

Railley

REF-90519

Bull Creek Population Estimate

On September 16, 1982, portions of Bull Creek, tributary to the South Fork Eel River, were electrofished to obtain an estimate of the salmonid population. Present were Dave McLeod, Steve Heimlich and Mary McClain. Three representative stations were sampled to estimate the population in the lower 7.65 miles of Bull Creek, i.e. from its mouth to Cuneo Creek. Stream characteristics were similar from the mouth to Albee Creek, and changed from there to Cuneo Creek. Streambanks were forested and water temperatures were 55°F and 57°F at stations I and II respectively; streambanks were barren, the channel was wide, and the water temperature was 73°F at Station III.

Each station was blocked off at the upper and lower ends by stop nets so that fish could not move in or out of the test stations during sampling. A backpack shocker and dip nets were used to capture fish, with two passes made in each station, using the standard two-catch method described in Estimating Population Parameters from Catches Large Relative to the Population (1969) by G.A.F. Seber and E. H. LeCren. Each sample from these test stations was expanded to give an estimate of the total size of the population in each area with a 95% level of confidence. These data were in turn utilized to determine the total salmonid population in the lower 7.65 miles of Bull Creek on September 16, 1982.

The total estimated salmonid population in the lower 7.65 miles of Bull Creek on September 16, 1982, was 7710. With a level of confidence of at least 95%, the total salmonid population was no lower than 6731 and no higher than 8589. All salmonids collected were believed to be steelhead. Sucker, stickleback, venno reach and sculpin were also captured, but their numbers not estimated.

Dave McLeod
Fishery Biologist

Study Section I

Location: Mouth to Cow Creek 2.0 miles upstream

Study Station: 110 feet in length. Located approximately 0.5 mile above mouth of Bull Creek.

Fish captured and narcotized:

	<u>Pass I</u>	<u>Pass II</u>
Steelhead/rainbow trout	24	4

Estimated population of steelhead/rainbow trout in test station with a 95 percent level of confidence (Seber and LeCren, 1969):

29 steelhead/rainbow trout + or - 3

Expansion of study station data on steelhead/rainbow trout to cover total study section:

Study section length = 2.0 miles
29 trout per 110 linear feet
95% confidence level = 26 to 32 steelhead/rainbow trout
Point estimate = 2784 steelhead/rainbow trout per 2.0 miles
95% confidence level = From 2496 to 3072 steelhead/rainbow trout per 2.0 miles

Study Section II

Location: Cow Creek to Albee Creek. Total 3.4 miles.

Study Station: 105 feet in length. Located approximately 1.75 miles above Cow Creek.

Fish captured and narcotized:

	<u>Pass I</u>	<u>Pass II</u>
Steelhead/rainbow trout	18	3

Estimated population of steelhead/rainbow trout in test station with a 95 percent level of confidence (Seber and LeCren, 1969):

22 steelhead/rainbow trout + or - 2

Expansion of study station data on steelhead/rainbow trout to cover total study section:

Study section length = 3.4 miles
22 trout per 105 linear feet
95% confidence level = 20 to 24 steelhead/rainbow trout
Point estimate = 3761 steelhead/rainbow trout per 3.4 miles
95% confidence level = From 3419 to 4103 steelhead/rainbow trout per 3.4 miles

Study Section III

Location: Albee Creek to Cuneo Creek. Total 2.25 miles.

Study Station: 102 feet in length. Located approximately 0.25 miles below Cuneo Creek.

Fish captured and narcotized:

	<u>Pass I</u>	<u>Pass II</u>
Steelhead/rainbow trout	7	2

Estimated population of steelhead/rainbow trout in test station with a 95 percent level of confidence (Seber and LeCren, 1969):

