

FARRO, MITCH 1992

WY 1992

August 21, 1992



Preliminary Report

In early November of 1992 the Pacific Coast Fish, Wildlife, and Wetlands Restoration Association was contacted by California Dept. of Fish and Game (CDF&G) and California Dept. of Transportation (CALTRANS) personnel following their decision to continue emergency measures to salvage adult salmon and Steelhead returning to spawn in the Prairie Creek drainage of Humboldt County. This decision was determined necessary due to extensive sedimentation of spawning habitat during construction of a new section of U.S. Highway 101 bypassing state and federal parklands. Since October of 1989, when initial sediment deposition occurred, there has been a lack of flushing flows and the impacts on survival of salmonid eggs during incubation within the gravel has been observed. (see RNP Documents).

PCFWRA was asked to participate by trapping and spawning adult salmon, to incubate the resulting eggs, then rear to a suitable release size the fry after hatching. This was all accomplished at remote facilities in Prairie Creek State Park. A contract for reimbursement of actual expenses was negotiated with the California Dept. of Transportation (CALTRANS) to perform the work recommended by CDF&G. CALTRANS Fisheries Biologist Mark Moore was designated as the contract supervisor and was to oversee all work undertaken.

On November 20 the trap and weir were set in place as Prairie Cr. flows increased from rainfall during the previous night. Adult salmon were trapped almost immediately and trapping was continuous through April 14 except for periods of stream flows too low for fish movement and two short periods, (totaling less than 6 hrs.), when high flows rendered the trap inoperable, (see trapping records).

In addition to operating the weir and trap, an effort was made to capture salmon stranded by low flows in the lower section of Prairie Creek using divers and entanglement nets. While several Chinook were observed, only two males were caught. The methodology worked quite well for Coho. Four fully mature females captured were spawned and the eggs provided to RNP biological staff.

All adult salmon in good condition were transferred to the remote facilities where they were held separately until fully mature and then spawned. All spawning was done with the procedures and personnel normally used by PCFWWRA with good results on other restoration projects. Eggs were placed into specially constructed hatchbox type incubators and monitored daily. All emerging fry were reared in pools using all means available to duplicate, to the extent possible, the conditions they would normally experience in a stream environment.

The results of the trapping and spawning were negatively affected by extremely dry conditions in the normal time of peak migration and spawning activity in December and early January. Due to very low stream flows few fish were actively migrating during this time. Additionally, their normal rate of sexual maturation also appeared to be delayed. One female Chinook did not mature for spawning until the very late date of March 1. Because of these conditions PCFWWRA observed reduced egg fertility overall, with a few fish experiencing complete infertility. (see Spawning Results)

Additionally one female ^{19% of POPⁿ} and one male Chinook, along with two male Coho used previously for spawning, were lost due to a plumbing failure on December 7 while being held at the facility.

A means of evaluating the results of the releases was to be developed as part of the original program. PCFWWRA purchased tags and made arrangements for equipment in order to tag all fish with Coded Wire Tags before release. Due to the later dates of spawning, the fry were not of an acceptable size for tagging until June. By this time flows in the tributaries used as a water source for the rearing facilities were too low to allow the tagging to take place. A decision was reached to release the fish untagged rather than risk waiting for rain to allow the tagging to proceed. (see Release Info.).

PCFWWRA also cooperated in monitoring efforts being conducted by Redwood National Park (RNP) biological staff to assess survival of salmonid eggs in the spawning gravels of Prairie Creek. Approximately 4,000 green eggs from Coho salmon spawned by PCFWWRA were given to RNP for placement in artificial redds. Control groups were maintained by PCFWWRA at the rearing facilities as part of the evaluation process.

In mid April downstream migrant traps were installed in Prairie Creek by PCFWWRA to assess the survival of Chinook salmon smolts produced by naturally spawning salmon. The location of installation was at the lower boundary of RNP at the lower end of the bypass. This location was just below the section of stream normally surveyed for spawning adults by RNP biological staff. Due to the use of this location in

previous years, and the priority of spawning counts above this point, it was regarded as the best site to use this season. Because of the low water conditions Chinook spawning the previous winter did take place below this location. After an immediate wash out, the traps were replaced in late April and were run daily until another rain in late June again rendered them inoperable. Less than ten wild spawned Chinook smolts were observed during this time. (see Downstream Migrant Info.)

The production of this year class of Chinook is expected to be very low based on the extremely poor survival suspected in the heavily sedimented lower section of Prairie Creek where much of their spawning took place. Additionally the low numbers of Chinook smolts observed in the DSM trap below the less impacted spawning habitat further up Prairie Creek add to this assessment. In recognition of the greatly reduced survival of Chinook salmon spawning in Prairie Creek again this season, PCFWWRA encourages all agencies with management responsibilities to recognize the level of risk that exists to the continued survival of the Prairie Creek Chinook salmon stock.

Submitted by

A handwritten signature in cursive script that reads "Mitch Farro".

Mitch Farro
Project Director

TRAP IN	1991/92 TRAP OUT	TRAPPING HOURS TRAPPED	SCHEDULE SPECIES	and RESULTS TRAP CATCH
11/20 12:00 PM	11/22 12:00 PM	48.0 hrs	Chinook Coho	2m,3 grilse 2m,1f ad clip
11/26 10:30 AM	11/27 11:30 AM	25.0 hrs	Chinook Coho	2m,1 grilse 5m,1f-adclip,2 grilse
11/28 8:45 PM	11/29 10:00 AM	13.0 hrs	Chinook Coho	1m none
12/6 2:30 PM	12/6 5:00 PM	2.5 hrs	washed out	
12/7 2:00 AM	12/10 11:00 AM	81.0 hrs	Chinook Coho	7m,3f,3 grilse 3m,1 grilse
12/18 9:00 AM	12/19 9:00 AM	24.0 hrs	Chinook Coho	1m 1 grilse
12/22 6:00 AM	12/24 7:00 AM	49.0 hrs	Chinook Coho	1m none
12/27 9:00 AM	1/7 12:00 AM	267 hrs	Chinook Coho Cutthroat	4m,1f 2m,6f,1 grilse 1f
1/10 4:00 PM	1/11 12:00 PM	20.0 hrs	Chinook Coho	1f-spawned out 1m
1/27 10:00 AM	1/29 4:00 PM	54.0 hrs	Chinook Coho	none 3m,4f(1m&1f ad clips 2 grilse
1/31 4:00 PM	2/4 3:00 PM	95.0 hrs	Chinook Coho Steelhead	4m,1f-spawned out 13m,9f-1 adclip,3 gr 1m,2f
2/14 9:00 AM	2/26 11:00 AM	290 hrs	Chinook Coho Steelhead	4m,1f,1grilse 5m,2f,2 grilse 9m,6f
3/4 9:00 PM	3/6 9:00 AM	36.0 hrs	Coho Steelhead	1m 3m,2f
3/14 9:00 AM	3/17 3:00 PM	78.0 hrs	Steelhead	5m,2f-1 w/L ventclip
3/25 12:00 PM	3/28 12:00 PM	72.0 hrs	Steelhead	none
4/9 6:00 PM	4/14 10:00 AM	110 hrs	Steelhead	1m

