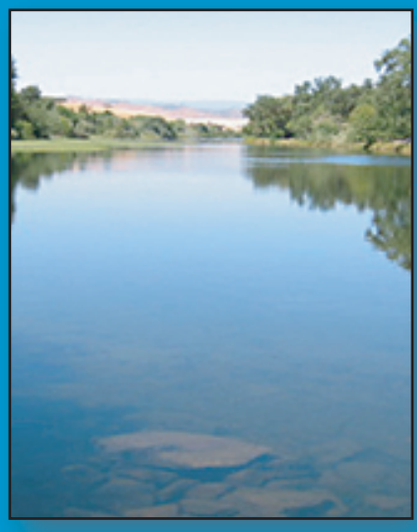
2007 ANNUAL REPORT

of the
RESTORATION ADMINISTRATOR

on the
SAN JOAQUIN RIVER
RESTORATION PROGRAM



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January 29, 2008

BROWN AND CALDWELL

San Joaquin River Restoration Project (SJRPP)
Settling Parties and Implementing Agencies
(Distribution list attached)

Subject: Restoration Administrator (RA) 2007 Annual Report:
San Joaquin River Restoration Program

Dear SJRRP Settling Parties and Implementing Agencies:

Enclosed is the first Restoration Administrator Annual Report for the SJRRP. This first report was jointly prepared by the RA and the outgoing Interim RA under the terms of the Settlement for the SJRRP. Pursuant to Exhibit D, Paragraph 10 of the Settlement, the RA is charged with preparing an annual written report to the Settling Parties concerning progress made during the previous year.

If there are questions regarding this report, please feel free to contact me.

Sincerely,

BROWN AND CALDWELL

Ane D. Deister
Restoration Administrator

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RESTORATION ADMINISTRATOR 2007 ANNUAL REPORT: SAN JOAQUIN RIVER RESTORATION PROGRAM

Prepared for
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January 29, 2008

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1. OVERVIEW

The San Joaquin River Restoration Program (SJRRP) is the result of a historic, landmark Settlement Agreement (Settlement) between three sets of Parties: fourteen conservation and fishing groups led by the Natural Resources Defense Council (NRDC), 22 water contractors represented the Friant Water Users Authority (FWUA), and three federal agencies, in particular the Bureau of Reclamation. These parties represent environmental interests, agricultural water users, and the federal water management and resource agencies charged with operating and managing the water and environmental resources of the San Joaquin River. A separate Memorandum of Understanding (MOU) was executed with the State of California, which is assisting with the implementation and funding of the Settlement. Together there are 3 federal and 2 state agencies comprising the Implementing entities.The Settlement was crafted to achieve two overarching goals:

- the Restoration Goal: to restore and maintain fish populations in "good condition" in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally-reproducing and self-sustaining populations of salmon and other fish; and
- the Water Management Goal: to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows provided in the Settlement

The project implementation area covers a 150 mile segment of the river located below the Friant Dam extending to the confluence with the Merced River. The Settlement provides specific restoration and management activities envisioned and identified within the river, and lands adjacent to the river bank. The Settlement was signed by all parties in September 2006 and it was approved by the US District Court in October 2006.

Since that time, and despite various challenges, the San Joaquin River Restoration Program (SJRRP) has been successfully launched and the Settlement has begun to be actively implemented. As is discussed below, in 2007 the Implementing agencies developed a Program Management Plan which included the establishment of technical and managerial teams representing all the state and federal implementing agencies and which is now guiding implementation efforts. The Implementing agencies also developed a scope of work and hired a team of consultants, and it was able to make significant progress on various technical studies. During this period, a stakeholder outreach plan was developed and has begun to be implemented, and a number of public scoping sessions have been conducted around the Central Valley. While the federal legislation has moved slower than anticipated, to-date the Implementing agencies report that the SJRRP is on schedule and has sufficient funding and authorization to carryout its efforts in the coming months. Parallel to the SJRRP are the efforts of the Restoration Administrator and Technical Advisory Committee, as called for by the Settlement. Despite significant delays in the separate State funding necessary to establish the RA and the TAC, both have now been appointed and they were able to make significant accomplishments in the remaining half of the year. Recommendations regarding reintroduction of spring run Chinook salmon including interim and long term population targets were developed and formally delivered to the Secretary of the Interior as required by the Settlement. Similar recommendations for fall run Chinook are behind schedule but are underway. These initial activities of the RA, the TAC and the implementing agencies since October 2006 are briefly summarized in this first Annual Report of the Restoration Administrator.

2. BACKGROUND AND INTRODUCTION

This first Annual Report was jointly prepared by the Restoration Administrator (RA) and the outgoing Interim RA under the terms of the Settlement for the SJRRP. Pursuant to Exhibit D, Paragraph 10 of the Settlement, the RA is charged with preparing an annual written report to the Settling Parties concerning progress made during the previous calendar year in implementing the terms of the Settlement. Development of the RA's annual report includes assistance from the project Technical Advisory Committee (TAC). The report is required to be submitted on or before February 1 of each year to the Settling Parties "and 30 days thereafter shall be publicly released." The non-federal settling parties shall also furnish a copy of this report to the Federal Court, which will occur at approximately the same time as the public release of the report. Specific accomplishments, impediments and recommendations related to the needs and challenges for the following year are to be included in the report and transmitted to the U.S. Secretary of the Interior.

The Settlement was signed September 2006 and approved October 2006; the initial Interim RA was appointed in May 2007 and resigned effective January 31 of 2008. The current RA assumed the role effective January 1, 2008, as confirmed by the January 10, 2008 Order of the District Court, thereby providing a short overlap period to ensure continuity and maintain project momentum. As a result, this report has been prepared and submitted as a collaborative effort involving the RA, Ane D. Deister, and outgoing Interim RA, Roderick J. Meade.

This Report has been prepared to conform to the provisions of paragraph 10 of the Exhibit D to the Settlement. Paragraph 10 provides that the Annual Report shall address, but not be limited to, the following topics:

1. A summary of settlement implementation activities;
2. Findings of research and data collection;
3. Any additional recommended measures to achieve the restoration goal;
4. A summary of progress and impediments in meeting targets established per paragraph 11 of Exhibit D of the Settlement; and
5. A summary of expenditures from the RA budgetary account.

In addition to the specific items listed above, this report describes other accomplishments beyond those specified in the Settlement, and potential impediments that may be looming on the horizon. Finally, the report addresses the goals and milestones that the RA and TAC expect to address in 2008, along with action items that may involve others, including Congressional actions and administrative assistance.

