

Simpson Timber Company California Operations POST OFFICE DRAWER V ARCATA, CALIFORNIA 95521 (707) 822-0371

May 22, 1981

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Department of Fish & Game

Eureka

Mr. Steve Sanders Humboldt County Prairie Creek Hatchery Orick, California 95555

Dear Mr. Sanders:

I would like to take this opportunity to express our gratitude for your interest, cooperation and assistance in making our recent fish egg incubation project a success.

As you are aware, most northcoast streams are critically under-populated with anadromous fish even though stream conditions, habitat, food organisms, and water quality are generally in good shape. Our fish egg incubation project could, if expanded, significantly increase the anadromous fish populations in northcoast streams.

I am enclosing a copy of Dave Miller's report of our pilot project for your information. Of the 13,724 Steelhead eggs you provided for the project, we had 11,040 fish hatch, emerge and which were subsequently released to Coyote Creek.

In our opinion, a low-keyed joint project such as this could have tremendous future fishery benefits. As we would like to continue and expand the project, perhaps we can work out an arrangement to insure a supply of eggs.

Again, your assistance has been sincerely appreciated and we look forward to working with you on an expanded basis.

Very truly yours, SIMPSON TIMBER Je∦ry K Manage Environmental Services Chairman, Humboldt County Board of Supervisors cc: Fish Action Council, Eureka Humboldt Fisherman's Marketing Association Department of Fish & Game, Eureka Assemblyman Douglas Bosco RECEIV State Senator Barry Keene David G. Miller

LIAY 271931

Department of Fish & Game Eureka

jlh enclosure

R. L. Watts

REDWOOD CREEK FISHERY ENHANCEMENT PROJECT

In the fall of 1980, Simpson Timber Company initiated a pilot fishery enhancement project to benefit the salmon and steelhead resources of Redwood Creek, a major coastal stream in Northern California (TllN, RLE, S32). The project consists of a streamside gravel incubator system which was installed on Coyote Creek (T8N, R2E, S2), a tributary stream approximately 22 miles from the mouth of Redwood Creek (see map). The following report discusses the trials, tribulations and eventual success of the project during the first year of operation; the incubator system in theory and practice; and, possible future applications.

THE PROJECT: A Preliminary Survey.

A survey of the lower 2 miles of Coyote Creek was conducted in September, 1980 in order to identify possible sites for the placement of a streamside incubator, assess the present population status of salmonids (salmon and steelhead fry) and estimate future carrying capacity based upon food availability and habitat.

A suitable site for the project was found adjacent to a small stream which feeds into Coyote Creek at a point half-a-mile above the confluence with Redwood Creek. This feeder stream was later tapped for the gravity water supply (see map).

Primary and secondary productivity within Coyote Creek is high, as was evidenced by significant populations of stream insects, frogs and salamanders. Yearling steelhead were observed in several pools but overall numbers were low. This lack of significant salmonid population may be due to a shortage of useable spawning gravels in the creek. Other fish habitat features, such as pools, riffles, and shelter, were abundant.

Installation of the System.

Installation of the gravel incubator system began in early October with the first attempt to secure a gravity fed water supply. An experimental well, consisting of several sections of perforated plastic pipe, sand screens and necessary plumbing fixtures to accommodate a gravity water supply was buried in the channel of the feeder stream and a siphon established to the proposed incubator site. Two man-days were required to place the well due mainly to difficult conditions for excavation within the stream channel.

The buried well operated satisfactorily for several weeks but failed during high flow conditions experienced from 11/7-9. The well was cleaned and the siphon re-established 11/13 but failure occurred in high flows on 11/21.

A new water intake, similar to the type used successfully for Simpson's continuous water monitoring stations at Korbel, was installed on 12/16th. It consists of an exposed polypipe hose, supported by a float-ball pivot and braced with metal fence posts. A plastic screen foot-valve was placed on the open end of theintake hose to prevent debris fouling and loss of siphon. The system was positioned at the tail of a deep pool and oriented parallel to the streamflow. Two hours were necessary to install the new system. Operation of the exposed intake has been continuous and trouble-free to-date and has survived several major stormflow events.



