



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 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, PCFWRA 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


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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 grlse
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	If-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,If-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
COHO			
HELD	25	19	6
RELEASED	10	4	6
TOTAL	35	23	12
STEELHEAD			
HELD	4	5	
RELEASED	15	7	
TOTAL	19	12	
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%

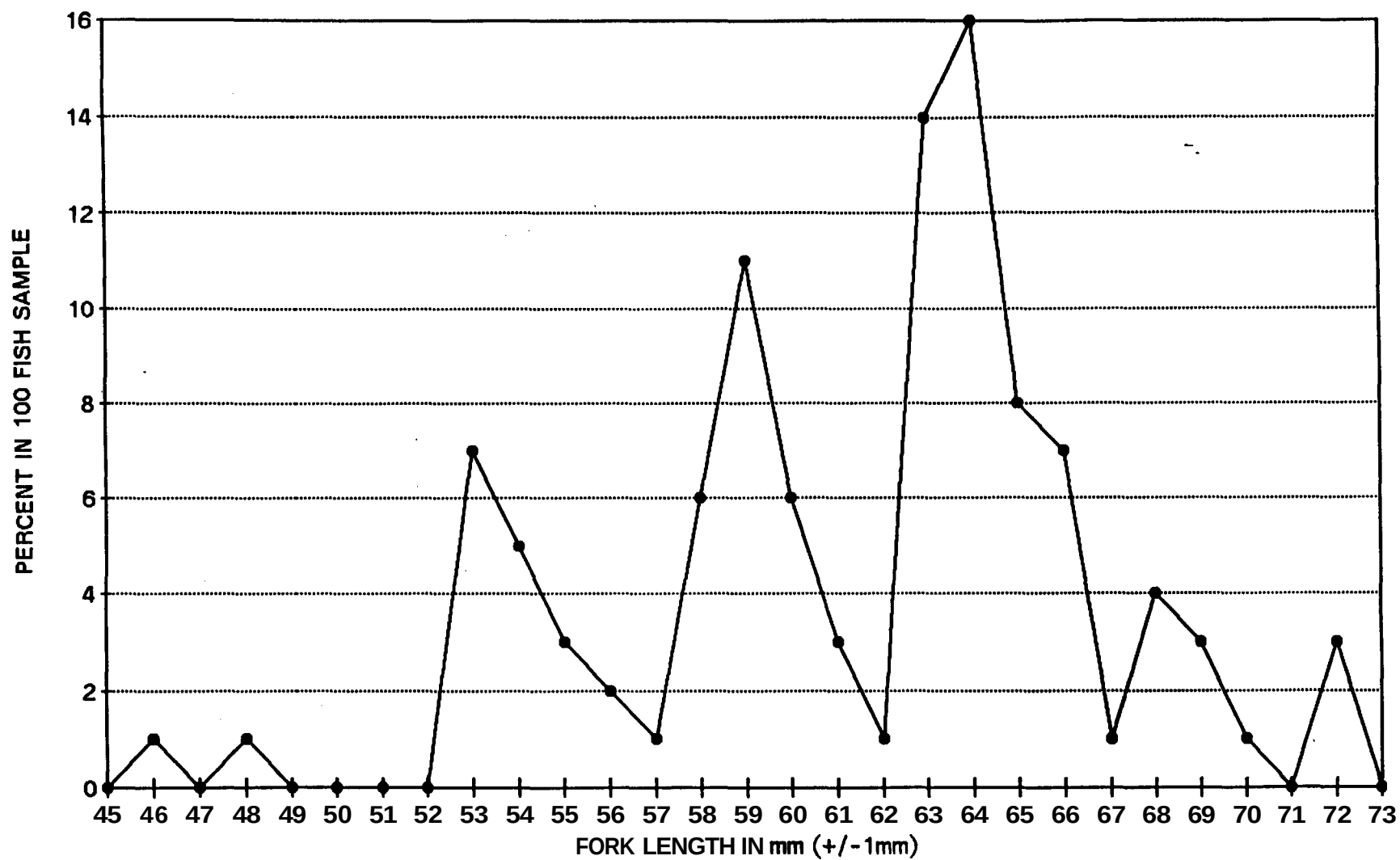
Steelhead

Total Egg Take = 15,070

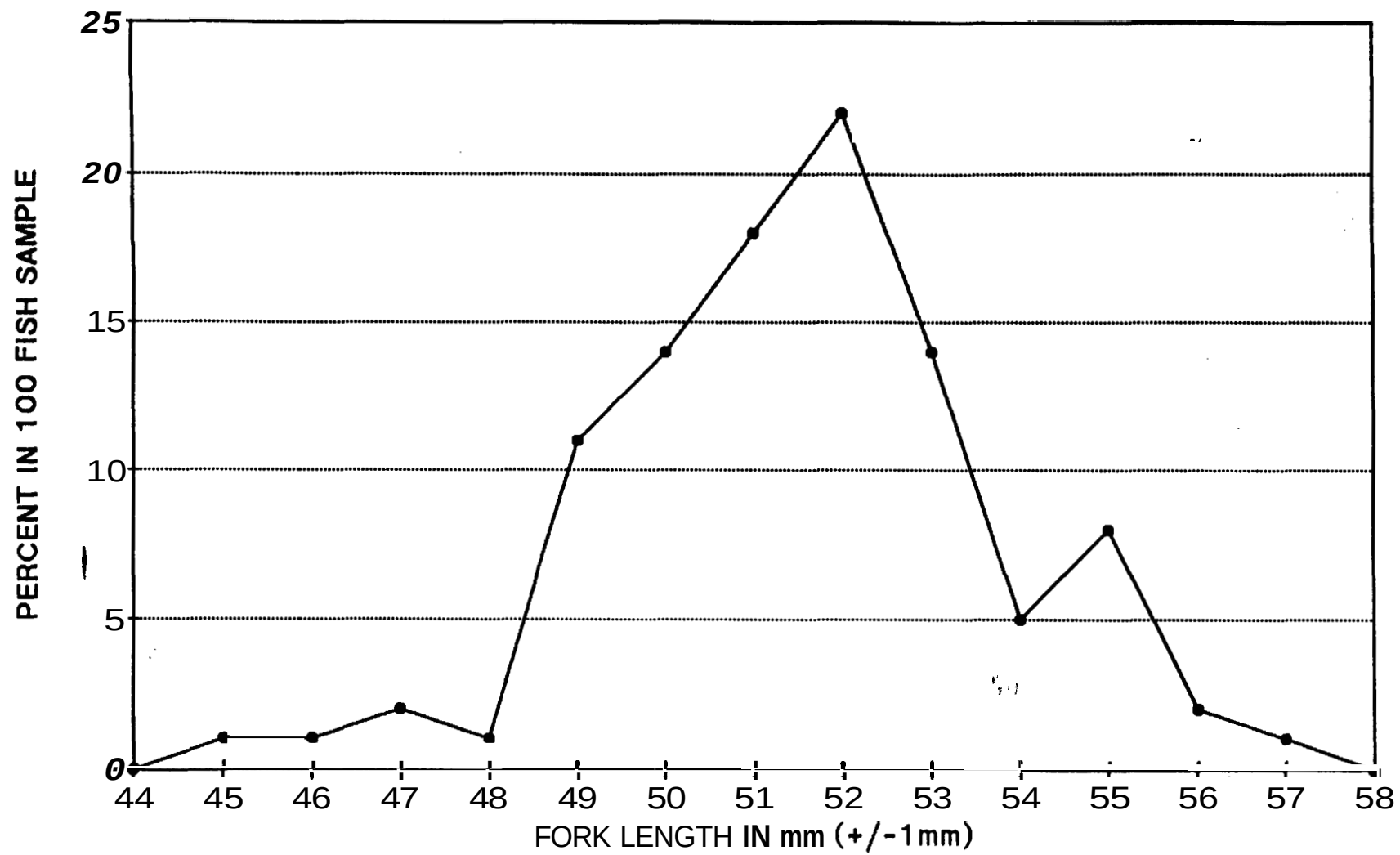
Fertility = high 83.4%, low 0.0%, Ave. = 49.0%

