

DEPARTMENT OF COMMERCE

BUREAU OF FISHERIES



Wrangell

December 24, 1930.

The Commissioner of Fisheries,
Washington, D. C.

The following report of general operations of the Bureau of Fisheries for the season of 1930, Wrangell District, Southeastern Alaska, is herewith respectfully submitted:

Fisheries Patrol and Inspection

The U.S.F.S. Anklet, Capt. Leo J. Collins, was detailed in the Wrangell District during the season of 1930, and toward the latter part of the season the U.S.F.S. Blue Wing, Capt. B. H. Moran. The chartered gas boats Lady Luck, Alsam, and Bear, were also used during the season, in addition to ten gas launches, averaging 30 feet in length, and three skiffs. The launches were owned and operated by patrol guards and used as living quarters while the men were engaged in the Bureau's service and assigned to the following sections:

Anan Creek.....	Walter J. Larson.....	30-ft. launch	✓
Barrie Creek, N.W.			
Arm Summer Strait.....	Peter Peterson.....	32-ft.	" ✓
Lake Bay and			
Kashevarof Passage.....	Frank Reed.....	32-ft.	" ✓
Petersburg Creek,			
Wrangell Narrows.....	Bert Tucker.....	30-ft.	" ✓
Totem Bay.....	Harry C. Cook.....	30-ft.	" ✓
Anita Bay, Conks and			
Pats Creeks.....	Louis L. Larson.....	28-ft.	" ✓
Stikine River Dist.....	John Sandman.....	32-ft.	" ✓
Salmon Bay.....	Clarence Langton.....	27-ft.	" ✓
Blind Slough,			
Wrangell Narrows.....	Harry P. Hope.....	30-ft.	" ✓
Thoms Place.....	Sam J. Bate.....	32-ft.	" ✓
Eagle Creek.....	Jack A. Kelley.....	Skiff	
Whale Passage.....	Chas. Nelson.....	Skiff and	
		outboard motor	
Olive Cove.....	Walter C. Campen.....	Skiff and	
		outboard motor.	

The Anklet was used in general supervision of the Bureau's activities. (During the season she was laid up for twelve days undergoing repairs.) From April 26 to November 1, she ran 5,592 nautical miles, made 146 visits to the 47 traps in the district, and 80 trips of inspection to the four salmon counting weirs, carrying mail and supplies, and obtaining general information and weekly weir reports.

The Blue Wing, detailed to the Wrangell District for fall patrol and stream inspection work, arrived in Wrangell August 28 and departed October 21. (From September 22 to October 15 she was laid up at Wrangell undergoing repairs and awaiting the arrival of engine parts.) Considering that the schedule of work which we had mapped out was so disrupted by her being laid up, because of the condition of her engine, practically half the time she was detailed in this district, considerable was accomplished in the way of the patrol of the Petersburg--Wrangell Narrows section and in stream inspection work. Capt. Moran and the crew showed a fine spirit and a willingness at all times to cooperate in the work, and the boat was put in running order as soon as possible.

The Lady Luck, (32'6") Capt. T. J. McBride, was engaged principally in assisting Dr. Frederick A. Davidson with work between Olive Cove stream and Anan Creek weirs, and in transporting mail and supplies. Her patrol covered the Eastern Passage, Blake Channel, Bradfield Canal, Zimovia Strait, and Ernest Sound, also traps in Southern Ernest Sound, between Sunny Bay and Emerald Bay on Bronson Island and Anslow Island. (During the season she made 20 trap visits.) The Lady Luck was under charter from July 16 to September 5, incl., (52 days @ \$15. per day, \$780.) during which time she covered 2,534 miles.

The Alsam, 32') (operated by Bureau's representative, DeLos V. Batten, engineer of the Anklet, while the Anklet was laid up for repairs) was used as a service boat for Dr. Davidson between Olive Cove, Anan Creek, and Wrangell. She was under charter from July 5 to 9 incl., (5 days @ \$7.50 per day, \$37.50) during which time she ran 218.5 miles.

