

DHDETTMAN, AQUATIC  
BIOLOGIST

DAVID H.  
DETTMAN

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Resume,  
relevant  
work  
experience  
and project  
reports

5/13/2011

Statement of work  
experience, knowledge  
and project reports that  
are relevant to El Sur  
Ranch's Application to the  
SWRCB for a permit to  
divert surface water from  
the Big Sur River,  
Monterey County, CA

**EDUCATION:**

M.S. Aquatic Ecology.  
Univ. of California, Davis

B.S. Wildlife and Fisheries  
Biology  
Univ. of California - Davis

A.A. Biology and Science  
Monterey Peninsula Jr.  
College

**PRINCIPAL  
AFFILIATIONS:**

American Fisheries Society

American Association for the  
Advancement of Science

Ecological Society of  
America

**EMPLOYMENT**

**HISTORY:**

*2006-Present*

Avila & Associates, Inc.

*2005-Present*

DHDettman, Aquatic  
Biologist

*1989-2005*

Monterey Peninsula Water  
Management District

*1979-1989*

D.W. Kelley and  
Associates

*1975-1978*

University of California at  
Santa Cruz

*1973-1974*

University of California at  
Davis

**Work Experience:**

David H. Dettman is an aquatic biologist with more than 37 years of experience in freshwater, lagoon, and marine biological studies. His experience includes the development, supervision and review of a 21-year long mitigation program to protect and conserve steelhead in the Carmel River Basin. Further he has developed, designed, supervised and participated in field investigations to determine streamflow and habitat requirements for salmon and steelhead, prepared many related technical reports on the investigations and developed recommendations for mitigating the effects of water diversions on salmon and steelhead populations.

He developed methods for providing fisheries conservation and mitigation services, and he has also trained specialists in field investigation, fish population monitoring, fish rescue and habitat modification methods, and other related procedures and techniques.

During his career, he has helped resolve water quality issues in connection with the Wastewater Treatment Plant discharge into Sacramento River at Freeport, CA and assessed habitat damage from sediment discharges associated with hydraulic mining operations in American River watershed, construction and maintenance of roads in Monterey and Santa Cruz Counties, and reservoir operations in Sierra and Coastal California streams. He has extensive experience in the consultation and permitting processes associated with the NOAA Fisheries and the California Department of Fish and Game.

**2006 - Present**

**Avila and Associates Consulting Engineers, Inc.**  
San Francisco, California

Currently, Mr. Dettman is a Senior Scientist (Fisheries) with Avila and Associates specializing in fisheries biology and aquatic biology support services. He is providing environmental support services for the SFPUC on the San Francisco Water Supply Improvement Project and for the SFPUC Natural Resources Division on an as-needed basis.

## **2006 – Present**

### **DHDettman, Aquatic Biologist**

Ben Lomond, California

Following seventeen years of employment with the Monterey Peninsula Water Management District, Mr. Dettman continued consulting work on special projects for the District, public groups, and private individuals; and continues this work today, as time allows.

## **1996-2005**

### **Monterey Peninsula Water Management District**

Monterey, California

#### **Senior Fishery Biologist**

- ◇ Supervised, assigned, reviewed and participated in the implementation of mitigation program to protect and conserve steelhead trout in the Carmel River Basin.
- ◇ Developed, designed, supervised and participated in field investigations to determine habitat requirements for steelhead; prepared technical reports on investigations.
- ◇ Trained and supervised assigned employees in their areas of work including field investigation, fish population monitoring, fish rescue and habitat modification methods, procedures and techniques.
- ◇ Mentored students from California State University at Monterey Bay on habitat requirements for juvenile steelhead in river and lagoon environments
- ◇ Prepared scope of work, specifications, and requests for proposals and recommended contract awards; administered consultant contracts.
- ◇ Oversaw and determined when and how emergency fish rescues are carried out in the Carmel River; analyzed data and wrote annual reports on rescue activities.
- ◇ Designed, developed plans, obtained permits, and directed the construction of Sleepy Hollow Steelhead Rearing Facility to rear juvenile steelhead during low-flow season; oversaw and coordinated several construction contracts at the site.
- ◇ In consultation with the General Manager, developed and recommended annual, monthly, and daily flow requirements and reservoir releases below San Clemente and Los Padres Dams to conserve and restore fish and aquatic habitats throughout the mainstem Carmel River.
- ◇ With the General Manager and Water Resources Manager prepared the Quarterly Water Supply Budget and Strategy; recommended operational procedures and methods to minimize impacts of existing water diversions on public trust resources.
- ◇ Assessed impact of existing and future water development on steelhead population and aquatic habitats in the Carmel River basin.