•Redwood Creek Fishery Enhancement Project Page 3.

The peak emergence rate occurred from 4/22nd to 4/24th. Irregular times of : fry collection and days of incomplete recovery were necessary due to work priority conflictions.

Due to a gap in the false bottom screening, several hundred fry passed into the main outlet drain well where they were recovered. All fish netted from the incubator were immediately placed into Coyote Creek. A total of 11,040 steelhead were recovered during the collection period. This corresponds to slightly over 80% successful hatching and emergence.

1981 COYOTE CREEK INCUBATOR DATA

1. Prairie Creek Hatchery Data

a. Three batches of steelhead (Salmo gairdneri gairdneri) recovered from Lost Man Creek (tributary to Redwood Creek at (TllN, RLE, S23).

Fish Identification	Weight <u>(lbs)</u> I	Fork ength (in.)	Number Eggs per ounce	Total Ounces	Total Eggs
2-22A	8.5	27¼	168.2	23 3/4	3,990
2-22B	6.5	254	176.8	23	4,048
2-22C	7.5	24 ¹ 2	238.8	23 3/4	5,686
				70.5	13,724

2. Steelhead Fry Collection Data

Collection Date	Nu	mber of Fry*
4/19/81		80
4/20		174
4/21		604
4/22		2,320
4/23		2,525
4/24**		500
4/26		1,665
4/27		800
4/28		800
4/30		950
5/02		300
5/03		190
5/06		50
5/08		82
	TOTAL	11,040

*Combined fish count from capture well and main outlet well. Not all fish were taken on collection days; during heavy emergence period counts were taken until less than 100 fish remained.

**Incomplete collection due to darkness.

DGM/jlh 5/20/81



Gravel Incubator







	STREAM SURVEY FILE FORM No
	Date June 16, 1975
NAME	L1 Creek
STREAM S	FROM Mouth To .75 miles upstream LENGTH 1.75 mile
TRIBUTARY TO	Redwood Creek Twp. 7 N R. 3E Sec. 8
Other Nami	ES
Sources of	DATA personal observation
EXTENT OF OBSERVATION Include Name of Surveyor, Date,	EXTENT OF OBSERVATION: Mill Creek was surveyed on June 16, 1975 by Dennis P. Lee, Asst. Fishery Biologist, and Trisha Edgerton, Fish and Wildlife Seasonal Aide. It was surveyed from its mouth to a point
RELATION TO OTHER WATER GENERAL DESCRIPTION	s .75 miles upstream.
Watershed Immediate Drainage Basin Altitude (Range) Gradient Width Depth Depth	<u>LOCATION:</u> Mill Creek is located 6.3 miles north of Highway 299 on Redwood Creek Road.
Velocity Bottom Spawning Areas Pouls Shelter Barriers Diversiona Temperatures	<u>RELATION TO OTHER WATERS</u> : Mill Creek is used for spawning and as a nursery area. It contributes significant flows to Redwood Creek in the winter and spring.
Food Aquatic Plants Winter Conditions Pollution Springs FISHES PRESENT AND SUCCESS OTHER VERTEBRATES FISHING INTENSITY OTHER RECREATIONAL USE ACCESSIBILITY OWNERSHIP POSTED OR OPEN	<u>GENERAL DESCRIPTION</u> : Redwood Valley is a dry open valley characterized Watershed: by oak trees and vegetation such as coyote bush, madrone and deerbrush. Douglas fir and alders predominate in the higher elevations towards the headwaters. Huckleberry and thimbleberry were the predominate riparian vegetation.
IMPROVEMENTS IVAST STOCKING GENERAL ESTIMATE RECOMMENDED MANAGEMENT SKETCH MAP REFERENCES AND MAPS	Immediate Drainage Basin - The first 75 yards of Mill Creek are open and flat. The creek then rises steadily and becomes heavily shaded by the overhanging canopy of trees. The total length of the creek is choked with logs and slash. Mill Creek drains approximately 1.39 square miles.
Altitude -	Mouth 600 feet, m.s.l. Barrier(.66 miles upstream) 1000 ft., m.s.l. Headwaters (1.75 miles upstream) 2850 feet, m.s.l.
Gradient - F: F:	rom mouth to barrier (.66 miles upstream) 606.1 feet/stream mile rom barrier to headwaters (1.09 miles upstream) 1697.2 feet/stream mile.
Width 🚽 R A	ange 2 - 10 feet verage
Depth - R R	iffle (Range) 2-16 inches iffle (Average 12 inches
Po	ool (Range) 1-4 feet ool (Average 1.5 feet
Flow - M Ba	outh