TOTAL HOURS TRAPPED = 1,264.5

TOTAL FISH TRAPPED and STATUS

	MALE	FEMALE	GRILSE	
CHINOOK				
HELD	23	5	5	
RELEASED	3	2	2	
TOTAL	26	7	7	= 40
COHO				
HELD	25	19	6	
RELEASED	10	4	6	
TOTAL	35	23	12	= 70
STEELHEAD				
HELD	4	5		
RELEASED	15	7		
TOTAL	19	12		= 31
CUTTHROAT				
RELEASED		1		
TOTAL		1		

RESULTS of SNORKLE and NET CAPTURE in RNP

DATE	LOCATION	SPECIES	CATCH
1/14	Davidson's Rd.	Coho	2m,2f
1/16	Davidson's Rd.	Coho	1f LV clip
1/16	Tudor Saliba	Chinook	1m
		Coho	5m,2f
11/20	RNP Boundry	Steelhead	1f-released
11/20	Tudor Saliba	Coho	8m,5f,-all released
		Chinook	1m-released
		Steelhead	1m,1f,-all released
		Cutthroat	1m-released

**Spawning Results
Prairie Creek 1991/92**

Chinook

Total Egg Take = 14,250

Fertility = high 92.2%, low 29.0%, Ave = 64.0%

Coho

Total Egg Take = 45,070

Fertility = high 99.1% low 0.0%, Ave. = 61.0%

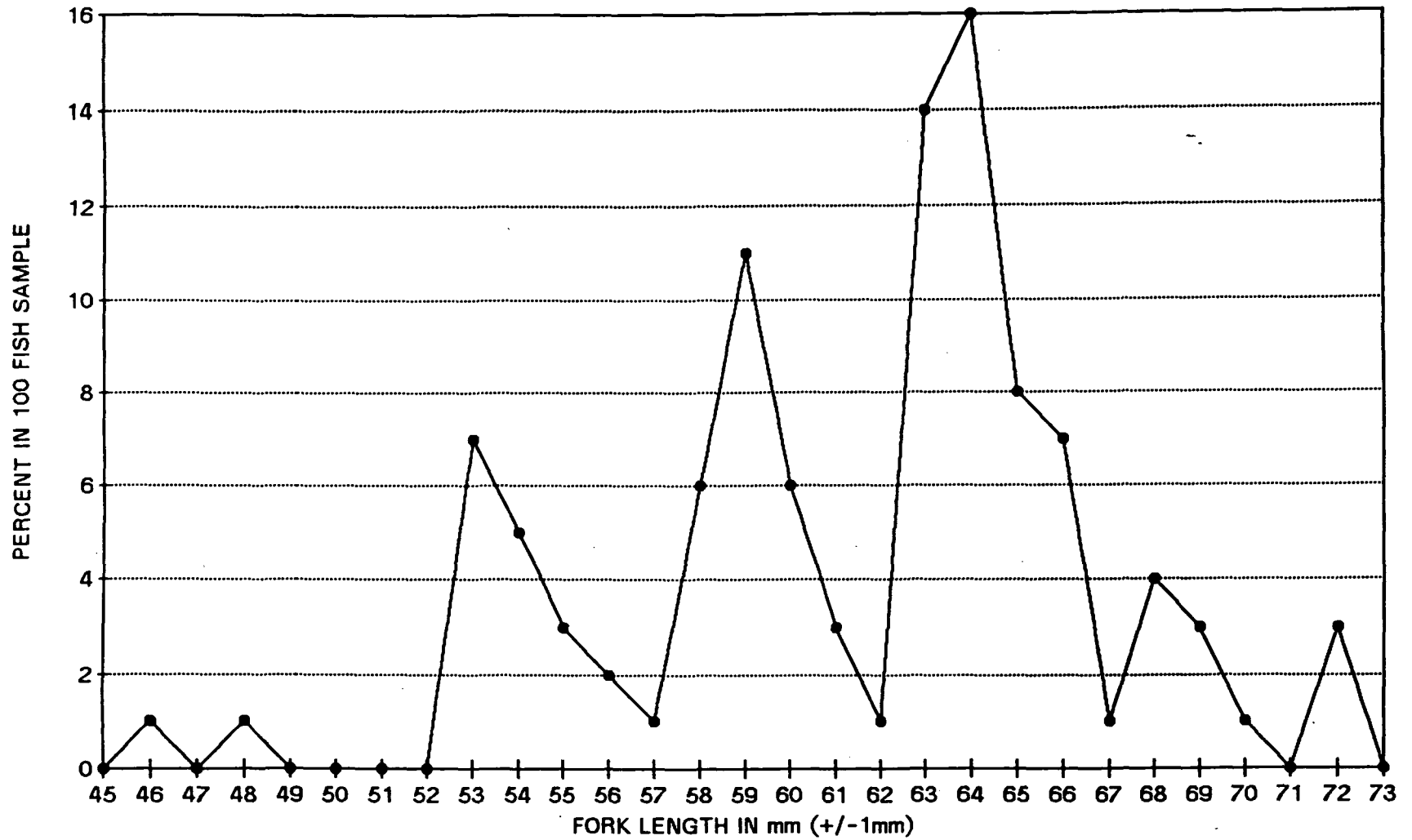
Steelhead

Total Egg Take = 15,070 / 5 = 3014 EGGS/♀

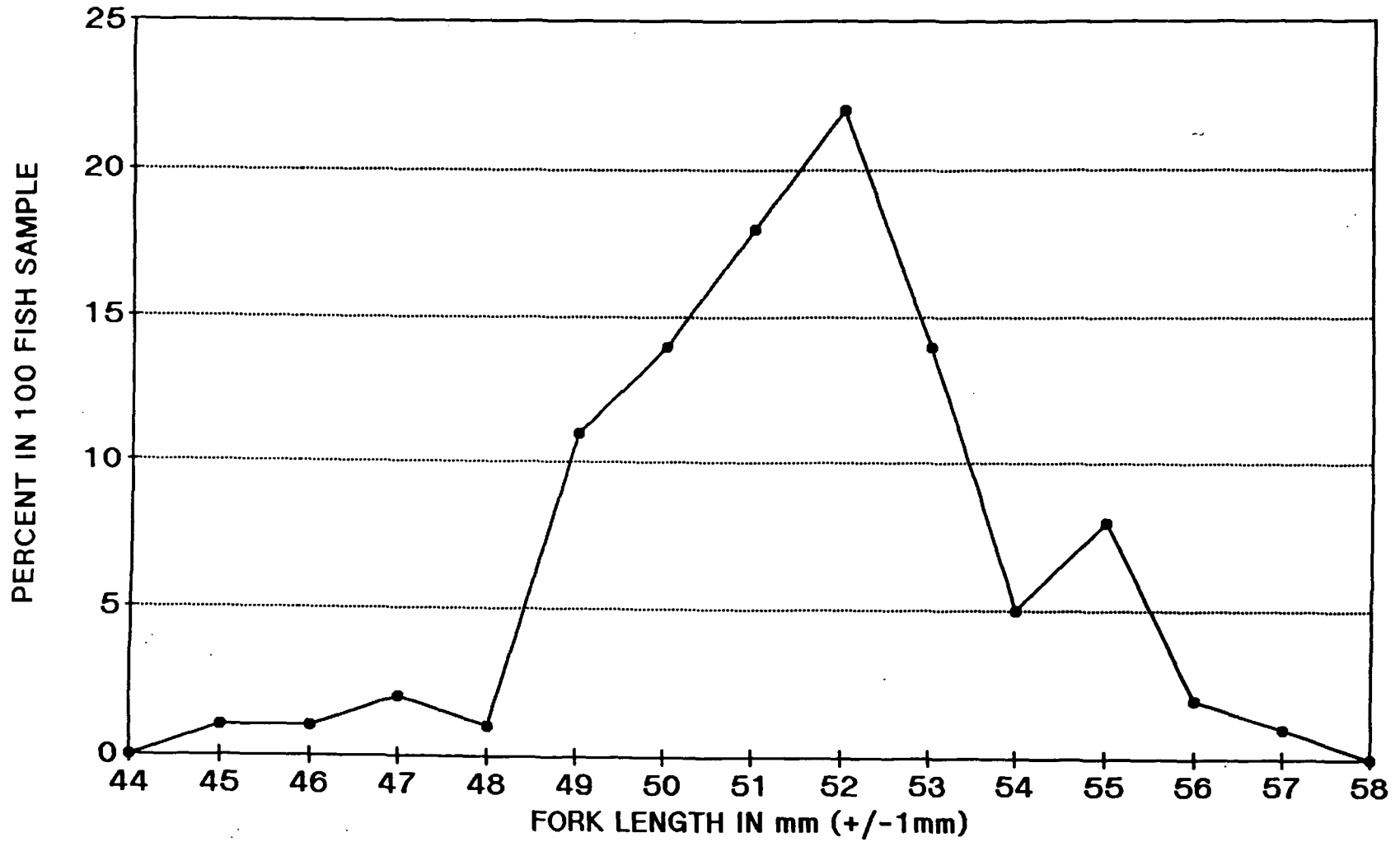
Fertility = high 83.4%, low 0.0%, Ave. = 49.0%