## **1989-1996**

**Monterey Peninsula Water Management District**  
Monterey, California

**Fishery Biologist**

- ◇ In charge of comprehensive program for mitigating the impacts of existing water development on steelhead population in the Carmel River.
- ◇ Testified as expert witness in State Water Resources Control Board hearing on impacts of existing and future water development on steelhead population and aquatic habitat in the Carmel River basin.
- ◇ Designed specific programs to avoid, compensate for or mitigate impacts of water development on steelhead and other public trust resources.
- ◇ Designed and conducted field studies of critical migration riffles in the Carmel River.
- ◇ Conducted detailed surveys of steelhead habitat and population throughout the Carmel River Basin.
- ◇ Designed and conducted experiments to determine mortality of steelhead smolts which pass down the existing spillway at Los Padres Dam.
- ◇ In charge of monitoring steelhead population in the Carmel River.
- ◇ Applied for and received grants from the California Wildlife Conservation Board and Federal Emergency Management Agency to restore and maintain spawning habitats below existing dams on the Carmel River. Designed techniques to measure and monitor substrate conditions in glides where spawning habitat is restored.

**1979–1989**

**D.W. Kelley and Associates**  
Newcastle, California

**Consulting Aquatic Biologist**

- ◇ Specialist in biological assessment of the effect of proposed water development projects on fisheries resources. Developed methods of improving impact assessments and of defining streamflow needed below dams, and of incorporating such flows into hydraulic operation studies to assess cost and benefit. Developed approaches to assessing the combined effects of stream sedimentation and changing streamflow regimes on fish habitat and populations.
- ◇ 1981-1989: Investigated the effect of increasing existing water production on the steelhead resource in the Carmel River; investigated effects of alternative water supply projects on the steelhead population in the Carmel River, Monterey County, CA; investigated flows needed for upstream adult migration, adult spawning, juvenile rearing, smolt emigration; designed flow schedules below proposed reservoir to make reservoir operation compatible with steelhead life cycle, investigated the relationship between steelhead angling success and

- streamflow during winter migration season; assessed potential impact of proposed fish passage facilities on adult upstream migration and juvenile downstream migration.
- ◇ 1987-88: Investigated and reported on the impacts of a proposed diversion dam on the Salinas River, Monterey County, CA
  - ◇ 1985-89: Consultant to the California Department of Water Resources:
    - Investigated how streamflow, water temperature and diversions affect survival of juvenile Chinook salmon and adult salmon populations in the Sacramento River Basin.
    - Testified as expert witness before the State Water Resources Control Board during Bay-Delta Hearings in reference to the effects of water temperature and food on Chinook salmon populations in the Sacramento River Basin.
    - Developed models for separating the effects of water temperature and diversion on survival of juvenile Chinook salmon that are emigrating from the confluence of the American and Sacramento Rivers to Chipps Island in the Western Delta.
  - ◇ 1984-86: Investigations for East Bay Municipal Utilities District on lower American River
    - Conducted field studies of juvenile chinook rearing habitat and developed models for assessing the effect of streamflow on juvenile rearing habitat, spawning habitat and the risk of exposing salmon nests.
    - Developed approach for estimating the proportion of hatchery chinook in salmon run in the lower American River based on annual numbers of hatchery fish released and their retrieval rates in the ocean fisheries off California.
    - Testified as expert witness before the State Water Resources Board and in Alameda Superior Court regarding the effects of East Bay Municipal Utilities District diversion of 158,000 AF of water through Folsom South Canal on Chinook salmon populations in the lower American River.
  - ◇ 1983-84: Helped resolve water quality issues in connection with the Wastewater Treatment Plant discharge into Sacramento River at Freeport, CA.
  - ◇ 1982-83: Investigated effects of alternative water development projects on steelhead population in the Arroyo Seco River, Monterey County, CA.
  - ◇ 1982-83: Investigate effects of alternative water development projects on Soquel Creek, Santa Cruz County, CA