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Mill Creek		-2-
Velocity		Entire stream rapid to slow
Bottom		25% boulders 40% rubble 15% gravel 15% sand 5% silt
Spawning areas	- <u>-</u>	Spawning areas account for 15% of the total stream habitat. The gravel in Mill Creek is very silty and the spawning habitat was rated marginal to good.
Pools	172	Pools comprise 30% of the stream habitat.
Shelter		Shelter is provided by low overhanging branches and large boulders.
Barriers	e u	A 12 foot high rock and log jam exists 0.7 miles upstream from the mouth.
Diversions	. 3	None observed
Temperatures	 	Water 57 ⁰ F at 1300 Air 75 ⁰ F
Food	— 	Numerous caddis fly larvae, stone fly and may fly nymphs were present in Mill Creek.
Aquatic Plants	-	None observed

FISHES PRESENT AND SUCCESS: Fingerling steelhead were abundant below the barrier, approximately 200 fish per 100 feet of stream. The number dwindled upstream. Above the barrier, no fish were observed. A few four inch fish were seen below the barrier. All fish were in good condition.

OTHER VERTEBRATES: Deer tracks and many garter snakes were observed.

FISHING INTENSITY: There were no signs of any fishing activity.

ACCESSIBILITY: - Mill Creek is accessible directly from Redwood Valley Road, 6.3 miles north from Highway 299. There are no roads to any other portion of the stream.

<u>OWNERSHIP</u>: - The entire drainage is owned by Barnum Timber.

POSTED OR OPEN: - No signs of closure were seen.

<u>RECOMMENDED MANAGEMENT</u>: Mill Creek should be maintained as an anadromous fish stream below the barrier.



11 BARRIER



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	STREAM SURVE	Y FILE	FORM	No
		Date	June 19	1975
NAME Panther Creek			Humbol	đt
STREAM SECTION	Youth T	. 25 mi.	upstrea	m Total 6.8
Tributary to Redwood Cree	ek	Twp	N R .23	Sec. 11
Other Names			ystemRedw	ood Creek
Sources of DATA Personal obse	ervations			

EXTENT OF OBSERVATION Include Name of Surveyor, Date, Etc. LOCATION RELATION TO OTHER WATERS GENERAL DESCRIPTION Watershed Immediate Drainage Basin Altitude (Range) Gradient Width Depth How (Range) Velocity Bottom Spawning Areas Pouls Shelter Barriers Diversions Temperatures Food Aquatic Plants Winter Conditions
SPRING FISHES PRESENT AND SUCCESS OTHER VERTEBRATES FISHING INTENSITY OTHER RECREATIONAL USE ACCESSIBILITY OWNERSHIP POSTED OR OPEN IMPROVEMENTS IMPROVEMENTS FAST STOCKING GENERAL ESTIMATE RECOMMENDED MANAGEMENT SKETCH MAP REFERENCES AND MAPS

EXTENT OF OBSERVATION: Panther Creek was surveyed on June 19, 1975 by Trisha Edgerton, Michael Jonckheere, and John Grondalski, F.W.S.A.'s. The survey was conducted on foot from the mouth to 1.25 miles upstream.

LOCATION: The mouth of Panther Creek is bordered to the north and south by two unnamed tributaries of Redwood Creek. These tribs are in turn bordered by Coyote Creek on the northern side and Garrett Creek to the south.

GENERAL DESCRIPTION:

Watershed - The entire area surrounding Panther Creek is owned by timber companies. With the exception of the headwaters, all of the land adjacent to the creek has been logged.