3. SUMMARY OF ACCOMPLISHMENTS AND IMPEDIMENTS

3.1 Summary of the 2007 SJRRP Settlement Implementation Activities and Progress

Overview

The Settlement anticipated that enactment of federal legislation to provide complete authorization and long term funding would occur by December 31, 2006 and the appointment of the TAC and the RA would occur shortly thereafter. Because the Settlement provides that the TAC and RA will not be funded by the Federal Parties, separate funding had to be obtained. In fact, funding support for the RA and the TAC, which is being provided by State agencies using State bond funding, was not secured until late-May of 2007 and the RA could not be appointed until then. Even with these administrative delays, the RA finds that the implementation activities and progress noted in this report substantiates that the SJRRP was successfully launched, has remained on schedule, and considerable progress was made during 2007. Some of these activities are summarized below and in the separate summary of the Program Manager's report provided on pages 5-7 below:

Appointments and Personnel

- Hiring by NRDC/FWUA of Interim RA late-May 2007
- Hiring of three of the four designated TAC consultant members first quarter 2007, along with TAC representatives of FWUA and NRDC
- Appointment of the state agency members and federal liaison representatives to the TAC pursuant to the Settlement
- Establishment of the Program Management Team (PMT) including 5 federal and state agencies
- Appointment of the Program Manager (PM) at the US Bureau of Reclamation to lead the 5 Implementing Agencies and represent the Secretary of Interior (Fig.1)
- Hiring of consulting teams by PMT for various implementation tasks
- Subsequent selection by NRDC/FWUA of the current RA, who began in January 2008
- Resignation of the interim RA effective January 31, 2008

Budgetary and Fiscal Matters

- Allocation of initial state and federal funding adequate to take the SJRRP through the first 2 years of the Program Management Plan; extensive work in Congress to facilitate final passage of long term federal funding
- the State and NRDC/FWUA agreed that DWR and DFG would enter into an agreement with the Resources Legacy Fund (RLF) to oversee management and disbursement of state grant funding for the RA and the TAC

Coordination, Communication, Interaction Protocols and Interrelationships

- Effective launch of the TAC as technical advisors to the RA and of the RA as advisor to the Secretary of the Interior via the PMT
- Establishment and publication of the SJRRP organizational chart, depicting roles, reporting relationships and the collaborative and interactive nature of the participant interactions; see Figure 1
- At least weekly communication and consultation between the RA and PM
- Ongoing discussions regarding consultation procedures that will guide
- The working relationship between the RA and PM during implementation
- Participation by the Settling Parties and Third Party interests during implementation of the Program Management Plan
- Written identification by US EPA of their designated coordination staff
- Written identification by US Army Corps of Engineers of their designated coordination staff

Technical Activities, Reports and Summaries

- Completion by the TAC of the Spring-run Chinook Salmon population recommendations for a sustainable natural fishery, transmittal to the RA and subsequent review and preparation of recommendations by the RA to the Secretary of the Interior via the Program Manager
- Substantial progress by the TAC on the Fall-run Chinook Salmon population recommendations

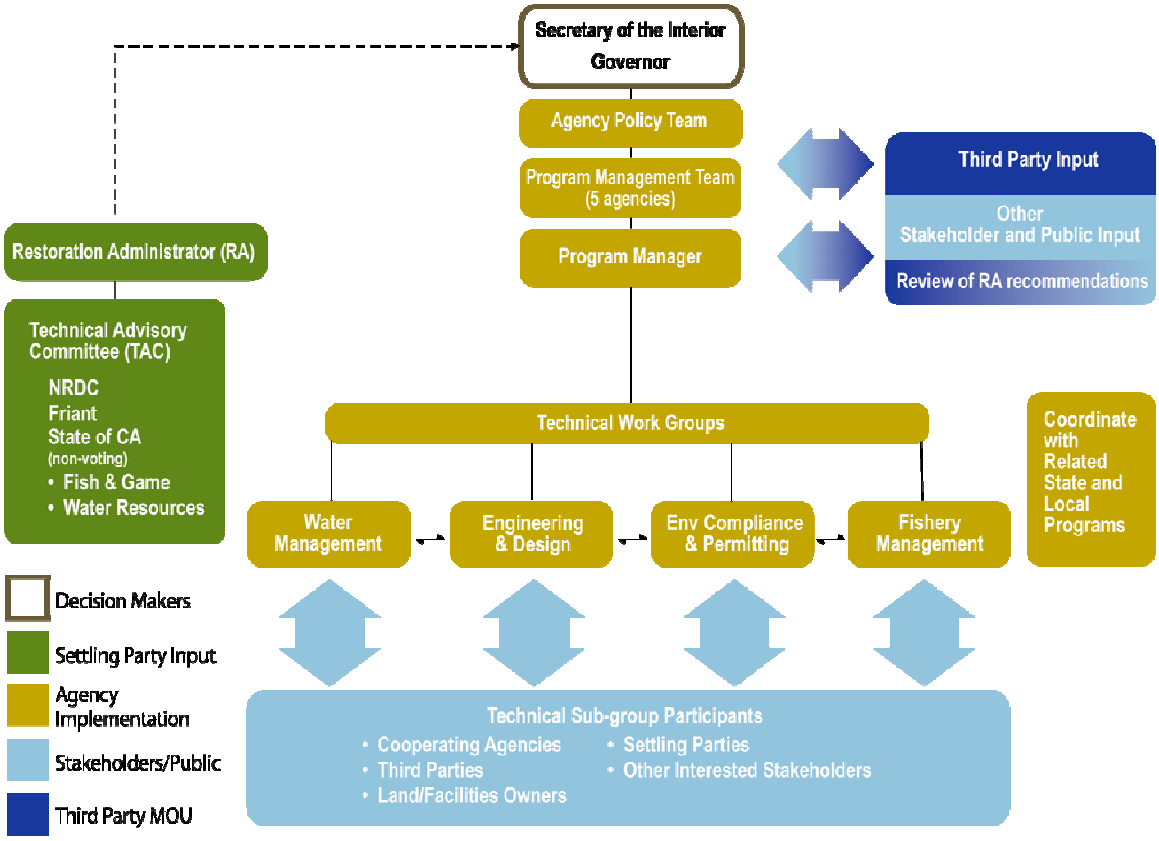
Program Manager's Key List of Accomplishments

The Federal Government's designated Program Manager (PM) has developed a 2007 detailed annual report of the work plan accomplishments, along with items that were not completed. Below is a synopsis provided by the PM of the most significant achievements and successes noted by the PM

PM's 2007 Progress and Accomplishments

- Creation and Staffing of the Program Management Structure

Implementing Agencies' Chart of Program Management Structure



Source: Bureau of Reclamation SJRRP Annual Report, January 2008

Figure 3-1. Program Organizational Chart

- Formulation of the Program Management Plan in May 2007 that provided
  - Overview of entire project
  - Organizational structure and working relationships
  - Detailed descriptions of technical tasks and timing
  - Public information
- Public Outreach and Involvement
  - Separate Public Involvement Plan completed to provide transparency with stakeholders, third parties, and others interested in the project.
  - Outreach activities including a web site for information sharing, co-sponsored workshops, and field tours. (www.restoresjr.net)
  - Four public scoping meetings were held in various locations in the Central Valley followed by written scoping comments from members of the public.

- Status of Federal Legislation
  - Initially, Congressman George Radanovich (R-Mariposa) and Senator Dianne Feinstein (D-California) introduced legislation in December 2006 to provide formal authorization and long term funding for federal agencies' participation in the Settlement implementation. The legislation did not pass before the completion of the Congressional term. The sponsors re-introduced the legislation in January 2007, but enforcement of new Pay-Go rules by the new Congress delayed congressional action while the Congressional Budget Office analyzed the effect of the new rules on the bill and the House and Senate Committees held legislative hearings on the bill and the Settlement. To address the Pay-Go rules, an amended version of the legislation was introduced by Congressman Jim Costa (D-Fresno) as HR 4074. This bill was approved by the House Committee on Natural Resources in November 2007 and is awaiting final floor action. Further action by the House and the Senate is anticipated in 2008.