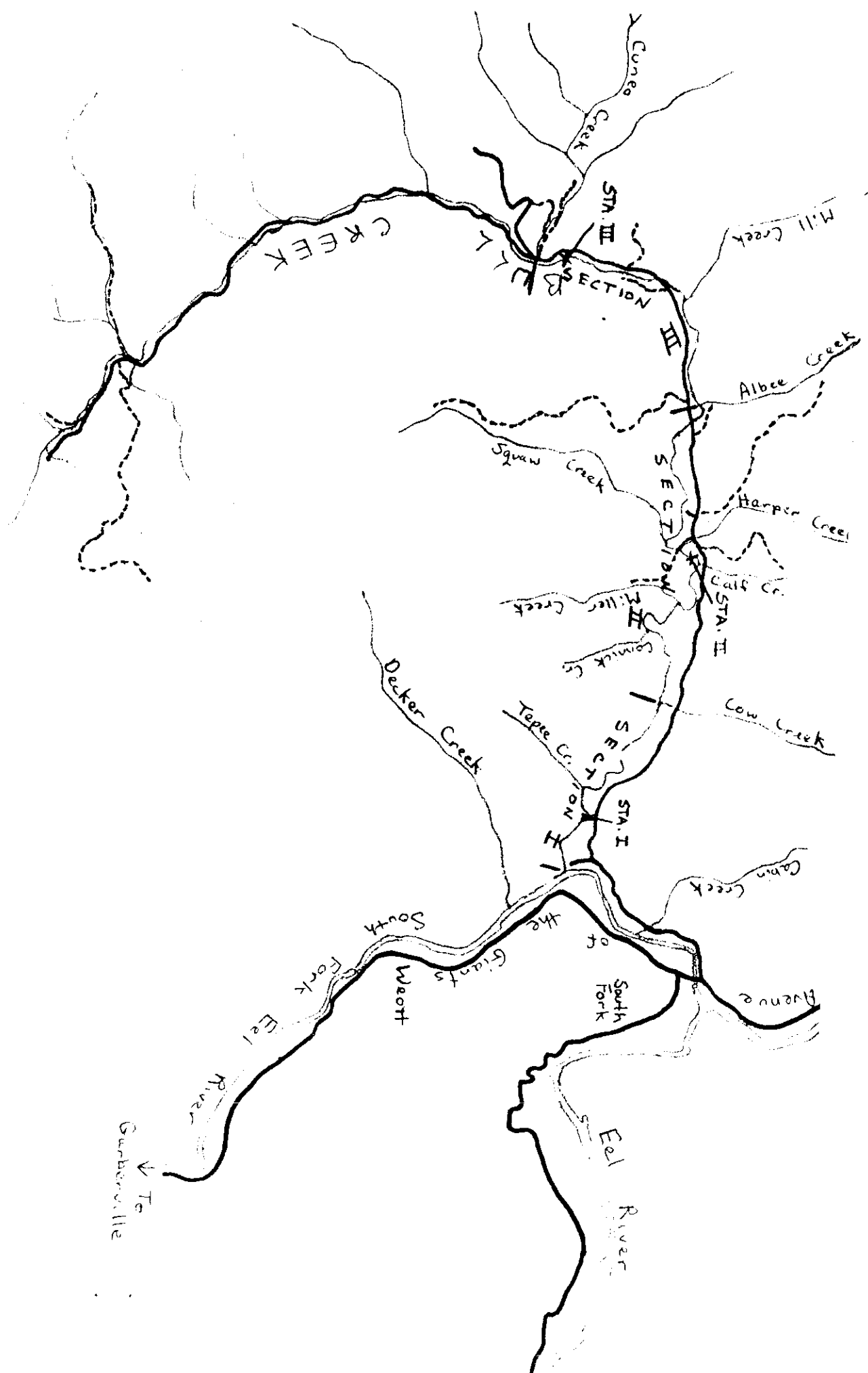
10 steelhead/rainbow trout + or - 3

Expansion of study station data on steelhead/rainbow trout to cover total study section:

Study section length = 2.25 miles
10 trout per 102 linear feet
95% confidence level = 7 to 13 steelhead/rainbow trout
Point estimate = 1165 steelhead/rainbow trout per 2.25 miles.
95% confidence level = From 816 to 1514 steelhead/rainbow trout per 2.25 miles



SCALE 1" = 1 mile



DEPARTMENT OF FISH AND GAME

LENGTH FREQUENCY

SPECIES AT-S LOCATION BULL CREEK DATE 9-16-82 NAME _____

im. FL

Length (in)	Frequency	Length (in)	Frequency	Length (in)	Frequency	Length (in)	Frequency
10		11	0	16	0	21	0
11		12	0	17	0	22	0
12		13	0	18	0		
13		14	0	19	0		
14		15	0	20	0		
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							

P. O. Box 1687
Redding, California 96002

May 21, 1965

Mr. Alan D. Philbrook
Superintendent, District I
Division of Beaches and Parks
3431 Fort Avenue
Eureka, California

Dear Mr. Philbrook:

I am advised by John Day of our Eureka office that flood damage to the reef barrier dam on Bull Creek eliminated the fish barrier which I called to your attention by letter of November 24, 1964.

