Watershed Academy”), local teacher connections, curriculum and other educational resources (e.g. connections to CREEC Region 3).	Sacramento- San Joaquin Delta 1.1 – North Delta
	The University of California, Davis (College of Ag and Environmental Sciences) –Various groups	<i>Submitting –ERP 2002</i> (IACT – Irrigated Agriculture Conservation Tillage program)	ERP Goals 1,2,4,6	UCD will host field days that are based on wildlife-friendly agriculture (UCSAREP, IACT, Student Farm, Dept. of Wildlife, Fisheries, and Conservation Biology), provides faculty/staff mentors and sites for student research projects (especially SAFS, who is expanding their educational role to provide research opportunities for high school students)	Yolo Basin 10.2 – Putah Creek

Table 1. Continued

Education Site/ CALFED Region	Partner	CALFED Program Title And Grant Number (If applicable)	Applicability to ERP Strategic Goals	Link to FARMS/SLEWS	Ecozone
Butte/Glenn/ Tehama Sacramento Valley Region	The Nature Conservancy- Sacramento River Project	Sacramento River Restoration: Chico Land Sub-Reach (RM 185-200) <u>Submitting – ERP 2002</u>	1,2,4,5,6	TNC will provide restoration sites for field days (access to both private and public land), implementation funds, technical assistance, mentors, and assist with administrative duties for FARMS.	Sacramento River 3.2 and 3.3
	Chico Unified School District	Watershed Education Project (ERP 01-N35)	Meets CALFED's ERP educational objectives	WEP will help provide links with schools and teachers that are already participating in watershed education activities, but need REAL restoration projects for student action; provide localized curriculum for FARMS and SLEWS.	Butte Basin 7.6 – Butte Creek
	Chico State University (College of Agriculture)	N/A	N/A	Chico State will host field days that are based on wildlife-friendly and sustainable agriculture, provide faculty/staff mentors for student research projects and technical presentations at FARMS and SLEWS field days.	Butte Basin 7.7 – Butte Sink
Stockton/Lodi Delta Region	San Joaquin County Office of Education	Delta Studies Program, San Joaquin County Schools (ERP 01-N38)	Goals 1,2,3,4,5,6, and Meets CALFED's ERP educational objectives	This education project, funded by CALFED last year, will provide up-to-date curriculum on the Delta that will be used in FARMS and SLEWS programs. Also, SJCOE will provide High Schools and teachers who are ready to participate in “real, significant” restoration projects in their local area.	
	San Joaquin County Resource Conservation District	Lower Mokelumne River Watershed Stewardship Program (ERP 99-N15) And... Murphy Creek Restoration Project (ERP 01 – number not yet assigned)	ERP Goals 1,2,3,4,5,6 ERP Goals 1,2,3,4	SJRCD will provide multiple restoration sites for the schools and teachers from San Joaquin County. They will also provide all restoration funds (e.g. plants, supplies), technical expertise, and links to farmers and ranchers in the Murphy Creek Watershed. Through their current CALFED projects, they will provide private land access for high school activities.	Eastside Delta Tributaries 11.2 – Mokelumne River
	San Joaquin County Audubon Chapter	N/A	N/A	SJ Audubon is very active on the Mokelumne River Team, and their members will provide technical assistance and ecosystem expertise at field days, especially bird monitoring surveys and student research projects.	Same as above