The Bear, (36') Capt. C. F. Hurley, was chartered for making emergency trips only, as exigencies of the service arose. She made two visits to Anan Creek, one to Olive Cove, and one trap visit.

Trips were made to the salmon counting weirs by the patrol boats, as follows:

	<u>Anan Creek</u>	<u>Olive Cove</u>	<u>Whale Passage</u>	<u>Eagle Creek</u>	<u>Total</u>
AUKLET	17	25	20	18	80
LADY LUCK	25	17	1	0	43
ALSAM	3	3	0	0	6
BEAR	2	1	0	0	3
ROUGHRI DER*	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>2</u>
	48	47	21	18	134

(*Complimentary Wrangell Packing Corp.)

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S A L M O N

TOTAL PACK, SEASON OF 1930.

(Basis 1-lb. cans, 48 cans)
(to case.)

	<u>King</u>	<u>Red</u>	<u>Pink</u>	<u>Chum</u>	<u>Coho</u>	<u>Steel- head</u>	<u>T o t a l</u>
THE NAKAT PKG. CORP.	0	2,258	46,432	2,242	1,300		52,232
Columbia Riv. Pkrs. Assn.	46	2,168	25,915	4,370	2,712		35,211
Alaska Pacific Fisheries	0	1,380	18,599	1,515	932		22,426
Wrangell Narrows Pkg. Co.	16	1,461	18,487	4,270	424		24,658
Petersburg Pkg. Co. (PAF)	0	4,181	82,732	13,343	5,519		105,775
Wrangell Pkg. Corp.	0	1,722	12,923	2,030	3,481		20,156
Diamond "K" Pkg. Co.	0	2,208	13,903	2,117	5,672	122	24,022
	62	15,378	218,991	29,887	20,040	122	284,480

One new operator, H. L. Morris, of Wrangell, has been experimenting this season in a pack of kippered salmon put up in 1-2 lb. flats, 48 cans to case, valued at \$9. per case. He has been conducting his operations in the old smoking and packing room formerly leased and held by the Glacier Sea Foods Company, on the approach to the McCormack dock. His pack is as follows:

90 Cans. $\frac{1}{2}$ -lb. flats	Coho
6 "	White King
3 "	Red King
<u>66</u> "	<u>Steelhead</u>

Total: 165

SALMON BY-PRODUCTS

The Petersburg By-Products Company,
 Wrangell, Alaska.
Paul Owens, Mgr.

190 50-gal. bbls. oil, 9,500 gals. @ .33 per gal.....	\$ 3,135.00
201 tons meal @ \$64. per ton.....	<u>12,864.00</u>
	\$ 15,999.00

T. R O U T

(Dolly Varden or Salmon Trout)

Fresh Shipped

Trout fishing was carried on commercially before the salmon made their appearance in the stream. Seines were used principally, and the fish were taken in Farragut River, Lake Bay, Ideal Cove, Red Bay, Duncan Canal, and Portage Bay, and delivered to the Alaska Glacier Sea Food Company, at Petersburg, Alaska.

Trout Caught.....	33,850 lbs.
Value (Amount paid fishermen).....	\$4,794.10

(S t e e l h e a d)

Fresh Shipped

During the season, approximately 10,375 pounds of steelheads were delivered to the Alaska Glacier Sea Food Company, valued at \$1,279.64. These fish were taken with seines and gill nets during the commercial fishing season.

FLOUNDERS and SABLEFISH

The Alaska Glacier Sea Food Company took flounders for mink food on Petersburg Creek Flats, Wrangell Narrows, and outside Stikine Flats. In all 315,000 pounds were taken, valued at \$7,875. (Of this amount 245,000 pounds were used fresh and 70,000 pounds were placed in cold storage.) Five hundred and seventy five pounds of fresh sablefish were also purchased, valued at \$17.25. The utilization of these cheap ground fish for mink food, and in some cases for fox food, should be encouraged, as no other commercial market has been established. Flounders have proved to be one of the best well-balanced foods for mink.

