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Riparian Station How-To Manual

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The basic information needed to start a riparian station in a California watershed.

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Riparian Station How-To Guide

Disclaimer

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Purpose

This guide is intended to provide assistance to groups wishing to form riparian stations. It is not intended to be a "cookbook" style guide but rather it attempts to address key issues which will challenge groups as they establish and maintain riparian stations in their watersheds. As inventory and monitoring programs develop, this manual will be updated to reflect new insights. This report should therefore be considered a "work in progress."

Riparian Station Role

Riparian Stations are facilities or programs within major watersheds designed to coordinate and implement local watershed resource inventories, environmental education, and monitoring. Riparian Stations might exist in public schools, interpretive centers, offices of local agencies or businesses, etc. Each Riparian Station represents the connective point to a network of substations for smaller watersheds that have their own watershed advisory groups or "Friends of the Creek". Riparian Stations have as their charge:

- Providing direct or indirect scientific, technical, educational, and logistical expertise to involved volunteers or community-based organizations,

- Providing information to local agencies for use in appropriate community planning processes,
- Developing a local funding base to support ongoing monitoring and educational activities,
- Providing volunteers with monitoring protocols and training,
- Assuring the quality of data collection,
- Acting as the recipient, librarian, and transfer station for data collected by volunteers,
- Integrating locally collected data for interpretation,
- Functioning as liaison to one or more regional entities for regional information integration and interpretation,
- Encouraging and supporting educators' efforts to incorporate watershed concepts and activities into their curricula,
- Providing educational support to the communities they serve,
- Organizing watershed awareness and involvement activities.

All of these activities need not be undertaken by a riparian station concurrently but any mission statement should include these as organizational goals.

The riparian station is a key link in an evolving process of understanding and describing watershed condition. It represents the important link between the communities within the watershed and the local, regional, state and federal agencies which either regulate land uses or manage watershed resources. See flow diagram below under W*atershed Management and Planning* (Figure 1) for highlighted areas where riparian station involvement is critical.

In order to provide this link in watershed resource management and planning, riparian stations must be trusted by both the constituents they serve and by the agencies which will benefit from riparian station activities. This requires a degree of detachment from advocacy issues in order to provide unbiased data on which resource decisions can be made. Riparian Stations should form effective partnerships with a wide variety of groups within their community so that meaningful riparian and watershed resource management can be achieved.

Watershed Management and Planning

Watershed management is an integrated holistic approach for restoring and protecting aquatic ecosystems, and protecting human health. By providing information on the health of local watersheds, the Riparian Station plays an important role in watershed management. Therefore, it is important to understand the key elements and processes of watershed management. The following model proposes an approach to regional watershed management that is built upon a foundation of local assessment, resource goals, and restoration

programs. In general, this model attempts to provide a framework for citizens, agency personnel and policy makers that will help them initiate a dynamic process of environmental understanding. Riparian Stations should not need to take the lead role in watershed management. Rather, they should form effective partnerships with a wide variety of groups within their community so that meaningful riparian and watershed resource management can be achieved.

The following model proposes an approach to regional watershed management which is built upon a foundation of local assessment policy development, and restoration programs. In general, this model attempts to provide a framework for citizens, agency personnel and policy makers which will help them initiate a dynamic process of environmental understanding. Riparian stations should not need to take the lead role in watershed management. Rather, they should form effective partnerships with a wide variety of groups within their community so that meaningful riparian and watershed resource management can be achieved.

The major components of the model are described below:

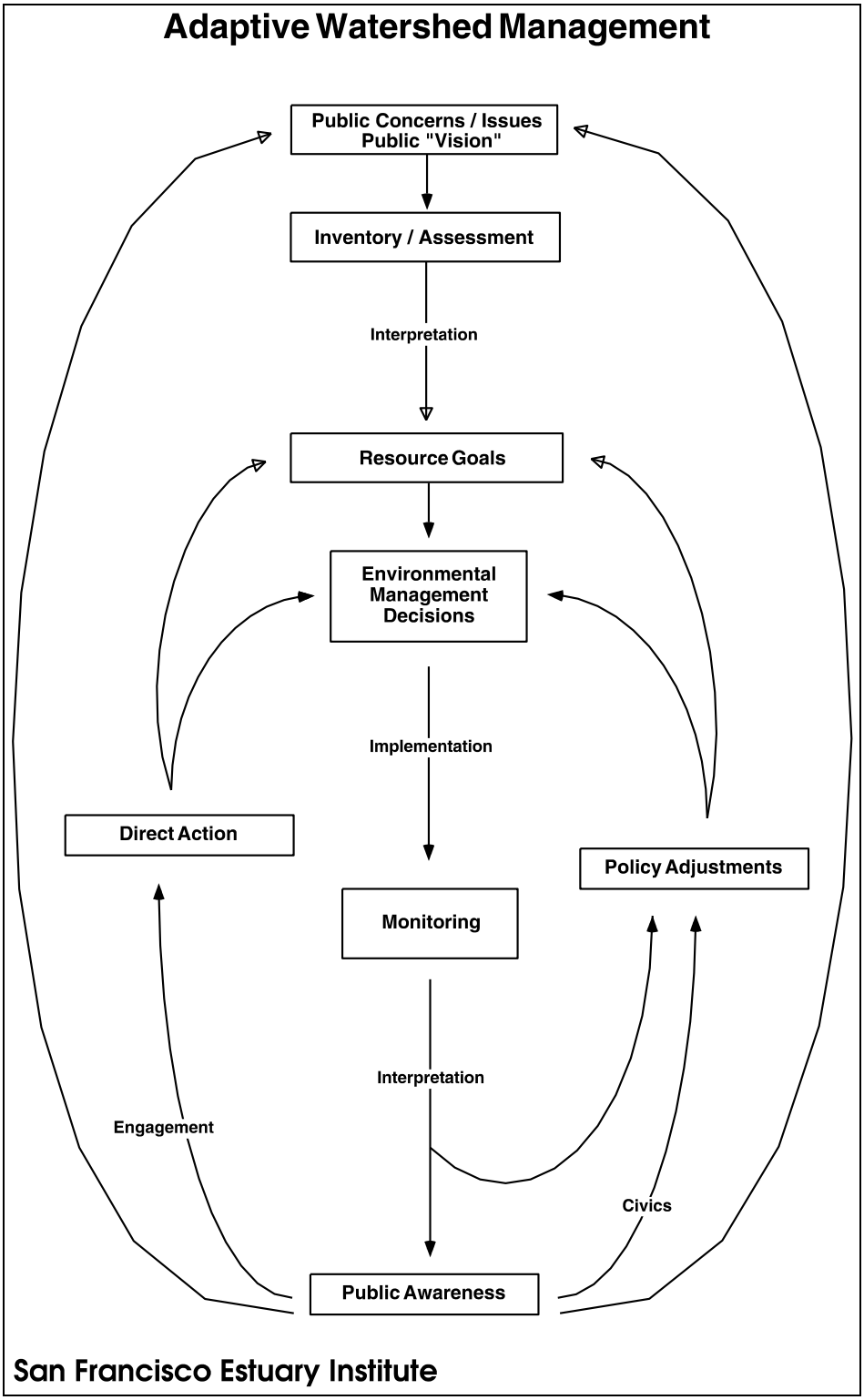


Figure 1 Adaptive Watershed Management Model

Public Concerns, issues or goals

In some cases the communities within a particular watershed have more or less well defined resource issues which have caused the community to organize in order to bring about change. Typically, residents become aware of declines in "beneficial uses" of water or watersheds such as water quality, fish and wildlife populations, or outdoor recreational opportunities. Less often, communities engage in a directed process of "visioning" watershed condition at some point in the future, setting interim goals and instituting policies to achieve their collective vision.

Inventory / assessment

Although communities may become aware of certain problems or desire a certain set of environmental conditions to exist, frequently much more information is needed about current and past conditions before appropriate resource goals can be set. Information can be gathered from a variety of sources and displayed to the public, resource managers and elected officials in a number of ways. Background data and biological inventories, help to focus attention on specific issues, highlight cause and effect relationships, and educate the public which must support management decisions and policy adjustments.

The Riparian Station is a pivotal player in the compilation of background data. Valuable background information includes past, current and future land uses in the watershed, water quality assessments, and geological and hydrological information. Volunteers can also inventory the distribution of native and non- native riparian vegetation, birds, reptiles, and amphibians. They can also help describe the morphology of rivers, and the stability of banks. In urban areas, volunteers can map and check the status of catch basins in storm drain systems.

Interpretation

A careful analysis of the information collected in the above step is necessary to ensure that the resource goals which are to be formulated can be supported by the present and future capacity of the resource.

Resource Goals

The community must set realistic and attainable goals to enhance the ecological health of their watershed. This process must include all segments of the community. The goals should be specific enough so that progress toward attainment can be measured and mid-course adjustments can be made if necessary. Watershed stewardship efforts in the Napa River watershed provide an example of clearly defined resource goals. These goals, contained in the *Napa River Watershed Owner's Manual* (prepared by the Napa Resource

Conservation District), include provisions for:

- promoting stream bank stabilization using natural materials,
- promoting contiguous habitat,
- increasing migratory and resident fish habitat,
- reducing soil erosion, and
- coordinating natural resource protection and planning efforts.

Environmental Management decisions

Resource goals require translation into specific activities or legislative instruments which can be implemented at a community level to bring about the desired goal. These decisions must be communicated effectively to all segments of the community if substantive changes are to be made in behaviors which affect the impacted or desired resources. In the Napa River watershed, more specific recommendations describe how the goals will be achieved. For example, to meet the objective of increasing fish habitat, the community recommended that landscape debris such as grass clippings and leaves should be composted and recycled in areas away from riparian zones. Additional recommendations include establishing streamside buffer strips to filter runoff and provide shade, and filtering runoff from confined animal facilities.

Implementation

Once management decisions have been made they must be carried out to benefit the targeted resource. After proper consideration has been given to problems and their solutions, often, because of ineffective or non-existent implementation of good management decisions, resource values have declined further. Funding must be allocated and staffing levels must be sufficient to carry the best management decisions forward into action.