Immediate Drainage Basin - Panther Creek has two distinct habitat types. The undisturbed virgin redwoods and douglas fir of the headwaters contrast sharply with the open, alder dominated terrain of the lower creek. A moderate amount of logging debris clogs the stream in its lower reaches while the upper portion is totally free of log jams and land slides.

Altitude ·	- Mouth	300	feet	m.s.1.
	1 mile from mouth	400	feet	m.s.l.
	2 miles from mouth	800	feet	m.s.l.
	headwaters	1,600	feet	m.s.l.

- Pools Pools account for approximately 30% of stream habitat. They ranged in depth from 1-6 feet and averaged 2-3 feet deep.
- Shelter Shelter is provided in the logged portion by numerous logs and boulders in the creek bed. In the upper reaches, a dense, overhanging canopy of redwoods and Douglas fir and large boulders provide shelter.
- Barriers A 25 foot log jam is located approximately 1.25 miles up from the mouth. No fish were seen above this barrier. Numerous juveniles were seen below.

Gradient -Mouth to one mile upstream . . . 100 feet/stream mile One mile upstream to two miles upstream 400 feet/stream mile Two miles upstream to headwaters 800 feet/stream mile Width -Lower stream 10-12 feet Upper stream 4-6 feet Depth -Pools 3-4 feet Riffles 12 inches 15 cfs (estimated) Flow -Mouth ll cfs 2/3 mile upstream. . . . Velocity -Mouth 3.5 feet/sec. 2/3 mile upstream. . . . 2.5 feet/sec. many large boulders alongside stream. Main Bottom -Logged area bottom material was pea-sized gravel, slightly silty. Unlogged area - fewer boulders in streambed than logged areas and much cleaner gravel. Spawning areas-bue to the large quantity of gravel deposited in long flat stretches of the stream, Panther Creek has excellent spawning potential along its entire length. Diversions -None were observed. Temperatures - 1 mile up from mouth $54^{\circ}F$ Caddis fly larvae, stone fly and mayfly nymphs, and terres-Food trial insects were abundant. Winter conditions - Debris in the stream channel indicated a moderate to heavy winter flow. Pollution -Logging activities have left slash and debris in the stream channel. Landslides are frequent in the logged section of the stream depositing silt. Upstream in the unlogged section, the banks are stable, and the stream is free of debris and the gravel noticeably cleaner. Fish Present and Success: Numerous fingerling silver salmon and steelhead were observed and estimated at approximately 300 fish per 100 feet of stream. Other Vertebrates - Four deer and one Pacific Giant Salamander were observed. Fishing Intensity - T. Healy, reported in a previous survey, that Panther Creek was utilized by many-steelhead fishermen. Present fishing pressure is unknown. Logging operations in the area restrict trespassing.

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- Accessibility The mouth of Panther Creek may be reached by the K.K. road of Simpson Timber Company. A logging road follows the stream. Ownership - Simpson Timber Company owns the land surrounding Panther
- Creek.
- Posted or Open Permission from Simpson Timber Company is required to drive on the K.K. road and to trespass on Panther Creek.
- Recommended Management Panther Creek should be maintained in its present condition and no additional earthen or organic material allowed to enter the stream. Removal of the anadromous fish barrier should be investigated and potential advantages evaluated.

- **-** - *p*

Panther Creek Humboldt County

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barrier creek surveyed from mouth to barrier (1.25 miles)



