Sonoma Creek Watershed Conservancy, 2002-2005

Project Information

1. **Proposal Title:**

   Sonoma Creek Watershed Conservancy, 2002-2005

2. **Proposal applicants:**

   Richard Dale, Sonoma Ecology Center
   Leandra Swent, Southern Sonoma County Resource Conservation District
   Peter Haywoood, Sonoma Valley Vintners and Growers Alliance
   Laurel Collins, Laurel Collins and Associates
   Robin Grossinger, San Francisco Estuary Institute
   Patrick Higgins, Institute for Fisheries Resources
   Nadav Nur, Point Reyes Bird Observatory

3. **Corresponding Contact Person:**

   Richard Dale
   Sonoma Ecology Center
   205 First Street West Sonoma, CA 95476
   707 996-9744
   sec@vom.com

4. **Project Keywords:**

   Anadromous salmonids
   Database Management
   Water Quality Assessment & Monitoring

5. **Type of project:**

   Research

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

   No

7. **Topic Area**:

   Ecosystem Water and Sediment Quality

8. **Type of applicant:**

   Private non-profit

9. **Location - GIS coordinates:**

Latitude: 38.31

Longitude: 122.49

Datum: NAD83

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

Sonoma Creek Watershed, San Pablo Bay Hydrologic Unit, 110,000 acres.

10. **Location - Ecozone:**

    2.3 Sonoma Creek, 2.5 San Pablo Bay, Code 15: Landscape

11. **Location - County:**

    Sonoma

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:**

    6th

15. **Location:**

    California State Senate District Number: 2nd

    California Assembly District Number: 7th

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: 12.5

Total Requested Funds: 1,794,704

b) Do you have cost share partners already identified?

Yes

If yes, list partners and amount contributed by each:

San Francisco Bay Regional Water Quality Control Board 309,000

Sonoma County Water Agency 68,000+58,000

California Department of Fish and Game 75,000

US Army Corps of Engineers 200,000+

California Coastal Commission 200,000

c) Do you have potential cost share partners?

Yes

If yes, list partners and amount contributed by each:

Environmental Systems Research, Inc. 35,000

San Francisco Foundation 35,000

Sonoma County Water Agency 60,000

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):

M113-1998-EO2	**Sonoma Creek Watershed Conservancy-Watershed Restoration Program**	**ERP**
2000-EO4	**Sonoma Creek Watershed Conservancy-2000**	**ERP**
check number	**Sonoma Creek Watershed Conservancy 2001-2003**	**ERP**
check number	**Sonoma Creek Watershed Conservancy- Outreach and Restoration**	**Watershed Program**

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

Yes

If yes, identify project number(s), title(s) and CALFED program.

113320J033 (FWS)	**Arundo donax Eradication and Coordination**	**ERP**

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?**

    Yes

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

0000	**Many entities have funded previous phases of proposed work.**
0000	**SEE TABLE IN SECTION D2 OF PROPOSAL**

Please list suggested reviewers for your proposal. (optional)

21. **Comments:**

This proposal represents a comprehensive project with a wide variety of tasks. We are not able to describe its scope using the options presented.

Environmental Compliance Checklist

Sonoma Creek Watershed Conservancy, 2002-2005

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

      Yes
   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.

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

   CEQA Lead Agency: California Department of Fish and Game
   NEPA Lead Agency (or co-lead:)
   NEPA Co-Lead Agency (if applicable):

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

   CEQA
   -Categorical Exemption
   XNegative Declaration or Mitigated Negative Declaration
   -EIR
   -none

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

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

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

      No

      If the CEQA/NEPA process is not complete, please describe the dates for completing draft and/or final CEQA/NEPA documents.

      Application for bank stabilization submitted in 1st quarter (pending CALFED request approval); work performed year 2.

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	Required
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	Required, Obtained
CESA Compliance: 2081	
CESA Compliance: NCCP	
1601/03	Required
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:	Obtained
Permission to access state land. Agency Name:	Obtained
Permission to access federal land. Agency Name:	
Permission to access private land. Landowner Name:	Obtained

6. **Comments.**

5). Over 100 private landowners are participating in various programs with the Sonoma Creek Watershed Conservancy. Most access is requested in order to obtain permission to collect data. Several landowners are volunteer monitors in our "Stream Stewards" program. Some landowners participate in specific restoration projects, with support including access and/or material and financial.

Land Use Checklist

Sonoma Creek Watershed Conservancy, 2002-2005

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).

   Data collection and analysis, bank stabilization and/or revegetation (no change in land use), planning, upland projects such as sediment retention on ag land (no change in land use).

4. **Comments.**

   Over 100 private landowners are participating in various programs with the Sonoma Creek Watershed Conservancy. Most access is requested in order to obtain permission to collect data. Several landowners are volunteer monitors in our "Stream Stewards" program. Some landowners participate in specific restoration projects, with support including access and/or material and financial. Land use will not change (in any legal sense) as a result of these projects.

Conflict of Interest Checklist

Sonoma Creek Watershed Conservancy, 2002-2005

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):

Richard Dale, Sonoma Ecology Center
Leandra Swent, Southern Sonoma County Resource Conservation District
Peter Haywoood, Sonoma Valley Vintners and Growers Alliance
Laurel Collins, Laurel Collins and Associates
Robin Grossinger, San Francisco Estuary Institute
Patrick Higgins, Institute for Fisheries Resources
Nadav Nur, Point Reyes Bird Observatory

Subcontractor(s):

Are specific subcontractors identified in this proposal? No

Helped with proposal development:

Are there persons who helped with proposal development?

No

Comments:

Only project proponents have reviewed this proposal.

Budget Summary

Sonoma Creek Watershed Conservancy, 2002-2005

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**
1A	Integrated Analysis and Information System	935	23388	1598		1000	7056			33042.0	3304	36346.00
1B	Administration	240	6696	744		250				7690.0	769	8459.00
2A	Physical Processes	4227	161565	12031	300	8650	52333		4000	238879.0	19888	258767.00
2B	Administration	360	11448	1272		300				13020.0	1302	14322.00
3A	Biological Processes	4378	116019	6323	1870	10300	2500	3900		140912.0	19865	160777.00
3B	Administration	360	11448	1272		300				13020.0	1302	14322.00
4A	Land Use Patterns and Practices	5198	173523	10333	600	35900	72100			292456.0	29246	321702.00
4B	Administration	240	6696	744		250				7690.0	769	8459.00
		15938	510783.00	34317.00	2770.00	56950.00	133989.00	3900.00	4000.00	746709.00	76445.00	823154.00

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**
1A	Integrated Analysis and Information System	935	23388	1598			7056			32042.0	3204	35246.00
1B	Administration	240	6696	744		250				7690.0	769	8459.00
2A	Physical Processes	3547	130696	9668	300	3650	27333		4000	175647.0	14525	190172.00
2B	Administration	260	7488	832		300				8620.0	862	9482.00
3A	Biological Processes	3738	96550	4998	1870	4400	2500			110318.0	17605	127923.00
3B	Administration	260	7488	832		300				8620.0	862	9482.00
4A	Land Use Patterns and Practices	1488	59936	1212	200	900	30000			92248.0	9225	101473.00
4B	Administration	240	6696	744		250				7690.0	769	8459.00
		10708	338938.00	20628.00	2370.00	10050.00	66889.00	0.00	4000.00	442875.00	47821.00	490696.00

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**
1A	Integrated Analysis and Information System	1246	31185	2130			9408			42723.0	4272	46995.00
1B	Administration	240	6696	744		250				7690.0	769	8459.00
2A	Physical Processes	3327	105876	10288	300	3650	27333		4000	151447.0	15145	166592.00
2B	Administration	260	7488	832		300				8620.0	862	9482.00
3A	Biological Processes	2840	97997	4893	1870	3300	2500			110560.0	19351	129911.00
3B	Administration	260	7488	832		300				8620.0	862	9482.00
4A	Land Use Patterns and Practices	1488	59936	1212	200	900	30000			92248.0	9225	101473.00
4B	Administration	240	6696	744		250				7690.0	769	8459.00
		9901	323362.00	21675.00	2370.00	8950.00	69241.00	0.00	4000.00	429598.00	51255.00	480853.00

Grand Total=1794703.00

Comments.

Proposed work is divided into four Subject Areas (numbered above as tasks) which can be funded separately. See budget attachment for complete list of tasks and associated costs.

Budget Justification

Sonoma Creek Watershed Conservancy, 2002-2005

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

2728 SEC Biologist: 3288 SEC Watershed Scientist/Geologist: 1354 SEC GIS Manager: 647 SEC GIS Specialist: 5686 SEC Volunteer Monitoring Program staff 540 SEC Program Coordinator, Fisheries Restoration: 880 SEC Program Coordinator, Historical Ecology: 1480 SEC Laboratory Manager 1860 SEC Director/Program manager: 1440 SEC Administrator: 240 SSCRCD District Manager: 1200 SSCRCD Engineering Techincian: 3630 SSCRCD Resource Conservationist: 280 SV Vintners and Growers Alliance project manager: 288 SCA (consultant) Planner 404 SSU GIS Department Chair 288 SSU GIS Lab Technician 429 KRIS System Specialist 294 KRIS Statistician 150 E.I. Restoration Specialist 1000 LCA Geomorphologist: 450 SFEI Historical Ecologist: 304 PRBO Project manager: 72 PRBO GIS specialist: 2200 PRBO Field Biologist:

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

SEC Biologist: 35 SEC Watershed Scientist/Geologist: 44 SEC GIS Manager: 44 SEC GIS Specialist: 39 SEC Volunteer Monitoring Program staff 26 SEC Program Coordinator, Fisheries Restoration: 30 SEC Program Coordinator, Historical Ecology: 30 SEC Laboratory Manager 30 SEC Director/Program manager: 36 SEC Administrator: 26 SSCRCD District Manager: 45 SSCRCD Engineering Techincian: 45 SSCRCD Resource Conservationist: 40 SV Vintners and Growers Alliance project manager: 40 SCA (consultant) Planner: 45 SSU GIS Department Chair: 65 SSU GIS Lab Technician: 55 KRIS System Specialist: 80 KRIS Statistician: 70 E.I. Restoration Specialist: 45 LCA Geomorphologist: 80 SFEI Historical Ecologist: 80 PRBO Project manager: 50-56 72 PRBO GIS specialist: 40-45 2200 PRBO Field Biologist: 35-40

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

All SV Watershed Conservancy managing partner benefits (SEC) @ 10%; other partner benefits are included in hourly rate.

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

Biological Processes Work: PRBO staff from Stinson Beach to San Pablo Bay.

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

Integrated Analysis and Information System: statistical software package, office supplies. Physical Processes: laboratory supplies, gage maintenence parts, field supplies for Stream Stewards, presentation materials. Biological Processes: Monitoring supplies (tape, rods, densiometer, hip chain, GPS unit, batteries), public presentation materials, GIS mapping supplies, native plants, hand tools, protective fencing for restoration, photomonitoring supplies. Land Use Practices: remote imagery, outreach and presentation materials to landowners and public.

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.

Integrated Analysis and Information System Work: Statistics software consulting, KRIS staff. Physical Processes Work: maintenance of gaging stations, acquisition of Lidar data. Biological Processes Work: DFG lab for refinment of BMI taxinomic identification to Family. Land Use Practices: Sonoma State University GIS group for interperetation of land cover imagery, and Sonoma Valley Vintners and Growers for vineyard BMP program.

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.

n/a

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

Project management is represented in tasks: Integrated Analysis and Information System Administration, Pysical Processes Administration, Biological Processes Administration, and Land Use Patterns and Practices Administration. These tasks include project scheduling, record keeping, accounting, reporting, and QA.

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

Other Direct Costs (Task 2, Sediment data collection and modeling) reflects cost of laboratory rental.

