

George R. Leidy

Principal Technical Professional - Aquatic Ecologist
PBS&J

Education

B.S., Forestry and Resource
Management, University of
California, Berkeley

Certifications

Certified SCUBA Diver, N.A.U.I.,
1978
Certified Fisheries Scientist, #1730,
American Fisheries Society,
1985
California Registered
Environmental Assessor,
#02704, 1991

Professional Affiliations

American Fisheries Society
American Society of Limnology
and Oceanography
Desert Fishes Council
North American Benthological
Society
American Society of Ichthyologists
and Herpetologists
American Institute of Fishery
Research Biologists

George R. "Roy" Leidy is a Certified Fisheries Scientist who specializes in conservation biology and fish and wildlife management. His responsibilities include technical review and guidance of natural resource studies, as well as regulatory permitting and compliance. Roy has broad technical expertise based on his 37 years as a fish and wildlife biologist and regulatory specialist. He frequently assists clients and their legal counsels as an expert witness in both technical and regulatory matters.

Roy's technical experience includes fish and wildlife impact assessments using HEP, WHR and IFIM, wetlands delineations and assessments, endangered species surveys and impact evaluations, HCP/HMP planning, river-reservoir ecosystem modeling, reservoir fisheries management, water quality modeling and toxicological analysis, stream channel stability and watershed assessments, fish passage and screening design, Clean Water Act permitting, and water resources development evaluations. He possesses extensive knowledge of resource management issues in the western United States.

Over the past 37 years, Roy has published professional papers on a wide range of environmental topics and contributed to hundreds of unpublished reports on various environmental issues related to natural resource management, including endangered species, water resources, watershed management, mining impacts and remediation, instream flows, water quality, habitat restoration, and regulatory compliance.

WORK EXPERIENCE

1996-Present Director, Fisheries and Aquatic Sciences. EIP Associates
Director, Natural Resource Sciences. EIP Associates, a division
of PBS&J

- Senior biologist specializing in fish and wildlife management. Responsible for project management, technical review, guidance, and field implementation of natural resource studies and all aspects of federal, state, and local regulatory compliance. Management and administrative responsibilities included: planning, organization coordination and project management for numerous projects often exceeding \$500,000 in budget; fiscal management of the Natural Resource Sciences; supervision and personnel management of seven environmental specialists; management of subcontractor contracts and contractor work performance; preparation of proposals; representation of EIP/PBS&J and its clients before various governmental agencies.
- Senior Aquatic Ecologist. Technical assistance to the Sacramento Municipal Utility District legal team in preparing responses to resource agency submittals to the FERC regarding licensing of the Upper American River Project and the Iowa Hill Pumped Storage Hydroelectric Project. Completed various technical analyses on instream flow, water quality, fisheries, macroinvertebrate, and geomorphic issues contested during the licensing process. Aquatic resources senior scientist for SMUD in the

preparation of a Supplemental Preliminary Draft Environmental Assessment. Also senior aquatic scientist and expert witness for SMUD in the preparation of reports and submittals for trial-type hearings before the Department of Agriculture.

- Senior Scientist and Project Manger. Provided the El Dorado Irrigation District with technical assistance in the completion of the license for the El Dorado Hydroelectric Project located in the South Fork American River watershed. Responsible for management and technical guidance for 17 studies ranging in diversity from bat surveys to visual resource analysis. Assisted EID staff in the settlement negotiation process on issues of instream flow, water quality, and fluvio-geomorphology.
- Technical Director and Project Manager. Retained by Lake Elsinore & San Jacinto Watersheds Authority to prepare a Fisheries Management Plan for Lake Elsinore, California. The primary goal of the FMP was to develop a detailed rehabilitation and enhancement program for fisheries resources at Lake Elsinore.
- Technical Director and Project Manager. Collaborated with 14 water agencies with biological and hydrological issues related to the relicensing proceedings for the Santa Ana River 1 and 3, Mill Creek, and Lytle Creek hydroelectric projects operated by Southern California Edison Company.
- Technical Director and Project Manager. Prepared a Report to Congress for the U.S. Fish and Wildlife Service on salmon and steelhead production enhancement opportunities in 24 tributaries to the Sacramento and San Joaquin rivers, California.
- Project Manager and Principal Scientist. Evaluated of the impacts of heavy metals from cement kiln dust effluent on the biota of Sullivan Creek, a tributary to the Pend Oreille River, Washington, supporting bull trout and westslope cutthroat trout.
- Project Manager. Conducted an evaluation of the potential for steelhead habitat restoration in Pilarcitos Creek, a coastal stream south of San Francisco, California.
- Project Manager. Conducted an environmental assessment of the effects of flushing sediment from three diversion dams on the biota of the North Fork Stanislaus River, California.
- Project Manager and Expert Witness. Designed and implemented a biomonitoring program for aquatic resources in Bear Creek, a designated Wild Trout stream located within San Bernardino National Forest, California.

