

# Memorandum

2630

TO : G. W. Van Gilst, Forest Supervisor

DATE: February 16, 1964

FROM : H. E. Hays, District Ranger

SUBJECT: Habitat

Attached is a report of the results of our study of spawning areas at Marguerite Creek. This is the District copy since it is the sole one with a map. Please return after review. You may wish to send this to Sheridan for his comments. It would be good if he could analyze this data for any biological significance.

At this time I would like to mention that we feel additional survey work to obtain a complete topographic map is needed at Traitors River. This would take about two days. First, the present notes should be plotted so that additional survey work can be done where most needed. Engineering has these notes and I presume will plot them.

Enclosures:  
Report and 6 parts

*H. E. Hays*

RECEIVED  
FEB 18 1964  
*H. E. Hays*

*W. L. ...*

*W. L. ...*

*[Signature]*

Size of Bottom Materials (Actual volumes)

Stream: Marguerite Creek Date: 5-10 1-3 12/5/63  
 Sampling area: Upper & Lower Stretches of Presently Available spawning Grounds (stretches 1-4) Core size: 11-16 4 2/2/64  
 Random set: \_\_\_\_\_ Dist. from lake

mm. .833 sieve (M feet)

Point	Volume (in ml.) of solids retained by sieves having square mesh openings (in mm.)										Total volume of sample		
	50.8	25.4	12.7	6.35	3.18	1.65	.84	.417	.208	.104		Silt	
	STRETCH 1												
16	23.5	28.6	21.0	9.1	5.4	4.8	2.6	0.5	0.5	1.5	2.5	5.0	- .97
15	21.2	24.7	9.0	7.5	4.9	9.1	8.0	4.4	4.0	3.3	3.9	15.6	- .38
AVE	22.4	26.6	15.0	8.3	5.1	6.9	5.3	2.5	2.3	2.4	3.2	10.3	
	STRETCH 2												
2	1.2	17.8	17.8	11.1	7.7	9.3	8.4	12.2	5.7	3.6	5.2	26.7	+ .35
1	3.6	20.1	16.7	13.2	8.0	10.2	8.2	9.3	5.9	1.5	3.3	20.0	+ .84
3	4.9	13.5	22.7	17.6	12.3	10.4	6.2	4.1	2.9	2.0	3.4	12.4	+1.23
4	4.1	14.2	23.8	14.2	11.6	12.2	5.1	7.3	4.3	1.3	1.9	14.8	+1.72
5	4.2	16.1	15.8	13.6	14.4	10.8	9.8	7.1	4.6	1.2	2.4	15.3	+2.08
6	39.0	17.1	15.9	7.8	4.3	5.7	3.1	2.7	2.2	1.4	0.8	7.1	+2.53
7	24.8	8.1	9.9	10.8	9.5	9.8	8.5	6.9	5.6	3.7	2.4	18.6	+2.92
AVE	11.7	15.3	17.5	12.6	9.7	9.8	7.0	7.1	4.4	2.1	2.8	16.4	
	STRETCH 3												
8	43.1	19.1	15.5	11.3	3.1	1.1	2.7	1.1	1.1	1.1	0.8	4.1	+3.53
9	31.8	12.4	9.4	10.0	9.9	11.4	7.1	3.6	1.1	1.6	1.7	8.0	+4.13
10	41.9	24.1	17.3	4.7	5.7	2.3	0.9	0.9	0.9	0.9	0.4	5.1	+5.16
13	58.0	12.1	12.1	8.5	4.1	3.0	0.1	0.4	0.4	0.4	0.6	1.8	+6.42
11	0.0	22.6	20.0	17.9	11.6	10.6	6.3	3.7	3.4	1.5	2.1	10.7	+7.34
AVE	35.0	18.1	14.8	10.5	6.9	5.7	3.5	1.9	1.4	1.1	1.1	5.5	
	STRETCH 4												
12	25.8	14.9	20.9	21.5	10.8	3.4	0.7	0.7	0.6	0.6	0.1	2.0	+8.36
14	21.0	18.6	18.7	16.7	11.8	6.1	4.2	0.9	0.8	0.6	0.6	2.9	+9.18
AVE	23.4	16.7	19.8	19.1	11.3	4.7	2.5	0.8	0.7	0.6	0.4	2.5	+9.66