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

Indirect costs include shared program costs such as rent, communication systems, utilities, and office equipment, for SEC related projects at a fixed rate of 10 percent (which is unchanged for either for state or federal funds). Other Conservancy partners have included indirect costs as part of hourly rate. One partner, PRBO, has a fixed overhead rate of 29%, reflected in the budget attachment task 18 and in Biological Processes in the budget form.

Executive Summary

Sonoma Creek Watershed Conservancy, 2002-2005

EXECUTIVE SUMMARY CALFED has funded the work of the Sonoma Creek Watershed Conservancy several times, because our watershed materially affects the capacity of San Pablo Bays ecosystem and our Conservancy demonstrates unusual cooperation among stakeholders. We are grateful. We apply now to ERP for funding to integrate many sets of environmental data from our watershed and region (including data collected with CALFED funds) into a comprehensive analysis, and make the data and analysis results available in an information system that is responsive to new data, capable of multivariate statistical and spatial analysis, accessible by both technical and community people, and designed as a model for research and restoration workers at all scales throughout the CALFED region. We propose to 1) expand the capacity of an excellent existing data management tool (KRIS, by the Institute for Fisheries Resources), 2) make a model information system that will be useful to users in the CALFED region, and 3) build and use a Sonoma Valley information system as a demonstration project. We also request funds to continue monitoring, research, restoration, and planning tasks that benefit at-risk species and aquatic ecosystems in Sonoma Creek and San Pablo Bay. Work is divided into four Subject Areas that can be funded separately. Each Subject Area contains several tasks. The Subject Areas are: 1) as above, integrated analysis of multiple existing environmental datasets and creation of an accessible, up-date-able information system for the watershed that facilitates understanding of complex issues, and can be used as a template for similar work at all scales through the CALFED region; 2) physical processes: water, sediment, and geomorphology; 3) biological processes: sensitive and indicator species and habitats; 4) land use history and management: historical and current land cover, implementing BMPs, answering policy-makers requests for data. We request $1,794,704 of next-phase funding over three years. This cost is matched by $4,832,000 in other funding sources and in-kind contributions, of which $3,531,000 will be available at the start date of this proposed project.

Proposal

Sonoma Ecology Center

Sonoma Creek Watershed Conservancy, 2002-2005

Richard Dale, Sonoma Ecology Center
Leandra Swent, Southern Sonoma County Resource Conservation District
Peter Haywoood, Sonoma Valley Vintners and Growers Alliance
Laurel Collins, Laurel Collins and Associates
Robin Grossinger, San Francisco Estuary Institute
Patrick Higgins, Institute for Fisheries Resources
Nadav Nur, Point Reyes Bird Observatory

Sonoma Creek Watershed Conservancy, 2002-2005

Note: This proposal refers to Sonoma Creek Watershed Conservancy partners by initials: Sonoma Ecology Center (SEC), Southern Sonoma County Resource Conservation District (SSCRCD), Sonoma Valley Vintners & Growers Alliance (SVVGA), Institute for Fisheries Resources / Klamath Region Information System (KRIS), San Francisco Estuary Institute (SFEI), Point Reyes Bird Observatory (PRBO). Page numbers refer to ERP Vol. II unless otherwise noted.

A1. PROBLEM

The Sonoma Creek watershed, and the San Pablo Bay downstream of it, have been transformed by human impacts, from its pre-European state with large floodplains and riparian corridors to one with extensive agriculture and increasing urbanization. Riparian corridors shrank, replaced by houses and vineyards. Land use practices have altered hydrographs and sediment flows. Various barriers now interrupt anadromous fish migration. A number of plant and animal species are now listed as threatened and endangered. Riparian and SRA habitat, and connectivity of those habitats, are essential for populations of species of concern; this region has a history of loss of these habitats (pp. 124, 131, 135). The watershed is listed as impaired for sediment, pathogens, and nutrients (State Water Resources Control Board's Impaired Waterbodies 303(d) list).

Still, Sonoma Creek's watershed has no dams, supports an unusually intact native fish community, and has a high level of public awareness to support restoration.

Goal The goal of the Conservancy's work is that informed land management practices sustain a balance between the economic and environmental interests of Sonoma Valley's residents. This goal delineates the area where the interests of the Conservancy partners overlap; each partner also has its own mission and emphases. Our work is designed to be useful as a model for other collaborative restoration and land management work.

Objectives We propose several tasks in four Subject Areas which can be funded separately. Individual tasks are listed on the Work Schedule page.

1) integrated analysis of multiple existing environmental datasets and creation of an accessible, up-date-able information system for the watershed that facilitates understanding of complex issues, and can be used as a template for similar work at all scales through the CALFED region;
2) physical processes: water, sediment, and geomorphology;
3) biological processes: sensitive and indicator species and habitats;
4) land use history and management: historical and current land cover, implementing BMPs, answering policy-makers' requests for data.

In each of these subject areas, we have the following objectives:

1) improve information feedback from resource conditions to decision makers, from individual landowners and residents to county planners to regional agency managers;
2) improve habitat and ecosystem values in the local watershed, particularly for steelhead, California freshwater shrimp, and riparian species;
3) enhance habitat and ecosystem values in San Pablo Bay to benefit all Bay-Delta anadromous species.

A8. Work Schedule and Separable Tasks

Work is divided into four Subject Areas which can be funded separately. See budget attachment for figures.

1) HIGHEST PRIORITY: Integrated analysis of multiple existing environmental datasets in an accessible information system that can be used as a template for similar work at all scales in the CALFED region;
2) Physical processes: water, sediment, and geomorphology;
3) Biological processes: sensitive and indicator species and habitats;
4) Land use history and management: historical and current land cover, implementing BMPs, answering decision-makers' requests for data.

	Task	Partners	fall 2002	winter 2002/3	spring 2003	fall 2003 summer 2003	winter 2003/4	spring 2004	fall 2004 summer 2004	winter 2004/5	spring 2005	fall 2005 summer 2005
Integrated Analysis and Information System												
1	Integrated analysis and information system	CALFED Sci. Prog., data users: Napa RCD, RWQCB, Sonoma County, PRBO, etc	x	x	x	x	x	x	x	x	x	x
	Administration & Coordination	SEC	x	x	x	x	x	x	x	x	x	x
Physical Processes												
2	Sediment data collection and modeling	SEC, RWQCB, EPA		x	x	x	x	x	x	x	x	x
3	Water budget support	SEC, USGS, Sonoma County	x	x	x	x	x	x	x	x		
4	Streamflow gage maintenance	SEC, USGS, Sonoma County	x	x	x		x	x	x	x	x	x
5	TMDL technical participation	SEC, SSCRCD, RWQCB, EPA	x	x	x	x	x	x	x	x	x	x
6	Stream Stewards: volunteer monitoring of flow & water quality	SEC, volunteers	x	x	x		x	x		x	x	x
7	LIDAR acquisition & processing (25 sq	SEC, RWQCB, Philip Williams & Assoc.	x	x	x	x	x					
8	low flow monitoring	SEC, volunteers				x	x		x	x		x
9	Nathanson Creek geomorphology / Watershed Science Approach	SEC, SSCRCD, Laurel Collins & Assoc.	x	x		x	x		x	x		
	Administration & Coordination	SEC	x	x	x	x	x	x	x	x	x	x
Biological Processes												
10	Stream Stewards: volunteer monitoring of benthic macroinvertebrates	SEC, CDFG, trained volunteers			x	x	x	x	x	x	x	x
11	Riparian habitat quality assessment: avian and plant assemblages	SEC, SSCRCD, PRBO, EPA, private landowners, volunteers			x	x		x	x		x	x
12	Monitor Asbury Creek fish passage	SEC, NMFS		x	x		x	x		x	x	
13	Plan, permit, and fund Kenwood Marsh restoration	SEC, private landowners	x	x	x	x	x					
14	Monitor Carriger Creek fish passage	SSCRCD, NMFS		x	x		x	x		x	x	
15	Champlin Creek revegetation	SSCRCD, private landowner, volunteers				x	x					

A8. Work Schedule and Separable Tasks, page 2

	Task	Partners	fall 2002	winter 2002/3	spring 2003	2003 summer	fall 2003	winter 2003/4	spring 2004	2004 summer	fall 2004	winter 2004/5	spring 2005	2005 summer	fall 2005
16	Army Corps technical team participation	SEC, SVVGA, SSCRCD, CA Coastal Conservancy, RWQCB	x	x	x	x	x	x	x	x	x	x	x	x	x
17	Plan land protection and restoration, lower Rodgers Creek	SEC, SSCRCD, Laurel Collins & Assoc., private landowners	x	x	x	x	x	x	x	x	x				
18	Avian and vegetation monitoring in tidal marsh restoration sites	PRBO, SSCRCD	x	x	x		x	x	x		x	x	x		x
19	Monitor Sonoma Creek/Warm Springs Road fish habitat enhancement	SEC, CDFG		x	x			x	x			x	x		
20	Input to new Riparian Easement program at Sonoma County Open Space District	SEC, District, other consultants in Sonoma County	x	x	x	x	x	x	x	x	x	x	x	x	x
21	Red-legged frog surveys	SEC, SSCRCD, US FWS, volunteers			x				x				x		
	Administration & Coordination	SEC	x	x	x	x	x	x	x	x	x	x	x	x	x
Land use patterns and practices															
22	Land cover mapping and field data collection	SEC, CA Dept Parks & Recreation, volunteers	x	x	x	x	x	x	x	x	x	x	x	x	x
23	Historical channels, hydrology, land use, and vegetation	SEC, San Francisco Estuary Institute	x	x	x	x	x	x	x	x	x	x	x	x	x
24	Vineyard BMP demonstration projects	SVVGA, SSCRCD	x			x	x			x	x			x	x
25	Landowner technical assistance and monitoring BMP projects	SSCRCD, SVVGA, private landowners	x	x	x	x	x	x	x	x	x	x	x	x	x
26	Natural resource data and analysis for Sonoma County General Plan update process	SEC, public and consultants in Sonoma County, County planning staff	x	x	x	x	x	x	x	x	x	x	x	x	x
	Administration & Coordination	SEC	x	x	x	x	x	x	x	x	x	x	x	x	x

What follows is background information for the four Subject Areas.

Synthesis and Integration of Environmental Data

The number of tasks in this proposal reflects a recent increase in the number of collaborators working in Sonoma Creek and San Pablo Bay, the size of programs and projects in the watershed, and the need for better information to guide large-scale actions. In our area, large-scale government-initiated efforts requiring better information include TMDLs (due for San Pablo Bay watersheds before 2010), the Sonoma County General Plan update (due 2005), and a US Army Corps of Engineers program to address flooding and restoration in lower Sonoma Creek.

There is an urgent need to communicate a unified report on the values and functions of local landscapes to decision-makers. This is a problem throughout the CALFED region: data relevant to decisions about land and water exist, often in vast quantities, but they are not integrated, nor are their conclusions reaching decision-makers in an effective way. The task of integrating existing knowledge about environmental conditions too often falls between jurisdictions and outside traditional competitive funding mechanisms. Yet such information feedback is central to adaptive management. Information available to the general public, scientists, and local government staff about resource issues must improve, if day-to-day human decisions are to benefit ecosystem health.

Like many groups working to understand ecosystem conditions, we have funded several single-variable or single-topic data collection and analysis projects (e.g. monitoring turbidity or mapping land cover). In some cases, we have multiple variables for the same stream reach. What is needed now in this and many other locations is an integration of these variables, to test for relationships between multiple variables, and to test for factors that change the relationship between variables. For example, how does adjacent land use change the relationship between riparian forest width and turbidity? How might changes in groundwater use affect numbers of salmonids or diversity of neotropical migrants? These complex interactions that affect ecosystem health need to be communicated to more stakeholders, particularly decision-makers.