1995-1996 Ecologist. Georgia-Pacific West, Inc.

Fish, wildlife and botanical project/resource manager for 125,000 acres of private, commercial timberland in the Sierra Nevada. Provided technical expertise to foresters and the California Department of Forestry and Fire

Protection on the management of flora and fauna to ensure viable populations of all biota on managed timberlands. Provided technical expertise on all non-forestry environmental issues requiring regulatory compliance (e.g., state and federal endangered species laws and regulations, water quality laws and regulations, and mine closure permitting, reclamation and monitoring). Provided expertise to G-P staff on the interpretation of various state and federal environmental statutes (e.g., Endangered Species Act, California Environmental Quality Act, Forest Practice Rules, Water Code of California, Fish and Game Code of California). Responsible for the preparation and fiscal management of the environmental budget, organization, and management of G-P's environmental compliance and monitoring program, and the management of subcontractors. Served as G-P's representative to various professional and public organizations, including the Mokelumne River Association, the El Dorado-Amador Forest Forum, and the Sierra Nevada Ecosystem Project. Selected projects:

- Project Manager. Routinely surveyed for state and federally listed rare, threatened, or endangered species, including the Sierra Nevada red fox, great gray owl, southwestern willow flycatcher, and California red-legged frog.
- Project Manager. Prepared a 100-year wildlife habitat management plan that integrated forest practices with maintenance of biological diversity. Developed a methodology for predicting the potential impacts of forest practices on individual wildlife species and wildlife communities for any spatial and temporal scale desired, including a procedure for evaluating long-term cumulative effects.
- Project Manager and Technical Director. Technical lead in permitting and management of a program developed in cooperation with the Central Valley Regional Water Quality Control Board to reclaim, close and monitor soil and water quality at the Hazel Creek Mine site located on G-P property. Directed the testing of soils and surface waters for various constituents of concern at this site which was classified as a Group B waste management unit.
- Developed a water quality and cumulative watershed effects program to monitor the effects of forest practices on water quality and sediment in watersheds subject to timber harvesting. Emphasis was placed on the identification of road related problems that required remedial action to correct historical design problems.

1993-1995 Manager, Biological Resources Group. EIP Associates.

Project and technical manager for natural resource studies and local, state, and federal regulatory compliance. Technical work included: review and guidance of natural resource studies and regulatory and compliance, including NPDES permitting, biological impact assessments using HEP, WHR and IFIM modeling techniques; wetland delineations; endangered species field studies; preparation of Habitat Conservation Plans/Habitat Management Plans; river reservoir ecosystem modeling; water quality modeling and analysis; stream channel stability analysis and watershed assessments; preparation of Environmental Impact Reports and Environmental Impact Statements necessary to comply with

the provisions of the California Environmental Quality Act and the National Environmental Policy Act; and expert witness testimony. Management and administrative responsibilities included: planning, organization coordination and project management for numerous projects often exceeding \$500,000 in budget; fiscal management of the Biological Resources Group; supervision and personnel management of seven environmental specialists; management of subcontractor contracts and contractor work performance; preparation of proposals; representation of EIP and its clients before various governmental agencies. Selected projects:

- Project Manager and Senior Scientist. Central Valley Project Improvement Act. Prepared a report to Congress on behalf of the U.S. Fish and Wildlife Service on the feasibility of restoring and enhancing salmon and steelhead in over 24 streams tributary to the Sacramento and San Joaquin rivers. Also managed public participation and landowner involvement.
- Technical Director. Yolo County Habitat Conservation Plan. Developed with staff a county wide state and federal HCP for over 30 species of threatened and endangered flora and fauna pursuant to section 10 of the Endangered Species Act and section 2081 of the Fish and Game Code of California. Extensive public involvement and intergovernmental coordination with the cities of West Sacramento, Davis, Woodland, and Winters. The draft HCP was considered by the U.S. Fish and Wildlife Service to be a "model" multi-species plan. Managed project budget and directed and coordinated the work of a large staff of technical experts. Prepared administrative and technical reports for this large, multi-year project.
- Project Manager and Senior Scientist. Mill Creek Stream Channel Stability and Watershed Assessment. Prepared a report for a private forest products company on the characteristics and condition of the channel of Mill Creek and its tributaries in the Mokelumne River Basin, California. Field data collection included characterization of instream habitat types, riparian vegetation, aquatic resources, water quality, sedimentation, and land uses.
- Project Manager and Senior Scientist and Expert Witness. Bear Creek Instream Flow Study, San Bernardino National Forest, California. Conducted extensive investigations of the instream flow needs of Bear Creek, included aquatic invertebrate diversity, fish population composition and distribution, water quality, sedimentation, impact assessment on bald eagles, wetlands, and reservoir fisheries. Provided expert testimony before the California State Water Resources Control Board on instream flow and water quality issues. Managed project budget and the work of several subcontractors.

1992-1993 Manager and Senior Scientist. Pacific Environmental Consultants.

Founder and principal owner of Pacific Environmental Consultants. Areas of technical work included fish and wildlife management, habitat restoration, environmental impact assessment (CEQA/NEPA), regulatory compliance and permitting, and endangered species investigations. Responsible for the fiscal,

administrative, and personnel management of PEC. Managed the consultancy from its inception to a successful business with six months of backlogged contracts. PEC was purchased by EIP Associates in 1993 to expand its ability to provide environmental services to its clients. Selected projects:

- Project Manager and Senior Scientist. Ecology, Status and Management of the Giant Garter Snake. Conducted field work and prepared an extensive report describing the ecology and status of this threatened species in California. Presented results to the U.S. Fish and Wildlife Service for use in its listing process under the Endangered Species Act. A financial bonus was paid by the client in recognition of the quality of the work performed.
- Project Manager and Senior Scientist. Special Status Species Survey and Riparian Vegetation Assessment for the Angels Creek Project. Conducted extensive field investigations for rare, threatened, and endangered flora and fauna along Angels Creek, Cherokee Creek, and the South Fork Calaveras River for the Calaveras County Water District in support of a proposed water diversion from the Stanislaus River Basin to the Calaveras River Basin. Evaluated the impacts of diversion on the riparian communities of these streams. Report provided to the client and the California Department of Fish and Game.
- Project Manager and Senior Scientist. Gerlach KGRA Special Status Species Surveys. Completed field surveys and report preparation related to the occurrence of threatened and endangered species on public lands managed by the U.S. Bureau of Land Management within the Gerlach (Nevada) Known Geothermal Resources Area. Extensive focus on rare reptiles, spring snails, and flora of this desert region.

1986-1992 Regional Manager and Senior Scientist. Beak Consultants Inc.