Monitoring

All programs implemented must be monitored to determine their effectiveness in bringing about the desired environmental change. Monitoring programs must be planned from the beginning to yield information which is specific and informs future goal and decision adjustment. The riparian station works with resource managers and other data users to plan a volunteer component to the overall watershed monitoring program.

Interpretation

Monitoring data must be explained clearly and accurately to all participants in the watershed management process. Effective communication of monitoring results is the key to appropriate policy adjustment and community "buy-in" to the process. The riparian station works with resource managers and technical experts to achieve this element of watershed management. Presenting and

providing technically valid and easily understood monitoring results to the community is a key responsibility of the riparian station.

Public Awareness

In order for any meaningful change to take place within a watershed, the public must be supportive of that change. It is incumbent upon watershed planners to produce awareness programs which engage the community and provide for continuing support of the dynamic process of restoration and protection.

Civics

A successful public awareness program will challenge the community to become involved in the governmental process which must help guide and direct the attainment of resource goals. An environmentally aware public will be an instrument of ecological change through constructive participation in the government.

Policy Adjustment

Changes in public policy must initially be made in order to rectify the causes of ecological health impairment or to bring about the community's watershed vision. Additionally, as the community gains more insight through monitoring and public awareness, changes in the course of watershed management will likely be necessary.

Feedback mechanisms at this point should foster changes in both the community's perception of appropriate resource goals and any necessary changes in environmental management strategies.

Engagement

Another way in which successful public awareness programs can bring about environmental change is through participation of the community in direct action.

Direct Action

One measure of the success of a community program is the degree to which members of the community take direct action to bring about ecological improvement. Clean-up and restoration programs involving community residents are important indicators of the long-term sustainability of environmental improvement programs.

Baseline Data Collection and Monitoring

In the above model, riparian station data gathering activities provide the foundation for assessing the current status of watershed resources. Through a process of systematic discovery, a riparian station can provide the community with the basic information (through a combination of field surveys and background research) the community needs in order to provide realistic and attainable watershed resource goals.

A riparian station can also provide essential feedback on whether resource decisions and programs are effective by monitoring the degree of environmental change brought about by program implementation.

Watershed Education

Recognizing that community change is brought about by a combination of information and education, it is incumbent upon a riparian station to provide resource information in a manner which stimulates discussion and broadens understanding.

Through a variety of different venues, riparian station staff and volunteers need to provide opportunities for the education of the public on watershed resources and function. Education in this context is quite broad and encompasses such activities as watershed festivals, public presentations of inventory and monitoring programs, issue papers, brochures, stream care manuals, public service announcements, and conferences. Without community support, garnered through a variety of educational programs, no amount of study and restoration planning will be successful in the long run.

Organization

Independent or Part of Another Organization

The exact structure which a riparian station assumes is dependent upon the opportunities within the community the station serves. In some communities, an existing organization may already be dealing effectively with river and stream issues and the added dimension of data gathering and reporting would serve to better establish their credibility with local agencies.

It should, however, be noted that if a potential "parent" organization has developed a substantially combative or confrontational reputation, some of the agency networking roles and responsibilities of the riparian station may not be easily realized. It cannot be stressed enough that in order for volunteer-collected data to be utilized by local resource and planning agencies, there must be a great deal of trust between the agencies and the volunteer organization. If data collection methods and the resulting data are viewed by

these partner agencies as biased because of the strong viewpoints held by the parent organization, then it is likely that the data will not be used. Such skepticism on the part of public agencies toward volunteer data collection is reflected in many of the public agency surveys conducted by the State Water Resources Control Board and reported in *The Developing Relationship between Public Agencies and Volunteer Groups for Watershed Monitoring and Stewardship in the San Francisco Bay Area* by Robin Grossinger.

There can be tremendous benefits to the riparian station and its data gathering efforts gained by functioning within an existing effective organization or agency. The riparian station can take advantage of the membership and volunteer base of the existing organization. In general, it is much easier to utilize existing human resources than to recruit new "troops". It is also much more efficient to take advantage of the existing support services of the parent organization. Services such as bookkeeping, fundraising, volunteer databases, office and lab space provisions allow riparian and watershed activities to be the priority of staff and key volunteers rather than routine organizational duties. The only precautionary note here would be that the riparian station functions should be given enough autonomy and support from the parent organization to carry out those separate but related functions.

An alternative to having the riparian station be a part of another organization is to have an organization act as fiduciary agent for the riparian station. In this case, the parent organization acts somewhat as a "foster parent" in that the only thing they do is handle the financial matters of the riparian station, thus leaving the riparian station free to function more or less on its own. In most cases, in order for the riparian station to receive money from individuals, corporations, foundations, or from agencies, the parent organization must be officially recognized as a "not-for-profit" corporation - U.S. Tax Code designation 501[c](3) or 501[c](4) (a more thorough discussion of the differences between these two designations will be given later in this section). Such a duly constituted organization can be the "fiduciary agent" of another group. This arrangement may be suitable for a riparian station during its formative period or it may be appropriate for the life of the organization depending upon local circumstances.

There are many instances when, despite best efforts to find a suitable established organization or agency, a new nonprofit organization formed around the goals and programs of a riparian station must be created. It could be that no organization with related goals or programs exists within the focus area of the riparian station. It could also be that existing organizations lacked the ability or will to work cooperatively with local, regional and state agencies or did not have sufficient infrastructure to properly support riparian station activities. In addition to these functional reasons for establishing a nonprofit organization, the corporate legal structure offers some degree of liability protection to staff, and active members.

At this point it would be wise to seek the advise of existing nonprofit organizations in your area. Keep in mind, it is not necessary to restrict seeking advice solely from groups with an environmental focus. There could be effective social, cultural or artistic nonprofits which would be willing to advise riparian station founders on starting a nonprofit organization.

The basic decision which a group has to make when incorporating as a nonprofit is whether to seek designation as a 501[c](3) or 501[c](4) corporation. The consequences of these different designations on the allowed activities of the organization are thoroughly discussed in a pamphlet by Christine M. Cook entitled *c[3] or c[4]? Choosing a Tax-exempt Status* and published by the **River Network** (ordering information is in the resource appendix at the back of this report).

In general, the primary difference between the tow designations has to do with the amount of "lobbying" the group plans to engage in. Lobbying is an activity (rather precisely defined in the tax code statutes governing these corporations) which is permitted to an unlimited extent to c[4]'s but not to c[3]'s.

Although the decision of which type of nonprofit organization best fits the activities of the riparian station, it is hoped that lobbying activities would not be a major focus of the riparian station and the 501[c](3) designation would therefore be

c[3] AND c[4] GROUPS

c[3] groups are:

- usually corporations
- exempt from paying federal income tax, except on unrelated business income
- able to receive tax deductible contributions
- organized and operated exclusively for a tax-exempt purpose
- limited in carrying out activities to influence legislation
- prohibited from using their earnings to benefit individuals (this does not prohibit hiring staff)
- strictly prohibited from political electioneering

c[4] groups are:

- usually corporations
- exempt from paying federal income tax, except on unrelated business income
- not able to receive tax deductible contributions
- organized and operated for the promotion of social welfare
- permitted to lobby, so long as the lobbying advances the group's social welfare purpose
- permitted to devote their net earnings exclusively to charitable, educational or recreational purposes (they are able to hire staff).

Excerpted from c[3] or c[4]? Choosing a Tax-exempt Status

the most appropriate.

Incorporation and Bylaws

The necessary next step in becoming a nonprofit organization is the legal incorporation process and the development of a governing body and governing bylaws. Again, the River Network has provided assistance in developing organizational bylaws by producing *"Model Bylaws for River Advocacy and Protection Organizations".*(see the resource guide at the end of this report and the bylaws for the Coyote Creek Riparian Station.) These model bylaws should be used as a guide and adjusted according to the organization's goals.

> *The Coyote Creek Riparian Station (CCRS) was created in 1982 by Professor Richard Mewaldt to study avian use of urban riparian corridors.*
>
> *In 1992, with funding from the U.S. EPA and the Santa Clara Valley Water District, CCRS developed and implemented a stream inventory program which utilized volunteers to collect standardized water quality and habitat information in urban streams and watersheds.*
>
> *The protocols and processes begun by CCRS have been expanded and refined by other organizations in an effort to extend this process region-wide. Much of the information in this manual is based upon their experience.*

Articles of Incorporation is also a necessary document which must be developed in order to maintain legal status as a corporation. This is quite a legalistic document and should be developed or certainly reviewed by an attorney with experience in nonprofit corporation advisement. There are books and publications which can assist a group in forming a nonprofit but the best advise usually comes from those who have gone through the experience.

Board of Directors

A great deal of care should be taken when the organization considers the role of the board of directors and the knowledge, skills and abilities of the members which are recruited. A number of good books and articles are available from various nonprofit centers on board development and management. In general, board members should bring to the organization the following skills and backgrounds.

- Experience in business, industry, accounting, organizational management,
- Volunteer representation,
- Legal expertise,
- Scientific/Technical expertise in hydrology, natural science,

- Fundraising,
- Local political connections or community group representation,
- Major landowners within the watershed.

There are six commonly encountered board types in the world of environmental nonprofits (excerpted from an article by Guadalupe Guajardo which appeared in *River Voices* - the newsletter of the River Network, Spring, 1994). These six Board types are:

- **Paper Board** - which exists only on paper to fulfill the legal requirements for nonprofit status but may only meet informally one or twice a year.
- **Advisory Board** - pulled together purely to afford access to people with special talents, experience or wisdom. An advisory board typically has no power - but offers only advice and opinions.
- **Sponsoring Board** - composed of high-profile individuals to provide access to media, fundraising or to get the ball rolling for a new organization.. This type of board is usually replaced or supplemented by a more permanent board at a later date.
- **Following Board** - develops when a strong Executive Director cannot share organizational responsibilities with the board. In many ways functions as a paper board - merely "rubber-stamping" the decisions of the Director.
- **Working Board** - the existence of committees which meet between regular board meetings is a key characteristic of this type of board. By involving many people on committees, the working board can accomplish a great deal.
- **Leading Board** - is a governing board which sets direction and establishes policy. The staff carry out their responsibilities in close coordination with this type of board. Often a leading board is also a working board.

In reality, the types of boards represented here are not usually that identifiable. Most boards are hybrids and there is generally a continuum of types starting with the paper board type and culminating in the leading board type. The important thing for riparian stations to recognize is what type of board is necessary at what particular point in the organization's evolution.

