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COVER SHEET (PAGE 1 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title: Water Challenge 2010

Applicant Name: San Francisco Bay Model Visitor: US Army Corps of Engineers

Mailing Address: 2100 Bridgeway Sausalito, CA 94965

Telephone: 415-332-3871

Fax: 415-332- 0761

Amount of funding requested: \$ 115,000 for 1 years

Indicate the Topic for which you are applying (check only one box). Note that this is an important decision: see page ___ of the Proposal Solicitation Package for more information.

- Fish Passage Assessment
- Floodplain and Habitat Restoration
- Fish Harvest
- Watershed Planning/Implementation
- Fish Screen Evaluations - Alternatives and Biological Priorities
- Fish Passage Improvements
- Gravel Restoration
- Species Life History Studies
- Education

Indicate the geographic area of your proposal (check only one box):

- Sacramento River Mainstem
- Delta
- Suisun Marsh and Bay
- San Joaquin River Mainstem
- Landscape (entire Bay-Delta watershed)
- Sacramento Tributary: _____
- East Side Delta Tributary: _____
- San Joaquin Tributary: _____
- Other: _____
- North Bay: _____

Indicate the primary species which the proposal addresses (check no more than two boxes):

- San Joaquin and East-side Delta tributaries fall-run chinook salmon
- Winter-run chinook salmon
- Late-fall run chinook salmon
- Delta smelt
- Splittail
- Green sturgeon
- Migratory birds
- Spring-run chinook salmon
- Fall-run chinook salmon
- Longfin smelt
- Steelhead trout
- Striped bass



II. Executive Summary

- a. Project Title: "Water Challenge 2010":
An interactive, hands-on environmental education exhibit

Applicant Name: San Francisco Bay Model Visitor Center,
US Army Corps of Engineers

b. Project Description and Primary Biological/Ecological Objectives:

This proposal seeks funding for a traveling environmental education exhibit titled "Water Challenge 2010". This interactive, hands-on exhibit motivates visitors to learn more about the complex issues of the Bay-Delta by providing them with an exciting experience of personally managing Sacramento-San Joaquin Delta water for ecosystem restoration and other beneficial uses. Visitors are challenged to try their hand at apportioning water flowing from a huge tank (representing the total of available Delta water) into a series of smaller tanks (representing the Bay-Delta water needs of fish and wildlife, cities and industry, and agricultural users). As they make their water allocation decisions, visitors receive immediate feedback on the consequences of their actions via video monitors built into the exhibit.

The primary biological and ecological objectives of the "Water Challenge 2010" exhibit include increasing public awareness, knowledge and appreciation of Bay-Delta natural resources. By demonstrating the effects of Delta water management decisions on fish and wildlife (especially listed species such as winter run Chinook salmon and delta smelt) as well as on human users, the exhibit will help foster attitudes supportive of both habitat restoration activities and the careful, well-planned use of Bay-Delta natural resources.

c. Approach/Tasks/Schedule

The proposed exhibit will be developed and implemented in a series of phased activities, some of which will overlap:

Phase I:	Exhibit Design & Engineering	Oct. 1998 thru Jan. 1999
Phase II:	Audio-Visual Software Development	Dec. 1998 thru Mar. 1999
Phase III:	Exhibit Fabrication	Feb. 1999 thru Apr. 1999
Phase IV:	Installation	May 1999
Phase V:	Exhibit Evaluation & Monitoring	May. 1999 thru Dec. 1999
Phase VI:	Software & Engineering Refinements	Jun. 1999 thru Aug. 1999
Phase VII:	Fabrication of Duplicate Exhibits	Sep. 1999 thru Dec. 1999
Phase VII:	Original Exhibit On-Tour	Jan. 2000 thru Jan. 2010

d. Justification for Project and Funding by CALFED

The proposed exhibit facilitates public understanding of the complex issues underlying the CALFED Bay-Delta Program's mission to develop a long-term comprehensive plan that will restore the ecological health and improve water management for beneficial uses of the Bay-Delta system. The exhibit will appeal to all age groups, in rural as well as urban populations, helping to develop an informed citizenry that both appreciates Bay-Delta natural resources and supports their conservation and wise use.

E. Budget Costs and Third Party Impacts

CALFED is being asked to fund the design, engineering, AV software, fabrication and first installation of the exhibit prototype. (Project Phases I through IV --Total requested: \$115,000.). The US Army Corps of Engineers has committed to funding the evaluation & monitoring and the engineering & software refinement phases of the project. Other agencies and Organizations (See Section III, Item E. that follows) have indicated interest in funding and/or installing duplicate versions of the exhibit. (Duplicate exhibits will cost approximately \$65,000 each.)

There are no known adverse third-party impacts from the activities for which we are requesting funding.

F. Applicant Qualifications

The San Francisco Bay Model Visitor Center and the US Army Corps of Engineers have extensive experience with the design, implementation and maintenance of exhibit-based environmental education projects.

G. Monitoring and Data Evaluation

Although direct ecological and biological monitoring is not applicable in this case, the project does include mechanisms for measuring results. These exhibit performance and visitor monitoring components include quantitative studies (e.g.--How many people begin and finish the exhibit activity? What proportion of visitors to a venue choose to interact with the exhibit?) and qualitative evaluation (e.g.--Selected visitors will be pre-interviewed and post-interviewed to assess how their knowledge and attitudes about Bay-Delta natural resources and the CALFED mission have been affected by their interaction with the exhibit.)

