



MEMORANDUM

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TO: Curtis Steitz (PG&E, Environmental Services)
FROM: Ian Chan (Aquatic Ecologist, GANDA)
DATE: February 20, 2007
RE: Lower Centerville Canal Fish Rescue, Butte Creek

Summary of Lower Centerville Canal Fish Rescue Effort (2/12/07 and 2/13/07)

On February, 12th and 13th, 2007, biologists from Garcia and Associates (GANDA) and Devine Tarbell Associates (DTA) assisted Pacific Gas and Electric Company (PG&E) with a fish rescue on the Lower Centerville Canal, a DeSabra-Centerville Hydroelectric Project diversion canal along Butte Creek in Butte County, CA. The canal was dewatered immediately prior to the fish rescue effort as part of regularly scheduled maintenance (the total canal outage period was scheduled for approximately three weeks). All fish were removed from the eight-mile length of the canal from the head dam at Butte Creek (N39.86671°, W121.63380°) to the end of the line (N39.79031°, W121.64843°).

Fish were removed from the canal and all associated features (e.g., sediment traps, flumes, etc.) using Smith Root Model 12 and Model LR-24 backpack electrofishing units. GANDA biologists and PG&E personnel conducted all electrofishing, and DTA biologists assisted with the fish data collection. Water levels in the larger (i.e., deeper) sediment traps were drawn down prior to electrofishing with seine nets placed across the spill gates and outflow valves to prevent fish from escaping. To the greatest extent possible, fish were identified to species, measured to fork length (FL), weighed, and transported to tank trucks where they were held until being transported and returned to mainstem Butte Creek. Both fish trucks were equipped with oxygen tanks and aeration systems. Of the fish collected, eighty-five rainbow trout were not measured and weighed in order to avoid mortality due to additional handling stress (see attached Excel worksheet "All RBT" and discussion below).

A total of 724 fish were removed from the eight miles of canal and released back into Butte Creek above DeSabra Powerhouse at the Ponderosa Way Bridge. Rainbow trout (*Oncorhynchus mykiss*) was the most abundant species collected (697 individuals total). Rainbow trout ranged in size from 71 mm to 480 mm FL and from 4 g to 1.6 kg. Brown trout (*Salmo trutta*) was the only other species collected (27 individuals total). Brown trout ranged in size from 161 mm to 533 mm FL and from 45 g to 1.7 kg. Fish data are

summarized in Tables 1 and 2 below (however, complete raw data with lengths and weights for all fish are included in the attached Excel file). Length-frequency distributions for rainbow and brown trout are illustrated in Figure 1. Note that the majority of rainbow trout are age 1 fish, while most brown trout are age 3+ fish. Several photographs from the fish rescue effort are also included as Figures 2 through 7 for reference.

TABLE 1. Fish removed from the Lower Centerville (February 12 and 13, 2007). Data are separated per mile of canal; however note that fish abundances were highly variable due to the uneven distribution of features that tend to hold more fish (i.e., areas that provide the best cover such as sediment traps, boulder walls, etc.).

CANAL MILE	NUMBER OF FISH RESCUED		TOTAL
	Rainbow Trout	Brown Trout	
1	80	0	80
2	181	1	182
3	89	0	89
4	82	0	82
5	137	3	140
6	35	3	38
7	71	12	83
8	22	8	30
TOTAL	697	27	724

TABLE 2. Fish removed from the Lower Centerville Canal (February 12 and 13, 2007) by size class. Listed size classes correspond with those used in previous years for comparison. Note that the 85 rainbow trout that were not measured due to handling stress are included below (these fish were assigned to size classes based on the size frequencies of the 612 measured rainbow trout).