Table 1. Continued

Education Site/ CALFED Region	Partner	CALFED Program Title And Grant Number (If applicable)	Applicability to ERP Strategic Goals	Link to FARMS/SLEWS	Ecozone
Fresno San Joaquin Region	Fresno State University -College of Ag Sciences and Technology	N/A	N/A	CSU Fresno will be a host for FARMS field days, with curriculum focused on wildlife friendly farming and sustainable agriculture. They will provide faculty and staff for presentations and mentors for student research projects.	San Joaquin River 12.4-Gravelly Ford to Friant Dam
	Central Valley Agriculture Literacy Project	N/A	N/A	CVALA will provide localized agricultural curriculum for the FARMS program, and will connect interested teachers and schools to the FARMS program.	N/A
Sonoma Bay Region	Southern Sonoma Resource Conservation District	Sonoma Creek Watershed Conservancy 2001-2003 (ERP 01-H203)	ERP Goals 1,2,3,4,5,6	S. Sonoma RCD will provide restoration sites, access to private land, and connections to farmers and ranchers in the region for FARMS field days. The RCD has existing educational programs along the Petaluma River, which will provide curriculum and sites for FARMS field days.	Suisun Marsh & N. SF Bay 2.3 and 2.4
	Sotoyome Resource Conservation District	N/A	N/A	Sotoyome RCD, whose area is out of the CALFED Bay Region, will provide technical assistance and presenters at field days in the Southern portion of Sonoma County. Their expertise in ecological restoration is valuable to FARMS.	N/A
	Santa Rosa Junior College	N/A	N/A	SRJC will be a host for numerous FARMS field days based on wildlife-friendly farming and sustainable agriculture (e.g. sustainable wine grape production practices). SRJC also will provide many faculty and staff mentors for off-campus FARMS field days and student research projects.	N/A
Multi-Region (Partners listed provide links for all sites)	Adopt-A-Watershed	Adopt-A-Watershed Leadership Institute (ERP 01-N39) and... <u>Submitting - ERP 2002</u>	ERP Goals 1,2,3,4,5,6, and meets Educational Objectives	AAW will provide environmental education curriculum and supporting professional development to all FARMS/SLEWS teachers. AAW will also provide links with other education programs region-wide who want to do “significant” work in watersheds, using SLEWS and FARMS as models.	Multiple
	Cooperative Extension, University of California	N/A	N/A	UCCE Advisors provide technical expertise to assist with program field days and act as mentors for student research projects (students are often able to work in tandem with a UCCE Advisor on “real world” research.	Multiple
	Natural Resources Conservation Service (NRCS)	N/A	N/A	NRCS soil scientists and range conservationists provide technical expertise at FARMS and SLEWS field days and act as mentors for student research projects. NRCS helps provide connections with farmers and ranchers who are doing ecosystem restoration and wildlife-friendly agriculture.	Multiple

TABLE 5. Program Implementation and Strengthening Rubrics

Major rubric components are listed here, but each category is further subdivided on the actual rubric to provide more detail for analysis.

Cultural Competency:

- Teams/teachers are aware of and value cultural differences.
- Teams/teachers support continuous self-improvement in cultural competency.
- Strategies are incorporated into education planning to enhance cultural competency.
- Specific cultures within the community are researched and included in the educational process.
- The educational model is adapted to include specific cultural needs.

Educational Components:

- The local environment is used as a context for learning.
- The program is integrated and interdisciplinary.
- Students are provided problem-, issue-based instruction.
- Students are provided collaborative instruction from the community and other teachers.
- Teaching methods are learner-centered and constructivist.
- Learning is independent and cooperative.
- Authentic/performance-based assessment is utilized.

Leadership Components:

- The educational leadership structure is established according to the defined roles (Advisory Committee, school-district admin., school-site admin., teachers, community coordinators, partnership network)
- Community support is established.
- Program planning and evaluation is being done.
- In-service and pre-service professional development is being provided.

Environmental Component:

- Student projects address priority ecosystem goals.

TABLE 6

Subcontractors

Name	Experience	Role
Nancy Jones	Independent consultant who specializes in delivering high-quality in-service training to elementary-school teachers, drawing upon her many years of classroom teaching experience, along with an extensive background in AAW Leadership training. She recently won one of three awards given in California by the National Science Foundation for excellence in science teaching.	Co-facilitator of the Leadership Institute and on-site workshop facilitator
Emilio Williams	President of the KOI Group which specializes in group cultural competency training, facilitation, storytelling, staff and organizational development to enhance mutual trust, respect, and freedom of expression. He has 6 years of experience with AAW.	Co-facilitator of the Leadership Institute and on-site workshop facilitator
Toni Rockwell	An elementary educator with 22 years of teaching experience in grades K-5. She has received 3 mentorships and has organized and facilitated AAW workshops in her school district for many years.	Leadership Institute presenter and on-site workshop facilitator
Rob Wade	Vice-President of AAW's Board of Directors, he has 6 years of experience as an AAW facilitator. He has a B.S. in Conservation and Resource Studies and is currently Director of the Plumas County Residential Outdoor Program, Chair of the Board of Directors of the Plumas National Forest Interpretive Assn., on the Board of the Feather River Land Trust, and he works as a naturalist for many groups.	Leadership Institute presenter and on-site workshop facilitator
Barbara Novelli	An environmental teacher and science mentor for the Santa Cruz City School District. She has worked for the last several years with local groups to involve students and community members in San Lorenzo River watershed-restoration projects, and has been a participant and facilitator for AAW since 1998.	Leadership Institute presenter and on-site workshop facilitator
Sidney Post	A Watershed Resource Specialist for the Public Works Commission for the city of Fayetteville, N.C., Mr. Post has extensive experience with managing aquatic systems in the Cape Fear watershed sub-basin and is currently working toward environmental certification for the state of North Carolina. In addition to his fieldwork, he has been actively involved in K-12 outreach as a presenter, teacher-trainer, and activity coordinator. He has 3 years of AAW Leadership training.	Leadership Institute presenter.
Barbara Brodsky	A middle grade science and social studies teacher, she has served as a science resource in other grades and is currently working toward her environmental educator's certification. She has 3 years of AAW Leadership training.	Leadership Institute presenter.

