DEPARTMENT OF FISHERIES

ANNUAL REPORT

ON

FISH CULTURE

1934

OTTAWA
J. O. PATENAUDE, I.S.O.
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1935

FISH CULTURE

ANNUAL REPORT BY J. A. RODD, DIRECTOR

The fish cultural operations of the Department of Fisheries are confined to those provinces in which it administers the fisheries in whole or in part, viz., Nova Scotia, New Brunswick, Prince Edward Island and British Columbia. The hatcheries located in the National Parks in Alberta are also directed by the Department of Fisheries but at the expense of the National Parks branch, Department of the Interior.

The total distribution from the hatcheries operated by this department in 1934 was 89,261,999. The numbers of each species which were distributed were:—

STATEMENT BY SPECIES, OF THE FISH AND FISH EGGS DISTRIBUTED FROM THE HATCHERIES DURING THE YEAR ENDED DECEMBER 31, 1934

Species	Green eggs	Eyed eggs	Fry	Advanced fry	Fingerlings	Yearlings and Older	Total distribution
Salmo salar—Atlantic salmon	36,076	1,300	1,555,739	1,151,582	10,384,061	435	13,129,193
Salmo salar sebago—Landlocked salmon	6,000	.....	.....	.....	80,049	.....	86,049
Salmo irideus—Rainbow trout	.....	.....	363,069	270,500	1,122,957	62,601	1,819,127
Salmo clarkii—Cutthroat trout	.....	.....	412,986	180,000	1,343,804	125	1,936,915
Salmo rivularis—Steelhead salmon	.....	2,828	109,880	.....	122,903	.....	235,611
Salmo rivularis kamloops—Kamloops trout	100,000	4,212,988	2,485,828	.....	790	.....	6,799,606
Salmo levenensis—Loch Leven trout	.....	200	.....	254,975	13,647	4	268,826
Salmo fario—Brown trout	.....	.....	170,000	100,000	376,017	.....	646,017
Salmo fario—Hybrid brown trout (Brown trout—Atlantic salmon)	.....	.....	.....	.....	.....	71	71
Salmo fario—Albino brown trout	.....	.....	.....	.....	.....	6	6
Oncorhynchus nerka—Sockeye salmon	231,940	16,547,706	31,576,745	1,494,549	2,951,863	.....	52,802,803
Oncorhynchus tschawytscha—Spring salmon	.....	524,265	798,060	.....	299,062	.....	1,621,387
Oncorhynchus kennerlyi—Kennerly's salmon	.....	200,000	637,498	.....	.....	.....	837,498
Oncorhynchus kisutch—Coho Salmon	.....	525,000	454,960	.....	.....	.....	979,960
Salvelinus fontinalis—Speckled trout	32,200	80,500	583,746	1,752,455	5,465,433	90,942	8,005,276
Cristivomer namaycush—Salmon trout	.....	.....	.....	93,190	464	.....	93,654
	406,216	22,094,787	39,148,511	5,297,251	22,161,050	154,184	89,261,999

In addition to the above 255,000 cutthroat trout eyed eggs were purchased from the Cranbrook Rod and Gun Club, and planted direct as follows:—

Davis lake	30,000
Fording river (Natal district)	50,000
Goat river (Creston district)	50,000
Hatzic lake	35,000
Nicomekl river	30,000
Serpentine river	30,000
Salmon river	30,000
	255,000

Inspections were continued with a view to locating waters where fish eggs might be obtained in sufficient quantities to warrant the establishing of collecting camps and also with a view to locating sites where the Fish Culture Service might be extended advantageously to districts that are not readily accessible from existing hatcheries.

Experiments with equipment, methods and foods of various kinds were continued at several hatcheries. The experiments and the investigations in relation to fish cultural problems that were made by the Biological Board of Canada are referred to in Appendix No. 2 of the Report of the Department of Fisheries for 1934-35.

The Fish Cultural Branch participated with units showing hatchery products and equipment in exhibits that were made at Yarmouth, Nova Scotia, Saint John, Saint Stephen and Fredericton, New Brunswick.

Some 15,755 suckers, approximately 9·8 tons in weight were destroyed in thoroughfare between First and Second lakes, Loch Lomond and in Wilmot stream, which flows into Loch Lomond near Saint John, New Brunswick. Some 12,215 coarse fish (squawfish, suckers, carp, etc.) were also destroyed in Blue lake (Princeton area), Boyce's slough (Kelowna district), Okanagan control dam and lake, and Duck lake (Kelowna district), in British Columbia.

Twenty-four main hatcheries, eleven subsidiary hatcheries, nine salmon retaining ponds and several egg-collecting stations were operated in 1934. The output from these establishments was as follows:—

THE FOLLOWING TABLE SHOWS THE HATCHERIES OPERATED, THEIR LOCATION, DATE OF ESTABLISHMENT, THE SPECIES AND THE NUMBER OF EACH SPECIES DISTRIBUTED FROM EACH HATCHERY DURING 1934

Established	Hatchery	Location	Species	Green eggs	Eyed eggs	Fry	Advanced fry	Fingerlings	Yearlings and older	Total distribution by species	Total distribution by hatcheries
1929	Antigonish	Fraser's Mills, N.S.	Atlantic salmon				100,000	1,288,228		1,388,228	
			Rainbow trout					92,198	114	92,312	
			Speckled trout					1,461,770	12,204	1,473,974	2,954,514
1876	Bedford	Bedford, N.S.	Atlantic salmon	(e) 5,500	300			997,580		1,003,380	
			Landlocked salmon					40,000		40,000	
			Loch Leven trout		200		254,975			255,175	
			Speckled trout		(e) 500	300		845,735		846,535	2,145,090
1912	Lindloff (a)	St. Peters, N.S.	Atlantic salmon				182,832	252,125		434,957	
			Rainbow trout					124,519		124,519	
			Speckled trout					63,129		63,129	622,605
1902	Margaree	N. E. Margaree, N.S.	Atlantic salmon				224,000	1,581,258		1,805,258	
			Speckled trout					108,796	720	109,516	1,914,774
1913	Middleton	Middleton, Annapolis Co., N.S.	Atlantic salmon					976,700		976,700	
			Speckled trout					731,000	296	731,296	1,707,996
1933	Nictaux Falls (d)	Nictaux Falls, N.S.	Atlantic salmon					61,000		61,000	
			Speckled trout					6,100		6,100	67,100
1929	Yarmouth	South Ohio, N.S.	Atlantic salmon					498,878	435	499,313	
			Rainbow trout					108,500	62,174	170,674	
			Speckled trout					553,800	75,602	629,402	1,239,389
1925	Chamcook lakes (b)	Charlotte Co., N.B.	Landlocked salmon	(e) 6,000						6,000	6,000
1928	Florenceville	Florenceville, N.B.	Atlantic salmon				60,000	1,048,000		1,108,000	
			Speckled trout				390,000	514,537		904,537	2,012,537
1880	Grand Falls	Grand Falls, N.B.	Atlantic salmon					1,182,135		1,182,135	
			Speckled trout			228,958	750,000	148,413		1,127,371	2,309,506
1915	Tobique (a)	Plaster Rock, N.B.	Atlantic salmon			185,000				185,000	185,000
1874	Miramichi	South Esk, N.B.	Atlantic salmon				80,000	1,547,859		1,627,859	
			Speckled trout				74,000	73,802		147,802	1,775,661
1874	Restigouche	Flatlands, N.B.	Atlantic salmon			998,912	250	98,472		1,097,634	
			Speckled trout			139,047				139,047	1,236,681
1914	Nipisiguit (a)	Bathurst Mines, N.B.	Atlantic salmon			371,827				371,827	371,827
1914	St. John	Saint John, N.B.	Atlantic salmon		1,000		210,000	151,600		362,600	
			Brown trout, albinos						6	6	
			Brown trout, hybrids						71	71	
			Landlocked salmon					40,049		40,049	
			Loch Leven trout						4	4	
			Rainbow trout						278	278	
			Speckled trout	(e) 32,200		40,000		443,635	2,108	517,943	920,951
1914	St. John Salmon Pond	Saint John, N.B.	Atlantic salmon	(e) 30,576						30,576	30,576
1906	Kelly's Pond	Southport, P.E.I.	Atlantic salmon				294,500	680,835		975,335	
			Speckled trout				173,000	489,818		662,818	1,638,153
1914	Banff	Banff, Alberta	Brown trout				100,000	373,200		473,200	
			Cutthroat trout					1,120,425		1,120,425	
			Kamloops trout		94,690					94,690	
			Rainbow trout				10,000	530,340		540,340	
			Salmon trout				93,190	464		93,654	
			Speckled trout				365,455	24,898	12	390,365	2,712,674

1928	Jasper Park *(a)*	Jasper, Alberta	Cutthroat trout				178,600				178,600		
			Kamloops trout				95,646				95,646		
			Rainbow trout				333,069				333,069	607,315	
1928	Waterton lakes	Twin Butte, Alberta	Cutthroat trout					180,000	211,630	125	391,755		
			Rainbow trout				30,000	260,500	267,400	35	557,935	949,690	
1916	Cultus lake	Vedder Crossing, B.C.	Cutthroat trout				91,526		11,749		103,275		
			Kamloops trout		30,000		54,055				84,055		
			Sockeye salmon	*(e)* 51,940	3,847,376						3,899,316		
			Steelhead salmon						122,903		122,903	4,209,549	
1927	Smiths Falls	Vedder Crossing, B.C.	Sockeye salmon						99,343		99,343	99,343	
1906	Pemberton	Owl Creek, B.C.	Kamloops trout		359,000		51,000				410,000		
			Sockeye salmon				9,977,655				9,977,655	10,387,655	
1917	Pitt lake	Alvin, B.C.	Kamloops trout				48,510				48,510		
			Sockeye salmon	*(e)* 150,000	*(e)* 2,920,000		2,058,850		149,930		5,278,780	5,327,290	
1903	Lakelse lake	Lakelse lake, via Terrace, B.C.	Sockeye salmon				6,048,150		800		6,048,950	6,048,950	
1908	Babine lake	Babine lake, via Topley, B.C.	Sockeye salmon				2,412,518		998,694		3,411,212	3,411,212	
1906	Rivers Inlet	Rivers Inlet, B.C.	Sockeye salmon		9,780,330		8,169,123				17,949,453		
			Spring salmon				250,121		57,620		307,741		
			Steelhead salmon		2,828						2,828	18,260,022	
1911	Anderson lake	Kildonan, B.C.	Sockeye salmon				2,910,449				2,910,449		
			Spring salmon				188,364		24,582		212,946	3,123,395	
1933	Sproat river *(c)*	Sproat river, B.C.	Spring salmon		449,265						449,265	449,265	
1911	Cowichan lake	Lake Cowichan, B.C.	Atlantic salmon						19,391		19,391		
			Brown trout				170,000		2,817		172,817		
			Coho salmon		525,000		454,960				979,960		
			Cutthroat trout				142,860				142,860		
			Kamloops trout		231,000		88,920				319,920		
			Loch Leven trout						13,647		13,647		
			Spring salmon		75,000		359,575		216,860		651,435		
			Steelhead salmon				109,880				109,880	2,439,910	
1911	Kennedy lake	Tofino, B.C.	Sockeye salmon	*(e)* 30,000				1,494,549	1,703,096		3,227,645	3,227,645	
1933	Beaver lake *(a)*	Kelowna, B.C.	Kamloops trout		520,000		169,121				689,121	689,121	
1922	Lloyd's creek *(a)*	Kamloops, B.C.	Kamloops trout	20,000	803,433		689,564				1,512,997	1,512,997	
1931	Fish lake *(b)*	Fish lake, B.C.	Kamloops trout	*(e)* 80,000							80,000	80,000	
1934	Argenta *(a)*	Argenta, B.C.	Kamloops trout				377,900				377,900	377,900	
1923	Nelson	Nelson, B.C.	Kamloops trout		318,745		199,045		790		518,580		
			Kennerly's salmon		*(e)* 200,000		488,298				688,298		
			Speckled trout		80,000		175,441				255,441	1,462,319	
1928	Penask lake *(a)*	Quilchena, B.C.	Kamloops trout		1,616,120		438,665				2,054,785	2,054,785	
1928	Summerland *(a)*	Summerland, B.C.	Kamloops trout		240,000		273,402				513,402		
			Kennerly's salmon				149,200				149,200	662,602	
				406,216	22,094,787	39,148,511	5,297,251	22,161,050	154,184		89,261,999	89,261,999	

(a) Subsidiary hatchery.
(b) Collecting camp.
(c) Eyeing station.
(d) Pond and rearing station combined.
(e) Autumn collection, 1934.

The eggs, fry and fingerlings included in this distribution, with the exceptions indicated, were from collection in the autumn of 1933 and the spring of 1934.
In addition to the above 255,000 cutthroat trout eyed eggs were planted direct in British Columbia waters as detailed in previous statement.

HATCHERY OUTPUT, BY PROVINCES, OF EGGS, FRY, FINGERLINGS, YEARLINGS AND OLDER FISH DURING 1934

——	Green eggs	Eyed eggs	Fry	Advanced fry	Fingerlings	Yearlings and older	Total distribution by species	Total distribution by province
Nova Scotia—								
Atlantic salmon	5,500	300	.....	506,832	5,655,769	435	6,168,836	
Landlocked salmon	.....	.....	.....	.....	40,000	.....	40,000	
Loch Leven trout	.....	200	.....	254,975	.....	.....	255,175	
Rainbow trout	.....	.....	.....	.....	325,217	62,288	387,505	
Speckled trout	.....	500	300	.....	3,770,330	88,822	3,859,952	
	5,500	1,000	300	761,807	9,791,316	151,545	10,711,468	10,711,468
New Brunswick—								
Atlantic salmon	30,576	1,000	1,555,739	350,250	4,028,066	.....	5,965,631	
Brown trout, albinos	.....	.....	.....	.....	.....	6	6	
Brown trout, hybrids (Brown trout —Atlantic salmon)	.....	.....	.....	.....	.....	71	71	
Landlocked salmon	6,000	.....	.....	.....	40,049	.....	46,049	
Loch Leven trout	.....	.....	.....	.....	.....	4	4	
Rainbow trout	.....	.....	.....	.....	.....	278	278	
Speckled trout	32,200	.....	408,005	1,214,000	1,180,387	2,108	2,836,700	
	68,776	1,000	1,963,744	1,564,250	5,248,502	2,467	8,848,739	8,848,739
Prince Edward Island—								
Atlantic salmon	.....	.....	.....	294,500	680,835	.....	975,335	
Speckled trout	.....	.....	.....	173,000	489,818	.....	662,818	
	.....	.....	.....	467,500	1,170,653	.....	1,638,153	1,638,153
Alberta—								
Brown trout	.....	.....	.....	100,000	373,200	.....	473,200	
Cutthroat trout	.....	.....	178,600	180,000	1,332,055	125	1,690,780	
Kamloops trout	.....	94,690	95,646	.....	.....	.....	190,336	
Rainbow trout	.....	.....	363,069	270,500	797,740	35	1,431,344	
Salmon trout	.....	.....	.....	93,190	464	.....	93,654	
Speckled trout	.....	.....	.....	365,455	24,898	12	390,365	
	.....	94,690	637,315	1,009,145	2,528,357	172	4,269,679	4,269,679
British Columbia—								
Atlantic salmon	.....	.....	.....	.....	19,391	.....	19,391	
Brown trout	.....	.....	170,000	.....	2,817	.....	172,817	
Coho salmon	.....	525,000	454,960	.....	.....	.....	979,960	
Cutthroat trout	.....	.....	234,386	.....	11,749	.....	246,135	
Kamloops trout	100,000	4,118,298	2,390,182	.....	790	.....	6,609,270	
Kennerly's salmon	.....	200,000	637,498	.....	.....	.....	837,498	
Loch Leven trout	.....	.....	.....	.....	13,647	.....	13,647	
Sockeye salmon	231,940	16,547,706	31,576,745	1,494,549	2,951,863	.....	52,802,803	
Speckled trout	.....	80,000	175,441	.....	.....	.....	255,441	
Spring salmon	.....	524,265	798,060	.....	299,062	.....	1,621,387	
Steelhead salmon	.....	2,828	109,880	.....	122,903	.....	235,611	
	331,940	21,998,097	36,547,152	1,494,549	3,422,222	.....	63,793,960	63,793,960
								89,261,999

In addition to the above 255,000 cutthroat trout eyed eggs were planted direct in British Columbia waters as detailed in previous statement.

The experimental introduction of brown trout into the Cowichan and Little Qualicum rivers, British Columbia, was continued. A fourth allotment of 200,000 eggs for this experiment was received on December 1, 1934, from The Rainbow Ranch, Troy, Montana, U.S.A. Several specimens of these fish of legal size, and some males in a spawning conditions were caught during 1934.

The Canadian National Railway, Canadian Pacific Railway, Esquimalt and Nanaimo Railway and the Dominion Atlantic Railway Companies continued

their generous assistance and co-operation by furnishing free transportation for shipments of game fish and game fish eggs with their attendants. The extent of this co-operation is indicated in the following summary:—

Railways	Total mileage on trip passes	Number of passages	Mileage baggage car permits			Number of cases or cans			Number of permits
			Full	Empty	Total	Full	Empty	Total	
C.N.R.	3,125	24	3,337	3,198	6,535	112	107	219	41
C.P.R.	10,838	55	8,310	8,092	16,402	352	335	687	100
E. & N.R.	840	16	453	413	866	57	61	118	18
D.A.R.	103	1	103	103	206	8	8	16	2
	14,906	96	12,203	11,806	24,009	529	511	1,040	161

NOTE:—Number of passages refers to transportation one way. A return trip counts as two passages. Number of permits refers to one way passage for cases or cans.

The general public is showing an increasingly greater interest in the fish cultural operations of this department, and gratifying reports regarding results that are apparent from the distribution of hatchery output continue to accumulate from all districts where this department is operating hatcheries.

The interest shown in fish cultural work and the assistance and co-operation tendered by private individuals and local organizations such as fish and game clubs, angling and protective associations, boards of trade, service clubs, etc., was continued to an increased degree during the past year. Several rearing ponds, some of them on a rather extensive scale, were constructed and operated by groups of sportsmen. Rearing ponds of this nature were operated for the first time as follows:—

Tusket river natural pond, Digby county, N. S.
New Brunswick Fish and Game Protection Association.
Fredericton rearing pond No. 1.
Fredericton rearing pond No. 2.
St. Andrews rearing pond.
St. Stephen rearing pond.
Kelowna Rod and Gun Club rearing ponds, Kelowna, B. C.
Vernon Angling Club rearing pond, Vernon, B. C.

This department furnished biological, fish cultural and engineering advice when requested in all instances prior to development, and it has also supplied eggs or fry up to the capacity of the respective ponds. The Avon River Power Company has continued its cordial and valuable assistance and co-operation in connection with the Nictaux salmon retaining pond and trout rearing tanks.

Officials and employees of other dominion departments, provincial officials, officers and crews of fishery patrol and protection boats, and other branches of this department have cordially co-operated in all instances where they could be of assistance. The Research Committee of the Biological Board continued its courteous consideration of all fish culture problems that were referred to it.

From the spring collection of 1934 an exchange of eyed eggs was made with the Department of Game and Fisheries, Toronto, Ontario, details of which are given in a subsequent statement.

While Atlantic salmon are being taken for fish cultural purposes at Sackville river, river Philip and the Nictaux river, Nova Scotia, all that ascend above the hatchery fences and traps have to pass through the traps. This situation afforded an opportunity of observing the time of the day or night at which the movement of the fish was greatest. It was found that, at Sackville river and river Philip, approximately two-thirds of the fish ascended

during the night and the remainder during daylight. The reverse was the case at Nictaux where 77 per cent ascended during the day. The respective ascents were as follows:—

Sackville river, between 6 p.m. and 6 a.m.	66 per cent
River Philip, between 6 p.m. and 10.30 p.m.	65 per cent
Nictaux river, between 6 a.m. and 6 p.m.	77 per cent

MARITIME PROVINCES EASTERN DIVISION

DISTRICT SUPERVISOR OF FISH CULTURE, JAMES CATT

The year 1934 produced meteorological phenomena that made fish cultural observations in the Eastern Division most difficult. An unprecedentedly cold and long winter, general throughout the Maritimes, was followed by a period of extreme drought in many areas. Notwithstanding these adverse conditions, the incubation of ova and the rearing and distribution of fry and fingerlings was most commendable.

In spite of the failure of the salmon run in the Nictaux river and the destruction, through freshet, of the River Philip retaining pond with the consequent loss of impounded fish, the collection of 23,972,430 salmon ova surpassed that of 1933 when 17,163,699 eggs were obtained. The collection of 12,082,495 speckled trout eggs set a new record for this species in the Eastern Division. The previous record, in 1933, amounted to 10,200,631. Rainbow trout stock produced 651,519 eggs, an increase of 200,689 over the 1933 collection.

Drought conditions rendered the capture of landlocked salmon at Chamcook lakes very difficult. A large number of the fish that usually spawn in the brook connecting the upper and lower lakes spawned elsewhere this season, thus reducing the ova collection to below normal. It is perhaps of interest to observe that during the spawning period a large school of landlocked salmon was observed by the Chief Game Warden for the province of New Brunswick making rudds near the outlet of Chamcook lake. With fair water conditions a large part of this school would undoubtedly have been captured in the main spawning brook. The collection of landlocked salmon eggs at Chamcook lakes amounted to 138,265. A further collection of 11,500 was made at Grand lake, Nova Scotia.

As far as possible, investigations were continued to determine the results of previous stocking. This work was carried out not only by officers of both branches of the department, but by duly authorized officers of the Fish and Game Protective Associations. The results of these investigations brought to light the fact that rainbow trout are thriving in Bird lake, Yarmouth county, Nova Scotia. Further reports indicate that the fish are established in Cranberry lake, Queens county, Nova Scotia, and in lake Enon, Cape Breton. In the last mentioned water a considerable number of speckled trout in addition to the rainbow trout was found.

At a meeting of the executive of the Halifax Branch of the Nova Scotia Fish and Game Protective Association, it was reported that many of the small local lakes had greatly improved since they had been stocked with fingerlings.

After placing Lochaber lake, Antigonish county, on the distribution schedule some years ago, a program of stocking it has been fulfilled, with the results that this season the wild trout collection from the lake's main feeder brook exceeded that of any previous year.

The rainbow trout from Giant's lake are reported to have spread to the mud lake draining into it. The main lake carried a large number of heavy fish throughout the season, although owing to the drought the angling was not as good as had been expected.

On the outlet brook below the screen a large number of rainbow trout fingerlings were observed during the summer. These were the natural progeny of the mature fish which, escaping during the spring freshet of 1933, descended into Duck lake. Below this lake there is an eighty foot barrier fall over which it would appear that the mature fish do not pass.