- ◇ 1979-81: Investigated and recommended flows and streambed conditions needed for steelhead and coho salmon in Zayante Creek, Santa Cruz, CA.
- ◇ 1980-81: Recommended flows and passage facilities needed for steelhead adult migration and spawning, juvenile rearing and smolt emigration below proposed diversion dam on Soquel Creek, Santa Cruz, CA
- ◇ 1980: Assessed habitat damage from sediment discharge associated with hydraulic mining operation in American River watershed. Testified as an expert witness on behalf of defendant in criminal trial.
- ◇ 1979-80 & 1988: Consultant to Marin Municipal Water District:
  - Investigated and reported on streamflows and substrate conditions needed for steelhead in Lagunitas Creek, Marin County, CA.
  - Made recommendations for managing streambed conditions in Lagunitas Creek, as part of Final EIR on construction of Kent Reservoir, Marin County, CA.
  - With Donald W. Kelley, developed streamflow requirements for SWRCB water rights permit application and initial reservoir operations for Kent Reservoir, Marin County, CA.

## **1975–1978**

### **University of California at Santa Cruz Santa Cruz, California**

#### **Associate Marine Specialist**

Collected baseline biological population index data on marine mammals and seabirds in the southern California Bight. Designed and conducted field studies of the California sea lion population on Santa Barbara Island, CA. This work included an analysis of population dynamics and emphasized the role of pup mortality during the first three months after birth.

## **1973-1974**

### **University of California at Davis Davis, California**

#### **Research and Laboratory Assistant**

- ◇ Received grant from California Trout, Inc. to conduct field research on ecological interactions of rainbow trout (juvenile steelhead) and Sacramento pikeminnow in Deer Creek, Tehama County, CA. The primary emphasis was to correlate an index of population size with environmental factors and to investigate micro-

- habitat segregation between these species. This research is summarized in a Master Thesis at the UC Davis Library.
- ◇ Investigated determine metabolic rates of Sacramento squawfish and Sacramento blackfish in relation to water temperature. This work was part of a study to determine the feasibility of using blackfish as an aquaculture organism.
  - ◇ Conducted investigation of food competition between rainbow trout and Sacramento sucker by measuring growth rates of individuals grown in captivity.
  - ◇ Assisted professors Dr. Hiram Li and Dr. Peter Moyle in collection of data and study of interspecific food competition between speckled dace and rainbow trout in streams draining the west side of Warner Mountains in Modoc County, CA
  - ◇ Designed, constructed, and operated laboratory respirometers for determining metabolic rates in native California fishes including rainbow trout, chinook salmon, Sacramento sucker, Sacramento pikeminnow, and Sacramento blackfish.

List of Technical Reports, Memoranda, Presentations and Investigations:

- Alley, D. W., D. H. Dettman, H. W. Li and P. B. Moyle. 1977. Habitats of Native Fishes in the Sacramento River Basin, Chapter VIII In A. Sands, 1980. Riparian Forests in California: Their Ecology and Conservation, proceedings of symposium sponsored by the Institute of Ecology, University of California, Davis, CA. and Davis Audubon Society, May 14, 1977. Institute of Ecology Publication No. 15.
- Dettman, D. H. 1984. Biological Analysis of the Upstream Migration Facilities for the 18,000 Acre Foot New San Clemente Dam. 12 pp In D. W. Kelley and Associates, Converse Consultants, and C. Wagner, 1984. Evaluation of Alternative Upstream Fish Passage Facilities over New San Clemente Dam. Prepared for the Monterey Peninsula Water Management District.
- Dettman, D. H. 1984. The Carmel River Lagoon and Its Use by Steelhead. Appendix A to Assessment of Carmel River Steelhead Resource Volume I. Prepared for Monterey Peninsula Water Management District. 21 pp
- Dettman, D. H. 1986. Relationships between Steelhead Sport Catch, Angling Success and Streamflow in the Carmel River during 1984. Appendix F to Assessment of Carmel River Steelhead Resource Volume I. Prepared for Monterey Peninsula Water Management District. 37 pp
- Dettman, D. H. 1988. Reconnaissance of the Effect of a Salinas River Diversion Dam on Fish and Other Aquatic Resources. Prepared by D. W. Kelley and Associates for the Monterey County Flood Control and Water Conservation District. 41 pp
- Dettman, D. H. 2008. Reservoir Fish Population Estimation Report. Prepared by Avila and Associates Consulting Engineers, Inc. for the San Francisco Public Utilities Commisison, Natural Resources Division, San Francisco, CA. 48 pp
- Dettman, D. H. 1981. Assessment of Trout Habitat and Trout Populations in the North Fork, Middle Fork American River above and below the Pacific Slab Mine