Physical Processes

Problems: 1) The San Pablo Bay, critical to all anadromous species that use the Delta, suffers from altered quality, quantity, and timing of water, sediment, and nutrients (ERP Vol. II; SF Estuary Project, 1998). 2) Progress toward achieving higher water quality, ecosystem restoration, and salmonid population viability must be measured against some baseline condition. Data required for such a baseline are limited.

The Conservancy's work on water, sediment, and geomorphology is tied closely to three initiatives that could have a large positive effect on the local watershed and San Pablo Bay. The Conservancy wishes to provide these processes with as much real data as possible, and assure that their products reflect local conditions and are useful beyond the lifespan of the projects themselves. All data and conclusions from the proposed tasks will be fed into the proposed Integrated Analysis and Information System (Task 1). The initiatives are: 1) Development of a TMDL for sediment, to be formalized by a contract in progress for third-party TMDL development signed by Conservancy members and the San Francisco RWQCB. Sediment-related work is guided by RWQCB staff, particularly Mike Napolitano and Sandi Potter. 2) A US Army Corps of Engineers flooding reduction project in the lower watershed (feasibility phase). Hydrology and geomorphology work by the Conservancy dove-tails with this project's hydrology and hydraulics model (MIKE-SHE) to be built by Philip Williams and

Associates. 3) A USGS / Sonoma County study on Sonoma Valley's groundwater system.

Biological Processes

Sonoma Creek once had an internationally known steelhead fishery, but land use impacts have greatly diminished the local population. Here as elsewhere in the CALFED area, "[t]here is great scientific uncertainty as to why this at-risk species is in decline and how to best proceed with actions to facilitate recovery of this and other species" (ERP Goal 1). Beginning in 1997, the Conservancy has been systematically investigating potential factors limiting steelhead in Sonoma Valley (Sonoma Creek Watershed Enhancement Plan, SSCRCD, 1997; Technical Advisory Committee Research Plan, SEC, 1997). SEC's studies (SEC, 2000) of spawning gravels and water temperatures have allowed us to conditionally eliminate these possible constraints on local steelhead populations and proceed to study other possible limiting factors such as barriers to steelhead migration, summer water levels, benthic macroinvertebrate supply, and instream habitat structure. Progress toward achieving higher water quality, ecosystem restoration, and salmonid population viability must be measured against some baseline condition. Data required for such a baseline are limited.

As with Physical Processes, the Conservancy's current work on biological issues is driven by immediate needs to provide data to external initiatives and by a longer-term desire to support sustainable, informed resource use. If they are to effectively restore at-risk species, these initiatives need more information about the location of existing at-risk species and habitats, the requirements of these sensitive resources, and the locations of opportunities for their enhancement or re-establishment. An additional initiative to those described in Physical Processes is the recent listing of the Central Coast ESU for steelhead, which is changing the way Sonoma County operates. Currently the County has only poor information about the location, size, and requirements of the fishery in the Sonoma and Petaluma watersheds.

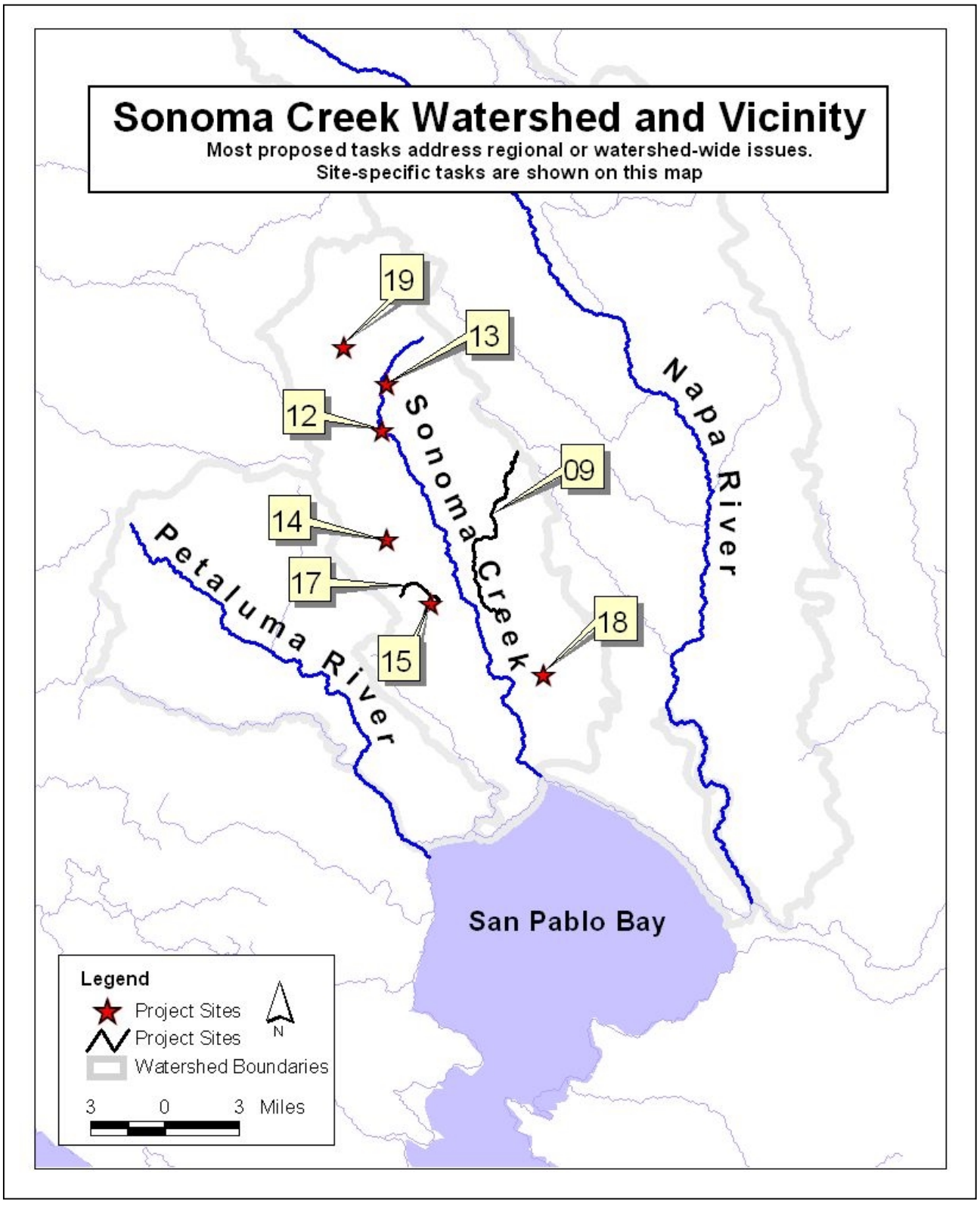
Land Use Patterns and Processes

Land use practices must be addressed if a healthy economy and environment are to co-exist. Resource and land management policies have not kept up with the changes to the landscape. The North Bay is the least urbanized part of San Francisco Bay; there is a chance here to avoid the losses of habitat and ecosystem function experienced elsewhere in the Bay Area. However, development pressure is extreme, as evidenced by the highest home appreciation rates in the country. The update process for the Sonoma County General Plan presents an unparalleled opportunity to improve effects of local government actions and policies on natural resources. The County is poised to make significant changes due to the recent listing of salmon and steelhead here, strong policy recommendations received from FishNet4C, and impending TMDL implementation. Planning staff is soliciting expert input from County stakeholders.

Location Information management task is designed to benefit the entire CALFED region. On-the-ground and research tasks take place in Sonoma Creek watershed (see map), CALFED Ecozone 2.3, Sonoma County, San Pablo Bay, California Hydrologic Map Unit Number 206.40. Watershed centroid is 38.31 N, 122.49 W.

A2. JUSTIFICATION

Conceptual Model The diagram on the next page makes explicit the causal connections between resource use patterns and stream-related conditions in Sonoma Creek's watershed


Sonoma Creek Watershed and Vicinity
Most proposed tasks address regional or watershed-wide issues.
Site-specific tasks are shown on this map
19
13
12
09
14
17
15
18
Napa River
Sonoma Creek
Petaluma River
San Pablo Bay
Legend
Project Sites
Project Sites
Watershed Boundaries
N
3 0 3 Miles

and the Bay-Delta. It shows how information on watershed conditions can feed back into policies and resource use patterns. Conservancy tasks work to improve and understand conditions (in the uplands, riparian/aquatic area, and the fishery) and improve information feedback. We will continue developing a quantitative basis for assessing impacts of stressors and prioritizing restoration actions. As new data becomes available we refine our Conceptual Model. Wherever possible, our work is designed to benefit other watersheds and be used as a model or example.

In addition to continuing our multi-faceted work in other areas of the Conceptual Model, this proposal has a particular focus on analysis and information feedback (5 and 6 on the diagram). The number of tasks in this proposal reflects a recent increase in the number of collaborators working in Sonoma Creek and San Pablo Bay, the size of programs and projects in the watershed, and the need for better information to guide large-scale actions. In our area, large-scale government-initiated efforts requiring better information include TMDLs (due for San Pablo Bay watersheds before 2010), the Sonoma County General Plan update (due 2005), and a US Army Corps of Engineers program to address flooding and restoration in lower Sonoma Creek.

There is an urgent need to communicate a unified report on the values and functions of local landscapes to decision-makers at several levels. This is a problem throughout the CALFED region: data relevant to decisions about land and water exist, often in vast quantities, but they are not integrated, nor are their conclusions reaching decision-makers in an effective way. The task of integrating existing knowledge about environmental conditions too often falls between jurisdictions and outside traditional competitive funding mechanisms. Yet such information feedback is central to adaptive management.

Hypotheses All the proposed tasks relate to one general hypothesis, that if we assess conditions, address identified stressors and limiting factors, restore and maintain key habitat types, and communicate current resource conditions and how they can be improved, then fisheries and ecosystem health in Sonoma Creek and the San Pablo Bay will improve. Conclusively testing this hypothesis is beyond our current means. However, proposed monitoring, research, and analysis tasks (as well as funded non-CALFED projects, see B2 for Other Ecosystem Restoration Projects) will yield useful information about parts of this general hypothesis. For example, we will be able to test the following hypotheses using proposed data collection and analysis:

- suspended sediment and turbidity levels exceed water quality and salmonid habitat standards;
- summer water withdrawals significantly reduce aquatic species survival compared to natural conditions;
- levels of pathogens (bacteria) and nutrients exceed water quality standards;
- land cover significantly affects rainfall/runoff relations;
- width and character of riparian buffers significantly affects avian and aquatic habitat quality.

Objectives We propose several tasks in four Subject Areas which can be funded separately:

1) integrated analysis of multiple existing environmental datasets and creation of an accessible, up-date-able information system for the watershed that facilitates understanding of complex issues, and can be used as a template for similar work at all scales through the CALFED region;
2) physical processes: water, sediment, and geomorphology;

3) biological processes: sensitive and indicator species and habitats;
4) land use history and management: historical and current land cover, implementing BMPs, answering policy-makers' requests for data.

In each of these subject areas, we have the following objectives:
1) improve information feedback from resource conditions to decision makers, from individual landowners and residents to county planners to regional agency managers;
2) improve habitat and ecosystem values in the local watershed, particularly for steelhead, California freshwater shrimp, and riparian species;
3) enhance habitat and ecosystem values in San Pablo Bay to benefit all Bay-Delta anadromous species.

The proposal addresses uncertainties identified by the ERP. Much of our proposed integrated analysis (Task 1) uses data collected for an ongoing investigation into a series of hypotheses concerning factors limiting an at-risk species, in this case steelhead (ERP Goals 1 and 3). Several other tasks explore "how areas adjacent to to riparian zones and in particular agricultural lands influence ecological health" (2000 PSP, p. 38). Investigating the watershed's ecological and hydrologic history (Task 23) addresses regional-level uncertainties about pre-disturbance conditions and processes.

