

Antonio Llanos, P.E.

Project Engineer

CONTACT INFORMATION

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EDUCATION

B.S. 1996
Environmental Resources
Engineering, Humboldt State
University, California

PROFESSIONAL ENGINEERING REGISTRATION

California Civil No. C 65621

AREAS OF PRACTICE

- Hydraulic and Hydrologic Analysis
- Stream Restoration
- Estuarine Restoration
- Aquatic Organism Passage
- Dam Removal
- Fishway Design
- Professional Resources Development
- Survey and Drafting
- Civil3D Modeling
- Graphic Design

AFFILIATIONS

- Past President and Co-Founder, Engineers Without Borders Northcoast Chapter
- California Salmonid Restoration Federation
- River Restoration Northwest
- American Fisheries Society

EXPERIENCE

Antonio Llanos has worked for over 18 on habitat improvement and fish passage projects. He has a wide range of experience in hydrology, water supply, hydraulic analysis and design. Previous projects include hydraulic analysis and design of various fish passage, stream restoration, and estuary restoration projects. He has designed culvert replacements and various types of fishways, including pool and weir, pool and chute and roughened channel (nature-like). His experience also includes design and preparation of plans for construction and permitting.

Mr. Llanos is experienced with project design to meet Federal and State Fish Passage guidelines and criteria. He regularly works collaboratively with geologists and fisheries biologists to develop plans with project proponents. Mr. Llanos also co-authored the fish passage case-studies for California Dept. of Fish & Wildlife (CDFW) and the User Manual for the FishXing software. He has served as field inspector, providing construction guidance for many restoration and fish passage projects.

Lansdale Avenue Fish Passage Improvement Project

Project Engineer for design of 320 foot long culvert retrofit, including fish baffles, pool and chute fishway. Conducted hydraulic analysis of baffle and fishway and provided guidance on specifications for Engineered Streambed Material and large rock. Provided construction assistance and conducted follow up monitoring and hydraulic analysis of post project conditions.

Client: City of San Anselmo, Friends of Corte Madera Creek

Completion: 2012

Larsen Creek Fish Passage Improvement Project

Fish passage design engineer for passage improvements at a County crossing on tributary to Lagunitas Creek. Developed alternatives including technical fishways, roughened channel, and evaluated culvert retrofit and replacement options. Established appropriate design criteria for the project and prepared an alternatives analysis report. Following input from stakeholders and agencies, a bypass pool-and-weir fishway at the outlet and fish baffle retrofit in the culvert was designed.

Client: Marin County Department of Public Works

Completion: Final Design, March, 2014

Steep Stream Simulation Bridge Replacement, Jedediah Smith Redwoods State Park

Project Engineer for a geomorphically based step-pool channel to restore 200 feet of steep stream after removal of perched culvert and upstream stored sediment. Channel design and construction used combinations of stream restoration and channel profile stabilization techniques. Conducted post-project implementation monitoring. Received Project of the Year Award 2007 from American Society of Civil Engineers North Coast Branch & San Francisco Section.

Client: PCFWWRA/California State Parks

Completion: Constructed October 2007

Dunn Creek Highway 1 Boulder Fishway Construction Oversight

Provided design review and recommendations followed by full-time construction oversight for a Caltrans fish passage project involving installation of eleven boulder weirs to overcome 12 feet of drop associated with removal and replacement of a perched culvert with a channel spanning bridge. Provided instruction to general contractor regarding proper placement of footer and top boulders, filling of voids and backfill compaction around weirs, installation of bankline rock, and construction of pools. Facilitate close coordination between Caltrans and Calif. Dept. of Fish and Wildlife to ensure design intent and permit requirements were satisfied.

Client: California Dept. of Transportation (Caltrans) and AECOM

Completion: 2013

Grub Creek Roughened Channel Fish Passage Project

Designed baffle retrofit and roughened channel to provide passage through a perched culvert in Sonoma County, California. Project activities included survey, hydraulic analysis of baffles, design and stability analysis of roughened channel, plan and permit preparation and construction inspection. Worked directly with contractor during construction of rock grade control and roughened channel. Has been used as a demonstration project for CDFW fish passage design courses.

Client: County of Sonoma, Dragonfly Stream Enhancement

Completion: October 2008

Gaviota Creek Fish Passage and Geomorphic Assessment of Grade Control Features

Conducted a steelhead migration barrier assessment along 1.5 miles of lower Gaviota Creek, within Caltrans right of way, accompanied by a geomorphic channel assessment. Passage assessment of 12 concrete grade control structures and two bridges following CDFW assessment protocol. Study concluded with recommendations and development of strategic plan for treatment of sites.

Client: California Department of Fish and Wildlife (formerly CDFG)

Completion Date: March, 2007

Cedar Creek Steep Stream Simulation and Bridge Replacement, Jedediah Smith Redwoods State Park

Project Engineer for a geomorphically based step-pool channel to restore 200 feet of steep stream after removal of the old culvert and upstream stored sediment. Channel design and construction used a combination of stream restoration and channel profile stabilization techniques based on morphology of the boulder dominated natural channel immediately downstream. Conducted post-project implementation monitoring. Received Project of the Year Award 2007 from American Society of Civil Engineers North Coast Branch and San Francisco Section.

Client: PCFWWRA/California State Parks

Completion Dates: Constructed October 2007

PUBLICATIONS

Love, M and K Bates. 2009. **Part XII: Fish Passage Design and Implementation.** California Salmonid Stream Habitat Restoration Manual. Calif. Dept. of Fish and Game.

García Molinos, J, A. Llanos, A. Martínez de Azagra Paredes. 2005. **Diseño de obras de paso compatibles con la migración de peces.** Ingeniería Civil. CEDEX Madrid, España. Num. 139/2005.

Llanos, A., M. Love, M. Furniss, S. Firor, K Moynan, J. Guntle, and J. Molinos. 2004. **Modeling Fish Capabilities and Culvert Hydraulics for Assessment and Design of Road Crossings.** Proceedings of 5th International Symposium on Ecohydraulics. Madrid, Spain.