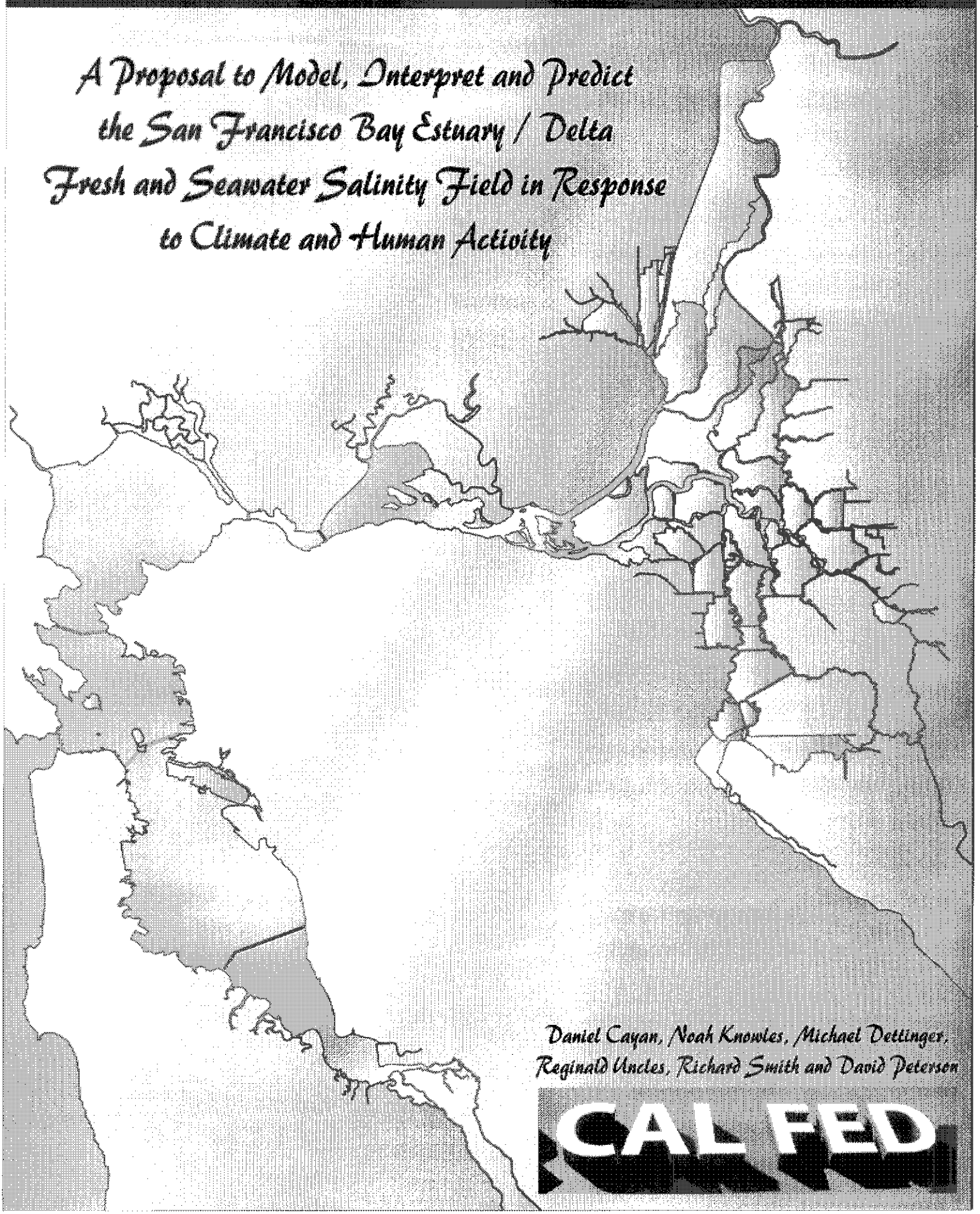
A Proposal to Model, Interpret and Predict the San Francisco Bay Estuary / Delta Fresh and Seawater Salinity Field in Response to Climate and Human Activity



