

Qualifications of Thomas C. Cannon

Aquatic Ecologist
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EDUCATION:

University of Michigan
Fall 1965 – Summer 1969
School of Natural Resources
Major: Fisheries and Aquatic Ecology
B.S. in Fisheries

Northern Michigan University
Fall 1969 – Spring 1971
Biology Department
Majors: Biology and statistics.
M.A. in Biology

University of Michigan
Fall 1971 – Spring 1972
School of Public Health
Majors: Biostatistics and Environmental/Public Health
Masters of Public Health in Biostatistics

AFFILIATIONS:

American Fisheries Society (AFS)
CAL-NEVA Division of AFS
Fishery Foundation of California
California Sportfishing Protection Alliance

Relevant Experience:

- **Hudson River Power Plant NPDES Permit Projects – Hudson River Utilities
New York (1972-1977)**

Early in my career I participated in some of the earliest projects developed under NEPA. Most notably, I participated in studies related to the continuing operations of Hudson River power plants as related to environmental impacts to Hudson River biota with emphasis on fish and water quality. I managed projects and staff, and designed and carried out studies, analyzed data, assessed impacts, and prepared reports and NPDES

permits for all major power plant complexes on the Hudson River. I participated in the related NEPA process for licensing of the Indian Point Nuclear Power Plant for the Atomic Energy Commission and Federal Power Commission.

- **Great Lakes Power Plants NPDES Permits – Detroit Edison (1976-1977)**

I managed a project preparing NPDES permit applications for all of Detroit Edison's electric generating stations on the Great Lakes.

- **PG&E Delta Power Plant NPDES Permit Project – PG&E (1977-1980)**

I managed a project preparing NPDES permit applications for all of PG&E's steam-electric generating stations in California. The project included extensive surveys of the Bay-Delta and power plant impacts on the environment. Studies were coordinated closely with the DFG and federal agencies. Studies were coordinated with the NMFS (Tiburon Office), USFWS, and the Regional Water Quality Control Boards. One of my primary responsibilities was coordination with resource and regulatory agencies.

- **Striped Bass Project – SWRCB (1981-1982)**

I was a member of the State Board's Striped Bass Project team in the early 1980's investigating the failure of the water quality control plans in halting the precipitous decline in the striped bass and other fishes of the Bay-Delta. Our chief objective was to determine whether Delta and other diversions were directly causing loss of fish through entrainment or whether there was a fundamental shift in ecosystem productivity and habitat quality that was the cause of the declines in fish populations. We identified in our report to the State Board that regardless of the cause, the D-1485 Delta standards were inadequate to protect the Bay-Delta ecosystem and important fish populations including salmon and striped bass.

- **Importance of Bay-Delta as Nursery Area for Chinook Salmon – NMFS (1981-1982)**

As a consultant to the NMFS, I conducted a review of the importance of the Bay-Delta as a nursery area for Chinook salmon and other anadromous fishes including striped bass.

- **South Fork of the American River (SOFAR) Project (1981-1982)**

As a consultant to the project developer, my engineering firm was involved in the design of the SOFAR projects. My role included preliminary permitting and agency interaction.

- **Forest Management and Timber Harvest Plan – Hoopa Indian Reservation for BIA (1982)**

As a consultant to the BIA, I participated in the development of a Forestry Management Plan for the Hoopa Indian Reservation in northern California. I evaluated potential effects of all forest management activities on salmon and steelhead and their habitat in the Klamath and Trinity Rivers, and in tributaries to those rivers on tribal lands affected by forest management activities. I spent two weeks on the reservation with reservation and BIA staff observing potentially effected habitats and planned timber management activities. During that time I became acutely aware of the growing conflict between BIA managers and the tribes over control over reservation resources. I developed portions of the plan outlining protections to salmon and their habitat from forest management activities.

- **Alaska Oilfields Environmental Studies – ARCO/USACE (1982-1986)**

As project manager of NEPA mandated environmental programs for oil companies and the Alaska District USACE, I coordinated environmental studies that addressed environmental impacts of oil field operation on the tundra and coastal river, estuarine, and marine ecosystems. Major focus was on effects to anadromous fish and their habitat from environmental impacts allowed under USACE permits. I worked closely under the direction of an interagency oversight team to evaluate impacts, conduct monitoring programs, and to define mitigation measures for North Slope oil operations. I also coordinated with North Slope native organizations from Point Barrow to the McKenzie River in Canada. I prepared for and presided over dozens of interagency and stakeholder meetings and technical workshops, and prepared reports and scientific papers.