Since the problem no longer exists, it will not be necessary for the Division of Beaches and Parks to construct a fish ladder. However, if a new reef barrier is contemplated, it is recommended that your agency plan to construct a fish passage facility on the new structure.

Your cooperation is appreciated.

Very truly yours,

R. J. O'Brien
Regional Manager, Region 1

RJO'jes

cc: Western Fisheries Mgt., Eureka

Memorandum

To : Fisheries Management Supervisor, Region 1

Date: May 18, 1965

From : Department of Fish and Game
Western Fisheries Management - Eureka

Subject: REEF BARRIER - BULL CREEK, HUMBOLDT COUNTY

A joint Fish and Game - Beaches and Parks field investigation was conducted on Bull Creek on May 12, 1965. The objective of the investigation was to determine if a fish passage facility would be required on the flood damaged reef barrier dam on Bull Creek.

The results of the investigation revealed that the reef barrier was no longer a blockage to fish.

It is recommended that Beaches and Parks not be required to construct a fish ladder on the existing reef barrier.

If a new reef barrier is constructed, it is recommended that Beaches and Parks construct a fish passage facility on the new structure.

Reference to this subject may be found in a letter dated November 24, 1964 from R. J. O'Brien to Allen D. Phillbrook, Superintendent District I, Division of Beaches and Parks.

John S. Day
Fishery Biologist II

JSD:sr

RECEIVED

MAY 20 1965

Department of Fish & Game
Region 1

P. O. Box 1007
Eureka, California
November 24, 1964

Alan B. Philbrook
Superintendent District I
Division of Beaches and Parks
2431 Fort Avenue
Eureka, California

Dear Mr. Philbrook:

This is in reference to fish passage facilities required for the lowermost gravel-barrier dam on Mill Creek.

The stream is an important tributary for the production of salmon and steelhead. The primary value of this stream is the contribution of fish to the sport fishery of the Red River and to the ocean sport and commercial salmon fisheries.

Our regional fishery and patrol personnel have observed this dam at various times throughout the past year. During their investigations, a variety of stream flows were observed flowing over or through the dam. From these observations, it was concluded that the dam constitutes a complete barrier to fish during the major portion of the year. Therefore, it will be necessary to provide fish passage facilities. We recommend that a concrete fish ladder be constructed on the dam.

Enclosed you will find a form referring to standard fish ladder specifications.

If we can be of service to you, please feel free to contact us.

Very truly yours,

R. J. O'Brien
Regional Manager

JSD:sr

cc: Region I
Western Fisheries Management - Eureka

[Handwritten signature]

CALIFORNIA DEPARTMENT OF FISH AND GAME
Region I
P. O. Box 1687, Redding, California

MINIMUM FISH LADDER SPECIFICATIONS

Ladder pool length	6 feet minimum
Ladder pool width	6 feet minimum
Ladder pool depth	3 feet minimum
Drop between pools	12 inches preferred, 15 inches maximum
Freeboard	3 feet minimum
Entrance	Swim-in conditions

No weir to be located less than 1/2 pool length from corner.

Submerged orifices not to be used in pools less than 10 feet in length.

Humboldt

BULL CREEK

(Field Note)

Tributary to: Bel River

Date of Survey: August 26, 1974

Purpose of Survey: Fish Rescue

Location: Humboldt Redwood State Park

Method of Survey:

Equipment Used: Root-Smith Mark V Electro-fisher

Surveyors: L. L. Rudder and M. J. Jonckheere

Observations: Fish were removed for stream diversion.
 33 steelhead fry were removed. Lengths were as follows: 6.6; 3.1; 2.4; 2.2; 2.0; 1.8; 1.7; 1.6; range was 1.3 inches and mean length was 2.7 inches.
 Fish were infested with an external parasite lernaeu. Numerous roach, suckers and sculpins were also rescued. Water temperature at 11:00 hours was 76^oF.