Staff

Depending upon financial resources, the following staff positions should be planned for and funding for long-term support provided. These positions include, Executive Director, Volunteer Coordinator, and Technical

Coordinator. If additional funding is available beyond those key staff positions, an Office Manager and/or Bookkeeper is vitally important for the financial and organizational well being of the organization.

It should be noted that clear delineation of responsibilities and authority among staff members (volunteer and/or paid) is of the utmost importance. Without such delineation, organizations run the risk of reducing their effectiveness by allowing important tasks to go undone, causing some staff or volunteers to become seriously overloaded, which in turn engenders competition between staff members, confusing or distressing volunteers and ultimately leading to mixed or contradictory information being given to other group members. A suggested program management chart of duties and lines of authority for a medium-sized volunteer program is provided on the following page.

Executive Director

The Director's role in the guiding day to day activities is important but must be balanced by the necessity to be in the community understanding the needs of the community which the riparian station serves. Below is a job description of the Executive Director at the Coyote Creek Riparian Station:

Financial:

- Develops a budget proposal for approval by the Board of Directors,
- Follows the budget through the year with regular reports to the Board,
- Ensures that bookkeeping and financial reporting is current and accurate through bookkeeping staff,
- Establishes billing rates for contracts.

Fund raising:

- Assists Board of Director members in developing and implementing fund raising activities,
- Writes grant proposals as needed with staff to help implement goals and objectives set forth by the station.

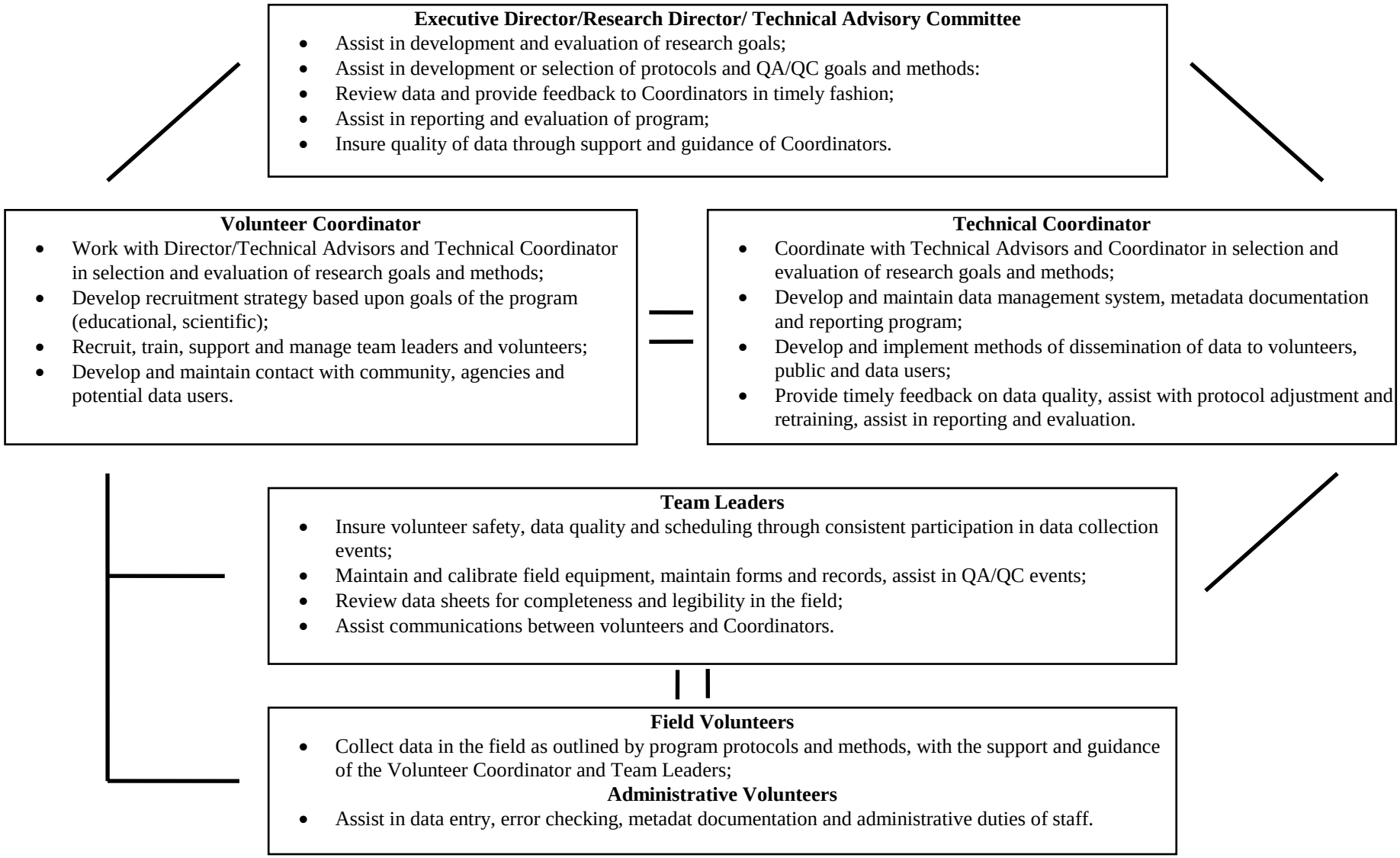
Communication:

- Acts as the station liaison for public agencies and offices. Ensure "buy-in" from these agencies on Station programs,
- Acts as the primary liaison between the staff and the Board

of Directors,

- Acts as the spokesperson for the station for public functions

Suggested Volunteer Management Division of Duties for Medium-sized Program (25 to 125 Volunteers)



- and attend press conferences,
- Communicates to members though the newsletter and at other appropriate functions,
- Reviews public policy on riparian issues and act in accordance with the goals and mission statement of the station.

Personnel Management:

- Supports, and provide direction to staff to carry out goals and objectives of the station,
- Reviews key staff members on an annual basis,
- Establishes salary rates and raises as appropriate.

Planning:

- Works with the staff and board to develop annual objectives,
- Works with the board and staff to develop long-term goals,
- Is instrumental in facilitating the completion of tasks set forth by goals and objectives,
- Evaluates and Reports on an annual basis the progress made towards reaching goals.

Research:

- Reviews and is responsible for all reports sent out to private and public agencies,
- Identifies and maintains connections with local universities and colleges for technical assistance,
- Provides scientific direction and support as needed,
- Is the liaison to the Scientific Advisory Committee.

Education:

- Reviews and is responsible for all curriculum developed for private and public agencies,
- Review and is responsible for all public outreach programs.

Publicity:

- Directs or provides publicity as needed for public awareness.

Facilities:

- Reports to the Board on facility and equipment needs in order for carry out the specific goals of the station.

Volunteer / Program Coordinator

The Volunteer Coordinator is the primary liaison between the organization and the members of the community collecting watershed information. This person is vitally important for providing day-to-day leadership and motivation of volunteers. The following is the Volunteer Coordinator's job description at the Coyote Creek Riparian Station. In a newly formed riparian station, the Volunteer Coordinator will probably also serve as the Program coordinator but as riparian stations develop multiple programs, each with their own volunteer and technical resource needs, the two positions should probably function separately.

Volunteer Coordination:

- Locates, reconnoiters, acquires, marks and maintains physical access to all survey locations,
- Recruits, trains, manages and maintains volunteer leaders for all field teams,
- Recruits, trains , manages and maintains volunteer teams,
- With the assistance of the Technical Coordinator, develops and administers quality control/quality assurance programs for all field data gathering activities,
- Develops, reviews, institutes and maintains safety and first aid procedures for all field teams,
- Responds to situations identified by volunteers in the field requiring follow-up, including pollution/impact reports, documentation of presence of wildlife/habitat of special interest, review of difficult or unusual field constraints,
- Maintains records of volunteer activities,
- Oversees volunteer recognition activities.

Program Coordination:

- Assists Executive Director in providing direction of field programs,
- Assists Executive Director in identifying needs of potential data users,
- Develops, tests, adjusts and maintains training programs for all field data gathering programs,

- Trains and supervises any Program Associate or interns,
- Evaluates and documents program progress.

Technical Coordinator

The primary function of the Technical Coordinator is to ensure that data are collect in the field using appropriate field survey techniques and to ensure timely transfer of field data to electronic format. The Technical Coordinator is also responsible for assisting the Volunteer Coordinator in instituting quality control measures. The Technical Coordinator must provide feedback and guidance to the Volunteer Coordinator on data quality and retraining needs, but the Volunteer Coordinator must implement this advice and communicate them to the volunteers. This allows the Technical Coordinator to focus on the critical matter of inputting, compiling, reviewing, testing and presenting the data. The following is a job description of the Technical Coordinator's position at the Coyote Creek Riparian Station.

Data Coordination:

- Is responsible for all aspects of data management and reporting,
- Is responsible for data quality and data assurance,
- Coordinates with Volunteer Coordinator on problem areas in field techniques and data integration,
- Assists Volunteer Coordinator in training,
- Is primary liaison with team leaders to ensure data integrity.

Technical Coordination

- Is responsible for equipment maintenance,
- Ensures that field survey methods are consistent with data needs.

Volunteers

Assigning positions of responsibility within the core group of volunteers is an important step in building an effective infrastructure and motivational atmosphere. Volunteers are giving of their time and talents and one way to help provide some emotional support for those activities is to recognize talented volunteers by assigning them administrative duties. It is also important so that staff members do not have to provide all of the administrative support for the station. A position which Coyote Creek Riparian Station staff created was Team Leader and Creek Coordinator.

Team Leader

Under the direct guidance of the Volunteer Coordinator, these volunteers help implement the procedures developed by the Riparian Station. This position provides an opportunity for really dedicated and competent volunteers to assume some responsibility and authority. A testing and certification process for this position can ensure adequate training.

- Accompanies field team each week to provide consistency,
- Ensures safety procedures are followed,
- Reviews data sheets for completeness and legibility,
- Assists volunteer coordinator in scheduling team activities,
- Assists Technical Coordinator in equipment maintenance and equipment transfer.

Organizational Management

In order for the efforts of the staff to be successful, additional organization management issues must be dealt with by the organization in an ongoing manner.