A new natural rearing pond for speckled trout was operated by the New Brunswick Fish and Game Protective Association and the Loch Lomond Protective Association. It is situated on Stephenson's brook, Loch Lomond, New Brunswick. It was stocked in the fall of 1933 with large speckled trout fingerlings. In May, 1934, the water was run off under the direction of the Biological Board. Seining, etc., was carried out by the department's fish cultural officers. The results, on the whole, were satisfactory as reported by the director of the Atlantic biological station at Saint Andrews, New Brunswick. Unfortunately, to some extent, the value of this pond was lost as the flowage was not reflooded until so late in the year that no fish smaller than large fingerlings could be supplied for it. However it is now so improved that it may be run off early next spring and immediately reflooded, thus providing a habitat for advanced fry, for which it was intended.

In the Tusket area a private enterprise has created another new natural brood pond which will not only serve as a source of supply to the rivers into which it drains, but may also prove to be a source of supply for wild trout egg collection.

The fish cultural branch in co-operation with the administrative branch of the department commenced an investigation as to the possibility of increasing and improving the salmon spawning grounds on the Mersey river. This scheme included the provision of additional rudds in suitable areas. The Inspector of Fisheries, Liverpool, Nova Scotia, laid down three of the rudds mentioned above and the results obtained provided valuable information to the effect that the spawning fish would make use of these artificial rudds if constructed in suitable positions and that the rudd material need not be made of water worn gravel—freshly broken, sharp rock appearing to be quite satisfactory.

A new departure in fish culture was carried out in Jesse lake, Nova Scotia, and had for its object the elimination of coarse fish in order that it might be restocked in the most economical manner, i.e. with fry instead of fingerlings or larger fish. This lake has an area of approximately 45 acres. Its depths reach a maximum of 21 feet and an average of 8 feet. Originally it was good speckled trout water, but owing to heavy fishing (for trout) the fish population became unbalanced, resulting in a great increase of perch and other enemy and competitor species.

The elimination of the coarse fish by means of copper sulphate was entirely satisfactory and the water will be restocked when a sufficient supply of food organisms has been re-established.

The approximate numbers of fish destroyed were:—

(1) Coarse fish, 35,013. These included white and yellow perch, catfish, eels, chub, suckers, sticklebacks and golden shiners.

(2) Speckled trout, 25. Doctor M. W. Smith of the Atlantic biological station assisted with and followed the experiment through, collecting scientific data before, during and after it. The Yarmouth Fish and Game Protective Association displayed great keenness in this work and co-operated with the department in every way. Members not only provided boats and labour, but installed a screen in the outlet of the lake to prevent enemy fish reaching the lake in the future. The officer in charge of the boy scouts patrolled the waters and generally assisted in the work, some of which, such as the collection of the dead and decomposing fish, was most unpleasant. This experimental use of copper sulphate was undertaken with the approval of the Provincial Government of Nova Scotia.

Satisfactory meetings to discuss the question of distributions were held throughout the Maritime Provinces. These meetings were called by the several supervisors of fisheries. They were attended by the fishery and hatchery officers, members of the branches of the protective associations, and in some cases by the officials of the provincial Governments. The value of these meetings increases as the requirements of the waters become better known. In connection with these requirements, it was pointed out that angling results over a short period, such as one or two seasons, do not necessarily constitute a yardstick by which the results of stocking may be measured. An increasing or decreasing visible supply of fish, easily determined during the spawning season, as a rule affords a fairly accurate medium of information on this point.

A supply of landlocked salmon and trout was provided for the ponds at Grand lake, Nova Scotia, operated by the provincial Government. The department provided a trained assistant to give instructions in the rearing of these fish.

The department furnished the protective associations with circulars describing conditions in lakes and streams under which trout will live and thrive. These circulars also explained how trout and salmon waters should be classified in order that proper allotments of fish might be distributed in them. Practical field instructions along these lines were given to members of the Fredericton, Moncton, Saint John, Saint Stephen, Yarmouth and Sydney Fish and Game Protective Associations.

The administrative branch and biological board have co-operated closely with the fish cultural officers and have rendered an increased amount of assistance. Co-operation between the provincial Governments and branches of the protective associations with the department has been excellent.

Nutritional tests were made to determine the best diet for fingerlings, etc. These were made up of beef liver, plucks, dry salmon egg meal, fresh fish and buttermilk in different combinations. The tests are being continued.

Groups of ova from a common stock at various stages of development were transferred between hatcheries to determine the safest stage at which to make shipments.

The elimination of suckers from Wilmot stream, the main trout nursery for the Loch Lomond, New Brunswick, area was continued under the direction of the Inspector of Fisheries, Saint John. Some 15,755 of these fish, weighing approximately 9·8 tons, were destroyed.

The year's operations when summed up establish the fact that the staff of the Eastern Division show an increased efficiency. On the whole they deserve the highest credit for the successful operations of this season carried out under such adverse conditions.

Antigonish Hatchery

K. G. Shillington, Superintendent.

New construction and repairs in addition to the routine work of the establishment kept the superintendent and staff extremely busy for the whole season.

An excellent distribution of speckled trout, Atlantic salmon and rainbow trout fingerlings was made. A number of yearlings and older fish of both species of trout were liberated in the area surrounding the hatchery.

Two new circular ponds were built and used to rear trout fingerlings. The two circular ponds constructed last year were this season used for speckled trout yearlings with excellent results.

A collection of 6,615,201 speckled trout eggs from pond stock was made, which although large, was smaller than had been expected. This was due to a low yield in the individual fish which may have been caused by the adverse water conditions obtaining throughout the summer. The water supply, due to

high temperature and generally dry weather, dwindled to almost half the quantity normally used. The superintendent met the situation by dredging the outlet to Loch Katrine, thus increasing the flow of South river from which the hatchery gets its supply. Provision has been made to establish a dam at the outlet of Loch Katrine next season so that a reserve of water will in future be available.

Extensive repairs were made to the hatchery dam and fishway, and a new storeroom was built adjacent to the existing garage.

Selective breeding brought to light some interesting facts. It showed that the progeny of large wild fish from date of hatch to the end of September were much smaller than selected quick growing hatchery stock—the ratio of growth being 7 to 50·5. By raising to maturity and breeding the fastest growing progeny of wild fish, results were immediately obtained, the ratio of the progeny of this stock to the selected quick growing hatchery stock being 19 to 50·5. In their third year both the quick growing stock and the wild stock made an equal growth—about 1 lb. weight per fish. In their fourth year the wild stock reached a greater size than their contemporaries of hatchery origin in the proportion of 1·6 to 1·0.

To determine the rate of growth of speckled trout fingerlings the superintendent weighed 100 average specimens on different dates. On August 31 they weighed 15·2 ounces, September 26, 50·5 ounces, December 26, 223 ounces and July 14, 700 ounces.

A very high freshet late in the fall prevented the efficient operation of the fish trap at Lochaber lake for a considerable period. Notwithstanding this a satisfactory collection of 230,055 speckled trout eggs was made at this point. From Hart lake 2,100 eggs of the same species were received. The collection of rainbow trout eggs amounted to 137,835.

In February 500,000 Atlantic salmon eyed eggs were received from Kelly's Pond hatchery. Outgoing shipments were:—250,000 speckled trout eyed eggs each to Restigouche and Miramichi hatcheries, 100,000 each to Margaree and Lindloff and 500,000 to Middleton; 500,000 Atlantic salmon eyed eggs to Lindloff. Distributions for the season were:—speckled trout 1,473,974, rainbow trout 92,312, and Atlantic salmon 1,388,228.

Bedford Hatchery

George Heatley, Superintendent

The species distributed from Bedford hatchery in 1934 included Atlantic and landlocked salmon, speckled and Loch Leven trout.

A collection of landlocked salmon eggs was attempted from the Shubenacadie watershed. In this connection it had been reported that a large number of fish descended from Grand lake a short distance down the river to the spawning ground. In order to catch the fish it was necessary to establish a strong fence across the river to a point at which the spawning grounds lay. The results of the operation were not successful as only 11,500 eggs were taken, and it appears that the reported landlocked salmon spawning in this area were really small Atlantic salmon which had run up the river.

The operations, however, brought to light the value of a new form of fence in the shape of a long cylindrical drum covered with wire cloth and operated by a floating wheel. This drum does not require cleaning. It forms a perfect screen and prevents the flooding of the fence of which it is a part. Its general principle may be of the greatest importance in future where it is necessary to screen smolt, etc., from descending canals and inlets to the power plants.

The following numbers of eyed eggs were received from January to April:—872,275 speckled trout from Paradise Brook Trout Company, 100,000 salmon trout from Department of Game and Fisheries, Toronto, and 70,000 landlocked

salmon from Saint John hatchery, New Brunswick. Eggs received in November and December were:—153,000 Atlantic salmon from Sackville pond and 810,000 speckled trout from Cape Cod Trout Company.

Distributions for the year were:—Loch Leven trout 255,175, speckled trout 846,535, Atlantic salmon 1,003,380 and landlocked salmon 40,000.

Lindloff Sub-Hatchery

J. C. Goswell, Officer in Charge

Excellent results obtained this season at the Lindloff sub-hatchery. The species distributed included Atlantic salmon advanced fry and fingerlings, and rainbow and speckled trout fingerlings. The percentage of loss was very low and the growth of the fish excellent.

The plant was extensively improved by the construction of four new circular ponds in that area formerly flooded by the old mill dam before its removal. The removal of this dam necessitated the construction of a new and better supply flume. This flume takes its supply directly from Lindloff lake and in addition to feeding the new ponds, will maintain a water supply for the hatchery and two older ponds.

The officer in charge is to be commended for the efficiency with which this plant is operated. Eyed eggs received during the season were:—100,000 speckled trout and 500,000 Atlantic salmon from Antigonish hatchery and 167,362 rainbow trout from Saint John hatchery. Distributions were made as follows:—Atlantic salmon 434,957, speckled trout 63,129 and rainbow trout 124,519.

Margaree Hatchery

W. D. Turnbull, Superintendent

Mr. L. J. Burton, superintendent of the Margaree hatchery for many years, suffered a most regrettable stroke of paralysis early in the season. He was then superannuated and Mr. W. D. Turnbull was placed in charge of the plant.

The operation of the establishment during the season was most successful. The stock for distribution exceeded expectations in regard to size, condition and quantity. Half a million of the salmon fingerlings were at least three inches in length before liberation. The speckled trout fingerlings included specimens up to seven inches in length.

A program for improving the rearing ponds was energetically pushed through with the greatest economy and most satisfactory results.

Provision was made for an increased brood stock of speckled trout. One of the older groups of this species, all affected by thyroid tumor, was most effectively treated by introducing Lugol's solution into their feed, following the method prescribed by Doctor H. S. Davis in "Care and Diseases of Trout." Only one fish out of 250 was lost. From Antigonish hatchery 100,000 speckled trout eggs were received in April. The yield from speckled trout pond stock was 186,371 ova. From Margaree salmon pond 4,134,000 eggs were received in November and December. Of these 651,700 were from early run fish and 3,482,300 from late run. Distributions were:—Atlantic salmon 1,805,258 and speckled trout 109,516.

Margaree Salmon Pond

J. P. Chiasson, Superintendent

A small summer run and bad storms prevented the collection of early run salmon reaching the desired number. Of the 179 early run salmon obtained the loss was 56, which includes 13 liberated before stripping began. This loss is in

excess of last season. This, however, was to be expected as the water conditions in the Margaree were much worse this year than in 1933; also the fish were very heavily parasitised with sea lice.

The fall run of salmon was satisfactory. Some 461 were impounded. The total number of eggs collected was of excellent quality. The superintendent introduced a new departure in stripping which may prove to be of considerable benefit. His method is used where the actual stripping process covers an extended period, as is often the case with heavy fish. The males are milted into the spawning pan during the stripping of the female and the ova are gently stirred throughout the operation. To date it appears that this will increase the percentage of fertile ova above the normal. The total collection was 4,134,000 ova of which 651,700 was from early run fish and 3,482,300 from late run. All eggs taken were laid down in Margaree hatchery.

Middleton Hatchery

F. M. Millett, Superintendent

Operations at Middleton hatchery were most satisfactory in 1934. The distribution included a large number of excellent specimens of trout fingerlings, exceeding the 1933 output by 127,783. These fingerlings were the subject of considerable favourable comment from residents of the area served by the plant.

In addition to speckled trout, an excellent distribution of Atlantic salmon was made—one particularly fine group being the hatch from ova obtained from the Nictaux river fish in the fall of 1933.

In January 864,612 speckled trout eggs were received from Paradise Brook Trout Company and in April 500,000 from Antigonish hatchery. In the autumn 396,000 Atlantic salmon eggs were received from Nictaux salmon pond and 131,445 from river Philip camp. In May 75,000 Atlantic salmon fry and 30,000 speckled trout fingerlings were transferred to Nictaux rearing station. Distributions from Middleton hatchery were:—Atlantic salmon 976,700 and speckled trout 731,296.

Nictaux Salmon Pond and Rearing Station

J. W. Heatley, Officer in Charge

Owing to the great scarcity of salmon running the Annapolis watershed in 1934, a very small number of brood fish, viz. 90, were obtained for the Nictaux pond. These included an insufficient number of males to fertilize the eggs from a practical viewpoint. In order to overcome this, experimental shipments of milt were made from Miramichi and New Mills ponds. The experiment, although very interesting, did not prove a success.

In addition to the collection of brood salmon, both salmon and speckled trout fingerlings were reared in troughs at the pond. The collection of Atlantic salmon eggs amounted to 396,000 and all were laid down in Middleton hatchery. In May 75,000 Atlantic salmon fry and 30,000 speckled trout fingerlings were received from Middleton hatchery. Distributions consisted of 61,000 Atlantic salmon and 6,100 speckled trout.

River Philip Salmon Pond

F. M. Millett, Superintendent

For the second year in succession extreme floods permitted the escape of the impounded salmon in the retaining pond at the head of the Oxford canal. Before the flood, an unusual drought had checked the ascent of the brood fish. The superintendent in charge was not in any way to blame for the loss of the fish which prevented what would otherwise have been a satisfactory collection.

The number that escaped was 486. From 34 taken later 20 were stripped, yielding 131,445 eggs, which were transferred to Middleton hatchery.

Sackville River Salmon Pond

George Heatley, Superintendent

Atlantic salmon collection on the Sackville river was a failure for two reasons. The unusual drought prevented the ascent of fish which had schooled in large numbers in Bedford basin. Before the fall rise in the Sackville, the majority of these fish had apparently moved elsewhere. At any rate they did not attempt to run the river when it was in excellent condition for them to do so. Later in the fall a heavy freshet inundated the whole valley bottom including the rearing ponds at the hatchery. This flood permitted the escape of a small number of fish in pond No. 2 in the retaining canal. Repairs included a reconditioning of salmon ponds, etc. From 61 salmon stripped there was a collection of 158,000 eggs which were all laid down in Bedford hatchery, except 5,000 sent Dalhousie University, Halifax.

Yarmouth Hatchery

H. V. Gates, Superintendent

On the whole the operations at Yarmouth hatchery were satisfactory. Ova obtained from rainbow trout were of fine quality, particularly those taken from fish in the supply trough feeding the ponds. These eggs were very red in colour and produced extremely good fingerlings, probably on account of the varied feed made available to these fish in the form of aquatic organisms including insects and small fish which, descending the pipe line, could not pass the screens separating the supply headworks from the ponds. The collection of rainbow trout eggs amounted to 81,000, which was augmented by receipt of 167,363 rainbow eggs from Saint John hatchery.

The new brook ponds proved most satisfactory as retainers for brood stock. Without them it is probable there would have been a heavy loss in the speckled trout owing to high temperature in the troughs.

The hatchery staff assisted in the experiments with copper sulphate at Jesse lake for the eradication of coarse fish.

Several reports were received commenting on the excellent condition of the fingerlings and yearlings which were delivered to very distant points. The hatchery ponds produced 658,500 speckled trout eggs. A purchase of 760,000 of this species was made from the Cape Cod Trout Company with delivery in December. From the Saint John salmon pond 764,400 Atlantic salmon eggs were received in November. Distributions were:—speckled trout 629,402, rainbow trout 170,674, and Atlantic salmon 499,313.

Bartibog Salmon Pond

F. Burgess, Superintendent

This station is an innovation intended for the retention of early run Miramichi salmon. The retainer was similar to that in use on the Morell river but with the addition of a wire guard fence outside the twine. The brood fish collected remained in fairly satisfactory condition and 97 were, on September 4, towed without loss from Bartibog to Miramichi pond at South Esk, a distance of about 18 miles. They yielded 387,074 eggs, which were laid down for incubation in Miramichi hatchery.

The first fish was captured on June 14 and the last on July 26. Of the 97 transferred to Miramichi pond 81 were females and 16 males—that is, the ratio of females to males was 83·5 to 16·5.

CHAMCOOK COLLECTING STATION

R. O. Barrett, Officer in Charge

Owing to the drought, the landlocked salmon did not spawn in any quantity in the alleged main spawning ground—the brook dividing the upper and lower Chamcook lakes. As a result the collection of ova was below par in both brooks. Many fish were observed spawning along the shore of each of the lakes, but these could not be captured. From 107 fish caught 138,265 eggs were taken and all laid down in Saint John hatchery with the exception of 6,000 supplied the Biological Board.

Florenceville Hatchery

George Sutherland, Superintendent

A good distribution of speckled trout and Atlantic salmon fingerlings was made during the early summer. In the fall the brood stock of speckled trout yielded 1,361,439 eggs of good quality.

The most important improvement to the plant was the reconstruction of number one and number two dirt ponds into circular ponds. Additions were also made to the dwelling and a new furnace and sewerage system installed.

In January 503,790 speckled trout eggs were received from Rainbow Ranch, Troy, Montana. In October and November 1,582,308 Atlantic salmon ova were transferred from Saint John salmon pond and 50,000 from Miramichi pond and hatchery. In December 800,000 speckled trout eggs were received from Cape Cod Trout Company.

Distributions were:—speckled trout 904,537 and Atlantic salmon 1,108,000.

Grand Falls Hatchery

W. A. McCluskey, Superintendent

The quality of both the speckled trout and Atlantic salmon stock distributed from Grand Falls hatchery in 1934 was again excellent.

The number of speckled trout ova obtained from Three Brooks stillwater, viz., 872,600, was greater than that obtained in 1933.

An attempt was made to establish circular rearing ponds from the existing system. Unfortunately the ground proved so porous that it was impossible to effect this. Five old wood-lined ponds were replaced and two others of similar type were constructed.

The Superintendent is to be commended for the general appearance of the plant and grounds—the latter are particularly attractive and have been the subject of much complimentary comment.

In February, 500,000 Atlantic salmon eggs were received from Kelly's Pond hatchery. From February to April 300,000 eggs of the same species were received from Saint John hatchery. In May 500,000 salmon eggs were shipped to the Tobique sub-hatchery. In October and November 2,201,472 Atlantic salmon green eggs were transferred from Saint John salmon pond and in December 1,080,531 speckled trout eyed eggs were received from Cape Cod Trout Company.

Distributions were:—speckled trout 1,127,371 and Atlantic salmon 1,182,135.

Miramichi Hatchery

Frank Burgess, Superintendent

An excellent hatch of both salmon and trout obtained at this hatchery in the spring. This was followed by a satisfactory distribution of fingerlings. Part of the distribution from this plant was made by private sea plane carrying the fish from the hatchery to Mullins stream brook and up the waters of the North-west Miramichi.

Improvements were made in No. 1 rearing pond in which speckled trout were released. A small number of these will be carried over as yearlings. In March 250,000 speckled trout eyed eggs were received from Antigonish hatchery. In October and November 8,780,077 Atlantic salmon green eggs were laid down from the Miramichi salmon pond—8,393,003 of these being Miramichi pond variety and 387,074 from fish transferred from Bartibog pond.

Distributions were:—Atlantic salmon 1,627,859 and speckled trout 147,802.

Miramichi Salmon Pond

Frank Burgess, Superintendent

Owing to a large run of fish ascending the river just before collection was commenced, total captures of brood stock were below expectations. However, the ova that were obtained from the impounded fish was of good quality, thus making the collection on the whole satisfactory.

From the 97 parent salmon transferred from Bartibog pond on September 4 there was a collection 387,074 eggs, and from salmon collected for the Miramichi pond 8,443,003 eggs, making a total collection of 8,830,077: of this number 8,780,077 were laid down in Miramichi hatchery and 50,000 transferred green to Florenceville hatchery.

New Mills Salmon Pond

Wm. White, Superintendent

The collection of brood fish at New Mills was better than that of preceding years. Of the 500 specimens impounded only 6 were lost. The fish, which were very large, gave an excellent yield of good quality eggs, amounting to 2,342,098 which were laid down in Restigouche hatchery.

The heavy spring freshet brought down gravel and debris which partially filled the upper end of the pond. Arrangements have been made to remove this.

Nipisiguit Sub-Hatchery

J. T. Comeau, Officer in Charge

Nipisiguit sub-hatchery was satisfactorily operated during the summer. This was largely due to the excellent quality of the eggs originating from Morell river, Prince Edward Island. They arrived from Restigouche hatchery on April 5 and consisted of 396,750 Atlantic salmon ova.

Distribution was Atlantic salmon 371,827.

Restigouche Hatchery

W. A. Mowat, Superintendent

Routine work at the Restigouche hatchery was rendered very difficult in the spring owing to a very high freshet which partially flooded the plant. In spite of this there was a good hatch of eggs. The usual distribution of salmon was augmented by an increased output of speckled trout.

All collections of eggs were confined to salmon from the New Mills pond. The quantity and quality of these were satisfactory. In February and March 500,000 Atlantic salmon eggs from Kelly's Pond hatchery and 250,000 speckled trout eggs from Antigonish hatchery were received. From the Kelly's pond allotment 396,750 were transferred in April to Nipisiguit sub-hatchery. In October and November 2,342,098 salmon ova were received from New Mills pond.

Distributions were:—Atlantic salmon 1,097,634 and speckled trout 139,047.

Saint John Hatchery

J. D. Nichol, Superintendent

In spite of considerable loss through an epidemic in speckled trout fingerlings and brood stock, an extensive and satisfactory distribution of both salmon and trout was made from the plant this year. Collections of several species of trout eggs were satisfactory. These included the following:—Speckled trout 1,876,447, rainbow trout 432,684, brown trout hybrids (Salmo fario and Salmo salar) 11,432 and Loch Leven trout 2,205 eggs. The wooden bottoms fitting the long ponds served as a control on the parasites and proved very satisfactory.

The hatchery staff assisted in the distribution of stock from the new natural pond at Stevenson's brook, operated by the New Brunswick Fish and Game Protection Association and the Loch Lomond Protective Association.

In February 350,000 speckled trout eggs arrived from Gilbert trout hatchery, Plymouth, Mass. Experimental shipments of 300,000 Atlantic salmon eggs were made in February, March and April to Grand Falls hatchery. In April 70,000 landlocked salmon eggs were forwarded to Bedford. In May 167,363 rainbow ova were transferred to Yarmouth hatchery and 167,362 to Lindloff establishment. In November 982,254 Atlantic salmon eggs were received from the Saint John pond, and 132,265 landlocked salmon ova from Chamcook lakes. In December 550,000 speckled trout eggs arrived from Cape Cod Trout Company.