SIZE CLASS	Rainbow Trout	Brown Trout	TOTAL
0"- 4" FL	74	0	74
4"- 8" FL	606	4	610
8"- 12" FL	6	15	21
> 12" FL	11	8	19
TOTAL	697	27	724

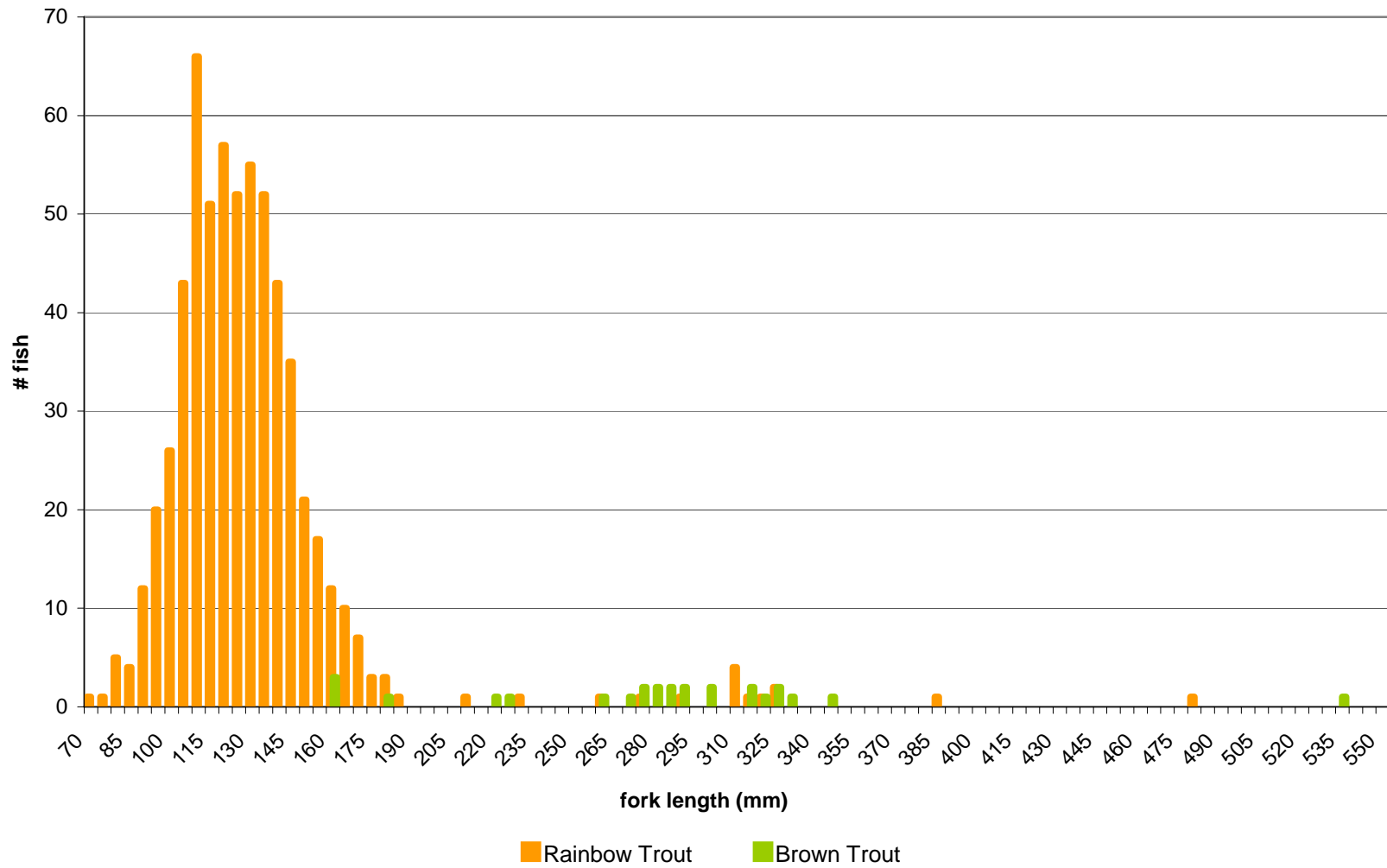


FIGURE 1. Length-Frequency Distribution for Rainbow and Brown Trout (5-mm size classes) collected in Lower Centerville Canal, February 12-13, 2007



FIGURE 2. Electrofishing the Lower Centerville Canal (2/13/07).



FIGURE 3. Seine nets were placed across the spill gates of larger sediment traps during drawdown to prevent the loss of any fish prior to electrofishing.



FIGURE 4. The largest sediment trap (near mile 8) was fished using both shockers.



FIGURE 5. Weighing and measuring fish using an electronic balance and measuring board.



FIGURE 6. One of the larger rainbow trout rescued from the Lower Centerville Canal (2/13/07).



FIGURE 7. One of the larger brown trout rescued from the Lower Centerville Canal (2/13/07).