S H R I M P

The Reliance Shrimp Company, of Wrangell, and the Alaska Glacier Sea Food Company, of Petersburg, conducted shrimp operations during this season.

<u>Company</u>	No.lbs. <u>Fresh Shell Shrimp</u>	No.lbs. <u>Raw Shrimp Caught</u>	No.lbs. <u>Shrimp Meat Shipped</u>	<u>Value</u>
Reliance Shrimp Co., Wrangell	0	300,000	75,000	\$ 30,000.00
Alaska Glacier Sea Food Co., Petersburg	2,870	2,467,000	435,956	180,502.25
	<u>2,870</u>	<u>2,767,000</u>	<u>510,956</u>	<u>\$210,512.25</u>

Grounds Fished:

Reliance Shrimp Company fished Wrangell and the surrounding islands.
Kind of gear: 1-beam trawl.

Alaska Glacier Sea Food Company fished Summer Strait, particularly
Upper Summer Strait, Wrangell Narrows, Frederick Sound, Farragut Bay,
Duncan Canal.

C R A B S

Crab operations were carried on by the Northern Sea Food Company for
Alaska Glacier Sea Food Company, of Petersburg, fishing Frederick Sound,
Wrangell Narrows, Summer Strait, Duncan Canal, and Stikine Flats.

Raw crabs caught.....343,000 lbs.
Picked crab meat shipped..... 53,545 "
Value of crab meat shipped.....\$23,889.80
Fresh crabs shipped.....332 dozen
Value fresh crabs shipped.....\$664.00

C L A M S

Clam packing operations were undertaken this fall by Mr. Earl N. Ohmer,
Alaska Glacier Sea Food Company, and carried on alongside the company's
dock in a floating cannery formerly used by them for shrimp packing. Mr.
Ohmer undertook this work more as an experiment, with the idea of developing

the industry if it proved profitable, and also to give employment to Petersburg people of his organization. Butter clam digging operations were begun the first part of October, and the first delivery to the plant was made October 13. The clams were taken in the Pt. Baker vicinity and south to Port Protection and Labouchere Bay.

<u>No. Cs.</u> <u>Clams</u> 1-lb. talls (48 cans per case)	<u>Value</u>	<u>No. Cs.</u> <u>Clam Juice</u> 1-lb. talls (6 cans per case)	<u>Value</u>
523	\$3,600.	3	\$9.

COMPLAINTS and PROSECUTIONS

Four violations of the Alaska Fisheries Laws and Regulations in the Wrangell District were brought up and tried before the local U. S. Commissioner. In each case the defendants entered a plea of guilty, and fines ranging from \$200. to \$500. were imposed. Checks for the proceeds of sale of salmon seized at the time of arrest were made out in favor of the Clerk of the Court, First Division, and turned over to the Commissioner and this office.

Salmon Counting WeirsAnan Creek

From May 17 to 21 was spent in carrying lumber and material from Anan Lagoon to the Anan weir location, a distance of about three-quarters of a mile, and in improving the trail and making stone boat and horses. The actual construction of the weir was begun on May 22 and was completed June 7. The stage of the water was unfavorable during the entire time of construction, the water being from 10" to 6 ft. above normal. Heavy rains fell 14 days during the period from May 22 to June 10.

The first fish appeared at the weir June 8, one steelhead, and the first humpback salmon was counted through June 12, two days earlier than last year. The run steadily increased until July 9, when a heavy run appeared. The peak of the humpback run was on from July 10 to July 20, incl., when 249,825 humpbacks were counted through. After July 21 the run gradually decreased, except for occasional spurts, until September 7, when the last fish were counted through the gates and the dismantling of the weir was begun.

Total count of fish by species at Anan Creek for the season of 1930 is as follows:

Reds.....	20
Kings.....	57
Humpbacks....	563,942
Cohos.....	1,087
Chums.....	65
Steelheads...	<u>307</u>
	565,478

Altogether there were ten men employed at Anan Creek during the season, Walter J. Larson being in charge of operations at the weir.