- **Effects of Delta Pumping Plants on Bay-Delta Ecosystem – State Water Contractors and MWD – (1981-1987)**

As a consultant to the State Water Contractors and the Metropolitan Water District, I evaluated potential effects water projects in the Central Valley. My assignments included evaluating effects of CVP operations on the American River including review of early Instream Flow Incremental Methodology studies. I participated in many interagency reviews and worked closely with DWR and DFG staff working on a Draft Two-Agency Agreement for the State Water Project. I also worked with the USBR on testimony for the 1986 Water Quality Control Plan hearings with the State Water Resources Control Board.

- **Columbia River Data Development Project – BPA (1981-1984)**

As a consultant to the Bonneville Power Authority, I participated in a comprehensive study of the Columbia River estuary. My role was as an estuarine ecologist with emphasis on fish populations and the food chain. Working with agency and university biologists, our team developed baseline information on the Columbia River Estuary and

its role in salmon ecology.

- **Susitna Hydroelectric Project – Alaska Power Authority (1984-1985)**

As a consultant to the Alaska Power Authority, I participated in the process of obtaining a FERC license for a hydroelectric dam on the Susitna River in south-central Alaska. Large scale changes in river flow, sediment and water temperature regimes, and geomorphology of the river from the proposed dam indicated that major impacts to the many salmon populations of the river could be expected if the dam were built. Eventually a lack of need for power killed the project. The project allowed me for to work with engineers, hydrologists, geomorphologists, groundwater, sediment, and water quality specialists to evaluate proposed effects of development on an ecosystem scale.

- **FERC Snake River Projects (1986-1989)**

As a consultant to Federal Energy Regulatory Commission (FERC), I participated in the NEPA process and preparation of federal EIS's relating to the licensing and relicensing of hydroelectric projects on the Snake River in Idaho. My role was to develop sections on aquatic species and habitats, and to coordinate Section 7 consultations with federal and state agencies review teams. Protected species at the time included bald eagles and several aquatic snail species. Rare and isolated populations of cutthroat trout were also addressed. I was responsible for addressing state and local land use laws and plans. Instream flow requirements for the Snake River were fundamental issues. This was one of several major FERC projects in which I was involved where state water law and the ESA were in direct conflict.

- **USFS/FERC Skagit-Nooksack Project (1988-1989)**

Working as a consultant to the US Forest Service, I participated in the NEPA process for multiple hydropower licensing and relicensing projects for the Forest Service and FERC. Actions evaluated included changes to flow and stream habitats. Effects considered included those on sockeye salmon and bull trout, as well as Coho and Chinook salmon and steelhead populations of the Skagit and Nooksack rivers.

- **FERC Elwha Project (1988-1990)**

I participated in the NEPA process relating to the relicensing or termination of FERC licenses for two dams on the Elwha River in Washington. I evaluated the potential impacts and benefits to salmon, steelhead, and bull trout populations from various alternatives including dam removal.

- **BPA Cowlitz Falls Project (1988-1990)**

I participated in the environmental documentation for the Cowlitz Falls Project of the City of Tacoma Washington for BPA. Actions included reintroduction of anadromous salmon and steelhead to the Cowlitz River and its tributaries above existing large hydroelectric project dams and reservoirs. Concepts and alternatives developed and evaluated including trucking adult salmon and trout above reservoirs and capturing young salmon and steelhead on their downstream migration before they reached the reservoirs, and transporting them below the lower dam on the Cowlitz River. The project is one of the most successful attempts at reintroducing anadromous fish to headwaters of dammed river.

- **FERC Salt Caves Project (1989-1991)**

As a consultant to FERC, I participated in the FERC licensing project for the Salt Caves Project on the Klamath River on the border of California and Oregon. I evaluated environmental effects of alternative hydropower generation facilities on resident trout, endangered suckers, and other aquatic life of the Klamath River. The evaluation included potential effects to anadromous salmon and steelhead of the project in the event that passage was restored past downstream dams (Irongate and Copco 1 and 2). I participated in Section 7 consultations relating to bald eagle and endangered suckers. I reviewed recovery plans and actions relating to the project that could impact or benefit these species. The primary laws and regulations governing potential project operations were those of the state of Oregon. The project was eventually not licensed by FERC because it failed to meet state water quality standards. I helped coordinate and conduct public meetings in Klamath Falls.