Distributions were:—Speckled trout 517,943, Atlantic salmon 362,600, landlocked salmon 40,049, rainbow trout 278, brown trout hybrids 71, brown trout albinos 6, and Loch Leven trout 4.

Saint John Salmon Pond

J. D. Nichol, Superintendent

The collection of brood salmon this year was confined to the June run. This supplied an adequate number of fish but unfortunately later in the year, the impounded stock showed a heavy mortality. The reason for this loss is being investigated by the Biological Board. On stripping the fish yielded 5,561,010 eggs of good quality, which were laid down as follows: at Florenceville hatchery 1,582,308, Grand Falls 2,201,472, Saint John 982,254, Biological Board, Saint Andrews 30,576 and Yarmouth hatchery 764,400.

Tobique Sub-Hatchery

R. O. Barrett, Officer in Charge

A regrettable loss occurred on May 31 in the burning of the above-mentioned plant through forest fire. However, the efficiency of the fish cultural operations in New Brunswick was not affected so greatly through this loss as would have been the case a few years ago, as a greatly improved process of distribution in the Tobique area has been effected from the parent hatchery at Grand Falls. Tobique received 500,000 Atlantic salmon eggs from Grand Falls on May 2. The contents of the hatchery were not all lost as 185,000 fry were released before the fire reached the hatchery building.

Kelly's Pond Hatchery

F. C. Hayley, Superintendent

In spite of some loss in speckled trout, the condition of the quantity that was supplied was most satisfactory and a good distribution of both salmon and trout was made from this hatchery.

Collections of wild speckled trout eggs was unsatisfactory largely owing to the drought which prevented the brood stock ascending the feeder streams from Wisner's pond, one of the best speckled trout producers in the Maritimes.

In January 550,000 speckled trout eggs were received from Cape Cod Trout Company, and in February 55,800 from Ings' pond. Shipments of 500,000 Atlantic salmon eggs were made in February to Grand Falls, Restigouche and Antigonish hatcheries. In November 2,419,800 salmon eggs were laid down from Morell salmon pond and in November and December 279,782 speckled trout ova were collected from hatchery pond, Ings' and Watt's ponds.

Distributions were:—speckled trout 662,818 and Atlantic salmon 975,335.

Morell River Salmon Pond

A. Tait, Officer in Charge

Since its inception this pond has been of great value in augmenting the annual supply of Atlantic salmon ova obtained in the Maritimes. The hatchery assistant from Kelly's pond hatchery, who was in charge is to be commended on the very excellent quality of the eggs obtained from this source.

Owing to a general shortage of salmon this year, the number of fish impounded was smaller than in the preceding year. However, it was more than sufficient to take care of the needs of the province with a satisfactory balance available for later distribution elsewhere. The collection amounted to 2,419,800 eggs, which were laid down in Kelly's Pond hatchery.

Western Division

District Supervisor of Fish Culture, C. W. Harrison

The return of parent sockeye in 1934 to all districts where the Department of Fisheries operates fish culture establishments in the province of British Columbia was most gratifying. This condition was reflected in the collections of eggs at all sockeye hatcheries, with the exception of the one located at Rivers Inlet, and this station would undoubtedly have secured its full quota had normal climatic conditions prevailed during the period in which collecting operations were conducted.

The total collection of sockeye eggs at all hatcheries in this province, where this variety of Pacific Coast salmon is handled, was 105,689,080 as against 52,925,300 secured in 1933, 87,277,285 and 98,495,273 obtained in the brood years of 1929 and 1930, respectively.

Spring salmon collections were made at the Cowichan lake, Anderson lake and Rivers Inlet hatcheries and the Sproat River eyeing station. The total number of eggs of this variety obtained was 1,541,820 as compared with 2,156,150 in 1931, 2,525,340, in 1932 and 1,737,885 in 1933. Anderson river collection was mainly responsible for the noticeable decrease of last season. Although the number of spring salmon that reached this river was below average, a greater collection would have been obtained had conditions been more favourable. Only 22,500 eggs were secured at this point as against 229,500 in 1933.

The coho run to the Cowichan lake district was below average; a small early run arrived on the spawning grounds in October but the main run which usually reaches this district in November, failed to appear in their usual numbers, consequently, the collection was smaller than in 1933, totalling 732,000 as against 1,044,000 the previous year and 714,800 in 1932.

Again, this season, experiments were conducted at the several hatcheries to determine what becomes of the eggs that remain in sockeye salmon that are liberated after they have been stripped by the expression method. As done the previous season, enclosures were installed and a male and female sockeye were placed in each, the latter having first been stripped by hand pressure. After death the

females were cut open and all eggs counted that remained in the fish. Later, the gravel in each enclosure was carefully examined and all eggs found, both dead and alive, were recorded. The following tables give the results secured at each of the fish breeding stations where this experiment was undertaken:

ANDERSON LAKE HATCHERY

Enclosure Number	Number females	Eggs in fish after death	Recovered from gravel		Total	Per cent spawned in enclosure
			Alive	Dead		
1	(a) 1	1,004	.....	.....	1,004	0
2	1	29	737	17	783	96
3	1	12	1,098	22	1,132	99
4	1	16	1,228	117	1,361	99
		1,061	3,063	156	4,280	75

(a) Died second day.

KENNEDY LAKE HATCHERY

1	1	24	506	21	551	96
2	1	22	21	5	48	54
3	1	9	1,250	367	1,626	99
4	1	31	994	170	1,195	97
		86	2,771	563	3,420	97

LAKELSE LAKE HATCHERY

1	1	3	43	10	56	95
2	1	1	168	2	171	99
3	1	5	8	7	20	75
4	1	8	62	104	174	95
(b) 5	1	321	.....	.....	321	
		338	281	123	742	54

(b) Female sockeye in No. 5 would not mate, although three additional males were introduced from time to time.

PITT LAKE HATCHERY

Enclosure Number	Number females	Eggs in fish after death	Recovered from gravel		Total	Per cent spawned in enclosure
			Alive	Dead		
1	1	92	504	52	648	86
2	1	112	654	44	810	86
3	1	312	1,025	78	1,415	78
4	1	54	251	17	322	83
		570	2,434	191	3,195	82

RIVERS INLET HATCHERY

1	1	5	261	4	270	98
2	1	5	106	1	112	96
3	1	33	.....	141	174	81
4	1	11	.....	.....	11	.....
5	1	12	.....	52	64	81
		66	367	198	631	90

The general results secured confirms those of the previous season and seems to prove that sockeye handled for hatchery purposes need not suffer any harm, even if only a portion of their egg content is taken from them artificially. When released they deposit their remaining eggs in equally as good condition as sockeye that have never been handled.

The program of introduction of brown or Loch Leven trout to the Cowichan and Little Qualicum rivers, Vancouver Island, was continued during the year. In March, 13,543 Loch Leven trout (No. 5 fingerlings) averaging four inches in length, were released into the Cowichan river and 37,506 brown trout (No. 4 and No. 5 fingerlings) were liberated into the Little Qualicum river and its tributaries.

In April, 13,563 Atlantic salmon (No. 5 fingerlings), resultant from a shipment of eggs received from Scotland and purchased by the Provincial Game Commission, were released from the Cowichan Lake hatchery ponds into the Cowichan river and early in July 5,781 No. 2 fingerlings of the same species escaped from a floating pond moored in that stream.

The Provincial Game Commission now operates three game fish stations, located respectively at Stanley Park, Veitch creek and Qualicum. The Commission, having no collecting camps of its own, depends upon eggs supplied by this department or purchased from other sources. Last year the department, free of charge, supplied the Commission with 610,000 Kamloops trout and 49,500 steelhead eggs. Fifty thousand eggs of the first named species were transferred from Lloyd's Creek station to the Commission's station at Stanley Park, 360,000 were shipped from Penask Lake hatchery to Veitch creek, Vancouver Island, 120,000 to Stanley Park and 80,000 from Fish lake to Dr. Duff for biological purposes. In addition, 49,500 steelhead eggs were transferred to Veitch creek from Cowichan Lake hatchery and some 170,000 brown trout fry were transferred from Cowichan Lake hatchery to Qualicum ponds.

The hatchery operated by the Cranbrook Rod and Gun Club had another successful season. In addition to replenishing local waters the collections made by the Club enabled it to sell the Department 500,000 cutthroat eyed eggs. These eggs or the fry hatched from them were allotted to waters previously stocked from the same source. Some 150,000 went to Cowichan Lake hatchery, 95,000 to Cultus Lake hatchery and 255,000 were planted direct in Nicomekl, Serpentine and other rivers and lakes.

The number of angling associations in the province which have become interested in co-operative fish culture has steadily increased, particularly in the development of rearing ponds, and every effort has been made by the department to encorage such development and to assist with both advice and practical help. The one dollar annual angler's licence administered by the Provincial Game Commission has materially assisted such efforts by providing financial assistance from this fund to organizations that had a clear cut program in view.

This year the Kelowna Rod and Gun Club commenced the development of a series of natural ponds. The success of this venture was particularly gratifying and justified further development on a much more extensive scale. A member of the department's engineering staff made a careful survey of the locality, laid out a program and submitted plans for a further extension of the system operated the previous year. The work on this expansion was completed early this summer in sufficient time to make increased accommodation available for this season's Kamloops trout fry and the department transferred from Beaver Lake station 100,000 fry and the same number of eyed eggs of this species for stocking these ponds. The eyed eggs were hatched in troughs filled with gravel and placed in a small tributary creek at the head of this retaining pond system.

The local angling association at Princeton, B.C., also improved the retaining pond established in 1933 and in view of the success achieved the previous year

were provided by the department from the Summerland hatchery, with 20,000 Kamloops trout fry as against 3,000 allotted to that organization in 1933.

The Vernon Angling Club constructed a small retaining pond system near that city. Approximately sixty feet of a small stream with a natural spring water supply was excavated to a width of eight feet and a cement retaining dam fitted with the proper screening was installed at the lower end. There is a considerable distance between this excavation and the source of the spring water supply, consequently, it collects and maintains a fairly abundant supply of natural food, therefore as conditions appeared in every way suitable for the retention of Kamloops trout fry, 15,000 were shipped from Beaver Lake hatchery and liberated in this pond.

The Revelstoke Angling Association is another organization that is taking active steps to improve the angling in its district. Again this year, the sockeye rearing station at Taft, B.C., was not required by the Biological Board and permission was given this club to use it for rearing Kamloops trout fry. The department transferred from Lloyd's Creek station 100,000 eyed eggs and the above named organization placed a man in charge and assumed all expenses in connection with the hatching and rearing of the resultant fry and their later distribution as fingerlings to lakes in the district.

The most highly developed of all co-operative fish cultural efforts undertaken by sporting organizations in this Province is that conducted by the Cranbrook Rod and Gun Club. Its operations were inaugurated in 1923 and from its inception to the present time the department has given encouragement and assistance, both financially and by loaning the services of experienced fish culture men and engineers. Its continuous success eventually resulted in the establishment of a most modern and up to date small hatchery and rearing pond system, the cost of construction of which was entirely borne by the local angling enthusiasts. The example set by this club in co-operative fish culture, will, in view of the outstanding success of its operations, undoubtedly be followed in the future by other sporting organizations in this province.

During the year, angling associations interested in lakes and streams near the coast have strongly urged that bodies of waters suitable for cutthroat trout be seeded with eyed eggs or fry secured from native stock. Unfortunately, such seed in quantity is not available, therefore, in an endeavour to provide seed of this class and conform with the wishes of these organizations, a start was made at Smiths Falls hatchery last year to raise brood stock for this purpose in one of the ponds previously used in connection with the sockeye salmon investigation. From the lower outlet to Paddy lake, Inverness district, B.C., approximately 500 cutthroat trout were salvaged on September 5. The length of these fish averaged from six to nine inches. In Boundary creek, near Greenwood in the Nelson district, water conditions were such that approximately 100 Eastern brook trout, advanced fry, became stranded and these were transferred to suitable locations on August 17. The length of the fry was approximately one and one-half inches.

Every effort has been made during the year to conform with the demand for the strictest economy without impairing the success of fish cultural operations in this division, and in view of the fact that no extensive damage was suffered at any hatchery from adverse climatic conditions during the year, the cost of operations generally, in spite of the increased collection of sockeye salmon eggs at Cultus lake, will not be increased to any great extent, if at all.

The fish cultural staff of the Western Division have, without exception, been most conscientious, faithful and unsparing in personal efforts in the execution of their duties.

Alberta

BANFF HATCHERY

J. E. Martin, Superintendent

The Banff hatchery, located in the National Park at Banff, Alberta, was transferred to the National Parks Branch, Department of the Interior, in 1931, when the Natural Resources were turned over to the three Prairie Provinces and is administered by the Department of Fisheries on behalf and at the expense of the Parks Branch. It covers an extensive territory and handles many different varieties of sporting fish. The greater portion of the eggs incubated at this establishment are obtained by exchange with the United States Bureau of Fisheries and by purchase from commercial firms.

Shipments received during the past year consisted of 785,600 speckled trout eggs purchased from United States firms and 163,600 collected at Vermilion lake; brown trout eggs 518,213 from Cedar Island Lodge, Brule, Wisconsin; rainbow trout eggs 108,500 (hatch) from W. S. Meader, Pocatello, Idaho, and 564,518 from Rainbow Ranch, Troy, Montana; cutthroat trout eggs 1,227,095 from Rainbow Ranch (via P. V. Klinke, Fortine, Montana), and United States Bureau of Fisheries, Yellowstone Park, Wyoming; salmon trout eggs 100,262 from Department of Game and Fisheries (via Port Arthur hatchery, Ontario), and 101,000 Kamloops trout eggs from Lloyd's Creek hatchery, British Columbia.

The total distribution of all varieties, including fry resultant from eggs received in the fall of 1933, was: cutthroat trout 1,120,425, brown trout 473,200, speckled trout 390,365, rainbow trout 540,340, salmon trout 93,654 and Kamloops trout 94,690.

It is generally considered that conditions in the wide spread district served by this hatchery have been much improved from the fish cultural operations conducted at this station.

Many lakes mentioned in past reports have greatly benefited by the artificial assistance given from Banff hatchery. The recent stocking of the following named bodies of water has also been very successful, viz.: Egypt lake, tributary to Pharoh creek, south of Massive, was a barren water, but is now well stocked with cutthroat trout, and fish up to one pound in weight are being caught; in Ptarmigan lake, another barren water, cutthroat trout have made splendid growth and are remarkably deep and fat; there is a good showing of cutthroat trout in the middle section of the Bear Creek Valley system, and Waterfowl lakes are fairly well populated with the same species.

Loch Leven trout have been observed in tributaries to Red Deer river. In Grant and Dennison creeks several pairs of the same species have been seen, ranging from eight to fifteen inches in length.

The numerous fish and game organizations have been most generous in their co-operation. Game Wardens and Forest Rangers have been ever ready to give assistance, and pack horses have been gratuitously loaned by employees of the Game and Forestry Branches for the purpose of packing fry to outlying waters.

The help of the Director of Fisheries for Alberta and his outside staff is also gratefully acknowledged.

JASPER PARK HATCHERY

Amethyst lake this year secured its third stocking with Kamloops trout fry. The eggs, 110,000 in number, were received in June from Lloyds creek hatchery, B.C. In February a shipment of rainbow trout eyed eggs were received from W. S. Meader, Pocatello, Idaho, out of which 384,647 hatched. In June, 202,176 cutthroat trout eggs were received from Rainbow Ranch, Troy, Montana. Distributions were: cutthroat trout 178,600; Kamloops trout 95,646; rainbow trout 333,069.

Waterton Lakes Hatchery

G. E. Bailey, Superintendent

During the past year splendid service, as previously maintained, was given by this establishment to all accessible waters in the Waterton National Park. Many lakes and streams have been stocked with game fish with gratifying results and a general improvement in angling over the whole district is reported.

Owing to the high cost of collecting eggs from local waters, this station depends almost entirely on eggs secured from other sources. This year was no exception to the rule, and the following varieties were received:—Rainbow trout eggs from W. S. Meader, Pocatello, Idaho, of which 94,720 hatched; rainbow trout eggs from Rainbow Ranch, Troy, Montana, 613,500, and cutthroat trout eggs from the United States Bureau of Fisheries, Gardiner, Montana, 456,000.

Distributions were: cutthroat advanced fry, fingerlings and older fish, 391,755; rainbow fry, advanced fry, fingerlings and older fish, 557,935.

Two almost inaccessible barren lakes, situated within the Waterton National Park area, namely Rowe and Holroyd lakes, were stocked with cutthroat fingerlings; 2,000 were liberated in the first-named water and 5,000 in the latter. Bovin lake and Beaver creek, in the Provincial Forest Reserve, were also barren of fish until stocked last season with 5,000 fingerlings and 30,000 advanced fry, respectively.

Special work undertaken at this establishment last year consisted of construction of a rock-paved walk at the rear of hatchery, cement spillway built in lower dam, sides of ponds removed and replaced with rock and cement and bottoms paved with flat rock.

Fraser River Watershed

Cultus Lake Hatchery

A. Robertson, Superintendent

The program of the Biological Board's investigation of the efficacy of artificial versus natural propagation at Cultus lake for 1933-34 called for the planting of eyed sockeye eggs in tributaries to that lake.

The total collection of eggs of this variety of Pacific salmon secured from Sweltzer creek, the stream that drains Cultus lake, in 1933 was 4,998,900, and the number distributed in the above-mentioned way was 4,471,814. Of these, 624,438 were planted in 1933 and 3,847,376 in 1934. Normal hatchery loss and eggs transferred to the Biological Board accounted for the difference.

The distribution above mentioned commenced on December 20, 1933, and was completed on February 24, 1934. Approximately 33 per cent of the total number of eggs planted were deposited in Spring creek. This stream, as its name implies, is fed by natural springs, is not subject to freshet, and eggs planted therein should give good returns.

In accordance with the principles of modern fish culture, that part of this stream most suitable for egg-planting purposes was cleared of all debris, the stream bed thoroughly cultivated and a huge quantity of new gravel hauled and evenly distributed over the area required for the number of eggs deposited.

The remainder of the hatchery output was deposited in other tributaries to Cultus lake, and although the areas planted were thoroughly cultivated and properly prepared for reception of the eggs, it is impossible to protect against damage from freshets and resultant scouring of the beds of these streams. In March a heavy freshet occurred and it is feared that a portion of the eggs deposited may have been scoured out and consequently destroyed, but this is a condition that cannot be obviated and occurs in all sockeye spawning streams in

this province when such conditions prevail. Whether any material loss was suffered and to what extent will show when the yearling migration is counted next spring.

The extent of the 1934 sockeye run was looked forward to with a great deal of interest, as the run of 10,395 adult sockeye in 1930 was the result of the liberation of hatchery fry in 1926, when only 1,684 females provided the seed to create this run of 10,395 adult sockeye in 1930. In addition, an unknown number of Cultus lake sockeye would be taken by commercial fishermen; thus the hatchery work of 1926 undoubtedly produced splendid results. The 10,395 sockeye that returned to Cultus lake in 1930 were all allowed to spawn naturally and produced in the cycle year of 1934, 18,980 adult sockeye, consisting of 4,046 males and 14,934 females, and in addition the unknown quantity taken by commercial fishermen.

An interesting feature in connection with the increase of the sockeye run to Cultus lake during the two cycles mentioned is that in 1926, 1,684 females were used for egg collection and the number secured was 6,442,285. In 1930, the run consisted of 4,853 males and 5,542 females, thus the sexes were fairly evenly divided. At 4,000 eggs per fish, that number of females was capable of providing 22,168,000 eggs. In 1934, the adult sockeye that returned numbered 18,980, consisting of 4,046 males and 14,934 females, or sufficient of the latter to provide 59,736,000 eggs. In this connection, it will be noted the unusual predominance in numbers of females over males. Under natural spawning conditions the males and females would have paired, thus only 4,046 females could have reproduced, giving 16,184,000 eggs for seeding the spawning grounds of Cultus lake. By employing artificial methods of handling these fish, a collection of 41,350,240 eggs was secured and fertilized by the comparatively small number of males that were available.

Another interesting feature in connection with the return of adult sockeye salmon to this area, which has been noted during the last four or five years, is the increased size of the sockeye that frequent this district. For many years, both before and after the department commenced fish cultural operations in this district, the family of sockeye that frequented this particular area was considered to be an unusually small variety. A noticeable change in this respect has been taking place in recent years and last season it culminated in the fact that the sockeye that reached this district were equal in size to either Morris creek or Pemberton fish, consequently can be considered to be average sized Fraser river fish. The increase in size of this particular family of sockeye, which for many years have been to a very great extent dependent on hatchery operations, seems to refute claims made in the past that artificial operations have been in some districts responsible for a smaller class of adult sockeye.

As in 1931-32-33, the staff at this station during collecting operations largely consisted of experienced men transferred from other hatcheries where the spawning seasons are earlier than in this district. The necessity for these arrangements was due to the large number of, 41,350,240, sockeye eggs secured between November 12 and December 31. This is, I believe, the greatest individual collection of eggs of this variety of Pacific salmon ever taken in this province, although the collection from the same source in 1931 came very close to this number. In the last mentioned season, 39,388,110 sockeye eggs were obtained and that number could have been doubled if accommodation had been available.

Previous to the commencement of collecting operations, Harrison Lake hatchery was prepared to accommodate a portion of the large collection expected and during operations daily shipments of green eggs were made between the two stations until a total of 29,978,430 sockeye eggs had been laid down at Harrison Lake hatchery.

The program of distribution for this season for the Cultus lake area is again eyed egg planting, therefore, 6,432,610 sockeye eggs have been placed in Cultus Lake hatchery for that purpose. As this number, less normal losses, is all that

can be properly accommodated in the tributary streams of Cultus lake, the balance of the collection, numbering 4,939,200, has been laid down at Smiths Falls station and when the eggs are sufficiently developed will be shipped to some other district for distribution.

In connection with this collection, three valuable experiments were undertaken, namely, 221,150 eggs were fertilized with milt strained from other eggs that had received the milt direct from the males; also, 147,160 eggs were segregated to determine whether there is (and if so, to what extent) a difference in size between the water-hardened eggs and those that have almost reached the point of hatching; also, 51,940 green or water-hardened eggs were planted in a small stream in which the gravel had been cultivated and thoroughly cleaned and the resultant fry will be captured and counted when they emerge from the gravel.

A similar experiment to the above was undertaken the previous season, but instead of green, well eyed eggs were used for this purpose. Fifty thousand eyed eggs were planted in this prepared stream on February 23, 1934, and 44,699 vigorous, healthy gravel raised fry were captured in a tank constructed for that purpose when they emerged from the gravel.

Annually, considerable fish cultural work has been done in this district in connection with the propagation of steelhead. Resultant from these efforts, the run of this valuable commercial and game fish to Sweltzer creek has steadily improved and last spring 125,163 eggs of this species were secured. This is the largest collection yet obtained from this area, being 26,263 more eggs than secured the previous year, which to that time, was the record collection. These eggs were obtained between March 20 and April 27 and the resultant fry were retained and fed in the hatchery troughs until August 13 to 25 and the balance on hand then liberated in sheltered pools in Sweltzer creek where the feeding was continued for some time until they became familiar with natural conditions. When liberated, these fingerlings were one and one-half to two and three quarter inches in length and were in splendid condition.

