

DROUGHT RELATED FISH RESCUE OPERATIONS in 2015



California Department of Fish and Wildlife



This report was compiled by the following Department staff:

Tom Schroyer, Fisheries Branch

Jason Roberts, Northern Region

Colin Purdy, North Central Region

George Neilands, Bay Delta Region

Margaret Paul, Central Region

Mary Larson, South Coast Region

For more information, contact Nick Bauer at nick.bauer@wildlife.ca.gov.

Introduction

On January 17, 2014, Governor Brown declared a state of emergency due to prolonged drought conditions and directed state agencies to take all necessary actions in response to the drought. In the same year, Senate Bill 103 appropriated \$2.3 million for drought related activities. The California Department of Fish and Wildlife (the Department) was responsible for evaluating and managing the impacts of drought on fish and wildlife throughout the state. Drying waterbodies are one of the primary ways in which fish are negatively impacted during a drought.

To manage the impacts of drought, the Department performed fish rescues and relocations of imperiled fishes. Departmental Bulletin 2013-04 defines fish rescue as “an action taken to remove finfish from habitat which is or will soon become unsuitable and relocating those fish either to more suitable habitat, an interim holding facility, or a permanent artificial environment”. In response to the drought, the Department also developed a decision-making tool to guide the assessment of drought related risks to fish populations and evaluate rescue options for at-risk populations. Waters containing state or federally listed species, native species, or species of special concern, where drought was likely to severely impact habitat, were identified as potential locations for fish rescue. Rescued fish were preferentially relocated to suitable habitat within the same water, same watershed, documented historic range, suitable habitat outside their documented historic range, and to refuge facilities. Rescues were only approved if they did not pose a substantial genetic or biological threat. Additionally, relocations had to be logistically feasible and consistent with the Department rescue policy and operational guidelines.

Once a population was identified as needing rescue, staff were mobilized to collect and transport fish to pre-determined locations. Fish were captured using a variety of techniques, dictated by the conditions of each rescue. These methods included beach seining, electrofishing, and dip netting. Similarly, fish were transported using a variety of methods that depended on the logistics of each translocation. In some cases, fish were moved using five-gallon buckets, while other rescues utilized transport trucks. The following report summarizes drought related fish rescue operations in 2015 highlighting results from each CDFW Region.

In 2015, drought conditions were again evident in watersheds throughout the state. From January 1, 2015, through December 31, 2015, a total of 294 rescues were conducted in all CDFW Regions, except for Marine (Figure 1, Table 1). Most rescues occurred in Central Region (47%) followed by Northern Region (26%), North Central Region (13%), Bay Delta Region (7%), South Coast Region (5%), and Inland Deserts Region (> 2%). There were 116,211 fish rescued representing 27 taxa (Table 2). Most of the fish were rescued were in Northern Region (61%) and North Central Region (29%). Fish rescued in Bay Delta Region represented about 7% of all fish rescued while Central Region represented about 3%. The South Coast and Inland Deserts Regions accounted for less than 1% of the total count of rescued fish.



Figure 1. Map of California counties color coded and separated into California Department of Fish and Wildlife Regions

Northern Region

The Northern Region conducted 76 drought-related rescues in 16 watersheds spanning eight counties (Table 1). There were 70,899 fish rescued in this Region (Table 2).

Rescues in 2015 took place in many of the same areas as in 2014, such as Antelope, Cold, Deer, Edson, French, Papoose, Patterson, and Shackleford creeks and the Sacramento River. The most noteworthy rescue took place in a shallow side channel of the Sacramento River where 434 endangered winter-run Chinook Salmon had to be rescued (Figure 2). The fish were transferred to the main channel of the Sacramento River and released. A rescue also took place on Canyon Hollow Creek where 152 threatened steelhead juveniles had to be removed from shallow pools. Another notable rescue took place on Papoose Creek where 777 stranded Eagle Lake Rainbow Trout were captured and transported to Eagle Lake.