	STR	EAM SURVEY	FILE FORM	No
			Date J	une 26, 1975
NAMEUnna	ned Tributary		Соинту H	umboldt
STREAM SEC	rion FROM Mouth	то •75	miles upst	ream LENGTH 2 miles
TRIBUTARY TO	Redwood Creek		Twp. 7N	R.3 E Sec. 17
Other Names.			River System	Redwood Creek
Sources of D	NTA			·····
	EXTENT OF OBSERVATION:	This creek was sur	veyed on Ju	ne 26, 1975 by
EXTENT OF OBSERVATION Include Name of Surveyor, Date, Etc LOCATION RELATION TO OTHER WATERS GENERAL DESCRIPTION	Trisha Edgerton, Fish an Fisheries Biologist. It Creek to a point .75 mil	nd Wildlife Seasons t was surveyed from les upstream. Obse	al Aid and n its confl ervations w	Dennis Lee, Asst. uence with Redwood ere made on foot.
Watershed Immudiate Draionge Basin Altitude (Range) Gradient Width Dewik	LOCATION: Redwood Valle Highway 299.	ey Road crosses the	e creek 5.5	miles from
Flow (Range) Velocity Bottom Spawning Areas Poula Shelter	RELATION TO OTHER WATER the south; Mill Creek be	5: Toss Up Creek 1 orders to the North	borders thi	s unnamed creek to
Barriers Diversions Temperatures Food Aquatic Plants Winter Conditions Pollution Springs FISHES PRESENT AND SUCCESS OTHER VERTEDRATES FISHING INTENSITY OTHER RECREATIONAL USE ACCESSIBILITY	GENERAL DESCRIPTION: Wat and grass lands. Patche stream gulches accompany mesophytic vegetation. Redwood Creek. As the forests predominate.	tershed - The wate: es of Douglas fir : ied by ferns, alde: Dru prairies tend terrain increases :	rshed is ch interrupt t r, hucklebe to dominat in elevatio	aracterized by oak his pattern in the rry, and in general, e the area along m, coniferous
OWNERSHIP POSTED OR OPEN IMPROVEMENTS PAST STOCKING GENERAL ESTIMATE RECOMMENDED MANAGEMENT SKETCH MAP REFERENCES AND MAPS	It starts climbing stead yards of the stream is as the overhead canopy	11 The creek's moundily after the fir full of green fila increases upstream	th lies in st 100 yard mentous alg . The stre jate drains	dry, open, flatland. ls. The lower 100 gae which disappears cam is littered with age basin is 0.81
square miles.	TORETTE GENTE ANG TANG			
Altitude - Mouth	600 feet, m. log jam (0-6 headwaters (s.l. miles above mouth 1.8 miles above mo) uth)	1000 feet, m.s.l. 2500 feet, m.s.l.
Gradient - Mouth	to one mile above mouth . One mile abo feet per stra		eet per str ters (.8 mi	eam mile les 1687
Width - Entire	stream 4 - 6 :	feet		
. Depth - Riffle Riffle	(range 2 - 8 : (average 6 inch	inches es		
Pool (Pool (range) 1 - 4 average 2 feet	feet		
Flow Mouth Log ja	n (.6 miles above mouth).	f.s. 3.5 c.f.s.		

ه د رو Unnamed Tributary to Redwood Creek

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Velocity - Entire stream rapid to slow

Bottom - 50% rubble 5% organic debris 25% boulders 15% gravel 5% sand

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Spawning areas - Spawning areas accounted for 5% of the total stream habitat.

Pools - Pools accounted for 35% of the total stream habitat.

Shelter - Overhanging riparian vegetation and large boulders provide shelter from 100 yards above the mouth to the creek's headwaters. Below this, there is no shelter.

Barriers - A rock jumble with logs approximately 0.5 miles upstream from the mouth is an impassable barrier to anadromous fish.

Diversions - None were observed

Temperatures - Water $\dots 57^{\circ}F$ at 1000 Air $\dots 70^{\circ}F$

Food - Caddis fly larvae, mayfly numphs and hemiptera were abundant.

- Aquatic Plants Filamentous algae in the lower 150 yards of stream was the only aquatic plant observed.
- Springs A small spring running off a five foot bank was present 0.7 mile upstream from the mouth.

Fish Present

and Success - Numerous steelhead fingerlings were present below the barrier. Larger trout, approximately 4-6 inches were also observed. No fish were seen above the barrier. The fish appeared to be in excellent condition.

Other Vertebrates - Deer tracks and garter snakes were present alongside the stream.

Fishing Intensity - Fishing activity is extremely light or nonexistent.

Accessibility - The creek is accessible from Redwood Creek Road.

Ownership - The entire drainage basin is owned by Barnum Timber.

Posted or Open - No signs of closure were seen.

Recommended Management - The unnamed creek should be managed as an anadromous stream below the barrier and a resident trout stream above.