Written by: M. J. Jonckheere

Bull Creek, Humboldt County

Tributary to: South Fork Eel River
Date of Survey: September 7, 1973
Purpose of Survey: Remove steelhead from a stream alteration project; this removal was done under a contract.
Location: Humboldt Redwood State Park
Equipment Used: Smith-Root Mark V electro-fisher
Surveyors: D. Rogers, L. Rudder, P. Bruce
Observations: Seventy-one steelhead were removed from the stream and released downstream from the altered area. Thirty-one were measured. Other fish observed in the stream were roach, sculpin, stickleback, sucker, trout and lamprey.
Water quality: pH 8.5, D.O. 7.0; water temperature at 1300 59° F. Flow was determined to be 1.171 cfs.

Steelhead Measurements

<u>Size in Inches</u>	<u>Numbers</u>
1.9	1
2.0	6
2.2	4
2.3	3
2.4	1
2.5	6
2.7	1
2.8	1
2.9	1
3.0	1
3.2	2
3.3	1
3.6	1
3.7	1
3.9	1

Written by: Pamela Bruce

PB:vmc
9-17-73

BT 18116

BULL CREEK
(Field Note)

Tributary To: South Fork of the Eel River

Date Surveyed: July 16, 1968

Purpose of Survey: Gauging the stream flow, noting the numbers and different types of fishes present, stream conditions and any factors deleterious to fish life.

Stream flow: The stream flow was measured at 2.54 cfs. with a Gurley Figma Meter.

Temperatures: Water temperature at 12.5 - 7/16/68 was 68° F.
Air temperature at 12.15 - 7/16/68 was 74° F.

Stream Conditions: The water was clear and no major obstructions were observed during the survey from its confluence with the Eel River to 4½ miles upstream.

Fisheries: 200 to 300 salmonids were observed during this survey. The biggest majority of fish present were cyprinids and three (3) spined sticklebacks.

Surveyed by: Thomas H. Hurt

TH:cl
July 30, 1968

Memorandum

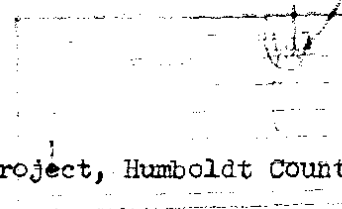
To : Regional Manager

Date : August 30, 1963

Region 1

From : Department of Fish and Game

Subject: WP - State Division of Beaches and Parks, Bull Creek Project, Humboldt County



Transmitted herewith is a copy of a letter from the above cited agency and a set of plans for a proposed channel stabilization structure. The Division contemplates constructing it this fall and has asked us to expedite our review with respect to fish passage facilities.

Please work directly with the Water Projects and Marine Resources Branches to review and if necessary develop alternate functional plans, design criteria and recommendations for fish passage facilities.

It is the recommendation of Vande Sande and Elwell that a complete crib section be deleted to provide fish passage. This would obviate any maintenance or construction of a fishway and would not materially affect the efficiency of the structure.

The final recommendations should go to the Division over the Director's signature.

Deputy Director

cc: Inland Fisheries Branch
Vande Sande
Marine Resources Branch - Elwell

RECEIVED

SEP 4 1963

Department of Fish & Game
Region 1

UNITED STATES DEPARTMENT OF THE INTERIOR

TO :

FROM :

TO: The Director, Bureau of Land Management,
Department of the Interior,
Washington, D. C.

FROM: The Director, Bureau of Land Management,
Department of the Interior,
Washington, D. C.

SUBJECT: [Illegible]

[Illegible body text]

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
INTRAOFFICE CORRESPONDENCE

DATE: April 20, 1961

TO: Deputy Director

FROM: Inland Fisheries Branch

SUBJECT: Progress Report on Bull Creek Rehabilitation Work

Representatives from Inland Fisheries, Marine Resources, and Region 1 attended the State Park Commission hearing about Bull Creek on March 24. At that time, the Department of Natural Resources presented several different engineering plans for the protection of Rockefeller Forest from further flood and erosion damage. Initially, greatest support appeared to be for the construction of a large flood control and debris storage reservoir above the park; however, after considerable discussion and debate, it was apparent that a compromise plan of some sort might develop, although no definite action was taken. It is anticipated that a decision in this matter will be delayed until early summer.

We have requested notification from Natural Resources at such time when a definite engineering plan is decided upon, so that we may make appropriate recommendations for fish.