Uncertainties and Adaptive Management Proposed tasks respond to varying levels of uncertainty in our Conceptual Model: we propose research and assessment projects for areas of less certainty (Tasks 2, 5, 6, 8-11, 18, 21, 23), and restoration projects where cause-and-effect relationships are more clear (Tasks 15 and 24 are demonstration projects; Tasks 13 and 17 are planning phases of full-scale restoration projects; Tasks 12, 14, 19, 25 are monitoring tasks of pilot restoration projects).

Within each Subject Area we propose some tasks to shed light on areas of uncertainty that are hindering restoration and sound resource management, including the claims and uses of groundwater as related to summer streamflows, the amounts and sources of sediment reaching streams, aquatic foodweb health, riparian habitat conditions, current land use patterns, historical channel networks in the lower watershed. There are vast uncertainties about how historical changes have altered rainfall/runoff relations, the sediment regime, or riparian and aquatic conditions (1d and 1e→2). We also do not know beyond generalities how water use, land uses, and specific management practices interact to affect riparian and aquatic biophysical conditions (8→2 on diagram). Much uncertainty still exists about which riparian and/or aquatic parameters, alone or in combination (2), are limiting the local fishery (2e), and what the population size and structure is (2e). It is not known how much improvement in Sonoma Creek and other North Bay watershed health could improve San Pablo Bay's functioning (2→3), or how much improvements in San Pablo Bay could improve overall Bay-Delta fisheries (3→11). It is unclear how well planning and regulatory authorities can practice adaptive management based on information about biological and physical conditions within their jurisdiction (6→7).

Conservancy priorities and conclusions about the watershed are responsive to new information. For example, SEC started the Sonoma Valley Watershed Station in 1998 with help from CALFED. One of its tasks was to systematically test a sequence of possible limiting factors for steelhead, based on a work plan drafted by SEC's TAC (SEC, 1997). Our 1998 CALFED proposal stated that "Although salmonid runs, primarily steelhead trout, are sustainable, critical rearing habitat for young of the year has become increasingly degraded

by sedimentation and effects of urbanization including NPS pollution and thermal stress." SEC's studies since then (SEC, 2000) indicate that, in fact, water temperature and spawning gravel availability are likely not limiting factors. In response to these findings, we request funding to continue inquiries into other possible limiting factors: benthic macroinvertebrates as an indicator of water quality, summer water levels, winter turbidity.

The integrated analysis and information framework (Task 1) is designed specifically to contribute to adaptive management for the entire CALFED effort, by creating a template for collecting, displaying, analysing, and communicating mult-year, multi-variable environmental data.

A3. APPROACH

This proposal addresses nearly every item in the Conceptual Model that the Conservancy partners have jurisdiction to address. We've divided proposed work into four Subject Areas which can be funded separately (see budget attachment). The Subject Areas are:

1) integrated analysis of multiple existing environmental datasets and creation of an accessible, up-date-able information system for the watershed that facilitates understanding of complex issues, and can be used as a template for similar work at all scales through the CALFED region;
2) physical processes: water, sediment, and geomorphology;
3) biological processes: sensitive and indicator species and habitats;
4) land use history and management: historical and current land cover, implementing BMPs, answering policy-makers' requests for data.

In each Subject Area we propose tasks that use four approaches:

1) collecting and interpreting new data
2) integrating multiple data types and sources to generate broad-based hypotheses
3) targeted on-the-ground restorative actions
4) information feedback to decision-makers

The following paragraphs briefly describe individual tasks in each Subject Area. Tasks are numbered and summarized on the attached Work Schedule. The budget attachment lists all tasks and costs; they will not fit on the supplied Budget Form.

Integrated Analysis and Information System

Generally, we propose to 1) expand the capacity of an excellent existing data management tool, 2) make a template useful for users in the CALFED region, 3) build and use a Sonoma Valley information system as a demonstration project. The tool of choice is KRIS, the Klamath Region Information System and its descendents, one of which is currently funded for the North Bay. Built on database software, KRIS interacts easily with existing databases like ArcInfo and Access and exports easily to GIS software. We will expand KRIS' current capacity to include simple multivariable statistical, time series, and spatial analyses, and help users manage data in topics new to KRIS that are relevant to the CALFED region: agricultural land uses, water extraction and supply systems, dams, levees, oak woodlands, vernal pools, etc. Planned steps:

1) Hold meetings between staff at CALFED Science Program, Institute for Fisheries Resources (creators of KRIS), SEC, RWQCB, SFEI, Napa County RCD, and others to design the model information system. The team will use KRIS as a structural starting point and North Bay ecosystem issues to generate analysis questions.
2) Proof, consolidate, standardize, organize, and map existing data. As of August 2002, we expect to have Sonoma Valley data for at least the parameters below, and proposed tasks would add more data to asterisk'd parameters. Space does not permit a full

description of these data.

Topography*, aspect, slope, proximity to stream	Fish habitat quality and LWD (CDFG survey protocol)	Historical channels, hydrology, vegetation*
Storm flows (auto. gage, volunteer monitors)*	Benthic macroinvertebrates* (CDFG protocol)	Land cover (from remote sense imagery)*
Turbidity/suspended sediment (auto. gage, volunteer monitors)*	Riparian condition* (augmented PRBO protocol)	Fish population size, distribution
Water and monitoring wells	Fire history, land use history	Bird data* (PRBO protocol)
Rainfall	Water temperature (auto. monitors)	Projected land and resource use (ABAG, Sonoma County)
Low flows*	Detailed hydrology*	Spawning gravels

3) In-house, develop preliminary analysis questions and run preliminary analyses.
4) Consult with above experts plus statisticians and spatial statisticians (likely including Nadav Nur at PRBO and Gary Reedy at KRIS) to develop further analysis questions and procedures.
5) Deepen the analysis to search for repeating patterns and significant relationships between variables and combinations of variables.
6) Consult with CALFED Science Program, CERES, and other large-scale managers of environmental data, as well as smaller watershed-based information users, to decide the most useful interface and structure for the information system template, based on its potential users and their needs.
7) Build the model North Bay/Sonoma Valley information system.
8) Write report on conclusions of analysis of North Bay/Sonoma Valley data. Write a paper detailing the benefits and mechanics of using the system.
9) Disseminate report, and paper to CALFED Science Program and other users. Plan mechanism to disseminate information system template broadly to workers in CALFED region.

Physical Processes

We propose tasks to:

Task 2: Collect and analyse turbidity and suspended sediment data from an automated gage in Sonoma Creek and from grab samples in tributaries with help from Stream Stewards volunteer monitors. Expand a pilot GIS-based sediment production model funded by SWRCB;

Task 3: Provide requested input to the study design, analysis questions, and reporting of the local groundwater study (Sonoma County Water Agency, USGS) so that it contributes to developing a water budget for the basin;

Task 4: Maintain the single, newly re-installed USGS flow gage in Sonoma Creek (absent since 1981-2);

Task 5: Attend technical meetings of the TMDL team and coordinate TMDL development with County public works and planning staff (other TMDL tasks funded separately);

Task 6: Continue 3-year-old Stream Stewards volunteer monitoring program. Collect grab samples for turbidity and suspended sediment, and peak storm discharge.

Task 7: Collect LIDAR topographic data (3-5 m vertical resolution) for 25 square miles mid-watershed where several channels coalesce and create flooding and opportunities for restoration, process data, construct detailed channel networks and floodplain topography;

Task 8: Continue collecting summer streamflow levels;

Task 9: Employ Laurel Collins and Associates to investigate current and historic sediment

and water regimes in Nathanson Creek, a long tributary influencing flooding and the quality of sediment and water delivered to San Pablo Bay, using her Watershed Science Approach.

Biological Processes

We propose the following tasks:

Task 10: Continue monitoring benthic macroinvertebrates using CDFG's Bioassessment Protocol, with help from trained Sonoma State University interns;

Task 11: Continue an EPA-funded study using PRBO's avian and vegetation protocols to examine correlations between common land uses and riparian habitat quality;

Tasks 12, 14: Monitor the success of two CALFED-funded steelhead passage repair projects on Asbury and Carriger Creeks;

Task 13: Advise a motivated local landowner in preserving and restoring the last remnant of Kenwood Marsh in the mid-watershed, which still supports the endangered Kenwood checkerbloom. Develop initial plans and baseline data, and secure funding and permits;

Task 15: Continue a CALFED-funded riparian revegetation project in a lower-watershed vineyard on Champlin Creek;

Task 16: Provide biological data and consulting as part of the technical team on the Army Corps initiative to address lower-watershed flooding, which has an under-funded mandate to include restoration as a project priority;

Task 17: Conduct reconnaissance-level assessment and begin planning land protection and restoration along lower Rodgers Creek, a lower-watershed stream recovering from decades of cattle grazing, with a steelhead run and willing landowners;

Task 18: Monitor sensitive and indicator bird species, avian assemblages, and vegetation using PRBO protocols at sites relevant to the Army Corps program, representing baseline conditions, reference sites, and post-restoration sites comparable to likely Army Corps project sites;

Task 19: Monitor success of a CALFED-funded fish habitat enhancement project in Sonoma Creek, designed to demonstrate an innovative solution between roadway requirements and protecting spawning beds;

Task 20: Provide requested planning and implementation consultations to a new Riparian Easement Program at the Sonoma County Agricultural Preservation and Open Space District, one of whose pilot Riparian Easements will be in Sonoma Valley;

Task 21: Train University interns and/or citizen monitors to conduct surveys for frog diversity, particularly red-legged frogs, at several likely wetlands in the mid and lower watershed, using US Fish and Wildlife Service protocols.

Land Use Patterns and Practices

We propose the following tasks:

Task 22: Map land cover for the watershed using satellite imagery and extensive field data collection, expanding a recent multiple-funder study of local state parks;

Task 23: Continue an extensive study of historical vegetation, stream network, and land use by SEC and Robin Grossinger at San Francisco Estuary Institute, begun with funding from CALFED and Sonoma County Water Agency;

Task 24: Continue CALFED funding of vineyard BMP demonstration projects that raise water quality and aquatic and riparian habitat values, for example increasing riparian setbacks, cover cropping, and vegetating drainage ditches;

Task 25: Continue providing technical assistance and BMP monitoring to vineyard and other landowners;

Task 26: Provide requested input to the Sonoma County General Plan update process, specifically to provide data and policy options for the Biotic Resources Element, including steelhead, riparian areas, habitat connectivity, impacts of agriculture, and regulating water use. Input will draw from conclusions of proposed integrated analysis and information system.

A4. FEASIBILITY

There are no obstacles foreseen that will hinder implementation of any element of this proposal. None of the proposed tasks have foreseeable adverse third party impacts. All proposed tasks are based on sound information and prioritization processes. They use reliable, time-tested methods such as CDFG's Stream Bioassessment Procedure, San Francisco Estuary Institute's approach to historical ecology research, and standard vineyard BMPs. All tasks are ready to begin immediately upon contracting. Most of the tasks continue programs we have already begun or have discussed with relevant agencies, landowners, and experts. See Qualifications for our personnel's suitability to these tasks.

Because of its established technical capacity and public support, the Conservancy can accomplish restoration, research, and education at lower cost than agencies can. Since the Conservancy already has broad-based buy-in from the community, its work is well-received and maintained.

All Conservancy work is done with willing landowners. Partners have invested thought and effort into developing respectful yet reasonably efficient methods of gaining access to private property. The generally high public opinion of Conservancy partners eases this process. It is possible that access problems will limit the extent of geomorphologic assessment in Nathanson Creek (Task 9). Funded new tasks with physical components will provide written permission letters.

The vineyard demonstration projects (Task 24) do not generally require permits. Permitting is part of proposed work for the Kenwood Marsh and Rodgers Creek tasks (13, 17). Continuing revegetation in Champlin Creek (Task 15) does not require permitting.

A5. PERFORMANCE MEASURES

The integrated analysis and information system's success will be measured via peer review and user testing. The success of assessment tasks will be measured by consistency with Quality Assurance Plans or other protocols and reports produced on conclusions and analysis.