Founder and Regional Manager of Beak's Sacramento office from 1986 to 1990. Responsibilities included office administration, fiscal management, personnel management, project management, and technical support to staff. Developed the consultancy from one individual to a team of twelve scientists and support staff over a five-year period. Selected projects:

- Project Manager and CEQA Specialist. Bodie Mineral Exploration Program Environmental Impact Report. Managed a team of resource specialists in the preparation of a draft EIR for the Mono County Planning Department for a mineral exploration project near Bodie State Historic Park. Areas of analysis personally prepared included: application for NPDES permit, cultural resources, geology, water resources, fish and wildlife resources, aesthetics and visual resources, and socioeconomics. Developed a mitigation monitoring program for the proposed project.
- Project Manager and CEQA Specialist. Mammoth Lakes Basin Comprehensive Water Management Environmental Impact Report. This project, which was subsequently held in abeyance by the Mammoth County Water District, involved the preparation of an EIR evaluating a full range of alternatives for managing the water resources of the Mammoth Lakes Basin, California. The project involved coordination with the U.S. Forest Service,

Inyo National Forest. Key issues evaluated included fisheries impacts, aesthetics, recreation, and groundwater and surface water management.

- Project Manager and CEQA Specialist. Conway Ranch Environmental Impact Report. Managed a team of resource specialists in the preparation of draft and final EIRs for the Mono County Planning Department for a proposed destination fly fishing resort at Conway Ranch in the Mono Basin, California. Key issues addressed in the EIRs were aesthetics and visual resources, biological impacts, socioeconomics, provisions for community services such as fire, water, and garbage, and wetland impacts. The final EIR was subsequently certified by the Mono County Board of Supervisors.
- Project Manager and Senior Scientist. Garden Bar Dam and Reservoir Pumped Storage Hydroelectric Project. Managed a large budget and team of scientists conducting extensive, multi-year reservoir/river fisheries investigations of Camp Far West Reservoir and the Bear River, California, for the engineering firm of Parsons, Brinckerhoff, Quade & Douglas. Directed studies that included an instream flow study (IFIM), water quality and temperature simulation modeling for various reservoir operational modes, riparian impacts to the Bear River, fisheries and wildlife (HEP) impacts, a migratory mule deer study, and endangered plant surveys. Directed work on the biological and water quality topics for a Federal Energy Regulatory Commission license application and for the draft Environmental Impact Report (CEQA). Responsibilities also included public meeting participation and coordination with numerous local, state, and federal agencies.

1984-1986 Senior Fisheries Scientist. Ott Water Engineers, Inc.

Served as Senior Fisheries Scientist for Ott and also supervised the environmental staff of the Bellevue, Washington office. Responsible for all aspects of fisheries and aquatic resource work, including fish passage and screening, hatchery design, habitat improvement, and hydropower licensing. Selected projects:

- Senior Fisheries Scientist. Bonneville Second Powerhouse Fish Passage Evaluation, Columbia River, Oregon and Washington. Conducted an evaluation for the U.S. Army Corps of Engineers of downstream juvenile migrant passage problems for salmonids at Bonneville Second Powerhouse, including hydraulic conditions at turbine intakes and fish migratory behavior.
- Senior Fisheries Scientist. Lemhi River Habitat Improvement Study, Lemhi River, Idaho. Project completed for the Bonneville Power Administration involved the evaluation of fishery management alternatives for various water management scenarios. Responsibilities included extensive consultations with state and federal agencies to find workable solutions to water management issues.

1979-1984 Senior Staff Specialist. U.S. Fish and Wildlife Service.

Senior Staff Specialist for the Service's Division of Ecological Services,

Sacramento, California. Responsible for directing and managing all work by staff biologists involving hydropower assessment, review, and consultation. Directed and participated in the assessment of environmental effects of over 800 hydroelectric projects involving the FERC process. Supervised data collection and analysis, provided technical guidance, and reviewed all work products for technical accuracy and compliance with all regulatory and legal mandates. Served as technical expert to the U.S. Fish and Wildlife Service, Washington, D.C. office on the effects of hydro development on biological resources and water quality, and the regulatory aspects of the Federal Power Act.

1975-1979 Reservoir Fish Research Biologist. U.S. Fish and Wildlife Service.

Responsible for directing and managing river reservoir ecosystem modeling for the National Reservoir Research Program of the Service in Fayetteville, Arkansas. Developed fishery, zooplankton, and benthos models to assess the effects of reservoir operations on aquatic resources. Published technical reports for the U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi, on the results of various modeling studies.