H. Local Support/Coordination with other Programs/Compatibility with CALFED objectives

The content and video feedback messages of the exhibit will be developed with input and advice from leading representatives of the three main interest groups (agricultural, urban and environmental) who have a stake in the management of Bay-Delta natural resources. A number of agencies and Organizations concerned with environmental and water issues in the Bay-Delta have expressed support for the project, as well as interest in acquiring and installing duplicate versions of the exhibit.

The exhibit is designed to add an exciting, hands-on component to existing educational programs about natural resource conservation, in general, and the problems in the San Francisco Bay/Sacramento-San Joaquin River Delta in particular. In its initial installation at the Bay Model Visitor Center, the exhibit will be coordinated with educational programs and displays on the Bay-Delta ecosystem, the CALFED program, and human impacts on the Sacramento-San Joaquin River Delta ecosystem. When the exhibit travels (California State Fair, other visitor centers, etc.) and when duplicates of the exhibit are installed at other venues, implementation will be closely coordinated with local groups and their existing environmental education programs.

With its ability to help develop an informed citizenry with positive attitudes about Bay-Delta natural resource conservation, the exhibit directly or indirectly supports all of the CALFED ERPP objectives.

III. Title Page

a. Title of Project:

"Water Challenge 2010":
An interactive, hands-on environmental education exhibit

b. Applicant/principal investigator

Nancy Rogers, Park Manager
San Francisco Bay Model Visitor Center
US Army Corps of Engineers
2100 Bridgeway Blvd.
Sausalito, CA 94965
phone: 415/ 332-3871
fax: 415/ 332-0761
e-mail: nrogers@spdmail01.spd.usacc.army.mil

c. Type of Organization and Tax Status: Federal Government/Exempt

d. Tax Identification Number and/or Contractor license: Not Applicable

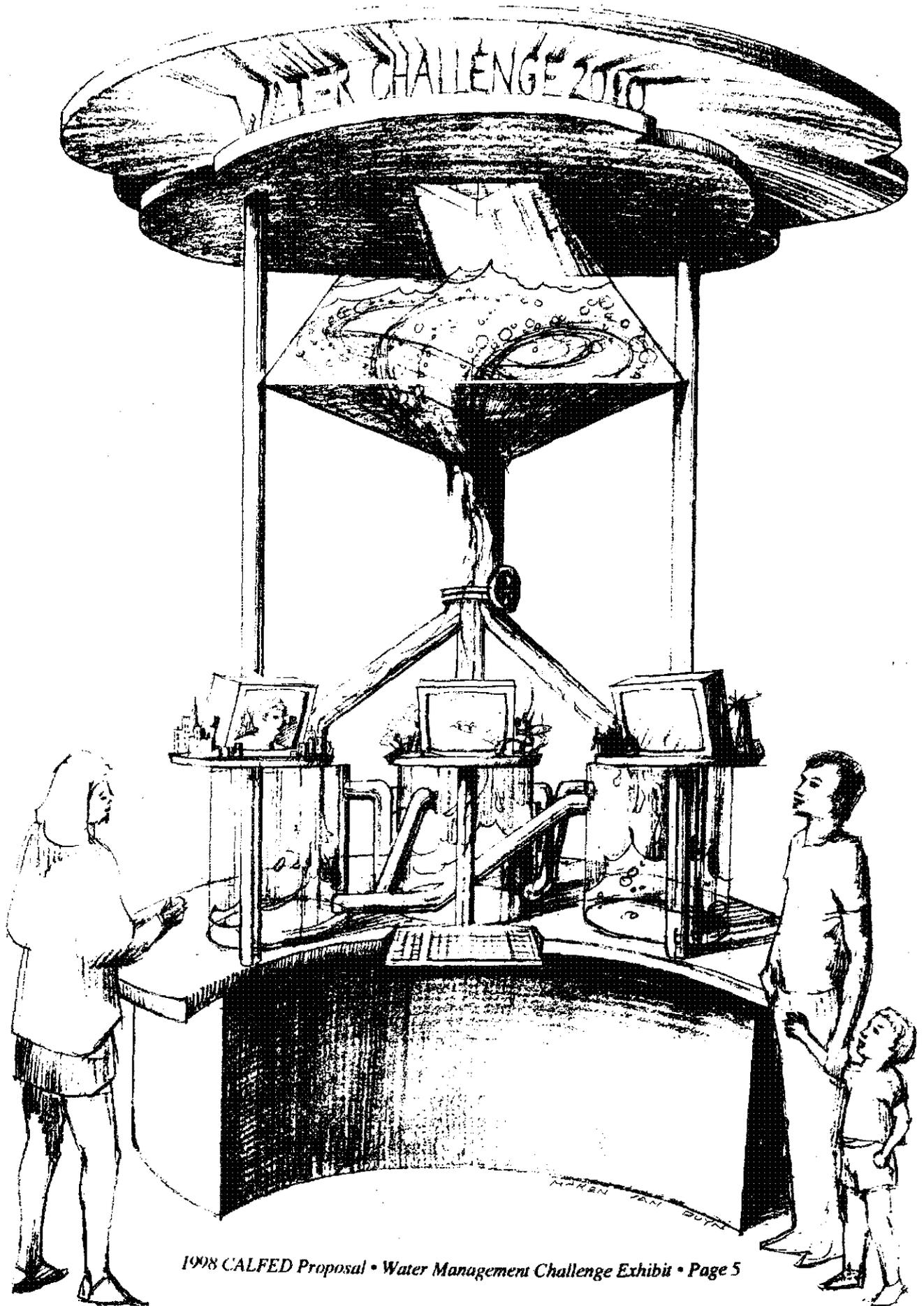
e. Participants/Collaborators in Implementation