Daniel Cayan, Noah Knowles, Michael Dettinger,
Reginald Uncles, Richard Smith and David Petersen

CALFED

Attachment H

COVER SHEET (PAGE 1 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title: A Proposal to Model, Interpret, and Predict the San Francisco Bay Estuary/Delta Fresh- and Sea-water Salinity Field in Response to Climate and Human Activity

Applicant Name: ~~Daniel R. Cayan and others (see text)~~
Mailing Address: Scripps Institution of Oceanography, Climate Research Division 0224
9500 Gilman Drive
La Jolla, CA 92093
Telephone: 619-534-4507
Fax: 619-534-8561

Amount of funding requested: $ 582,950 for 3 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
- ☐ Fish Passage Improvements
- ☐ Floodplain and Habitat Restoration
- ☐ Gravel Restoration
- ☐ Fish Harvest
- ☐ Species Life History Studies
- ☒ Watershed Planning/Implementation
- ☐ Education
- ☐ Fish Screen Evaluations - Alternatives and Biological Priorities

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

- ☐ Sacramento River Mainstem
- ☐ Sacramento Tributary: _____
- ☒ Delta
- ☐ East Side Delta Tributary: _____
- ☐ Suisun Marsh and Bay
- ☐ San Joaquin Tributary: _____
- ☐ San Joaquin River Mainstem
- ☐ Other: _____
- ☐ Landscape (entire Bay-Delta watershed)
- ☐ 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
- ☒ Spring-run chinook salmon
- ☐ Late-fall run chinook salmon
- ☐ Fall-run chinook salmon
- ☐ Delta smelt
- ☐ Longfin smelt
- ☐ Splittail
- ☐ Steelhead trout
- ☐ Green sturgeon
- ☐ Striped bass
- ☐ Migratory birds

COVER SHEET (PAGE 2 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Indicate the type of applicant (check only one box):

☐	State agency	☒	Federal agency
☐	Public/Non-profit joint venture	☐	Non-profit
☐	Local government/district	☐	Private party
☐	University	☐	Other: _____

Indicate the type of project (check only one box):

☐	Planning	☐	Implementation
☒	Monitoring	☐	Education
☐	Research		

By signing below, the applicant declares the following:

(1) the truthfulness of all representations in their proposal;

(2) the individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and

(3) the person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section II.K) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

David H. Pekrun for Daniel L. Cayan

(Signature of Applicant)

II. Executive Summary

a. Project Title and Applicant Name – A Proposal to Model, Interpret and Predict the San Francisco Bay Estuary/Delta Fresh– and Sea-Water Salinity Field in Response to Climate and Human Activity. By Daniel R. Cayan and others (see text).

b. Project Description and Primary Biological/Ecological Objectives – To optimize water use in relation to fisheries, CALFED (1998) is, understandably, emphasizing the importance of habitat restoration. However, these efforts to enhance fisheries are embedded in a mix of climate and human-caused hydrologic variability which must also be considered in habitat improvement planning. Salinity, a master variable in the Delta ecosystem, is modeled in near-real time. Knowledge of the salinity field in the Delta will assist in interpreting more complex and less-sampled parameters (biological, chemical) and provide an integrated response to upstream water management options.

c. Approach/Tasks/Schedule – An existing numerical model of San Francisco Bay salinity will be extended into the Delta, freshwater flows will be driven by discharge measurements at three upstream locations (Oltman, 1998). The first two years will be for model development and the third for establishing simulations on the internet including a user friendly model and analyses of major sources of variability including climactic factors.

d. Justification for Project and Funding by CALFED – First, the investigators bring considerable expertise on California's hydroclimatology, a key element in CALFED ecological and water management decisions. Second, knowledge of the daily salinity field in the Delta will be a straightforward way to monitor the integrated effects of upstream influences on discharge. This will provide holistic and easy to understand "views" of the Delta system to assist management decisions (as well as for monitoring the effects of those decisions).