- **FERC Platte River Project (1990-1992)**

As a consultant to FERC, I participated in FERC licensing and related NEPA process for the Platte River Project in Nebraska. I evaluated potential effects to resident fishes, as well as special status species including paddlefish, sturgeon, whooping cranes, Arctic terns, and piping plovers - fish and birds that would be potentially affected by flow and habitat changes relating to the relicensing of the hydropower project. The Platte River Project supplied much of the agricultural water supply of central Nebraska. FERC jurisdiction and endangered species protection mandates brought project water supply objectives into direct conflict with ESA. On this and other FERC projects my team served as an extension of the FERC staff and often operated as “FERC staff” in coordinating with federal, state, and local entities, in conducting public meetings, and in preparing documentation. I presided over public meetings and technical coordinating meetings with federal, state, and local agencies, as well as stakeholders including environmental groups. Working with engineering staff I helped develop water supply and hydrology models of the Platte River. Key technical issues including land use, stream flows, and water supply were discussed and agreements worked out.

USACE Missouri River Master Manual Review (1991-1994)

As a consultant to the Missouri River Division of the USACE, I spent several years developing and evaluating alternatives and preparing an EIS on alternative Master Manual Operation regimes for the Missouri River dam-reservoir system from eastern Montana to the mouth of the Missouri River. My role focused on developing alternatives and assessing effects on environmental and cultural resources including special status species such as sturgeon and paddlefish. Effects considered were to reservoir water levels, stream flows, and related effects on water quality. The project included coordination with the many tribes along the Missouri River. Many of the tribes had keen interests in recreation, water supply, cultural, and water quality issues. I prepared for and presided over public meetings and technical workshops.

- **USACE/BPA Columbia/Snake Operations Review (1992-1994)**

I participated in the Columbia/Snake Operations Review for the USACE Walla Walla District, BPA, and USBR. I worked on elements of the EIS and potential effects to project alternatives to salmon and steelhead populations of the Columbia and Snake River systems.

- **BPA/Clearwater Indian Nation Clearwater River Study (1993-1994)**

I participated in IFIM and hydrology studies on the Clearwater River to evaluate changes in flow on salmon and steelhead and their habitat on the Clearwater River in southwestern Idaho. We worked through the tribes who received grants from BPA.

- **Bay/Delta Ecosystem Effects Studies – MWD (1994-1995); CUWA (1996)**

As a consultant to the Metropolitan Water District of Southern California and the California Urban Water Agencies, I was part of a team planning development of a multispecies habitat conservation plan for the State Water Project. I was also assigned to evaluate and help improve the IEP Monitoring Program in the Bay-Delta working closely with DFG, DWR, and USBR staff. I participated in many interagency review meetings and technical workshops on the operations of the state and federal water projects.

- **PG&E Delta Power Plants HCP and EA (1997-1999)**

As a third-party consultant funded by PG&E and representing the USFWS and NMFS, I participated in the preparation of an HCP and EA for a Section 10 application to take winter-run Chinook salmon and delta smelt at two Delta power plant complexes. I evaluated the long-term effects of the facilities and future operations on Delta and anadromous fish populations. I helped prepare the HCP and EA submitted by PG&E. I

met with state and federal ESA agency staff on numerous occasions to discuss conservation measures and the effects of the facilities. I also evaluated potential conflicts between the NPDES and Section 10 permits for the facilities, as well as potential for greater diversions and higher temperature thermal plumes from the plants under the new ownership and ISO/IPO system being implemented by the California Energy Commission.

- **Delta Wetlands Project – BA and ER (1996-1998)**

As a third-party consultant funded by Delta Wetlands and representing the State Board and USACE, I participated in the development of alternatives and their environmental impact evaluations for the Delta Wetlands Project in the Sacramento-San Joaquin River Delta. I participated in the evaluation of potential effects of new water diversions on Delta outflow and evaluated implications to salmon, steelhead, and delta smelt populations. I also evaluated the potential to violate water quality criteria in the Delta from island storage releases. I participated in Section 7 consultations for the project with State and federal agencies while representing the applicant, the State Board, and USACE.