CHINOOK RELEASE LENGTH FREQUENCIES

LENGTH AT RELEASE ON 6/4/92

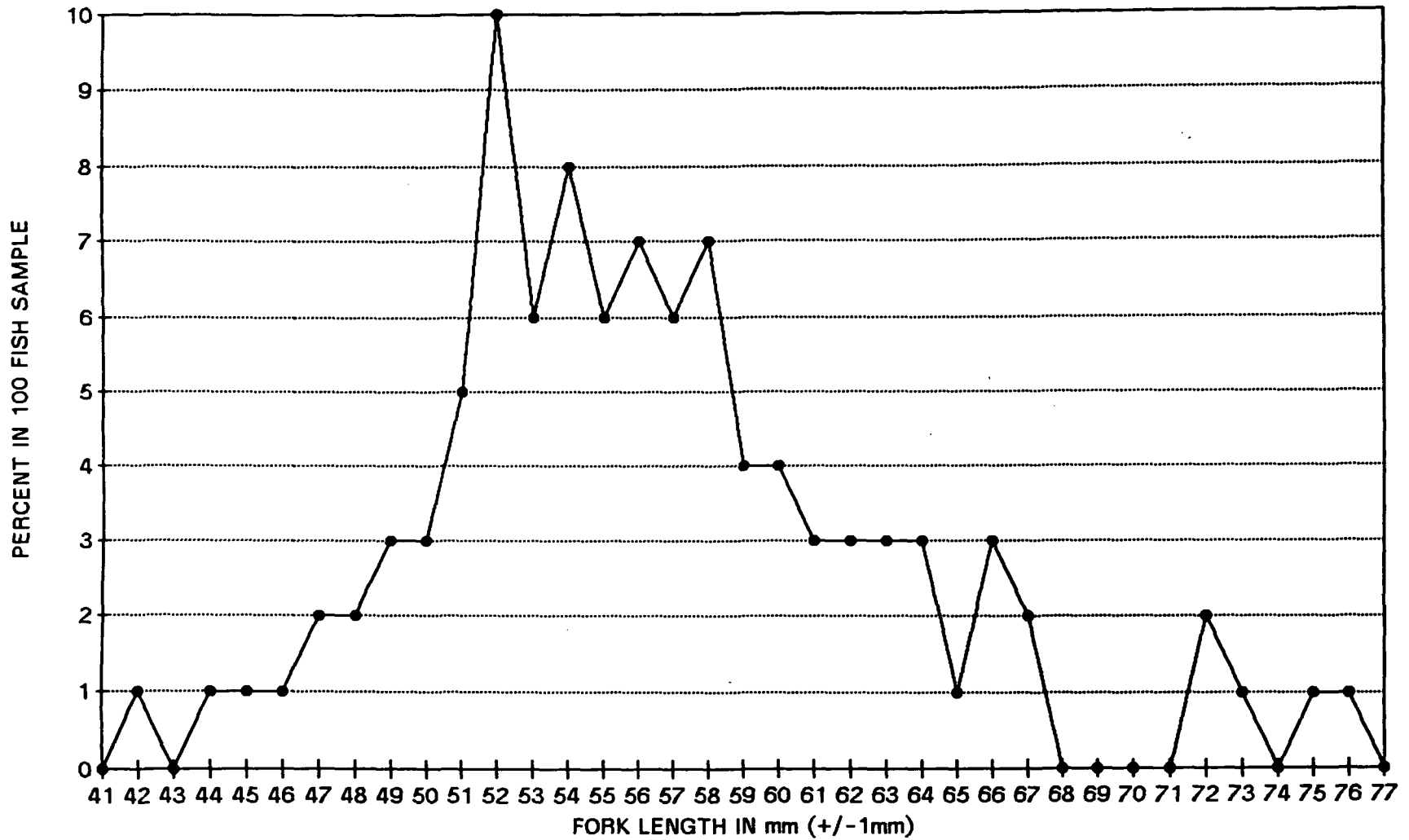


CHINOOK RELEASE LENGTH FREQUENCIES
LENGTH AT RELEASE ON 6/30/92

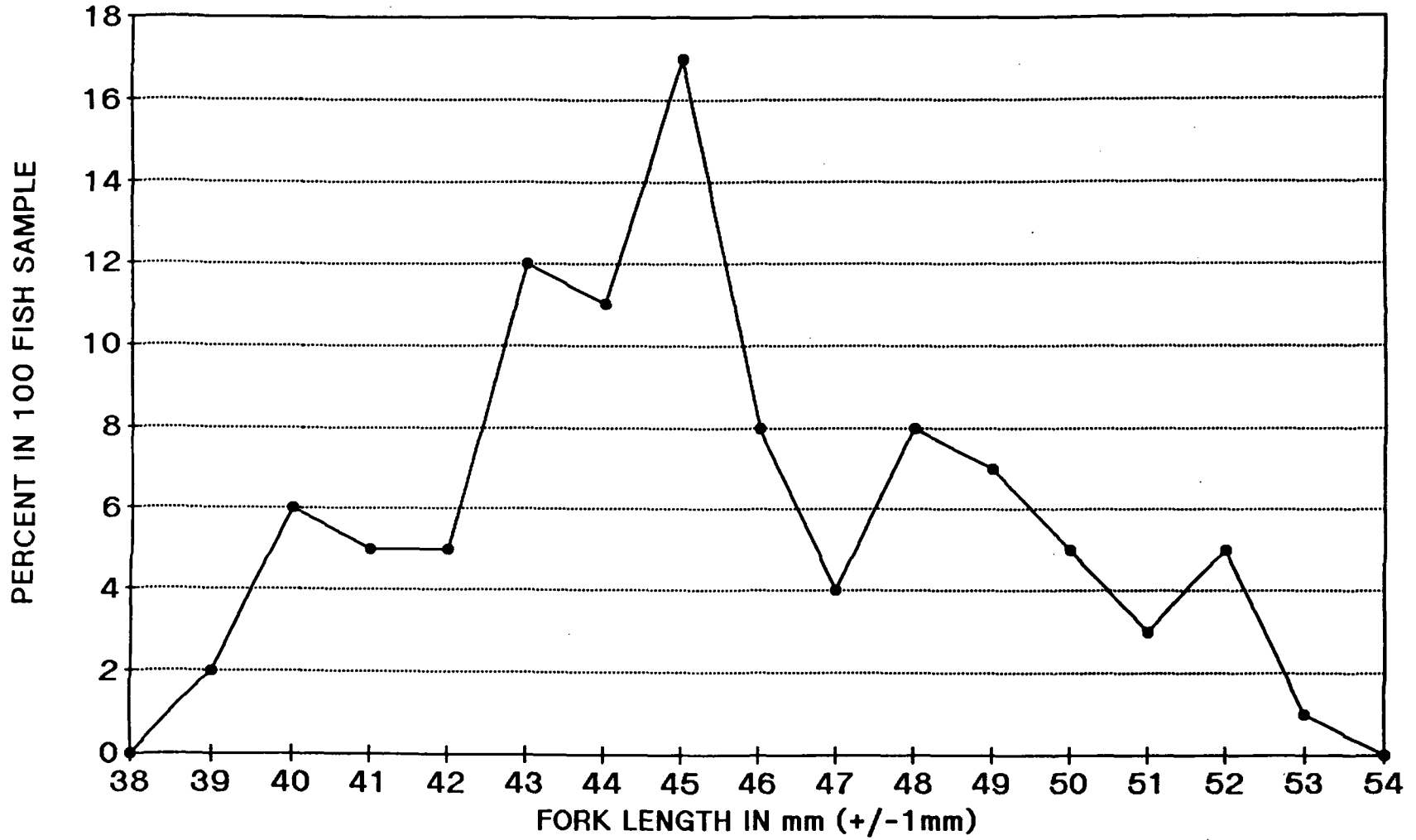


COHO RELEASE LENGTH FREQUENCIES

LENGTH AT RELEASE ON JUNE 5,6,&7 1992



STEELHEAD RELEASE LENGTH FREQUENCIES
LENGTH AT RELEASE ON 6/30/92



**Downstream Migrant Trapping Information
Prairie Creek 1992**

Background

In mid April PCFWRA installed two trap of a pipe design in Prairie Cr. in order to help assess Chinook egg to smolt survival for the '91/'92 brood year. Both traps were located just below the section of stream surveyed by RNP staff for spawning activity during the winter spawning period. On the day of installation a storm brought much needed precipitation to the area but unfortunately it also forced removal of the traps the same evening. The traps were re-installed on April 28 and were attended daily until another storm rendered them ineffective in early July. After July 1st the traps were clogging with debris daily. After considerable effort to keep them operating they were decommissioned due to a low catch rate and the inconsistency of their functioning.

All fish were classified as to species and measured by fork length in mm. In addition, periodic weights were taken using a portable scale with an accuracy of +/- .1g. Any mortalities were noted as well as any visually observable irregularities in health condition.

In order to provide a means to extrapolate from observed numbers to an estimate of total numbers of smolts, several attempts were made at calibrating the efficiency of the traps. A mark/recapture methodology was used on three separate occasions under varying flow conditions to assess trap efficiency. The average efficiency of the two traps combined was 49.3% and varied between 45.7% and 53.6% on individual calibrations. Due to the extremely small number of Chinook smolts observed, none were used in mark/recapture evaluation. Only Coho 1+ smolts were used and the correlation between Coho and Chinook catch rates is not known. Therefore the actual observation of Chinook smolts is given as follows:

May 9	102mm (probable 1+)
May 16	70mm
May 18	64mm
May 20	72mm
May 21	66mm
May 28	64mm
June 4	70mm
June 4	72mm
June 15	70mm

a CHINOOK

A total of 1,343 migrating Coho smolts were observed during this time period. Of this number 67% were coded wire tagged from a previous years release, 30% were regarded as wild

spawned, and 3% were identified as of Humboldt Co. Hatchery origin. These numbers expand by the average trap efficiency to 1,836 cwt Coho, 815 wild spawned Coho, and 73 Humboldt Co. Hatchery origin Coho migrating downstream during the trap operation period. These numbers should not be used as an estimate of total Coho smolt production for the year due to the probability of significant migration prior to trap installation. (This is especially significant due to the abnormally warm and dry spring of 1992.)

Pacific Coast Federation
of Fishermen's Associations Inc.
Trinidad Fishermen's
Salmon Enhancement
P.O. Box 291
Trinidad, Ca. 95570

WY 1991

August 30, 1991

Preliminary Draft
FINAL REPORT

In early November of 1991 the Trinidad Fishermen's Salmon Enhancement (TFSE) organization was contacted by California Dept. of Fish and Game (CDF&G) and California Dept. of Transportation (CALTRANS) personnel following their decision to continue emergency measures to salvage adult salmon and Steelhead returning to spawn in the Prairie Creek drainage of Humboldt County. This was determined necessary due to extensive sedimentation problems associated with construction of a new section of U.S. Highway 101 bypassing the state and federal parklands in October of 1989, and the lack of flushing of the sediment the previous winter.