In addition to the distribution of the fingerlings mentioned above, a further distribution of 6,579 No. 5 fingerlings that had been retained from the 1933 hatch was liberated in Sweltzer creek and when distributed had attained a length of from three to seven inches.

Four years ago, an ornamental pool, ten feet in diameter and one foot in depth, was installed in the centre of the hatchery grounds and from fifty to seventy-five cutthroat trout were placed therein last spring; 20,826 eggs were secured from this source and after deduction of normal hatchery loss, 11,749 fingerlings, ranging in length from one and one-half to two inches, were liberated in Cultus lake. In addition, 6,000 were placed in a small feeding tank near the hatchery and later 5,000 of these were transferred to one of the large retaining ponds at Smiths Falls hatchery.

In addition to the local collections and distributions of fish eggs and fry, 94,000 Kamloops trout eyed eggs were received from Lloyd's Creek eyeing station on June 21 and widely distributed in different bodies of water in the Harrison Lake and Hope districts; also, 95,000 cutthroat trout eyed eggs were received from Cranbrook hatchery and after normal hatchery loss was deducted there remained 91,526 fry which were liberated as follows: Popkum lake 25,000, Little Sumas river 40,000 and Vedder river 26,526.

Considerable improvement to the Cultus Lake hatchery grounds was made by the staff during the past year by the removal of tree stumps and by terracing of the Sweltzer creek bank. A rockery was constructed and this was abundantly planted with suitable flowering plants.

Also, the cleaning and lacquering of equipment, both at Cultus Lake and Smiths Falls hatcheries, and repairs to the Sweltzer creek fences was done during the summer. Distributions for the calendar year were: Cutthroat trout 103,275, Kamloops trout 84,055, sockeye salmon 3,899,316 and steelhead salmon 122,903.

SMITHS FALLS HATCHERY

This establishment is under the direction of Dr. Foerster of the Pacific Biological Station and is used principally for experiments connected with fish culture. It is operated to a large extent in conjunction with, and depends almost solely on eggs or fry supplied by the Cultus Lake hatchery. Its main operation in recent years has been the retention of sockeye to varying stages of development and the accommodation of sockeye eggs or fry over and above the quantity that could not be taken care of at Cultus Lake or Harrison Lake hatcheries.

Owing to the fact that Harrison and Cultus Lake hatcheries could not accommodate the whole of the collection of sockeye eggs, the surplus, totalling 4,939,200 was laid down at this station and later, when sufficiently developed, will be transferred to another district for distribution. The distribution for the season was 99,343 sockeye.

PEMBERTON HATCHERY

T. W. Graham, Superintendent

The distribution of sockeye fry resultant of the 1933 collection commenced on April 7 and was completed on May 19 when 9,977,655 free swimming sockeye fry had been liberated in the usual way by allowing them to leave the incubating troughs when so inclined and pass through a series of small natural ponds to the Birkenhead river, the stream from which the original collection had been secured.

In June, a shipment of 413,000 Kamloops trout eyed eggs was received from Lloyd's Creek station. Of these, 225,000 were distributed in Millburn, Ten Mile, McLeese, Williams, Horse, Nukko and a small lake in the northern interior of the province and the remainder was distributed direct from Pemberton hatchery as eggs or fry as conditions warranted in different bodies of water in that district. The total distribution of Kamloops trout from this station was 410,000.

The run of parent sockeye in the fall of 1934 that reached the Birkenhead river as compared with the brood year of 1930 was disappointing, although the return of parent fish was considerably more than reached the spawning area in 1933. The hatchery collection totalled 20,400,000 eggs, which was very satisfactory in view of the moderate run of fish. After completion of the collection a considerable number of sockeye spawned naturally, but very few of them had passed up stream above the hatchery fences when the fences were removed on October 1. The majority of the natural spawners deposited their eggs in the gravel bars below the fences.

This season a new departure in stripping methods at this and other stations was undertaken to determine the relative efficiency of securing eggs by hand pressure (expression) followed by incision as against full incision. Some 6,390,000 eggs were taken by the first mentioned method and 14,010,000 obtained by the latter. It is yet too early to determine which method will give the best results.

Another experiment conducted was to determine what becomes of eggs left in the fish after hand expression has been practised and the fish liberated. Unfortunately, this experiment could not be brought to a successful conclusion owing to heavy rainstorms that occurred in October and November which scoured out the gravel in the enclosures in which the male and female sockeye had been placed to complete the natural process of depositing their eggs. Although it was impossible to determine to what extent successful natural propagation had taken place, the following table indicates that the fish had extruded naturally the majority of the remaining eggs. After death, the fish were opened and the eggs therein counted.

Enclosure	Number females	Number of eggs found in dead fish
1	1	None
2	1	5
3	1	11
4	1	22

As it is generally conceded that all eggs cannot be secured by hand pressure and that usually from one to two hundred eggs are left in the fish, the above would indicate that natural extrusion had continued after these fish had been handled.

During the summer all equipment was cleaned and re-lacquered, interior of hatchery, troughs and head tank painted, ten new incubating troughs constructed and installed, a new building erected near the collecting fence and the graded portion of the hatchery grounds enlarged.

HARRISON LAKE HATCHERY

C. R. T. Hearn, Superintendent

As it was confidently expected that the run of sockeye salmon to Cultus lake would produce eggs in excess of the capacity of the Cultus and Smiths Falls hatcheries, Harrison Lake hatchery was reopened in October, necessary repairs made, and 29,978,430 sockeye eggs were transferred to it from Cultus Lake establishment.

PITT LAKE HATCHERY

R. H. Eaton, Superintendent

In view of the heavy return of sockeye salmon in the brood year of 1930, it was expected that the return for 1934 would be correspondingly heavy. These expectations materialized and the return this season was even greater than it was in the brood year. Unfortunately, the heavy natural seeding that resulted was badly damaged by the severe freshets of November which scoured the spawning grounds badly and caused the river to change its course in some places. With a view to offsetting this loss 2,920,000 eyed eggs and 150,000 green eggs were planted in Boise creek, Four Mile creek and Seven Mile slough. The areas where the damage was greatest will be further seeded with fry and local collections will be supplemented by the transfer of eggs from Cultus Lake.

The collection of sockeye eggs secured this season, totalling 3,925,000, consisted of 2,740,000 eggs obtained by hand pressure, 270,000 taken by incision after the hand expression method had been practised and 915,000 by full incision. The number last mentioned was secured in this manner to determine its efficiency as against the usual method generally practised of stripping fish by hand pressure followed by incision.

The total number of sockeye fry and fingerlings resultant of the fall collection of 1933 liberated widely in many tributaries to the Upper Pitt river in the spring of 1934, was 2,208,780. The total distribution of sockeye for the year was 5,278,780.

In June, 50,000 Kamloops trout eggs were received from Penask Lake eyeing station and after a normal loss of 490 eggs and fry, 48,510 were liberated in suitable streams in the district and 1,000 were placed in a small rearing tank for retention to the yearling stage.

Very gratifying reports have been received in connection with the introduction of Kamloops trout to this district resultant from the 1932 stocking; numbers of this variety of game fish were observed breaking water in Pitt lake and many were taken by anglers.

Vancouver Island

Anderson Lake Hatchery

D. Bothwell, Superintendent

Distributions of sockeye and spring salmon eggs, fry and fingerlings resultant from the 1933 collection were successfully accomplished. The local distributions in Anderson lake and its tributaries during 1934 were 2,910,449 sockeye fry, 188,364 spring salmon fry and 24,582 spring salmon fingerlings. The last mentioned had been retained and fed in tanks until the end of August and when liberated were three inches in length. The fingerlings were marked by the removal of their adipose and left ventral fins.

The return of parent sockeye salmon this season to the district was estimated to be about 15,000 or double the number that reached this area in 1933. In spite of such an increase over the previous year, the return this season was disappointing when compared with the number that reached this area in the brood year of 1930 when it was estimated that 40,000 sockeye salmon appeared on the spawning grounds of Anderson lake and tributaries.

The collection was slightly more than twice as large as that of 1933, amounting to 6,741,000 eggs.

In accordance with the department's desire to determine the best method for stripping salmon, 3,801,000 eggs were taken by hand expression followed by incision and the remainder, numbering 2,940,000, was secured by full incision. Final results in this connection will not be available until later.

The run of spring salmon to Anderson river fall 1934 was also disappointing; the collection of eggs amounted to 22,500 as against 229,500 in 1933. In addition to a small run, climatic and water conditions were unfavourable. The substation on Sproat river was again operated and 429,000 spring salmon eggs were secured. This collection was slightly less than that of the previous season. From Sproat river 100,000 spring salmon eggs were transferred to Anderson Lake hatchery on December 31.

During the period of January 11 to 18, 449,265 spring salmon eyed eggs from the collection of 1933 were distributed in the Stamp river.

In the fall of 1934, a heavy run of adult sockeye to the Great Central and Sproat Lake systems occurred. Seventy-five thousand sockeye were taken for commercial purposes and in spite of this heavy toll, a great number passed safely to their spawning grounds. These conditions are particularly gratifying as there appears to be no doubt but that the department's fish cultural efforts are responsible for the development of these exceptionally pleasing conditions in connection with the introduction and establishment in recent years of the sockeye runs to these lakes. Previous to 1925, sockeye were unable to reach Great Central lake and the original run to Sproat lake had been practically exterminated. In 1921, the Department's Fish Cultural branch commenced the introduction of eyed eggs to suitable areas in the system and continued those operations annually until 1929. In 1925, when resultant adults from these plantings were expected, many sockeye returned. Also, from that to the present time, large numbers have passed without obstruction to Sproat lake and these with the continued plantings of eyed eggs have gradually developed a heavy annual run of fish to these spawning grounds.

In 1925 the sockeye ascending to Great Central lake were unable to pass Stamp falls. consequently no natural reproduction in this system occurred that

season. The following year, 1926, many adult sockeye again appeared at Stamp falls and employees of the fish cultural branch captured, with dip nets, 10,695 sockeye and passed them over that obstruction. As there seemed every reason to expect that this run was now established and would be maintained, the department constructed a fishway at that point. During the summer of 1927 and from then on, all salmon have had unobstructed passage to the waters above Stamp falls. The sockeye run to this district, has year by year steadily increased in size and with adequate protection, there seems no reason to doubt but that the Sproat and Great Central lakes can, in future, be made the nursery of an important commercial fishery.

Special work done during the year consisted of rearing tanks repaired, verandah roof of residence reshingled, two new boats constructed and considerable work done on spawning beaches.

Kennedy Lake Hatchery

W. P. Forsythe, Superintendent

All fry resultant from the 1933 collection were transferred from the hatching troughs to retaining ponds, fed before liberation, and given a wide-spread distribution to beaches and tributaries of Kennedy and Muriel lakes. The total number liberated in this manner was 3,168,916 advanced fry and fingerlings. In addition 28,937 fry resultant from the planting of 30,000 eyed eggs in a prepared gravel bed were captured and counted when they emerged from the gravel, then placed in one of the retaining ponds and later 28,729 were released as well grown fingerlings, ranging in length from one and five-eighths to three and one-quarter inches. Thus, the total seeding of the district from the 1933 collection was 3,197,645 sockeye advanced fry and fingerlings which with 30,000 planted from the 1934 fall collection made a total output of 3,227,645.

The run of early sockeye in 1934 to the Clayoquot and Upper Kennedy rivers was poor. It is estimated that the return of parent sockeye to both rivers was less than four hundred. An effort was made to secure a collection from these fish, but owing to high water was a failure.

The late run of parent sockeye was particularly satisfactory. It was estimated that from twenty to twenty-five thousand reached Kennedy lake, consequently the hatchery was filled to capacity and all spawning areas were well seeded naturally. The Upper Kennedy river run was larger than usual; approximately two thousand parent sockeye reached that stream as against less than one hundred in the brood year of 1930. It is considered that this improvement was due to the planting of eyed sockeye eggs in that stream in 1930.

The 1934 collection totalled 8,897,300 sockeye eggs, consisting of 5,117,750 taken by hand expression followed by incision and 3,779,550 secured by full incision.

The worst freshets for many years occurred during the month of December and it is considered that a very small percentage, if any, of the eggs deposited naturally in the Clayoquot and Kennedy rivers will survive. These freshets would not affect beach spawning sockeye, thus approximately 80 per cent. of eggs naturally deposited in this district will give normal results. In addition, the hatchery collection will no doubt go far towards rectifying the damage done.

An interesting feature of the operations at this station is the efforts being made to extend the local areas frequented by sockeye salmon, particularly in connection with the introduction of sockeye to Muriel lake. This body of water was barren of fish life until its seeding from this station commenced in 1921. In 1929, the first definite results were observed and it was then estimated that from two to three thousand adult sockeye reached this lake. In 1930 approximately three hundred adults are reported to have reached these spawning

grounds. No stocking was done from eggs collected in 1927 and 1928, consequently no parent sockeye arrived at Muriel lake in the seasons of 1931 and 1932. Planting operations were resumed early in 1931 from the 1930 collection, when 150,000 eggs were deposited. The return from that seeding this fall is estimated to be from six to seven hundred adult sockeye. Scientific investigations conducted at Cultus lake show that only five per cent. of migrating sockeye yearlings can be expected to return as adults. The highest percentage of migrating yearlings at that point was 3·93 from the distribution of hatchery raised fry resultant of the 1926 collection of eggs; thus, based on a five per cent return of adults from a distribution of 150,000 fry, 295 adults might be expected to return to Cultus lake. As stated above, six to seven hundred adults are estimated to have returned to Muriel lake resultant from a seeding of 150,000 eyed eggs early in 1931.

Experiments conducted at this station during the year were: Recovery from gravel of 28,937 fry resultant from the planting of 30,000 eyed eggs in a prepared gravel bed; the planting of 30,000 green or water hardened eggs in the same prepared gravel bed, the results of which will not be available until next spring; also, four pairs of sockeye were placed in separate enclosures, the females having been stripped by hand expression. This experiment was to determine what becomes of any eggs left in female salmon after hand expression has been practised. Results from which are tabulated earlier in this report.

Unusual conditions developed during the 1934 collection owing to the high stage of water in Kennedy lake. Many sockeye would have deposited their eggs above normal lake level, thus these eggs would have been a total loss when the lake receded. To guard against such a situation, it was considered advisable to complete the collection by taking only such fish as were to be found on the area which would be left high and dry when the lake lowered to normal height. The number of eggs thus saved totalled 897,000.

Special work undertaken during the past year consisted of six new incubating troughs constructed and installed, thorough overhaul of main water supply flume, new posts installed and two hundred feet replaced, repairs to hatchery supply tank and excavation of one new retaining pond.

The superintendent developed a device for drying fish eggs for fish food which may be described as follows: It is a cylinder 10 inches in diameter and 18 inches long made of perforated zinc. Inside this cylinder is another cylinder of stove pipe 6 inches in diameter, leaving a 4-inch space between the cylinders in which the eggs are placed. One end of this double cylinder is completely blocked, and at the opposite end only the space is blocked, leaving the end of the 6-inch cylinder open for a blow torch to play inside. A small water wheel in flume revolves the cylinder, and the eggs being turned continually dry well and quickly. Four quarts of eggs can be dried at once in two to three hours, using 1½ pints of gasoline for the blow torch.

COWICHAN LAKE HATCHERY

J. H. Castley, Superintendent

The usual varied fish cultural operations as annually carried on at this establishment were again undertaken during the calendar year 1934. Both local and imported stock of commercial and game fish were handled. The distributions amounted to 2,409,910 as follows:—

Eyed eggs—coho salmon, 525,000; spring salmon, 75,000; Kamloops trout, 231,000.

Fry—coho salmon, 454,960; spring salmon, 359,575; Kamloops trout, 88,920; brown trout, 170,000; steelhead salmon, 109,880; cutthroat trout, 142,860.

Fingerlings—spring salmon, 216,860; Atlantic salmon, 19,391; Loch Leven trout, 13,647; brown trout, 2,817.

Eggs of the following species were imported: Kamloops trout from Penask lake, B.C., 330,000; brown trout in January from Trout Brook Company, Hudson, Wisconsin, 300,000; cutthroat trout from Cranbrook Rod and Gun Club, Cranbrook, B.C., 150,000; Atlantic salmon from Fishery Board for Scotland, 100,000, and a shipment in December, 1934, of 200,000 brown trout eggs from Rainbow Ranch, Troy, Montana. The Atlantic salmon ova were procured by the Provincial Game Board and laid down for incubation in Cowichan Lake hatchery.

In April 170,000 fry of the brown trout, resultant from the shipment of eggs received from Wisconsin on January 11 were transferred to the Qualicum Beach ponds and between October 15 and November 5, 37,506 fingerlings, ranging in length from 2½ to 3 inches, were released in Little Qualicum river and its tributaries. At the close of the calendar year there remained 85,473 which will be retained until the coming spring.

In May, 49,500 steelhead fry were transferred to the Provincial Game Board's ponds at Veitch creek for rearing and later distribution.

The run of parent steelhead to the Cowichan lake watershed was heavier than that of 1933, consequently, a larger collection of eggs of this variety of game fish was secured. The 1934 collection totalled 116,300 or 38,100 in excess of that of 1933.

There was a good average run of spring salmon to this district, but heavy floods during the collecting period seriously interfered with operations. Extreme high water at the peak of the season necessitated the lifting of the nets and as these conditions continued during the rest of the season, the total collection of 630,000 eggs was considerably less than it would have been if conditions had been more favourable. Nevertheless, the natural spawning beds will be well seeded this season.

The run of parent coho salmon to this district was considerably less than usual. A small run of early fish appeared in October, but the main run, which usually arrives about the middle of November did not make its appearance, consequently the collection of eggs from this species was much less than that of last year. A total of 732,000 eggs was secured; a decrease of 312,000 compared with the collection of 1933.

Fish traps were constructed on Beadnell creek, but unfortunately a heavy flood in the early part of the season scoured out the foundations. New foundation logs were placed under floating retaining pens and boathouse.

Owing to abnormal climatic conditions that have prevailed on this coast during the present winter, an enormous amount of damage has been done. Cowichan lake district did not escape, and on the night of December 30 the boathouse mentioned above collapsed when a heavy fall of wet snow occurred; also, two floating fry retaining enclosures moored to this boathouse broke loose and were taken down the Cowichan river and can be considered a total loss.

Skeena River Watershed

Babine Lake Hatchery

A. P. Hills, Superintendent

The distribution of sockeye fry and fingerlings resultant from the 1933 collection was successfully accomplished, consisting of 2,412,518 fry, 200,000 No. 1 fingerlings and 798,694 No. 2 fingerlings, making a total of 3,411,212. The No. 1 and No. 2 fingerlings above mentioned were resultant from 1,000,000 free swimming fry placed in the retaining ponds on May 30 and fed with herring meal until July 7 and August 4, on which dates they were released.

The run of parent sockeye to Morrison creek, on which this hatchery is located, was by far the largest in the last four years. It appeared from the num-

ber that reached this creek that there was sufficient to fill the hatchery to capacity and also adequately seed all spawning areas naturally. Later, however, it was found that the sexes were very unequally divided; there proved to be at least six males to every female, consequently the collection was not as large as anticipated, although slightly larger than that of the previous year.

The total collection from Morrison creek was 3,730,000 sockeye eggs. In past seasons when the number of sockeye that reached this stream was not sufficient to fill the hatchery, it was customary to secure eggs from Babine river for that purpose. Although, generally, the run of sockeye to the entire Babine district was better than the average for the last three years, it was not equal to that of 1930, the brood year, and the number of parent sockeye that reached the spawning grounds of Babine river which drains Babine lake and from which area the auxiliary collection was expected to be obtained, was not sufficient to give the number of eggs required to fill the hatchery to full capacity. The collection at Babine river totalled 1,255,000, thus the total collection for this station was 4,985,000 eggs, or 2,815,000 eggs less than can be safely accommodated.

During the extreme high waters last spring, considerable erosion of the banks of Morrison creek occurred, and in many places log jams formed in that stream. Extra men were employed during the summer and cribbing was built to support the banks of the stream at the worst places and the log jams were removed.

Other special work undertaken during the past year was shingling the storehouse roof, placing additional insulating material between the walls and ceiling and placing an extra log wall, three feet high, on the outside around this building and filling the space between with soil. The hatchery floor was renewed.

Two methods of stripping were practised experimentally, namely, hand expression followed by incision and full incision. Results of the comparative efficiency of the two systems will not be available until all losses are known at the end of the season's operations.

LAKELSE LAKE HATCHERY

C. R. T. Hearn, Superintendent

Climatic conditions during the distribution of sockeye fry and fingerlings, resultant from the 1933 collection of eggs, were very favourable and these operations would seem to have been very successful as later large numbers of fry were seen in schools all over Lakelse lake. The total number distributed was 6,048,950, which were liberated in tributaries and suitable bays of Lakelse lake.

The return of adult sockeye salmon in 1934 to this district was larger than that of the brood year of 1930 and was almost equal to that of any previous season, consequently this hatchery was filled to full capacity, the collection totalling 8,000,000 eggs. This collection was obtained at the following named camps: Williams creek, 5,625,000, Salmon creek, 212,500, Granite creek 1,400,000 and Scullabuchan creek 762,500.

It will be noted from the above that the number secured from Scullabuchan creek was again surprisingly small. This can only be attributed to the numerous severe freshets that occurred in recent years, which have seriously damaged the spawning areas of this stream.

The run to Williams creek was exceptionally good, at least twice the number collected could easily have been secured; consequently this stream was heavily seeded naturally after collecting operations were completed. The run of sockeye to Salmon creek was the heaviest for the last five years.

Special work undertaken during the past year was: exteriors and interiors of hatchery, messhouse and superintendent's dwelling painted, auxiliary water

supply for emergency purposes installed in hatchery from spring water main, gravelling and widening of new road, repairs to cribbing and a small water wheel installed for power purposes.

Mainland West Coast

Rivers Inlet Hatchery

F. A. Tingley, Superintendent

The distribution of sockeye and spring salmon eyed eggs, fry and fingerlings resultant from the fall collection of 1933 was successfully carried out. They were planted in suitable areas and totalled 18,257,194, consisting of 9,780,330 eyed sockeye eggs, 8,169,123 sockeye fry, 250,121 spring salmon fry and 57,620 well grown fingerlings; the latter were retained and fed in ponds until September 5 to 7 and were two and one-half to two and three-quarter inches in length. In addition to the above, 2,828 steelhead eggs were planted in a tributary stream to Walkus lake making a total output for all species of 18,260,022.

Heavy runs of parent sockeye occurred in Quap creek and Whannock river. Several streams were lightly seeded naturally but in others average returns were observed. Generally, it might be considered that the natural reproduction in this district was well up to the average and equal to that of 1932 and 1933 but lighter than that of 1931.