Kevin Wolf	Head of Wolf and Associates, he has 15 years of experience in meeting facilitation and advisory committee development. His work includes facilitation in environmental fields among groups such as governmental, public, and scientific representatives.	Leadership Institute presenter.
Pamela Michaels	She has been Director of the River of Words watershed poetry and art contest for many years.	Leadership Institute presenter
Dr. Terri Davis	Associate Professor at CSU, Chico with the Department of Professional Studies in Education and involved with one of six nationwide Service Learning sites funded by the Corp. for National Service Learning and the American Assn. of colleges for Teachers of Education.	Leadership Institute presenter
Stephanie Stowell	Presents on the <i>School Yard Habitats</i> program for the National Wildlife Federation.	Leadership Institute presenter
Linda Braatz-Brown	Coordinator of Math, Health, and Science Education at the Ontario-Montclair School District. Presents on a teacher-mentoring program.	Leadership Institute presenter
Miriam Volat	Presnets on team building for <i>Reality Check</i>.	Leadership Institute presenter
Libby Rognier	WestEd Educational Research presents on sharing information on the Internet.	Leadership Institute presenter
Tracy Fredin	Center for Global Environmental Education, <i>Rivers of Life Program</i>, presents on watershed-education technology.	Leadership Institute presenter
Chris Pack	Community Matters presents on partnership development.	Leadership Institute presenter
Nancy Jones	S. T. & C. Associates present <i>Systems Thinking/Systems Changing: A Simulation of Organization Transformation</i>.	Leadership Institute presenter
Dr. Gerald Lieberman	Program Director for the State Education and Environment Roundtable. He presents on the EIC (Environment as an Integrating Concept) model and does the evaluation of the Institute. The Roundtable has designed a study to identify the most innovative and successful environment-based education programs.	Leadership Institute presenter and evaluator
Henry Ortis	Presents for GLOBE (Global Learning and Observations to Benefit the Environment) on conducting field studies and collecting data.	Leadership Institute presenter

ATTACHMENT 1

Existing Project Status Project #01-N39, Adopt-A-Watershed Leadership Institute

Adopt-A-Watershed received funding through CALFED to send 10 teams each year for three years to the Adopt-A-Watershed Leadership Institute beginning in the summer of 2001. AAW sees education as the cornerstone of a healthy watershed, one which can support a structure for a cohesive working unit within the community through partnering. The *key*, however, is to get more teachers involved and give them support, structure, and training for success. AAW's Leadership Institute, a professional development program for teams of K-12 teachers, community coordinators and partners, and higher education representatives, is based on the following premises:

- Teachers who have community support and in-depth hands-on training in watershed education are more likely to teach watershed education.
- New collaborative partnerships will develop in a community if partners join in school support and if there is a dedicated team to act as a catalyst.
- Both community partnerships and the AAW program will be sustainable if members are taught the skills to sustain them.
- Watersheds receive more care when the public is aware and involved.

The Leadership Institute is comprised of four parts: a planning session based on previous years evaluation results, a Summer Institute, team oversight and school-district trainings (4 per team) during the school year, and a Spring Retreat for evaluation and further training. The annual process uses an adaptive management process by improving each Leadership Institute through planning based on evaluation results from the previous year. Requests for funding for this year's CALFED proposal are based on evaluation results from this Summer Leadership Institute Workshop.