As in '89/'90, TFSE was to trap and spawn adult salmon, incubate the resulting eggs, then rear to a suitable release size the fry after hatching. This was all accomplished at remote facilities in Prairie Creek State Park. A contract was negotiated with the California Dept. of Transportation (CALTRANS) to perform the work recommended by CDF&G. CALTRANS Fisheries Biologist Mark Moore was designated as the contract supervisor and was to oversee all work undertaken.

On November 20 the trap and weir were set in place as Prairie Cr. flows increased from rainfall during the previous night. Adult salmon were trapped almost immediately and trapping was continuous through January 18 except for periods of stream flows too low for fish movement and two short periods, (less than 24 hrs.), when high flows rendered the trap inoperable, (see trapping records).

All adult salmon in good condition were transferred to the remote facilities where they were held separately until fully mature and then spawned. All spawning was done with the procedures and personnel normally used by TFSE with good results on other restoration projects. Eggs were placed into specially constructed hatchbox type incubators and monitored daily.

The results of the trapping and spawning were negatively affected by the combination of extremely dry and cold conditions in the normal time of peak activity in December

and early January. Very few fish were actively migrating during this time, additionally, their normal rate of sexual maturation also appeared to be altered. Because of these conditions TFSE experienced a reduced fertility of egg lots and even a complete loss of two female Chinook. Additionally two female coho were released due to failure of any maturation while being held at the facility. (see Spawning Results)

A means of evaluating the results of the releases was to be developed as part of the original program. TFSE made arrangements for equipment to tag all fish with Coded Wire Tags before release. Due to the lower than normal temperatures the rate of growth was at least one month behind normal. Following the loss of nearly 5,900 Chinook due to a bear and the probability of very low flow conditions by the time the Chinook would be of a tagable size a decision was reached to release the Chinook untagged, (see Release Info.). The Coho however were held and TFSE successfully tagged 100% of them in early July.

In addition to using Coded Wire Tags for evaluation of the rearing program, a known number of fish being released was an obvious opportunity to assess the survival of fish that spawned in Prairie Cr. and its major tributaries. In order to utilize this opportunity, TFSE installed downstream migrant traps of several different designs in Prairie Cr. These traps were located below the section of creek surveyed for spawners by RNP biological staff. The traps installed were operated from mid April through mid August in an attempt to compare the numbers of wild spawning Chinook smolts to the smolts released from the rearing program. (see Downstream Migrant Trap Info.). Additional information gathered on Coho 1+ and trout 1+ smolts will be available for comparison in future years. The tagging and trapping program will provide useful information on smolt numbers vs. spawning population size in future years. It may also be useful in determining the long term impacts on these stocks and on the suitability of this release strategy for increasing wild salmonid stocks.

Submitted by

Mitch Farro
Project Director

1990-91
TRAP RESULTS - CHINOOK SALMON

DATE TRAPPED	SEX	HELD OR RELEASED	FORK LENGTH	DATE SPAWNED
12-10	G	H	43cm	12-20
12-10	G	H	47cm	
12-10	G	H	52cm	
12-10	G	R	NA	
12-10	G	H	43cm	
12-11	G	R	NA	
12-12	G	H	45cm	12-20
12-13	M	H	65cm	12-20
12-15	G	R	NA	
12-19	F	H	73cm	green
12-19	G	R	NA	
12-20	G	R	NA	
12-20	F	H	85cm	12-20
1-7	M	H	58cm	1-24
1-7	G	R	NA	
1-10	G	H	49cm	
1-12	M	H	62cm	1-17, 2x1-19
1-12	M	H	69cm	2x1-16
1-12	M	H	59cm	
1-13	F	H	80cm	2x1-19
1-13	M	H	77cm	1-19, 1-24
1-13	M	H	84cm	
1-13	M	H	88cm	2x1-19
1-13	F	H	78cm	2x1-19
1-13	M	H	84cm	1-19
1-13	G	H	49cm	
1-14	M	H	87cm	1-24, 1-25
1-13	M	H	59cm	1-25
1-14	F	H	88cm	1-16
1-14	F	H	78cm	1-16
1-14	F	H	87cm	1-19
1-14	F	H	90cm	1-19
1-14	F	H	95cm	1-24
1-14	F	H	73cm	1-16
1-14	F	H	88cm	green
1-14	M	H	79cm	2x1-16
1-14	M	H	97cm	2x1-16
1-14	M	H	86cm	1-19, 1-24
1-14	F	H	85cm	1-25
1-14	M	H	60cm	1-19
1-15	M	H	90cm	2x1-16
1-15	F	H	82cm	1-16
1-15	M	R	NA	
1-15	G	R	NA	
1-15	M	R	NA	
1-15	M	R	NA	
1-15	M	R	NA	
1-15	G	R	NA	

1-15	M	R	NA	
1-15	F	*	NA	
1-16	M	R	NA	
1-16	G	R	NA	
1-17	M	R	NA	
1-17	M	R	NA	
1-17	F	*	NA	
1-17	F	*	NA	
1-17	M	R	NA	
1-17	F	ESCAPED	NA	
1-17	F	R	NA	
1-18	M	R	NA	
1-18	M	R	NA	
1-18	M	R	NA	
1-18	M	R	NA	
1-18	M	R	NA	
1-18	M	R	NA	
1-18	G	*	NA	
1-18	F	H	85cm	1-17

TOTAL CHINOOK TRAPPED 90-91

17 GRILSE	30 MALES	19 FEMALES
7 HELD	16 HELD	12 SPAWNED
10 RELEASED	14 RELEASED	4 TO COUNTY HATCHERY
		2 SPAWNED GREEN *
		1 ESCAPED