The exhibit content, including the video feedback messages, will be developed with input and advice from leading representatives of the three main interest groups (agricultural, urban and environmental) who have a stake in the management of Bay-Delta natural resources. A number of agencies and governmental organizations concerned with environmental and water issues in the Bay Delta have expressed support for the project. We have received letters of support (see attached) to date from:

- Water Education Foundation
- Yolo Basin Foundation
- Ducks Unlimited

In addition, we are also seeking input and support for the project from:

- California Department of Fish & Game
- California Department of Water Resources
- US Forest Service
- US Fish & Wildlife Service
- California Water Clearinghouse
- California Farm Water Coalition
- Nature Conservancy
- National Audubon Society
- HAWK (Habitat Alliance of Wildlife Keepers)
- Santa Clara Water District
- East Bay Regional Park District
- East Bay Municipal Utilities District
- Bay Conservation & Development Commission



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IV. Project Description

a. Project Description and Approach

This proposal seeks funding for a traveling environmental education exhibit titled "Water Challenge 2010". This interactive, hands-on exhibit is designed to motivate visitors to learn more about the complex issues of the Bay-Delta by providing them with an exciting experience of personally managing Sacramento-San Joaquin Delta water for ecosystem restoration and beneficial human uses. Visitors are challenged to try their hand at apportioning water flowing from a huge tank (representing the total of available Delta water) into a series of smaller tanks (representing the Delta water needs of fish and wildlife, cities and industry, and agricultural users). As they make their water allocation decisions, visitors receive immediate feedback on the consequences of their actions via video monitors built into the exhibit. (*See attached conceptual drawing of the exhibit.*)

The exhibit works by first capturing the attention and interest of its intended audience. The size and unique look of the exhibit architecture, combined with the sound and sight of moving water, attracts people for a closer look. As they approach the central control panel of the exhibit, visitors find themselves facing three Plexiglas tanks. The tank on the left features text and 3-dimensional iconic elements (skyscrapers, homes, factories) labeling it as representing the water need of urban users. The tank in the middle represents the water needs of the Bay-Delta ecosystem and features iconic figures of fish, birds and riparian vegetation. The tank on the right represents agricultural users and features icons of fruit, grain, vegetables and live stock. Mounted above each of the three tanks is a video monitor. Above these is a single, big tank representing the water originating in the watersheds of the Sacramento-San Joaquin Rivers and their tributaries. See-through pipes of various sizes and lengths connect the big tank with the three smaller tanks and the smaller tanks with each other.

Initially all three video screens carry the same message -- an invitation for visitors to "Take the Bay-Delta water management challenge" and instructions on how to operate the exhibit controls. Visitors will have the option at this point of first viewing a 5 minute, introductory video program on the ERPP objectives and the CALFED mission or to immediately begin making their water allocation choices. Once a visitor begins the "game" portion of the interaction, each of the three monitors begins to play separate feedback messages related to impacts on their particular user group. For example, if a visitor is allocating water to the urban tank its monitor shows a clip on the beneficial uses of that water for urban users: drinking water, landscaping water, factory and office water, etc. At the same time, however, the other monitors are running clips on the problems their users face if they can't get sufficient water. The fish and wildlife monitor, for example, shows the adverse impact on key habitats and priority species. The agricultural monitor shows the impacts on food production, local farm-based economies and on the lives of people in California agriculture.

As visitors receive this feedback they can modify their choices, changing the amount of water flowing into the various tanks and even transferring water between tanks. A computerized system of controls, water pumps, valves and videocassette players -- hidden within the cabinetry of the exhibit -- makes it possible to track the changes made by the visitor and adjust the video feedback messages accordingly.

After a certain period of time and/or visitor inputs, the "game" ends and the visitor is given the opportunity of seeing a customized video clip analyzing the results of their particular Bay-Delta water management decisions. As they learn which users they made happy and who they may have slighted, visitors will also be informed of some of the ways, besides adjusting water allocation, that Delta resources can be better managed to benefit both the ecosystem and human

users. Visitors will also be directed to other sources of information about resource conservation, ecosystem restoration and the CALFED mission

In most venues, more detailed information on these subjects will be available on free-standing, text and photo panels flanking the "Water Challenge 2010" exhibit. Once visitors have taken the "challenge" their increased level of understanding and interest in the subject will make the information on the flanking exhibits more accessible and personally relevant.

b. Proposed Scope of Work

The proposed exhibit will be developed and implemented in a series of phased activities, some of which will overlap. Project phases may be funded separately:

PHASE I: INTERPRETIVE DESIGN & ENGINEERING

Step 1 - Stakeholder Input. We will seek input and advice on the exhibit approach and content from leading representatives of the three main interest groups (agricultural, urban and environmental) who have a stake in the management of Bay-Delta natural resources. We will also establish liaison relationships and seek input from a broad range of agencies and organizations involved in ecosystem restoration and/or the CALFED mission. *(Funded by COE)*

Step 2 - Pre-design feasibility studies. We will consult with specialists in the fields of hydraulic/aquarium engineering, show control design, audio-visual hardware and software, visitor behavior, access for the disabled, exhibit fabrication, etc. The goal of these consultations will be to fine tune the initial design concept, identify any newly available technologies and hardware, and to develop parameters and specification for the exhibit design, engineering and fabrication tasks. *(CALFED funds: \$4,500.)*