Bookkeeping

Beyond making sure that your group has enough financial resources to continue it's important work, a good bookkeeping system is required by the State of California and by the Internal Revenue Service to demonstrate the organization's "due diligence" of the funds entrusted to it by its members and supporting agencies.

The bookkeeping system should be computerized and well-maintained (backup up on a regular basis with backup copies stored offsite in case of disaster. This topic will also be covered under data management). The system should be simple enough for a non-accountant to understand but should be sophisticated enough to produce the necessary project budgets and payroll reports necessary for compliance with State and Federal income tax reporting requirements.

If your organization plans to receive money from State or Federal funding sources, the financial reporting requirements can be quite substantial. It is recommended that your group contact a contract officer at either the Regional Office of the EPA in San Francisco or consult an accountant with experience in nonprofit accounting methods in order to anticipate these agency's accounting requirements. This should be done well in advance of any anticipated State or Federal funding. If you receive Clean Water Act funds from the Regional or State Water Boards, an orientation session on contract

management is available. Contact your contract manager for more information.

It is often the case that after receiving substantial Federal or State funding, an independent financial audit will be required by the funding agency. In order for this not to be a traumatic experience, again, it is recommended that your group seek the advice of other local nonprofit groups to find out if an accounting firm in your area will conduct low cost or *pro bono* accredited audits.

Volunteer Recruitment

Volunteers are the life-blood of the riparian station and form the important link between the staff, the local and regional agencies and the communities which the riparian station serves. The volunteers need to be treated with respect and provided a great deal of recognition for their efforts.

Another important consideration when dealing with volunteers is that the program in which you plan their involvement needs to be ready to go before you ever begin recruiting volunteers. A common mistake made by groups is to begin the process of recruitment and training too far in advance of an actual field program. Volunteers quickly loose interest in a program which does not appear ready or is disorganized. Most volunteers are interested but very busy people and have many commitments placed on their free time. It is therefore incumbent upon station management to have a well-prepared program which is immediately capable of capitalizing on a successful recruit process.

Potential Sources of Volunteers

The most obvious sources of volunteers are the people who live adjacent to a stream. It is often possible to target this volunteer source either through a homeowner's association or other neighborhood group. Determine if there is such an organized group in an area and if they have regular meetings. Make a presentation to the group or see if they will allow you to use their mailing list for a recruitment mailing.

You can also target homeowners along a creek by visiting the local tax assessors office to get parcel information from their tax roles. If you are working closely with a public works agency such as a flood control district or city public works department, they may also have this information and may be more amenable to letting you use it. You can also use the telephone company's address-based telephone book. This is a special telephone book which has listings sorted by address rather than alphabetically by last name. This resource is expensive and currently you can only rent such a directory from Pacific Bell for a certain period of time.

Many inventory and monitoring programs employ school children and

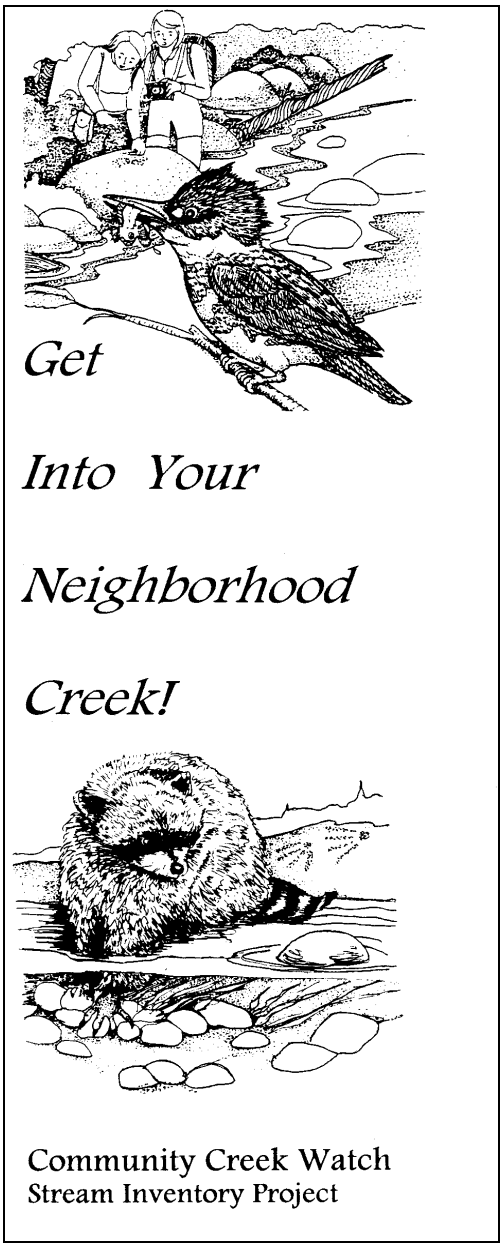
students at community colleges. Although there are safety and liability issues to consider, many watershed data gathering techniques can be capably handled by children with the guidance and supervision of teachers.

Other good sources of volunteers are other environmental groups such as local chapters of the California Native Plant Society, Audubon Society chapters, fishing groups such as California Trout and California Association of Flyfishers as well as Sierra Club chapters. Other interest groups such as trails groups, open space groups and county or state park docent members are also potential sources of volunteers. Don't rule out other groups such as horse enthusiasts or gardening association.

Developing Material for Volunteer Recruitment

Before you ever knock on a single door or speak to a group, you must have some printed material which you can hand out to interested people which succinctly describes your group and its program (not to mention the fact that you must also be prepared with training schedules and a schedule of data gathering sessions). It should give clear direction on whom to contact to become involved and what would normally be expected of a volunteer.

An example of a brochure developed the Coyote Creek Riparian Station is shown here.



Volunteer Training and Organization

Once you have developed a potential source of volunteers, it's time to equip them for the field. This involves both training and establishing field teams which work well together. Some important lessons which have been gleaned from existing monitoring programs include the following:

- Don't overwhelm them with too much information in the first training session. Give them tasks which they can master quickly in order to develop confidence. Don't send out protocols ahead of time thinking they will read and absorb the information. Generally, they become frightened by the amount of material without the context of knowing which parts of the protocol they, themselves, will be responsible for.

Example of a stream inventory brochure. The text inside the 8.5"X14" brochure describes each field parameter and has a tear-off section on the back which can be mailed to the volunteer coordinator.

- Do give them a healthy dose of the "big picture" sort of information; i.e., why what they are doing is important, how it helps in understanding watershed condition, who's going to use the information, what they are going to get out of the experience.
- Training should take place in the field and volunteers should be encouraged to use equipment from the outset.
- Empower volunteers from the beginning to set their own limits. If they feel they cannot handle a situation or they feel personally uncomfortable or unsafe, encourage them to let the team leaders know early on.

The key to good data collection is good volunteer training. The Volunteer Coordinator and Technical Coordinator need to accompany the teams into the field for at least the first four or five data gathering sessions to instill a sense of confidence in the volunteers and to discover if there are any problems with team members and to evaluate potential team leaders. Every team should be accompanied every time by either the Team Leasder or the Volunteer Coordinator.

Keeping volunteers once you've got them volunteers depends heavily on the amount of positive feedback and recognition that volunteers are given. Volunteers should feel useful but not used.. A successful volunteer organization must give back to the volunteer as much if not more than the volunteer is giving. Some suggestions for ways to provide volunteer fulfillment are given later. A volunteer will drift away if they do not feel they are learning something new or they do not have confidence that they are doing a good job.

Remember also that training is ongoing and does not just happen once. New volunteers come into a program as the word of your program spreads and to provide consistency, provisions for ongoing training and cross-training (in other survey techniques) must be made.

Building Teams

All field data gathering processes require more than one person and in many cases three to six people are necessary to safely and accurately assess environmental features. In most cases, specific duties are assigned to individuals either on a regular or rotating basis. This requires that the group function well as a team, with good cooperation and communication.

With staff members accompanying field teams in the beginning, they can evaluate the process of team building as they work with the team in gathering some of the initial data. Staff need to assess group dynamics to determine if there are any disruptive personalities and to determine if any natural leaders emerge from the group.

Team building sometimes happens slowly, at other times a team "clicks" after their first training or field session, still others never really function well as a group. Signals that a group is not functioning well together include frequent calls from the team leaders complaining of individual team members, much slower pace than other teams performing similar tasks on similar creeks, and many data errors. For such rare groups, the Volunteer Coordinator must evaluate the causes for the groups' non-functionality and remedy the situation. However, do not do anything without consulting team members prior to reassigning or otherwise dealing with the problem member. Doing otherwise can lead to distrust and a feeling that the group is being manipulated.

Team Leaders

Team leaders provide the consistency which molds the individuals into a functioning team. Team leaders do not always immediately emerge from a group and may not necessarily be those members with more technical training or acquaintance with the area. They must be reliable, communicative and considerate but have the ability to make decisions in the field. They do not necessarily have to be the same person each time the team is in the field if there is more than one person willing and able to perform the leadership role.

The Volunteer Coordinator should allow enough time for a leader to emerge from a group but not allow the group to function indefinitely without a leader. If no leader emerges, the Volunteer Coordinator should specifically recruit a team leader.

Volunteer Motivation and Recognition

In many ways providing for volunteer motivation is tied to the success of team building and program organization. A well run field program is often motivation enough for many people to continue their participation. Providing additional opportunities for learning and other forms of personal growth are additional elements which can maintain volunteer interest and enthusiasm.

The Coyote Creek Riparian Station provides a seminar program for its volunteers which affords them opportunities to meet and learn from specialists in varied environmental disciplines. These seminars have been so successful that a larger venue has been secured for future programs.

Frequently volunteers are encouraged and provided the opportunity to participate in government agency field activities. In Santa Clara County, volunteers frequently assist California Department of Fish and Game biologists in fishery surveys thus affording volunteers the rare chance to work with professional biologists and the occasion to see that volunteers are willing and able to contribute to agency projects.

Another method of providing additional motivation is to provide ways for good volunteers to advance into positions of greater responsibility. Just as normal "paying" jobs volunteers need to see that there are additional opportunities for learning new things from doing things which are more advanced.