Following the meeting, headquarters met with Region 1 to go over the ground and decide what additional action should be taken.

It appears that, regardless of the final engineering plan decided upon, the restoration of the anadromous fishes in the drainage offers the most promise. Toward this end, Region 1, with the assistance of Marine Resources, is exploring the possibility of making spawning area surveys in the Bull Creek drainage to assist us in making our recommendations.

If a dam is built, a reservoir fishery is also a possibility, but it would be contingent on the water release schedule for anadromous fishes.

I will keep you informed of future developments on this project.

Alan Calhoun, Chief
Inland Fisheries Branch

cc: Water Projects
Division
Region 1

W. H. K.

7/1/61

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
INTRAOFFICE CORRESPONDENCE

DATE: January 4, 1961

TO: Harry Anderson, Deputy Director

FROM: Marine Resources Branch

SUBJECT: Report - Protection of Rockefeller Grove State Park

Bull Creek is one of the largest tributaries of the South Fork Eel River. In the past it is reported that large numbers of salmon and steelhead have ascended Bull Creek and its tributaries. The present status of the fisheries resources of Bull Creek is not known in any detail, but there is evidence that fish still use the system in recent years. A study would be required to provide reliable estimates of its present population.

It is impossible to give any cost or fisheries engineering estimates without knowing specifically the engineering plan to be used in any rehabilitation of the system. However, as we understand it, the idea in mind seems to be that of several low dams along the watershed. Each of these dams would require a fish ladder for upstream passage. What might or might not be required in the way of down stream passing facilities would depend upon the operation of the dams themselves. Stability of the watershed would be a significant factor in the engineering aspects of the problem. We have no way of knowing at this time what might be the methods to be used in a stabilizing effort.

We believe that effort should be made to restore the anadromous resource of the stream system if feasible. We do not believe that the cost should be borne by the Department or the Wildlife Board. Rehabilitation of the stream system looks too costly to be borne by the license buyers. The primary benefits of such rehabilitation seems to be in saving the State Park.

In summary the problem is much too complex from both an engineering and biological standpoint to be able to give a specific answer to the economics or feasibility without comprehensive study. We have neither the manpower nor resources to do so now.

Richard S. Crocker
Chief, Marine Resources

cc: H. Hanson
L. Gibbs
C. Kasper

STATE OF CALIFORNIA

Inter-Departmental Communication

To: Mr. Walter T. Shannon, Director
Department of Fish and Game
722 Capitol Avenue, Rm., 5099
Sacramento, California

Date: November 22, 1960

File No.

Subject: Protection of Rockefeller
Grove State Park

From: Department of Fish and Game
Office of the Director

You are no doubt aware of the tremendous damage that has occurred since the floods of 1955 in the Bull Creek Watershed in Humboldt County. Not only did this and subsequent lesser floods destroy large numbers of Redwoods in the Rockefeller Grove, but they also drastically altered characteristics of Bull Creek itself. The stream bed has been filled with gravel and debris resulting from the heavy precipitation on a denuded watershed. Runoff has been more rapid and consequently does not occur in significant volumes over as long a period of time as in years previous to 1955.

We understand that Bull Creek was once a good salmon spawning stream but is not now so utilized, due to the above factors.

This Department is currently studying ways to provide the quickest possible protection of the remaining Redwoods. This work is being done by our Division of Soil Conservation under contract with the Division of Beaches and Parks. Current studies seem to indicate that the least costly solution would require the construction of a debris and flood detention reservoir together with minor channel maintenance. To assure adequate consideration of fishery resources, we would appreciate your review of the past and present use of Bull Creek by salmon or other fish. The practicality of restoring a salmon run on Bull Creek and its probable cost may require some investigation. Should you deem such restoration desirable, can your department or the wildlife conservation Board finance the cost? If a reservoir is constructed, what are the opportunities for alternative fishery enhancement?

Your early consideration to this problem would be appreciated. We are attempting to arrive at a solution to the flood problem with an estimate of costs to present to the 1961 session of the Legislature.

DeWitt Nelson, Director
Department of Natural Resources

cc: Division of Soil Conservation
Division of Beaches & Parks
Wildlife Conservation Board

December 22, 1960

HARRY ANDERSON, Deputy Director

JAMES D. STOKES, Regional Manager, Region 1

BULL CREEK REHABILITATION

In answer to your request of December 5, 1960, Earl Gibbs met with Stan Kabel and discussed Bull Creek, Humboldt County.