Heavy freshet conditions during the period the parent sockeye appear at the mouth of Quap and Genesi creeks, which usually provide all eggs necessary to fill this station, were responsible for the failure to secure a full complement of eggs. An unusually heavy run occurred at the first named stream, but the majority of these fish passed over the fences during the freshets of October 8 to 10 but later it was packed with spawning sockeye. At Genesi creek also the fish escaped over the fences and although no great numbers were later observed in that stream, it is possible that large numbers passed into the Markwell river which overflowed into Genesi creek at this time. Taking into consideration the number of sockeye seen in this stream before the fences were installed and the number that more than likely passed into the Markwell river, a fairly average run arrived at this point.

In view of the adverse conditions described above, the total collection of sockeye eggs was 11,390,540 or 6,954,360 less than secured in the fall of 1933.

The run of spring salmon to the Wauquash river was about the same as reached this stream in 1933, but considerably less than in 1930, 1931 and 1932. Nevertheless, the 1934 collection of eggs of this species totalled 460,320 or 100,185 in excess of the number obtained the previous season. Some 2,900 steelhead salmon eggs were secured from Medowse creek.

As done at other fish breeding stations during the past year, an experiment was conducted to determine what becomes of any sockeye eggs left in the female salmon after the expression method of stripping has been practised. The results obtained are listed earlier in this report. Also, two different methods of securing the eggs from sockeye salmon were tested, namely, hand expression followed by incision and full incision. Approximately 1,000,000 eggs were secured by each method. The losses will be compared later with those of other contents of this station.

Special work undertaken at this hatchery during the past year was as follows: Assembly of new 32 foot launch hull; truck road gravelled and trail to post office cleared of brush and windfalls; the hatchery sills, joists, flooring, post and wall bases were renewed over a length of approximately fifty feet; six new hatching troughs constructed; woodshed was raised; new foundations and flooring installed and the fish fences at Genesi and Quap creeks repaired and strengthened.

Sport Fish Operations — Southern Interior

NELSON HATCHERY

H. C. Crawford, Superintendent

The total number of eyed eggs, fry and fingerlings distributed from this station during the year was 1,462,319, consisting of Eastern brook trout, 80,000 eyed eggs and 175,441 fry; Kennerly's salmon, 200,000 eggs and 488,298 fry; Kamloops trout, 318,745 eggs and 199,045 fry; also 790 fingerlings that had been retained from the previous year.

Local collections consisted of 300,375 Kamloops trout eggs from Cottonwood and Six Mile lakes (109,875 and 190,500 respectively), Redfish or Kennerly's salmon eggs secured from Kokanee creek totalled 605,525 and Eastern brook trout eggs obtained from Violin lake numbered 377,030. In addition to the above, 250,000 Kamloops trout eggs were received from Penask lake hatchery.

A small retaining tank was operated inside the hatchery and 790 Kamloops trout fingerlings, two inches in length, were distributed therefrom on May 15.

Considering the heavy toll taken by anglers from the lakes and streams of this district, it is gratifying to know that most of the waters stocked are holding their own and in some instances there is a noticeable improvement in fish populations.

ARGENTA HATCHERY

H. C. Crawford, Superintendent

Owing to difficulties that developed in connection with the water supply to the Lardo hatchery, which was obtained from Davis creek, the breaking of the dam and the frequent mud slides that occur on that stream, it was considered advisable to locate another and more suitable site. Such location was discovered on Argenta creek about two and one-half miles directly across Kootenay lake from Lardo, therefore, during the early part of the summer the necessary equipment was transferred to that point and a temporary station erected. This site was found to be in every way satisfactory and on June 29, 400,000 Kamloops trout eggs were received from Penask Lake hatchery, and laid down in Argenta hatchery. Resultant from this shipment, 377,900 free swimming fry, in splendid condition, were available for liberation at suitable points in the sheltered bays and streams around the head of Kootenay lake.

PENASK LAKE HATCHERY

R. H. Eaton, Superintendent

This season fish cultural operations at this station were eminently satisfactory, although, had it been possible to foresee the more favourable conditions that developed in comparison with those of the previous season, a much greater collection of Kamloops trout eggs could have been secured. The total number of eggs obtained was 3,771,000 as against 4,002,000 in 1932 and 1,012,000 in 1933. The comparatively small collection of the last mentioned year was owing to flood conditions that submerged the fences and allowed the majority of the parent fish to escape to the upper reaches of Penask creek.

From the 1934 collection, all local waters were adequately seeded and 3,166,120 eyed eggs were transferred to other districts; Nelson hatchery received 250,000; Cranbrook 360,000; Pitt lake 50,000; Provincial Game Board for Stanley Park hatchery 120,000 and Veitch creek 360,000; Cowichan Lake hatchery 330,000; Argenta 400,000; Summerland 520,000, and various lakes and streams 776,120. The fry output was 438,665 and total distribution besides transfers to other Federal establishments was 2,054,785.

The 1934 collection from Penask creek amounted to 3,558,000 and was secured from 5,939 females and 6,019 males. After collecting operations were discontinued, approximately 8,000 parent fish were allowed to proceed to the natural spawning grounds of Penask creek. Some 213,000 Kamloops trout eggs were also taken from Spahomin creek.

Some of the definite results from the stocking of different bodies of water in the Penask and nearby districts that can be justly credited to these operations are Peterson, Jackson and Neveu lakes, all of which are producing four pound fish in good numbers, and Peter Hope lake near Merritt, B.C. The latter was first stocked in 1932. It contained no fish population of any variety and during the angling season of 1934 many large fish were observed rising in the lake and a number of six to seven pound fish were captured by sportsmen.

SUMMERLAND HATCHERY

G. N. Gartrell and R. H. Eaton, Officers in Charge

This station does not make independent collections of fish eggs but obtains its supply from other establishments and collecting camps and is utilized for distribution of eggs and fry to many streams and lakes in the Okanagan and Nicola districts. Its major supplies are shipments of Kamloops trout from Penask Lake hatchery and Kennerly's salmon from Nelson hatchery.

Resultant from the 150,000 Kennerly's salmon eggs received from Nelson hatchery on December 19, 1933, 149,200 free swimming fry were liberated into Okanagan lake in February.

Kamloops trout eggs received in June from Penask Lake and laid down in Summerland hatchery totalled 520,000. They were distributed as eyed eggs and fry in many bodies of water over a wide area. Distributions consisted of 240,000 eyed eggs and 273,402 free swimming fry.

LLOYD'S CREEK HATCHERY

A. P. Hills, Superintendent

The run of parent Kamloops trout to Paul creek was about the same as in 1933. To Pinantan creek there was a considerable increase over that of the previous year and to Knouff lake a fairly good run but unfortunately many fish escaped from the trap at that point, resulting in a small collection there.

The collection of eggs from these different bodies of water totalled 1,518,000 or 200,000 more than was obtained in 1933.

The collection of eggs from Fish lake was 1,067,950 or 99,220 less than in 1933. This collection was all laid down in Lloyd's creek hatchery except 80,000 for the Biological Board. Including Fish lake collection, the total number of Kamloops trout eggs laid down in Lloyd's Creek hatchery was 2,485,950 as against 2,485,170 the previous season. Distributions consisted of 20,000 green eggs transferred to the Biological officers for experimental purposes and 803,433 eyed eggs and 689,564 fry, making the total distribution 1,512,997. A normal loss during development occurred of 274,953 eggs and fry. Through an exchange agreement with the Provincial Department of Game and Fisheries 100,000 Kamloops eggs were sent their hatchery at Pembroke, Ontario. Pemberton hatchery received 413,000 eggs; Cultus lake hatchery 94,000; Provincial Game Board Stanley Park 50,000; Banff hatchery 101,000 and Jasper hatchery 110,000.

This season, the usual allotment of 150,000 fry to Knouff lake was reduced to 35,117. Reliable information was received that over six thousand pounds of Kamloops trout had been taken from Knouff lake this season prior to July 25 and that quantity would no doubt be greatly increased before the open season terminated.

BEAVER LAKE EYEING STATION

W. L. Goodlet, Officer in Charge

Originally barren of fish life Beaver lake was first stocked with 5,000 Kamloops trout eyed eggs in 1926. Further introductions of eyed eggs and fry were made in 1927, 1928 and 1931. In all, 7,000 eyed eggs and 13,000 fry were distributed therein. The results from these seedings were so eminently successful that in the last few seasons this lake has become an angler's paradise. Large numbers of Kamloops trout ranging in weight from three and one half to eighteen pounds have been taken from its waters by anglers. In 1932, there were indications that intensive angling was depleting the supply, therefore, in 1933 the department took steps to maintain and increase the supply, both in Beaver lake and the tributary chain of lakes to the east.

In 1933, the necessary fish cultural equipment was brought from Summerland hatchery and an experienced employee of the Fish Cultural Branch transferred to Beaver lake. Initial operations, although conducted under difficult conditions, resulted in 128,000 eggs being secured from 36 females that were captured that season. After that collection, considerable preparatory work was done, such as installing fences and traps, and clearing logs and debris from the spawning streams to facilitate future operations. The result of such preparations proved to be justified as in 1934 247 females and 295 males were captured and stripped, from which 730,000 eggs were obtained. After deduction of a normal loss during development of 40,879, the number of eggs and fry available for distribution was 689,121 which was distributed as follows: Returned to Beaver and tributary lakes, eyed eggs 420,000 and fry 54,121; transferred to rearing ponds of Kelowna Rod and Gun Club 100,000 eyed eggs and 100,000 fry and to rearing pond of Vernon Angling Club 15,000 fry.

There seems no reason to doubt but that future collections from this system can be increased each season until the production should amply satisfy all requirements for the Okanagan district and probably provide shipments to other parts of this Province.

CRANBROOK HATCHERY

Cranbrook fish cultural operations are entirely under the management of the local angling association. The Department assists financially by purchasing 500,000 cutthroat eggs annually at a fixed liberal price. In addition it has some seasons purchased at the prevailing market price all the eggs over and above 500,000 of which the Association had to dispose.

The total collection of cutthroat eggs secured locally was 1,494,830; hybrids cutthroat—Kamloops) 90,400 and Kamloops trout eggs obtained from Premier lake 159,700. In addition, 360,000 Kamloops trout eggs were received from the department's hatchery at Penask lake, making a total of 2,104,930 eggs handled at this station.

Including the number mentioned as supplied to the department, the distributions consisted of: Cutthroat trout eggs, 1,065,444; hybrid eggs, 50,605; Kamloops trout eggs, 82,500; cutthroat trout fry, 256,659; hybrid fry, 15,498; Kamloops trout fry, 436,364.

Total distributions to all points of eyed eggs and fry were 1,907,070.

STATEMENT, BY SPECIES, OF LOCAL COLLECTIONS AND DISPOSAL OF EGGS DURING 1934

Species	Collection area	Number collected	Disposal	Number	Totals
Atlantic salmon	River Philip, N.S.	131,445	Middleton hatchery	131,445	
	Sackville river, N.S.	158,000	Bedford hatchery	153,000	
			Dalhousie University, N.S.	5,000	
	Margaree pond, N.S.	4,134,000	Margaree hatchery	4,134,000	
	Nictaux pond, N.S.	396,000	Middleton hatchery	396,000	
	Bartibog pond, N.B.	387,074	Miramichi hatchery	387,074	
	Miramichi pond, N.B.	8,443,003	Florenceville hatchery	50,000	
			Miramichi hatchery	8,393,003	
	New Mills pond, N.B.	2,342,098	Restigouche hatchery	2,342,098	
	St. John pond, N.B.	5,561,010	Atlantic Biological Station, St. Andrews, N.B.	30,576	
			Florenceville hatchery	1,582,308	
			Grand Falls hatchery	2,201,472	
			St. John hatchery	982,254	
			Yarmouth hatchery	764,400	
	Morell River, P. E. I.	2,419,800	Kelly's Pond hatchery	2,419,800	23,972,430
Speckled trout	Antigonish hatchery ponds, N.S.	6,615,201	Antigonish hatchery	6,615,201	
	Hart Lake, N.S.	2,100	Antigonish hatchery	2,100	
	Lochaber lake, Antigonish County, N.S.	230,055	Antigonish hatchery	230,055	
	Margaree hatchery ponds, N.S.	186,371	Margaree hatchery	186,371	
	Yarmouth hatchery ponds, N.S.	658,500	Yarmouth hatchery	658,500	
	Florenceville hatchery ponds, N.B.	1,361,439	Florenceville hatchery	1,361,439	
	Fraser's pond, Three Brooks, Victoria County, N.B.	872,600	Grand Falls hatchery	872,600	
	St. John hatchery ponds, N.B.	1,876,447	Atlantic Biological Station, St. Andrews, N.B.	32,200	
			St. John hatchery	1,844,247	
	Watt stream, P.E.I.	2,500	Kelly's Pond hatchery	2,500	
	Kelly's Pond hatchery ponds, P.E.I.	59,602	Kelly's Pond hatchery	59,602	
	Ings pond, P.E.I.	217,680	Kelly's Pond hatchery	217,680	
	Vermilion lake, Alta.	163,600	Banff hatchery	163,600	
	Violin lake, B.C.	377,030	Nelson hatchery	377,030	12,623,125
Landlocked salmon	Grand lake, N.S.	11,500	Bedford hatchery	11,500	
	Chamcook lakes, N.B.	138,265	Atlantic Biological Station, St. Andrews, N.B.	6,000	
			St. John hatchery	132,265	149,765
Sockeye salmon	Sweltzer creek, Cultus lake, B.C.	41,350,240	Cultus lake hatchery	6,432,610	
			Harrison lake hatchery	29,978,430	
			Smiths Falls hatchery (Biological Board)	4,939,200	
	Birkenhead river, B.C.	20,400,000	Pemberton hatchery	20,400,000	
	Boise creek, Pitt river, B.C.	1,455,000	Pitt lake hatchery	1,455,000	
	Charles Peter's creek, Pitt river, B.C.	750,000	Pitt lake hatchery	750,000	

STATEMENT, BY SPECIES, OF LOCAL COLLECTIONS AND DISPOSAL OF EGGS DURING 1934—*Concluded*

Species	Collection area	Number collected	Disposal	Number	Totals
Sockeye salmon	Four Mile creek, Pitt river, B.C.	1,360,000	Pitt lake hatchery	1,360,000	
	Seven Mile creek, Pitt river, B.C.	360,000	Pitt lake hatchery	360,000	
	Quap creek, Owikeno lake, B.C.	7,885,290	Rivers Inlet hatchery	7,885,290	
	Genesi creek, Owikeno lake, B.C.	3,505,250	Rivers Inlet hatchery	3,505,250	
	Granite creek, Lakelse lake, B.C.	1,400,000	Lakelse lake hatchery	1,400,000	
	Salmon creek, Lakelse lake, B.C.	212,500	Lakelse lake hatchery	212,500	
	Scullabuchan creek, Lakelse lake, B.C.	762,500	Lakelse lake hatchery	762,500	
	Williams creek, Lakelse lake, B.C.	5,625,000	Lakelse lake hatchery	5,625,000	
	Babine river, B.C.	1,255,000	Babine lake hatchery	1,255,000	
	Morrison creek, Babine lake, B.C.	3,730,000	Babine lake hatchery	3,730,000	
	Anderson lake, B.C.	6,741,000	Anderson lake hatchery	6,741,000	
	Clayoquot Arm, Kennedy lake, B.C.	8,897,300	Kennedy lake hatchery	8,897,300	105,689,080
Cutthroat trout	Cultus lake hatchery, Fountain pond, B.C.	20,826	Cultus lake hatchery	20,826	20,826
Kamloops trout	Beaver lake, B.C.	410,000	Beaver lake eyeing station	410,000	
	Crooked creek, Beaver lake, B.C.	220,000	Beaver lake eyeing station	220,000	
	Echo creek, Beaver lake, B.C.	100,000	Beaver lake eyeing station	100,000	
	Fish lake, Kamloops, B.C.	1,067,950	Biological Board	80,000	
			Lloyd's creek hatchery	987,950	
	Knough lake, Kamloops, B.C.	48,000	Lloyd's creek hatchery	48,000	
	Paul lake, Kamloops, B.C.	857,000	Biological Board	20,000	
			Lloyd's creek hatchery	837,000	
	Pinantan creek, Kamloops, BC	613,000	Lloyd's creek hatchery	613,000	
	Cottonwood lake, Nelson, B.C.	109,875	Nelson hatchery	109,875	
	Six Mile lake, Nelson, B.C.	190,500	Nelson hatchery	190,500	
	Penask creek, Nicola Valley, B.C.	3,558,000	Penask lake hatchery	3,558,000	
	Spahomin creek, Nicola Valley, B.C.	213,000	Penask lake hatchery	213,000	7,387,325
Brown trout (hybrids)	St. John hatchery ponds, N.B.	11,432	St. John hatchery	11,432	11,432
Loch Leven trout	St. John hatchery ponds, N.B.	2,205	St. John hatchery	2,205	2,205
Rainbow trout	Antigonish hatchery ponds, N.S.	137,835	Antigonish hatchery	137,835	
	Yarmouth hatchery ponds, N.S.	81,000	Yarmouth hatchery	81,000	
	St. John hatchery ponds, N.B.	432,684	St. John hatchery	432,684	651,519
Kennerly's salmon	Kokanee creek, B.C.	605,525	Nelson hatchery	605,525	605,525
Steelhead salmon	Sweltzer creek, Cultus lake, B.C.	125,163	Cultus lake hatchery	125,163	
	Medowse creek, B.C.	2,900	Rivers Inlet hatchery	2,900	
	Cowichan river, B.C.	116,300	Cowichan lake hatchery	116,300	244,363
Coho salmon	Cowichan river, B.C.	732,000	Cowichan lake hatchery	732,000	732,000
Spring salmon	Anderson river, B.C.	22,500	Anderson lake hatchery	22,500	
	Sproat river, B.C.	429,000	Sproat river eyeing station	429,000	
	Cowichan river, B.C.	630,000	Cowichan lake hatchery	630,000	
	Wauquash river, Owikeno lake, B.C.	460,320	Rivers Inlet hatchery	460,320	1,541,820
					153,631,415

Species	Month laid down	Purchased from	Laid down in hatchery	Number received	Total by species
Atlantic salmon	January	Fishery Board for Scotland, Edinburgh, Scotland	Cowichan lake	100,000	100,000
Brown trout	January	Cedar Island Lodge, Brule, Wisconsin	Banff	518,213	
	February				
	December	Rainbow Ranch, Troy, Montana	Cowichan lake	200,000	
	January	Trout Brook Company, Hudson, Wisconsin	Cowichan lake	300,000	1,018,213
Cutthroat trout	May	Cranbrook Rod and Gun Club	Cowichan lake	150,000	
	June	Cranbrook Rod and Gun Club	Cultus lake	95,000	
	May, June	Rainbow Ranch, Troy, Montana	Banff	669,395	
	June	Rainbow Ranch, Troy, Montana	Jasper Park	202,176	1,116,571
Rainbow trout	February	W. S. Meader, Esq., Pocatello, Idaho (number hatched)	Banff	108,500	
	February	W. S. Meader, Esq., Pocatello, Idaho (number hatched)	Jasper Park	384,647	
	February	W. S. Meader, Esq., Pocatello, Idaho (number hatched)	Waterton lakes	94,720	
	April	Rainbow Ranch, Troy, Montana	Banff	162,000	
	June	Rainbow Ranch, Troy, Montana	Banff	402,518	
	June	Rainbow Ranch, Troy, Montana	Waterton lakes	613,500	1,765,885
Speckled trout	January	Cape Cod Trout Company, Wareham, Mass.	Kelly's Pond	550,000	
	December	Cape Cod Trout Company, Wareham, Mass.	Bedford	810,000	
	December	Cape Cod Trout Company, Wareham, Mass.	Florenceville	800,000	
	December	Cape Cod Trout Company, Wareham, Mass.	Grand Falls	1,080,531	
	December	Cape Cod Trout Company, Wareham, Mass.	St. John	550,000	
	December	Cape Cod Trout Company, Wareham, Mass.	Yarmouth	760,000	
	February	Gilbert Trout Company, Plymouth, Mass.	St. John	350,000	
	February	Earl Ings, Esq., Charlottetown, P.E.I.	Kelly's Pond	55,800	
	January	Paradise Brook Trout Company, Cresco, Pa.	Bedford	872,275	
	January	Paradise Brook Trout Company, Cresco, Pa.	Middleton	864,612	
	January	Rainbow Ranch, Troy, Montana	Florenceville	503,790	
	December	Trout Brook Company, Hudson, Wisconsin	Banff	633,600	
	December	Billy Wills, Esq., Creede, Col.	Banff	152,000	7,982,608
					11,983,277

Summary of eggs received:	
Total eggs collected	153,631,415
Total eggs purchased	11,983,277
	165,614,692
Eyed eggs received 1934 from Department of Game and Fisheries, Toronto, Ontario, in exchange for Kamloops trout:	
Salmon trout from Belleville hatchery, laid down as follows,—	
Bedford hatchery	100,000
Salmon trout from Port Arthur hatchery, laid down as follows,—	
Banff hatchery	100,262
Eyed eggs received 1934 from United States Bureau of Fisheries, in exchange for Atlantic salmon:	
Cutthroat trout from Gardiner, Montana, U.S.A., laid down as follows,—	
Waterton Lakes hatchery	456,000
Cutthroat trout from Yellowstone Park, Wyoming, U.S.A., laid down as follows,—	
Banff hatchery	557,700

IN THE INTEREST OF ECONOMY AND CONVENIENCE IN THE DISTRIBUTION OF FRY THE FOLLOWING TRANSFERS OF EYED EGGS WERE MADE IN 1934:

Species	From	To	Number	Date received
Atlantic salmon	(a) Antigonish	Lindloff	500,000	April 14
	(a) Grand Falls	Tobique	500,000	May 2
	(a) Restigouche	Nipisiguit	396,750	April 5
	(a) Kelly's Pond	Antigonish	500,000	February 21
	(a) Kelly's Pond	Grand Falls	500,000	February 10
	(a) Kelly's Pond	Restigouche	500,000	February 9
	(a) St. John	Grand Falls	300,000	February 13-April 6
Landlocked salmon	(a) St. John	Bedford	70,000	April 3
Speckled trout	(a) Antigonish	Lindloff	100,000	April 14
	(a) Antigonish	Margaree	100,000	April 2
	(a) Antigonish	Middleton	500,000	April 7
	(a) Antigonish	Miramichi	250,000	March 23
	(a) Antigonish	Restigouche	250,000	March 16
Kamloops trout	(b) Lloyd's Creek	Banff	101,000	June 26
	(b) Lloyd's Creek	Cultus Lake	94,000	June 21
	(b) Lloyd's Creek	Jasper Park	110,000	June 26
	(b) Lloyd's Creek	Pemberton	413,000	June 2
	(b) Penask Lake	Argenta	400,000	June 29
	(b) Penask Lake	Cowichan Lake	330,000	June 21
	(b) Penask Lake	Nelson	250,000	June 16
	(b) Penask Lake	Pitt Lake	50,000	June 20
	(b) Penask Lake	Summerland	520,000	June 28
Rainbow trout	(b) St. John	Lindloff	167,362	May 19, 24
	(b) St. John	Yarmouth	167,363	May 15, 22
Sockeye salmon	(a) Smiths Falls	Cultus Lake	98,675	February 20
Spring salmon	(b) Sproat River	Anderson Lake	100,000	December 31

(a) 1933 fall collection.