Anan experienced an exceptionally good run of fish, probably the heaviest for seven years, and a serious condition arose on account of the fish not being able to ascend the second falls about 500 yards above the weir. This was noticeable from July 10 to about the 20th, but from the 25th on it became increasingly serious. The falls killed many fish and many more were suffocated in the deep hole below the second falls. The first falls below the weir consist of a series of five falls that run from two to six feet. Under ordinary water stages three fish out of every five will fall back and make several attempts before finally ascending this series. There are only small shallow resting places within this area, and many of the fish are worn-out before reaching the main upper falls above the weir,--many are even suffocated and killed at the lower falls. Here at the lower falls, for a distance of approximately 200 yards, the stream will average about 100 feet in width. The

second falls are formed between rock hill bluffs,--large boulders--between which the water rushes at from 7 to 10 miles an hour, according to the stage of the water, an average width of approximately 12 feet. The stream above these so-called main upper falls will probably average 80 feet wide, with occasional sand and gravel bars, a distance of about 3 miles.

On August 6 we began construction of a dam about 65 feet below the upper falls. By August 10 the dam was completed and the water level below the falls was raised about two feet, which formed a good deep pond of sluggish water, breaking the swift current rushing from the falls and canyon, and thereby affording a good resting place for the fish and breaking the first climb of the main falls. This greatly facilitated their ascent of the first and second drop of the lower part of the falls. However, they still experienced difficulty in getting over the upper part, which, in my opinion, is the most difficult place for the fish to make. Here three currents converge into a small pool with jagged pinnacle bottom. The rushing of the water into this pool causes light broken air water from there on down.

(Note: A separate report of recommendations for improvement of Anan Creek, accompanied by pictures, is now being prepared.

Olive Cove

The Olive Cove weir was established at approximately the same site as in 1929. On June 6 trail-clearing and transporting of material from the head of the bay to the weir site was begun. Actual installation of the weir was started June 13 and completed June 25. At the time the weir was under construction, a special pen 15'x32' was also being built to hold throughout the season approximately 800 fish, which composed the first part of the run, the fish to be held in this pen to make a scientific study of the characteristics of the early fish and the manner in which they change structure during the process of maturing. This experiment is being conducted by Dr. Frederick A. Davidson and will probably form the basis of his future work on pink salmon in Alaska. A 12'x16' cabin, with an enclosed lean-to porch, to be used by Dr. Davidson in his scientific work, was also being erected while the weir and pen were under construction. All general building and improvement work was completed on June 25.

Olive Cove stream between the weir and the bay waters is most ideal for ascending salmon. There are several large pools and one very favorable place between the weir and falls where the water will average about 18 inches in depth during low water stages, supplying ample space for the fish before passing the weir and ascending the stream. A few salmon were noted below the falls on July 2. On the 10th there appeared to be about 1,000 fish below the

falls but they seemed to be in no hurry to ascend further upstream. The first count of salmon was on July 13, when 4,848 salmon were counted by the gates, 688 of which were held in the pen. The peak of the run materialized in the 7-day period from July 25 to 31, incl., when 47,627 humpbacks were counted through the gates.

The escapement for the season by actual count was as follows:

Humpbacks.....	134,073
Cohos.....	38
Chums.....	162

134,273

While counting was discontinued on August 16, the weir was kept in until September 23 for scientific reasons before dismantling was undertaken. A conservative estimate of the number of pinks between the weir and below the falls together with the actual count through August 16, places the total escapement of pinks at not less than 150,000. Walter Campen was in charge of operations at this weir.

Whale Passage

From June 8 to 20th considerable was accomplished in the way of clearing log jams from the Whale Passage Creek, especially in the vicinity of the weir site, trail making, and rifferaffing the creek shores. The actual installation of the weir was commenced on June 18, and this was completed on June 30, under the supervision of Chas. Nelson. A few days after beginning work on the weir, the construction of a 10'x14" cabin for the accommodation of men employed at the weir was begun. Work was done on the cabin when high water and other adverse weather conditions made weir construction impracticable. This cabin was completed on July 12.