- **Montezuma Wetlands Project – BA and EIR/EIS (1996-1998)**

As part of a third-party consulting team funded by the applicant and representing Solano County and the USACE, I participated in the NEPA process related to the Montezuma Wetlands Project in Suisun Marsh near Collinsville. My roles included preparation of EIS sections on potential effects and benefits to fish and their habitat in the Bay-Delta, including winter run chinook salmon and delta smelt. Our team worked with the San Francisco District of the USACE and Solano County to ensure we met the needs of these permitting agencies.

- **Lower Butte Creek Study Program – Nature Conservancy and Ducks Unlimited (CVPIA program) (1997-1999)**

As a consultant to the Nature Conservancy and Ducks Unlimited, I participated in the Lower Butte Creek Study Program to evaluate potential means for improving salmon and steelhead passage through the Butte Creek system. My role was to evaluate potential fish passage problems and help to identify and promote solutions through working with local stakeholders. I identified passage solutions and previously unforeseen problems facing downstream salmon and steelhead juveniles migrating from spawning areas in the upper watershed. The Butte Creek system has tremendous obstacles to downstream migration of young salmonids particularly in drier years – most of these problems have yet to be resolved. My activities brought me in contact with local stakeholder groups, primarily farmers, but also federal and state refuge managers who also depend on water and land for their waterfowl and wetland programs.

- **Butte Creek Parrot-Phelan Dam Project – Butte County (1998-1999)**

As a consultant to Butte County, I evaluated the final facilities constructed to replace facilities lost at the Parrot-Phelan diversion site from devastating floods. The facilities were constructed under emergency authorities and Butte County asked me to review the project to ensure it was constructed appropriately under their laws and responsibilities. I noted that the screen and ladder were well designed and worked well. I noted potential problems with the flood flow bypass and associated problems for upstream passage under high flows.

- **CVPIA and CALFED EIR/EIS's – USBR/CALFED (1995-1999)**

I participated in the preparation of the EIR/EIS's for the CVPIA and CALFED programs for the USBR and CALFED. The EIS's covered many actions under the CVPIA and CALFED programs including alternatives development and evaluation. I worked on the water management strategies for both programs including the Environmental Water Account. I have worked extensively on all elements of the CALFED program and many elements of the CVPIA program. This experience has made me acutely aware of water management in the Central Valley. My previous experience with problems relating from D-1485 water quality standards, proposed D-1630 standards, and the 1995 Accord and Standards fits in well with my recent experiences dealing with conservation and recovery of fish populations in the Central Valley. I was also with the Anadromous Fish Restoration Program in the evaluation of the AFRP flow recommendations for the lower American River.

- **CALFED Ecosystem Restoration Program Plan – CALFED (1995-2000)**

As a consultant to CALFED, I was one of the original designers and authors of the Ecosystem Restoration Program Plan (ERPP). I prepared individual sections on actions to be considered for specific watersheds and resources including special status fish species. One of the major features of the ERPP is its links to other ecosystem restoration programs. I participated in various watershed reviews including the American River and was the author of the draft vision for the American River. I participated in the planning and conduct of many of the CALFED meetings and workshops.

- **CALFED Conservation Strategy - (1998-2000)**

I participated in the early design and development of the CALFED Conservation Strategy developed in consultation with a team of consulting scientists. I prepared early drafts of CALFED's Adaptive Management philosophy. I worked extensively on CALFED's Multi-Species Conservation Strategy. I was the principal author of appendix plans that included many prescriptions for conservation and recovery of all special status fish species in the Central Valley. I reviewed listing documents and recovery plans and

incorporated elements into the conservation actions. I reviewed all salmon conservation and recovery actions for the Central Valley and Pacific Coast and made recommendations for modifying and adding to the overall recovery program. I also developed conservation schemes and measures for potential effects of each of the CALFED Program elements and associated actions that could affect special status fish species.

- **Delta Fish Facility Advisory and Technical Teams – CALFED/ CVP (1999-2001)**

I participated as a consultant to Delta fish facilities teams evaluating intake and fish protection facilities at the Delta Cross Channel, proposed Hood diversion, Clifton Court Forebay, and Tracy Fish Protection Facilities. As a consultant to the CALFED Delta Entrainment Effects Team, I helped in evaluating the potential effects of many options for water diversion from the Delta, including potential effects to salmon and steelhead. I prepared papers on factors affecting salvage numbers of salmon and steelhead at the state and federal pumping plants in the South Delta.