(b) 1934 collection.

Marking of Fish

The marking of Atlantic salmon handled for fish cultural purposes at the several salmon retaining ponds, which commenced in 1913, was continued in 1934 at Margaree, Nictaux, Sackville and Saint John ponds. Spring salmon fingerlings were marked at Anderson lake hatchery. The extent and object of marking is shown in the following statement:—

Marked and liberated at	Species	Number marked	Dates of marking	Nature of mark	Object— To throw some light on
Margaree pond, N.S.	Atlantic salmon, adults	536	Nov. 13, 15, 19, 21, 26, 28, Dec. 3, 5, 6.	Silver tag attached to dorsal fin.	The movements of Atlantic salmon in the sea, frequency in spawning and the extent to which early fish of any season return as early fish, or vice versa.
Nictaux pond, N.S.	" "	76	Oct. 30, Nov. 3, 10	" "	" "
Sackville River, Bedford, N.S.	" "	54	Nov. 12	" "	" "
St. John pond, N.B.	" "	2	Sept. 4, 8	" "	" "
Anderson river, B.C.	Spring salmon, fingerlings	24,582	Aug. 27, 29, 31	Removal of adipose and left ventral fins.	The percentage of artificially fed fry that return as adults.

RE-CAPTURES, 1934—ATLANTIC SALMON

Margaree River, N.S.

Number	Weight (lbs.)	Length (ins.)	Condition	Sex	Date	1. Where liberated 2. Where caught
F5891	11	32	Kelt.....	M	Dec. 11, 1933	Margaree Pond, N.S.
	10	33½	Kelt.....	M	June 16, 1934	Near Cheticamp, Inverness County, N.S.
F5967	15	37	Kelt.....	F	Nov. 28, 1933	Margaree Pond, N.S.
	11 (dressed)	.....	Clean.....	F	June 1934	Stephenville district, Newfoundland.

Nictaux River, N.S.

F5244	7	29	Kelt.....	F	Nov. 10, 1932	Nictaux Pond, N.S.
	12½	32	Clean.....	F	May 31, 1934	Lawrencetown, Annapolis river, N.S.
F5259	5	26	Kelt.....	F	Nov. 10, 1932	Nictaux Pond, N.S.
	7	.....	Clean.....	F	Nov. 1933(*w*)	Bauline (Pouch Cove), Newfoundland.
F5325	7	29	Kelt.....	M	Nov. 14, 1932	Nictaux Pond, N.S.
	12	34	Clean.....	M	May 20, 1934	Langley pool, Annapolis river, N.S.
F5346	5	26½	Kelt.....	F	Nov. 15, 1932	Nictaux Pond, N.S.
	(*u*) 7	30¼	Kelt.....	F	Nov. 4, 1934	Nictaux Falls, N.S.
F5360	6	29	Kelt.....	F	Nov. 15, 1932	Nictaux Pond, N.S.
	8	.....	Clean.....	F	June 26, 1934	Ramea, Labrador.

Sackville River, N.S.

F5520	6 lbs. 12 ozs.	29	Kelt.....	F	Nov. 7, 1932	Sackville river, Bedford, N.S.
	12 (approx.)	.....	Clean.....	F	Sept. 12, 1934	Bedford Basin, N.S.
F5568	3 lbs. 8 ozs.	25	Kelt.....	M	Nov. 8, 1932	Sackville river, Bedford, N.S.
	14	36	Clean.....	M	Aug. 23, 1934	Bedford Basin, N.S.
F5776	15¼	39	Kelt.....	F	Nov. 10, 1933	Sackville river, Bedford, N.S.
	14	.....	Kelt.....	F	May 26, 1934	Near Herring Cove, Halifax County, N.S.
F5788	7	31	Kelt.....	F	Nov. 10, 1933	Sackville river, Bedford, N.S.
	6 lbs. 2 ozs.	31	Kelt.....	F	May 1, 1934	Sackville river (mouth of), N.S.
F5795	8¾	32	Kelt.....	F	Nov. 13, 1933	Sackville river, Bedford, N.S.
	13½	.....	Clean.....	F	Aug. 6, 1934	Bedford Basin, N.S.
F5846	2¾	22	Kelt.....	F	Nov. 14, 1933	Sackville river, Bedford, N.S.
	(*u*) 4	24½	Kelt.....	F	Nov. 12, 1934	Sackville river, Bedford, N.S.
F5856	4	24	Kelt.....	M	Nov. 14, 1933	Sackville river, Bedford, N.S.
	(*u*) 6½	29	Kelt.....	M	Nov. 12, 1934	Sackville river, Bedford, N.S.
F5859	2	23	Kelt.....	M	Nov. 14, 1933	Sackville river, Bedford, N.S.
	5 (approx.)	.....	Clean.....	M	Aug., 1934	Bedford Basin, N.S.

(*u*) Liberated with same tag attached.
(*w*) Reported in 1934.

—	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Rainbow trout No. 2 fingerlings	Rainbow trout 3 year olds	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 3 fingerlings	Speckled trout No. 4 fingerlings	Speckled trout yearlings	Speckled trout 2 year olds	Speckled trout 3 year olds
Antigonish Co.—											
Afton river		15,000									
Barney river	40,000	30,000									
Beaver Meadow river					75,000						
Birch Hill Lake										600	
Black river		50,000									
Brierly brook					10,000						
Copper lake					25,000						
Delhantys lake					10,000						
Glenroy river					40,000						
James river	25,000	45,000									
James river lake					15,000					600	
Lochaber lake					40,280			4,000			
Matties river		10,000									
Meadow Green river					40,000						
Monastery river		25,000									
North lake					30,000						
Pinevale lake					5,000						
Polson brook-South river					15,000						
South lake					35,000						
South river		100,082							6,704		
South river lake					55,000		8,000				
Tracadie river		85,000									
West river					70,000		8,000				
Wright river		50,000									
Cumberland Co.—											
Pugwash river					35,000	15,000				500	
River Philip		230,500									
Wallace river		49,991									
Guysborough Co.—											
Cole Harbour lake						40,000					
Copper lake						25,000					
Country Harbour river		75,000									
Cutler lake							15,000				
Donahue lake					45,000					600	
East River St. Mary	5,000	175,000									
Ecum Secum river						25,000					
Eight Island lake					15,000						
Giant lake			92,198	114							
Goldboro lake							15,000				
Goshen lake					15,000						
Hazel Hill lake						31,000					

—	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Rainbow trout No. 2 fingerlings	Rainbow trout 3 year olds	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 3 fingerlings	Speckled trout No. 4 fingerlings	Speckled trout yearlings	Speckled trout 2 year olds	Speckled trout 3 year olds
Jellow lake					25,000					300	400
Long lake-Salmon river							15,000				
McPherson lake						45,000				700	
Salmon river		70,000									
Square lake							15,000				
Three brooks-East River St. Mary					15,000						
Three Mile lake						43,000					
West River St. Mary		180,000									
Pictou Co.—											
Barrow lake					20,000						
Battery lake							17,500				
Big brook-East river					15,000						
Big Caribou river						23,000					
Brora lake					15,000		4,490				
Calder lake							2,000				
Centredale lake					20,000						
Chisholm lake					20,000						
Cross brook					10,000						
East river		72,655									
Ferguson lake							2,000				
French river	30,000										
French river, branch					20,000						
Gairloch lake					20,000		8,000			300	
Graham lake							2,500				
Grant lake							7,000				
Hopewell lake					10,000						
Hunter lake					10,000						
Long lake-East River St. Mary							15,000				
MacDougal dam-Barney river					10,000						
McLean lake							3,000				
McLellan brook					10,000						
Middle river		25,000									
Moore lake					15,000						
River John					75,000					600	
Robertson lake					20,000		2,500				
Sinclair lake							2,000				
Stewart dam					15,000						
Taylor lake					10,000		2,500			300	
Toney river						23,000					
Wentworth pond					15,000					600	
West Branch lake							8,000				
West river					70,000	20,000					
	100,000	1,288,228	92,198	114	1,015,280	290,000	152,490	4,000	6,704	5,100	400

Total distribution..... 2,954,514

—	Atlantic salmon green eggs	Atlantic salmon eyed eggs	Atlantic salmon No. 1 finger-lings	Atlantic salmon No. 2 finger-lings	Landlocked salmon No. 1 finger-lings	Loch Leven trout eyed eggs	Loch Leven trout advanced fry	Speckled trout eyed eggs	Speckled trout fry	Speckled trout No. 1 finger-lings	Speckled trout No. 2 finger-lings
Acadia University, Wolfville	500	300				200		500	300		
Experimental pond (Job's), Wittenberg										12,000	18,000
Dalhousie University (Dr. Hayes)	5,000										
Colchester Co.—											
Bass river			40,000								
Debert river			40,000								
Economy river			40,000								
Economy lake										30,000	
Folly lake										30,000	
Great Village river			72,000								
Newton lake										30,000	
North river										25,000	
Portapique river			40,000								
Silica lake—Bass river											8,735
Cumberland Co.—											
Amherst pumping station pond										18,000	
Dow brook—Wallace river										12,000	
Harrison lake										20,000	
Living brook—Mattatal lake										10,000	
McLeod lake										20,000	
Parrsboro Aboiteau										30,000	
River Philip			120,000								
Shinimikas river			30,000								
Tead brook—Wallace river										12,000	
Victory lake										20,000	
Weatherhead lake										20,000	
Guysborough Co.—											
Guysborough river							254,975				
Halifax County—											
Big Salmon river				30,000							
Little Salmon river			39,415								
Chezzetcook river			45,000								
Clay lake										10,000	
Davidson pond—Porter lake											500
Five Island lake										30,000	
Fraser lake										15,000	
Grand lake rearing ponds (Provincial)					40,000					80,000	
Halfway river											20,000
Higgin lake										30,000	

BEDFORD HATCHERY—*Concluded*

—	Atlantic salmon green eggs	Atlantic salmon eyed eggs	Atlantic salmon No. 1 fingerlings	Atlantic salmon No. 2 fingerlings	Landlocked salmon No. 1 fingerlings	Loch Leven trout eyed eggs	Loch Leven trout advanced fry	Speckled trout eyed eggs	Speckled trout fry	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings
Hilltop lake										5,000	
King lake										5,000	
Lily lake										5,000	
Mary lake										20,000	
Maxwell lake										15,000	
Moose lake										10,000	
Musquodoboit river				16,165							
Nine Mile river			45,000								
Oisier river			40,000								
Otter lake										15,000	
Peggy lake										20,000	
Pine Island lake										20,000	
Porter lake			40,000								
Ragged lake										5,000	
Rawdon river				20,000							
Sackville river			45,000								
Salmon river			35,000								
Sheldrake lake										20,000	
Ship lake				25,000							
Soldier lake										10,000	
Stillwater lake										30,000	
Tangier lake			30,000								
Taylor brook			40,000								
Hants Co.—											
McLellan lake										15,000	
Lunenburg Co.—											
Corkum lake										15,000	20,000
East river			40,000								
Gold river			70,000	30,000							
Middle river				25,000							
Mill lake										25,000	14,500
Mush-a-Mush river										30,000	
Queensland pond										5,000	
Seffernsville lake										20,000	
Spondo lake										15,000	
Tip Hill lake										5,000	
	5,500	300	851,415	146,165	40,000	200	254,975	500	300	764,000	81,735

Total distribution..... 2,145,090

LINDLOFF SUB HATCHERY

—	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Rainbow trout No. 2 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 3 fingerlings
Cape Breton Co.—					
Bell lake				10,000	
Enon lake (via Munroe lake)			15,000		
Gaspereau river		22,825			2,000
Gillis lake				5,000	
Giovanetti lake				10,000	
Kelvin brook	22,832				2,000
Lever lake			39,519		
Long lake					2,000
McDonald lake					3,000
McIntyre lake				10,000	2,000
McMillan lake			30,000		
Meadow brook—Sydney river				2,000	
Salmon river		75,000			
Inverness Co.—					
Big brook—Denny's river		35,000			
Dolan brook—Inhabitants river	70,000				
Richmond Co.—					
Black river					2,000
Framboise river		90,000			
Grand river	90,000				
Indian lake				4,000	
Kyte brook—Tillard river, east		14,650			
Lindloff lake			40,000		
McRae lake					5,000
Morrison brook—Tillard river, west		14,650			
Mountain lake					4,129
	182,832	252,125	124,519	41,000	22,129

Total distribution 622,605

—	Atlantic salmon advanced fry	Atlantic salmon No. 1 finger-lings	Atlantic salmon No. 2 finger-lings	Atlantic salmon No. 3 finger-lings	Atlantic salmon No. 4 finger-lings	Speckled trout No. 1 finger-lings	Speckled trout No. 3 finger-lings	Speckled trout No. 4 finger-lings	Speckled trout No. 5 finger-lings	Speckled trout two years
Cape Breton Co.—										
Brown's lake							4,000			
English lake							4,000			
Grand lake							6,000			
Keefe's lake								4,000		
Dalem lake (Boularderie island)								3,500		
Inverness Co.—										
North East Margaree river—										
Between Big Intervale bridge and Black Rock				20,000						
Between Big Intervale bridge and Stewart brook			30,000	20,000						
Between Big Intervale Stewart and McLeod brook					10,000					
Between Black Rock and Old Bridge		50,000								
Between Crowdis bridge and Hart pool		100,000								
Between Crowdis bridge and Philips brook		40,000								
Between Cranton bridge and Ethridge pool					20,000					
Between Cranton bridge and McDermid pool					25,802					
Between Hatchery and Crowdis bridge		40,000								
Between Hatchery and Greig crossing			30,000							
Between Hatchery and Whitley pool					13,456					
Between Ingraham bridge and Ingraham pool					20,000					
Between Ingraham bridge and Rock pool					20,000					
Between Tingley crossing and McDermid pool					20,000					
Between Tingley crossing and Tingley pool					20,000					
Big brook		40,000			5,000					
Big Intervale bridge		30,000								
Carmichael brook		15,000								
Dunn brook	40,000									
Egypt brook					5,000	10,000				
Gallant brook		25,000								
Greig crossing		52,000								
Hatchery brook						219		500	2,577	720
Island brooks	50,000		40,000		20,000					
Lake O'Law brook	50,000				20,000					
Lake O'Law								7,000		
Fortune brook								1,500		
McKinnon brook								1,500		
Murphy brook								4,000		
Levis brook			30,000							

McDonald brook		20,000								
McKenzie brook					5,000					
McLean brook		20,000								
Mill brook		30,000								
Philips brook		15,000								
Tingley crossing		53,000								
Stewart brook		20,000			5,000					
Watson brook						10,000				
Graham brook								2,000		
Indian brook								2,000		
Little River Cheticamp		50,000	40,000							
Little Judique river								2,000		
Mull river		50,000	30,000							
South West Margaree river—										
McDonnell brook		30,000								
Victoria Co.—										
Baddeck river—										
Crowdis brook		30,000								
Forks		36,000								
McDonald brook								5,000		
North branch		36,000	40,000	25,000						
Barasois river				20,000				5,000		
Clyburn brook								4,000		
Hume river								6,000		
Middle river	54,000	25,000	80,000	20,000						
Beaver brook	30,000									
Black brook								3,500		
Indian brook			35,000							
McKenzie brook								3,500		
North river			20,000	35,000						
Church brook								3,000		
McDonald brook		25,000								
South Gut brook		25,000								
North Aspy river								10,000		
Warren lake								4,000		
	224,000	857,000	375,000	140,000	209,258	20,219	14,000	72,000	2,577	720

Total distribution 1,914,774

MIDDLETON HATCHERY

—	Atlantic salmon No. 2 fingerlings	Atlantic salmon No. 3 fingerlings	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 3 fingerlings	Speckled trout No. 4 fingerlings	Speckled trout yearlings
Annapolis Co.—							
Allen lake (west)				10,000			
Annapolis river		101,700					
Annie Morehouse lake				10,000			
Bear river (east branch)					10,000		
Crisp brook			5,000				
Croskil lake			10,000				
Elliott lake			10,000		2,000		100
Gesner lake				5,000			
Hatchery pond						2,000	
Hornet lake				5,000			
Kelly brook			5,000				
Lake Franklin				15,000			
Lake Jolly				15,000			
Lake LeMerchant				10,000			
Lequille river		20,000					
Lily lake							100
Little Bear lake				5,000			
Little river			15,000				
Long lake				15,000			
McGill lake			15,000		5,000		
Milford lake			15,000				
Morton brook			5,000				
Nictaux river		500,000					
Paradise brook			11,300				
Parker brook			10,000		5,500		
Quilty lake			10,000				
Round Hill river		20,000					
Sand lake				10,000			
Scragg lake				10,000			
Second Daniel lake				10,000			
Shannon lake				15,000			
Shannon river			15,000				
Slocomb brook			5,000				
Thirty lake			15,000				
Trout lake			15,000				
Waterloo lake				10,000			
Zwicker lake				15,000			96
Digby Co.—							
Haines river				10,000			
Harris lake				10,000			
Malletts lake				10,000			
Porter lake				15,000			
Hants Co.—							
Armstrong river					10,000		
Avon river (south branch)	20,000						
Avon river (west branch)		20,000					
Cameron lake				10,000			
Canoe lake				10,000			
Cards lake				20,000			
Coxcomb lake				10,000			
Halfway river					5,000		
Indian lake				10,000			
Kennetcook river		25,000					
LeBreau brook					5,000		
Little Meander river				10,000			
Little Otter lake				10,000			
Meander river	20,000						
Murphy lake				10,000			
Nixes lake				15,000			
Panuke lake				30,000	5,000		
Pigot lake			10,000				
River Herbert		25,000					
Zwicker lake				10,000			
Kings Co.—							
Aylesford lake			15,000				
Black River lake				15,000			
Cornwallis river		15,000					
Gaspereau river		25,000					
Habitant river			10,000				
Hardwood lake				15,000			

MIDDLETON HATCHERY—*Concluded*

—	Atlantic salmon No. 2 fingerlings	Atlantic salmon No. 3 fingerlings	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 3 fingerlings	Speckled trout No. 4 fingerlings	Speckled trout yearlings
Lake George			15,000				
Lake Torment			15,000				
Murphy lake				15,000			
Simpson lake						200	
Sunken lake			10,000				
Trout river			10,000				
Lunenburg Co.—							
Gold river		50,000					
LaHave river		65,000					
Lake Louis				10,000			
Medway river		50,000					
Petite riviere		20,000					
Whelan lake				10,000			
Whetstone lake			10,000				
Queens Co.—							
Horse lake				10,000			
	40,000	936,700	256,300	425,000	47,500	2,200	296

Total distribution 1,707,996

NICTAUX FALLS REARING STATION

—	Atlantic salmon No. 1 fingerlings	Atlantic salmon No. 2 fingerlings	Atlantic salmon No. 3 fingerlings	Speckled trout No. 3 fingerlings
Annapolis Co.—				
Nictaux river	25,000	10,000	26,000	
Oakes brook				6,100
	25,000	10,000	26,000	6,100

Total distribution 67,100

—	Atlantic salmon No. 2 fingerlings	Atlantic salmon No. 3 fingerlings	Atlantic salmon No. 4 fingerlings	Atlantic salmon No. 5 fingerlings	Atlantic salmon yearlings	Rainbow trout No. 2 fingerlings	Rainbow trout No. 4 fingerlings	Rainbow trout No. 5 fingerlings	Rainbow trout yearlings	Rainbow trout 2-year olds	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 4 fingerlings	Speckled trout No. 5 fingerlings	Speckled trout yearlings	Speckled trout 2-year olds	Speckled trout 3-year olds	Speckled trout 4-year olds	Speckled trout 5-year olds
Annapolis Co.—																			
Bear river	30,000																		
Digby Co.—																			
Babine Meadows											46,000								
Barn river															3,500				
Barrio lake															2,000				
Beaver lake															3,500				
Belliveau lake											20,000				2,000				
Briar lake											45,000								
Carrying Road lake															3,000				
Clear lake									13,000										
Dean brook											46,000								
Harris lake															500				
Lake Wentworth											50,000								
Meadow Brook—Carleton river															4,000				
Melanson brook											50,000								
Meteghan river											75,000								
Moose lake															4,000				
Payson's Meadow															5,000				
Rocky lake											17,000								
Round lake									3,000										
Salmon river	60,000		60,000	4,000															
Salmon river lake															4,056	7	44		14
Seven Pence Ha'Penny river															3,000				
Silver river											20,000								
Sissiboo river															1,500				
Queens Co.—																			
Cranberry lake							8,000	3,500	14,000										
Deep lake									4,500										
Grafton brook															2,000				
High lake															2,000				
Lake Nancy						60,000	4,000	3,000	13,500										
Lower Great brook															1,500				
Medway river		15,000	19,000																
Mersey river		150,000			435										1,065				
Willis lake													20,000						
Shelburne Co.—																			
Barrington river															3,000				
Clam lake						30,000			14,000										
Clyde river	30,000	15,000		5,000															
Roseway river	90,000																		

Yarmouth Co.—																			
Bird lake										174									
Burrell brook											15,000				2,000				
Carleton river											50,000								
Coldstream river															8,000				
Crawley lake															4,000				
East branch brook—																			
Tusket river											25,000								
Lake Ellenwood														2,800	2,000				
Lake Fanning															4,000				
Lake Skinner																1,769		22	125
Little Meadow brook											20,000								
Milo lake															4,000				
Pleasant lake											30,000								
Randall brook												10,000							
Reuben brook											12,000								
Salmon river			20,878																
Whistler lake															4,000				
	210,000	180,000	99,878	9,000	435	90,000	12,000	6,500	62,000	174	521,000	10,000	20,000	2,800	73,621	1,776	44	22	139

