

**Project 184**  
**Lake Aloha Mountain Yellow-**  
**Legged Frog Pond Monitoring**  
**Plan**

EL DORADO IRRIGATION DISTRICT  
2890 Mosquito Road  
Placerville, CA 95667

September 17, 2007

Version 1.0

This study plan is result of a collaborative effort between El Dorado Irrigation District (EID), Project 184 Ecological Resources Committee (ERC), USDA Forest Service (FS), State Water Resources Control Board (SWRCB), and California Department of Fish and Game. This study plan has been developed to satisfy the mountain yellow-legged frog (MYLF) survey requirement below Lake Aloha, as set forth in the Project 184 Settlement Agreement (EID 2003), U.S. Forest Service 4(e) License Condition Number 37.3 (USFS 2003), and a specific portion of Section 7.3 of the El Dorado Relicensing Settlement Agreement (Settlement) Monitoring Program, and the California State Water Resources Control Board Section 401 Clean Water Act Water Quality Certification Condition Number 13d (SWRCB 2006).

The scope of this plan has been defined by the Lake Aloha downstream pond MYLF monitoring requirements set forth in these documents and has been agreed to by El Dorado Irrigation District (EID).

## **1.0 Background**

The El Dorado Irrigation District (EID) entered into a Relicensing Settlement Agreement with the Federal Energy Regulatory Commission (FERC) for the El Dorado Hydroelectric Project (Project 184) in April 2003 and received the license for Project 184 on October 18, 2006. Under the agreement, EID is to develop a plan to survey the ponds downstream of Lake Aloha for MYLF in those years when Lake Aloha spills. This monitoring plan outlines the specific survey protocol and reporting requirements.

Lake Aloha typically begins filling during late March or early April. The reservoir normally reaches its maximum level for the year in late June or early July, at which time drawdown begins. The reservoir usually reaches its minimum level by late August to mid-September. During spring runoff and when filling the reservoir, the water level has been known to spill over the auxiliary dams 1 through 7. An initial fish removal was performed in 2004. A total of five ponds were identified during the 2004 effort. The reservoir did not spill during 2005, however, Lake Aloha spilled during the spring runoff of 2006. As such, under the provisions of Project 184, EID will survey for MYLF in years that the Lake spills.

## **2.0 Study Plan Objectives**

The objective of this study plan is to record the distribution of MYLF in the ponds downstream of Lake Aloha auxiliary dams.

## **3.0 Study Area and Schedule**

The study area identified for MYLF monitoring consists of the ponds below the 7 auxiliary dams around Lake Aloha (Figure 1). Based on topography of the areas below the auxiliary dams, it was determined that only four ponds were likely to receive runoff from the auxiliary dams in the event of a spill (EN2, 2004). MYLF surveys will be performed during 2007 and in subsequent

years when the lake spills. Each round of sampling will occur over a two to three day period due to the number of locations and necessary sampling effort at each location.

#### **4.0 Data Collection**

Protocol surveys for MYLF will be conducted in the ponds below the auxiliary dams following the methodology described in the California Department of Fish & Game Sierra Nevada Fish and Amphibian Survey Protocols (CDFG 2006) using the form of datasheet provided in Appendix A. Note that protocol surveys for MYLF will be performed once per pond.

All observed MYLF and other herpetofauna will be identified to species and life stage where possible. The activity, GPS location, substrate, and habitat type for each observation will also be described. When capture is possible, specimens will be weighed to the nearest gram, measured to the nearest millimeter of snout-vent length, and digitally photographed.

The FS, ERC, and SWRCB have the flexibility to alter the monitoring program methodologies and frequencies of data collection if it is determined that: (a) there is a more appropriate or preferable methodology to use than that described in the monitoring plan or (b) monitoring may be reduced or terminated because the relevant ecological resource objective has been met or no change in resource response is expected.