Tasks 12, 14, 15, 19, and 25 require success monitoring. Fish passage monitoring will be limited to observing if depth and velocity of flow are adequate for fish passage during an early winter storm, and inspecting structural integrity after the rainy season. Champlin Creek revegetation will report numbers and survival of each planted species twice yearly and will replant dead plants. Task 19 monitoring protocols will be developed with NMFS and/or CDFG. Vineyard BMP projects will be monitored with photopoints and visual assessment during and after storm events. Successful projects will have stable soils and vegetation, and clear run-off. Success monitoring will be performed by professional staff at SSCRCD and SEC, and trained volunteers where appropriate.

A6. DATA HANDLING AND STORAGE

Qualitative and quantitative data from the Conservancy's research and monitoring has previously been stored in a database integrated with GIS layers compiled by SEC, and also stored by individual Conservancy partners. As the integrated analysis and information

system (Task 1) develops, all data, metadata, reports, maps, databases, photos, and bibliographic information will be stored in the system. Data will be meticulously proofed and organized as it is entered into the new system. Data collected with public funds is available to the public. To the degree that is legal, we will try to respect the wishes of landowners who request anonymity.

A7. EXPECTED PRODUCTS AND OUTCOMES

All tasks will produce progress reports and final reports as required by the funder, and receive coverage in Conservancy and SEC newsletters, on websites of the Conservancy and its partners, in local press, and other outlets detailed in the Local Involvement and Qualifications sections. Administration and coordination outcomes are signed contracts and sub-contracts, meetings, comunications about the Conservancy's work to funders and others, progress reports, and financial reports. Additional products and outcomes are listed below by task.

1. Sonoma Valley information system with data, metadata, reports, maps, databases, photos, and bibliographic information. Information system template in discussion for use by environmental data users in CALFED region. Report on conclusions of analysis of North Bay/Sonoma Valley data. Paper detailing benefits and mechanics of using the system. The integrated analysis and information system (Task 1) will store all collected data, metadata, reports, maps, databases, photos, and bibliographic information in an accessible, up-date-able, standardized format. The information system will aid in prioritizing local restoration and management, and inform efforts to understand and rehabilitate the San Pablo Bay.
2. Data collected according to existing QAPP, model predicting sediment yield.
3. Meetings and input to 2-year groundwater study. Study design capable of supporting development of a basin water budget.
4. Flow data accepted by USGS.
5. Meetings and input to technical TMDL work (technical products funded elsewhere).

6, 10, 11. Data collected according to existing QAPP. Trained volunteer monitors.

7. GIS layers for detailed channel network and floodplain topography.
8. Data collected according to existing protocol. Data used in groundwater study (see Task 3)
9. Permission for access to private parcels. GIS, graphic, and narrative results of survey. Presentation at Watershed Council forum.

12, 14. Report of monitoring observations.

13, 17. Preliminary narrative and graphic plan, baseline site data, permits.

15. Report numbers and survival of each planted species per established protocol.
16. Meetings and input to technical work (technical products funded elsewhere). Biotic resources element of Corps plan peer-reviewed by independent biologists.
18. Data collected according to existing PRBO protocols. Analysis of focal species use and species diversity, before and after restoration, and between reference sites and restoration sites.
19. Monitoring data collected according to protocols developed with NMFS and/or CDFG.
20. Prioritization protocol for easement sites. Methodology to determine riparian easement width and permitted and prohibited uses.
21. Data collected according to existing US FWS protocol. Trained volunteer monitors.
22. Accurate, current GIS layer of vegetation types and land uses. Automated methodology for updating data.

23. Database of information sources. Project structure in use according to methodologies of San Francisco Estuary Institute. Draft maps of historic channel network, vegetation, and land use at 3-4 time periods in Sonoma Valley history.
24. List of participating vineyards, project descriptions, design drawings.
25. Monitoring photos, report of monitoring observations.
26. Meetings with planning staff. Deliveries of written, spatial, and non-spatial data and expertise. Expanded Biotic Resources Element and overlay. Written guidelines for Public Works activities that affect streams.

A8. WORK SCHEDULE

See attached timeline, which shows four Subject Areas that can be funded separately and individual tasks within Subject Areas. The Integrated Analysis and Information System (Task 1) is our highest priority. The other three Subject Areas have equal priority.

B1. RELATIONSHIP TO ERP, SCIENCE PROGRAM, AND CVPIA PRIORITIES

Conservancy projects help achieve several ERP goals and benefit many target species. Directing resources to relatively healthy watersheds, particularly those in the North Bay, is a highly efficient way to leverage limited restoration funding (Robert Leidy, EPA, speech at 1999 State of the Estuary Conference, San Francisco).

ERP Priorities for the Bay Region

Several tasks provide critical information to projects restoring tidal and seasonal wetlands, levees, and riparian habitat near tidal areas, and/or directly improve riparian and riverine aquatic habitat (BR-1: "Restore wetlands in critical areas throughout the bay…"). Tasks 15, 17, and 23 address restoration of lower-watershed uplands adjacent to streams and wetlands (BR-2). Task 18 directly serves BR-4: "Understand performance of wetlands restoration efforts on a local and regional scale."

Most tasks are motivated by BR-5, the need to restore habitats for at-risk species. Particularly, proposed work will "assess levels of, determine the ecological impacts of, and reduce fine sediment loading to streams," activities which are called out as a goal for the North Bay (BR-5). Tasks collect and interpret necessary data on limiting factors, implement restorative actions, and improve the ability of several large-scale initiatives to help at-risk species and habitats. In Sonoma Valley, at-risk species benefiting from proposed work include non-oceanic life stages of steelhead, California freshwater shrimp, red-legged frog, San Pablo song sparrow, California black rail, California clapper rail, salt marsh common yellowthroat, neotropical migratory birds, wading birds, shorebirds, and waterfowl. For the Bay-Delta, our tasks will benefit all species and life-stages using the San Pablo Bay. "All Central Valley anadromous fish pass through the North Bay and rely on it for some stage of their lives… The health of the North Bay affects the health of Sacramento/San Joaquin watersheds and their salmonid populations." (ERP, Vol. II, p. 142). Proposed tasks will create durable improvements to habitats and populations of at-risk species, and "resolve conflicts between water management/land use and listed species."

The proposed integrated analysis and information system (Task 1), coordinated as it is with large-scale restoration efforts in the region, will make great progress towards interpreting "existing region-specific monitoring data on fishes, aquatic ecosystems, wetland communities, and water quality for North Bay…" (BR-8). It will also help "improve scientific understanding of the linkages between populations of at-risk species and inflows" to the Bay (BR-7).

ERP Multi-Region Goals Several tasks (13, 15, 17, 20, 24, 25) directly improve habitat

values on farmed private property (MR-2). All tasks in the Physical Processes Subject Area address MR-5's goals for understanding sediment pollution's effects on local and San Pablo Bay restoration potential. The centerpiece of this proposal, an Integrated Analysis and Information System that can be used across the CALFED region, focuses on MR-6: "developing conceptual understanding and models that cross multiple regions."

Ecosystem Restoration Strategic Goals

1. At-Risk Species and Habitats. See BR-5 above for benefitted species and habitats.
2. Ecosystem Processes. Both in the near term and over the long term, proposed tasks will provide more natural sediment, water, and nutrient supplies to the San Pablo Bay and to streams in Sonoma Creek watershed. If the San Pablo Bay's role as nursery and feeding ground is to be maximized, habitat and water quality conditions in the San Pablo Bay watershed must be maintained and improved. Improving ecosystem processes helps reverse downward population trends of native riparian and aquatic species that are not yet listed, and prevent establishment of non-native species.
3. Harvestable Species (see Goals 1, 2 regarding steelhead).
4. Habitats. Proposed tasks will improve four habitats: aquatic riverine habitat, riparian habitat, seasonal and permanent tidal marsh, and the aquatic food web in San Pablo Bay (by improving sediment, water, and nutrient inputs and timing).
6. Water and Sediment Quality. All tasks in Physical Processes (2-9) contribute to understanding factors affecting the quality of sediment and water deliveries to San Pablo Bay. Other tasks improve land use practices to reduce sedimentation, water temperatures, and water diversions.

Multi-Species Conservation Strategy This proposal contributes to the following milestones: For Suisun/North Bay, "restore riparian, tidal, and tidal transition areas;" "reduce fine sediment to help salmonids, including implementing restoration and revegetation." For research: understand "instream flow requirements for salmonids of all ages," conduct "comprehensive monitoring and assessment for all species of concern."

Applicability to other CALFED Programs The Conservancy's outreach, education, and community involvement activities—not emphasized in this proposal—directly reflect the approach outlined by the CALFED Watershed Program Plan. SEC has been actively and continuously involved in creating the CALFED Watershed Program as a member of the Watershed Workgroup. This proposal complements Water Quality Program goals by improving the quality of inflows to San Pablo Bay, benefiting all organisms living in and passing through the North Bay. It addresses water quality concerns at their source.

Science Program The centerpiece of this proposal, an Integrated Analysis and Information System that can be used across the CALFED region, directly follows an objective of the Science Program: "*Take advantage of existing data.* The existing monitoring programs and science efforts have generated decades of useful data. Full advantage has not yet been taken of all this data. So projects are encouraged that develop questions that can be addressed by interpreting existing data and that can build from that data to develop indicators and better understanding of processes, species and communities."

B2. RELATIONSHIP TO OTHER ECOSYSTEM RESTORATION PROJECTS

This proposal's tasks strengthen a large existing collection of diverse projects that together work toward a healthy local watershed, a more informed population and decision-makers, and an enhanced San Pablo Bay environment. See Cost-Sharing for a detailed table of related past and current related projects.

B3, B4. NEXT-PHASE FUNDING

To a large degree, the Conservancy's research, monitoring, and analysis capacity has been built with CALFED support. The Conservancy has received three previous grants from the ERP and one from the Watershed Program. See Appendix for budgets, titles, grant numbers, tasks, and status of these projects.

B5. SYSTEM-WIDE ECOSYSTEM BENEFITS

From its beginnings, the Conservancy has served as a model of how collaborations across traditional interest groups can accomplish changes in attitudes, knowledge, and on-the-ground conditions. Through our continued commitment to working with each other and communicating with other groups, we inform both the scientific and community-building aspects of watershed improvement. We now propose to provide a service that can bring much expensive and relevant information to those who can use it, by expanding an existing data management system for use by restoration, monitoring, and policy workers throughout the CALFED region.

B6. LAND ACQUISITION not applicable

C. QUALIFICATIONS

The Sonoma Creek Watershed Conservancy is a partnership. For this proposal, the Sonoma Ecology Center will be the contracting party responsible for payments, reporting, and accounting. For most tasks, a single Conservancy partner will assume decision-making authority and liability. This responsible party is listed first on the Work Schedule (A8). For tasks 5, 9, 11, 16, 17, and in general matters of goals and adaptive management, the partners will work cooperatively as equals, as we have in years past. Conservancy partners meet bi-monthly to assure continuity and coordination.

The Conservancy assures a broad-based, thoroughly informed, ecosystem approach to watershed-based restoration and science through joint meetings with its diverse partners, technical advisors, and agency personnel, and through continual information gathering from conferences, literature, and organizations in other watersheds. Technical professionals inside and outside the Conservancy have been engaged with the ecological issues facing the Sonoma Creek watershed and San Pablo Bay for years. This long-term information base, plus the input of experts, assures the fundamental soundness of the Conservancy's approach. Specifically, we have had guidance from Paul Jones and Rob Leidy at EPA Region IX; Mike Napolitano, Sandi Potter, and Revital Katz-Nelson from the San Francisco Bay Regional Water Quality Control Board; Bill Cox and Bob Coey of the California Department of Fish and Game in Yountville; Josh Collins and Robin Grossinger of the San Francisco Estuary Institute; Mike Rigney, formerly of the Coyote Creek Riparian Station; Laurel Collins of Laurel Collins and Associates; and Bill Kier, Gary Reedy, and Pat Higgins of the Institute for Fisheries Resources. SEC participates actively in the Watershed Workgroups of CALFED and the California Biodiversity Council. SSCRCD and SEC are on the Creeks Committee of the San Francisco Bay Joint Venture and the TAC of the Wild on Watersheds program (CA Association of RCDs, SWRCB).