Figure 2. Winter-run Chinook Salmon Rescued from the Sacramento River

North Central Region

In 2015, the North Central Region (Region 2) performed 38 rescues on two watersheds in two counties due to drought-related conditions (Table 1). Department staff rescued a total of 34,074 fish in this Region (Table 2). The most noteworthy rescue took place on the Mokelumne River in San Joaquin County where a total of 34,072 juvenile fall-run Chinook Salmon (Figure 3) were captured at a water intake facility on Lodi Lake. These fish were relocated to suitable habitat within the San Joaquin and Mokelumne rivers.



Figure 3. Juvenile fall-run Chinook Salmon rescued from the Mokelumne River

Bay Delta Region

The lack of rain in 2015 required 21 fish rescues in the Bay Delta Region (Table 1) with a total of 7,731 fish rescued. Some of the most important rescues took place on Dutch Bill, Fay, Felta, Green Valley, John West Fork, Mill, Pena, Porter, Redwood, San Geronimo, Tannery, Wine and Willow Creeks where a total of 3,584 threatened Coho Salmon were rescued (Figure 4). Most of those fish were relocated to Dry Creek and the Russian River. Some fish were also taken to Olema and Salmon creeks as well. All captured young of the year Coho Salmon were taken to Warm Springs Hatchery. These fish were reared to a larger size before they were released after habitat conditions improved.



Figure 4. Electro-shocking Juvenile Coho at Roy's Pools on San Geronimo Creek

Central Region

The Central Region was responsible for 139 rescues on the Carmel River and 2 on the Big Sur River (Table 1) where 3,088 fish were rescued. The most numerous species captured were juvenile steelhead with a total of 2,388 fish (Figure 5). 49 resident rainbow trout and one adult steelhead were also rescued. All the captured fish from the Carmel River were relocated to the upper reaches of the Carmel River with better quality habitat. Fish captured on the Big Sur River were relocated to Big Sur Lagoon.



Figure 5. Steelhead rescued from the Big Sur River

South Coast Region

In 2015, the South Coast Region conducted 16 rescues on 8 watersheds in 3 different counties (Table 1). Most of the rescues took place in Santa Barbara County (Figure 6) where steelhead were the most numerous species rescued. A total of 305 juvenile steelhead were captured from Region 5 waters (Table 2). Six resident steelhead were also captured. Most of the steelhead were relocated to suitable habitat within the same watershed but the fish captured in Montecito Creek were released into Arroyo Paredon Creek.



Figure 6. Region 5 Staff Electroshocking Arroyo Hondo Creek

Inland Deserts Region

The continuing effects of the drought necessitated four rescues in two watersheds in two counties (Table 1). Two rescues took place in By Day Creek (Mono County) where 16 juvenile and 70 adult Walker River Lahontan Cutthroat Trout were captured and released into nearby Slinkard and Wolf creeks (Figure 7). Two additional rescues occurred on Coldwater Canyon Creek (Riverside County) yielding 8 adults and 14 juvenile steelhead. Some of the rescued fish were taken to Mojave River Hatchery and the rest were translocated to the upper reaches of Coldwater Canyon Creek. The fish taken to Mojave River Hatchery were returned to Coldwater Canyon Creek after habitat conditions improved.



Figure 7. A Walker River Lahontan Cutthroat Trout captured in By Day Creek.