Step 3 - Select Design/Build Contractor. We will prepare bid documents and solicit bids for the design, fabrication and initial installation of the exhibit from the top exhibit firms in the United States. This contract will include the audio-visual software components of the exhibit. *(Funded by COE)*

Step 4 - Project management. We will conduct meetings with project team members, stakeholder representatives, interested agencies and collaborative groups as required to keep the project on track and meet the concerns of all. Written monthly progress and financial reports will be prepared and submitted. These reports will identify work completed, budget expended, timeliness of work, any problems encountered accomplishing work and any unanticipated work which may arise. Our project management activities will carry through all subsequent phases *(Funded by COE)*

Step 5 - Exhibit Design Development. Based on the learning from the feasibility studies and other research activities, the physical design of the exhibit and the visitor interface will be further developed and refined. *(CALFED funds: \$10,000.)*

Step 6 - Water System Engineering. The tanks, valves, piping, pumps and computerized controls of the exhibit water system will be engineered and accommodated in the physical design of the exhibit. *(CALFED funds: \$10,000.)*

Step 7 - Audio-Visual Hardware Engineering. The videodisk players, monitors, show controllers and exhibit computer system will be engineered and accommodated in the physical design of the exhibit. *(CALFED funds: \$5,000.)*

PHASE II: AUDIO-VISUAL SOFTWARE DEVELOPMENT

Step 1 - Research and Content Development. CALFED stakeholders, involved agencies and Organizations, technical experts and others will be consulted in developing the content

for the audio-visual programming. Sources of available stock footage will be identified. (CALFED funds: \$5,000.)

Step 2 - Scriptwriting. Scripts will be developed for the introductory video on the CALFED mission and ERPP objectives, for all of the possible "during play" feedback clips and for all of the possible "post play" analysis clips. Draft scripts will be sent to CALFED stakeholder representatives for review and comment. Revisions will be made as necessary. (CALFED funds: \$10,000.)

Step 3 - Production. Any video footage not available via stock sources will be taped and any required location interviews, sound effects, etc. will be recorded. All the various video clips and programs will be edited and transferred to video disk. (CALFED funds: \$20,000.)

PHASE III: EXHIBIT FABRICATION

Step 1 - Exhibit structure. The framework and other key elements of the exhibit structure will be fabricated and assembled. (CALFED funds: \$5,000.)

Step 2 - Water system. The tanks, valves, pumps and piping of the exhibit will be fabricated and installed in the exhibit structure. Preliminary leak tests and engineering checks will be conducted. (CALFED funds: \$25,000.)

Step 3 - AV Hardware & Show Control System. The components of this system will be purchased, modified as necessary and installed in the exhibit structure. (CALFED funds: \$14,000.)

Step 4 - Finishing. The remaining architectural elements of the exhibit will be fabricated, installed, painted, and otherwise developed to a high degree of finish. Signage, text labels and other interpretive elements will be fabricated. (CALFED funds: \$2,000.)

Step 5 - Run-in and testing. All systems will be vigorously tested, separately and in combined operation. Adjustments and refinements will be made as necessary. (Vendor)

PHASE IV: INSTALLATION

Step 1 - Disassembly and shipping. (CALFED funds: \$2,000.)

Step 2 - Reassemble at the Bay Model. (Includes final systems check) (CALFED funds: \$2,500.)

Step 3 - Publicity campaign. Bay Model staff and Bay Model Association volunteers will conduct a publicity campaign -- press releases, advance VIP & media tours, etc. -- in advance of the Grand Opening of the exhibit. (Funded by COE)

PHASE V: PERFORMANCE EVALUATION & MONITORING (Funded by COE)

Step 1 - Program development. Working with a visitor behavior and exhibit evaluation specialist, Bay Model staff will finalize the design of both the short term and long term monitoring program.

Step 2 - Visitor observations. Working under the supervision of the exhibit evaluation specialist, volunteers will observe and record visitor interactions with the exhibit as well as interview randomly selected visitors before and/or after exhibit interaction.

Step 4 - Data Analysis. The exhibit evaluation specialist will analyze the data collected, including that recorded by the exhibit computer, and prepare a report on the exhibit's performance.

PHASE VI: SOFTWARE & ENGINEERING REFINEMENTS (Funded by COE)

Step 1 - Performance review. Bay Model staff will conduct meetings with the exhibit evaluation specialist, with docent staff, with project team members, stakeholder representatives, interested agencies and collaborative groups to determine what, if any modifications should be made in the exhibit.

- Step 2 - Audio- Video refinements. Make any needed adjustments or modifications in the video feedback messages or in the computerized control system of the exhibit.
- Step 3 - Visitor interface refinements. Make any needed adjustments or modifications in the visitor control panel, signage, text labels or other elements of the visitor interface.
- Step 4 - Water system refinements. Make any needed adjustments or modifications in the water system.