Most technical work will take place at SEC's Sonoma Valley Watershed Station. The Station is a research and education facility with 5,000 sq ft of office, lab, and classroom space, dedicated to understanding and communicating about the natural systems of Sonoma Valley. SEC opened the Station with help from 1998 CALFED funds. Research and assessment efforts combine scientific expertise and, where appropriate, trained volunteer

monitors called Stream Stewards.

Alternatives for approaches and objectives were discussed and evaluated during development of the Sonoma Creek Watershed Enhancement Plan (SSCRCD, 1997) and continue to be discussed by SEC technical staff and at Conservancy meetings. Scientists in the Conservancy and its collaborators provide QA/QC and data evaluation. Data collection protocols, QAPPs, data analysis, and draft reports are reviewed by technical Conservancy staff, qualified professionals with ties to the Conservancy, and appropriate agencies. Data synthesis and analysis is compatible with agency requirements. Year-end reports are produced and distributed to interested parties. The SEC's TAC and associates review any QAPPs, project designs, data analyses, and reports before final versions are approved. Data is used to adaptively manage restoration and rehabilitation efforts, and to educate community members about their watershed and impacts they have upon it.

Below are brief descriptions of the roles and qualifications of primary staff:

Richard Dale, Executive Director, SEC
Richard will administer the proposed work. In 1990 he co-founded the SEC, whose programs include a six acre community farm, a regional GIS project, public education projects, and two habitat preservation projects. In 1997 he received the John Muir Award for his national and local conservation efforts.

Caitlin Cornwall, Biologist and Assistant Director, SEC
Caitlin (B.A. Biology, M.S. Botany) has experience in wetland and riparian assessment and restoration, research on the ecology and hydrology of riparian plant communities, and technical writing. She will be involved in biological data collection, research and analysis design, and tasks with policy implications.

Rebecca Lawton, Watershed Scientist, SEC
Rebecca has 13 years experience in soil analysis, interpreting fluvial and sedimentary processes, analyzing depositional environments, environmental compliance, and technical writing. She will oversee tasks and sub-tasks related to water and sediment processes and study design.

Rich Hunter, GIS/GPS Project Manager, SEC
Rich's experience is in using GIS technology for gap analysis and restoration prioritization. He will manage mapping and GIS database construction tasks.

Wendy Losee, Coordinator for Stream Stewards Program and Volunteers, SEC
Wendy manages SEC's programs for training Sonoma Valley residents to monitor local streams and contribute to ecosystem restoration. She has training in CDFG's protocol for monitoring water quality and benthic macroinvertebrates in wadeable streams.

Leandra Swent, District Manager, SSCRCD
Leandra has managed SSCRCD for several years. She has over a decade of experience as a private consultant working on wetlands restoration and mitigation monitoring issues. She will oversee SSCRCD projects.

David Luther, Resource Conservationist, SSCRCD
David graduated from the University of Oregon with a Bachelor of Science in Biology with a focus in Ecology. He served as Watershed Coordinator for two years of CALFED-funded Conservancy work. His involvement will be in bird monitoring, technical assistance, and restoration implementation. He is also Project Manager for the Petaluma River Watershed

Enhancement Plan.

Paul Sheffer, Engineering Technician, SSCRCD
Paul will provide engineering and technical assistance for SSCRCD projects. Paul has worked with the Natural Resources Conservation Service for over 30 years and with SSCRCD over seven years. He is the North Bay Forum Project Manager and an accomplished poet.

Patrick Higgins, Institute for Fisheries Resources

Jan Derksen, Programming Architect, Institute for Fisheries Resources

Peter Haywood, President, SVVGA
Peter will oversee projects for SVVGA. A local vineyardist and winemaker, Peter has worked to improve viticultural practices both on the farm and at a policy level for several years, in Sonoma Valley and Sonoma County.

Laurel Collins, Principal, Laurel Collins and Associates
Laurel has over a decade of experience conducting investigations into the geomorphology and sediment and water regimes of Bay Area streams. She created the Watershed Science Approach to standardize analysis of stream conditions and history while working at the San Francisco Estuary Institute.

Robin Grossinger, Historical Ecology Program Director, San Francisco Estuary Institute
Robin has done extensive historical research on the San Francisco Bay andlocal watersheds. Directors of the Bay Area Historical Ecology Project since 1993, he authored "Documenting Local Landscape Change" in the Historical Ecology Handbook (Island Press 2001).

Nadav Nur, Director of Population Ecology, Point Reyes Bird Observatory
Nadav (Ph.D., Zoology; M.S., Biostatistics) served on two working groups of the CALFED CMARP. His long experience in quantitative ecology and statistical analysis will guide PRBO's work in the North Bay's tidal marshes and help guide other proposed analyses.

D2. COST SHARING

The table below details funding committed to Conservancy projects as of October 2001, and thus shows the rich context of the proposed work. Earlier grants are shown first. Asterisked funds will be available at the start date of the proposed tasks, assumed to be August 2002. Contributions from volunteers, interns, landowners, and local scientists are considerable in Sonoma Valley, decreasing costs of stake-holder supported watershed activities.

Source	Description	Recipient(s)	Status	Amount (1000's)
SWRCB 205(j)	Sonoma Creek Enhancement Plan (1997)	SSCRCD	complete	$77
CALFED ERP (1998)	Stream Stewards monitoring, steelhead limiting factors research, etc; see Appendix	SSCRCD for Conservancy	complete	$301
RWQCB 319(h)	rehabilitate eroding State Park trails, monitor & model sediment production	SEC, CA Dept. Park & Rec.	in progress	$75 for monitoring*
CALFED ERP (2000)	fish passage, historical ecology, workshops for planners, etc; see Appendix	SSCRCD for Conservancy	in progress	$438
CALFED ERP	*Arundo donax* eradication in	SEC for Team	in	$68*

(2000)	CALFED region streams	Arundo del Norte	progress	local work
CA Dept of Fish and Game	Riparian landowner education and outreach	SEC	in progress	$9
Sonoma County Water Agency	GIS base map, infrastructure and resource mapping for Sonoma Valley watershed	SEC	in progress	$57 for resource mapping
Sonoma County Water Agency	fish census, low-flow monitoring, riparian mapping, etc.	SEC	in progress	$60
CALFED ERP (2001)	LWD installations, etc; see Appendix	SSCRCD for Conservancy	contract	$545*
Sonoma Valley Harvest Wine Auction	Restoration projects, land use mapping, landowner assistance	SEC	in progress	$50*
Sonoma County Water Agency	riparian mapping; channel surveys; stream gage	SEC	in progress	$83*
US Army Corps of Engineers; CA Coastal Conservancy; SEC (in-kind)	hydrologic feasibility studies for a flood prevention and restoration project near Schellville in lower Sonoma Creek's floodplain	SSCRCD, SEC, Philip Williams & Assoc., San Francisco Estuary Institute	tentative approval	$400*
San Francisco Foundation	prepare lab, QAPP, and automated gage to collect turbidity and suspended sediment	SEC	in progress	$25
EPA	use PRBO and CDFG protocols to assess riparian, bird, and fish habitat quality	SSCRCD	in progress	$97
Sonoma County Water Agency	develop KRIS for service area: Sonoma, Petaluma, Marin	Inst. for Fisheries Resources	in progress	$40* for Sonoma
RWQCB	TMDL team development	SEC for Conservancy	in progress	$13
CALFED Watershed Program	steelhead population census; adult & child environmental education; urban stream restor'n	SEC for Conservancy	approved	$270*
Sonoma County Water Agency	year 1 of 3-year historical ecology project	SEC, San Francisco Estuary Institute	approved	$64
CA Dept. Parks & Rec., Sonoma State Univ., DFG	acquire satellite imagery of Parks, map vegetation cover, field-check	SEC, Sonoma State Univ.	approved	$120
Sonoma County Water Agency	groundwater study for Russian River and Sonoma Creek basins	USGS	in progress	$40* for Sonoma Valley
volunteers	Stream Stewards program; restoration work days; amateur birders and botanists. 64,000 hr/yr @ $10/hr	SEC, SSCRCD	ongoing	$1,920 for 3 years*
interns	640 hr/yr @ $15/hr for 3 years	SEC	ongoing	$29*
pro bono professional	200 hr/yr @ $85/hr for 3 years	SEC	ongoing	$51*
TOTAL				$4,832
TOTAL at Start Date				$3,531*

E. LOCAL INVOLVEMENT

This proposal continues the work of a diverse Watershed Conservancy that has support and involvement from state and federal legislators, USDA Natural Resources Conservation Service, National Marine Fisheries Service, California Department of Fish and Game, Environmental Protection Agency, US Fish and Wildlife Service, California Farm Bureau, State Water Resources Control Board, California Department of Parks and Recreation, the Universities of California at Berkeley and Davis, Sonoma County Water Agency, Sonoma County Permit and Resource Management Department, Sonoma City Council, Sonoma State University, Santa Rosa Junior College, Bouverie Audubon Preserve, and local government and business groups. These include Rotary and Kiwanis Clubs, Sonoma Sister Cities Association, Sonoma Community Center, Sonoma City Planning Department, Planning Commission, and Community Services Commission, Valley of the Moon Boys and Girls Club, Sonoma Valley Unified School District, Sonoma Valley Chamber of Commerce, and Sonoma Valley Visitors Bureau.

A strong liaison exists with local newspapers who frequently publish stories on environmental issues. When appropriate, press releases are sent out for publication. SEC's executive director writes a semi-weekly column on environmental issues. Various Conservancy members have developed oral presentations and slide shows which are offered to businesses, community groups, schools, and agencies. SEC is preparing a "State of the Watershed Report" to be published at no charge in the local newspaper, which will summarize technical information and monitoring efforts for an interested lay audience.SEC's Sonoma Valley Watershed Council, an informal speaker's forum for discussing environmental topics, promotes community awareness and involvement in local issues. Findings are published for public review through presentation at a watershed education event put on by Conservancy partners called "Creek Day."

The Conservancy engenders participation by diverse community-based interests. Past efforts have successfully communicated the vision of restoration and stewardship to various sectors of the community in specific projects. Previous projects have been embraced by the local community and resource agencies. They have served to educate and involve the public, soliciting a strong and more informed segment of community support. Many agencies who in the past were either uninformed or unwilling to participate have realized the importance of watershed issues and the value of their support through the success of these former projects. The achievement gained in both the natural and human community from these past watershed projects has given a sense of credibility to the current proposal and allowed it to be strongly supported by state and regional agencies and the local community.

We take seriously our part in educating Sonoma Valley's population (40,000) and the CALFED-wide audience (thousands). We disseminate monitoring and research results via websites, the press, the Conservancy newsletter "Creek Currents" (550 recipients), and SEC's newsletter (250 recipients). We communicate regarding the process of collaboration in workgroups, conferences, and meetings. SEC has programs for volunteers (currently approximately 60/year) and university interns (10/year), which teach ecological concepts, watershed issues and stewardship, and fisheries science through hands-on monitoring, restoration, and research. All partners create materials for various sectors of the public and also conduct extensive landowner and resident outreach.

F. COMPLIANCE WITH STANDARD TERMS

We will comply with the standard State and Federal contract terms described in the PSP.

G. LITERATURE CITED

Goals Project. 1999. Baylands Ecosystem Habitat Goals. Report of habitat recommendations prepared by the Bay Area Wetlands Ecosystem Goals Project. US EPA, San Franciso, CA/SF Bay RWQCB, Oakland, CA.