III. Title Page

a. Title of Project – A Proposal to Model, Interpret, and Predict the San Francisco Bay Estuary/Delta Fresh- and Sea-Water Salinity Field in Response to Climate and Human Activity.

b. Name of applicant/principal investigator(s); address; phone/fax/e-mail; organizational, institutional or corporate affiliations of applicant/principal investigator(s) – Note: The latter information is given in the address.

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e-mail: resmith@usgs.gov

c. Type of Organization and Tax Status – Federal agency – nontaxable

d. Tax Identification Number and/or Contractor license, as applicable – not applicable

e. Participants/Collaborators in Implementation – D. Cayan, K. Nowles, M. Dettinger, R. Uncles, R. Smith, D. Peterson and two data assistants. Also, the USGS California District (R. Oltman).

IV. Project Description

a. Project Description and Approach

To optimize water use in relation to fisheries CALFED (1988) is emphasizing the importance of habitat restoration; perhaps more of a land than water use issue. However, these efforts to enhance fisheries are embedded in a mix of climate and human caused hydrologic variability and must also be considered in habitat improvement plans (i.e., you need to support habitats with adequate flows and water temperatures). The central role of climate and human-caused variability in the success of restoration activities is the central thesis of this proposal and the Delta lies at the center of many issues. A first-order problem is to know the salinity field in the Delta region in response to climatic and human control (human control options generally depend on climate). We will develop that capability by extending an existing numerical model of San Francisco Bay salinity into the Delta and the results will be available in near-real time on the Internet. The model is forced by fresh water

discharge and tidal energy (daily averages). The bathymetry and tidal energy will be extended from the existing model into the Delta. This is largely an exercise utilizing available information or ongoing boundary value observations by others such as discharge at the three Delta locations by the USGS (Oltman, 1998), salinity near Farallon Island (NOAA, and may be changed to salinity at Golden Gate), tidal height at Golden Gate (NOAA), and estimates of local (San Francisco Bay) freshwater discharge. The modeling work will be by N. Knowles, R. Smith and R. Uncles (with two data acquisition/preparation assistants). This work will also include development of a user friendly model on the Internet. Interpretation of climatic forcing "signals" will be largely the work of D. Cayan and M. Dettinger.

b. Proposed scope of work

In addition to the practical "independent" watershed to watershed recovery efforts, a broad overview or synthesis of the entire watershed is also needed. Because the delta is at the center of many water and fisheries issues we propose:

1). to extend the Uncles/Knowles numerical "mixing" model (Knowles, 1997; Uncles and Peterson, 1996) of the San Francisco Bay estuary to include the Delta,

2). to test the model with insitu salinity observations (State of California, U.S. Bureau of Reclamation) and measured discharges (Oltman, USGS, 1998).

3). apply inverse methods to attempt to extend measured flows back to historical salt penetration records from the 1920's (State of California),

4). interpret the observed variability in salinity/bromide concentrations in the context of weather and climate variability and human factors,

5). provide fresh and seawater salinity simulations on the World Wide Web in near real time as well as a user-friendly interactive numerical model to answer "what if" questions.

This work is a logical extension of Ph.D. research by Knowles, in collaboration with Uncles and others, at the Scripps Institution of Oceanography, La Jolla, CA (thesis advisor is Dan Cayan, Director of the Climate Research Division and Oceanographer, USGS), as well as the climate research of Cayan, Dettinger and others.

Delta bathymetry will be added to the numerical model of the San Francisco Bay and the observed discharge at three locations (Oltman, 1998) and the salt field will be used to estimate the mixing coefficients over a range of tidal conditions (Spring-Neap) using the attenuated tidal forcing from Golden Gate (Cheng, Casulli and Gartner, 1993).

After obtaining satisfactory results over a full range of flow and tidal regimes, the user friendly model and near-real-time daily salinity simulations will be made available on the Internet.