(All records show that this stream was a good anadromous fish stream in 1937. It was fair in 1952, but was deteriorating in 1954, due to upstream logging erosion.

The December 1955 flood damaged the stream still further, and the bed is now largely filled in with gravel with a shifting stream channel. At the present time only a few anadromous fish are using the stream.

Kabel contacted Beecher and Parks in Humboldt County, but they had little knowledge of the rehabilitation plan.

There is no doubt that Bull Creek can be improved for anadromous fish (Silver Salmon and Steelhead), but specific recommendations can only be made after a study of the proposed erosion control structures.

As it appears that this project is being planned in Sacramento, I recommend that our Salmon staff work with Beecher and Parks staff there, or that detailed project plans be sent to us here for study. If we are to study this project in detail, it will probably take three weeks to accomplish.

JAMES D. STOKES

Regional Manager, Region 1

JDS:K

cc Earl Gibbs

Stan Kabel

Humboldt Forestry Branch

47-2

CALIFORNIA DIVISION OF FISH AND GAME - STREAM SURVEY

No. _____

Name of stream BULL CREEK Tributary to SOUTH FORK EEL RIVER River system EEL RIVER
 Other names _____ County HUMBOLDT Township 1S. Range 2E. Section 34
 Stream section: ENTIRE From: _____ To: _____ Length of stream section: 13.5 mi.

	LOWER	MIDDLE	UPPER
Length of region			
Station	<u>150 ft. above mouth</u>		
Date	<u>June 21, 1938</u>		
Hour	<u>3:30 p.m.</u>		
Weather	<u>Clear</u>		
Altitude			
Stream condition	<u>Av. - clear</u>		
Average width			
Average depth			
Volume	<u>Est. 8.25 C.F.S.</u>		
Velocity	<u>T C R S</u>	<u>T C R S</u>	<u>T C R S</u>
Permanency	<u>C I D</u>	<u>C I D</u>	<u>C I D</u>
Type of bottom	<u>Gravel</u>		
Air temperature	<u>72° F.</u>		
Water temperature	<u>65° F.</u>		
Barriers	<u>None</u>		
Diversions			
Fishes present			
Success of species present			
Extent natural propagation			
Spawning areas	<u>Good</u>		
Degree fished	<u>H M L N</u>	<u>H M L N</u>	<u>H M L N</u>
Accessibility			
Posted or open			
Shade	<u>Arboreal</u>		
Pools and shelter			
Aquatic vegetation			
Fish foods:			
Caddisflies			
Mayflies			
Diptera			
Stoneflies			
Neuroptera			
Beetles			
Dragonflies			
Damselflies			
Scuds			
Snails			

Character of drainage basin: Canyons, mountainous, hilly, rolling, flat, swampy, wooded, logged-off,

burned-off, open, cultivated, uncultivated, meadows

Pollution

Rearing pond, planting base, and hatchery sites:

Springs:

Remarks: Entrance into S. Fork, very good, flow in one channel. At E. station: Steelhead run of season occasional, but observation conditions not very favorable.

It is 2.1 mi. from the Bull Creek store to the west boundary of Humboldt Redwood State Park and 7.5 mi. from the Bull Creek store to the bridge across the South Fork of El River at Derville. From this bridge it is 2.5 mi. to west. - 11/12/37, Leo Shapovalov.

To get to the mouth of Bull Creek, which is in Bull Creek Flat, take the Bull Creek Road up the west bank of South Fork of El River for 1.4 mi. (old road), then turn off on Bull Creek Flat Road (also up north bank of South Fork of El River) (dirt road) for .2 mi.

When seen on Nov. 13, 1937 Bull Creek was clearer than any other stream seen in the region. It was murky, but not really muddy. The volume was estimated to be 50 to 100 CFS. E. J. Pool of West says that Bull Cr. normally runs dry for 3 or 4 mi. above the mouth during the summer, so that only a few pools are left. It usually goes dry about July. He says that many salmon and steelhead run up Bull Cr. - Leo Shapovalov.

Recommendations for stocking:

Region to be stocked:

Species:

Size:

Number:

Frequency:

Sources of data:

References: Boyer's Map of Humboldt Co. (1928)

Signature of surveyor: Leo Shapovalov