- Discharge, October 28 - November 7, 1980. Report to Ronald Guntert, Guntert and Zimmerman Construction Division, Inc. 18 pp
- Dettman, D. H. 1984. A Review of the Literature on How pH Affects Fish and Its Relevance to the Sacramento Regional Wastewater Treatment Plant Discharge to the Sacramento River. Prepared for the County of Sacramento, Department of Public Works. 41 pp
- Dettman, D. H. 1989. Description of Environmental Setting in Relation to Fish. Section in Draft Allocation Program EIR prepared for J. Laurence Mintier and Associates, Sacramento, CA. 13 pp
- Dettman, D. H. 1989. The Effects of Increasing Cal-Am (Water) Demand on Steelhead and the Definition of the Environmental Preferred Level of Demand. Section in Draft Allocation Program EIR prepared for J. Laurence Mintier and Associates, Sacramento, CA. 32 pp
- Dettman, D. H. 1984. Age and Growth of Carmel River Steelhead in the 1981-1982 Season. Appendix B to Assessment of the Carmel River Steelhead Resource; Volume I. (September 1986) and II (October 1987). D. W. Kelley and Associates, Newcastle, CA.
- Dettman, D. H. 1989. Evaluation of Instream Flow Recommendations for Adult Steelhead Upstream Migration in the Lower Carmel River. Technical Memorandum 89-05, October 1989. Monterey Peninsula Water Management District, Monterey, CA. 30 pp
- Dettman, D. H. 1989. The Effect of Streamflow on Juvenile Steelhead Rearing Habitat in Rocky Creek, Monterey County, CA. Report prepared for J. G. Williams by D. W. Kelley and Associates, June 1989. 22 pp
- Dettman, D. H. 1989. The Quantity of Steelhead Spawning Habitat Inundated or Blocked by Alternative Water Supply Projects in the Carmel River Basin. Technical Memorandum 89-03, November 1989. Monterey Peninsula Water Management District, Monterey, CA.
- Dettman, D. H. 1990. Spawning Habitat Mitigation Plans for Alternative Water Supply Projects in the Carmel River Basin. Technical Memorandum 90-01, August 1990. Monterey Peninsula Water Management District, Monterey, CA.
- Dettman, D. H. 1990. The Quantity of Steelhead Rearing Habitat Inundated or Blocked by Alternative Water Supply Projects in the Carmel River Basin. Technical Memorandum 90-03. November 1990. Monterey Peninsula Water Management District, Monterey, CA. 21 pp