PHASE VII: PLACEMENT OF DUPLICATE EXHIBITS

- Step 1 - Outreach & fundraising. Bay Model staff will solicit interest from other agencies, Organizations and other visitor centers for the acquisition and installation of duplicates of the exhibit. We will assist others in their fundraising efforts. *(Funded by COE)*
- Step 2 - Fabrication & installation. Other groups will be able to contract directly with the exhibit design company for fabrication and installation. *(Funding by others)*

PHASE VIII: TOUR OF OTHER VENUES

- Step 1 - Fundraising & scheduling. Bay model staff will work with sponsors and the staff of other venues in developing a multi-year tour schedule for the exhibit and/or duplicate versions. We will assist others in their efforts to find sponsors and grants for the tour.
- Step 2 - Publicity. We conduct a publicity campaign, in coordination with each of the local venues, in advance of each opening on the tour. *(Funded by COE)*
- Step 3 - On-going monitoring and content revisions. Bay model staff will continue to analyze visitor feedback and solicit input from stakeholders in order to keep the exhibit messages effective and up-to-date. *(Funded by COE)*

c. Location and/or Geographic Boundaries of the Project

The main focus of the exhibit is on the management of water flowing through the Sacramento River – San Joaquin River delta ecosystem, including the flows from the various tributary watersheds of the Sacramento and San Joaquin rivers. Most of the video feedback messages on the allocation of water for ecosystem needs will show aquatic habitat examples within the flood plains of the major rivers of the Central Valley and their tributaries. However, examples of Delta water management impacts on the downstream ecosystem of the San Francisco Bay estuary will also be provided.

Video feedback messages on the allocation of Delta water for agricultural and urban users will feature examples from the Central Valley as well as other geographical areas in California dependent on Delta water.

The initial installation, performance evaluation and content/engineering refinement of the exhibit will take place at the San Francisco Bay Model Visitor Center in Sausalito. This facility serves a high percentage of visitors from throughout Central and Northern California. When the exhibit travels (e.g. - California State Fair) and when duplicates of the exhibit are installed in other Central Valley venues (e.g.- Visitor Centers), the size and geographical diversity of the audience will be greatly expanded.

d. Expected Benefits

The video feedback messages of the exhibit will provide visitors with a highly visual, easy-to-understand overview of the key water management-related stressors affecting priority species and habitats. These will include examples of stressors such as hydrograph alternations (inadequate flows, lack of attraction flows, salt water intrusion, etc.) as well as other water management-related stressors such as water temperature, migration barriers, entrainment, loss of riparian zone vegetation, etc.

The video clips will cover both the impact of these stressors on the key habitat types (tidal perennial aquatic, seasonal wetland aquatic, instream aquatic, shaded riverine aquatic, etc.) and on the 1st and 2nd tier priority species (winter and spring-run chinook salmon, steelhead trout, delta smelt, green sturgeon, Sacramento late fall-run chinook, longfin smelt, splittail and white sturgeon).

Overall, the total experience of interacting with the exhibit is expected to result in visitors coming away with increased awareness and understanding of the complex issues underlying the CALFED Bay-Delta Program's mission of restoring the ecological health and improving the beneficial water management of the Bay-Delta system. In turn, this increased awareness and understanding should translate into stronger attitudes supportive of ecosystem restoration activities, personal participation in conservation programs and personal commitment to wisely use Bay-Delta natural resources.

In its initial installation at the San Francisco Bay Model Visitor Center, the exhibit will reach an average of **2,500** visitors a week. In addition, newspaper and television coverage of exhibit will help carry messages about Bay-Delta ecosystem restoration and the CALFED mission to several hundred thousand other people. When the exhibit begins to travel in the year 2000, and when duplicates of the exhibit are installed in other venues, the number of people directly influenced by the exhibit will be greatly multiplied, as well as the size of audience reached by exhibit-related media coverage.

On tour and in duplicate installations at other venues, the exhibit will serve as an exciting draw to local audiences, bringing additional people to locations where they can also learn about other ecosystem restoration programs, be exposed to other environmental education messages and have opportunities to learn more about other aspects of the CALFED mission.

c. Background and Ecological/Biological/Technical Justification

Although the ecological health of the Bay-Delta system and the beneficial use of its resources are of vital importance to all Californians, the complexity of issues and interests involved serves as a barrier to understanding for many citizens. The "Water Challenge 2010" exhibit answers the need to provide a fast, effective and enticing way for people to grasp the essential issues behind Bay Delta ecosystem restoration and other aspects of the CALFED mission.

Alternative approaches to achieving the same educational objectives have proven either ineffective at capturing audience interest or are limited in the size of the audience they can reach. For example, for the last X months the San Francisco Bay Model Visitor Center has displayed two text and photo-based exhibits on the Bay-Delta Ecosystem and the CALFED mission. Visitor interest and interaction with these passive informational displays has been minimal. Similar disappointing results have been reported with text-based, as well as passive video displays, on Bay-Delta issues in other venues around the State.

The "Water Challenge 2010" exhibit, in contrast, employs active learning techniques and audience participation principles that have proven highly effective in helping people understand complex issues and problems. Visitors will have fun as they "learn by doing" -- using critical thinking skills to make choices and receiving immediate feedback on the social, political, scientific and economic realities involved.

Implementation of the CALFED Ecosystem Restoration Program Plan (ERPP), both near term and long term, depends on the support of an informed citizenry. Voters can't be expected to back costly efforts to reduce the factors which degrade habitat or impact species population size and health unless they understand the need and value for these efforts. By increasing public awareness, knowledge and appreciation of Bay-Delta natural resources and ecosystem restoration activities, the "Water Challenge 2010" exhibit helps support all of the CALFED ERPP objectives as well as the objectives of similar programs such as the CVPIA Anadromous Fish Restoration Program.

f. Monitoring and Data Evaluation

Although direct ecological and biological monitoring is not applicable in this case, the project does include mechanisms for measuring results. These exhibit performance and visitor monitoring components include quantitative studies (e.g.--How many people begin and finish the exhibit activity? What proportion of visitors to a venue choose to interact with the exhibit?) and qualitative evaluation (e.g.--Selected visitors will be pre-interviewed and post-interviewed to assess how their knowledge and attitudes about Bay-Delta natural resources and the CALFED mission have been affected by their interaction with the exhibit).