Additional achievements extending beyond the Settlement Agreement specifics

The interest in this project and the Settlement process by a wide array of public, non-governmental organizations, water districts and other professionals engaged in water and environmental resource management issues has been extensive. Once the Settlement was signed the Settling Parties provided public information including press releases describing the settlement process. Beyond that, the Bureau of Reclamation created a website that is the repository of the Implementing Agencies' information and updates regarding the SJRRP, with linkages to the NRDC and FWUA websites. The Bureau's website includes ability for input by clicking "Get Involved Now," with resource materials stored in the "Program Library."

3.2 Summary of TAC Research Findings and Data Collection

Overview

In 2007 the TAC focused on addressing items a-e of paragraph 11 of Exhibit D of the Settlement by conducting comprehensive, pertinent literature review and data compilation from other field experiences. The scientific literature review provided a beginning foundation upon which recommendations could be based regarding the sustainability of the spring-run Chinook salmon. The project participants recognize the need to expand this part of the work into the field in 2008 and have set that as a key target activity. Nevertheless, the gathering of available, applicable data, including literature reviews in this first year provided an opportunity for the project participants to move forward with a shared understanding of the scientific factors that may greatly affect the ultimate project success.

Spring-run Chinook Salmon restoration for sustainability

One of the primary achievements for 2007 was the successful process of identifying, compiling and analyzing available information that was necessary to prepare the spring-run Chinook salmon recommendations contained in the *Spring-run Chinook Salmon Needs and Assessment Report*. This report was submitted to the Interim RA by the TAC. The Interim RA then transmitted the report as his recommendation to the Secretary of the Interior's representative (the PM). Key aspects of this report include the following topical areas:

- Stock selection and re-introduction strategies
- Appropriate use of hatchery facilities and trap and haul as part of the re-introduction strategies
- Interim and long-term targets, goals, and milestones for annual escapement

The gathering and reviewing of the technical information by the scientists and technical experts effectively established a workable, scientifically critical, iterative process of sorting, weighing and considering the applicability of available technical information and data. The steps used by the participants in gathering and compiling the scientific information are noted below. The process of discovery, questioning, disagreement

and agreement, though not readily obvious, involved considerable interactive consultation to develop an agreed upon basis of understanding at this point in the project. This collaboration contributed to the following important progress:

- a literature review to guide TAC recommendations on stock selection and reintroduction strategies
- a literature review to guide TAC recommendations on interim and long-term adult escapement targets, goals, and milestones
- a critical review of the data, synthesizing and interpreting data, and developed the rationale for draft recommendations. This process included extensive discussion and input from federal liaisons and state TAC members that occurred during the TAC meetings and numerous teleconferences over the course of 2007.
- Weighing different recommendations and reaching agreement on specific recommended actions/measures to the RA based on an assessment of best available scientific information.

The information compiled and analyzed by the TAC also is being used to prepare draft recommendations for fall-run Chinook salmon. This report will focus on the same issues cited above for the spring-run Chinook salmon report. A draft set of recommendations will address coordination of the Friant Dam water releases with fishery management actions downstream in the Merced, Tuolumne and Stanislaus rivers. The fall-run recommendations are expected to be completed and submitted by the TAC to the RA by early February 2008 and the recommendations concerning coordinating Friant Dam water releases with downstream fishery actions are expected to be completed by April 2008. The RA will review these recommendations and will transmit recommendations to the Secretary of the Interior's representative (the PM) for consideration.

3.3 Additional Recommended Measures to Achieve the Restoration Goal

Overview

Many of the goals, objectives and specific restoration and management activities are prescribed in the Settlement. Those items comprise 'what' is to be accomplished, and 'when' it is to be completed. The Settlement helped to resolve the 'why' issues of old, and supplanted those issues with a new set of mutual commitments supporting the two broad goals of salmon fishery restoration and water management within the San Joaquin River. Even 'who' is to participate is addressed in the agreement, which identifies the RA, the State and the Non-Federal Settling Parties as key partners with the Federal Government in implementing this project. The 'how' part of this project is a key component that the Settling Parties and other affected interest groups have been defining and refining in this first year. It is an important part of the process and the success achieved thus far indicates a good beginning. Productive working relationships, positive and respectful interactions, continuous communications and the ability to actively listen have been established, for the most part.

With the exception of one federal entity (whose participation has been more constrained, as noted below), the participants are developing an effective dialog, which should facilitate future work. As a result, the participants who are actively working through issues, weighing in on scientific, engineering, resource and land use matters, are showing some reasonable concern for the need for all the participants to be fully engaged and part of this dynamic process. It is hard enough to get the participants representing 99% of the issues to agree and work collaboratively. Yet, if there is a sense by these willing participants that there is reluctance or inability by a single entity to be part of the process, the result could be an undermining of the significant positive and collaborative work successfully accomplished thus far.

Collaborative Communications Achievements and Needs

The relationships and interaction between and among the participants in their respective roles often extend outside the formal boundaries of labels and group distinctions. This has been productive and led to more collaborative and integrated communications and achievements and provided a foundation for future deliberations and work.

The achievements in this category in 2007 included the following:

- Effectively implemented consultation process involving the PM and RA
- Provided the ability for specific requests for technical assistance by the PMT from individual TAC members

Goals and needs for the upcoming year include the following:

- Building upon the existing relationships and continuing to develop and improve consultation procedures consistent with the Settlement to enable the TAC to keep abreast of and provide effective and timely advice to the RA, and to enable the RA to interact effectively with the PMT. This is particularly needed in the face of the quickening pace of:
  - Preparation, distribution, TAC/RA review and comment and finalizing technical recommendations and environmental documentation that will be necessary to implement the Work Program.
  - The need to ensure the timelines established in the Settlement for specific actions and accomplishments are met.
- The National Marine Fisheries Service (NMFS) is one of the federal parties to the Settlement and one of the liaisons to the TAC. It is being relied upon to bring important technical resources and perspectives to the project. Input by the NMFS representatives and resource scientists would add to the richness of the process, and provide guidance regarding the regulatory mandates in which NMFS operates. Unlike the Bureau of Reclamation and the US Fish and Wildlife Service, which are both agencies of the Interior Department (the federal lead), NMFS is an agency of the Department of Commerce, although it was also a defendant in the case and a signatory to the Settlement. In 2007 NMFS was not fully engaged in a real time fashion, concurrent with the interactions with others participating in the TAC and PMT, which may have already adversely affected the program. The failure of NMFS to participate fully, if it continues in the future, could adversely affect future implementation of the SJRRP Program Management Plan. Specific accomplishments and needs follow:
  - NMFS participated in some of the discussions in the literature and data collection and compilation processes that led to the development, by others fully participating in the TAC, of the *Spring-run Chinook Salmon Needs and Assessment Report.*
  - NMFS staff members have indicated a constraint with their budgetary process that limits their ability to fully participate. It is not possible for the RA to fully evaluate the internal budget allocations between federal agencies. Yet, it appears that despite similar hurdles with the other participants' budgets, the fullness of the other participants' engagement has not been diminished. As a result there is a need for:
    - NMFS to actively participate to ensure their views, perspectives, issues and concerns are incorporated early in the process, when there is optimum opportunity to resolve potential disputes and make necessary corrections or fine tuning.
    - Participants to continue and enhance their supportive actions to ensure the federal agencies are appropriately authorized, staffed and funded for their work.