Leidy, Robert, EPA Fisheries. 1999. Speech at San Franciso Estuary Conference.

SEC Technical Advisory Committee. 2000. Sonoma Valley Watershed Station Work Plan. *Goals and sequence of work to address information needs around the fishery, riparian health, and water quality and quantity.*

SEC. 1997. A Day on Sonoma Creek. *Reviews existing data on runoff and discharge, water temperature, water quality, environmental history, and fish habitat.*

SEC. 2000. 1998 Salmonid Spawning Gravels Survey. Mitchell Katzel, Oona McKnight. *Results and analysis from assessments using EPA-approved QAPP.*

SEC. 2000. 1998 Water Temperature Monitoring. Oona McKnight, Mitchell Katzel. *Results and analysis from 2 years of monitoring using EPA-approved QAPP.*

SSCRCD in conjunction with the people of the Sonoma Creek Watershed. 1997. Sonoma Creek Watershed Enhancement Plan. *Appendices contain other studies and reports.*

Appendix: Status of Existing Sonoma Creek Watershed Conservancy CALFED Grants

The Sonoma Creek Watershed Conservancy has received several grants from CALFED. The Conservancy's partners, goals, Conceptual Model, hypotheses, adaptive management framework, approach, partners' roles, and scientific qualifications are as described in the appropriate sections of the body of this proposal. Status is reported as of October 2001.

CALFED ERP 1998-E02, $301,000 **Project Status: Complete**

Task 1 Restoration and Enhancement Projects

1.1 Streambank Stabilization Demonstration: Carriger Creek.
1.2 Riparian Corridor Enhancement: Nathanson Creek
1.3 Streambank Restoration: St. Leo's Church on Sonoma Creek
1.4 Asbury Creek Fish Passage Design
1.5 Vineyard Demonstration Projects.

Task 2 Watershed Technical Support

2.1 Technical Assistance: select and monitor vineyard demonstration projects, plan and facilitate Ranch Plan workshops
2.2 Exotic Species Eradication: field surveys of Arundo sites, write eradication plan

Task 3 Monitoring and Data Management

3.1 Baseline Monitoring of Potential Limiting Factors for Anadromous Fish: Approved QAPP for Thermal Monitoring and Spawning Gravel Suitability Assessment. Results indicate that a critical threshold was not exceeded at any of the thermal monitoring sites. Spawning gravel data indicates that excellent spawning sites do exist.
3.2 Restoration Projects Monitoring: SEC's Sonoma Valley Watershed Station opened, including a Stream Stewards program to support future monitoring. Presentation map of Conservancy projects generated.
3.3 Data Management: Preliminary data and results presented in poster session at 1999 State of the Estuary conference. Reports on 3.1 data. Web site development.
3.4 Watershed Science Approach: Problems obtaining property access necessitated a change from Nathanson to Carriger Creek. Partial survey and report completed.

Task 4 Outreach and Education

4.1 Watershed Coordinator: Meetings, newsletter.
4.2 Watershed Education for Students and Interns: 8 internships for students from Sonoma State University and Santa Rosa Junior College.

Task 5 Project Management and Administration

CALFED ERP 2000-E04, $438,923 **Project Status: In Progress**

Habitat Restoration
1) Fish Passage Enhancement, Asbury Creek at Arnold Drive—SEC
2) Pool Habitat Enhancement and Restoration, Sonoma Creek and tributaries—SEC
3) Bank Erosion Repair and Riparian Restoration, Carriger Creek at Arnold Drive—RCD
4) Bank Stabilization, Nathanson Creek—RCD
Local Watershed Stewardship
5)Vineyard Demonstration Projects—SVVGA
6) Expand Sonoma Valley Stream Stewards Program—SEC
   a) Continuing Analysis of Factors Limiting Steelhead
   b) Produce Watershed Map Through Volunteer Watershed Assessment
   c) Monitor Conservancy Projects
Environmental Education
7)Workshops for Local Government Staff on Using Existing Regulations to Preserve and Enhance Watershed Health—SEC
8) Education Coordination for Watershed Studies—SCAAW
9) Publication of Anecdotal Ecological History of Sonoma Valley—SEC
Project Management
10)Watershed Coordinator—RCD
11)Grant Administration—RCD

CALFED ERP 2001-N27, $545,170 **Project Status: Contract pending**
Sonoma Creek Watershed Conservancy, 2001-2003. Years 2 and 3 of a 3 year project.
1. Monitor Fish Passage Enhancement, Asbury Creek at Arnold Drive—SEC
2. Pool Habitat Enhancement and Restoration, Sonoma Creek Tributaries—SEC
3. Restore Fish Passage, Carriger Creek—SSCRCD.
4. Bank Repair and Habitat Enhancement, Sonoma Creek at Warm Springs Road—SEC
5. Technical Assistance and Project Monitoring—SSCRCD, SEC
6. Continuing Analysis of Factors Limiting Steelhead—SEC
6. Land Use and Riparian Assessment and Mapping
7. Ecological History of Sonoma Valley—SEC
8. Vineyard Demonstration Projects—SVVGA
9. Watershed Coordinator – SSCRCD.
10. Workshops for Landowners and Groups on statutes Related to Watershed Health—SEC
11. Educational Support for Watershed Restoration—SCAAW
12. Web Development, Data Integration, and Posting of Activities and Results—SEC
13. Grant Administration and Project Management—SSCRCD

CALFED Watershed Program [no number], $270,541 **Project approved, awaiting contract**
Sonoma Creek Watershed Conservancy: Outreach and Restoration
Tasks are:
1) Administration
2) Public outreach, education, and participation in TMDL and Army Corps initiatives
3) Steelhead population assessment
4) Environmental education for primary classes through Sonoma Creek Adopt-A-Watershed
5) Fish passage, Rodgers Creek
6) Bank stabilization, Carriger Creek
7) Nathanson Creek Preserve and Trailway restoration planning
8) Reports and Presentations

CALFED has funded the work of the Sonoma Creek Watershed Conservancy several times, because our watershed materially affects the capacity of San Pablo Bay's ecosystem and our Conservancy demonstrates unusual cooperation among stakeholders. We are grateful.

We apply now to ERP for funding to integrate many sets of environmental data from our watershed and region (including data collected with CALFED funds) into a comprehensive analysis, and make the data and analysis results available in an information system that is responsive to new data, capable of multivariate statistical and spatial analysis, accessible by both technical and community people, and designed as a model for research and restoration workers at all scales throughout the CALFED region. We propose to 1) expand the capacity of an excellent existing data management tool (KRIS, by the Institute for Fisheries Resources), 2) make a model information system that will be useful to users in the CALFED region, and 3) build and use a Sonoma Valley information system as a demonstration project.

We also request funds to continue monitoring, research, restoration, and planning tasks that benefit at-risk species and aquatic ecosystems in Sonoma Creek and San Pablo Bay. Work is divided into four Subject Areas that can be funded separately. Each Subject Area contains several tasks. The Subject Areas are:

1) as above, integrated analysis of multiple existing environmental datasets and creation of an accessible, up-date-able information system for the watershed that facilitates understanding of complex issues, and can be used as a template for similar work at all scales through the CALFED region;
2) physical processes: water, sediment, and geomorphology;
3) biological processes: sensitive and indicator species and habitats;
4) land use history and management: historical and current land cover, implementing BMPs, answering policy-makers' requests for data.

We request $1,794,704 of next-phase funding over three years. This cost is matched by $4,832,000 in other funding sources and in-kind contributions, of which $3,531,000 will be available at the start date of this proposed projec

BUDGET & FISCAL REVIEW
SUBCOMMITTEE #3,CHAIR
EDUCATION
ENVIRONMENTAL QUALITY
GOVERNMENTAL ORGANIZATION
HEALTH & HUMAN SERVICES
VETERANS AFFAIRS

STATE CAPITOL, ROOM 4081
SACRAMENTO, CA 95814
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California State Senate

SENATOR
WESLEY CHESBRO
SECOND SENATORIAL DISTRICT

SELECT COMMITTEES:
CALIFORNIA'S WINE INDUSTRY, CHAIR
DEVELOPMENTAL DISABILITIES & MENTAL HEALTH, CHAIR
BAY AREA TRANSPORTATION
FORESTRY
MOBILE & MANUFACTURED HOMES
RURAL EDUCATION

September 10, 2001

CALFED Bay-Delta Program
Ecosystem Restoration Program 2002
Technical Review Panel
1416 9th Street, Suite 1155
Sacramento, CA 95814

To Whom It May Concern:

I am writing to express my support for the Southern Sonoma County Resource Conservation District's (SSCRCD) application to the CALFED Ecosystem Restoration Program 2002 for funding of the Sonoma Creek Conservancy Proposal.

This effort, if funded, would provide an assessment of the flooding situation to the landowners along Rodgers Creek, as well as flooding problems for others in the greater Schellville area. It is my understanding that this study will also address fish migration barriers and other problems along creeks in the Sonoma Creek watershed as well as provide technical assistance and outreach to landowners throughout the watershed.

Resource Conservation Districts (RCDs) are the state's only grassroots conservation delivery system that identifies local conservation problems and guides solutions on a voluntary basis. SSCRCD's purpose is to provide technical assistance, education and funding sources to empower landowners to be committed stewards working to improve water quality, prevent soil erosion and improve natural habitat. The proposal seeking CALFED's support would provide useful data to improve the current situation in the Sonoma Creek area.

I ask for CALFED's support of this application. If I can provide further information, please feel free to contact me anytime.

Sincerely,

WESLEY CHESBRO
State Senator, 2nd District

WC: jsd

cc: David Luther, Southern Sonoma County Resource Conservation District

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CALFED PSP 2002 ERP

TOTAL BUDGET (3 years)

TASK	Direct Labor Hours	Salary	Benefits	Travel	Supplies and Expndbls	Services or Consult	Equip.	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost
Integrated Analysis and Information System											
1 Integrated analysis and information system	3115	77961	5326		1000	23520			107,807	10781	118,588
Administration & Coordination	720	20088	2232		750				23,070	2307	25,377
Physical Processes											
2 Sediment data collection and modeling	3600	122753	13639		5000	30000		12000	183,392	18339	201,731
3 Water budget support	320	12024	1308		1200				14,532	1453	15,985
4 Streamflow gage maintenance	480	19008	2112		2250	51000			74,370	7437	81,807
5 TMDL technical participation	1920	73944	3816		3000				80,760	8076	88,836
6 Stream Stewards: volunteer monitoring of flow & water quality	3360	78624	8736	900	3000	1000			92,260	9226	101,486
7 LIDAR acquisition & processing (25 sq mi)						25000			25,000	2500	27,500
8 low flow monitoring	540	21384	2376		1500				25,260	2526	27,786
9 Nathanson Creek geomorphology / Watershed Science Approach	880	70400							70,400		70,400
Administration & Coordination	880	26424	2936		900				30,260	3026	33,286
Biological Processes											
10 Stream Stewards: volunteer monitoring of benthic macroinvertebrates	2160	50544	5616	600	3000	7500			67,260	6726	73,986
11 Riparian habitat quality assessment: avian and plant assemblages	720	25740	1260						27,000	2700	29,700
12 Monitor Asbury Creek fish passage	240	6480	720		1500				8,700	870	9,570
13 Plan, permit, and fund Kenwood Marsh restoration	300	8775	975		1000				10,750	1075	11,825
14 Monitor Carriger Creek fish passage	240	9600		150	900				10,650	1065	11,715
15 Champlin Creek revegetation	240	9600			5000				14,600	1460	16,060
16 Army Corps technical team participation	1080	40482	2898		1500				44,880	4488	49,368
17 Plan land protection and restoration, lower Rodgers Creek	430	19584	560		1000				21,144	2114	23,258
18 Avian and vegetation monitoring in tidal marsh restoration sites	2576	102096		4500	4100		3900		114,596	32102	146,698
19 Monitor Sonoma Creek/Warm Springs Road fish habitat enhancement	300	8100	900	180					9,180	918	10,098
20 Input to new Riparian Easement program at Sonoma County Open Space District	300	10665	1185						11,850	1185	13,035
21 Red-legged frog surveys	600	18900	2100	180					21,180	2118	23,298
Administration & Coordination	880	26424	2936		900				30,260	3026	33,286
Land use patterns and practices											
22 Land cover mapping and field data collection	2460	58327	6481	400	35000	42100			142,308	14231	156,539
23 Historical channels, hydrology, land use, and vegetation	1360	55260	2640						57,900	5790	63,690
24 Vineyard BMP demonstration projects	600	24000				90000			114,000	11400	125,400
25 Landowner technical assistance and monitoring BMP projects	3000	126000			1500				127,500	12750	140,250
26 Natural resource data and analysis for Sonoma County General Plan update process	864	29808	3636	600	1200				35,244	3524	38,768
Administration & Coordination	720	20088	2232		750				23,070	2307	25,377
TOTAL	34,885	1173083	76,620	7,510	75,950	270,120	3,900	12,000	1,619,183	175,521	1,794,704