Volunteers also need to be rewarded by seeing the outcome of their efforts. The Executive Director of the Riparian Station needs to provide feedback to the volunteers on how their data are being used. This is a great way to impress and excite the volunteers. They need to see the data summarized and see how their efforts have benefited the overall study. They need a sense of closure; that they have come full circle from being a novice field data gatherer to seeing their data represented in a way which will make a difference. Posting data summaries is extremely important for group moral.

It is often a good idea to recognize volunteer's efforts in some formal way with a certificate, T-shirt, patch, or recognition event. These items need to be budgeted for and are just as important as any other station activity. An example of a certificate of recognition is shown below.

Volunteer Safety

Any field work carries with it inherent dangers and all contingencies cannot be planned for. However, a well organized and consistently applied safety training program can go a long way toward minimizing injuries to volunteers. The primary personnel involved in field safety are the Volunteer Coordinator and the Team Leaders. Group safety training sessions held prior to field activities should focus on team responses to hazardous situations such as suspicious or belligerent people, swift or deep water, poisonous plants and animals. The team should have a plan for emergency situations and should know the location of the nearest medical facility. A direct line phone number to the local police department or sheriff's office is also an added safety feature.

If members of the team own cellular phones, encourage them to bring them along on field sessions. Before entering the creek, teams are encouraged to hold a "tailgate" safety meeting. This is an opportunity to review the potential hazards likely to encountered on that day's survey and to assess the team's abilities. All volunteers must wear shoes of some sort while in the field (no

barefoot wading). Let the volunteers know that it is okay to say "I can't do this." Everyone should get involved in the safety discussion. The "buddy system" is highly recommended at all times.

Train volunteers to recognize poison oak. Encourage all volunteers to shower and change immediately upon returning home to reduce the possibility of poison oak. There are various forms of poison oak preventatives and it is highly encouraged that these be made available to volunteers.

Supplying first aid kits to volunteers is advised although it carries with it certain liability risks. A first aid kit should contain only material such as bandages and antibiotic ointments. It should not contain any medications of any kind, even over the counter pain or inflammation relievers since these medications can be dangerous to some individuals. The issue of supplying first aid kits to volunteers is controversial and consulting with your groups insurance agent and attorney is highly advised before this step is taken.

It is suggested that budgeting for Red Cross or similar first aid training be made a part of any funded watershed study. Providing this training may also lower costs of liability insurance.

The safety of the volunteers is much more important than the completeness of the data. If obtaining a measurement requires putting a volunteer at risk, do not attempt it.

Liability and Insurance

Certainly a serious concern of many organizations which utilize volunteers in sometimes hazardous field situations is the issue of organizational and personal liability. In our litigious society organizations need to be concerned but not dominated by fear of lawsuits. Careful planning and attention to safety are the best ways to deal with preventing injury to volunteers and personal property. There is also some protection afforded staff and boards of directors through the formation of a nonprofit corporation.

Although sometimes expensive, liability insurance should also be considered and is usually required by local government agencies as condition of any contract to conduct surveys on their behalf. Liability insurance protects your organization from monetary awards resulting from lawsuits brought by volunteers (or their relatives) injured while conducting field surveys, landowners, or other individuals or groups who may file suit for unspecified damages.

It is suggested that each group contact an independent insurance agent and or attorney to determine what kind of insurance and how much coverage the organization might need. A complete treatment of the complex issues surrounding liability and insurance considerations is beyond the scope of this

manual but may be treated in a focused report at a later date.

If your group is sponsored by or has developed a relationship with a Resource Conservation District your volunteers may be covered by the Earth Team program. Earth Team volunteers receive Worker's Compensation insurance, medical care for on-the-job injuries) and protection from personal liability, since the volunteers are considered Federal employees for those purposes only. Earth Team membership does not address the concern of lawsuits directed at nonprofit organizations. There is no liability insurance *per se* because the Federal government is self-insured. If a volunteer or their family field suit, federal attorneys would likely work jointly with the other partners being sued.

Other normal insurance requirements pertain to normal employer requirements such as Worker's Compensation and health insurance.

An example of the kinds of insurance requirements which a group might expect from a contracting governmental agency are listed below for a contract with the City of San Jose.

> CONSULTANT (Coyote Creek Riparian Station) shall maintain limits no less than:
>
> 1. Commercial General Liability: $1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage; and
> 2. Automobile Liability: $1,000,000 combined single limit per accident for bodily injury and property damage; and
> 3. 3. Workers' Compensation and Employers Liability: Worker's Compensation limits as required by the California Labor Code and Employers Liability limits of $100,000 per accident.

Another method of reducing a groups liability exposure is through the use of liability waivers. Although having volunteers sign a waiver cannot preclude them from filing suit against the organization at a later date, it does often demonstrate that the individual was fully briefed on any potential hazards. Such a disclosure of hazards generally limits any judgment which might be levied against the organization. Again, the best advice is to consult an attorney concerning the exact language of a liability waiver and the extent to which the waiver might afford the organization any limitation in judgment. The following is an example of a liability waiver form used by the Coyote Creek Riparian Station.

WAIVER, RELEASE AND INDEMNITY AGREEMENT

_____ _____

Name **Daytime Phone**

Address **Evening Phone**

City, State, Zip **Stream(s) you are working on**

Current Involvement: Fisheries Vegetation Profiling Water Chem. Habitat Mapping Bird Census Reptile and Amphibian Census Bird Banding StreamKeepers Computers Other:

I understand that many of this project's activities take place in and around Santa Clara County creeks, areas which are not maintained for public use. Potential hazards to health and safety within creek areas include, but may not be limited to, rough terrain, steep slopes, deep water, poison oak, debris, and water pollution. I further understand that I alone shall be responsible for evaluating my own physical limitations and participating in any activities accordingly.

I hereby voluntarily release, discharge, waive and relinquish any and all actions or causes of action for personal injury, property damage, or wrongful death occurring to me arising as a result of engaging in the activities of the Community Creek Watch program, or any activities incidental thereto, wherever or however the same may occur, and for whatever period, said activities may continue, and I do, for myself, my heirs, executors, administrators, and assigns, hereby release, waive, discharge, and relinquish any action, or causes for action aforesaid which may hereafter arise for me and for my estate, and agree that under no circumstances will I or my heirs, executors, administrators, or assigns prosecute or present any claim for personal injury, property damage, or wrongful death against Community Creek Watch, Coyote Creek Riparian Station, Santa Clara County Creeks Coalition, Santa Clara Valley Water District, and their officers, staff, and Directors, or against any other group, property owner, sponsor, or other persons (hereinafter the "Volunteers") connected with the Community Creek Watch program for any of the said causes of action, whether the same shall arise by the negligence of any of the said persons, or otherwise. It is my intent by this instrument to exempt and relieve the afore described "Volunteers" connected with the Community Creek Watch project from liability for personal injury, property damage, or wrongful death caused by negligence or otherwise.

I, for myself, my heirs, executors, administrators or assigns agree that in the event any claim for personal injury, property damage or wrongful death shall be prosecuted against the "Volunteers", I shall indemnify and save harmless the same "Volunteers" from any and all claims or causes of action by whomever or wherever made or presented for personal injuries, property damage, or wrongful death.

I, the undersigned, acknowledge that I have read the foregoing Waiver, Release and Indemnity Agreement, have been advised of the potential dangers incidental to engaging

in the Community Creek Watch activities, and am fully aware of the legal consequences of signing the within instrument.

_____ _____

Date Participant's Signature

Fundraising

An organization needs money (even a volunteer, nonprofit organization) to conduct its important work, pay its staff and get its message out. In this general context, the organization must conduct fundraising activities to support its programs. Of course fundraising activities must take place in a budgetary framework where program needs are known (to the extent possible).

Fundraising can be any activity from bake sales to contracts for your organization's surveys. Each approach requires a different strategy but the organization must have a plan for how much of what kind of funding is needed. Again, a full treatment of funding strategies is beyond the scope of this manual but there are many excellent resources available to nonprofit groups to assist them in raising money. Nonprofit assistance centers, which can provide a broad array of supportive material, are located in San Jose, and San Francisco (a list of assistance centers statewide is included in Appendix B). In addition, the newly formed **Bay Area Regional Watershed Network** (a more thorough discussion of the goals of the Network are discussed under Regional Issues) will be developing funding information specifically focused on watershed groups.

Generally speaking, funds for nonprofits come from just a few sources. These include donations (from either individuals or foundations), special events, or the sale of services (contracts to organizations or agencies to provide data gathering or technical services).

Donations include any money given to an organization usually without an expressed purpose for how the funds are to be spent. Many times, however, donations are tied to the support of a particular organizational activity such as program support or for equipment. Funds from foundations typically are for support of projects or operating expenses. These are referred to as "restricted funds" because their use is stipulated by the donor. Membership dues and outright donations are referred to as "unrestricted funds" because their use has not be stipulated. A list of foundations which have a history of giving to watershed, river or stream conservation projects are listed in Appendix B.

Donations can come from local community supporters of watersheds. One Bay Area group is supported in it's entirety by the generous donations of one individual. Although this is a rare occurrence groups often neglect local philanthropists.

*Fundraising was the topic of the Fall, 1993 issue of the **Volunteer Monitor**, the national newsletter of volunteer monitoring programs. To obtain current or back issues, send a self-addressed stamped envelope, 9 X 12 or larger to:*

The Volunteer Monitor
1318 Masonic Ave.
San Francisco, CA 94177

First class postage is 78cents for one issue, $1.24 for two, and $1.47 for three. For $3.00 you can get up to 15 copies.

Special events such as creek or watershed festivals are difficult and time-consuming to complete. These activities generally do not generate enough money to make them financially exciting but they do broaden your organization's community exposure. And, as with a watershed, the activity is well suited to the overall goals of the organization, may in the long-run result indirectly in new sources of funding.

The last category of funding is contract services. This source of funding is linked to the relationship which the organization develops with potential data users. Governmental funding for watershed related studies and allied activities has been increasing lately as a result of new state and local efforts to control sources of runoff pollution. Data necessary to locate and control these source of pollution are dependent upon better information about watershed condition. Because of the interest in local watershed condition, a riparian station should find local funding sources for data gathering from local agencies.