- Dettman, D. H. 1993. Recommended Minimum Streamflow Requirements for the Reach Between the Proposed New Los Padres Reservoir and Existing San Clemente Reservoir. Technical Memorandum 93-03. November 1993. Monterey Peninsula Water Management District, Monterey, CA. 27 pp
- Dettman, D. H. 1993. Returns of Adult Steelhead to the Carmel River Basin with the New Los Padres Project and No Project. Technical Memorandum 93-04. Monterey Peninsula Water Management District, Monterey, CA. 7 pp + 5 Tables and 6 Figures
- Dettman, D. H. 1993. Spawning Habitat Mitigation Plan for the 24,000 Acre-Foot New Los Padres Project. Technical Memorandum 93-05. December 1993. Monterey Peninsula Water Management District, Monterey, CA. 28 pp
- Dettman, D. H. 1994. Fish and Aquatic Life: Chapter 8 In MPWMD, 1994(a) Monterey Peninsula Water Supply Project Final Environmental Impact Report and Statement, also known as the 1994 New Los Padres (NLP) environmental impact report (EIR). Monterey Peninsula Water Management District, Monterey, CA.
- Dettman, D. H. 1998. Impacts of Groundwater Production on Threatened and Endangered Steelhead Populations in Central California Streams. Presentation to Cal-Neva Chapter of the American Fisheries Society. Annual Meeting in Monterey, CA.
- Dettman, D. H. 1998. Fish and Aquatic Life: Appendix D In MPWMD, November 1998 EIR (SEIR) for the Carmel River Dam and Reservoir Project (CRDRP). Monterey Peninsula Water Management District, Monterey, CA.
- Dettman, D. H. 2006. Chapter 5, Aquatic Resources and Appendix A, Carmel River/Freshwater Aquatic Life. In Jones & Stokes. 2006. Monterey Peninsula Water Management District Aquifer Storage and Recovery Project Environmental Impact Report/Environmental Assessment. Draft. February 2006. Prepared for the Monterey Peninsula Water Management District, Monterey, CA.
- Dettman, D. H. 2008. Carmel River – Steelhead Rescue and Rearing Management Plan. Primary planning document in support of Section 10 permit application to the National Marine Fisheries Service. Plan prepared for the Monterey Peninsula Water Management District, dated May 21, 2008. 27 pp
- Dettman, D. H. 2009. Proposition 84 Grant Application: Fish Passage Barrier Assessment in the Carmel River Watershed. Prepared for the Monterey Peninsula Water Management District for grant application to the California Department of Water Resources for an Integrated Regional Water Management Planning Grant. 27 pp

- Dettman, D. H. and B. M. Hanna. 1991. Development of a Substrate Suitability Curve for Adult Spawning Habitat in the Carmel River Downstream of San Clemente Dam. Technical Memorandum 91-04, November 1991. Monterey Peninsula Water Management District, Monterey, CA. 11 pp
- Dettman, D. H. and D. W. Kelley. 1984. Investigations of Alternative Water Development Projects on Soquel Creek. Prepared for Soquel Creek County Water District, Soquel, CA. 30 pp
- Dettman, D. H. and D. W. Kelley. 1986 (final), 1983 (draft). Assessment of the Carmel River Steelhead Resource: Volume I Biological Investigations. Report prepared for the Monterey Peninsula Water Management District. 113 p
- Dettman, D. H. and D. W. Kelley. 1986. Report on Field Reconnaissance of Downstream Fish Passage Facilities at Reservoirs on the Santiam and North Fork Clackamas Rivers in Oregon. Prepared for the Monterey Peninsula Water Management District, Monterey, CA. 21 pp
- Dettman, D. H. and D. W. Kelley. 1986. The Roles of Nimbus Hatchery and Natural Production in Maintaining the Lower American River Salmon Run. Prepared for Best, Best and Krieger. 73 pp
- Dettman, D. H. and D. W. Kelley. 1987. The Roles of Feather and Nimbus Salmon and Steelhead Hatcheries and Natural Reproduction in Supporting Fall Run Chinook Salmon Populations in the Sacramento River Basin. Prepared for the California Department of Water Resources. 106 pp
- Dettman, D. H. and D. W. Kelley. 1987. Assessment of the Carmel River Steelhead Resource, Volume II Evaluation of the Effects of Alternative Water Supply Projects on the Carmel River Steelhead Resource. Prepared for the Monterey Peninsula Water Management District. 108 p.
- Dettman, D. H., B. Hanna, and M. Canning. 1996. The Steelhead Resource Program, Chapter III. In Final Report: Evaluation of MPWMD Five-Year Mitigation Program, 1991-1996. Monterey Peninsula Water Management District, Monterey, CA. October, 1996.
- Dettman, D. H., D. W. Kelley, and W. T. Mitchell. 1987. The Influence of Flow on Central Valley Salmon. Prepared for the California Department of Water Resources. 66 pp
- Fuerst, D. W., D. H. Dettman, and J. W. Oliver. 2006. Assessment of Operational Changes at San Clemente Dam and Effects on Streamflow, Aquatic Habitat, and Juvenile Steelhead in the Carmel River between 1983 and 2005. (Abstract of presentation) Proceedings of the 2006 AWRA Summer Specialty Conference: Adaptive Management of Water Resources. Missoula, MT.