## A P P E N D I X

1. "Second Salmon Habitat Improvement Reconnaissance, Ketchikan Ranger District" - Bill Sheridan
2. "Salmon Stream Habitat Improvement - Ketchikan District - Marguerite Creek" - Gil Ziemer
3. Analysis data sheets
4. Size class percentages
5. Graph of percent of fines over the profile of the stream
6. Map of possible spawning grounds

Stretch 1 covers the stream from the falls to a cove at the mouth of the lake. The first 300 feet above the falls contains many small boulders and bedrock, being somewhat similar to the stream below the falls. While there might be some spawning in this part, it was not included as useful gravel except for one 150 foot gravel deposit. Above the cascades the gradient is 1/2 to 1%. The lake seems to stabilize the flow and there is less rise and fall of water, less bed load, and very little meandering, compared to the upper stretches. The rocks are covered with a brown algae and the water itself is dark. The sides are forested but grasses line the bank at the lake end. About 84% of the useful gravel is good gravel.

Stretch 2 covers the stream from the marshy head of the lake to just above a group of islands and sand bars. The gradient varies from less than 1/2 to 1-1/2% at the upper end. Only 33% of this stretch has good gravels.

There does not seem to be much channel changing. Several swift riffles and deep pools are found in the upper end.

Stretch 3 is the most promising. The stream straightens out with large riffle areas and a few pools. There is less variability and an increase in larger gravel up to 6" across. With 1-1/2 to 2% gradient, the flow is quite swift.

Stretch 4 shows a further increase in gradient. It has many larger rocks, and many log jams. Although it has good gravel, this portion of the stream can get pretty wild, with heavy bedload movement, debris, unstable banks, and channel changing.

#### SPAWNING AREAS (Square feet)

	Useful gravel (Always flooded)	less than 15% fines	Good spawn- ing gravel
Stretch 1	49,200	84%	41,300
Stretch 2	77,200	33%	25,500
Stretch 3	144,000	100%	144,000
Stretch 4	26,400	100%	<u>26,400</u>
TOTAL			237,200

The presence of a small run of coho in the lower stream suggests that it would not be necessary to make an original plant in the upper end.

The presence of pink salmon in the lower stream may be undesirable, however. Carl Rosier, Commercial Fisheries Biologist of the Alaska Department of Fish and Game, is familiar with this system. He has indicated that, in years of high escapement, crowding might push a considerable number of pinks into the

Two sources of siltation have been aggravated, however. Since the lake forms a very effective settling basin, borrow pits and gravel cleaning in side streams took place. This sent a considerable silt load into the main stream above the lake and also produced some unstable gravel pits. Returning plant cover will soon stop further sheet erosion, but the streams will have to reshape themselves into their original grooves before abnormal siltation stops. Recent observations suggest that the pits are stabilizing and the runoff from them has been noted to be quite clear, even during prolonged storms. It is felt that in the one year since gravel cleaning pits have been used, the main stream above the lake has started to clean itself of fines. The stream below the lake was not affected.

Erosion from slide areas above the cutovers finds its way into small side streams. These slow up and spread out when they pass into the lower colluvial slopes, dropping some of their silt load. Logging has cut down the ability of the hillside to trap and hold running soil, so a larger portion of the slide runoff finds its way into the bottom of the valley and the main stream. It will take many years before the tree cover changes this condition to its former state.

#### The Study

There has been thought of opening Marguerite Creek above the falls for several years.

On July 29, 1963, Bill Sheridan, Fisheries Biologist of the Forest Service Regional Office, Henry Hays, Eetchikan District Ranger, Harry Simpson of the South Tongass Supervisor's Office, and I visited the falls and part of the upstream area. Bill Sheridan's report is attached in the appendix.

Then on August 20, 1963, Mr. Gil Ziemer, Alaska Department of Fish and Game engineer, John Robertson, Forest Service engineer, and I studied the falls and cascades that form the migration barrier. Mr. Ziemer's report is attached in the appendix.

In September, I visited the Bureau of Commercial Fisheries camp at Traitors Cove and was instructed in the use of the gravel sampler. Later the sampler was borrowed from them for use in Marguerite creek.