Since a built-in computer controls the various mechanical, audio-visual and hydraulic aspects of the exhibit it is easy to add software that will record the number of people interacting with the exhibit and even track their individual water allocation choices. Other monitoring activities will be conducted by volunteers of the Bay Model Association working under the supervision of a paid professional Visitor Behavior Specialist. These activities will include both non-obtrusive observation and direct visitor contact to determine such evaluative criteria as:

- 1). Number of exhibit users as a proportion of total visitors to the venue.
- 2). Number of users finishing the interaction as a proportion of total starters.
- 3). Average number of "kibitzers" watching each exhibit user.
- 4). Average length of time each user spends with the exhibit.
- 5). CALFED ERPP awareness of select visitors before and after exhibit interaction.
- 6). Natural resource conservation attitudes of select visitors before and after exhibit interaction.
- 7). Intention of select exhibit users to participate in conservation programs and/or wisely use natural resources.

Monitoring and evaluation data will be shared with our peers at other public information/visitor center facilities as well as with the various agencies and Organizations supporting the project. Their feedback will be part of the monitoring review process that will guide us in fine tuning the software and hardware of the exhibit prior to the tour schedule of the original exhibit (California State Fair, etc.) and the installation of duplicate exhibits in other venues.

g. Implementability

Once the prototype of the "Water Challenge 2010" exhibit has been designed and fabricated, the US Army Corps of Engineers is committed to funding the on-going implementation of the project. This includes the evaluation & monitoring phase, the engineering & software refinement phase, and the long term operation and maintenance costs of the exhibit. Other agencies and Organizations have indicated interest in funding either the travel and installation costs of bringing the prototype to other venues or the fabrication and installation costs of acquiring duplicate versions of the exhibit. Some of these groups, along with the US Army Corps of Engineers, will likely seek grants from other sources in order to expand the number of venues and the size of the audience served by the exhibit.

As mentioned earlier, the exhibit content, including the video feedback messages, will be developed with input and advice from leading representatives of the three main interest groups (agricultural, urban and environmental) who have a stake in the management of Bay-Delta natural resources. We are also currently seeking support and advice from a wide spectrum of the agencies and Organizations with interest in the CALFED ERPP objectives and other components of the CALFED mission. (Please see list in Section III, Item E of this proposal and attached letters of support we have received to date).

The audio-visual software portion of the exhibit is capable of periodic updating so the Bay Model Visitor Center will maintain contacts and continue to elicit content advice from interested parties during the projected 10 year life of the exhibit.

V. Costs and Schedule to Implement Proposed Project

a. Budget Costs

CALFED is being asked to fund the service and acquisition contracts for the design, engineering, AV software, fabrication and first installation of the exhibit prototype. (Project Phases I through IV --Total requested: \$115,000.). The US Army Corps of Engineers (COE) has committed to funding the project management costs for all phases of the project, the operation and maintenance costs of the installed exhibit and the evaluation & monitoring, engineering & software refinement phases of the project. Other agencies and Organizations (See Section III, Item E.) have indicated interest in seeking outside funding for duplicate versions of the exhibit or for underwriting the costs of moving the original exhibit to new venues.

COE will cover the costs of the bidding process (preparation of bid documents, bid evaluation and winning bidder selection) involved in contracting the design/build tasks of the project to one of the many pre-qualified exhibit vendors available. Standard US Government competitive bid and evaluation procedures will be followed.

Table 1 - Cost Breakdown of Funding Sought from CALFED

Project Phase & Task (step)	Direct Labor Hours	Direct Salary & Benefits	Overhead Labor (General Admin & Fee)	Service Contracts	Material & Acquisition Contracts	Misc. & other Direct Costs	Total Cost
Phase I							
Technical studies				\$4,500.			\$4,500.
Exhibit design development					\$10,000		\$10,000
Water system engineering					\$10,000		\$10,000
AV-system engineering					\$5,000		\$5,000

Table 1 - Continued

Project Phase & Task (step)	Direct Labor Hours	Direct Salary & Benefits	Overhead Labor (General Admin & Fee)	Service Contracts	Material & Acquisition Contracts	Miscl. & other Direct Costs	Total Cost
Phase II							
Content Development					5,000.		\$5,000.
Script-writing					\$10,000		\$10,000
AV production					\$20,000		\$20,000
Phase III							
Fabricate Structure					\$5,000		\$5,000
Fabricate Water System					\$25,000		\$25,000
AV Hardware					\$14,000		\$14,000
Finishing & Labels					2,000		2,000
Phase IV							
Shipping				2,000			2,000
Installation				2,500			2,500

TOTAL FUNDS SOUGHT FROM CALFED \$115,000.

