

JEAN BALDRIGE

ENTRIX, Inc
5909 Ygnacio Valley Road, Suite 200
Walnut Creek, CA 94596

EDUCATION

- University of Washington, Seattle, WA: M.S., Fisheries, 1988
- Grinnell College, Grinnell, IA: B.A., General Science, Biology, 1974
- Additional coursework in hydrology, instream flow methodologies, and reservoir modeling techniques

PROFESSIONAL HISTORY

- ENTRIX, Inc., Principal, 1997 to date
- Trihey & Associates, Inc., President and Principal Fisheries Biologist, 1994 to 1997
- ENTRIX, Inc., Senior Fisheries Consultant, 1989 to 1994
- ENTRIX, Inc., Senior Project Scientist, 1985 to 1989
- Woodward-Clyde Consultants, Senior Staff Scientist, 1982 to 1985
- University of Alaska, Arctic Environmental Information and Data Center, Anchorage, Research Analyst in Fisheries, 1978 to 1982
- Arctic World, Anchorage, Biologist, 1976 to 1978

REPRESENTATIVE EXPERIENCE

Jean Baldrige has over 25 years of experience as an aquatic ecologist with an emphasis in fisheries and assessments of aquatic habitat. Most of her experience is in assessing the effect of water development projects, streamflow allocations, or related instream activities on fishery resources. Her work has emphasized evaluating the instream habitat conditions for anadromous fish. Ms. Baldrige has worked primarily in the western states with project activities extending along the coast from southern California to Alaska.

Santa Ynez River

Ms. Baldrige began working in the Santa Ynez River Basin in southern California in 1990 when she was asked to evaluate habitat and fish populations in Fox and Alder creeks, two streams in the upper Santa Ynez River. In 1993, Ms. Baldrige was retained by the Cachuma Conservation Release Board (CCRB) to assist in conducting studies in the Santa Ynez River. Ms. Baldrige assisted in the formation of the Santa Ynez River Technical Advisory Committee (SYRTAC). She worked with the California Department of Fish and Game (CDF&G) staff and other consultants to develop the studies to investigate habitat availability and quality and fish abundance and distribution in the Santa Ynez River and its tributaries downstream of Bradbury Dam.

In 1995, Ms. Baldrige became Project Coordinator to assist the SYRTAC in developing and implementing studies, evaluating management alternatives, and conducting restoration activities. Ms. Baldrige assisted the SYRTAC in identifying and evaluating various alternative actions and she oversaw the Santa Ynez River Fish Management Plan preparation. She also assisted the Bureau of Reclamation (Reclamation) in developing the Biological Assessment. She worked cooperatively with Reclamation and NOAA Fisheries staff to develop the Cachuma Project's proposed operations and restoration actions in the tributaries to improve opportunities for steelhead in the lower river and

tributaries. Ms. Baldrige has continued to assist Reclamation and its Cachuma Project contractors in implementing the Fish Management Plan and the Biological Opinion. She currently serves on the Adaptive Management Committee for the CCRB.

Instream Flow Assessments

Ms. Baldrige has assessed the effects of an instream flow and habitat structure on habitat quality and quantity for salmon, trout, and native species. She is currently working with the Nez Perce Tribe to develop instream flows for 250 streams in Idaho's Salmon River and Clearwater River basins as part of the Snake River Basin Adjudication. In California Ms. Baldrige recently completed a flow assessment for Dry Creek and the Upper Russian River using a Delphi approach in cooperation with NOAA Fisheries and CDF&G. She is currently completing an instream flow assessment for the Ventura River that focuses on steelhead habitat.

She was the Principal Investigator for a large, multiyear, and highly visible study to test the Instream Flow Incremental Method (IFIM). This project, jointly funded by Pacific Gas and Electric Company, Southern California Edison, Electric Power Research Institute, and CDF&G, monitored the response of fish populations to streamflow regimes altered by hydroelectric projects. The study was designed to test the predictive capabilities of the IFIM.

Among the numerous instream flow assessments directed by Ms. Baldrige are the instream flow evaluations for anadromous fish in Washington's White Salmon River, Idaho's Clearwater River, and California's Lagunitas and Cow Creeks and Russian River. Instream flow studies that focused on California native fishes included Putah Creek, and the San Joaquin, Tule, and Kern rivers.

Endangered Species

Ms. Baldrige has assisted in endangered species consultations for a variety of projects. In addition to her work on California's Santa Ynez River and Hilton Creek, she assisted Reclamation in completing Section 7 consultations on the Ventura River Robles Project. She is currently assisting the U. S. Army Corps of Engineers (USACE) in a large Section 7 Consultation for the Russian River. That project includes a wide variety of activities including flood control, water supply, fish production facilities, channel maintenance, hydroelectric generation, estuary management, habitat restoration, and fish passage projects. She is also assisting the USACE in completing Section 7 consultations for the Salinas Valley Water Project, which includes re-operation of two reservoirs and a new surface diversion in the lower Salinas River.

Ms. Baldrige is working on a Section 10 Consultation for local public agencies in the Ventura River watershed including the Ventura County, Casitas Municipal Water District, City of Ventura, and Ojai Sanitary District. These agencies are engaged in providing essential services in the Ventura River watershed that may affect steelhead, red-legged frogs, and least Bell's vireo. Ms. Baldrige is also assisting the City of Santa Cruz in developing a Habitat Conservation Plan to evaluate its activities that may affect listed species in the San Lorenzo watershed and adjacent coastal streams.