CHINOOK RELEASE LENGTH FREQUENCIES

LENGTH AT RELEASE ON 6/4/92

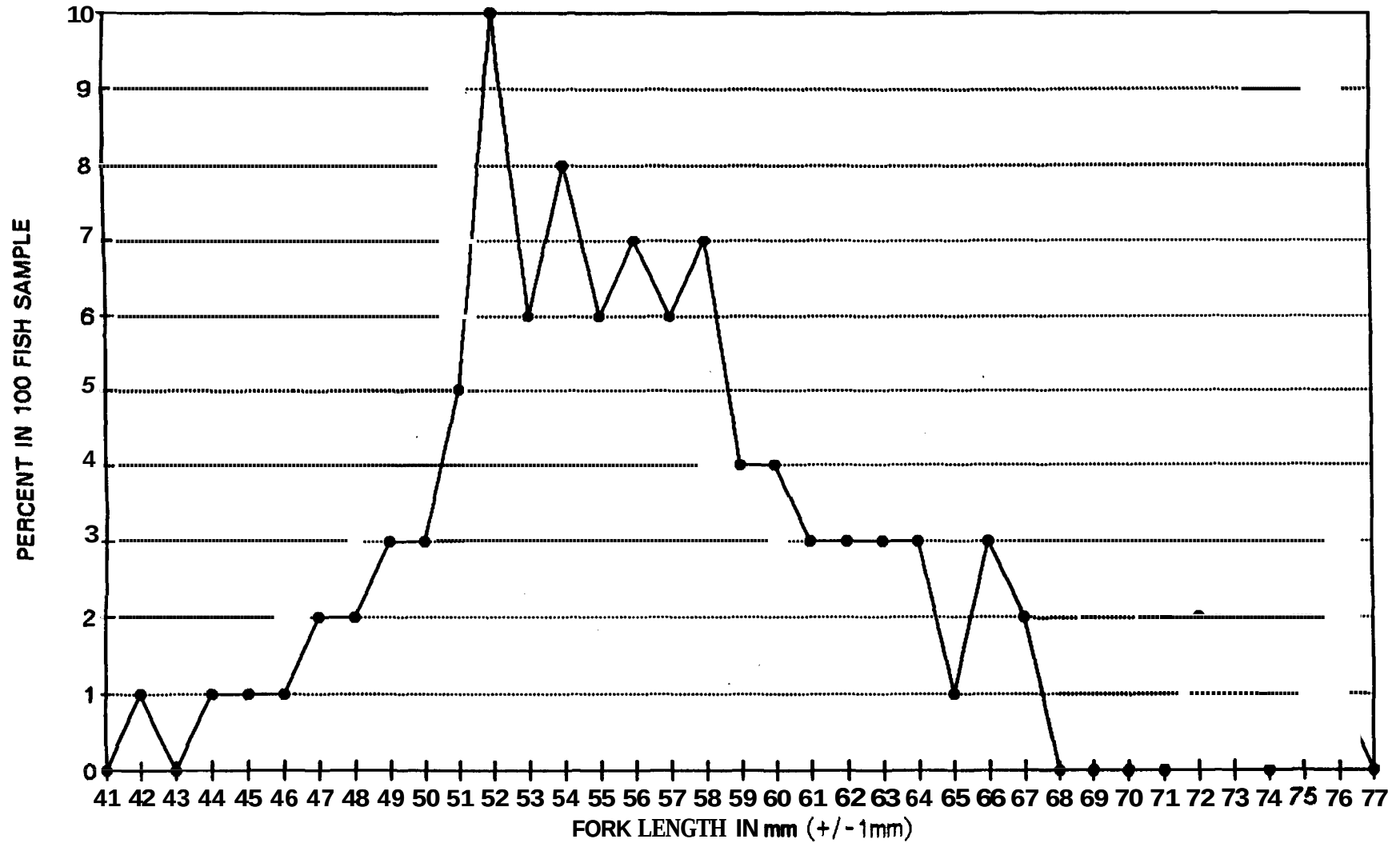


CHINOOK RELEASE LENGTH FREQUENCIES
LENGTH AT RELEASE ON 6/30/92