TRAP RESULTS - COHO SALMON

DATE TRAPPED	SEX	HELD OR RELEASED	FORK LENGTH	DATE SPAWNED
-----	---	-----	-----	-----
11-25	G	R	NA	
11-26	G	R	NA	
11-26	F	H	70cm	12-18
12-10	G	H	56cm	3X12-13
12-10	M	H	63cm	2X12-13
12-10	M	H	65cm	2X12-13
12-10	F	H	67cm	2X12-13
12-10	F	H	71cm	3X12-13
12-10	F	H	63cm	3X12-13
12-10	M	H	56cm	1-7
12-10	F	R	NA	
12-10	M	R	NA	
12-10	M	H	57cm	12-18, 1-12
12-10	F	R	NA	
12-10	M	R	NA	
12-11	F	R	60cm	
12-11	M	H	59cm	12-18
12-11	F	R	NA	
12-11	G	R	NA	
12-11	M	H	57cm	2X12-13, 12-18
12-14	G	H	54cm	1-7
12-18	F	R	NA	
12-18	F	R	NA	
12-18	M	R	NA	
12-19	F	R	65cm	
12-19	J	R	NA	
12-19	F	R	NA	
12-19	M	R	NA	
12-19	G	H	54cm	2X1-18, 1-19, 1-24
1-7	F	H	65cm	1-7
1-7	G	H	53cm	1-7, 1-19
1-7	G	ESCAPED	NA	
1-7	G	H	NA	
1-7	F	H	67cm	1-19
1-7	M	H	56cm	1-19
1-8	M	H	64cm	1-10
1-9	F	H	66cm	1-10
1-9	M	H	62cm	1-10, 1-12
1-9	M	H	71cm	1-10, 2x1-11, 1-12
1-10	M	H	65cm	3x1-11
1-11	F	H	66cm	3x1-11
1-11	M	H	69cm	3x1-11
1-11	M	H	55cm	2x1-11
1-11	F	R	44cm	
1-11	F	H	67cm	1-11
1-11	F	H	75cm	1-11
1-11	M	H	59cm	2x1-11
1-11	F	H	66cm	1-12
1-11	M	H	61cm	2x1-12

1-11	F	H	65cm	1-12
1-12	F	H	69cm	1-12
1-12	F	H	65cm	1-19
1-12	M	H	69cm	2x1-18, 2x1-19, 1-24
1-12	M	H	67cm	2-2, 2-3
1-12	F	H	70cm	1-24
1-12	F	H	62cm	2-3
1-13	F	H	67cm	1-18
1-13	F	kelt	NA	
1-14	F	H	72cm	2-2
1-14	F	H	64cm	1-18
1-14	M	H	76cm	1-18
1-15	M	R	NA	
1-15	M	R	NA	
1-15	G	R	NA	
1-15	M	R	NA	
1-15	M	R	NA	
1-15	M	R	NA	
1-15	F	R	NA	
1-16	M	R	NA	
1-16	F	R	NA	
1-16	F	R	NA	
1-17	M	R	NA	
1-17	F	R	NA	
1-17	G	R	NA	
1-17	G	R	NA	
1-17	G	R	NA	
1-18	G	R	NA	
1-18	G	R	NA	
1-18	F	R	NA	

TOTAL COHO TRAPPED 90-91

16 GRILSE
5 HELD
11 RELEASED

29 MALES
18 HELD
11 RELEASED

34 FEMALES
19 SPAWNED
15 RELEASED

**Spawning Results
Prairie Creek 1990/1991**

Chinook

Total Egg Take = 43,953

Fertility = high 97.4%, low 2.0%, Ave = 84.2%

Coho

Total Egg Take = 42,364

Fertility = high 92.2%, low 1.0%, Ave. = 66.0%

**TFSE Fish Releases
Prairie Creek 1991**

Chinook

June 14 19,135 released in Prairie Cr. @ Corkscrew Cr
 @ 372 per lb.

June 21 13,091 released in Prairie Cr. @ below Bypass
 @ 212 per lb.

An additional 5,842 lost due to bear problem

All Chinook releases were un-tagged.
The total Chinook release of 32,226 represents 73.3% of the
total egg take.

Coho

July 7 2,142 released in Brown's Cr.
 @ 136 per lb.

July 8 7,320 released in upper Prairie Cr. and
 tributaries ; Big Tree Cr., Little Cr.,
 and un-named tribs.
 @ 136 per lb.

July 8 1,972 released in Boyes Cr.
 @ 136 per lb.

July 9 1,416 released in Brown's Cr. & s.Fk. Brown's
 @ 136 per lb.

July 10 6,250 released in Prairie Cr. above US 101
 @ 88 per lb.

July 10 850 released in Ten Tapo Cr
 @ 170 per lb.

July 10 850 released in Bud Pond Grove Cr.
 @ 170 per lb.

July 11 3,580 released in Mae Cr.
 @ 170 per lb.

All Coho released by TFSE were Coded Wire Tagged with tag
#06-01-05-01-01. The number of tagged Coho released was
24,380. The tag shed rate was determined to be 9.6%. An
additional 500 un-tagged Coho escaped from the rearing site
into an un-named tributary to Prairie Cr. during tagging due
to a plumbing mishap. The total of the releases and the
escapees combined is 24,880. This represents 58.7% of the
number of eggs taken.

CWT Release Report

Coded-wire tag code 06-01-05-01-01 has been assigned to your project/facility. This form must be completed and returned to IFD, 1701 Nimbus Road, Suite B, Rancho Cordova, CA 95670, Attention: ~~Rich Dixon~~, after the tag group has been released.

Rich Dixon

1. Assigned to Mitch Farro of Prairie Cr. Mitigation
Person Project/Facility
2. Species Coho *Race Coastal
*Egg Lot No. _____ Brood Year '90/'91
3. Release Location Prairie Cr. & tributaries *
4. Dates Group Released: First 7 / 7 / 91
MM DD YY
Last 7 / 11 / 91
MM DD YY
5. Rearing Type Hatchery Wild Mixed
6. Purpose of Release Group: mitigation - Caltrans
7. Total Number Tagged: 24,380
8. Number of Shed Tags: 2,333
9. Mortality Prior to Release: NONE
10. Number Correctly Tagged: 22,047
11. Unmarked Release Number: None
12. Method for determining unmarked number released:
 Book Estimates
 Actual Count
 Weight Sample Method
13. Quality Control Days: 1 to 3
14. Number/lb. at Release: 6,250 @ 88/lb, 12,850 @ 136/lb, 5,280 @ 170/lb
- *15. Average Length in MM FL: 68 (54 to 92)
16. Expected Survival: Normal
 Destroyed
 Problem at Release
17. Rearing Location: Remote Facilities in Prairie Cr. State Park
18. Stock of Release Group: Prairie Cr. trapped adults
- *19: Comments: bucket plants to upper Prairie Cr. & following tribs; Mae C Ten Top Cr., Boy's Cr., Brown's Cr., Big Tree Cr., & un-named tribs

* Optional information all other fields must be completed

Downstream Migrant Trapping Information Prairie Creek 1991

Background

In mid April TFSE installed a trap of a new pipe design in Prairie Cr. in order to help assess Chinook egg to smolt survival for the '90/'91 brood year. Four weeks later another standard fyke type trap was installed. Both traps were located just below the section of stream surveyed by RNP staff for spawning activity during the winter spawning period. These traps were attended daily between mid April and July 15. After July 15 the traps were run with decreasing frequency down to no less than twice weekly through mid August when migration ceased.