The first count was made on July 20, when 38 cohos passed through the gates; the first showing of pinks occurred on August 14, when 278 were counted through. There was a good showing from August 24 to 29th, caused by a small freshet, but for the most part dry spells and low water prevailed during the greater part of August and until September 12, which held the fish out in the deep Sound waters. From September 1 on, low water was responsible for the smothering of many fish in the little pools in the weir stream. The peak of the run occurred between September 14 to 22, incl., during which period a total of 184,429 fish passed through the gates, there being 179,750 pinks, 1,155 cohos, and 3,524 chums. The last count was made on October 4, and the following day dismantling of the weir was begun.

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Total count for the season at Whale Passage Weir is as follows:

Humpbacks.....	420,613
Cohos.....	8,392
Chums.....	7,638

436,643

A conservative estimate of the fish spawning in the area below the weir one mile to salt water, in addition to the above total count, follows:

Humpbacks.....	100,000
Cohos.....	8,000
Chums.....	11,000

Eagle Creek

From June 17 to 30th, the trail from the Eagle Creek weir site to the salt-water landing was improved, and log jams in the creek just above and below the weir were removed. The construction of the weir was begun on June 19 and was completed on the morning of June 24. During slack periods, Jack Kelley, again in charge of operations at this weir, salvaged lumber and material from an abandoned trap-watchman shack, and constructed a very substantial 12'x16' cabin on a high, well-protected location near the beach, for the accommodation of extra employees who might be detailed to work at the weir for short periods.

The first fish were counted through the weir June 25,--five reds. The peak of the red run appeared between July 23 and July 25, and the run of this species was practically over September 6. On July 23, seventeen chums, the first of this species, passed through the gates. Cohos began on August 4, when nine were counted through. The pink run commenced on August 13, when 17 entered the gates, but did not appear in any number until August 21. The peak of the run came in the period from September 14 to 20, when 105,000 pinks, 3,621 cohos, 10,706 chums, and 8 reds were counted through the weir.

After September 22, the run gradually decreased until October 1, when high water submerged the weir and made further counting operations practically impossible, and the weir structure was removed on October 5.

The total count of salmon through the Eagle Creek weir for the season numbered:

Reds.....	6,373
Humpbacks.....	233,992
Cohos.....	6,590
Chums.....	23,328

370,283

After careful observation, a conservative estimate of the number of salmon passing upstream during the time the weir was submerged and after it was discontinued, together with the actual count through October 1, places the total escapement at not less than 293,992 pinks, 7,590 cohos, 30,328 chums, and 6,373 reds.

RUNS AND ESCAPEMENT OF SALMON

Summer Strait District The escapement into all the streams on the southeast shore of Kuiu Island from Cape Decision to Alvin Bay was considered adequate, while the streams in the Northwest arm of Summer Strait north to Alvin Bay, to and including the South part of Keku Strait south to Point Barrie, experienced a heavy run and escapement. It is estimated that 800,000 fish spawned in this section, which includes the following waters,--Unnamed Bay, Seclusion Harbor, streams, three-Mile Arm streams, Mission Creek, Loveless River, and Barrie Creek.

The run in Totem Bay was considered good, while the escapement into Douglas Bay, Kah Sheets Bay, Red Bay, and Duncan Canal was only fair.

The run in Wrangell Narrows, including Petersburg Creek, Blind River, and Colorado Creek, was good,--probably 15% better than last year.

Clarence Strait The run and escapement on the east shore of Prince of Wales Island, including Salmon Bay, Exchange Cove, Whale Passage, Lake Bay, and Eagle Creek, was very good. The bulk of the run was late, making its appearance after the commercial season, between August 20 and September 20.

The streams tributary to Lake Bay and the head of Whale Passage experienced the heaviest run in this section. Probably 700,000 fish entered these streams in the Lake Bay Section.