See budget regarding necessary funding. The dedicated work stations and software will be a one-time purchase at the start of the work.

c. Location and/or Geographic Boundaries of the Project – The location is the San Francisco Bay Delta (see Fig. 1).

d. Expected Benefit(s) – Although this is the outlet of the entire system, on the basis of CALFED habitats criteria it is perhaps best considered as I. tidal perennial aquatic habitat (freshwater) (CALFED, 1998, Attachment B, 1. p. 67).
The expected benefit is the readily available salinity field in the Delta. Salinity is a relatively well understood master variable of the system. Also, as per CALFED (1998, Attachment C, p. 72) the salt field provides an integrator of "1. alteration of flows and other effects on water management." Our contribution will be to provide a climate knowledge as framework for interpretation of the variations in discharge and salinity responses (relevant to alteration of flows a persistently high ranked stressors, CALFED, 1998, Attachment C, pp. 81-83).

e. Background and Ecological/Biological/Technical Justification

The nexus of water resources management issues in California: water quality, water transfers, and fisheries protection, is climate. Effects of climate extremes, which appear to be increasing, run through the entire system and water management decisions are driven by climate and climate extremes.

The delta region (Fig. 1), Sacramento River to the north, San Joaquin River to the south lies geographically at the center of many conflicting water management decisions. These decisions, in response to climate variability, are not symmetrical about some mean seasonal discharge value. For example, in dry years, historically, a greater proportion of the total freshwater flow is exported, and sea salt penetration increases, including bromide (Figs. 2 and 3). In addition to such climate-caused (interannual) fluctuations in export and salinity is a long-term rise in percentage of total discharge exported (Fig. 3). This rise is caused by increasing land use which, in turn, increases water demand. Population pressures are expected to continue to force this trend upward but other constraints will tend to flatten it out, such as Delta fisheries and water quality issues.

Beyond this, the water management problem is even more complex. The hand of climate is not only strong but subtle. Although the natural annual hydrograph has changed dramatically due to artificial impoundment and releases it has also been changing slowly because spring snowmelt discharge, as a percentage of total flow, is decreasing (Fig. 4). This is largely due to increasing warmer winters (more winter winds from the south), reducing snowpack at intermediate elevations (Dettinger and Cayan, 1995). This phenomenon is a concern to water managers because it's a loss in valuable water storage capacity, reducing the options for future management. Fisheries water management issues, then, such as protective flows and water temperatures, are made in an environment of climate extremes and export demands.

The ERPP objectives, herein are addressed in CALFED, 1998, G. Local Watershed Stewardship p. 55-57