Table 2- Estimated Total Costs of the Project
(includes Project Management, O&M and other Costs funded by the US Army Corps of Engineers)

PHASE I	Exhibit Design & Engineering	\$34,000
PHASE II	Audio Visual Software Development	\$38,500
PHASE III	Exhibit Fabrication	\$48,000
PHASE IV	Installation	\$7,000
PHASE V	Exhibit Evaluation & Monitoring	\$ 5,000
PHASE VI	Software & Engineering Refinements	\$10,000
PHASE VII	Fabrication of Duplicate Exhibits (\$65,000 each)	*TBD
PHASE VIII	Original Exhibit On-Tour (\$5,000 per venue)	*TBD

Total Cost of Phases I through VI \$142,500

** Cost of Phases VII and VIII will depend on the numbers of duplicate exhibits ordered and the number of venues scheduled during the tour schedule. Funding sources to be determined.*

b. Schedule Milestones

The proposed exhibit will be developed and implemented in a series of phased activities, some of which will overlap. Assuming funding from CALFED would be available October 1998, the following schedule will apply:

Phase I: Exhibit Design & Engineering	Oct. 1998 thru Jan. 1999
Payment milestone: <i>Completion of 100% Construction Documents</i>	
Phase II: Audio-Visual Software Development	Dec. 1998 thru Mar. 1999
Payment milestone: <i>Completion of Video Disk</i>	
Phase III: Exhibit Fabrication	Feb. 1999 thru Apr. 1999
Milestone: <i>Approval of run-in test results</i>	
Phase IV: Installation	Mid-May 1999
Payment milestone: <i>Approval of on-site test results</i>	
Phase V: Exhibit Evaluation & Monitoring	May. 1999 thru Dec. 1999
Phase VI: Software & Engineering Refinements	Jun. 1999 thru Aug. 1999
Phase VII: Fabrication of Duplicate Exhibits	Sep. 1999 thru Dec. 1999
Phase VII: Original Exhibit On-Tour	Jan. 2000 thru Jan. 2010

c. Third Party Impacts

There are no known adverse third-party impacts from any of the project activities.

VI. Applicant Qualifications

The San Francisco Bay Model Visitor Center and the US Army Corps of Engineers have extensive experience with the design, implementation and maintenance of exhibit-based environmental education projects.

The Bay Model Visitor Center is one of seven regional visitor centers operated by the Corps of Engineers across the United States. It features a 1.5 acre hydraulic scale model of the San Francisco Bay and the Sacramento/San Joaquin Delta. A staff of scientists and engineers uses this model, and its associated computer modeling component, to study the complex Bay-Delta estuary system. The model also serves as an education tool for professionals, decision makers, educators, students and anyone with an interest in Bay-Delta system.

The Bay Model Visitor Center also features a hands-on learning lab, a variety of interactive, environmental education exhibit areas, an automated video theater and a wide variety of environmental education and public outreach programs. Every year these programs reach thousands of students and adults with Bay-Delta natural resource conservation messages.

The Visitor Center's popular volunteer docent program and a very successful corporate support campaign run by the Bay Model Association multiply the public benefits of environmental education grants made to the Bay Model Visitor Center.

The proposed "Water Challenge 2010" exhibit project will be managed, implemented and maintained by staff of the Bay Model Visitor Center. These professional environmental educators have over 75 years combined experience designing exhibits, managing design/build contracts, developing exhibit content and evaluating exhibit performance.

Key personnel who will be responsible for the project management, implementation and O&M of the Water Challenge 2010 exhibit include:

Nancy Rogers, Director
San Francisco Bay Model Visitor Center
BS - Resources Management, Univ. of Montana

Director since 1991, administers \$2 million budget and supervises 7 staff in the operation and maintenance of 30 acres of government property including the Bay Model Building. Twenty-five years experience in interpretive program development, exhibit development and recreation management for both the National Park Service and US Army Corps of Engineers.

Project Manager on visitor center exhibit design, and content development for two visitor centers with the US Army Corps of Engineers. Served on numerous advisory committees to review exhibit design, interpretive program development for other organizations and agencies.

Eleven year member in the National Association for Interpretation (NAI). Served four years as Regional Deputy Director for NAI and presented workshops and programs on exhibit design, construction and contract development.

Ron McDonald, Park Ranger/Education Coordinator
San Francisco Bay Model Visitor Center
BS - Resources Management, Univ. of New York, Albany
MS - Public Administration, Golden Gate University

Responsible for environmental education and interpretive programs at the Bay Model Visitor Center. Designs and conduct environmental education workshops and acts as liaison between public, school groups, professionals and other agencies. Trains staff and volunteers on effective interpretive techniques. Consults on exhibit design, content and text for the visitor center.

Chris Gallagher, Senior Park Ranger
San Francisco Bay Model Visitor Center
AA - Forestry, Unity College, Unity, Maine
BA- Environmental Education, Dominican College, San Rafael, CA

Fourteen years experience in developing environmental education programs for the National Park Service and the US Army Corps of Engineers. Coordinated teacher workshops, joint partnerships on topics and issues of the San Francisco Bay/Delta estuary.

VII. Compliance with Standard Terms and Conditions

The San Francisco Bay Model Visitor Center of the US Army Corps of Engineers is a federal agency and will comply with all applicable terms and conditions presented in Attachments D and/or E of the May 1998 Proposal Solicitation Package. (Please see attached forms). Any additional compliance forms deemed necessary by CALFED and/or US Department of the Interior will be submitted with the contract package.

**Certifications Regarding Debarment, Suspension and
Other Responsibility Matters, Drug-Free Workplace
Requirements and Lobbying**

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. See below for language to be used or use this form for certification and sign. (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions

CHECK IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE

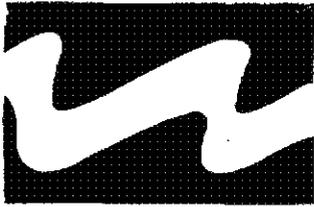
- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

CHECK IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

DI-2010
June 1998
(This form replaces DI-1863, DI-1864,
DI-1865, DI-1866 and DI-1867)



WATER EDUCATION
FOUNDATION

1000 California Street
San Francisco, CA 94109
415.774.2200
www.watereducation.org

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California Academy of Sciences

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California Academy of Sciences

June 23, 1998

Nancy Rogers
Bay Model Visitor Center
2100 Bridgeway
Sausalito, CA 94965

Dear Nancy:

We have reviewed your proposal for a hands-on, interactive exhibit that will help visitors to your center learn about the complex management issues in the San Francisco Bay-Delta region. We feel it is a project with a tremendous amount of potential to educate the public about this complicated topic.