The escapement in all streams on the west shore of Etolin Island was good. However, fish did not appear on this coast in numbers until after the close of the commercial fishing season.

Ernest Sound and Bradfield Canal (McHenry Inlet)...All the streams in Ernest Sound were well seeded and the escapement in general was considered better than in previous years, with the exception of Memefee Inlet stream, which was only fair.

Bradfield Canal streams, with the exception of Anan Creek--which had a heavy run--experienced only ordinary runs.

The streams in Eastern Passage and Blake Channel had only a fair run and escapement, with the exception of Crittenden Creek, which was well seeded.

The escapement of both kings and reds into Stikine River, taking into consideration the concensus of opinion all up and down the river, was looked upon as the best since 1924. All of the upper tributaries were reported to be well seeded with both red and king salmon, and also humps were reported in good numbers in the lower tributaries.

Generally speaking, the run of salmon in the Wrangell District was good. From the best information the writer has available, the red, pink, and chum runs were from five to fifteen days later on schedule than in former years, with the exception of certain sections.

Pinks appeared about true to schedule in Zimovia Strait, the northern part of Ernest Sound and Bradfield Canal. The seines made fairly good catches in Pt. Ward vicinity from July 15 to August 10.

The red run and escapement was generally conceded to be from 50% to 75% better than last year.

(Note: An itemized summary of runs and)
(escapement was sent in during October.)

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Personnel Wrangell District, Season 1930

<u>Name</u>	<u>Place</u>	<u>No. Days</u>	<u>Rate</u>	<u>Total</u>
Walter J. Larson.....	Anan Creek.....	127	\$7.	\$ 889.
Jas. H. Hall.....	do.	2	7.	14.
Wm. J. Smith.....	do.	66	6.	396.
John Guenther.....	do.	66	6.	396.
Matt Lani.....	do.	10	6.	60.
Jas. F. Lovett.....	do.	6	7.	42.
Richard J. Suratt....	do.	4	7.	28.
Jas. F. Clark.....	do.	12	7.	84.
Carl Lund.....	do.	10	7.	70.
Jack A. Kelley.....	do.	24	6.	144.
do.	Eagle Creek.....	113	7.	791.
Wm. C. Lawrence.....	Anan Creek, Eagle Cr., and Whale Passage.....	112	6.	672.
Chas. Nelson.....	Whale Passage.....	115	7.	805.
Rudolph W. Hack.....	do.	70	6.	420.
Frederick E. Edmonds.	do.	15	6.	90.
Jack Pratt.....	do.	17	6.	102.
Frank Reed.....	Whale Passage and Lake Bay	71	7.	497.
Walter C. Campen.....	Olive Cove.....	113	7.	791.
Wm. C. Campen.....	do.	19	6.	114.
Joseph P. Donovan....	do.	72	6.	432.
Nathaniel E. Blair...	do.	9	6.	54.
Carl Anderson.....	do.	6	7.	42.
Louis L. Larson.....	Anita Bay, Conks Creek..	52	7.	364.
Harry C. Cook.....	Totem Bay.....	49	7.	343.
Bert Tucker.....	Petersburg Creek, Wrangell Narrows.....	44	7.	308.
John Sandman.....	Stikine River.....	113	7.	791.
Peter Peterson.....	Barrie Creek, Seclusion Harbor, and Ernest Sound	60	7.	420.
Clarence Langton.....	Salmon Bay.....	58	7.	406.
Harry P. Hope.....	Blind Slough, Wrangell Narrows.....	57	7.	399.
Sam J. Bate.....	Thoms Place.....	58	7.	406.
		1,550		\$10,370.

Stream Improvement

Stream clearing work in the Wrangell District, in conjunction with the Territory of Alaska, was undertaken as follows this season:

Log Jam Falls On May 19, Frank Reed, accompanied by Frederick E. Edmonds, left Wrangell for Log Jam Falls, on Log Jam Creek, reached through Barnes Lake. Fallen logs had become lodged together so compactly as to render the falls impassable to salmon. Staging was erected at the falls preparatory to discharging dynamite. Three shots were fired, and on May 26 the falls were clear for the ascent of salmon. The next day a very careful survey was made of the channel of Log Jam Creek, and it was found to be clear.