The Summer Leadership Institute Workshop was conducted from July 12-21, 2001. Twelve teams from the CALFED area attended. It was a great success. Evaluation reports show high marks and helpful comments that will allow for continuous improvement. Many people commented that it was the best workshop they had ever attended. Below are some of the comments received on the evaluation forms on specific parts of the Leadership Institute and their context.

We did a great deal of work on cultural competency. In fact, AAW is leading in the field of cultural competency professional development in environmental education. Our premise is that we can only change attitudes toward the environment and work toward sustainable watershed health if we reach all cultures in the watershed. To do this we need to be culturally competent and understand how to include and appreciate a diversity of cultures. "Inclusion lessons and applications were big for me. Little light bulbs of understanding were going off for me throughout the week." "The cultural competency work will have the greatest impact on my partnerships and teaching." "Cultural competency work opened my eyes and inspired me to do better."

In the first 3 days of the Leadership Institute we conduct a Place-Based Learning (PBL) workshop with all the participants where we model, discuss, and plan a place-based learning process using the educational pedagogies and practices that are being encouraged. "PBL workshop, great model for how to integrate service learning in the classroom." "PBL workshop, not enough of us use our local environment and this is the ammunition we all need as leaders to cause-promote change!" "I have a new understanding of how to bring the local environment into the classroom and the class into the local environment." "When I return home I feel prepared to begin to move my students toward place-based learning."

In the middle of the week we transition into providing professional development on leadership and how to create an environment for change at a school and in a community. We play a game called, "Systems Thinking, Systems Changing" to begin the discussion. "Excellent illustration of what we should be doing

and how we should be thinking.” “Taught me the importance of communication.” “I learned how to work as a team to make changes in my community.” “The game helped me better think about my strategy and realize how to take steps towards a goal.”

The facilitation workshop teaches participants how to organize an advisory committee, how to set agendas, and how to run a good meeting. “Learning how to develop facilitation skills was tremendously important to me and for my growth.” “Learning how to facilitate meetings will have the greatest impact on my teaching and partnership building.”

Participants learn how to develop and sustain partnerships. “I need to spend more time on partnerships.” “Developing partnerships and building ownership strengthens the program, brings new ideas, brings whole new power.” “I have much better tools and ideas on how to organize partnerships.”

Emphasis is placed on the importance of developing a shared vision with the team and the community. “I learned how to build community.” “One of the things that impacted me the most was to find how many people share my vision!”

We are continuously looking at the Leadership Institute and seeing how we want to improve it and keep it at the cutting edge of education and watershed stewardship. We would like to look closely this next year at patterns of implementation with our teams from the past 6 years and what is most often done first, second, third... in order to create change and have a successful and sustainable program. If we can analyze this and define it, then we can help teams clarify what they should do more sequentially to have success. We also want to develop further tools for teams to smoothly plan problem-based learning units, as well as develop tools for working with groups prior to the Leadership Institute to help them with profiling their community, developing a strategic plan, and coming to the Leadership Institute with a common vision. We would like to document the work of our programs more thoroughly such as mapping of all restoration projects in a master database and video and photographic documentation of work being accomplished.

Teams are enthusiastic about networking up and down the watershed and being able to compare data, issues, challenges, and solutions. They have requested further support in this area to encourage watershed wide networking. Specifically, they have asked for the following: a tour where they can visit other sites, get ideas, and share solutions to common challenges; a conference where we invite students, teachers, and community partners to share monitoring and restoration results and ideas for program implementation.

The sense of hope and solid vision for healthy watersheds that the participants leave with continues to inspire me. It is the work they accomplish during the year and in years to come that tells the tale, but it is this inspiration after this first intensive training that gives them a solid start. The story told over and over at the Leadership Institute is that we can make this change we are envisioning. It isn’t going to be a quick fix and it is going to take dedication and a commitment of time, but it is possible. If we look at watershed education when Adopt-A-Watershed got started 12 years ago, we have come so far since then. Few classrooms used the local environment as a context for learning at that time and now almost every community across the nation is doing something. We can make a difference and we can live in a world where people and watersheds are healthy. It is this hope and vision that blossoms at the leadership Institute along with the skills and knowledge to make it possible.