Field Work

Once the organizational details are well in hand (although it is a well recognized truth that the day-to-day activities necessary to support a nonprofit group are never ending and ever increasing) it's time to begin understanding as much about your unique watershed as you can. Much of this initial work will in fact not be done in the field but in libraries and public offices.

Watershed management and planning depends upon as complete a picture of the present and past as can be derived from existing or field gathered data in order to yield an understanding of ecological change.

Know Your Watershed

Quite simply, your group should ultimately "know" your watershed better than anyone else. Begin simply by assembling, cataloguing and understanding data that has already been generated by other organizations or agencies. Begin to identify data gaps - areas of interest to your community but for which there is

little current knowledge. This will help to build a picture of the present.

Begin also to piece together a picture of how your watershed has changed over the last 200 years. This task at first may appear to be too daunting to undertake but several ongoing projects such as the **Historical Ecology Project** at the San Francisco Estuary Institute have shown that a surprising amount of detailed information is available in archives which will help you to build "a picture of the past".

Inventory and Monitoring Goals

The goals of your assessment and monitoring program need to be carefully considered. The following table outlines the process of developing focused monitoring programs from a series of watershed issues. Although hypothetical, the development process for linking issues to potentially measurable field parameters should be transferable from watershed to watershed.

Goal setting is a process that should include the community and data users. Involving them at this stage will improve the success, that is the usefulness, of your program. After you have identified some initial public concerns, assessment issues, management goals and monitoring objectives, meet with potential data users to determine if they share similar concerns, goals and objectives. Potential data users include:

- U.S. EPA,
- State Water Resources Control Board and Regional Water Quality Control Board,
- California Department of Fish and Game,
- Resource Conservation District,
- Parks districts,
- Stormwater management agencies (city or county),
- Water districts,
- Flood control districts,
- Wastewater treatment plants,
- Local city or county planning offices, and
- Groups involved in watershed planning or restoration projects.

Don't overlook local industrial users in your watershed. They may have monitoring needs that dovetail with your own. For example, in Plumas County, PG&E was concerned about high sediment loads in the north Fork of the Feather River drainage because much of that sediment was ending up in their reservoirs. This led PG&E to technically and financially support monitoring and restoration efforts.

Monitoring Design

After detemining why you are monitoring, the monitoring program must be designed to meet this goal. Without careful attention to designing a monitoring program, you may have alot of data that are not useful.

The design should answer questions on:

- Why monitor (the monitoring goal),
- What to inventory or monitor (e.g. temperature, concentration of dissolved oxygen, abundance of birds),
- Where to monitor (which waterbody, what type of habitat within that waterbody),
- When to monitor (time of day, time of year) and how frequently,
- How to monitor (monitoring procedure).

If you follow a monitoring protocol, step-by-step instructions describe how to monitor. The monitoring protocol may also specify the appropriate time and place that monitoring occurs. You will need to verify that these aspects of monitoring meet your needs. Be sure your data users have reviewed and are satisfied with your monitoring design.

You will also need to ask yourself whether the data will be good enough to meet your monitoring goal. For instance, you may want to know whether the dissolved oxygen concentrations in the creek are sufficient to support fish. To achieve your goal you must design your program to monitor in the early morning hours when dissolved oxygen levels are lowest.

WATERSHED CHARACTERIZATION AND MONITORING DESIGN FRAMEWORK

PUBLIC CONCERNS	ASSESSMENT ISSUES	MANAGEMENT GOALS	MONITORING OBJECTIVES	POTENTIAL MEASUREMENTS
Are stream resources adequately protected?	- reduced abundance of key fish and amphibian species - decrease in riparian habitat acreage and quality	- restore anadromous fisheries - eliminate exotic species - protect species of concern - protect riparian habitats	- increase steelhead spawning habitat by 50% by the year 2000 in creek X - remove priority exotic species by 70% by the year 2000 along riparian corridor of creek X - Monitor tree cover	- acreage of gravel beds in creek X - dissolved oxygen levels 2x/day - temperature 2x/day - recovery of native plant species - percent tree cover at creek X
Is water quality good?	- contaminant loads - changes is aquatic invertebrate species composition and diversity - number of toxicity events - improvement in water quality	- prevent and reduce pollutant inputs into waterways - restore and protect biological resources - eliminate toxic runoff events	- reduce copper loads in creek X by 20% by year 2000 - reduce occurrences of toxicity in selected indicator spp. by 50% by year 2000 - increase oil recycling by 200% by year 2000	- Cu concentrations at selected sites - flow - toxicity tests at predetermined intervals, based on identified pollutant use - invertebrate index for creek X - mass balance of oil in watershed X
Are recreational opportunities available?	- decreased access - visual impairment - lack of safety - overfishing	- improve public access - increase acreage of public lands - enhance fishing opportunities	- increase riparian trails and interpretive centers by 200% by year 2000 - monitor recreational use of trails and interpretive centers - catch per unit effort	- miles of riparian trails - visitor hours per year - user surveys - angler surveys
Are certain fish and wildlife species present?	- historical records - habitat loss - water quality impairment	- restore conditions suitable for critical species - protect critical habitat	- monitor habitat conditions - monitor reproductive success	- total suspended sediment load - erosion and sedimentation - vegetative cover - dissolved oxygen

Watershed Assessment Protocols

In order to assist groups in compiling this picture of the present and past, the San Francisco Estuary Institute and Coyote Creek Riparian Station, with funding from the State Water Resources Control Board, Region IX of the U.S. EPA and the Santa Clara Valley Water District have developed protocols for volunteer monitors. These protocols are organized in a tiered fashion with more general and less technical protocols in "Tier 1" with highly focused, habitat specific technically demanding protocols in "Tier 3". The following table (current as of 05/10/99) describes these protocols along with their current state of field testing and review.

Watershed Inventory Protocol Development

Protocol Level	Title	Author(s)	Status	Review Status	Database Develop.	QA/QC Standards
One						
	Watershed Map	TBD	Not Started	NA	NA	NA
	Watershed Background	TBD	Draft	NA	NA	NA
	Stream Survey	Mill Valley Watershed; FS&W	Field Testing	Needed	Needed	Needed
	EPA Streamwalk	EPA	Complete	Complete	Needed	Yes
Two						
	Thalweg Profile	SFEI	Field Testing	Complete	Complete	Needed
	Bank Characteristics	SFEI	Field Testing	In Prog.	In Prog.	Needed
	Land Use Zonation	SFEI	Not Started	NA	NA	NA
	Rainfall	CCRS, Napa RCD	Complete	Complete	Complete	Complete
	Basic Water Quality	CCRS	Complete	Complete	Complete	Complete
	Beginning GIS	SFEI; GreenInfo Network	Not Started	NA	NA	NA
Three						
	Channel Crossections	Napa RCD, CCRS	Complete	Complete	Complete	Needed
	Stream Flow	Napa RCD, CCRS, SFEI	Complete	Complete	Complete	Needed
	Habitat Characterization	CDFG	Not Started	NA	NA	NA
	Birds	CCRS	Complete	Complete	Complete	Complete
	Vegetation	CCRS	Complete	Complete	Complete	Complete
	Reptiles & Amphib.	CCRS	Complete	Complete	Complete	Complete

Riparian Habitat	CCRS	Complete	Complete	Complete	Complete
Fisheries	CCRS	Complete	Partial	Complete	Complete
Invertebrates	CCRS	Draft	In Prog.	In Prog.	In Prog.
Land Use Inventory	TBD	Not Started	NA	NA	NA
Full GIS	TBD	Not Started	NA	NA	NA

Those protocols which are complete and have been field tested are accessible for downloading from the State Water Resources Control Board, Volunteer Monitoring Program by the World Wide Web page (URL = **http://www.swrcb.ca.gov/nps/html/volunteer.html**). As additional protocols are tested regionally, they will be placed on-line as well. If you or your organization does not have World Wide Web capabilities, please write the Estuary Institute and copies of individual protocols or protocol packets can be mailed to you at cost.

Quality Assurance/Quality Control (QA/QC)

Each program should identify its data quality goals in a document which can be supplied to and potential data users. A Quality Assurance Project Plan (QAPP) is a plan for gathering data of a quality that will allow you to achieve your monitoring goal. The plan details: the management of your monitoring program,

- the sampling procedures,
- the analytical methods (e.g. the Winkler titration for dissolved oxygen determination,
- the objectives for the quality of the data,
- the quality control procedures (e.g. replicate sampling, instrument calibration)
- data management,
- assessment and oversight, and
- data validation and usability.

Developing a QAPP is hard work and will likely require assistance from technical advisors. However, there is a benefit to this hard work. The process of developing a QAPP sharpens your understanding of why you are monitoring and how you will monitor. The planning process requires you to set goals for how good your data are (e.g. the accuracy, the precision, the representativeness). This process greatly improves your chances of producing useful, credible data.

If your monitoring is financially supported by funds from the U.S. EPA, Regional Water Quality Control Board or State Water Resources Control Board, you will be required to develop a QAPP. The U.S. EPA is currently developing a guidance document that will assist groups involved in watershed

inventory and monitoring projects in developing a quality assurance plan. This draft final document is included in Appendix A. When it is in final form it will be placed on SFEI's World Wide Web page for downloading. Again, if you are receiving federal funds for your inventory or monitoring project you will be required to have a plan approved prior to sampling, so plan your schedule accordingly.

It may be beneficial to contact a riparian station or volunteer monitoring group that has prepared their own QAPP. While you may not be able to use their QAPP directly, reviewing it may give you a boost in initiating this task.

Once you have formulated a plan for collecting credible data, you must implement the plan! This next phase starts with clear communication and training between the technical staff and volunteer team leaders. Team leaders must then clearly communicate data quality issues to the field survey team. A final phase in the process of insuring quality data involves the team leader's assessment of field data completeness and accuracy and the timely transmittal of data to the Volunteer Coordinator. Questions related to field protocols should be answered in a timely fashion by the technical and support staff to ensure that subsequent data is gathered in a consistent manner.

Perhaps the most effective way to ensure quality data is to involve professionals in the field. Recruiting biologists, ecologists, botanists and other specialists to either accompany teams into the field or conduct replicate testing is highly recommended. It is important, however, that this process be explained thoroughly to the volunteers so that it does not appear that the professionals are "looking over their shoulder" to catch them making errors. Quality control issues should be explained to volunteers and team leaders in a context of making their data more useable. If quality control measures are undertaken, agencies are much more likely to accept the data generated by volunteer programs.