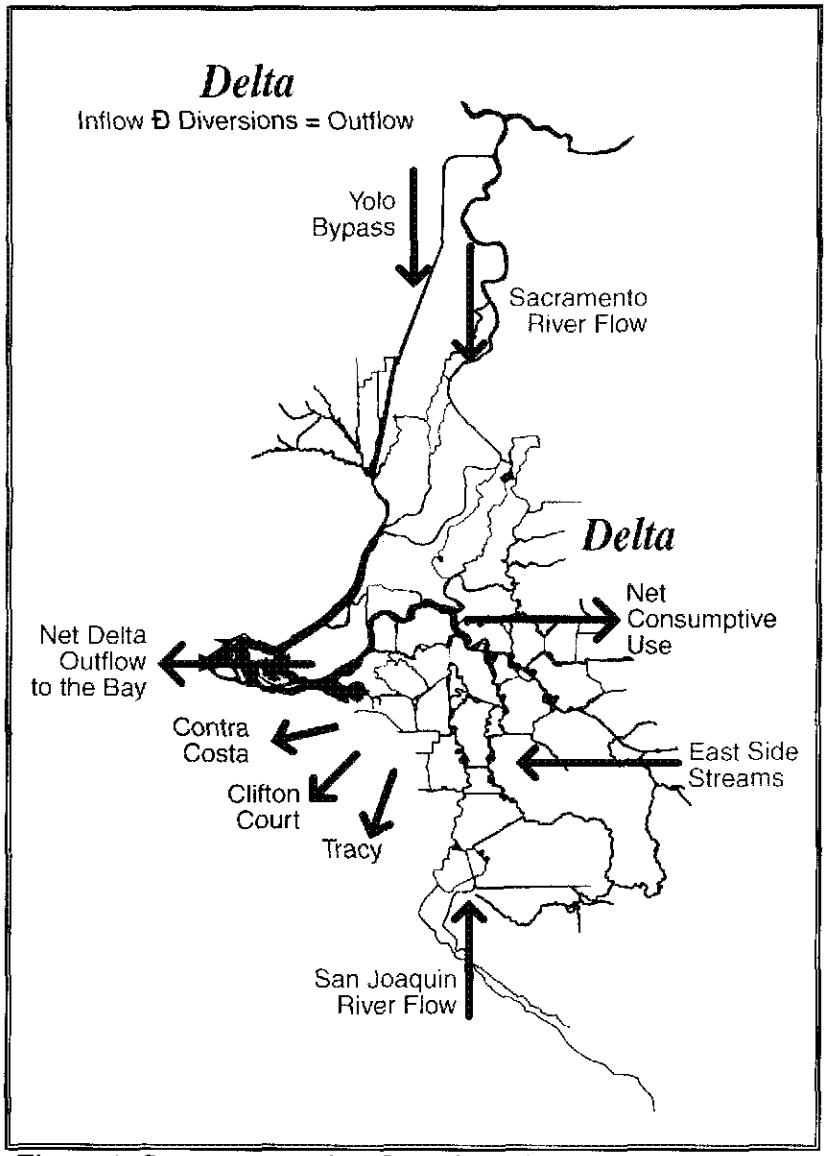

Figure 1: Sacramento – San Joaquin Delta

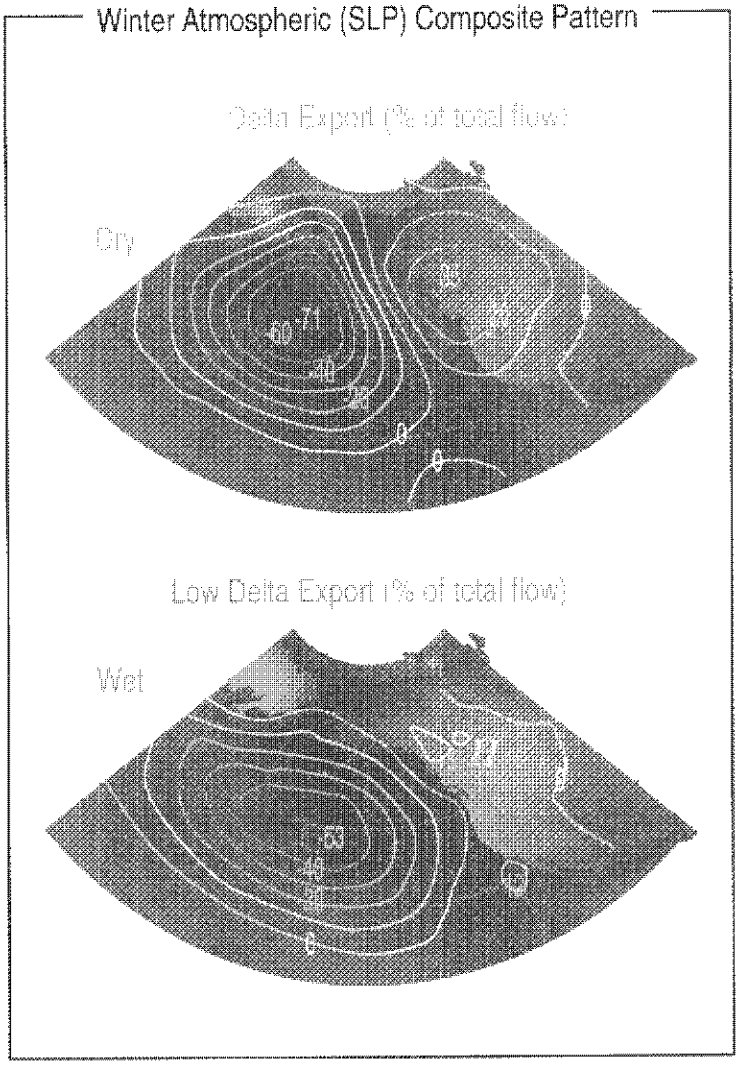

Figure 2: Composite anomaly of atmospheric pressure patterns associated with dry years (peaks in Fig. 3) and wet years (valleys in Fig. 3).