Total distribution..... 1,299,389

NEW BRUNSWICK

FLORENCEVILLE HATCHERY

—	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Atlantic salmon No. 2 fingerlings	Speckled trout advanced fry	Speckled trout No. 1 fingerlings	Speckled trout No. 3 fingerlings
Atlantic Biological Station, St. Andrews, N.B.			1,000			
Carleton Co.—						
Becaguimec river		120,000				
Big Guisiguit river				20,000	50,000	
Big Presquile river		90,000				
Bogan brook—South West Miramichi river		10,000				
Bubby brook—St. John river					7,000	
Bull creek—St. John river				10,000	40,000	
Clearwater brook—South West Miramichi river		10,000				
Elliot brook—South West Miramichi river		20,000				
Gallivan brook—St. John river					6,000	
Hagerman brook—St. John river					20,000	
Hardwood brook—St. John river				15,000		
Lanes creek—St. John river					7,537	
Little Guisiguit river				20,000	30,000	
Little Presquile river		35,000				
Little Shiktahawk river		35,000				
Mallory brook—St. John river					15,000	
Maynes brook—Presquile river				25,000		
McLeary brook—Lakeville pond					25,000	
McQuade pond—St. John river				40,000		
Meduxnekeag river		120,000				
South West Miramichi river, North Branch		92,000	4,000			
South West Miramichi river, South Branch		92,000	4,000			
Monquart river	60,000	40,000				
Priest brook—Shiktahawk river					10,000	
River de Chute				20,000	30,000	
Shiktahawk river		60,000	5,000			
Simpson brook—South West Miramichi river		10,000				
Stickney brook—St. John river					5,000	
Teague brook—South West Miramichi river		10,000				
Tweedie brook—St. John river					5,000	
White Marsh brook—St. John river					3,971	29
Charlotte Co.—						
Digdeguash river					70,000	
York Co.—						
Cross creek—Nashwaak river				10,000		
Davidson lake				35,000		
First Eel river lake				25,000		
Second Eel river lake				25,000		
Indian lake				25,000		
Keswick river		60,000		10,000		
Kingsley brook—Nashwaaksis river				10,000		
Limekiln brook—Nashwaak river				10,000		
Mactaquac river		35,000				
McBean brook—Nashwaak river				10,000		
Nackawic river		35,000				
Nashwaak river		110,000				
Nashwaaksis river					70,000	
Nigger brook—Nackawic river				20,000		
Pokiok river					50,000	
Risteen lake				25,000		
Shogomoc river					70,000	
Skiff lake		50,000				
Taffa lake				15,000		
Taymouth brook—Nashwaak river				10,000		
Tinkettle brook—Nashwaak river				10,000		
	60,000	1,034,000	14,000	390,000	514,508	29

Total distribution 2,012,537

GRAND FALLS HATCHERY

—	Atlantic salmon No. 1 fingerlings	Atlantic salmon No. 2 fingerlings	Speckled trout fry	Speckled trout advanced fry	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 3 fingerlings
Salmon river—Victoria Co.—							
Salmon river, at Estey camp		10,000					
Salmon river, at Guimont lodge		5,000					
Salmon river, at Power's camp		8,000					
Salmon river, iron bridge to Danish Mill		8,000					
Salmon river flats	20,000	8,000					
Salmon river, headwaters	50,000	50,000					
Salmon river, mouth of		8,000					
East branch					10,000		
North branch					5,000		
Anderson brook					5,000		
Aubin crossing	20,000	8,000					
Barney brook					5,000		
Big Bogan	10,000	15,000					
Big brook					5,000		
Boat landing	20,000	8,000					
Cote mill	15,000	16,000					
Covered bridge	10,000	8,000					
Cyr flats	10,000	8,000					
Danish mill	10,000						
Davis mill	20,000	8,000					
Foley brook		8,000					
Grindstone brook					5,000		
Iron bridge	10,000	8,000					
Leslie brook					5,000		
Little Salmon river	40,000	10,000					
Mooney brook				15,000			
Otter slide				15,000			
Outlet brook—Little Salmon river			15,000				
Ryan brook					5,000		
Sutherland brook				35,000			
St. John river—Victoria Co.—							
At hatchery		2,135					
Andover		10,000					
Andover bar	15,000	10,000					
Andover, lower		10,000					
Andover, upper		10,000					
Argossy	15,000	15,000					
Aroostock bar	25,000						
Aroostock junction	25,000	20,000					
Black rapids		3,000					
Boutout brook			10,000				4,561
Costigan point	10,000	15,000					
Dee point	10,000	10,000					
Falls brook				10,000		3,000	
Four Falls brook			15,000				
Fraser's dead waters of Three brooks			14,000				
Gallagher flats	10,000						
Gallagher point		15,000					
Gillespie lake				25,000			
Hatchery brook, below falls						3,000	
Hitchcock flats	10,000	15,000					
Indian ferry		10,000					
Inman flats	35,000	20,000					
Kilburn ferry	35,000	15,000					
Limestone siding	35,000	8,000					
Little river—Grand Falls				50,000			
Lower Basin	10,000	5,000					
McLaughlin flats	10,000	15,000					
Morrill siding	25,000	15,000					
Mulherin lake			10,000				
Muniac river, mouth of	30,000	15,000					
Muniac river, upper		25,000					
Ortonville siding	25,000	15,000					
Perth Junction		20,000					
Perth, lower		10,000					
Pokiok brook			50,000				
Price brook							3,810
Tobique river, mouth of		20,000					
Haley brook		25,000					
Millers		50,000					
Watson flats	10,000	15,000					
Madawaska Co.—							
Baker lake				200,000			
Four Mile brook							4,000
Grand river				75,000			
Green river			100,000	100,000	20,000		
Iroquois river				50,000			
Little river				50,000	25,000		
Beaver brook					11,042		
Dead brook					13,000		
Head waters			14,958				
Perkin brook					8,000		
Rocky brook					8,000		
Madawaska river				25,000			
Nine Mile brook				15,000			
Power's creek				5,000			
Thompson lake				15,000			
Unique lake				65,000			
	570,000	612,135	228,958	750,000	130,042	6,000	12,371

Total distribution 2,309,506

MIRAMICHI HATCHERY

—	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Atlantic salmon No. 2 fingerlings	Speckled trout advanced fry	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 3 fingerlings
Aboujugan river						1,800	
Bartibogue river		45,000	18,000				
Bass river		20,000					
Bay du Vin river		30,000	10,000				
Black river—Northumberland Co		45,000					
Black river—Westmorland Co						1,500	
Buckley lake					10,000		
Buctouche river			19,200				
Burnt Church river		40,000					
Caraquet river				12,000			600
Eagle lake					8,000		
Estey lake				6,000		162	
Elmtree river					6,000		
Grand Aldouane river						4,000	
Hashmans brook—Westmorland Co						1,800	
Kouchibouguac river			19,200				
Little river—Nipisiguit bay					6,000		
Little river—Westmorland Co						1,440	
Little South West Miramichi river		133,200	62,000				
Middle river		20,000					
Millstream—Nipisiguit bay					6,000		
Nappan river		45,000					
Nigadu river					6,000		
North West Miramichi river		281,200	95,659				
Millstream brook		30,000					
Mullin stream			5,200				
Sevogle river			134,400				
Stewart brook		20,000					
Trout brook		18,000					
Pokemouche river					10,000		
Richibucto river			19,200				
Shadduck lake				6,000			
South West Miramichi river		60,000					
Barnaby river	40,000						
East branch						3,000	
Bartholomew river	40,000						
Burntland brook						6,400	
Cain river		45,000	19,200				
Renous river		90,000					
Dungarvon river		90,000					
Taxis river		54,200					
Tabusintac river		59,200					
Eskedelloc brook				8,000			800
Tetagouche river		20,000					
Tracadie river				15,000			
Little Tracadie river				12,000			300
Votoure lake				10,000			
Wrigley lake				5,000			
	80,000	1,145,800	402,059	74,000	52,000	20,102	1,700

Total distribution 1,775,661

NIPISIGUIT SUB-HATCHERY

Nipisiguit river—	Atlantic salmon fry
Bear island, foot of	40,000
Bear island, head of	36,000
Boudreau beach	36,000
Church point	53,827
Club House pool	36,000
Comeau landing	40,000
Gilmore brook	30,000
Knight brook	30,000
Long Meadow, head of	30,000
Middle beach	40,000
	371,827

Total distribution 371,827

RESTIGOUCHE HATCHERY

—	Atlantic salmon fry	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Speckled trout fry
Atlantic Biological Station, St. Andrews	360	.....	50	.....
Black lake	.....	.....	.....	10,000
Charlo River pond	.....	.....	.....	60,000
Christopher brook	.....	.....	.....	8,000
Grog brook	.....	.....	.....	15,000
Jacquet river	45,590	.....	.....	.....
Little river	.....	.....	.....	12,047
Loch Lomond	.....	.....	.....	4,000
Middle river	45,000	.....	.....	.....
Restigouche river	377,962	250	25,775	.....
Little Main river	.....	.....	35,000	.....
Matapedia river	300,000	.....	18,647	.....
Upsalquitch river	230,000	.....	19,000	.....
Shippigan Gully lake	.....	.....	.....	20,000
Walker brook	.....	.....	.....	10,000
	998,912	250	98,472	139,047

Total distribution 1,236,681

—	Atlantic salmon eyed eggs	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Atlantic salmon No. 2 fingerlings	Atlantic salmon No. 3 fingerlings	Atlantic salmon No. 5 fingerlings	Brown trout albino 3 year olds	Brown trout hybrid 4 year olds	Brown trout hybrid 7 year olds	Land-locked salmon No. 3 fingerlings	Land-locked salmon No. 5 fingerlings	Loch Leven trout 5 year olds	Rain-bow trout 6 year olds
Atlantic Biological Station, St. Andrews, N.B.				500									
Dr. A. G. Huntsman, Toronto, Ontario	1,000												
New Brunswick Tourist Bureau							6	6					12
St. Stephen Exhibition													
Albert Co.—													
Pollett river													
Turtle creek—Petitcodiac river													
West river													
Charlotte Co.—													
Bonaparte lake													
Burns brook-Digdeguash river													
Chamcook lake											28,049		
Clarence stream-Magaguadavic river			40,000										
Craig brook-Digdeguash river													
Disappointment lake													
Gibson lake													
Green Brown brook-Kanus river													
Hall brook													
Hitching brook-Digdeguash river													
Kerr lake													
Lake Utopia													
Limeburner lake													
McDougall lake													
Murchie brook-St. Croix river													
Piskahegan river		40,000											
Pocologan river		40,000											
Red Rock lake													
St. Andrews rearing pond													
St. Patrick lake													
St. Stephen rearing pond													
Stein lake													
Kent Co.—													
Cocagne river													
McKee Mills													
Molus river													
Salmon river													
St. Nicholas river													
Kings Co.—													
Anagance river													
Deer lake													
Eagle lake													
Kennebecasis river, headwaters		50,000											
Otter lake													
Pollett lake													
Wolfe lake													
Queens Co.—													
Big Indian lake													
Salmon river			30,000										

St. John Co.—													
Ball lake													
Black river		40,000			10,000								
Blindman lake								24	3				
Brown lake													
Donaldson lake													
Douglas lake													
Germain brook-Hammond river													
Grassy lake													
Henry lake													
Little river													
Loch Alva-St. John and Kings Cos													
Loch Lomond													
First Loch Lomond													
Second Loch Lomond													
Third Loch Lomond													
(x) Loch Lomond rearing pond													
McDonald lake													
Milligan lake													
Mispek stream		40,000		20,000									
Rockwood park—													
Lily lake													
Artificial lake No. 3													
Artificial lake No. 4													
Seven Mile lake													
Shadow lake								38				4	
Southern lake													
Tyne Mouth creek						26,000							
Sunbury Co.—													
Birch lake													
Oromocto river					20,000								
Westmorland Co.—													
Bennett brook-Petitcodiac river													
Stoney creek pond (Electric and Gas Co.)													
York Co.—													
Davis brook-Magaguadavic river													
Digity stream													
Grand lake					5,000								
Harvey lake													
Jamieson lake													
Lacoote brook-Palfrey lake													
Lake George													
Long creek-St. John river													
Man lake													
Mink lake													
Pokiok river													
Popal brook-Spendic lake													
Risteen lake													
Skiff lake										12,000			
St. John river					100								
Trout brook-Grand lake													
Fredericton rearing pond No. 1													
Fredericton rearing pond No. 2													
	1,000	210,000	70,000	20,500	35,100	26,000	6	68	3	12,000	28,049	4	12

(x) Operated by St. John branch of the New Brunswick Fish and Game Protective Association in conjunction with the Loch Lomond Protective Association.

—	Rainbow trout 7 year olds	Speckled trout green eggs	Speckled trout fry	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings	Speckled trout No. 3 fingerlings	Speckled trout No. 4 fingerlings	Speckled trout No. 5 fingerlings	Speckled trout yearlings	Speckled trout 2 year olds	Speckled trout 3 year olds	Speckled trout 4 year olds
Atlantic Biological Station, St. Andrews, N.B.	.....	32,200	.....	200	.....	.....	.....	.....	.....	.....	.....	.....
Dr. A. G. Huntsman, Toronto, Ontario	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Brunswick Tourist Bureau	.....	.....	.....	.....	.....	.....	.....	31	8	6	12	.....
St. Stephen Exhibition	3	.....	.....	.....	.....	.....	.....	.....	12	.....	6	.....
Albert Co.—												
Pollett river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Turtle creek-Petitcodiac river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
West river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Charlotte Co.—												
Bonaparte lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Burns brook-Digdeguash river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Chamcook lake	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clarence stream-Magaguadavic river	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Craig brook-Digdeguash river	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Disappointment lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Gibson lake	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Green Brown brook-Kanus river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Hall brook	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Hitching brook-Digdeguash river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Kerr lake	.....	.....	.....	7,500	.....	.....	.....	.....	.....	.....	.....	.....
Lake Utopia	.....	.....	.....	25,000	.....	.....	.....	.....	.....	.....	.....	.....
Limeburner lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
McDougall lake	.....	.....	.....	20,000	.....	.....	.....	.....	.....	.....	.....	.....
Murchie brook-St. Croix river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Piskahegan river	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pocologan river	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Red Rock lake	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	.....
St. Andrews rearing pond	.....	.....	.....	5,000	6,000	.....	.....	.....	.....	.....	.....	.....
St. Patrick lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
St. Stephen rearing pond	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stein lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	8	.....
Kent Co.—												
Cocagne river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
McKee Mills	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Molus river	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salmon river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
St. Nicholas river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Kings Co.—												
Anagance river	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Deer lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Eagle lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Kennebecasis river, headwaters	.....	.....	.....	15,000	.....	.....	.....	.....	.....	.....	.....	.....
Otter lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Pollett lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Wolfe lake	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....	.....
Queens Co.—												
Big Indian lake	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	.....
Salmon river	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

St. John Co.—												
Ball lake			10,000									
Black river												
Blindman lake												
Brown lake				5,000								
Donaldson lake				5,000								
Douglas lake				5,000								
Germain brook-Hammond river				5,000								
Grassy lake				5,000								
Henry lake				10,000								
Little river	50			5,000								
Loch Alva-St. John and Kings Cos.				10,000								
Loch Lomond					25,000	2,000						
First Loch Lomond									1,030			
Second Loch Lomond										370		56
Third Loch Lomond									300			
(x) Loch Lomond rearing pond							5,554					
McDonald lake			10,000									
Milligan lake				5,000								
Mispek stream												
Rockwood Park—												
Lily lake				5,000					250	50		
Artificial lake No. 3	103											
Artfficial lake No. 4	100											
Seven Mile lake				5,000								
Shadow lake												
Southern lake				5,000								
Tyne Mouth creek												
Sunbury Co.—												
Birch lake					2,000							
Oromocto river												
Westmorland Co.—												
Bennett brook-Petitcodiac river				10,000								
Stoney creek pond (Electric and Gas Co.)				250								
York Co.—												
Davis brook-Magaguadavic river				5,000								
Digity stream				5,000								
Grand lake				5,000								
Harvey lake				15,000								
Jamieson lake				5,000								
Lacoote brook-Palfrey lake				5,000								
Lake George				10,000								
Long creek-St. John river				5,000								
Man lake				5,000								
Mink lake				5,000								
Pokiok river				15,000								
Popal brook-Spendic lake				5,000								
Risteen lake				10,000								
Skiff lake												
St. John river	10											
Trout brook-Grand lake				5,000								
Fredericton rearing pond No. 1				5,000		100						
Fredericton rearing pond No. 2				5,000								
	266	32,200	40,000	402,950	33,000	2,100	5,554	31	1,600	426	26	56

Total distribution..... 920,951

x)—Operated by St. John branch of the New Brunswick Fish and Game Protective Association in conjunction with the Loch Lomond Protective Association.

TOBIQUE SUB-HATCHERY

	Atlantic salmon fry
Tobique river—	
Horse island brook	185,000
Total distribution	185,000

PRINCE EDWARD ISLAND

KELLY'S POND HATCHERY

—	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Speckled trout advanced fry	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings
Kings Co.—					
Bear river	.....	.....	8,000	.....	.....
Big brook-Fortune river	.....	.....	.....	7,000	.....
Big pond	.....	.....	.....	10,000	.....
Black pond	.....	.....	.....	7,000	.....
Cardigan river, head of	.....	.....	8,000	.....	.....
Collin's pond-Sturgeon river	.....	.....	.....	5,500	.....
Coogan stream-Morell river	50,000	40,000	.....	.....	.....
Crane's, below mill-Morell river	.....	50,000	.....	.....	.....
Crane's pond-Morell river	.....	.....	8,000	.....	.....
East lake	.....	.....	.....	8,000	.....
Fisher brook-Morell river	.....	.....	8,000	.....	.....
Fortune river, head of	.....	30,000	.....	.....	.....
Goose river	.....	.....	6,000	.....	.....
Hay river	.....	.....	10,000	.....	.....
Leard's-Morell river	.....	40,500	.....	.....	.....
Lewis brook-Schooner pond	36,000	.....	.....	.....	.....
McAulay brook-Morell river	.....	.....	10,000	.....	.....
McEwen's pond	.....	.....	.....	5,500	.....
McInnis pond-Souris river	.....	.....	.....	7,000	.....
McKinnon brook-Morell river	50,000	1,335	.....	5,500	.....
McLeod's pond-Murray river	.....	.....	.....	10,000	.....
McRae's pond-Montague river	.....	.....	.....	10,000	.....
Midgell river	.....	40,500	.....	.....	.....
Montague pond	.....	.....	10,000	.....	.....
Montague river	.....	40,500	.....	.....	.....
Mooney's bridge-Morell river	41,000	.....	.....	.....	.....
Mooney's pond-Morell river	.....	.....	10,000	.....	.....
Mooney's stream-Morell river	36,000	.....	.....	.....	.....
Naufrage river	40,500	.....	.....	.....	.....
North lake	.....	.....	.....	8,000	.....
Priest pond	.....	.....	.....	7,000	.....
Quigley, below mill	.....	30,000	.....	.....	.....
Quigley's pond	.....	.....	.....	7,000	.....
Red bridge-Morell river	41,000	.....	.....	.....	.....
Sturgeon river	.....	38,000	.....	.....	.....
Warren's pond	.....	.....	10,000	.....	.....
West river	.....	.....	.....	7,000	.....
Whelan brook-Souris river	.....	40,000	.....	.....	.....
Prince Co.—					
Bain creek	.....	.....	.....	5,200	.....
Barlow pond-Ellis river	.....	.....	.....	7,000	.....
Bell creek-Mill river	.....	.....	.....	7,000	.....
Black pond	.....	23,000	.....	.....	.....
Cannon's pond-Conway river	.....	.....	.....	7,000	.....
Currie's pond	.....	.....	.....	7,000	.....
Dunk river	.....	.....	.....	20,000	.....
South West branch	.....	.....	.....	15,000	.....
Gard's pond-Mill river	.....	.....	.....	8,000	.....
Green stream (Miminegash)	.....	40,500	.....	.....	.....
Harper's pond-Tignish river	.....	.....	.....	8,000	.....
Haywood's pond-Tignish river	.....	.....	.....	8,000	.....
Kane's stream-Mill river	.....	.....	.....	8,000	.....
Leard Brothers pond-Trout river	.....	.....	.....	8,000	.....
Little Tignish river	.....	.....	.....	8,000	.....
Long creek-Hill river	.....	.....	.....	7,000	.....
McAusland's pond-Mill river	.....	.....	.....	8,000	.....
McAusland's pond-Trout river	.....	.....	.....	7,000	.....
McNeil's pond-Ellis river	.....	.....	.....	7,000	.....
McWilliam's pond	.....	.....	.....	14,000	.....