Ms. Baldrige was appointed by the CDF&G Director to serve on the Coho Recovery Team, a group of stakeholders tasked with assisting CDF&G in developing a coho salmon recovery strategy for California. During this assignment, she worked to develop a computer model to assist in identifying recovery objectives and recovery prioritizing actions.

Habitat Enhancement

Ms. Baldrige is also active in fish habitat enhancement projects. She has assisted in developing restoration projects in the Ventura, Salinas, and San Lorenzo rivers, and in Mono Basin and Malibu Creek, all in California.

In the Ventura River, Ms. Baldrige conducted an assessment of potential actions to restore habitat and promote steelhead recovery. She also assisted Casitas Municipal Water District in developing the Robles Fish Passage Project to provide passage into the headwaters of the Ventura River. In the Salinas River, she is working with Monterey County Water Resources Agency and local landowners to develop restoration projects in the Arroyo Secco. She also assisted the City of Santa Cruz in improving steelhead passage at Felton Diversion Dam on the San Lorenzo River.

She served as chair of the Fisheries subcommittee responsible for planning and implementing the court-ordered restoration of Rush and Lee Vining creeks in Mono County. She also directed master plan development for habitat improvements to enhance brown trout populations in Yellow Creek, California for California Trout, Inc. Ms. Baldrige also evaluated habitat conditions and potential restoration actions in Mailibu Creek. She directed a project to evaluate potential enhancement of steelhead populations in Malibu Creek by providing passage over Ringe Dam. In addition, Ms. Baldrige prepared habitat improvement plans to develop salmon spawning areas in several Alaskan rivers affected by hydroelectric developments.

Water Quality

Water quality is an important aspect of fish habitat and Ms. Baldrige is working on several projects where water quality is of central concern. Ms. Baldrige is currently working on water quality management issues in Walker Lake, a saline lake in Nevada. She was instrumental in promoting an ecosystem-based management approach that focuses on protecting Tui chub spawning habitat within the lake to support the planted cutthroat trout. Ms. Baldrige is currently assisting a reservoir operator in conducting a use attainability study to determine the best management strategy for a eutrophic reservoir. In Lagunitas Creek, a coastal stream north of San Francisco Bay, she evaluated the effect of increased turbidity levels on salmon and steelhead rearing habitat. In Alaska, Ms. Baldrige conducted an assessment of streams with high pH levels due to runoff from peat deposits. Ms. Baldrige has recently studied a stream affected by acid mine drainage and tailing disposal. She evaluated the potential effects of the mine drainage on Chinook salmon and steelhead populations.

Expert Witness

Ms. Baldrige has served as an expert witness regarding effects of water developments on fish populations and instream flow issues for a variety of projects. In California on behalf of the Walker River Irrigation District, she testified before the Mono County Superior Court, the State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Board (Lahontan Region) regarding appropriate water quality standards and instream flows for the East Walker River, and minimum storage volumes for Bridgeport Reservoir. She provided testimony for Marin Municipal Water District before the SWRCB on management opportunities in Lagunitas Creek to improve habitat conditions for coho salmon and steelhead. She appeared before the SWRCB to provide testimony on habitat restoration activities in the Mono Basin on behalf of California Trout. In addition, she provided testimony before the El Dorado Superior Court on fish monitoring activities in the Mono Basin on behalf of the Mono Lake Committee and Audubon Society. She is currently named as an expert witness in Idaho State Court for

Snake River Adjudication as an expert in fish habitat requirements for the Nez Perce Tribe.

Committees and Boards

Ms. Baldrige has been active in the American Fisheries Society (AFS) and has served on the Executive Committee for the Western Division of the AFS as an elected official. She has also served on the Executive Committee for the California-Nevada Chapter as chair of the membership committee and continues to head the career fair for young professionals for both the California-Nevada Chapter and Western Division.

In addition to her role on the CDF&G Coho Recovery Team, Ms. Baldrige has served on several professional boards and organizations. She served on the Editorial Board of a scientific journal entitled *Rivers, Studies in Science, Environmental Policy and Law of Instream Flows*. She has also served on an advisory panel of nationally recognized experts to advise the Texas Water Development Board on instream flow issues. The panel was instrumental in the Texas Water Development Board funding a research program to address instream flow issues in Texas. Ms. Baldrige has also been a consultant to Alberta (Canada) Fish and Wildlife Service regarding fish habitat assessments for large rivers in subarctic environments.

AFFILIATIONS

- American Fisheries Society
- American Institute of Fisheries Research Biologists
- Pacific Fisheries Biologists

PUBLICATIONS

- "Fish Health and Diversity: Justifying Instream Flows" with P. Moyle, M. Marchetti, T. Taylor. 1998. *Fisheries* Vol 23 (7)6:15.
- "Testing the Instream Flow Incremental methodology in Trout Streams" with T. Studley and S. Railsback. Paper for Water Power 1995, San Francisco, CA. 1995.
- "Fish Habitat in Arctic Environments" with L.A. Rundquist. 1989. For Cold Regions Research Lab Monograph. 1989.
- "Habitat Quality, Another Consideration in Instream Flow Studies." in *Instream Flow Chronicles*. 1986.