Recruiting, Hiring and Successful Engagement of Technical Consulting Resources – Achievements and Needs

- TAC members include consultants and non consultants. Three consultants have been hired to provide objective, expert advice to achieve the Settlement goals. By design a consultant was selected by NRDC, another by FWUA and a third was to be mutually selected to provide fisheries resource consultation, and play a major role in the TAC deliberations. The caliber of these technical experts is high, and the trust among the parties is equally high. A copy of the resumes for these three consultants is provided in Appendix A.
- NRDC/FWUA will be jointly appointing an eighth TAC member in 2008. The final TAC member should have engineering expertise and experience in flood control operations and levy design and construction

3.4 Summary of Impediments to Meeting 2007 RA/TAC Targets Set Forth in the Settlement

2007 Impediments to Progress

The Settlement established a number of aggressive expectations and accomplishments keyed to specific times and due dates. However, as noted earlier in this report, the allocation of funding at the state leveldid not occur during 2006 or early 2007 as intended and this effectively delayed the start of the RA and TAC process. While the federal agencies continue to have authority and initial funding, with which they are continuing to implement the Settlement, congressional approval of the long term funding and authorization is necessary

As already mentioned above, a second impediment to progress by the RA and TAC during 2007 involved the failure of National Marine Fisheries Service (NMFS) to fully commit to a liaison role in the TAC.

Proposals to Address Specific Impediments to the 2007 Work Plan

To address the impediments identified immediately above, the RA recommends the following corrective actions.

- It is critical that the federal funding and authorizations are provided to enable the federal parties in the Settlement agencies to provide the participants the opportunity to assure timely and orderly implementation of the Program Management Plan consistent with Settlement milestones.
- NMFS needs to become a fully engaged participant in the TAC and other activities as was committed to in the Settlement. Failure by NMFS to engage fully in the project could adversely affect successful implementation of the project.

3.5 RA and TAC Expenditures 2007

Overview

As noted above, the Resources Legacy Fund (RLF) was selected to manage the allocation and distribution of grant funding for the project. Below is a summary of the accounting information provided independently by the RLF to the RA.

Summary of RLF Accounting Report, 2007 SJRRP

▪ RA Account	
• Initial RA contract	
– Salary June 2007 to January 31, 2008	$17,160.00
– Expenses	1,743.00
– **Total Initial RA Contract**	**$18,903.94**
• Technical Assistance	0.00
• CPS Executive Search	
– Compensation	6,000.00
– Expenses	6,626.00
– **Total CPS**	**12,626.80**
2007 RA Account Total	**$31,530.74**
▪ TAC Account	
• FWUA contract	
– Compensation	28,125.00
– Expenses	666.27
– Subtotal	28,791.27
▪ TAC consultant McBain	
• Compensation	18,882.50
• Expenses	4,372.61
• Subtotal	23,255.11
▪ TAC consultant Hansen	
• Compensation	11,750.00
• Expenses	434.71
• Subtotal	12,184.71
▪ TAC consultant Moyle	
• Compensation	15,687.50
• Expenses	171.58
• Subtotal	15,859.08
▪ NRDC contract	
• Compensation	11,770.00
• Expenses	895.12
• Subtotal	12,665.12
2007 TAC Account Total	**$92,755.29**
▪ Project total	
• 2007 RA Account Total	$31,530.74
• 2007 TAC Account Total	$92,755.29
2007 Project total RA/TAC	**$124,286.0**

Note:

In addition to these expenses noted above, the state and federal agencies have allocated funds for 2006/2007 and 2007/2008. A detailed accounting may be found on the SJRRP website maintained by the US Bureau of Reclamation, mid-Pacific region.

3.6 2008 RA/TAC Goals, Objectives and Targets

Overview

The SJRRP is one of the most complex and comprehensive projects of its kind in the country. It requires significant specialized technical expertise in science, engineering, state and federal regulatory requirements, communications, facilitation and collaboration skills. In this first report we note despite the funding delays the project participants creatively used their time and energy to move forward with steps necessary to set this project into motion and establish a baseline of procedures, participants, roles and responsibilities to guide the 2007 work. Additionally the consultants and other technical participants gathered and sifted through available information, data and scientific criteria, to develop a core of technical information and understanding necessary for comparison with the field work to be performed in 2008 and beyond.

In order to provide the necessary resources important to successful project implementation some key actions are targeted for 2008 – with an intention of accomplishing them as soon as possible in 2008.

Strategic Assessment of Goals, Objectives and Targets

- Engage the Army Corps of Engineers
  - The role of the Army Corps of Engineers as a federal entity engaged in managing, constructing and operating water facilities within and adjacent to the project area, coupled with their regulatory jurisdiction, points out the need to continue working closely with the Corps, especially regarding their input on:
    - Regulatory jurisdictional matters that may relate to the project implementation
    - Potential impacts of water resource operations with other conveyance and storage facilities.
  - Additionally the role of the State Water Resources Control Board and the Regional Water Quality Control Board in the management and regulation of environmental and water quality resources in the state further suggests the need for their immediate involvement and understanding of the project's goals and objectives.
    - In particular it is reasonable to expect that these water boards will be highly interested in the construction standards being developed for project implementation.
    - Sharing of the Settlement timelines will need to be accomplished early in 2008, by the PM and PMT.
- Passage of the Congressional legislation fully authorizing federal agencies to implement the Settlement
  - The federal authorizing legislation needs to be passed; despite the fact that the project has been launched, there may be some participants who remain hesitant to engage fully until the legislation has passed.

Ongoing Communications and Coordination

With a new RA appointed in January 2008 it is important to ensure the positive working relationships and protocols established in 2007 are understood and respected. Commitment to these procedures is a step towards avoiding misunderstandings or other unintended adversities that could occur due to a change in personnel.

- Maintain regular communication and consultation between the RA and PM to ensure understanding and provide assistance where necessary
- Maintain regular communications between the TAC, RA, PM, and through the PM, the PMT

Process Interactions and Conflict Prevention

- Work with the PMT, NRDC/FWUA and others to secure a commitment from NMFS to fully engage in the work of the TAC
- Finalize and implement RA/PM consultation procedures to assure effective and consistent coordination between the RA and PM
- Work with the PM and PMT to continue regular communications with the Army Corps of Engineers
- Work with the PM and PMT to initiate communications with the State Water Resources Control Board and the Regional Water Quality Control Board

Technical Assessments, Review and Comment

- Complete preparation of recommendations addressing re-introduction and management of Fall-run Chinook into the San Joaquin River for transmittal to the Secretary of the Interior
- Complete preparation of recommendations covering coordination of releases from Friant Dam with fishery restoration actions on the Merced, Tuolumne and Stanislaus rivers for transmittal to the PMT
- Provide timely comments to the PMT Technical Work Group on technical reports made available for review/comment
- Conduct onsite field assessments and data gathering

4. CLOSING REMARKS

The SJRRP is an ambitious project that is unprecedented in its scope and complexity – restoring more than 150 miles of river. It involves many components, each with unique complexities and challenges. The project traverses scientific, engineering, regulatory, and water management challenges, and it also involves complex issues of local, state and federal politics, communications and advocacy. The Settlement alone was a landmark accomplishment, attesting to the commitment of the Implementing Agencies and NRDC/FWUA to forge solutions in what seemed at one time to involve insurmountable challenges. Despite funding clogs and some personnel hiccups a group of diverse, engaged and committed resource professionals from water and environmental arenas are laying down the framework upon which this project will be built and operated.