Another method of making quality control more palatable to volunteers is to use the opportunity for team building. The Coyote Creek Riparian Station holds periodic "Calibration Celebrations" where teams come together to calibrate field equipment and to jointly discuss and resolve any lingering data or protocol issues. These sessions have been quite successful not only in dealing with quality control issues but also to help in the team building process.

Data Reporting

In order to complete the loop between the data collection process and the use of the data in a watershed management process, the data need to be presented to respective audiences in a meaningful fashion. Often, data need to be summarized and interpreted. Certainly, the easiest way to perform data

summaries is to use computer software and every riparian station should have access to a minimum level of computer hardware and software. A focused issue paper dealing with computing issues will be available in the near future.

Bear in mind, however, that under most circumstances, baseline data can only be reported and summarized since in many cases there will be little information with which the data can be compared.

Each protocol includes data summary suggestions and reporting methods but some general suggestions for tailoring presentations are discussed below.

Who's Your Audience?

A good presentation of data should focus on the needs of the audience. Obviously, if you are addressing a fishing group, data specific to the needs of cold water fish would be the primary data delivered. If the group spans a variety of interests then an informative and balanced presentation of the data with only a general focus would be the most appropriate approach.

If you anticipate a wide audience for your data try to develop data summarization and reporting methods to deal with the most rigorous users without going beyond technical capabilities of the organization. Utilize technical resources available locally or regionally to determine appropriate analysis techniques.

Local Data Users

As mentioned previously, your organization should determine before going into the field any local data gaps and develop field survey techniques which will address those gaps. If that initial step is undertaken successfully, then identifying is most likely to use your data at a local level will already have been accomplished. Data presentations and reports need only address ways to effectively communicate the results of the surveys.

It is important for partnership building that local data users become actively involved not only in determining the final presentation of data but also in reviewing field and data analysis process. Meet with these partners often during all phases of the data gathering, review and summarization process.

Data Summaries

In general it is important not to overwhelm your audience with raw data unless that's what they really want. Develop a good graphical presentation of the data and try not to dwell to long on any particular data summary, again, unless that is the primary focus of your audience.

Resist the natural tendency to try to say more with the data than the data will

allow. Remember, the primary focus of your riparian station activities should be the gathering and presentation of baseline data describing the current environmental conditions of the target watershed.

Long-term Issues

The creation of a network of riparian stations within the San Francisco Bay area to further watershed understanding, while noteworthy, is only an intitial step in actualizing watershed management. A number of other issues will need to be dealt with over the long-term in order for this happen.

Organizational Support

There are many groups within the Bay Area whose programs involve some related watershed support activity. At this point there is no effective way for these various groups to communicate or exchange information. In order to facilitate such exchanges, a broader, more encompassing network is being established. Called the **Bay Area Regional Watershed Network**, this affiliation of restoration, advocacy and data gathering organizations seeks to promote the overall goals of watershed stewardship by providing linkages between groups with differing skills and abilities. This group will also assist in developing a regional funding base for a variety of watershed activities and provide logistical and technological support for its members. To date, this group is in its formative stages and its precise structure is being determined. If more information is needed about the network please contact:

Elizabeth Sawyer, Development Coordinator
Bay Area Watershed Network c/o San Francisco Estuary Institute
180 Richmond Field Station
1325 South 46th St.
Richmond, CA 95084
510-231-9540

A network of volunteer monitoring groups has been established in the Los Angeles area. A similar regional network for watershed education and monitoring is proposed for the Sacramento River watershed. For more information on these networks contact:

Gwen Starrett
Division of Water Quality
State Water Resources Control Board
P.O. Box 944213
Sacramento, CA 94244-2130
916-657-0518

Data Gathering in Support of Long-term Trend Monitoring

Gathering baseline data is just the first step in long process of watershed healing. Riparian stations need to track the progress of implementation strategies which address watershed issues. Specific, goal-oriented monitoring programs need to be implemented and supported by public resources agencies in order for this important step in watershed management to become a reality.

It is also appropriate for riparian stations to take an active role in developing criteria measuring success based upon resource issues and common community goals for watershed sustainability. A common foundation of systematically gathered field measurements of environmental health indicators will be one major tactic for determining success and riparian stations should be in a position to assist resource managers in this measurement process.

Regional and State-wide Issues

Whenever possible, strive for consistency in data collection with other volunteer monitoring groups in you area. This will allow you to compare biological resources and water quality in the region. Regional consistency can be ensured by:

- following monitoring protocols established for your region, and,
- communicating and resolving differences between your program and other programs.

The networks mentioned above are appropriate forums for improving regional consistency.

The Regional Water Quality Control Boards assess the status of waters in their regions. Biennial reports are provided to the U.S. EPA for their national report on the status of the nation's waters. Contact your Regional Water Board's planning staff (see Appendix ?) to determine what type and quality of data will be helpful to them in their assessment. Involving them in your efforts early on can ensure efficient data transfer. For example, the Los Angeles Volunteer Monitoring Steering Committee, with assistance from Regional Water Board staff, have developed an observation sheet to be used by professional staff and volunteers when evaluating odors, color, trash and foam. This observation sheet's format is linked to the Regional Water Board's database so that volunteer monitoring information can readily be complied with other data to assess the Los Angeles region's waters.

State Water Resources Control Board staff have supported local and regional volunteer monitoring efforts. The role of the staff has focused on providing:

- guidance on volunteer monitoring methods,

- guidance on planning and implementing volunteer monitoring programs,
- assistance in incorporating volunteer monitoring into watershed management,
- technical assistance in training volunteers, quality assurance, and data interpretation,
- an information clearinghouse,
- grant management through Clean Water Act 205j and 319h projects.

A consistent statewide network of support for volunteer monitoring programs is emerging. It is hoped that this approach will improve data usefulness, increase financial resources, and strengthen partnerships.

Consistency in macroinvertebrate analysis is important statewide. The California Department of Fish and Game (CDFG) is leading a statewide effort to assess the biological integrity of the state's waters using aquatic macroinvertebrates. For a meaningful assessment, the CDFG's macroinvertebrate monitoring protocol for volunteers should be strictly adhered to. For more information on this effort, contact Jim Harrington of CDFG at (916) 356-0856.

Where Do We Go From Here?

The Bay Area does not operate in a vacuum but depends upon a measure of consistency in both financial and technical support from State and federal resource agencies. A number of efforts are underway to solidify support for watershed programs at these governmental levels. Increasing support for watershed management practices as tools in reducing nonpoint sources of pollution will no doubt help foster sustained support for watershed programs.

It is, however, incumbent upon all watershed groups to continuously improve techniques, expand support bases, and develop new and more effective partnerships.

Appendices

Appendix A -EPA Guidelines for QAjPP

Appendix B - "Funding for Creeks"

LIST OF FOUNDATION PROSPECTS FOR WATERSHED GROUPS - made available through the Bay Area Regional Watershed Network. Please note - this list is two years old; we are waiting for the new version of two directories to become available so that we can update it. If you'd like to receive an updated copy when we have it ready, please contact the Regional Watershed Network at the address listed in the section of this report entitled *Organizational Support.*

Foundation Name & Contact	Address and Giving Levels	Areas of Giving
C. S. Fund Martin Teitel, Exec. Dir. (707) 874-2942 f(707)874-173	4469 Bohemian Highway Freestone, CA 95472 4,000-50,000 (20,000)	biodiversity, source reduction
Chevron Companies David McMurray, Contributions (415) 894-6083 f(415) 894-5447	P.O. Box 7753 San Francisco, CA 94120-7753 500-85,000 (4-5,000)	wildlife habitat protection/restoration, environmental education (with "balanced view")
Columbia Foundation Susan C. Silk, Exec. Dir. (415) 986-5179	One Lombard Street, #305 San Francisco, CA 94111 1,000-250,000 8/1, 2/1	general environmental, water quality, Bay
Compton Foundation Edith Eddy, Admin. Dir. (415) 328-0101 f(415) 328-1071	525 Middlefield Rd. Suite 115 Menlo Park, CA 94025 100-50,000 (11,000) 3/15, 10/15	land, river & watershed protection, special attention to habitat & ecosystem protection
Common Counsel (Acorn & Abelard Foundations) (510) 644-1904	2530 San Pablo Ave. Suite B Berkeley, CA 94702-1904 3,000-9,000	grass roots environmental
S. H. Cowell Foundation Stephanie Wolf, Exec. Dir. (415) 397-0285	260 California St. Suite 501 San Francisco, CA 94111	expanding environmental giving - may not apply to CCRS
Mary A. Crocker Trust Barbara Jernigan, Administrator (415) 982-0138	233 Post Street, 2nd Floor, San Francisco, CA 94108 2,500-20,000 (15,000) call	Water quality
Davis Conservation Foundation Alden Sawyer Jr, Ex. Dir. (207) 781-5504	4 Fundy Road Falmouth, ME. 04105 4/15, 10/15	wildlife, volunteer activity and research projects
GAP Foundation	One Harrison Street	SF Bay/Delta Water