#### **5.0 Reporting**

The data collected under the monitoring protocols identified in this plan will be electronically compiled and distributed by January 31, to the FS, ERC, and SWRCB. The report will be circulated to the ERC for review and consideration at least two weeks prior to the annual meeting, which will occur by April 1. Based on the results of the annual meeting, EID will submit an annual report to FS, ERC, SWRCB, and FERC by June 30 of each year. The report will summarize the results of any ongoing monitoring or study efforts, any changes to be implemented under the license, and a summary of any unresolved issues and proposed actions to resolve each issue. All ERC members, FS, and SWRCB will have 30 days to review and comment on the draft annual report prior to its submittal to FERC. The final annual report will be distributed to FS, ERC, and SWRCB after submission to FERC.

The annual report will include the issues addressed, objectives, study area including sampling locations, methods, and results. The report will also include relevant graphs and tables to describe the results at each pond. Discussion appropriate to results and supportive of analyses and conclusions will be provided. All reports will be prepared in a format so that they can easily be reviewed by the ERC and filed with the FERC after approval. E-mail updates and CD of all reporting information will be provided to the ERC. Additionally, EID will coordinate with other agencies to share MYLF data or additional important information, where feasible.

## **6.0 Literature Cited**

EID –El Dorado Irrigation District. 2003. El Dorado Relicensing Settlement Agreement. El Dorado Project FERC Project 184.

EN2 Resources Inc. 2004. Lake Aloha 2004 Initial Trout Survey and Removal Report. El Dorado Hydroelectric Project (FERC Project No. 184). October 2004.

California Department of Fish and Game. 2006. Sierra Nevada Fish and Amphibian Inventory Data Sheet Instructions. California Department of Fish & Game Fish/Amphibian Survey Protocols - Version 2.2 May 8, 2006.

State Water Resources Control Board of California. 2006. Clean Water Act Section 401 Technically-Conditioned Water Quality Certification for Federal Energy Regulatory Commission El Dorado Hydroelectric Project (FERC No. 184).

United States Forest Service. 2003. Forest Service Final Terms and Conditions Provided Under 18 CFR 4.34(b)(1) In Connection With the Application for Relicensing of The El Dorado Hydroelectric Project (FERC No. 184). October 31, 2003.