It was apparent that the large area of the stream and the short time available would not permit as intensive a gravel sampling pattern as was taken in the Traitors River low flow channel. The following method was used:

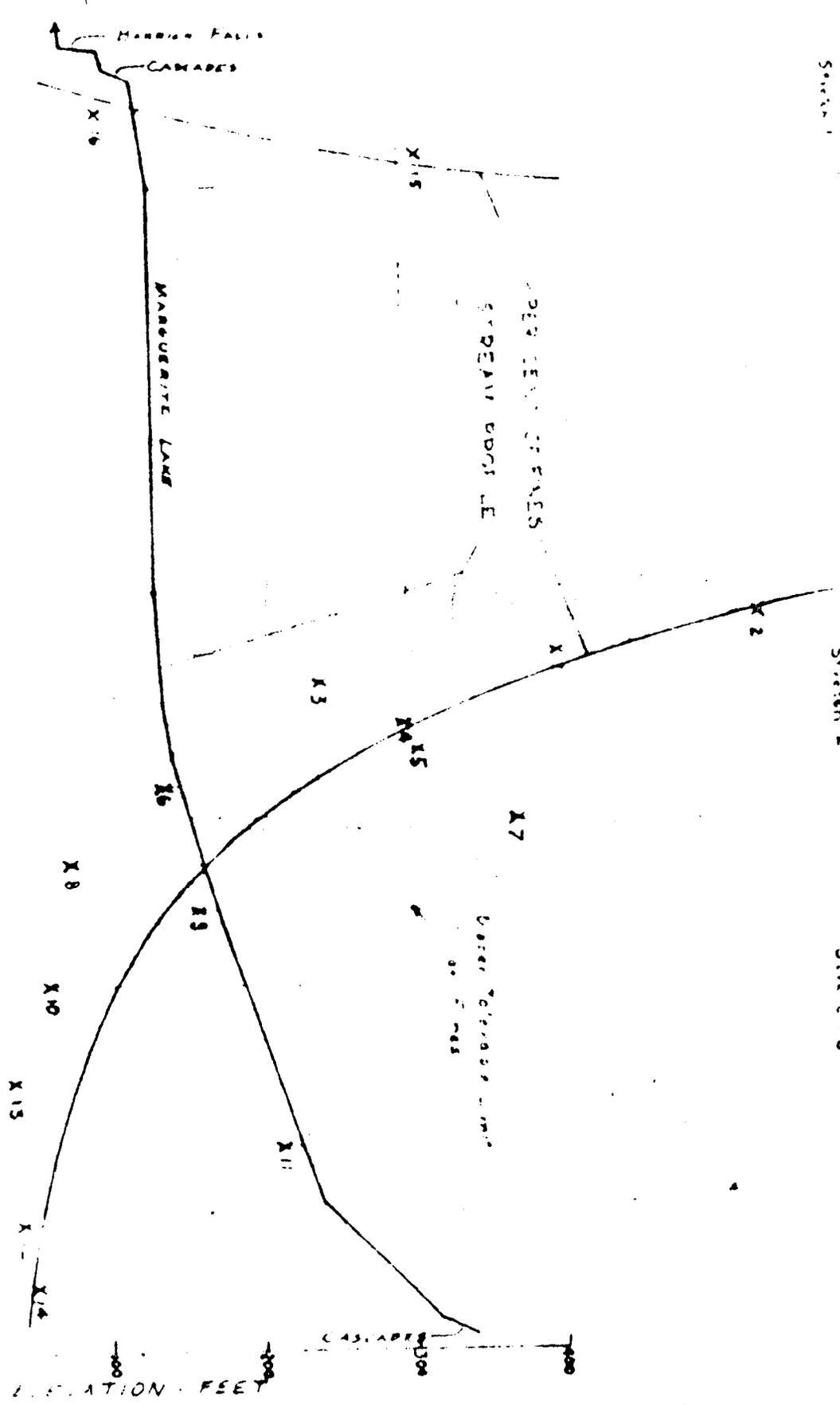
1. Using the logging plan map and aerial photos, the center line of the stream between the falls and the lake, and between the lake and upper cascades was drawn on convenient sized map sheets.

2. At low water flows I walked the stream, locating myself by stream bends, cutting boundaries, etc. At various selected places cross-sections

# Marguerite Creek - Profile & Per Cent of Fines

30F  
25-  
20-  
15-  
10-  
5-  
0-  
STATION 1  
STATION 2  
STATION 3  
STATION 4

PER CENT OF GRAVEL UNDER 0.850 MM.



0 1 2 3 4 5 6 7 8 9 10  
DISTANCE FROM LAKE - THOUSANDS OF FEET

ELEVATION - FEET  
300  
200  
100  
0

X16 - Same to point