Hatchery Creek On May 28, Reed and Edmonds began an inspection of Hatchery Creek for obstructions. While some small jams and barriers were observed, nothing was seen which would seriously impede the passage of fish.

Cannery Creek (Burnett Inlet) Early in the morning of May 27, Peter Peterson, with Martin O. Taford, as assistant, left Wrangell for Burnett Inlet, to do rock blasting on the creek there (locally known as Cannery Creek), which creek enters from the east about one mile inside entrance to inlet and opposite cannery. The falls are about 100 yards above high tidewater and have a drop of about 8 ft. There are rapids between falls and tidewater. The creek above falls appears to be ideal salmon spawning grounds. It was planned to make the improvement on the southerly side of the falls, and it was felt the work would not be difficult unless the water was very high. At that time the creek was flowing about 80 sec. ft., although marks along the edges of the creek showed that at times the creek was much higher. The men blazed a trail and explored the creek for about a mile above mouth. Found several wind-felled logs across creek, none of which would prevent escapement of salmon. Further exploring and surveying of Cannery Creek on June 1, gave about $1\frac{3}{4}$ miles of salmon spawning grounds above the falls near tidewater. Higher up the creek becomes gorgelike and rocky, with high falls over which salmon cannot ascend. Above series of falls in gorge, creek is quiet again a short distance to a 30- or 40-ft. falls, above which no exploring was done. (Any improvement in gorge or above was considered impracticable.) On June 2, work was done at the falls of Cannery Creek, preliminary to rock work. On June 6, rock drilling and blasting was begun on the creek. By June 10, the incessant rain had raised the water in creek to about 750 sec. ft., making rock work most difficult. Creek was wing-dammed above work, which helped somewhat. By June 16, the improvement was completed, a cut or trench--about 80 feet in length along the bend and from 3 to 6 feet wide--having been blasted out on the southerly side of the 8-foot falls near tidewater. The average grade of the rock cut or channel around the falls is about 10%. This cut in the falls is a very fine piece of work and is of material assistance to the fish, a good escapement having been experienced here this season.

The following creeks were also explored, and, where log barriers or other

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obstructions were observed, they were removed:

McHenry Inlet Two creeks at the head of McHenry Inlet,--the creek from the NW a red salmon stream. On May 30, some partial log barriers were removed from the red salmon creek and on the same day the large old beaver dam at the head of this stream was completely removed, which removal was begun last season but was not finished at that time. On June 17, submerged sills,--the remains of old hatchery dams--and some other logs that could not be cut out with axe and saw, were blasted out. On May 30 and 31st, some of the windfalls in the stream which enters McHenry Inlet from the east, were removed.

Mosman Inlet Two creeks at the head of Mosman Inlet.

Etolin Island The red salmon creek at the south end of Etolin Island in Narrows, opposite Stone Island.

Canoe Pass The salmon creek near northerly entrance to Canoe Pass. Here a log barrier was removed with dynamite.

Black Bear Creek Later in the season Peter Peterson was again engaged to do stream clearing work, this time with Emil Hegdal, as assistant. On the morning of September 21, stream clearing work was begun on Black Bear Creek. Some log obstructions in the creek below the forks were removed, and a log jam in east fork about two miles from mouth, and some other log obstructions in east fork were removed. On September 24, clearing work was begun on the south fork of Black Bear Creek. Log obstructions were removed and the south fork cleared to about four miles from mouth.

Vixen Harbor On the afternoon of September 27 the men began work in a Vixen Harbor salmon stream, which stream is about one mile easterly from Union Point. Several log barriers were removed and clearing work continued until the creek became too high to work to advantage.

There was expended in this work a total of \$743.05, of which \$657.00 was for labor and \$86.05 was for material.


Assistant Agent.