Table 1. The number of drought-related fish rescues in 2015 by county, water, and month for a) Northern Region, b) North Central Region, c) Bay Delta Region, d) Central Region, e) South Coast Region, and f) Inland Deserts Region.

a) Northern Region

County	Water	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Humboldt	Hall Creek								2					2
Lassen	Papoose Creek		4											4
Mendocino	Lost River									1				1
Mendocino	Olds Creek										2			2
Modoc	Cold Creek								2					2
Shasta	Canyon Hollow	2												2
Shasta	Sacramento River	2	1									1		4
Shasta	Salt Creek					3								3
Shasta	Sulphur Creek					2								2
Siskiyou	Edson Creek							1			2			3
Siskiyou	French Creek						4	4						8
Siskiyou	Patterson Creek					1								1
Siskiyou	Shackleford Creek						12	2						14
Tehama	Antelope Creek				1	1								2
Tehama	Deer Creek					2								2
Tehama	Sacramento River	3	6	4									10	23

b) North Central Region

County	Water	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
San Joaquin	Mokelumne River				3	31	3							37
Yuba	Yuba River								1					1

c) Bay-Delta Region

County	Water	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Marin	John West Fork Creek								1					1
Marin	Redwood Creek								1					1
Marin	San Geronimo Creek						1							1
San Mateo	Adobe Creek						1							1
Santa Clara	Uvas Creek							1						1
Sonoma	Dutch Bill Creek							1						1
Sonoma	Fay Creek							1						1
Sonoma	Felta Creek					1								1
Sonoma	Green Valley Creek						1							1
Sonoma	Mill Creek					1								1
Sonoma	Pena Creek					2								2
Sonoma	Porter Creek					1		1	2					4
Sonoma	Tannery Creek							1						1
Sonoma	Willow Creek								1	2				3
Sonoma	Wine Creek							1						1

d) Central Region

County	Water	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Monterey	Big Sur River									2				2
Monterey	Carmel River				17	29	29	29	18	15				137

e) South Coast Region

County	Water	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Los Angeles	Elizabeth Lake					1								1
Santa Barbara	Arroyo Hondo Creek						1			2				3
Santa Barbara	Gobernador Creek						1							1
Santa Barbara	Hilton Creek												4	4
Santa Barbara	Maria Ygnacio Creek									1				1
Santa Barbara	Montecito Creek					1								1
Ventura	NF Matilija Creek				1					2				3
Ventura	Sisar Creek										2			2

f) Inland Deserts Region

County	Water	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mono	By Day Creek							1	1					2
Riverside	Coldwater Canyon Creek								1	1				2

Table 2. Count of fish taxa rescued by region in 2015. Life-stage was recorded for salmonid species—(J) indicates juvenile and (A) indicates adult.

Taxa Common Name	Life stage	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	TOTAL
late fall-run Chinook Salmon	J	4,929						4,929
fall-run Chinook Salmon	A		2					2
fall-run Chinook Salmon	J	8,718	34,072	962				43,752
spring-run Chinook Salmon	J	12						12
winter-run Chinook Salmon	J	454						454
Coho Salmon	J	3,979		3,586				7,565
steelhead (sea-run Rainbow Trout)	A	227			1			228
steelhead (sea-run Rainbow Trout)	J	48,094		3,175	3,016	305	14	54,604
Resident Rainbow Trout	A				71	6	8	85
Eagle Lake Rainbow Trout		777						777
McCloud Redband Trout	A	19						19
McCloud Redband Trout	J	61						61
Goose Lake Redband Trout	A	10						10
Goose Lake Redband Trout	J	10						10
Lahontan Cutthroat Trout	A						70	70
Lahontan Cutthroat Trout	J						16	16
Speckled Dace		1						1
Pit Sculpin		36						36
Riffle Sculpin		7						7
Sculpin spp.		4		7				11
Sacramento Pikeminnow		651						651
Sacramento Sucker		259						259
Hardhead		108						108
Tule Perch		20						20
Western Mosquitofish		135						135
California Roach		20						20
Bluegill		82						82
Green Sunfish		4						4
Largemouth Bass		7						7
Golden Shiner		4						4
Brown Bullhead		11						11
Lamprey spp. ammocete		93						93
Three-spine Stickleback		2,167		1				2,168
GRAND TOTAL		70,899	34,074	7,731	3,088	363	108	116,263