- Kelley, D. H., P. M. Bratovich, H. Rooks, and D. H. Dettman. 1985. The Effect of Streamflow on Fish in the Lower American River: Second Report. Prepared for Best, Best, and Krieger. 87 pp
- Kelley, D. W. and D. H. Dettman. 1980. Relationships between Streamflow, Rearing Habitat, Substrate Conditions, and Juvenile Steelhead Populations in Lagunitas Creek, Marin County, 1979. Report to Marin Municipal Water District, Corte Madera, California. 23 pp + Appendices
- Kelley, D. W. and D. H. Dettman. 1981. Zayante Dam Project: Measures to Make It Compatible with Fish and Wildlife Resources. Report to the City of Santa Cruz. 76 pp + Appendices
- Kelley, D. W. and D. H. Dettman. 1981. Reconnaissance of Water Development Alternatives for the Carmel River, Monterey County, CA. Prepared for the Monterey Peninsula Water Management District, Monterey, California. 32 pp
- Kelley, D. W. and D. H. Dettman. 1983. Reconnaissance of the Effect of the Arroyo Seco Project on Fish and Other Aquatic Resources. Prepared for the Monterey County Flood Control and Water Conservation District. 45 pp
- Kelley, D. W. and D. H. Dettman. 1988. Investigations of Salmon and Steelhead in Lagunitas Creek, Marin County, Ca, Volume II Recommendations For Managing Instream Flows and Streambed Characteristics. Prepared for Marin Municipal Water District, Corte Madera, CA. 66 pp
- Kelley, D. W., D. H. Dettman, and J. E. Reuter. 1987. Preservation of the Carmel River steelhead run with fish passage facilities over San Clemente Dam or with a hatchery near its base. Prepared for the Monterey Peninsula Water Management District, Monterey, Ca. 26 pp + Appendices
- Kelley, D. W., D. H. Dettman, and J. L. Turner. 1982. The Probable Effect of Carmel River Water Supply Alternatives on Steelhead Resources. Prepared for the Monterey Peninsula Water Management District, Monterey, CA. 50 pp
- Kelley, D. W., D. H. Dettman, S. K. Li, and W. C. Fields. 1981. Lower Soquel Creek, Instream Flow Requirements and Fish Screen and Ladder Layout for Proposed Diversion. Report to Soquel Creek County Water District. 79 pp
- Kelley, D. W., P. M. Bratovich, D. H. Dettman, and H. Rooks. 1985. The Effects of Streamflow on Fish in the Lower American River. Prepared for Best, Best, and Krieger. 100 pp
- Le Boeuf, B. J., M. L. Bonnell, M. O. Pierson, D. H. Dettman, and G. D. Farrens. 1976. Numbers, distribution and movements of pinnipeds in the Southern California

David H. Dettman  
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- Bight. Final report, 1975-1976, to the Bureau of Land Management, U.S. Dept. Interior, Washington, D.C. (Contract 08550-CT5-28).
- Loya, S., J. Bair and D. H. Dettman. 2008. Alameda Creek Grazing Best Management Practices and Case Studies Review Technical Memorandum – Final Report. Report prepared by Avila and Associates, Inc. and McBain and Trush, Inc. for the San Francisco Public Utilities Commission, San Francisco, CA. 23 pp + Appendices
- Williams, J. G. and D. H. Dettman. 2006. Field Reconnaissance of Aquatic Habitats With a Preliminary Recommendation for Minimum Bypass Flows in Jamison Creek, Plumas County, Ca, Below the Lundy Ditch Diversion. Prepared for Dr. Joseph Abbott, Johnsville, CA. 26 pp