UNNAMED TRIEUTARY of Reduced Creek HUMBOLDT COUNTY (T. 7.N., R. 3E., Sec. 17)



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		STREAM SU	URVEY	FILE FO	DRM No		· .
				Date	7-12-76	5	
Name	Mae Creek	•		Соилту	Humboldt	-	
STREAM SEC	TION FROM M	outh	То	2.5 mi.	upstream	Length	2,5 mi.
Tributary to	Prairie Creek	thence Redw	ood Cre	ek _{Twp}	R	Sec	
Other Names	May Creek		•••••••••••••••••••••••••••••••••••••••	River Sys	т _{ем} Redwoo	od Cree	<u>k</u>
Sources of D	Personal obse	rvation, old	stream	n survey:	s, USGS ma	ар	

EXTENT OF OBSERVATION Include Name of Surveyor, Date, Etc. LOCATION RELATION TO OTHER WATERS GENERAL DESCRIPTION WEItric Statester Watershed Immediate Drainage Basin Altitude (Range) Gradient Width Depth Flow (Range) Velocity Bottom Spawning Areas Pools Shelter Barriers Diversio Temperatures Food Aquatic Plants Winter Condition Pollution Springs FISHES PRESENT AND SUCCESS OTHER VERTEBRATES JISHING INTENSITY OTHER RECREATIONAL USE 4CCESSIBILITY OWNERSHIP POSTED OR OPEN IMPROVEMENTS PAST STOCKING GENERAL ESTIMATE RECOMMENDED MANAGEMENT SKETCH MAP Springs SKETCH MAP REFERENCES AND MAPS

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EXTENT OF OBSERVATION: Surveyors were Len Rudder and Finn Garaas. Stream was walked from Highway 101 bridge crossing to a point upstream approximately 2.5 miles and from 101 crossing to mouth. Stream was surveyed at access points where logging roads either crossed the creek or came near it. RELATION TO OTHER WATERS: Mae Creek is a tributary to Prairie Creek which in turn is a tributary to Redwood Creek. GENERAL DESCRIPTION Watershed and Immediate Drainage Basin: Section survey flowed

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through recovering redwood forest. Stream was heavily overgrown with alders and considerable logging debris in channel. Heavy streambed siltation due to past logging and road construction in watershed.

<u>Altitude</u>: Headwaters-1000 ft. m.s.l., mouth-50 ft. m.s.l. <u>Gradient</u>: Slight gradient, 350 ft/linear stream mile.

Width: Range 2-4 feet

Depth: Range 0.25-0.5 feet

Flow: Estimated at 0.1 cfs

Velocity: Slow

<u>Bottom</u>: 10% gravel, 5% sand, 85% silt, organic debris at a point 2.5 miles upstream from Highway 101 bridge crossing.

<u>Spawning areas</u>: Good spawning areas were observed from Highway 101 bridge crossing to mouth of Mae Creek.

<u>Pools</u>: Pool to riffle ratio was 9:1. Several pools observed were created by logging debris and beaver dams. Several dead water pools were also observed. <u>Shelter</u>: Log jams, debris etc. caused pools to be frequent.

<u>Barriers</u>: Several barriers created by logging debris and beaver dams were observed which could restrict fish passage above Highway 101 bridge crossing.

Temperatures: None taken



Pollution: Logging debris and slash along with heavy siltation was observed in streambed.

FISH PRESENT: Young of the year silver salmon were observed from Highway 101 bridge crossing to mouth of Mae Creek. Size - 0.75-2.0 inches; Abundance - few; Success - fair; Condition - good.

FISHING INTENSITY: None

OTHER RECREATIONAL USE: Hiking

ACCESSIBILITY: Accessible by Arcata Redwood Company logging road which takes off to the right from the north end of the Highway 101 bridge crossing on Mae Creek.

OWNERSHIP: Present ownership is mostly by Arcata Redwood Company.

POSTED: Against trespass by ARCO

RECOMMENDED MANAGEMENT: Removal of barriers and logging debris would help further rehabilitation of the stream and make fish passage and spawning possible in the future.

Additional Data: Area was logged in 1951, relogged in 1955 and 1964.