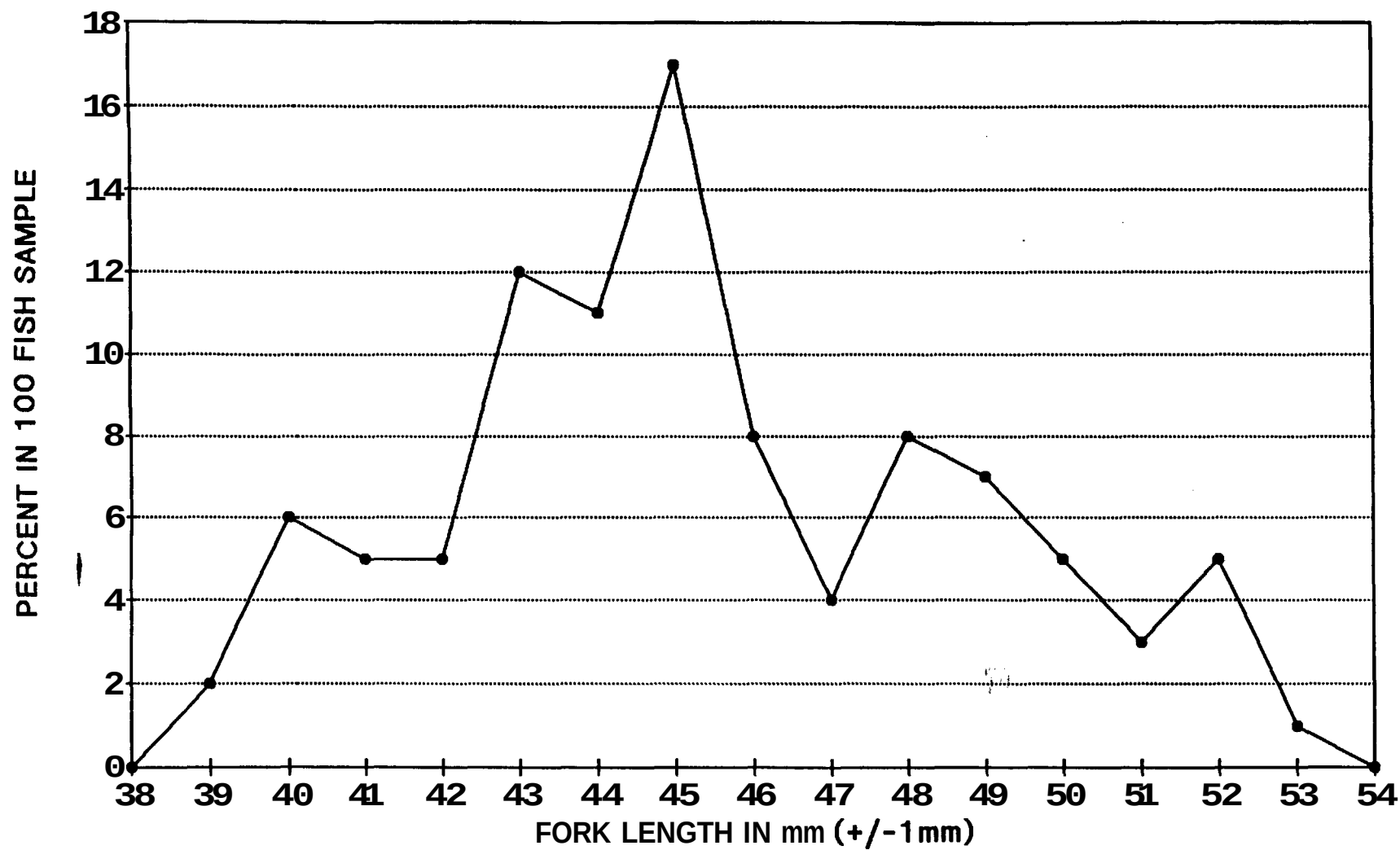


COHO RELEASE LENGTH FREQUENCIES

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 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.)