- **CVPIA Comprehensive Assessment and Monitoring Program (CAMP) – (1995-1996)**

I was an original member of the CAMP consulting team. We developed a monitoring and assessment program to evaluate whether objectives of the CVPIA would be met, particularly goals to double salmon and steelhead runs in the Central Valley. I promoted development of monitoring and assessment techniques to estimate production of wild smolts as well as adult escapement.

- **CALFED Water Management Strategy and Environmental Water Account – (1998-2001)**

I participated in CALFED's development of a water management strategy including the Environmental Water Account that would protect and enhance survival of salmon. The water management evaluation included detailed review of operations of the American River Project on flows of the American River and Delta inflow. I participated in the inter-agency gaming exercise to evaluate alternative operations of the water projects in combination with CVP and CALFED water accounts. During two years of extensive exercises, I became very familiar with water project operations in the Central Valley.

- **CALFED Delta Entrainment Effects Team – (1998-2000)**

I participated as an analyst on the CALFED DEFT team to evaluate the effects of water diversions on Bay-Delta fish populations.

- **CALFED DCC-TDF – (2000-2002)**

I participated in CALFED's Delta Cross Channel and Through Delta Facility team as an analyst to evaluate the benefits and adverse effects of different operations of the Delta Cross Channel and the proposed Through Delta Facility.

- **Water Forum/EBMUD – (1997-2000)**

As a consultant to the Water Forum (EBMUD) and SAFCA, I participated in the evaluation of the alternatives for American River flow and flood management and river restoration. I also helped prepare Lower American River Floodway Management Plan for SAFCA. I participated in numerous Lower American River Task Force meetings and other related meetings including the Lower American River Operations Group and Management Group. I participated in the preparation of the EIR for EBMUD's and Sacramento County's water diversion from the lower American River (since moved to Freeport on the Sacramento River). I worked on SAFCA restoration projects along the lower river and participated in temperature studies from Lake Natomas downstream through the river. As a consultant to the East Bay Municipal Utility District, I attended Water Forum public meetings and advised EBMUD on issues relating to water and habitat that would affect salmon and steelhead of the lower American River prior to the Water Forum Agreement of 2000. I participated in teams evaluating potential salmon habitat conservation and improvement projects for the lower American River. I was the principal author of SAFCA's fish habitat section of the Lower American River Floodway Management Plan. As part of that project I evaluated numerous options for conserving and improving salmon and steelhead habitat throughout the lower American River. I consulted with EBMUD to evaluate proposed conservation and habitat improvement measures of the Water Forum for the lower American. I prepared and submitted grant proposals to CALFED on behalf of SAFCA for specific habitat improvements to the lower American River. I evaluated effects of operations of USBR on the lower American River salmon and steelhead habitat and populations.

- **GCID Sacramento River Project – USACE (1999)**

I participated in the design of a monitoring program to evaluate the effectiveness of mitigation measures and project fish protection elements for the new GCID intake facility on the Sacramento River.

- **Battle Creek Hatchery Screening Project – USBR (2000)**

I participated in the design of a monitoring program to evaluate the effectiveness of new fish screens at the Battle Creek hatchery intake system on Battle Creek.

- **Yolo Bypass Ecosystem Restoration Strategy Development Project - Yolo Basin Foundation (1999)**

Working with the Yolo Basin Foundation, I prepared a grant application for local stakeholders to develop a restoration strategy to restore wildlife and fish habitat and improve salmon survival through the Yolo Bypass. I spent many hours in the bypass from the Fremont Weir in the North to the exit of the bypass on Cache Slough observing habitat conditions, land use patterns, and potential obstructions to salmon upstream and downstream passage. I identified many potential problems and opportunities to improve habitat and passage for Sacramento River salmonids. I met with individual stakeholders (including DWR and PG&E Properties) and helped obtain their support for the project. The project was funded and has begun.

- **Upper Yuba River Studies Program – CALFED (2000-2001)**

As a consultant to CALFED, I participated in the Upper Yuba River Studies Program. I prepared a monitoring program design to collect information necessary to determine if the upper watershed above Englebright Dam has habitats adequate for anadromous salmon and steelhead. I participated in CALFED workshops with participating stakeholders and the general public.

- **Lower Yuba River Studies Program – YRTWG (2000-2001)**

I have supported the Yuba River Technical Working Group in the preparation of grant applications to study fish passage problems in the lower Yuba River at Daguerre Dam. I supported the Working Group in reviewing the USACE preliminary study of Daguerre Dam. Options being evaluated are dam removal and ladder improvements.