Molly White (415) 291-2757 f(415) 495-2922	San Francisco, CA $5,000-10,000 (8,000)	
Gellert Foundation Fred Gellert Jr., Pres (415) 433-6174 f(415) 433-7952	One Embarcadero Center #2480, San Francisco, CA 94111 1,000-20,000 (5,000)	making environmental quality a national priority
Wallace and Alexander Gerbode Foundation Thomas C. Layton, Ex Dir (415) 391-0911	470 Columbus Ave., #209 San Francisco, CA 94133 5,000-20,000 (10,000)	open space, coastal development, ethnic diversity
Richard & Rhoda Goldman Fund Sarah Gardner (415) 788-1090	One Lombard Street #303 San Francisco, CA 94111	rivers, bay & open space
Heller Charitable and Educational Fund Ruth B. Heller, Corresponding Secretary (no phone)	P.O. Box 336 Kentfeild, CA 94914 2,500-10,000	preservation of open space
Clarence E. Heller Charitable Foundation Bruce A. Hirsch, Exec. Dir. (415) 989-9839 f(415) 989-1909	One Lombard Street Suite 305, San Francisco, CA 94111-1130 1,000-100,000 11/15, ***	programs that demonstrate how natural resources can be maintained on a sustainable and an ecologically sound basis, consistent with amenable standards of living
William and Flora Hewlett Foundation Steve Toben, Program Officer (415) 329-1070 f(415) 329-9342	525 Middlefield Road, Suite 200, Menlo Park, CA 94025 25,000-250,000 (125,000)	policy, decisionmaking general operation funds
Ittleson Foundation David M. Nee, Ex Dir (212) 838-5010 f(212)751-2485	645 Madison Ave. 16th Fl New York, NY 10022 5,000-70,000 (24,000)	seed money, pilot projects or start-up of truly innovative services, when plan for national dissemination is credible, applied research which informs public policy
W.M. Keck Foundation ???? (213) 680-3833	555 South Flower St. Suite 3230, Los Angeles, CA 90071 ????	only apply for joint project with university
Lef Foundation Marina Drummer, Ex. Dir. (707) 963-9591	1095 Lodi Lane St. Helena, CA 94574 500-5,000	small program in env., land trusts & urban land use
Marin Community Foundation Salyanne Wilson, program officer env. (415)461-3333 f(415)461-3386	17 E Sir Francis Drake Blvd. Suite 200 Larkspur, Ca 94939 7,000-250,000	open space, conservation; apply with SFEI for activities in Marin

Martin Foundation Geraldine F. Martin, Pres (219) 295-3343 f(219) 295-3488	500 Simpson Ave, Box 1167 Elkhart, IN 46515 1,000-20,000 (10,000)	conservation of wildlife, protection of endangered species
Giles W. and Elise G. Mead Foundation Suzanne Easton, Exec. Administrator (707)257-6737	P.O. Box 2218 Napa, CA 94558 **** 11,3,7	forestry & fisheries, sustainable use
National Fish & Wildlife Foundation Dr. Peter Stangal Ms. Alison Dalsimer, Neotropical Migratory Bird Conservation (202)857-0166 f(202)857-0162	1120 Connecticut Ave. Suite 900 Washington, D.C. 20036 12/15, 4/15, 8/15	also wetlands, conservation education, fisheries, wildlife and habitat
Jesse Smith Noyes Foundation Stephen Viederman, Pres (212) 684-6577 f(212) 689-6549	16 East 34th Street New York, N.Y. 10016 1,000-40,000 (25,000)	water & toxics
Patagonia Linda Ellis (805) 643-8616 f(805) 653-6355	259 West Santa Clara Ventura, CA 93001 1,000-3,000 1st time grants	habitat protection, land acquisition, grassroots activists with agendas on: biodiversity, water quality, deforestation
Peninsula Community Foundation Sterling Speirn, Acting Ex. Dir. (415)358-9369	1700 S. El Camino Real #300 San Mateo, CA 94402 ????	locally initiated & serving local populations
Pew Charitable Trusts Joshua Reichert, Director, Env Division (215) 575-4741 f(215) 575-4939	One Commerce Square 2005 Market Street #1700 Philadelphia, PA 19102 15,000-450,000 (153,000)	loss of biodiversity, wetlands
R.E.I., Inc. Judy Patrick, Public Affairs Secretary (206) 395-5956 f(206) 395-4744	P.O. Box 1938 Sumner, WA 98390 2,000-5,000	direct citizen action to protect public land & water, conservation related to recreation, trails (riparian corridor preservation seminar?)
Roberts Foundation Jed Emerson, Program Director (415) 771-4300 f(415) 771-4064	873 Sutter Street San Francisco, CA 94109 5,000-100,000	habitat restoration
Rockefeller Family Fund Donald K. Ross, Dir	1290 Avenue of the Americas #3450, New York, N.Y. 10104	conservation, citizen education & participation,

(212) 373-4252 f(212) 315-0996	15,000-35,000 (23,000)	institutional responsiveness
San Francisco Foundation Jane Rogers (415)495-3100 (510)436-3100 f((415)442-0495	685 Market St. Suite 910 San Francisco, Ca 94105	bay/delta ecosystem - if programs focus on SF or Alameda County
Seven Springs Foundation Susan Stanaway (408)252-2728	P.O. Box 697 Cupertino, CA 95105	conservation and resource management, especially new projects contact before sending letter of intent
Skaggs Foundation Philip M. Jelley David Knight (510)451-3300 f(510)451-1527	1221 Broadway, 21st Floor Oakland, CA 94612-1837 5,000-60,000	protection of threatened areas/species, education programs
Surdna Foundation Edward Skloot, Exec Dir (212) 730-0030 f(212) 391-4348	1155 Avenue of the Americas 16th Floor, Mew York, N.Y. 10036	biological and cultural diversity
Threshold Foundation Drummond Pike, Foundation Mgr (415) 771-4308 f(415) 771-0535	1388 Sutter Street #1010 San Francisco, CA 94109 1,00-50,000 (12,678)	deepening understanding of inter-relatedness; pollution of air, water, oceans, biodiversity
Tides Foundation Drummond Pike, Pres (415) 771-4308 f(415) 771-0535	1388 Sutter Street, #1010 San Francisco, CA 94109 500-30,000 (5-10,000)	watershed issues, grass roots efforts
Town Creek Foundation Edmund A. Stanley, Jr. (301) 226-5315	P.O. Box 159 Oxford, MD 21654	action and advocacy" - monitoring of federal, state, and local officials and bodies responsible for the enforcement of legislation enacted for the protection of the environment...
Dean Witter Foundation	57 Post Street Suite 510 San Francisco, CA 94104	Dean Witter was a sport fisherman; water quality, Bay-related projects are considered, some funding for endangered species; a 10,000 grant in 1992 to help build membership suppport for env. action committee of West Marin

WMI Environmental Grants Program Director, Env. Affairs (202) 467-4480 f(202) 659-8752	1155 Connecticut Ave. NW #800, Washington, D.C. 20036	conservation of biodiversity
OTHER RESOURCES:		
Americorps Linda Forsyth (Cal Dept of Ed) (916) 657-3115	Corporation for National and Community Service 1100 Vermont Ave, NW Washington, DC 20525	in the environemntal issues category, "conserving, restoring, and sustaining natural habitats" - this grant would take a lot of work but is worth exploring.
Department of Water Resources State of California Sarah Denzler (916)653-5791	1416 9th St., P.O. Box 942836 Sacramento, CA 94236-0001 Jan 31, '95	
Earth Share (415) 882-9330 f(415) 882-4571	116 New Montgomery #800 San Francisco, CA 94105	California based environmental activities; must pay joining fee - need more details as to what "25% net allocable income" is.

Appendix C A Monitor's Library

The Monitor's Handbook. Gayla Campbell and Steve Wildberger. Provides the background and specific elements necessary to successfully monitor the quality of our natural waters. The manual is available from LaMotte Company, PO Box 329, Chestertown, Maryland, 21620, telephone: (800) 344-3100.

Riparian Station How-to Manual. Mike Rigney (San Francisco Estuary Institute) and Chris Fischer (Coyote Creek Riparian Station). The basic information needed to start a riparian station in a California watershed. The manual is available from the State Water Resources Control Board, 901 P Street, Sacramento, CA 95814, telephone: (916) 657-0518.

Voulenteer Monitoring Protocols: A reference guide for monitoring California's rivers, streams and watersheds. Coyote Creek Riparian Station and San Francisco Estuary Institute. The manual contains specific monitoring protocols for use in creeks and rivers that flow to the San Francisco Estuary. These protocols include:

- an avian resources inventory,
- a fisheries habitat inventory,
- a reptile and amphibian resources inventory,
- a riparian habitat inventory,
- vegetation inventory,
- water chemistry.

Numerous protocols are in development. They include protocols on thalweg profile, bank condition, channel cross-sections, and stream flow. Hard copies of the completed protocols are available by writing the State Water Resources Control Board, 901 P Street, Sacramento, CA 95814. Some of the completed protocols are available on the State Water Resources Control Board, Volunteer Monitoring Program World Wide Web page (**URL = http://www.swrcb.ca.gov/nps/html/volunteer.html**).

The Volunteer Monitor: The National Newsletter of Volunteer Water Quality Monitoring. Eleanor Ely, editor. Published twice yearly and available free, the newsletter facilitates the exchange of ideas, monitoring methods, and practical advice among volunteer environmental monitoring groups across the nation. To be added to the mailing list, write to The Volunteer Monitor, 1318 Masonic Ave., San Francisco, CA 94117, telephone (415) 255-8049.

Volunteer Estuary Monitoring: A Methods Manual. U.S. Environmental Protection Agency. EPA 842-B-93-004. Contains protocols for monitoring dissolved oxygen, nutrients, algae, aquatic vegetation, bacteria, debris and shellfish. Discusses training volunteers and presenting results. For a copy,

contact Alice Mayio, U.S. EPA (4503F), 401 M St, SW, Washington, DC 20460, telephone (202) 260-7018 or write U.S. EPA, office of Wetlands, Ocean and Watersheds, (4504F), 401 M St. SW, Washington, DC 20460.

Volunteer Lake Monitoring: A Methods Manual. U.S. Environmental Protection Agency. EPA 440/4-91-002. Contains protocols for monitoring algae, aquatic plants, dissolved oxygen, and sediment. Discusses lake ecology, training volunteers and presenting results. For a copy, contact Alice Mayio, U.S. EPA (4503F), 401 M St, SW, Washington, DC 20460, telephone (202) 260-7018.

Volunteer Stream Monitoring: A Methods Manual. U.S. Environmental Protection Agency. EPA 841 D 95-001. April 1995. The field test draft is available. It discusses monitoring design, watershed surveys, macroinvertebrate and habitat assessment, water quality monitoring, and data management and presentation. For a copy, contact Alice Mayio, U.S. EPA (4503F), 401 M St, SW, Washington, DC 20460, telephone (202) 260-7018.

Volunteer Water Monitoring: A Guide for State Managers. U.S. Environmental Protection Agency. EPA 440/4-90-010. This guidance document is useful to those interested in starting their own program. It discusses planning and implementing a program, providing credible data, costs and funding. For a copy, contact Alice Mayio, U.S. EPA (4503F), 401 M St, SW, Washington, DC 20460, telephone (202) 260-7018.