All fish were classified as to species and measured by fork length in mm. In addition, periodic weights were taken using a portable scale with an accuracy of +/- .1g. Any mortalities were noted as well as any visually observable irregularities in health condition.

In order to provide a means to extrapolate from observed numbers to an estimate of total numbers of smolts, several attempts were made at calibrating the efficiency of the traps. Both mark / recapture and a complete weir with a pipe trap were used to assess trap efficiency. The complete weir was in operation from May 31 through July 14 and was used to back calculate the other traps efficiency. *The mark / recapture information is not available for this draft.*

It was originally expected that a size difference would exist between wild Chinook and those released by TFSE. This was to be used to differentiate between these two groups of fish. *However the overlap in size of these groups appears to cause too much confusion and will not be used unless an adequate methodology is developed.*

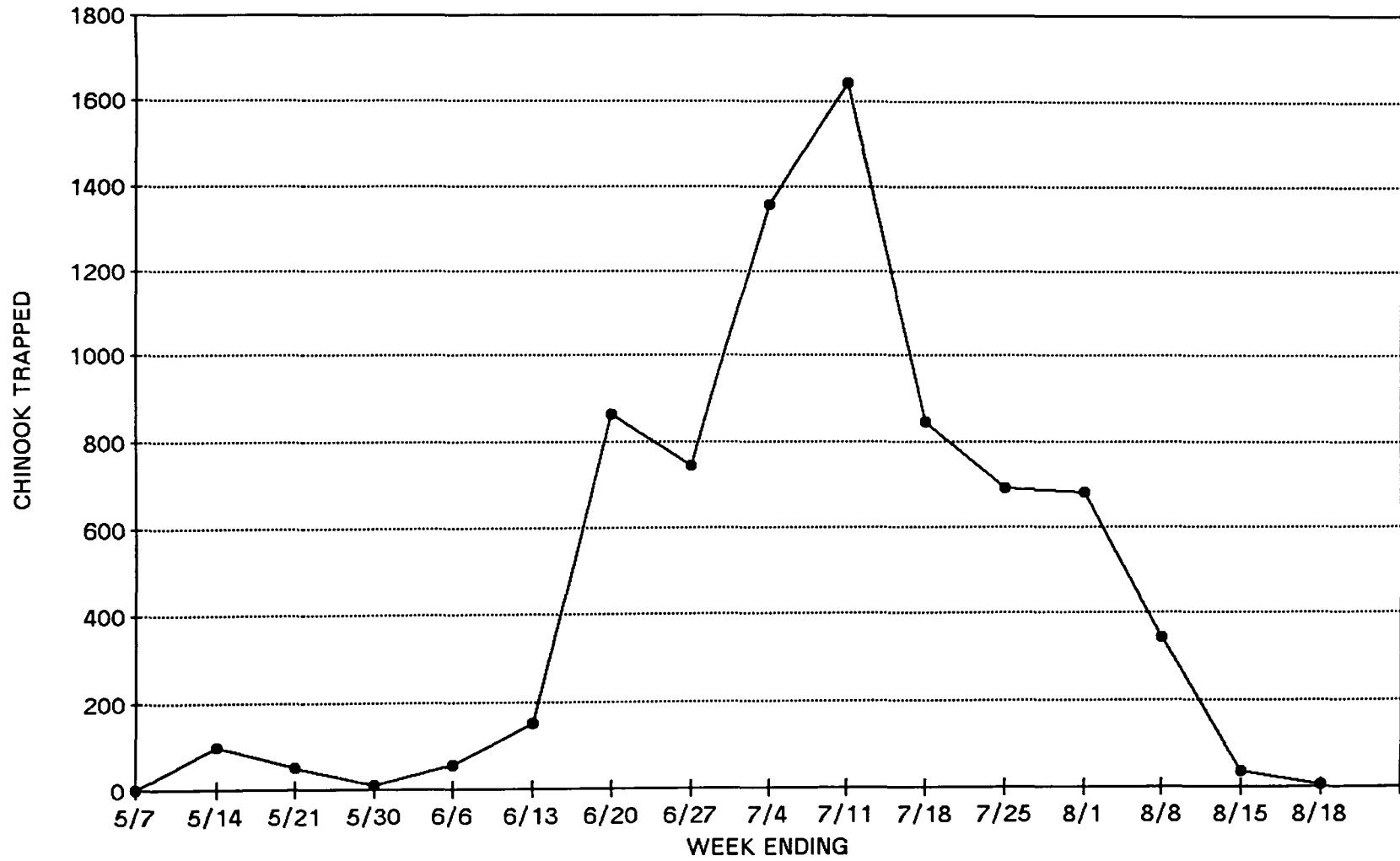
Because the two traps were also being evaluated for their individual efficiency by a HSU Graduate student, (Matt Kiese), they alternated in location within the same stream cross channel. Due to this changing of location within the cross channel, the traps were found to vary in individual efficiency. *For this reason trap numbers will be given for all traps combined. The estimate is for the total migrating population in Prairie Creek from above the traps. This number includes 19,135 Chinook released above the traps by TFSE.*

Results

The total number of Chinook smolts, both wild and TFSE released, is estimated at 7,574. This number represents continuous trapping between mid April and mid August. The traps were operated continually during this period and may have had only minor errors in calculating population numbers, primarily due to relatively stable flow conditions. An explanation of the estimated population vs. the large release approximately three miles upstream is not readily available but would seem high for predation mortality.