I-010897

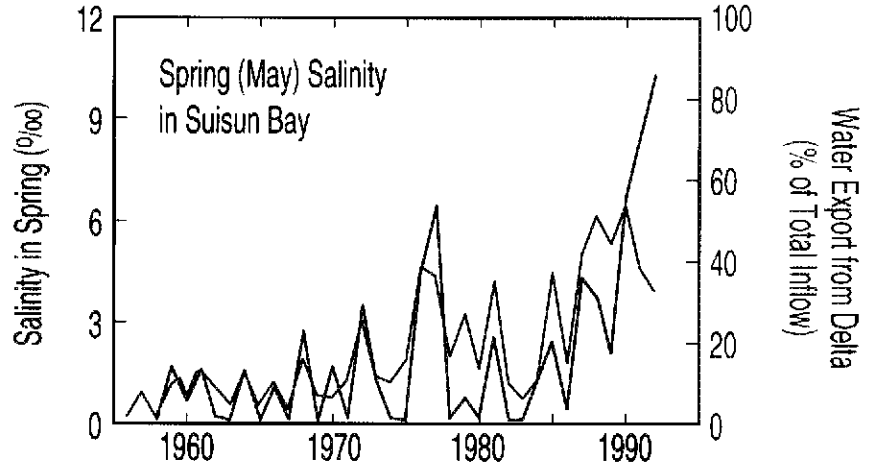

Figure 3: Mean monthly salinity variations in May, Suisun Bay, Pittsburg and export of water from the Delta as a percentage of total Inflow

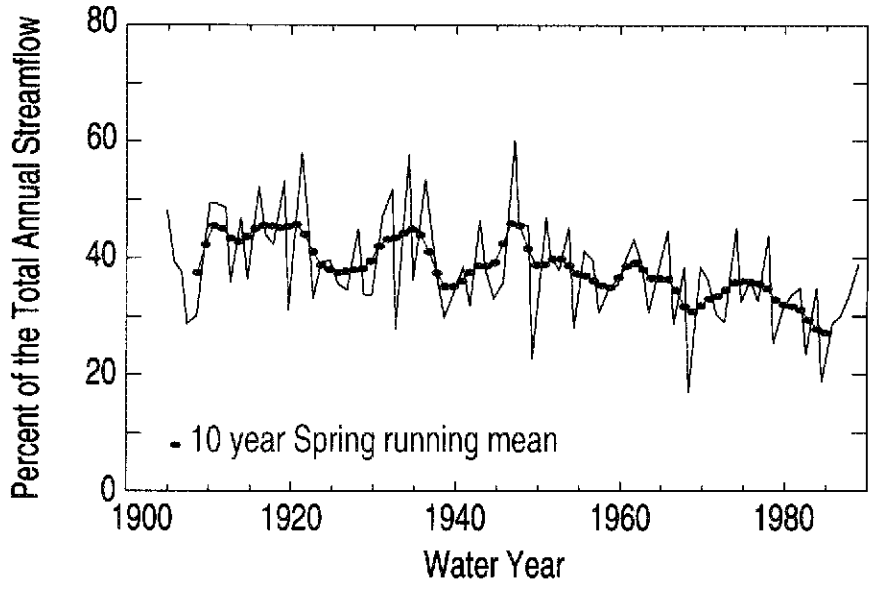

Figure 4: Decline in spring discharge as a percentage of total annual discharge (adapted from Roos, 1997).

f. Monitoring and Data Evaluation – We will provide "monitoring data", actually largely the results of numerical simulations, in near real time depending on the timeliness of boundary variable acquisition (not considered an unreasonable assumption). A user friendly model will be completed and both will be accessible on the Internet. Progress and results will be presented at appropriate meetings and published in reports and scientific journals.

g. Implementation – we consider this to be relatively straightforward in the context inferred by the numerous questions regarding this aspect. The question in CALFED (1998) p. 17 and 18 are of minor concern, as our efforts will be coordinated largely in-house with the USGS California District and to a lesser extent other agencies as needed.