It is vitally important as the project moves into its second year that full federal participation and implementation is authorized, federal and state funding is brought on line in a timely and orderly manner, and all participants maintain their commitment to share as equal partners in crafting the vision, identifying and addressing ongoing areas of concern, and developing ways to resolve conflicting goals and interpretations of what must be accomplished to fully implement the Settlement.

APPENDIX A: TAC CONSULTANT RESUMES

Charles H. Hanson
Senior Fishery Biologist

Education

Ph.D. Ecology and Fisheries Biology, University of California, Davis, 1980
M.S. Fisheries Biology, University of Washington, 1973
B.S. Fisheries Biology, University of Washington, 1972

Certification

Certified Fisheries Biologist
American Fisheries Society

Experience

Dr. Hanson has more than 31 years of experience in freshwater, estuarine, and marine biological studies. Dr. Hanson has contributed to the study design, analysis, and interpretation of fisheries, stream habitat, and stream flow (hydraulic) data used to develop habitat restoration strategies, Habitat Conservation Plans, Endangered Species Act consultations, and environmental analyses. Dr. Hanson has conducted evaluations of the effectiveness of various water diversion fish screening systems, assisted in fish screen design and permitting, and developed operational modifications to reduce organism losses while maintaining operational reliability of the water projects and hydroelectric systems. He has directed numerous investigations and environmental impact analyses for projects sited in freshwater, estuarine, and marine environments of the San Francisco Bay/Delta, the central and northern California Coast, Puget Sound, Hudson River, and Chesapeake Bay. Dr. Hanson has participated as an expert witness on fisheries and water quality issues in numerous public hearings and superior court litigation. Dr. Hanson has been extensively involved in incidental take monitoring and investigations of endangered species, development of recovery plans, consultations, listing decisions and identification of critical habitat, and preparation of aquatic Habitat Conservation Plans. Dr. Hanson served as a member of the USFWS Native Delta Fish Recovery Team, Central Valley Technical Recovery Team, 2007 USFWS Delta Smelt Recovery Team, numerous technical advisory committees, and as science advisor to settlement negotiations. Dr. Hanson has directed studies on the effects of selenium on waterbird reproduction and designed compensation wetland habitat. Dr. Hanson has also participated in the development of adaptive management programs including real-time monitoring, management of power plant cooling water and other diversion operations, and the San Joaquin River Vernalis Adaptive Management Plan (VAMP). Dr. Hanson has authored more than 75 technical and scientific reports.

1991-Present ***Senior Biologist/Principal*, Hanson Environmental, Inc.**
Provides services in the design, execution, and interpretation of biological monitoring, fishery sampling, and regulatory compliance programs. Prepares technical compliance reports and exhibits for submittal to regulatory agencies, public hearings, and litigation. Presents findings to the public and press and presents expert witness testimony in litigation and regulatory hearings. Develops the design, implementation, and performance monitoring of habitat enhancement and mitigation projects to benefit fish and wildlife.

1982-1991 ***Senior Biologist, Vice President*, TENERA, L.P**

Provided services related to the collection, analysis, and interpretation of biological and engineering data, preparation of documents submitted to regulatory agencies, presentation of findings to the public and press, and presentation of expert testimony in regulatory hearings.

1978-1982 ***Senior Scientist*, Ecological Analysts, Inc.**

Responsible for the collection, analysis, and interpretation of data on the abundance, distribution, and dynamics of various fisheries and invertebrate populations for use in evaluating the impact of power plant operations on aquatic populations for more than ten coastal and estuarine power plant sites in California. Prepared various regulatory environmental exhibits, technical reports, and generic and site-specific analyses of biological and engineering information for the applicability of alternative cooling water intake technologies.

1975-1978 ***Research Assistant*, University of California, Davis**

Conducted extensive investigations into behaviorally selected and energetically optimal swimming speeds of juvenile fish in relationship to selected microhabitats to help in establishing a data base and methodology for determining instream flow criteria. Conducted laboratory studies on the swimming performance and behavioral responses of fish to hydraulic gradients to develop biological design criteria for water intake systems.

1973-1975 ***Research Scientist*, The Johns Hopkins University**

Conducted fishery and zooplankton surveys in freshwater and marine environments along the Atlantic coast. Evaluated the acute and chronic effects of exposure to elevated water temperatures on freshwater and marine fish and invertebrates. Developed onsite and mobile bioassay laboratory facilities.

1969-1973 ***Research Assistant*, University of Washington**

Conducted bioassays to determine the synergism between elevated water temperature and duration of exposure on the toxicity of chlorine to two species of salmon. Determined the effectiveness of various techniques, including use of chlorine and thermal shock treatment in minimizing colonization by marine fouling organisms. Evaluated the acute and chronic effects of exposure to elevated water temperature on freshwater and marine fish and invertebrates. Participated in the evaluation of the behavioral attraction and avoidance of response of juvenile fish to thermal and chemical gradients.

Professional Associations

American Fisheries Society (Life Member)
American Institute of Fisheries Research Biologists (past Program Committee Chairman)
Pacific Fisheries Biologists (past Program Chairman)
Who's Who in the West
San Francisco Bay and Estuarine Society (past President)

Technical Advisory Committees

State Water Resources Control Board Striped Bass Workshop
American River Technical Advisory Committee
Mokelumne River Technical Advisory Committee
Santa Ynez River Technical Advisory Committee
Bay-Delta Oversight Committee (BDOC) Aquatic Resources
USFWS Delta Native Fish Recovery Team
CVPIA Striped Bass Technical Team

Publications:

Davies, R.M., **C.H. Hanson**, and L.D. Jensen. 1976. Entrainment of zooplankton into a mid-Atlantic power plant - delayed and sublethal effects in Thermal Ecology II (G.W. Esch and R.W. McFarlane, eds.), pp. 349-357. U.S. Energy Res. and Develop. Admin., Report No. CONF-750425.

Davis, D.E., **C.H. Hanson**, R.B. Hansen. 2007. Constructed Wetland Habitat for American Avocet and Black-necked Stilt Foraging and Nesting. Journal of Wildlife Management. In publication.

Hanson, C.H. and C.P. Walton. 1990. Potential effects of dredging on early life stages of striped bass (*Morone saxatillis*) in the San Francisco Bay area: An Overview. Pages 39-57 In Effects of Dredging on anadromous Pacific coast fishes. Wash. Sea Grant.

Hanson, C.H. and E. Jacobsen. 1985. Orientation of juvenile Chinook salmon and bluegill to low water velocities under high and low light levels. California Fish and Game 71(2):110-113.

Hanson, C.H. and H.W. Li. 1983. Behavioral response of juvenile Chinook salmon (*Oncorhynchus tshawytscha*) to trash rack bar spacing. California Fish and Game 69(1):18-22.

Hanson, C.H., J.R. White, and H.W. Li. 1977. An alternative approach for developing intake velocity design criteria. Trans. Calif.-Nev. Wildl. Soc.:10-18.

Hanson, C.H., J.R. White, and H.W. Li. 1977. Entrapment and impingement of fish by power plant cooling-water intakes: an overview. Mar. Fish. Rev. 39(10):7-17.

Hanson, C.H. 1976. Commentary - ethics in the business of science. Ecology 57(4):627-628.