To help you provide the public with additional information about the Bay-Delta issues, the Water Education Foundation would be willing to provide to you the "Layperson's Guide to the Delta," the "Layperson's Guide to San Francisco Bay," and the slide card information handouts on endangered salmon runs and introduced species. We will provide these materials to you at a reduced price so you will be able to distribute them to people visiting your exhibit.

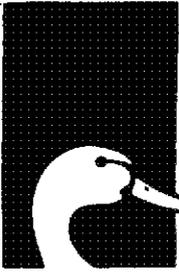
We have always enjoyed our partnerships with the Bay Model, including teacher workshops, tours for decision makers in the water world and other education projects. We feel the match between our two organizations is a good one, working toward increased understanding of water resource issues in California. We hope your CALFED proposal is funded and thank you for including the Water Education Foundation in your plan.

Sincerely,

Rita Schmidt Sudman
Executive Director

Judy Wheatley
Education Coordinator

... is to develop and implement
... solution of water problems.



DUCKS
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INC.

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WESTERN REGIONAL OFFICE

3074 Gold Canal Drive
Rancho Conejo, CA 95670-6116
(916) 852-2000
(916) 852-2200 Fax

June 24, 1998

Cindy Darling, Restoration Coordinator
CALFED Bay-Delta Program
1416 Ninth Street, Room 1155
Sacramento CA 95814

Re: "Take the Bay-Delta Water Management Challenge"
Bay Model Visitor Center – US Army Corps of Engineers

Dear Ms. Darling:

The interactive, hands-on environmental education exhibit as proposed by the Army Corps of Engineers to increase public awareness, knowledge and appreciation of the Bay Delta natural resources has Ducks Unlimited, Inc.'s full support of the project and the necessary funding.

This traveling exhibit will facilitate citizenry understanding of the complex issues underlying the CALFED Bay-Delta Program's mission to develop a long-term comprehensive plan that will restore the ecological health and improve water management for beneficial uses of the Bay-Delta system. By demonstrating the effects of Delta water usage, decisions on fish and wildlife as well as on human users, will help to foster attitudes supportive of both habitat restoration activities and the careful, well-planned use of Bay-Delta natural resources.

Sincerely,

Holly Hopkins Andree, Director
State & Federal Coordination

HHA:lbj

cc: Nancy Rogers



yolo basin foundation

.....
P.O. Box 943
Davis, California
95617
916 756 7248

June 23, 1998

CALFED Bay-Delta Program
1416 Ninth St.
Suite 1155
Sacramento, CA 95814

To the CALFED Review Panel:

I am writing to support the application to CALFED from the Bay Model Visitor Center and the US Army Corps of Engineers for their proposal for a travelling environmental education exhibit entitled "Take the Bay Delta Water Management Challenge".

This project complements the work our organization is doing in environmental education and habitat restoration, and would be a welcome addition to two of our current programs. The first, California Duck Days, a three day wetland festival in the heart of the Central Valley, is a family oriented educational event focussing on Central Valley wetlands and wildlife. It would be an ideal location for the exhibit to reach the 1500-2000 participants of the festival.

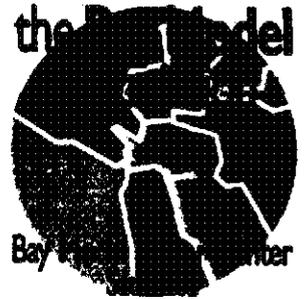
Secondly, our *Discover the Flyway* program for schools would benefit from such a display that school children could see as part of their school field trip to the Yolo Bypass Wildlife Area. Students would be introduced to water management by this hands-on, interactive exhibit and learn of the diverse water needs within the Bay-Delta region.

This project would provide an excellent educational opportunity for all age groups, and further the efforts of educators and policy makers to develop an informed public that supports CALFED'S long term goals of ecosystem restoration.

Sincerely,

Cheryl Chipman

Cheryl Chipman
Program Coordinator



June 30, 1998

Nancy Rogers, Park Manager
San Francisco Bay Model Visitor Center
US Army Corps of Engineers
2100 Bridgeway,
Sausalito, CA. 94965

2100 Bridgeway
Sausalito
California 94965
(415) 332-3871
fax (415) 332-0761

Re: Bay Model Association Support For Water Challenge 2000 Exhibit

Dear Nancy,

The Bay Model Association is very excited about the proposed "Water Challenge 2000" exhibit. We think it will be an excellent way to break through the mass of Bay-Delta information and reach visitors with a strong message of natural resource understanding and appreciation.

The Association will be able to support the implementation of this project in a number of ways, including;

- 1) Corporate donations of software for the AV hardware-visitor control panel system. National Instruments, for example, is willing to donate their \$1200 Labview program.
- 2) Corporate sponsorship of the Grand Opening of the exhibit at the Bay Model. We have sponsors willing to help with the publicity campaign and special events/activities surrounding the Grand Opening.
- 3) Volunteer help with the exhibit performance and visitor response studies.

We look forward to working closely with the Bay Model Visitor Center staff in ensuring the on-going success of this much needed project.

Sincerely,

Gary Franklin
Executive Director
Bay Model Association

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