1974-1975 Aquatic Biologist. California Department of Transportation.

Served as aquatic biologist for the Caltrans Transportation Laboratory, Sacramento, California. Conducted research on the effects of road de-icing salts on aquatic systems. Assisted transportation engineers throughout California with environmental issues related to road design and construction. Coauthored an identification key to the families of California aquatic insects. Conducted environmental impact assessments related to Caltrans activities.

1970-1974 Biometrician. U. S. Forest Service.

Forestry Aid (Biometrician) at the Pacific Southwest Forest and Range Experiment Station, Berkeley, California. Performed computer programming and data analysis for research scientists on various topics ranging from predicting fire hazards to simulating optimum forest road system design.

1972-1974 Research Assistant. University of California. Berkeley.

Conducted microhabitat utilization research on rainbow and brook trout at Sagehen Creek, California. Completed field data collection for a study evaluating the effects of air pollutants on aquatic resources in the San Bernardino Mountains of California. Served Dr. Don Erman as a research assistant in aquatic ecology.

Publications

Leidy, George R., J. F. Irwin, E. A. Read, J. H. Humphrey, and S. K. Dickey. 2001. *The Ecology of Mill Creek*, Bear Valley Mutual Water Company et al., 350 pp.

Leidy, George R. 1998. *Draft Report to Congress on the Feasibility, Cost, and Desirability of Implementing Measures Pursuant to Subsections 3406(e)(3) and (e)(6) of the Central Valley Project Improvement Act (Tributary Production*

Enhancement Report), U.S. Fish and Wildlife Service, Central Valley Fish and Wildlife Restoration Program Office, Sacramento, California.

Leidy, George R., Smallwood, K. S., Wilcox, B., and Yarris, K. 1998. *Indicators Assessment for Habitat Conservation Plan of Yolo County, California, USA*, Environmental Management, Vol. 22(6): 947–958.

Leidy, George R. 1992. *Ecology, Status and Management of the Giant Garter Snake (Thamnophis gigas)*, North Natomas Landowners Association, Inc., 352 pp.

Leidy, George R., and Ott, R. F. 1986. *Selecting Fish Screens for Small Hydropower Installations*, Hydro Review, Vol. 5(2): 56–60.

Leidy, George R., and Meyers, M. M. 1984. *Fishery Management Problems at Major Central Valley Reservoirs, California*, U.S. Bureau of Reclamation, Sacramento, California, Special Report.

Leidy, George R., and Leidy, R. A. 1984. *Life Stage Periodicities of Anadromous Salmonids in the Klamath River Basin, Northwestern California*, U.S. Fish and Wildlife Service, Division of Ecological Services, Ecological Services Technical Report No. 1, Sacramento, California.

Leidy, George R. 1982. *Step by Step: Negotiating an Appropriate Streamflow*, Hydro Review, Vol. 1(3): 25.

Leidy, George R. 1981. *Federal Energy Regulatory Commission Procedures for Licensing Hydroelectric Projects*, instructional handbook prepared for workshops for the U.S. Fish and Wildlife Service biologists, Sacramento, California.

Leidy, George R., and Ploskey, G. R. 1980. *Simulation Modeling of Zooplankton and Benthos in Reservoirs: Documentation and Development of Model Constructs*, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, Technical Report E-80-4.

Leidy, George R., and Jenkins, R. M. 1977. *The Development of Fishery Compartments and Population Rate Coefficients for Use in Reservoir Ecosystem Modeling*, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, Miscellaneous Report Y 77-10.

Leidy, George R., and Winters, G. R. 1976. *A Simplified Taxonomic Key to the Families of California Aquatic Insects*, California Department of Transportation, Transportation Laboratory, Sacramento, California, Final Report CA-DOT-TL-7108-7-76-5-1.

Leidy, George R., and Erman, D. 1975. *Downstream Movement of Rainbow Trout Fry in a Tributary of Sagehen Creek Under Permanent and Intermittent Flow*, Transactions of the American Fisheries Society, Vol. 104(3): 467–473.