Hanson, C.H. and J. Bell. 1976. Subtidal and intertidal marine fouling on artificial substrata in northern Puget Sound, Washington. NOAA Fish. Bull. 74(2):377-385.

Hanson, C.H., J. Coil, B. Keller, J. Johnson, J. Taplin, and J. Monroe. 2004. Assessment and Evaluation of the Effects of Sand Mining on Aquatic Habitat and Fishery Populations of Central San Francisco Bay and the Sacramento-San Joaquin Estuary. Prepared for Hanson Aggregates Mid-Pacific, Inc., RMC Pacific Materials, Inc., and Jerico Products/Morris Tug and Barge. Final Report. September 2004.

Lindley, S.T., C. R. Schick, E. Mora, P.B. Adams, J. J. Anderson, S. Greene, **C. Hanson**, B. May, D. McEwan, R. B. MacFarlane, C. Swanson, and J. G. Williams. Framework for Assessing Viability of Threatened and Endangered Chinook Salmon and Steelhead in the Sacramento-San Joaquin Basin. San Francisco Estuary and Watershed Science. Vol. 5, Issue 1 (February 2007). Article 4. http://repositories.cdlib.org/jmie/sfews/vol5/iss1/art4/.

Stober, Q.J. and **C.H. Hanson**. 1974. Toxicity of chlorine and heat to pink and Chinook salmon. Trans. Am. Fish. Soc. 103(3):569-577.

Stober, Q.J., **C.H. Hanson**, and P.B. Swierkowski. 1974. Sea water filtration and fouling control in a model rapid-sand filter for exclusion of fish from power plant cooling systems, in Proceedings, Second Workshop on Entrainment and Intake Screening. Cooling Water Studies for Electric Power Research Institute (RP-49) (L.D. Jensen, ed.) pp. 317-334. Rept. No. 15. Dept. of Geography and Environmental Eng., Johns Hopkins University, Baltimore.

Tanji, K., D. Davis, **C. Hanson**, A. Toto, R. Higashi, and A. Amrhein. Evaporation ponds as a drainwater disposal management option. Irrigation and Drainage Systems. Vol. 16, No. 4 (November 2002). Pages 279-295.

Dr. Hanson has also authored more than 75 technical and scientific reports.

Scott McBain

McBain & Trush, Inc.
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Arcata, CA 95521
Scott@mcbaintrush.com

EDUCATION

- **Master of Science (1993), Department of Civil Engineering**
  Hydraulic Engineering/Geomorphology emphasis
  University of California, Berkeley, CA 94720
  Studied river engineering and geomorphology. Coursework included Fluvial Geomorphology, Geomorphology, Analysis of Environmental Data, Mechanics of Sediment Transport, River Engineering, Surface Water Hydrology, and Technical Communication. Major professors: H.W. Shen and W. E. Dietrich

- **Bachelor of Science (1989), Environmental Resources Engineering**
  Water Quality/Fisheries emphasis
  Humboldt State University, Arcata, CA 95521
  Program included environmental monitoring, water quality analysis, water and waste water treatment, applied hydraulics, limnology, reservoir management, in addition to core engineering courses.

EXPERIENCE

- **Fluvial Geomorphologist and CEO (1/95-Present), McBain & Trush, Inc.**
  - Tuolumne River Corridor Restoration Plan, Tuolumne River Technical Advisory Committee (1996-2000). Managed and performed hydrology and geomorphology analyses to develop a corridor restoration plan for the lower Tuolumne River. Integrated the considerable volume of historical biological work with our geomorphology and hydrology data to develop a restoration plan that integrates the physical underpinnings of the river ecosystem with the desired management targets (salmonids and other key species). Funded by AFRP and the TRTAC.

  - San Joaquin River Restoration Plan, Friant Water Users Authority and Natural Resources Defense Council (2000-2003). Served as independent technical participant on the Restoration Oversight Team that supervised preparation of technical restoration planning studies on the San Joaquin River from Friant Dam to the Merced River confluence. Provided technical input and oversight on geomorphology, channel design, hydrology, hydraulics, riparian vegetation, and salmon habitat, as well as assisted with project management of project tasks.

  - Tuolumne River Floodway Restoration Projects, Turlock Irrigation District (1997-present). Developed conceptual designs and CALFED funding proposals for restoring nine miles (six subreaches) of the Tuolumne River floodway that has been impacted by a combination of gravel mining and subsequent high flow events. After funding was awarded, conducted geomorphic and hydraulic analyses to develop final designs, then worked with HDR Engineering to finish final designs and grading plans.

  - Clear Creek Floodway Restoration Project, Bureau of Reclamation (1998-2001). Conducted fluvial geomorphology, hydrology, and hydraulic analysis to develop a floodway restoration design over a two mile length of lower Clear Creek, near Redding, CA. CALFED funded project uses novel approach of removing dredge tailings in an upstream reach (and restoring functional floodplains) and using this cut material to fill downstream gravel pits and construct functional

floodplains. In addition to earthwork design and implementation, we also developed the riparian revegetation designs for the project. The project was designed in a way to provide a long-term solution (avoiding structural fixes) that encourages natural geomorphic processes to occur (floodplain inundation, bedload transport, channel migration) within the highly regulated setting downstream of Whiskeytown Dam. Much of the project has been implemented.

- Clackamas River FERC Relicensing Project, Portland General Electric (2001-2006). Conducted fluvial geomorphology, hydrology, and fish habitat evaluations to help develop instream flow and coarse sediment management strategies as part of the FERC relicensing process on the Clackamas River and Oak Grove Fork of the Clackamas River. Collected and analyzed field data, integrated for applicability in management strategies, and assisted collaborative relicensing group (agencies, NGO's, stakeholders) with technical components of relicensing effort.

- Trinity River Maintenance Flow Study, Hoopa Valley Tribe (1991-1997). Developed flow and sediment management recommendations downstream of Trinity and Lewiston dams to rehabilitate channel morphology and reverse negative impacts caused by the dams. Applies the approach of restoring a scaled-down dynamic alluvial river as a foundation for salmon recovery to be used as the long-term solution for dams coexisting with healthy salmon populations.

- Trinity River Flow Evaluation Study, Hoopa Valley Tribe (1996-1999). Worked with an inter-agency and inter-tribal team of scientists to compile, synthesize, and integrate previous research conducted on the Trinity River to prepare the Trinity River Flow Evaluation Study. This study, mandated by Congress in 1984, was the culmination of 15 years of research on instream flows, fluvial geomorphology, fishery biology, and riparian ecology. The report recommended a revised flow regime, sediment management, mechanical restoration, and an adaptive management program to achieve the fishery restoration goals mandated by Congress in 1984 and 1992. This report formed the basis for the Trinity River Restoration Record of Decision (ROD), signed by Secretary of Interior Bruce Babbitt in 2001. Then served as one of four technical staff that developed the Adaptive Environmental Assessment and Management portion of the Trinity River Restoration ROD. This subcommittee developed the draft organizational structure, staffing needs and description, funding needs, and adaptive management framework for the agency and tribal managers, and was adopted by the ROD implementation plan.