V. Costs and Schedule to Implement Proposed Project

a. Budged Costs

SALARIES

D. Cayan, USGA and Climate Research Division, SIO and Oceanographer, USGS	no charge
N. Knowles, Ph.D. student, SIO	$35,000/yr for 3 years
M. Dettinger (one month), Hydroclimatologist, USGS	$17,000/yr for 3 years
R. Uncles, Director Plymouth Marine Laboratory, UK	no charge
R. Smith (three months), Hydrologist/Computer specialist, USGS	$30,000/yr for 3 years
D. Peterson, Oceanographer, USGS	no charge
Data Assistants (two)	$30,000/yr for 3 years

Travel

Uncles	$6,500/yr for 3 years
Others (between SIO and USGS)	$1,000/yr for 3 years

Equipment

2 Dedicated Workstations (at SIO and USGS)	$30,000 one-time cost
Software (Matlab)	$20,000 one-time cost

Overhead

(50% of net)	$64,450 for 3 years
Three Year Total	$582,950

b. Schedule Milestones – The first two years will be for model development, the third will be for implementations on the Internet.

c. Third Party Impacts – probably not relevant.

VI. Applicant Qualifications –

This is a multidisciplinary effort and no one person is knowledgeable in all phases: climate, hydrology, and the Delta, and estuaries response. However, there is considerable overlap in the knowledge and skills of the group as a whole. See Budget for a listing of job titles. Perhaps a most efficient way to provide qualifications are to list some of the more recent publications relevant to the proposal.

References

CALFED, 1998, Proposal Solicitation Package, Ecosystem Restoration Projects and Programs, 98p.

Cayan, D.R., and Peterson, D.H., 1993, Spring Climate and Salinity in the San Francisco Bay estuary: Water Resources Research, v. 29, no. 2, p. 293-303.

Cayan, D.R., 1996, Climate variability and snowpack in the western United States: J. of Climate, 9:928-948.

Cayan, D.R., Dettinger, M.D., Diaz, H.F., and Graham, N., 1996, Decadal hydroclimactic variability over Western North America: Eos, American Geophysical Union Fall Meeting supplement, v. 77, p. F126.

Cayan, D.R., Peterson, D.H., Riddle, L., Dettinger M.D., and Smith, R., 1997, The spring runoff pulse from the Sierra Nevada: Interagency Ecosystem Program for the Sacramento-San Joaquin Estuary Newsletter, Summer 1997, 25-28 (http://meteora.ucsd.edu/~dettinge/pulse/)

Cheng, R.T., Casulli, V., and Gartner, J.W., 1993, Tidal, residual, intertidal mudflat (TRIM) model and its applications to San Francisco Bay, California: Estuarine, Coastal, and Shelf Science, v. 36, p. 235-280.

Dettinger, M.D., Smith, R.E., Knowles, N., Cayan, D.R., Peterson, D.H., 1995; Animations of Daily Atmospheric-Circulation Patterns and the resulting Salinity Fields in San Francisco Bay, EOS, Vol. 76, No. 46, also published in our WWW Page at http://S101dcascr.wr.usgs.gov-mddettin.

Dettinger, M.D. and Cayan, D.R., 1995: Large-Scale atmospheric forcing of recent trends toward early snowmelt runoff in California, J. of Climate, 8: 606-623.

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Knowles, N., Cayan, D., Uncles, R., Ingram, L., and Peterson, D., 1997, Diagnosing the flood of 1997 in San Francisco Bay with observations and model results. Interagency Ecological Program for the Sacramento San Joaquin Newsletter 10(3), 28-31.

Knowles, N., 1997, http://sfbay.wr.usgs.gov/access/Nknowles/iep97.html

Oltman, R., 1998, Indirect measurement of delta outflow using ultrasonic velocity meters and comparison with mass-balance calculated outflow. Interagency Ecosystem Program for the Sacramento-San Joaquin Estuary Newsletter, Vol. II, No. 1, p. 5-8.