This project is progressing fiscally according to plans and is within budget. Current expenditures as of August 31, 2001 total \$49,762. There are no outstanding regulatory or implementation issues.

ATTACHMENT 2

FRAMEWORK FOR EVALUATION TO ASSESS EIC IMPLEMENTATION

The wide diversity of school structures, instructional practices, student abilities, administrative buy-in and community support have motivated SEER to develop a framework for monitoring and assessing the EIC implementation process.

SEER has designed a series of instruments that allow educators to conduct both formative and summative evaluations of their progress toward implementing EIC in their schools. These tools have become part of the schools' improvement plans for evaluating the success of the EIC implementation process and student achievement results.

Over the past five years, SEER worked collaboratively with its 12-member state departments of education to develop an assessment framework, based on the Concerns Based Adoption Model (CBAM) developed by the University of Texas at Austin and the Southwest Regional Educational Development Laboratory. CBAM is a conceptual framework that describes, explains and predicts probable teacher/user/participant behavior in the change process. The model is intended to measure the adoption of an innovation by educators and includes a set of tools for measuring the implementation of an innovation.

SEER's assessment framework includes a series of instruments and techniques that allow educators to conduct both formative and summative evaluations of their progress throughout the process of EIC implementation. This evaluation system allows the participants to assess their understanding of the EIC model; identify their concerns about the EIC implementation process; evaluate and monitor their progress toward implementation; and, measure the extent to which the school team has developed leadership and community support.

SEER's EIC evaluation approach includes three key components:

- Self-evaluation rubrics;
- Stages of Concern questionnaire (SoC); and,
- Innovation Configuration Instrument (IC).

EIC Self-evaluation Rubrics

SEER has worked with its 12 state representatives to develop a rubric-based instrument to assess the current status of school programs in relation to the principal educational characteristics of EIC. The rubrics are organized around each of the educational components of an EIC program as well as considering leadership and community involvement processes. These rubrics establish standards for implementing the EIC model allowing educators to: understand what is expected of them; outline implementation strategies; define performance; and, provide for ongoing program evaluation.

Educators who participate in EIC Implementation Seminars receive professional development in the use of the rubrics. They are encouraged to gather and use these data as a baseline for comparison in measuring their

programmatic growth and as the basis for setting new programmatic goals. School teams are also instructed to utilize the rubrics for ongoing reflection and evaluation of their overall program status.

Stages of Concern

The Stages of Concern (SoC) instrument is a diagnostic tool created by CBAM to explain the lack of teacher buy-in and to propose ways to monitor and increase implementation of education innovations. The SoC instrument is used to measure how people feel about the innovation that they are expected to implement.

SEER administers the SoC questionnaire to teachers as they begin the EIC implementation process. The results of the questionnaire provide personal perspective on the participants' concerns about EIC implementation. Periodically, during implementation, the SoC is re-administered to provide a current picture of the teachers' continued commitment to EIC and professional/personal issues that may arise.

Innovation Configuration

The Innovation Configuration (IC) is a diagnostic methodology created by CBAM to look at the way teachers actually implement innovations in educational practice. SEER worked with a staff consultant from the Southwest

Regional Educational Development Laboratory (SEDL) to develop an EIC-specific Innovation Configuration instrument. This instrument helps SEER evaluate the qualities of various instructional practice as schools work to fully implement EIC.

SEER field-tested its IC instrument in February 2000 with 10 schools in its Minnesota network. SEER plans to administer the IC to teachers in EIC schools, through an interview process, before the end of the first year of their program implementation and periodically thereafter. Based on the analysis of the data, SEER will be able to offer support, make recommendations for adapting the innovation and communicate progress to various stakeholders.

Roles and Responsibilities of SEER Staff, Member States and EIC Network Schools

SEER

- Assist in planning of program evaluation.
- Furnish program-evaluation instruments.
- Participate in site visits for mid-term program evaluation.
- Co-author mid-term progress report and final report.

Member States

- Participate in program evaluation process.
- Co-author, with SEER staff, mid-term progress report and final report.

EIC Network Schools

- Conduct a basic needs assessment and collect baseline data.
- Provide monthly feedback to program coordinator and/or mentors.
- Self-evaluate program progress.
- Participate in statewide program evaluation.
- Produce annual evaluation plans.

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