- Trinity River Scientific Framework Process, Trinity River Restoration Program (2001-present). After signing of the ROD and prior to staffing the new Restoration Program, assisted the Program during the interim period to continue improving the scientific components of the program. Organized and led two workshops. First workshop (June 2001) gathered agency, tribal, and stakeholder technical participants to refine scientific uncertainties in order to prioritize FY 2002 funding for the Restoration Program. Then assembled the results of the workshop, developed the draft FY 2002 budget ($11 million), and presented budget to the agency and tribal managers for review and approval. Second workshop (February 2002) gathered outside and internal scientists to review primary uncertainties and begin developing an overall Sampling and Monitoring Strategy for the Restoration Program. Currently participating as a member of the planning team for conducting the Scientific Framework Process, which will result in completing the Sampling and Monitoring Strategy.

- Strategic Streamflow Needs Assessment Approach, U.S. Forest Service Stream Technology Center (2003-2006). Develop a hypothesis-based logical process for the U.S. Forest Service to

evaluate (1) natural river ecosystem condition, (2) how river ecosystem conditions have been changed due to upstream flow and sediment regulation, (3) how to develop hypotheses to identify and prioritize key study needs that address instream flow needs most important for maintaining and/or restoring river ecosystems, (4) how to use hydrologic and geomorphic tools to determine instream flow needs, and (5) how to integrate information to improve flow and sediment management downstream of dams.

- **Independent Consultant (4/92-4/95), Assistant Hydraulic Engineer**
  Conducted numerous channel rehabilitation designs (both conceptual and implementation), including the Sacramento River at Red Bluff Diversion Dam, John Day River in northeastern Oregon, Tuolumne River (Turlock Irrigation District), and Kidder Creek in northern California (Trinity Restoration Associates). Also assisted in bedload modeling on the Oconee River in Georgia (EA Engineering, Science and Technology), geomorphic and hydraulic analysis of Clavey River and Cherry Creek in the Sierra Nevada (US Forest Service), and geomorphic and hydraulic analysis of the Garcia River estuary on the north coast of California for Dr. Luna B. Leopold.

- **Center for Environmental Design & Research (8/93-7/94), Assistant Hydraulic Engineer**
  U.C. Berkeley, 390 Wurster Hall, Berkeley, CA 94720
  Designed channel geometry and planform for restoration project on Jamison Creek within Plumas-Eureka State Park, California. Duties include historical analysis of geomorphic conditions, establishing field data collection program, designing geomorphically stable channel and riparian community, and establishing a long term field monitoring program.

- **Trinity Restoration Associates, Inc. (8/89-4/92), Assistant Environmental Engineer**
  P.O. Box 820, Arcata, CA 95521
  Design and project management of chinook spawning habitat restoration projects on the lower Tuolumne River. Work consisted of spawning channel relocation, flood plain and riparian restoration design, and historic channel analysis. Also assisted in aggregate mining reclamation plan designs on the lower Tuolumne and Merced rivers, consisting of waterfowl and warm water fish habitat design, riparian restoration design, and AutoCAD design. Tasks included surveying, field stakeout, construction supervision, hydraulic analysis, hydrological analysis, air photo analysis, and interpretation of riparian association and channel morphology adjustments due to pre- and post- dam hydrological changes.

CERTIFICATION

Engineer in Training, State of California, April 1989

PUBLICATIONS AND SPEAKING ENGAGEMENTS

- FHR Currents, a Forest Service technical bulletin, paper titled “Standpipe to Determine Permeability, Dissolved Oxygen, and Vertical Particle Size Distribution in Salmonid Spawning Gravels”, April 1994.

- Co-authored “Attributes of an Alluvial River and Their Relation to Water Policy and Management”, published in the Proceedings of the National Academy of Sciences, October 24, 2000, Volume 97, No. 22.

- Invited speaker to Western Division American Fisheries Society Conference in Flagstaff, AZ, June 1994. Presented “Maintaining Dynamics of Steep Bedrock Rivers: Implications for Channel Morphology and Biological Communities” in Ecosystem Management in Regulated Rivers session.

- American Society of Civil Engineers Waterpower '95 Conference in San Francisco, CA, July 1995. Published and presented "Bed Mobility and Scour on a Regulated, Gravel-Bed River" in Environmental session.

- American Society of Civil Engineers Waterpower '95 Conference in San Francisco, CA, July 1995. Published "Assessing Downstream Variation of Fluvial Processes for Recommending Maintenance Flows in Regulated Rivers" in Environmental session.

- Invited speaker to San Francisco Estuary Project Conference in San Francisco, CA, April 1999. Presented "Alluvial River Attributes" in Plenary session.

- Invited speaker to American Academy for the Advancement of Sciences Pacific Division meeting in San Francisco, CA, June 1999. Presented "Implication of Channel Confinement on Regulated Rivers" in River Channels session.

- Invited speaker to the Fall Meeting of the American Geophysical Union in San Francisco, CA, December 2002. Presented "Science, Uncertainty, and Adaptive Management in Large River Restoration Programs" in Hydrology session.

- Invited speaker by the Ministry of the Environment of the Czech Republic for the conference "Alternative Flood Management Strategies Using Natural Functions of Stream Channels and Floodplains" in Hradec-Kralove, Czech Republic in February 2003.

- Invited presenter by the US Forest Service for a workshop on "Geomorphic Response of Rivers to Dams" in Reno, NV, in March 2003.

- Invited presenter by the US Forest Service for a workshop on "Streamside Vegetation-Hydrologic Interactions Workshop" in Tucson, AZ, in March 2003.

- Invited speaker to "Assessing and Re-naturalizing Streams Impacted by Mining" workshop at the University of Montana, Missoula, MT, September 2003. Presented "Reclaiming Dredge Tailings for Channel Restoration and Gravel Augmentation in Plenary session.

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EDUCATION

1964	University of Minnesota	**B.A. -**	**Zoology**
1966	Cornell University	**M.S. -**	**Conservation**
1969	University of Minnesota	**Ph.D. -**	**Zoology**

UNIVERSITY POSITIONS

1969 - 1972	Assistant Professor, Biology, California State University, Fresno, CA
1972 – present	Assistant to Full Professor, University of California, Davis, California
1982 - 1987	Chair, Department of Wildlife & Fisheries Biology, University of California, Davis, California
2002-present	Associate Director, Center for Watershed Science UCD

PROFESSIONAL SOCIETIES/ORGANIZATIONS

American Fisheries Society (national & local chapters); American Society of Ichthyologists and Herpetologists; Ecological Society of America; Desert Fishes Council; Society for Conservation Biology; AAAS; AIBS

AWARDS

Award of Excellence, Western Division, American Fisheries Society (1991); Haig-Brown Award, California Trout (1993); Distinguished Fellow, Gilbert Ichthyological Society (1993); Fellow, California Academy of Sciences (1993); Bay Education Award, Bay Institute (1994); Public Service Award, UCD (1995); Outstanding Educator Award, American Fisheries Society (1995, with J. J. Cech); Streamkeeper Award, Putah Creek Council (1997); Distinguished Ecologist, Colorado State University (2001); Outstanding Mentor Award, UCD (2003); President's Chair in Undergraduate Education, UCD (2003-2006, with J. Mount). Outstanding Achievement Award, Association of Fisheries Research Biologists (2007); Award of Excellence, highest award of American Fisheries Society (2007).