Presentations

Leidy, George R. 1996. *Wildlife Management on Private Timberlands in the*

Sierra Nevada of California, paper presented at the El Dorado-Amador Forest Forum, Sutter Creek, California.

Leidy, George R. 1988. *Ethics in Environmental Consulting*, paper presented at the annual meeting of the California/Nevada chapters of the American Fisheries Society, Ventura, California.

Leidy, George R. 1985. *Technical Developments for Environmental Protection at Small Hydro Installations*, paper presented at the U.S. Environmental Protection Agency's Small Hydro Workshop, Chicago, Illinois.

Leidy, George R. 1984. *IFG 4 Model Selection and Quality Evaluation*, instructional handbook and workshop presented by Ott Water Engineers, Inc. and Thomas R. Payne and Associates, Sacramento, California.

Leidy, George R. 1982. *Solving Instream Flow Issues*, paper presented at the meeting of the National Association of Hydroelectric Energy Producers, San Francisco, California.

Leidy, George R. 1977. *Reservoir Fisheries Modeling*, paper presented at the joint annual meeting of the U. S. Fish and Wildlife Service's National Reservoir Research Program and the Tennessee Valley Authority, Knoxville, Tennessee.

Leidy, George R. 1974. *Downstream Movement of Rainbow Trout in Sagehen Creek, California*, paper presented at the annual meeting of the California/Nevada chapters of the American Fisheries Society, Monterey, California.

Leidy, George R. 1970-present. Contributions to hundreds of unpublished reports on various environmental issues related to natural resource management, including endangered species, water resources, watershed management, mining impacts and remediation, instream flows, water quality, habitat restoration, air quality, and regulatory compliance.

Courses/Seminars

University of California, Berkeley. Wildland Resource Science. Two years of graduate work toward M.S. degree researching salmonid behavior, 1972-1974

University of California, Davis. Aquatic Entomology, 1975

University of Arkansas, Fayetteville. Mathematical Modeling, 1976

University of Washington, Seattle. Modeling Aquatic Ecosystems, 1977

University of Arkansas, Fayetteville. Calculus and Analytic Geometry, 1978

U.S. Fish and Wildlife Service, Sacramento. Wetlands Classification, 1980

U.S. Army Corps of Engineers, Portland. Planner Orientation, 1980

U.S. Fish and Wildlife Service, Sacramento. Instream Flow Negotiations, 1980

U.S. Fish and Wildlife Service, Portland. Instream Flow Field Techniques, 1981

U.S. Fish and Wildlife Service, Ft. Collins. Use of the Computer Based Physical Habitat Simulation System, 1983

Colorado State University, Ft. Collins. Expert Witness Training, 1985

U.S. Fish and Wildlife Service, Ft. Collins. Hydraulics in Physical Habitat Simulation, 1985

Trimble Navigation, Coos Bay. Global Positioning Systems, 1995

California Department of Fish and Game, Sacramento, California Wildlife
Habitat Relationships System, 1995
Dr. Denton Belk (University of Texas), Sacramento. Fairy Shrimp Taxonomy
and Identification, 1996

Honors and Awards

Audubon Society Scholarship and Wilderness Foundation Scholarship to attend
a marine biology research camp, Santa Catalina Island, California, 1966
California Alumni Scholarship to attend the University of California at Berkeley,
1968
Member Upper Division and Graduate Students Honor Society, U.C., Berkeley,
1971
Member Xi Sigma Pi (forestry honor society), 1971
Frank Schwabacher Memorial Scholarship in Forestry to attend Graduate School
at the School of Forestry and Conservation, U.C., Berkeley, 1972
Grant from the Foundation For Environmental Education to pursue research on
the interaction of brook and rainbow trout fry, 1973
Grant from the Union Foundation Wildlife Fund to pursue research on the
interaction of brook and rainbow trout fry, 1973
Quality Performance Award, U.S. Fish and Wildlife Service, 1981
Howard M. Post Technical Achievement Award 2006