Year 1

	TASK	Direct Labor Hours	Salary	Benefits	Travel	Supplies and Expndbls	Services or Consult	Equip.	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost	
												823,154	
Topic: Integrated Analysis and Information System													
1	Integrated analysis and information system	935	23388	1598		1000	7056			33,042	3304	36,346	
	TOTAL: Integrated Analysis and Information	935	23388	1598		1000	7056			33,042	3304		total 36,346
	Administration & Coordination	240	6696	744		250				7,690	769	8,459	
Topic: Physical Processes													
2	Sediment data collection and modeling	1520	53237	5915		5000	10000		4000	78,152	7815	85,967	
3	Water budget support	107	4008	436		400				4,844	484	5,328	
4	Streamflow gage maintenance	160	6336	704		750	17000			24,790	2479	27,269	
5	TMDL technical participation	640	24648	1272		1000				26,920	2692	29,612	
6	Stream Stewards: volunteer monitoring of flow & water quality	1120	26208	2912	300	1000	333			30,753	3075	33,829	
7	LIDAR acquisition & processing (25 sq mi)						25000			25,000	2500	27,500	
8	low flow monitoring	180	7128	792		500				8,420	842	9,262	
9	Nathanson Creek geomorphology / Watershed Science Approach	500	40000							40,000		40,000	
	TOTAL: Physical Processes	4227	161565	12031	300	8650	52333	0	4000	238879	19888		total 258,767
	Administration & Coordination	360	11448	1272		300				13,020	1302	14,322	
Topic: Biological Processes													
10	Stream Stewards: volunteer monitoring of benthic macroinvertebrates	720	16848	1872	200	1000	2500			22,420	2242	24,662	
11	Riparian habitat quality assessment: avian and plant assemblages	240	8580	420						9,000	900	9,900	
12	Monitor Asbury Creek fish passage	80	2160	240		500				2,900	290	3,190	
13	Plan, permit, and fund Kenwood Marsh restoration	300	8775	975		1000				10,750	1075	11,825	
14	Monitor Carriger Creek fish passage	80	3200		50	300				3,550	355	3,905	
15	Champlin Creek revegetation	240	9600			5000				14,600	1460	16,060	
16	Army Corps technical team participation	360	13494	966		500				14,960	1496	16,456	
17	Plan land protection and restoration, lower Rodgers Creek	1100	9792	280		500				10,572	1057	11,629	
18	Avian and vegetation monitoring in tidal marsh restoration sites	808	29440		1500	1500		3900		36,340	9408	45,748	
19	Monitor Sonoma Creek/Warm Springs Road fish habitat enhancement	100	2700	300	60					3,060	306	3,366	
20	Input to new Riparian Easement program at Sonoma County Open Space District	100	3555	395						3,950	395	4,345	
21	Red-legged frog surveys	250	7875	875	60					8,810	881	9,691	
	TOTAL: Biological Processes	4378	116019	6323	1870	10300	2500	3900	0	140912	19865		total 160,777
	Administration & Coordination	360	11448	1272		300				13,020	1302	14,322	
Land use patterns and practices													
22	Land cover mapping and field data collection	2460	58327	6481	400	35000	42100			142,308	14231	156,539	
23	Historical channels, hydrology, land use, and vegetation	1250	55260	2640						57,900	5790	63,690	
24	Vineyard BMP demonstration projects	200	8000				30000			38,000	3800	41,800	
25	Landowner technical assistance and monitoring BMP projects	1000	42000			500				42,500	4250	46,750	
26	Natural resource data and analysis for Sonoma County General Plan update process	288	9936	1212	200	400				11,748	1175	12,923	
	TOTAL: Land use patterns and practices	5198	173523	10333	600	35900	72100	0	0	292456	29246		total 321,702
	Administration & Coordination	240	6696	744		250				7,690	769	8,459	
	TOTAL											823,154	

	TASK	Direct Labor Hours	Salary	Benefits	Travel	Supplies and Expndbls	Services or Consult	Equip.	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost	
												490,696	
Topic: Integrated Analysis and Information System													
1	Integrated analysis and information system	934.5	23388	1598			7056			32,042	3204	35,246	
	TOTAL: Integrated Analysis and Information	934.5	23388	1598			7056			32,042	3204	total	35,246
	Administration & Coordination	240	6696	744		250				7,690	769	8,459	
Topic: Physical Processes													
2	Sediment data collection and modeling	960	31968	3552			10000		4000	49,520	4952	54,472	
3	Water budget support	107	4008	436		400				4,844	484	5,328	
4	Streamflow gage maintenance	160	6336	704		750	17000			24,790	2479	27,269	
5	TMDL technical participation	640	24648	1272		1000				26,920	2692	29,612	
6	Stream Stewards: volunteer monitoring of flow & water quality	1120	26208	2912	300	1000	333			30,753	3075	33,829	
7	LIDAR acquisition & processing (25 sq mi)												
8	low flow monitoring	180	7128	792		500				8,420	842	9,262	
9	Nathanson Creek geomorphology / Watershed Science Approach	380	30400							30,400		30,400	
	TOTAL: Physical Processes	3547	130696	9668	300	3650	27333	0	4000	175647	14525	total	190,172
	Administration & Coordination	260	7488	832		300				8,620	862	9,482	
Topic: Biological Processes													
10	Stream Stewards: volunteer monitoring of benthic macroinvertebrates	720	16848	1872	200	1000	2500			22,420	2242	24,662	
11	Riparian habitat quality assessment: avian and plant assemblages	240	8580	420						9,000	900	9,900	
12	Monitor Asbury Creek fish passage	80	2160	240		500				2,900	290	3,190	
13	Plan, permit, and fund Kenwood Marsh restoration												
14	Monitor Carriger Creek fish passage	80	3200		50	300				3,550	355	3,905	
15	Champlin Creek revegetation												
16	Army Corps technical team participation	360	13494	966		500				14,960	1496	16,456	
17	Plan land protection and restoration, lower Rodgers Creek	1100	9792	280		500				10,572	1057	11,629	
18	Avian and vegetation monitoring in tidal marsh restoration sites	808	31496		1500	1600				34,596	10033	44,629	
19	Monitor Sonoma Creek/Warm Springs Road fish habitat enhancement	100	2700	300	60					3,060	306	3,366	
20	Input to new Riparian Easement program at Sonoma County Open Space District	100	3555	395						3,950	395	4,345	
21	Red-legged frog surveys	150	4725	525	60					5,310	531	5,841	
	TOTAL: Biological Processes	3738	96550	4998	1870	4400	2500	0	0	110318	17605	total	127,923
	Administration & Coordination	260	7488	832		300				8,620	862	9,482	
Land use patterns and practices													
22	Land cover mapping and field data collection												
23	Historical channels, hydrology, land use, and vegetation												
24	Vineyard BMP demonstration projects	200	8000				30000			38,000	3800	41,800	
25	Landowner technical assistance and monitoring BMP projects	1000	42000			500				42,500	4250	46,750	
26	Natural resource data and analysis for Sonoma County General Plan update process	288	9936	1212	200	400				11,748	1175	12,923	
	TOTAL: Land use patterns and practices	1488	59936	1212	200	900	30000	0	0	92248	9224.8	total	101,473
	Administration & Coordination	240	6696	744		250				7,690	769	8,459	
	TOTAL											490,696	

	TASK	Direct Labor Hours	Salary	Benefits	Travel	Supplies and Expndbls	Services or Consult	Equip.	Other Direct Costs	Total Direct Costs	Indirect Costs	Total Cost	
												480,853	
Topic: Integrated Analysis and Information System													
1	Integrated analysis and information system	1246	31185	2130			9408			42,723	4272	46,995	
	TOTAL: Integrated Analysis and Information	1246	31185	2130			9408			42,723	4272	total	46,995
	Administration & Coordination	240	6696	744		250				7,690	769	8,459	
Topic: Physical Processes													
2	Sediment data collection and modeling	1120	37548	4172			10000		4000	55,720	5572	61,292	
3	Water budget support	107	4008	436		400				4,844	484	5,328	
4	Streamflow gage maintenance	160	6336	704		750	17000			24,790	2479	27,269	
5	TMDL technical participation	640	24648	1272		1000				26,920	2692	29,612	
6	Stream Stewards: volunteer monitoring of flow & water quality	1120	26208	2912	300	1000	333			30,753	3075	33,829	
7	LIDAR acquisition & processing (25 sq mi)									0	0	0	
8	low flow monitoring	180	7128	792		500				8,420	842	9,262	
9	Nathanson Creek geomorphology / Watershed Science Approach									0		0	
	TOTAL: Physical Processes	3327	105876	10288	300	3650	27333	0	4000	151447	15145	total	166,592
	Administration & Coordination	260	7488	832		300				8,620	862	9,482	
Topic: Biological Processes													
10	Stream Stewards: volunteer monitoring of benthic macroinvertebrates	720	16848	1872	200	1000	2500			22,420	2242	24,662	
11	Riparian habitat quality assessment: avian and plant assemblages	240	8580	420						9,000	900	9,900	
12	Monitor Asbury Creek fish passage	80	2160	240		500				2,900	290	3,190	
13	Plan, permit, and fund Kenwood Marsh restoration												
14	Monitor Carriger Creek fish passage	80	3200		50	300				3,550	355	3,905	
15	Champlin Creek revegetation												
16	Army Corps technical team participation	360	13494	966		500				14,960	1496	16,456	
17	Plan land protection and restoration, lower Rodgers Creek												
18	Avian and vegetation monitoring in tidal marsh restoration sites	960	41160		1500	1000				43,660	12661	56,321	
19	Monitor Sonoma Creek/Warm Springs Road fish habitat enhancement	100	2700	300	60					3,060	306	3,366	
20	Input to new Riparian Easement program at Sonoma County Open Space District	100	3555	395						3,950	395	4,345	
21	Red-legged frog surveys	200	6300	700	60					7,060	706	7,766	
	TOTAL: Biological Processes	2840	97997	4893	1870	3300	2500	0	0	110560	19351.4	total	129,911
	Administration & Coordination	260	7488	832		300				8,620	862	9,482	
Land use patterns and practices													
22	Land cover mapping and field data collection												
23	Historical channels, hydrology, land use, and vegetation												
24	Vineyard BMP demonstration projects	200	8000				30000			38,000	3800	41,800	
25	Landowner technical assistance and monitoring BMP projects	1000	42000			500				42,500	4250	46,750	
26	Natural resource data and analysis for Sonoma County General Plan update process	288	9936	1212	200	400				11,748	1175	12,923	
	TOTAL: Land use patterns and practices	1488	59936	1212	200	900	30000	0	0	92248	9224.8	total	101,473
	Administration & Coordination	240	6696	744		250				7,690	769	8,459	
	TOTAL											480,853	