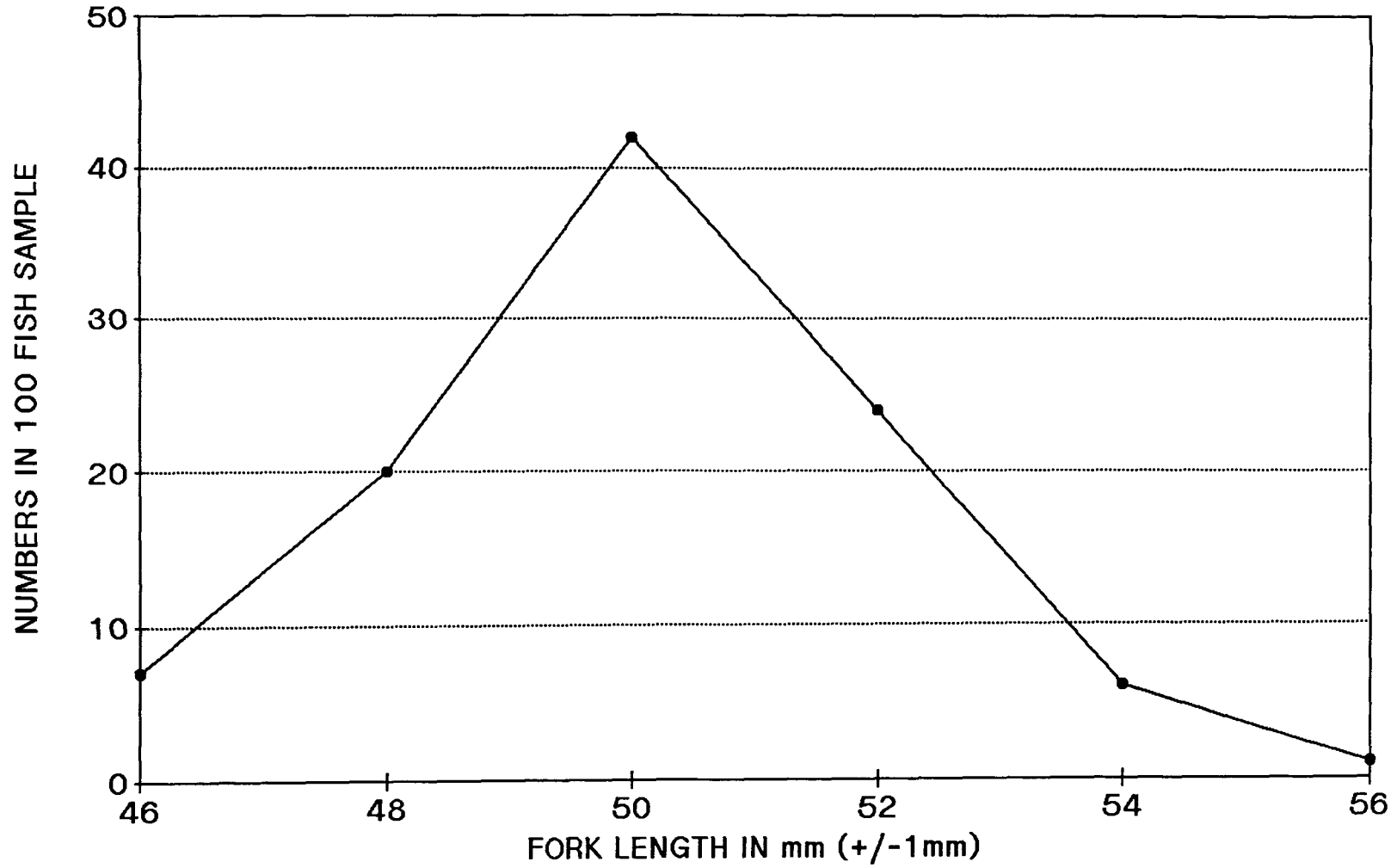
ESTIMATE OF TOTAL MIGRATING POPULATION

TRAPS AND COMPLETE WEIR COMBINED

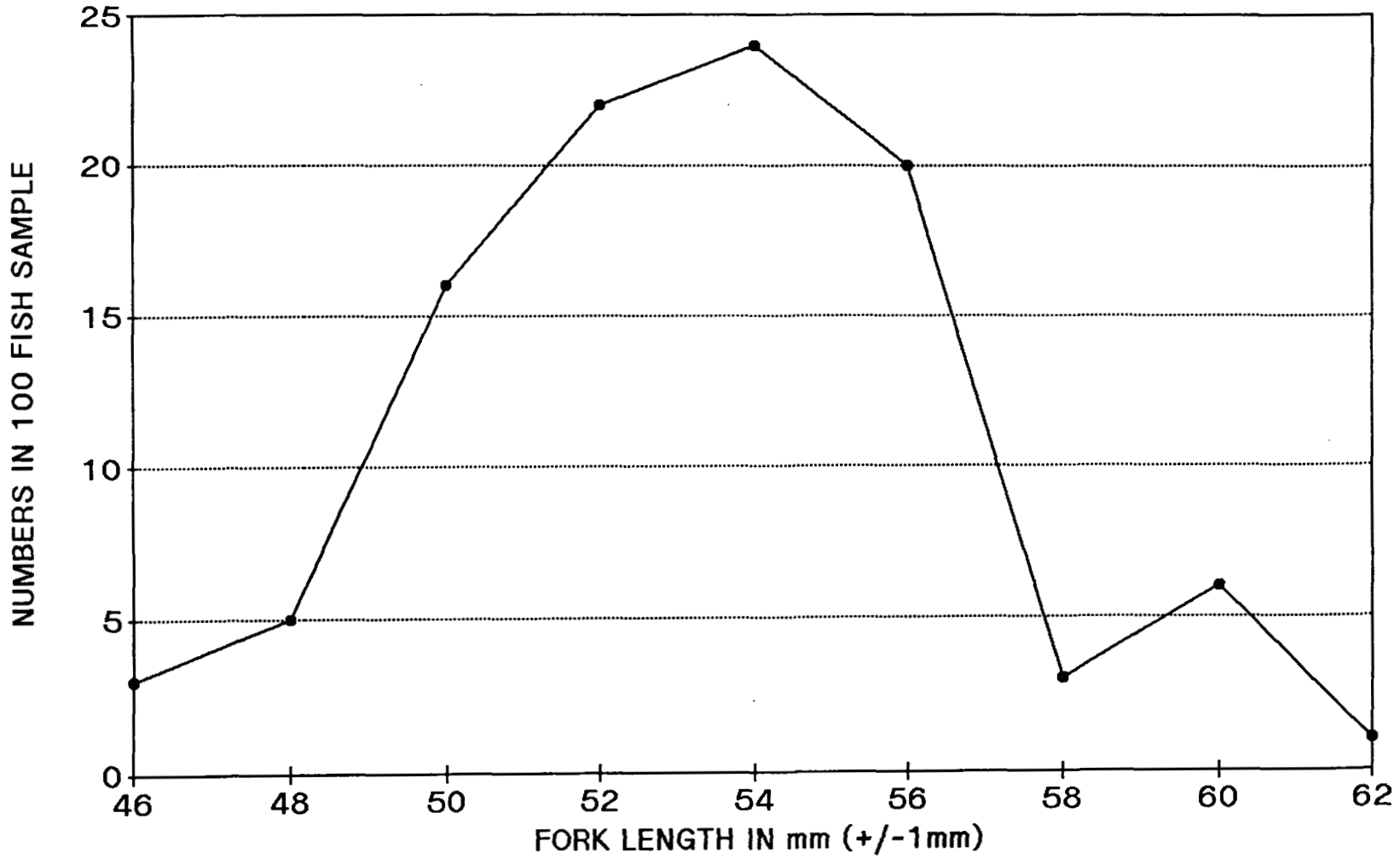


RELEASED CHINOOK LENGTH FREQUENCIES

PRAIRIE CREEK RELEASE DATE 6-14-91



WILD CHINOOK LENGTH FREQUENCIES
PRAIRIE CREEK BEFORE POND RELEASE 6-14



MIGRANT CHINOOK LENGTH FREQUENCIES

100 FISH RANDOM SAMPLE ON 6/21