Peterson, D.H., Cayan, D.R., Dettinger, M.D., and Smith R.E., 1997, Relation on air temperature and winter snowpack to spring snowmelt-driven river discharge, Yosemite National Park: Eos, AGU Spring 1996 Meeting supplement, v. 78, p. s148.

Peterson, D.H., Dettinger, M.D., Cayan, D.R., Smith, R., Riddle, L., and Knowles, N., 1997, What a difference a day makes: Spring snowmelt in the Sierra Nevada: Interagency Ecosystem Program for the Sacramento-San Joaquin Estuary Newsletter, Summer 1997, 16-19.

Roos, M., 1991. A trend of decreasing snowmelt runoff in Northern California. pages 29-36 in Proceedings of the 1991 Western Snow Conference, Juneau, AK. State of California (http://rubicon.water.ca.gov/delta_atlas.fdr/daindex.html

Uncles, R.J. and Peterson, D.H., 1996, The long-term salinity field in San Francisco Bay, Continental Shelf Research, 16 (15):2005-2039.

Other relevant activities/connections include:

List of Collaborations and Other Sponsors for Climate Projects of investigators with relevance to the proposed project

1. AGENCIES THAT HAVE OFFERED SUPPORT

   California Department of Water Resources

   Snow Cooperative Survey – F. Gehrke—and Environmental Services Office—R. Brown

   NASA Earth Science Information Partnership

   Snowpack and Hydrology project (PI: Simpson, SIO)

   Yosemite National Park

   Hetch Hetchy Water and Power (City of San Francisco) **

   National Park Service/WRD QW Proposal **

   [** Pending]

2. AGENCIES THAT ARE COLLABORATING OR EAVESDROPPING

   Inland Region for California's Office of Emergency Services

   Bureau of Reclamation, Denver Research Center

   National Park Service

   NOAA National Center for Environmental Prediction
   Climate Prediction Center

   NOAA Climate Diagnostics Center

   International Research Institute for Climate Prediction

   University of California Campus/Lab
   Water Resources Modeling and Prediction Program

   University of California, California Applications Program

VII. Compliance with standard terms and conditions – see attached Form DI-2010.

U.S. Department of the Interior

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 1995
(This form replaces DI-1953, DI-1954, DI-1955, DI-1956 and DI-1963)

PART E: Certification Regarding Lobbying
Certification for Contracts, Grants, Loans, and Cooperative Agreements

CHECK __ IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND THE AMOUNT EXCEEDS $100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT; SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.

CHECK ✓ IF CERTIFICATION IS FOR THE AWARD OF A FEDERAL LOAN EXCEEDING THE AMOUNT OF $150,000, OR A SUBGRANT OR SUBCONTRACT EXCEEDING $100,000, UNDER THE LOAN.

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

Steve Ingebritsen

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL

Steven E. Ingebritsen, Chief, Branch of Regional Research, WRD, WR

TYPED NAME AND TITLE

June 29, 1998

DATE

DI-2010
June 1988
(This form replaces DI-1953, DI-1954, DI-1955, DI-1956 and DI-1963)

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK__IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL.

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing an ongoing drug-free awareness program to inform employees about--
(1) The dangers of drug abuse in the workplace;
(2) The grantee's policy of maintaining a drug-free workplace;
(3) Any available drug counseling, rehabilitation, and employee assistance programs; and
(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will –
(1) Abide by the terms of the statement; and
(2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

(e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

(f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted –
(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
(2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a) (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

345 Middlefield Road, Menlo Park, San Mateo, CA 94025
9500 Gilman Drive, La Jolla, San Diego, San Diego, CA 92093

Check__if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK__IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL.

Alternate II. (Grantees Who Are Individuals)

(a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;

(b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

DI-2010
June 1996
(This form replaces DI-1953, DI-1954, DI-1956, DI-1958 and DI-19031