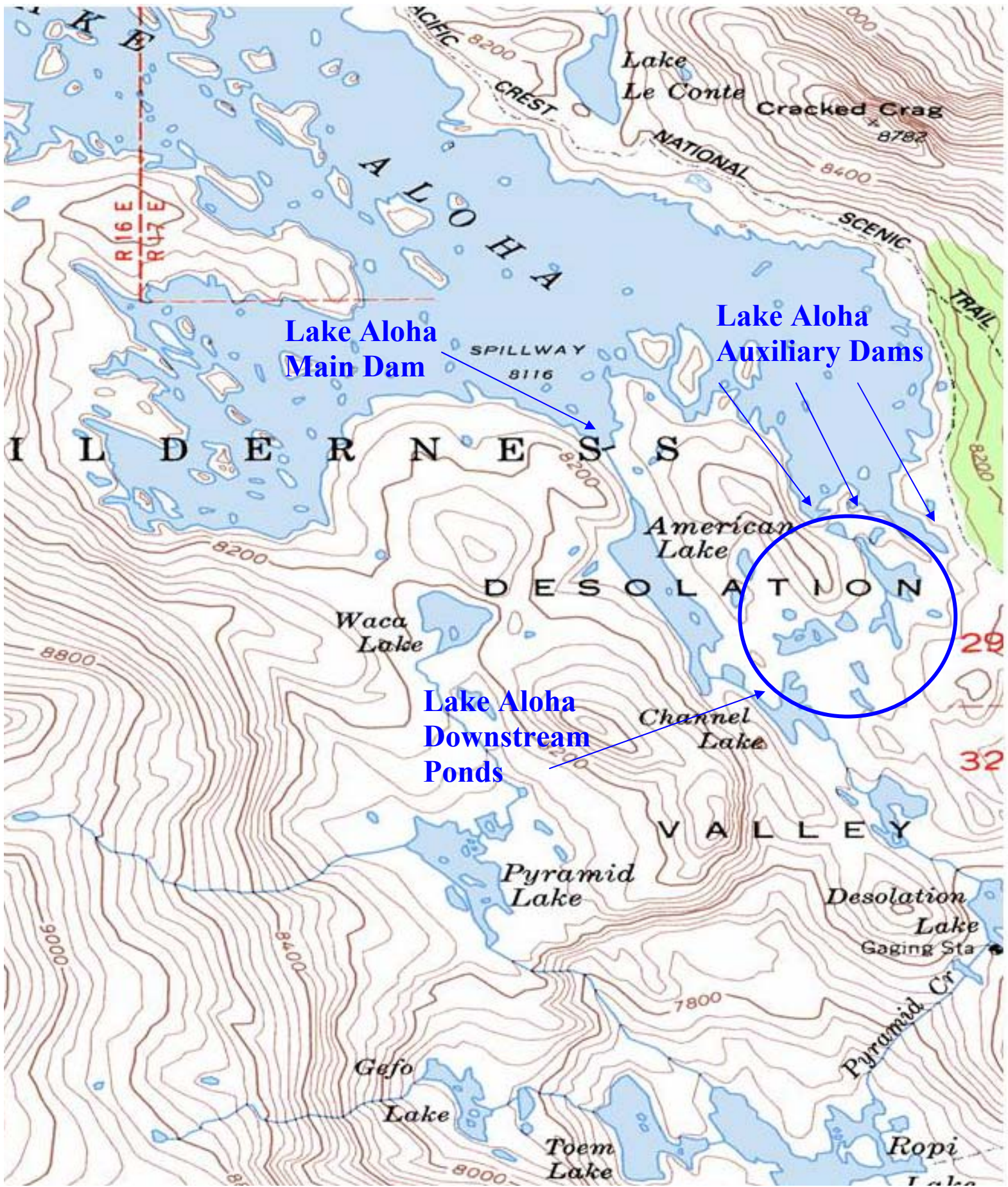


Figure 1. Sampling locations for trout removal and mountain yellow-legged frog surveys in the downstream ponds

**Appendix A:**

CDFG Sierra Nevada Amphibian Survey Datasheet

### Amphibian and Fish Inventory Data Sheet - 2001

Site ID:	Date: (mmm-dd-yy)	Water type: Lake Unmapped pond Stream Marsh Spring seep ; Perennial Ephemeral				
		If not sampled, reason: stream widening frozen, dry, or not found part of another water body				
Lake Name: (from map)		Planning Watershed: (from "Lakes Checklist")		Location (use common language)		
County:	Elevation: m ft	East UTM:		North UTM: (only for lakes w/o a site ID; obtain from GPS unit)		
Topographic Map (7.5'):	Weather: Clear Overcast Rain Snow	Wind: Calm Light Strong	pH: source:	Max. lake depth (m):	Team members:	