OTHER

Editorial Boards *Environmental Biology of Fishes*, *Biological Conservation*, *University of California Publications in Zoology*, and *Biological Invasions*. Expert testimony: Bay/Delta Hearings, State Water Resources Control Board; Congressional hearings, Re-authorization of Endangered Species Act, etc. Head, Delta Native Fishes Recovery Team (1993-1995); Member, Sierra Nevada Ecosystem Project Team (1994-1996); Member, Independent Science Board,

CALFED Ecosystem Restoration Program; Vice President, The Natural Heritage Institute; Fisheries Consultant, City and County of San Francisco. Member, National Research Council Committee on Endangered Fishes in the Klamath Basin (2002-2003). Member, Editorial Committee, UC Press (2006-). Member, Delta Risk Management Strategy Steering Committee (2006-), DWR. Member, San Joaquin River Restoration Technical Advisory Committee (2007-); Member Delta Native Fishes Recovery Team (2007-)

TEACHING

Teach basic courses in fish biology, wildlife conservation, fisheries, watershed ecology, and nature/culture. Co-authored (with J. Cech) widely used ichthyology text (5th edition, 2004) and co-edited (with C. Schreck) American Fisheries Society handbook on techniques for working with fish. Active in Graduate Group in Ecology.

RECENT PUBLICATIONS

Author or co-author of over 180 peer-reviewed publications, including six books/monographs.

Marchetti, M. P. and P. B. Moyle. 2001. Effects of flow regime and habitat structure on fish assemblages in a regulated California stream. Ecological Applications 11: 530-539.

Yoshiyama, R. M., E. R. Gerstung, F. W. Fisher, and P. B. Moyle. 2001. Historical and present distribution of chinook salmon in the Central Valley. Pages 71-176 *in* R. Brown, ed. Contributions to the biology of Central Valley salmonids. CDFG Fish Bulletin 179.

Moyle, P. B. 2002. *Inland Fishes of California*. Berkeley: University of California Press 502 pp.

Matern, S. A., P. B. Moyle, and L. C. Pierce. 2002. Native and alien fishes in a California estuarine marsh: twenty-one years of changing assemblages. Transactions of the American Fisheries Society 131:797-816.

Moyle, P. B., P. K. Crain, K. Whitener, and J. F. Mount. 2003. Alien fishes in natural streams: fish distribution, assemblage structure, and conservation in the Cosumnes River, California, USA. Envir. Biol. Fish. 6:277

Marchetti, M. P., T.Light, P. B. Moyle, and J. H. Viers. 2004. Fish invasions in California watersheds: testing hypotheses using landscape patterns. Ecological Applications 14:1507-1525.

Marchetti, M. P, P. B. Moyle, and R. Levine. 2004. Alien fishes in California watersheds: characteristics of successful and failed invaders. Ecological Applications 14:587-596.

Moyle, P.B., R. D. Baxter, T. Sommer, T. C. Foin, and S. A. Matern. 2004. Biology and population dynamics of Sacramento Splittail (*Pogonichthys macrolepidotus)* in the San Francisco Estuary: a review. San Francisco Estuary and Watershed Science [online serial] 2(2):1-47.

Hogan, Z. S., P. B. Moyle, B. May, M. J. Vander Zander, and I. G. Baird. 2004. The imperiled giants of the Mekong. American Scientist 92: 228-237.

Moyle P.B. and J. A. Israel. 2005 Untested assumptions: effectiveness of screening diversions for conservation of fish populations. Fisheries 30 (5):20-28

Moyle, P.B. and M. P. Marchetti. 2006. Predicting invasion success: freshwater fishes in California as a model. Bioscience 56:515-524.

Merz, J. F. and P. B. Moyle. 2006. Salmon, wildlife and wine: Marine derived nutrients in human-dominated ecosystems of central California. Ecological Applications 16: 999-1009.

Noss, R. F., J. F. Franklin, W.L. Baker, T. Schoennagel, and P.B. Moyle. 2006. Managing fire-prone forests in the western United States. Frontiers in Ecology and the Environment 9:481-487.

Lund, J., E. Hanak., W. Fleenor, W., R. Howitt, J. Mount, and P. Moyle. 2007. Envisioning futures for the Sacramento-San Joaquin Delta. San Francisco: Public Policy Institute of California. 284 pp.

Moyle P.B., Crain P.K., and Whitener K. 2007. Patterns in the use of a restored California floodplain by native and alien fishes. San Francisco Estuary and Watershed Science .*http://repositories.cdlib.org/jmie/sfews/*

Moyle, P. B. and J. F. Mount 2007. Homogenized rivers, homogenized faunas. Proceedings, National Academy of Sciences 104: 5711-5712.

APPENDIX B: PROJECT ACCOUNTING DETAIL

Project Accounting Detail				
RA ACCOUNT	Compensation	Expenses	Total	Invoice Date
RA Contract – Rod Meade	5,880.00	355.80	6,235.80	8/1/2007
	4,080.00	620.46	4,700.46	9/3/2007
	7,200.00	767.68	7,967.68	11/3/2007
TOTAL RA Contract	17,160.00	1,743.94	18,903.94	
Technical Assistance				
TOTAL Tech Asst.	0.00	0.00	0.00	
CPS Executive Search	3,000.00	3,664.11	6,664.11	10/18/2007
	3,000.00	2,962.69	5,962.69	11/15/2007
TOTAL Misc.	6,000.00	6,626.80	12,626.80	
RA ACCOUNT TOTAL	$23,160.00	$8,370.74	$31,530.74	
TAC ACCOUNT				
TAC Contract - FWUA	2,750.00		2,750.00	9/6/2007
	4,500.00		4,500.00	9/6/2007
	8,250.00	269.02	8,519.02	10/8/2007
	10,625.00		10,625.00	11/16/2007
	2,000.00	397.25	2,397.25	12/18/2007
TOTAL FWUA	28,125.00	666.27	28,791.27	
TAC Contract - Scott McBain	1,595.00	205.00	1,800.00	7/28/2007
	2,750.00	1,172.89	3,922.89	8/10/2007
	2,695.00	1,326.76	4,021.76	9/12/2007
	3,242.50	1,143.91	4,386.41	10/16/2007
	7,522.50	524.05	8,046.55	11/1/2007
	1,077.50		1,077.50	12/5/2007
TOTAL McBain	18,882.50	4,372.61	23,255.11	

Project Accounting Detail				
RA ACCOUNT	Compensation	Expenses	Total	Invoice Date
TAC Contract - Chuck Hanson	4,100.00	208.40	4,308.40	8/10/2007
	1,200.00	104.45	1,304.45	9/13/2007
	2,400.00	121.86	2,521.86	10/17/2007
	4,050.00		4,050.00	12/4/2007
TOTAL Hanson	11,750.00	434.71	12,184.71	
TAC Contract - Peter Moyle	6,937.50	171.58	7,109.08	8/17/2007
	8,750.00		8,750.00	11/17/2007
TOTAL Moyle	15,687.50	171.58	15,859.08	
TAC Contract - NRDC	$825.00	$87.30	$912.30	12/12/2007
	$2,640.00	$360.03	$3,000.03	12/12/2007
	$2,090.00	$115.88	$2,205.88	12/12/2007
	$1,925.00	$149.74	$2,074.74	12/12/2007
	$3,575.00	$182.17	$3,757.17	12/12/2007
	$715.00		$715.00	12/12/2007
TOTAL NRDC	$11,770.00	$895.12	$12,665.12	
TAC ACCOUNT TOTAL	$86,215.00	$6,540.29	$92,755.29	

BROWN AND CALDWELL