- **Yuba River Watershed Assessment – Yuba Watershed Council, South Yuba River Citizens League (2000-2002)**

I have supported Yuba River watershed stakeholder groups in preparing grant applications for federal and state funding for watershed assessment and restoration activities. I have attended meetings with the Yuba Watershed Council and the South Yuba Citizens League. I have taken many field trips to the watershed and have identified problems including high sediment loads that threaten production of salmon and steelhead in the lower river.

- **Mokelumne River Watershed Assessment – Sierra Pacific Industries (2000-2001)**

As a consultant to Sierra Pacific Industries, I participated in the development of a watershed assessment for the upper Mokelumne River watershed properties of Sierra Pacific. The assessment focused on potential risks to water quality, sediment/erosion, and water supply from timber harvest in the watershed. We identified sub-watersheds that

had the greatest potential impacts from timber harvest and identified measures to reduce environmental damage.

Recent Employment

- **Jones and Stokes Associates – Sacramento (1995-1999)**

At JSA, I participated in numerous local and regional projects including those identified above for this time period. I also received considerable management training as well as environmental training and classes on CEQA/NEPA and CESA/ESA. I managed JSA's contracts with CALFED and participated in CALFED's consulting team.

- **Foster Wheeler Environmental – Sacramento (1999-2002)**

At Foster Wheeler I was primarily responsible for developing environmental business in northern California, Idaho, Washington, and Alaska, in addition to the pursuit of local projects identified above.

- **Fishery Foundation of California (2002-present)**

As the executive director (2002-2003) and principal investigator of the non-profit Fishery Foundation of California I helped conduct a striped bass tagging study, striped bass pen rearing program, and hatchery salmon acclimation program, and conducted a monitoring study of Delta fish habitat at Kimball Island near Antioch. I coordinated numerous activities with California Striped Bass Association and other sportfishing groups. I managed development and implementation of monitoring surveys of SAFCA habitat restoration projects in the LAR. I was the principal investigator of CVPIA monitoring surveys of the LAR that involved determining the habitat requirements of salmon and steelhead. I coordinated with stakeholder and agency groups and participated in workshops and projects including the Lower American River Corridor Management Plan. I have become intimately familiar with the river's hydrology, water temperature regime, salmon and steelhead populations, spawning and rearing habitat, and recreational fisheries. I was project manager and principal investigator on a grant from CVPIA to study water supply opportunities for the Cosumnes River. I was a consultant to Lake Wildwood Homeowners Association in proceedings with the Regional Water Quality Control Board and DFG Region 2 on water quality control plan violations in the Deer Creek watershed, a tributary to the lower Yuba River.

- **HDR Engineering – Folsom (2003-2004)**

At HDR I was primarily responsible for developing environmental business in northern and southern California, in addition to the pursuit of local projects identified above. I also participated in water resources projects in Alaska and Nebraska. I was project

manager for regional indefinite deliverable contracts I helped procure for HDR with CALTRANS. I participated in many local and regional HDR projects working closely with the water resources engineering department.

- **Wildlands Inc. - Rocklin (2004-2010)**

As manager of aquatic programs at Wildlands during the past decade, I developed habitat restoration programs for Central Valley rivers under federal and state mitigation banking programs. I have worked closely with DFG, NMFS, USFWS, DWR, and SAFCA in defining opportunities for riparian and floodplain restoration. I have participated in Lower American River meetings and workshops. I have worked closely with NMFS in the development of a Conservation Banking Program in the Central Valley for listed salmonid fishes. I developed longfin smelt and Delta smelt conservation banks in the Delta and Suisun Marsh.

- **Consultant/CSPA Scientific Advisor (2010-present)**

Consultant on fishery ecosystem assessment programs relating to California resource management. Consultant to Karuk Tribe, Quartz Valley Indian Reservation, California Sportfishing Protection Alliance, Cal Trout, Klamath River Keeper, Westerveld Inc., Fishery Foundation of California, and others. Participate in various workgroups and committees of these planning entities. Subjects include ecosystem restoration, Yolo Bypass, fisheries enhancement, aquatic habitat assessment, water rights, water resources development, groundwater and surface water management - review, management, reports, assessments, and analyses. Advised CSPA on issues related to BDCP, water quality standards, water transfers, EcoRestore, biological opinions, and WaterFix. Contributed to CSPA Fisheries Blog.