Person recording habitat information:			Substrate transects with aquatic vegetation:		
Littoral zone substrate composition (3m; ~50 total):					
Silt < 2 mm		2-32 mm		32-64 mm 64-256 mm > 256 mm bedrock	
Shoreline terrestrial substrate composition (1.5m; ~50 total):					
Silt-64 mm		>64-256 mm		> 256 mm grass/sedge/forb woody debris brush	
Width (cm) and depth (cm) of inlets (width/depth):			Width (cm) and depth (cm) of outlets (width/depth):		
(1) / (2) / (3) / (4) / (5) / (6) / no inlets			(1) / (2) / (3) / none		
Fish present in inlets?			Fish present in outlets?		
(1) Y N ? (2) Y N ? (3) Y N ? (4) Y N ? (5) Y N ? (6) Y N ?			(1) Y N ? (2) Y N ? (3) Y N ?		
Distance to first barrier on inlets (m):			Distance to first barrier on outlets (m)		
(1) (2) (3) (4) (5) (6)			(1) (2) (3)		
Description of fish barriers on inlets: (e.g. "2 m falls", or "10 m cascade")			Description of fish barriers on outlets:		
(1) (2) (3) (4) (5) (6)			(1) (2) (3)		
UTM coordinates for fish barriers on inlets:			UTM coordinates for fish barriers on outlets:		
(1) (2) (3) (4) (5) (6)			(1) (2) (3)		
Photo number(s) for fish barriers on inlets:			Photo number(s) for fish barriers on outlets:		
(1) (2) (3) (4) (5) (6)			(1) (2) (3)		
Area of suitable spawning habitat on inlets (m <sup>2</sup> ):			Area of suitable spawning habitat in outlets (m <sup>2</sup> ):		
(1) (2) (3) (4) (5) (6)			(1) (2) (3)		
Evidence of spawning in inlets:			Evidence of spawning in outlets:		
(1) Spawning fish Redds Fry None (4) Spawning fish Redds Fry None			(1) Spawning fish Redds Fry None		
(2) Spawning fish Redds Fry None (5) Spawning fish Redds Fry None			(2) Spawning fish Redds Fry None		
(3) Spawning fish Redds Fry None (6) Spawning fish Redds Fry None			(3) Spawning fish Redds Fry None		
Area of in-lake spawning habitat at inlets (m <sup>2</sup> ):			Area of in-lake spawning habitat at outlets (m <sup>2</sup> ):		
(1) (2) (3) (4) (5) (6)			(1) (2) (3)		

Fairy Present in lake? Y N	In lake-associated pools? Y N	Other locations? describe locations	
shrimp Collection made? Y N	Collection made? Y N	Collection made? Y N	on map

Amphibian observer(s):		Survey start time:		Total survey duration:		Weather: Clear Overcast Rain Snow	
		End time (hhmm):		(min)		Wind: Calm Light Strong	
<b>Stream only:</b>		Start East UTM North UTM		End East UTM North UTM		Stream order: Color: Clear Stained	
						Turbidity: Clear Cloudy	
Amphibian/reptile species		# adults	# subadults	# larvae	# egg masses	diseased/checked	Survey Method
Calling? Y N							Visual Trapped
Voucher? Y N #							Aural Hand Collected
							Dip Net/Seine
Calling? Y N							Visual Trapped
Voucher? Y N #							Aural Hand Collected
							Dip Net/Seine
Calling? Y N							Visual Trapped
Voucher? Y N #							Aural Hand Collected
							Dip Net/Seine
Calling? Y N							Visual Trapped
Voucher? Y N #							Aural Hand Collected
							Dip Net/Seine

Water Temp. (.5m from shore, 10cm deep): @ C or F Air Temp. (1m above water): @ C or F

amphibians: mountain yellow-legged frog (RAMU) Pacific tree frog (HYRE) Yosemite toad (BUCA) CA newt (TATO) bullfrog (RACA) Long-toed salamander (AMMA)  
 reptiles: W. aquatic garter snake (THCO) W. terrestrial garter snake (THEL) common garter snake (THSI) W. pond turtle (CLMA)  
 fish: rainbow trout (RT), golden trout (GT), cutthroat trout (CT), brown trout (BN), brook trout (BK), hybrids (GT x RT, CT x RT)



Site ID:	Water Temp (at 1 m)	C or F	Description of net location: nr inlet      nr outlet      neither	Net set time (hhmm): Date:	Net pull time (hhmm): Date:
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Comments:									
Fish #	Species	Total Length (mm)	Weight (g)	Sex	Egg Stage			Otoliths?	Comments
					Early	Ripe	Late		
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Field review _____	Copied _____	Entered _____	Proofed _____
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Site ID:

Fish #	Species	Total Length (mm)	Weight (g)	Sex	Egg Stage			Otoliths?	Comments
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