KELLY'S POND HATCHERY—*Concluded*

—	Atlantic salmon advanced fry	Atlantic salmon No. 1 fingerlings	Speckled trout advanced fry	Speckled trout No. 1 fingerlings	Speckled trout No. 2 fingerlings
Prince Co.—					
Myrick stream-Tignish river				8,000	
Nail pond		23,000			
Reid stream (Miminegash)		40,000			
Rix creek-Kildare river				7,000	
Sea Cow pond				5,200	
Sheep river				7,000	
Skinner's pond		23,000			
Stewart's pond				7,000	
Trout river				7,000	
Tryon river			6,000		
Tuplin's pond-Indian river				9,000	
Tyne Valley stream-Trout river				7,000	
Wood brook-Foxley river				10,400	
Wright's pond-Wilmot river				5,000	
Queens Co.—					
Adams pond				4,000	
Bagnall's pond			6,000		
Beer's pond-Clyde river			6,000		
Bell river				6,000	
Black river			6,000		
Blooming point pond				10,000	
Brander's pond				4,000	
Campbell's pond				6,000	
Callaghan's pond				7,000	
Clark stream-East river				7,000	
Cousin's pond				6,000	
Crapaud river			6,000		
Craswell's pond			8,000		
Dixon's pond-Crapaud river			8,000		
Eel creek-South West river				7,000	
Gurney's stream		40,000			
Hardy's pond				5,500	
Hillsborough river, head of		40,500			
Holme's pond-Sable river			6,000		
Hope river				6,000	
Lake Verde				12,138	
Leard's pond-Pisquid river				5,500	
McAulay brook			3,000		
McPherson's pond-Flat river				6,000	
McPherson's pond-Pinette river				6,000	
Miller brook-East river			4,000		
North river		40,000			
Parson's pond-Stanley river			10,000		
Rackham's pond-Wheatley river			10,000		
Rolling's pond				3,000	
Simpson's pond				8,138	
Smith's pond-West river					4,242
Stevenson's pond				6,000	
Stordy's pond-Crapaud river				6,000	
Vessey brook-Winter river				13,500	
Winter river		60,000			
East branch				5,500	
Wisner's pond				9,000	
Wood's pond-Hunter river			6,000		
	294,500	680,835	173,000	485,576	4,242

Total distribution 1,638,153

ALBERTA
BANFF HATCHERY

	Brown trout advanced fry	Brown trout No. 1 fingerlings	Cutthroat trout No. 1 fingerlings	Cutthroat trout No. 2 fingerlings	Kamloops trout eyed eggs	Rainbow trout advanced fry	Rainbow trout No. 1 fingerlings	Rainbow trout No. 2 fingerlings	Salmon trout advanced fry	Salmon trout No. 4 fingerlings	Speckled trout advanced fry	Speckled trout No. 1 fingerlings	Speckled trout No. 3 fingerlings	Speckled trout Old Fish
Altrude lake			10,000											
Baptiste river—														
Chambers creek		20,000												
Lawrence creek		12,000												
Ruth creek		12,000												
Betty lake, T.28 R.16			10,000											
Birch lake, T.35 R.6		20,000												
Boom lake			12,450	7,550										
Bow lake			24,000											
Bow river—														
Anthracite creek			15,000											
Baker creek			20,000											
Beaufort creek			10,000											
Big Hill creek				30,000										
Cascade creek			20,000											
Cold creek			25,000											
Corral creek			24,000											
Eight Mile spring			15,000											
Forty Mile creek			20,000											
Four Mile creek			10,000											
Gap creek			10,000											
Healey creek			20,000											
Johnson creek				20,000										
Luellen lake				32,000										
Jumping Pound creek				10,425										
Bear creek							10,000							
Muskeg creek				10,000										
Sibbald creek							20,000							
Spring (hatchery) creek							12,630					17,170	750	
Massive creek			30,000											
Pederson creek			10,000											
Policeman creek			20,000											
Red Earth creek				8,000										
Seven Mile creek			10,000											
Spencer creek			10,000											
Sundance creek			10,000											
Sundance Lagoon			20,000											
Twenty-three Mile creek			5,000											
Twenty-seven Mile creek			5,000											
Twenty-nine Mile creek			5,000											
Cephren lake-Mistaya river					34,440									
Chiniki lake			40,000											
Clearwater river—														
Alford creek		10,000												
Clear creek		10,000												
Muskeg creek		10,000												
North Prairie creek		10,000												
Cold creek		10,000												
South Prairie creek		10,000												
Moose creek		10,000												
Suhr creek		5,000												

Cold lake (border Alberta and Saskatchewan)											85,000				
Consolation lake			18,000												
Drumheller-Union Power Co. Ltd.															12
Elbow river—															
Bragg creek							19,355								
Crawford creek			5,000												
Fullerton creek			5,000												
Hidden creek				10,000											
Lotts creek								15,900							
May's creek								15,900							
McLean creek				10,000											
Mickle creek							10,000								
Pirmez creek							19,355	10,600							
Prairie creek				20,000											
Ranger creek				10,000											
Rennick creek							10,000								
Robinson creek								10,600							
Stringer creek							10,000								
Sylvester creek				20,000											
Thomas creek				10,000											
Young creek							5,000								
Young creek No. 2			5,000												
Emerald lake						10,000	5,000								
Kendall creek							5,000								
Eva lake			8,000												
Exshaw lakes			30,000												
Fish lake, T.40 R.15		10,000													
Ghost lake				30,000											
Ghost river—															
Eau Clair creek				30,000											
Hay Meadow creek				30,000											
Goldeye lake T.40 R.15		30,000													
Haiduk lake				20,000											
Hector lake			24,000												
Herbert lake			20,000												
Highwood river—															
Cataract creek								30,000							
Etherington creek								30,000							
Flatt creek			30,000												
North Sheep creek								15,000							
Fisher creek								20,000							
King creek								5,000							
Sennett creek								10,000							
Ware creek								10,000							
Pekisko creek								30,000							
South Sheep creek								20,000							
Blue Rock creek								10,000							
Canyon creek								10,000							
Gorge creek								10,000							
Junction creek								20,000							
Spring creek								10,000							
Sullivan creek			30,000												
Horseshoe lake No. 1 T. 34 R. 6		5,000													
Horseshoe lake No. 2 T. 34 R. 6		5,000													
James river—															
Chapman's spring		10,000													
East Stoney creek		20,000													
Lake Minnewanka									93,190	464	230,455		978		

—	Brown trout advanced fry	Brown trout No. 1 fingerlings	Cutthroat trout No. 1 fingerlings	Cutthroat trout No. 2 fingerlings	Kamloops trout eyed eggs	Rainbow trout advanced fry	Rainbow trout No. 1 fingerlings	Rainbow trout No. 2 fingerlings	Salmon trout advanced fry	Salmon trout No. 4 fingerlings	Speckled trout advanced fry	Speckled trout No. 1 fingerlings	Speckled trout No. 3 fingerlings	Speckled trout Old Fish
Milk river—														
Battle creek							20,000							
Grayburn creek							10,000							
Miller lake T. 24 R. 1 W. 6			16,000											
Moraine lake			16,000											
Mud lake			16,000											
Old Man river—														
North Willow creek								20,000						
Peyto creek-Peyto lake					8,590									
Pigeon lake-Battle river	40,000													
Pipestone river			16,000											
Ptarmigan lake			24,000											
Raven river		20,000										6,000		
Beaver creek		10,000												
Little Beaver creek		5,000												
Red Deer river—														
Bearberry creek		20,000												
Castle creek		2,500												
Dennison creek		5,000												
Fallen Timber creek—														
Bear creek		5,000												
Gibson creek		5,000												
Grant creek		2,500												
Griswald creek		5,000												
Little Red Deer river		19,200												
Dog Pound creek	15,000													
Swanson creek	5,000													
Stever creek		12,500												
Spring creek		15,000												
Twin Spring creek		5,000												
Waltermeyer creek		2,500												
Shadow lake				24,000										
Sherbrooke lake-Kicking Horse river							16,000							
Spray river—														
Goat creek			20,000											
Two Jacks lake			15,000											
Vermilion lake			25,000								50,000			
Vermilion river			40,000											
Vista lake			15,000											
Wabamun lake	40,000													
Wammick lake, T. 34, R. 6 (No. 1)		5,000												
Wammick lake, T. 34, R. 6 (No. 2)		5,000												
Wammick lake, T. 34, R. 6 (No. 3)		5,000												
Wammick lake, T. 34, R. 6 (No. 4)		2,500												
Wammick lake, T. 34, R. 6 (No. 5)		2,500												
Wapta lake							15,000							
Cataract creek							20,000							
Lake O'Hara							20,000							
Waterfowl lake, T. 33, R. 19—														
Cirque lake					34,440									
Silverhorn creek					8,610									
Waterfowl creek					8,610									
	100,000	373,200	788,450	331,975	94,690	10,000	227,340	303,000	93,190	464	365,455	23,170	1,728	12

Total distribution..... 2,712,674

JASPER PARK HATCHERY

—	Cutthroat trout fry	Kamloops trout fry	Rainbow trout fry
Amethyst lake, Tonquin valley	.....	95,646	.....
Bench creek-McLeod river	.....	.....	10,000
Caledonia lake	.....	.....	30,000
Carrot creek-McLeod river	.....	.....	10,000
Christine lake	45,000	.....	.....
Cold creek-Lobstick river	.....	.....	5,000
Deacon lake	.....	.....	10,000
Edson river	.....	.....	20,000
Hibernia lake	.....	.....	10,000
Horse creek-Sundance river	.....	.....	10,000
Howio creek-McLeod river	.....	.....	5,000
Keith lake	.....	.....	20,000
Lake Annette	.....	.....	10,000
Lake Edith	.....	.....	20,000
Little Hornbeck creek-Sundance river	.....	.....	15,000
Little Wolf creek	.....	.....	10,000
Marjorie lake	.....	.....	10,000
Moosehorn creek (beaver dams)	.....	.....	3,000
Obed lake	.....	.....	15,000
Patricia lake	.....	.....	15,000
Pyramid lake	.....	.....	10,000
Pocahontas (beaver dams)	.....	.....	18,000
Ranger creek-Athabasca river	.....	.....	15,000
Rathlin lake	70,000	.....	.....
Rocky river, upper	.....	.....	30,069
Ronald lake	.....	.....	12,000
Sanzel lake	.....	.....	10,000
Summit lake	600	.....	.....
Unnamed lakes (15, 20, 21-47-1, W. 6)	3,000	.....	.....
Unnamed lakes-Hay river	.....	.....	10,000
Unnamed lake-Miette river (15-45-2, W. 6)	5,000	.....	.....
Unnamed lake-Minaga lake	5,000	.....	.....
Virl lake	50,000	.....	.....
	178,600	95,646	333,069

Total distribution 607,315

—	Cutthroat trout advanced fry	Cutthroat trout No. 1 fingerlings	Cutthroat trout yearlings	Cutthroat trout 3 year olds	Rainbow trout fry	Rainbow trout advanced fry	Rainbow trout No. 1 fingerlings	Rainbow trout 2 year olds
Belly river—								
Indian creek	10,000							
Squaw creek	10,000							
Fry creek	5,000							
Bovin lake		5,000						
Castle river—								
Beaver dams (2-5-3, W. 5)							10,000	
Beaver lake							10,000	
Beaver Mines creek							20,000	
Carbondale river							10,000	
Gladstone creek						15,000		
Lynx creek							5,000	
Mill creek						20,000		
North branch							25,000	
Carl creek							10,000	
Fire creek							10,000	
Kova creek							5,000	
Crowsnest lake							43,900	
Crowsnest river—								
Allison creek						15,000		
Blairmore creek						20,000		
Byron creek						10,000		
Gold creek						15,000		
Star creek						5,000		
Todd creek						25,000		
Lees lake							5,000	
Livingstone river—								
Coat creek		10,000						
Twin creek		10,000						
Rifle creek		5,000						
Old Man river—								
Adair creek	5,000							
Beaver dams (8-11-3, W. 5)		40,000						
Beaver dams (32, 33-10-3, W. 5)	25,000							
Beaver creek	30,000							
Bobs creek	15,000							
Burton creek	5,000							
Callum creek	10,000							
Dam on creek	5,000							
Ernst creek	5,000							
Heath creek	10,000							

Olin creek	5,000							
Pincher creek						30,000		
Playle creek	5,000							
Knight pond, Twin Butte, Alta		500					500	
Linville pond, Burmis, Alta						500		
Racehorse creek		30,000						
Sharples creek	5,000							
Spring creek	5,000							
Station creek	5,000	10,000						
Willow creek—								
Burke creek							20,000	
Burton creek						10,000		
Chaffen creek							5,000	
Johnston creek						10,000		
Langford creek							2,500	
Lyndon creek						25,000		
Nelson creek							5,000	
North fork						15,000		
Patterson creek						5,000		
Riley creek							2,500	
South fork							20,000	
Trout creek							25,000	
Westrup creek							5,000	
St. Mary's river—								
Lee creek		12,000						
Tough creek		12,500						
Waterton lake (upper)	20,000							
Waterton river—								
Cameron lake		41,630						
Carpenter creek						10,000		
Carthew lakes		12,000						
Cottonwood creek					20,000			
Drywood creek						15,000		
Hatchery creek				79				
Holroyd lake		5,000						
Pine creek					5,000		5,000	
South fork								35
Rowe lake		2,000						
Smith creek						5,000	10,000	
South Kootenay creek		6,000						
Spring creek						10,000		
Stoney creek		10,000	46					
Trail creek					5,000		5,000	
Yarrow creek							8,000	
	180,000	211,630	46	79	30,000	260,500	267,400	35

Total distribution..... 949,690

BRITISH COLUMBIA

ANDERSON LAKE HATCHERY

—	Sockeye salmon fry	Spring salmon fry	Spring salmon No. 3 fingerlings
Anderson river	.....	188,364	24,582
Anderson lake—			
Adlem creek	555,000	.....	.....
Boulder creek	277,500	.....	.....
Cabin creek	277,500	.....	.....
Cedar creek	92,500	.....	.....
Clemens creek	369,372	.....	.....
Eight Mile beach	555,000	.....	.....
Falls creek	185,000	.....	.....
Four Mile beach	555,000	.....	.....
Ternan creek	43,577	.....	.....
	2,910,449	188,364	24,582

Total distribution..... 3,123,395

ARGENTA HATCHERY

	Kamloops trout fry
Kootenay lake—	
Agenta, at	17,900
Argenta slough	60,000
Lost Ledge bay	150,000
Schroeder creek bay	150,000
	377,900

Total distribution..... 377,900

BABINE LAKE HATCHERY

—	Sockeye salmon fry	Sockeye salmon No. 1 fingerlings	Sockeye salmon No. 2 fingerlings
Morrison creek	.....	200,000	798,694
Morrison lake	1,412,518	.....	.....
Beaver lagoon	500,000	.....	.....
Salmon river	500,000	.....	.....
	2,412,518	200,000	798,694

Total distribution..... 3,411,212

BEAVER LAKE EYEING STATION

—	Kamloops trout eyed eggs	Kamloops trout fry
Beaver lake	.....	30,121
Crooked lake	.....	9,000
Echo creek	220,000	.....
Deer creek	200,000	.....
Deer lake	.....	5,000
Island lake	.....	10,000
Kelowna rearing ponds, Kelowna Rod and Gun Club	100,000	100,000
Vernon rearing pond, Vernon Angling Club	.....	15,000
	520,000	169,121

Total distribution..... 689,121

—	Atlantic salmon No. 2 fingerlings	Atlantic salmon No. 5 fingerlings	Brown trout fry	Brown trout No. 1 fingerlings	Coho salmon eyed eggs	Coho salmon fry	Cutthroat trout fry	Kamloops trout eyed eggs	Kamloops trout fry	Loch Leven trout No. 5 fingerlings	Spring salmon eyed eggs	Spring salmon fry	Spring salmon No. 2 fingerlings	Steelhead salmon fry
Pacific Biological Station, Nanaimo, B.C.	.....	47	.....	.....	.....	.....	.....	.....	.....	104	.....	.....	.....	.....
Burnaby lake	.....	.....	.....	.....	.....	.....	.....	20,000	.....	.....	.....	.....	.....	.....
Campbell river—	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Miller creek	.....	.....	.....	.....	.....	.....	.....	83,000	.....	.....	.....	.....	.....	.....
Quinsam river	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	75,000	.....	5,000	.....
Chain lake	.....	.....	.....	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....
Cowichan lake	5,781	13,563	.....	.....	.....	100,000	.....	.....	40,920	.....	.....	120,000	.....	40,380
Beaver creek	.....	.....	.....	.....	.....	50,000	.....	.....	.....	.....	.....	.....	.....	.....
Lonesome lake	.....	.....	.....	.....	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....
Mead creek	.....	.....	.....	.....	100,000	.....	.....	.....	.....	.....	.....	40,000	.....	.....
McKay creek	.....	.....	.....	.....	.....	50,000	.....	.....	.....	.....	.....	.....	.....	.....
Robertson river	.....	.....	.....	.....	100,000	.....	.....	.....	.....	.....	.....	100,000	.....	.....
Shaw creek	.....	.....	.....	.....	.....	.....	40,860	.....	.....	.....	.....	.....	.....	.....
Sheep creek	.....	.....	.....	.....	.....	50,000	.....	.....	.....	.....	.....	.....	.....	.....
Sutton creek	.....	.....	.....	.....	.....	50,000	.....	40,000	.....	.....	.....	.....	.....	.....
Cowichan river	.....	.....	.....	2,817	.....	154,960	.....	.....	.....	13,543	.....	99,575	211,860	20,000
Beadnall creek	.....	.....	.....	.....	75,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Green creek	.....	.....	.....	.....	75,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oliver creek	.....	.....	.....	.....	75,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cushion lake	.....	.....	.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....
Fork lake	.....	.....	.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....
Goldstream river	.....	.....	.....	.....	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....
Heart lake	.....	.....	.....	.....	.....	.....	.....	20,000	.....	.....	.....	.....	.....	.....
Hotel lake—Pender harbour	.....	.....	.....	.....	.....	.....	.....	.....	5,000	.....	.....	.....	.....	.....
Kemp lake	.....	.....	.....	.....	.....	.....	17,000	.....	.....	.....	.....	.....	.....	.....
Kidney lake	.....	.....	.....	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....
Long lake	.....	.....	.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....
Maple Bay reservoir	.....	.....	.....	.....	.....	.....	.....	.....	1,000	.....	.....	.....	.....	.....
O. K. Lake	.....	.....	.....	.....	.....	.....	.....	20,000	.....	.....	.....	.....	.....	.....
Prospect lake	.....	.....	.....	.....	.....	.....	30,000	.....	.....	.....	.....	.....	.....	.....
Qualicum ponds (Provincial)	.....	.....	170,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Second lake	.....	.....	.....	.....	.....	.....	5,000	.....	.....	.....	.....	.....	.....	.....
Shawnigan lake	.....	.....	.....	.....	.....	.....	.....	.....	42,000	.....	.....	.....	.....	.....
Telford creek	.....	.....	.....	.....	.....	.....	.....	43,000	.....	.....	.....	.....	.....	.....
Young lake	.....	.....	.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....
Veitch creek, retaining ponds (Provincial)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49,500
	5,781	13,610	170,000	2,817	525,000	454,960	142,860	231,000	88,920	13,647	75,000	359,575	216,860	109,880

Total distribution 2,409,910

CULTUS LAKE HATCHERY

—	Cut-throat trout fry	Cut-throat trout No. 2 fingerlings	Kamloops trout eyed eggs	Kamloops trout fry	Sockeye salmon green eggs	Sockeye salmon eyed eggs	Steel-head salmon No. 2 fingerlings	Steel-head salmon No. 5 fingerlings
Campbell lake	.....	.....	.....	5,055	.....	.....	.....	.....
Cultus lake	.....	11,749	.....	.....	.....	.....	.....	.....
East creek	.....	.....	.....	.....	.....	321,557	.....	.....
Frost creek, mouth of	.....	.....	.....	.....	.....	245,270	.....	.....
Smiths Falls creek	.....	.....	.....	.....	.....	82,030	.....	.....
Spring creek	.....	.....	.....	.....	.....	552,961	.....	.....
Spring creek, mouth of	.....	.....	.....	.....	.....	238,670	.....	.....
Watt creek	.....	.....	.....	.....	.....	1,080,104	.....	.....
Windfall creek	.....	.....	.....	.....	.....	1,276,784	.....	.....
Devil lake	.....	.....	.....	4,000	.....	.....	.....	.....
Eagle lake	.....	.....	.....	5,000	.....	.....	.....	.....
Goose lake	.....	.....	.....	3,000	.....	.....	.....	.....
Grace lake	.....	.....	.....	12,000	.....	.....	.....	.....
Hatchery creek,—Sweltzer creek	.....	.....	.....	.....	51,940	.....	.....	.....
Lamont lake	.....	.....	.....	9,000	.....	.....	.....	.....
Little Sumas river	40,000	.....	.....	.....	.....	.....	.....	.....
Popkum lake	25,000	.....	.....	.....	.....	.....	.....	.....
Silver lake	.....	.....	30,000	.....	.....	.....	.....	.....
Sweltzer creek	.....	.....	.....	.....	.....	50,000	115,824	6,579
Vedder lake	26,526	.....	.....	.....	.....	.....	.....	.....
Wells ponds, Sardis	.....	.....	.....	.....	.....	.....	500	.....
Wolf lake	.....	.....	.....	16,000	.....	.....	.....	.....
	91,526	11,749	30,000	54,055	51,940	3,847,376	116,324	6,579

Total distribution..... 4,209,549

FISH LAKE CAMP

	Kamloops trout green eggs
Biological Board (Dr. Duff).....	80,000
Total distribution.....	80,000

KENNEDY LAKE HATCHERY

—	Sockeye salmon green eggs	Sockeye salmon advanced fry	Sockeye salmon No. 1 fingerlings	Sockeye salmon No. 2 fingerlings	Sockeye salmon No. 3 fingerlings	Sockeye salmon No. 4 fingerlings	Sockeye salmon No. 5 fingerlings
Kennedy lake—							
Clayoquot Arm							
At hatchery	30,000						
Cosy bay—Deer beach		180,000	119,100				
Deer beach				10,000		9,456	
Duck island—Clayoquot river				75,000			
Fir creek-Silent bay							19,197
Fir creek-Yew creek			80,000				
Hatchery beach				30,000			
Irvin creek and vicinity				15,000			
Irvin creek-Rocky bay				23,001			
Little Pond creek				10,000	14,903		
Martin creek-Peter creek			80,000	24,857			
Narrows and vicinity		239,549		25,000		8,729	
Pond beach			205,000	45,000	9,499		
Pond creek		100,000	80,000		10,000		
Rocky bay-Cosy bay		181,000					
Silent bay and vicinity		100,000		25,000			
Silent bay-Narrows			190,000		36,410		
Charlie creek-Ucluelet bay				20,000			
Deer creek-Otter creek			160,000				
Grant creek and south			67,979				
Narrows-Halfway point		189,000	50,000				
Otter creek-Charlie creek		180,000	60,000				
Picnic beach			50,000				
Snag bay		150,000	100,000				
Ucluelet bay		175,000					
Muriel lake			49,965				
	30,000	1,494,549	1,292,044	302,858	70,812	18,185	19,197

Total distribution 3,227,645

LAKELSE LAKE HATCHERY

—	Sockeye salmon fry	Sockeye salmon No. 4 fingerlings
Lakelse lake	2,184,700	
Furlong creek	51,000	
Granite creek	357,000	800
Salmon creek	128,350	
Scullabuchan creek	1,479,100	
Williams creek	1,848,000	
	6,048,150	800

Total distribution 6,048,950

LLOYDS CREEK HATCHERY

—	Kamloops trout green eggs	Kamloops trout eyed eggs	Kamloops trout fry
Biological Board	20,000	.....	.....
Hope District—			
Coquihalla river	.....	40,000	.....
Kelly lake	.....	30,000	.....
Pavilion lake	.....	40,000	.....
Peckham lake	.....	15,000	.....
Silver lake	.....	30,000	.....
Kamloops district—			
Beaver lake	.....	.....	5,000
Brigade lake	.....	.....	5,000
Devick lake	.....	.....	5,000
Fish lake	.....	.....	250,000
Knough lake	.....	.....	35,117
Paul lake	.....	.....	200,000
Pinantan lake	.....	.....	150,000
Walloper lake	.....	.....	20,447
Pembroke hatchery (Ontario Provincial)	.....	100,000	.....
Revelstoke Rod and Gun Club—Biological Station, Taft, B.C.	.....	100,000	.....
Salmon Arm district—			
Gardiner lake (C. R. Barlow, Esq.)	.....	.....	1,000
Loon lake	.....	.....	5,000
McGuire lake	.....	.....	1,560
Shuswap district—			
Canoe creek-Shuswap lake	.....	60,000	.....
Granite creek—Shuswap lake	.....	60,000	
Palmer creek-Salmon river	.....	60,000	.....
Renickers creek-Shuswap lake	.....	60,000	.....
Salmon river	.....	60,000	.....
White lake	.....	.....	10,000
Cedar creek, Tappen, B.C.	.....	38,433	.....
Stanley Park hatchery	.....	50,000	.....
Unnamed lake, near Pritchard	.....	.....	1,500
Vancouver district—			
Cannal lake	.....	30,000	.....
Norton lake	.....	30,000	.....
	20,000	803,433	689,564

Total distribution 1,512,997

—	Kamloops trout eyed eggs	Kamloops trout fry	Kamloops trout No. 5 fingerlings	Kennerly's salmon eyed eggs	Kennerly's salmon fry	Speckled trout eyed eggs	Speckled trout fry
Creston district—							
Meadow creek—Goat river						30,000	
Grand Forks district—							
Christina lake	35,000						
Smelter lake	15,000						
Wallace lake		8,000					
Greenwood district—							
Boundary creek—Kettle river						25,000	
Jewel lake		20,000					
Kettle river (above West-bridge)	20,000						
West Kootenay—							
Arrow lake, lower		25,000					
Arrow lake, lower (at Edgewood)	20,000						
Arrow lake retaining ponds, Robson, B.C. (Mr. F. E. Oborne)		1,000					
Arrow lake, upper	25,000						
Beatrice lake	20,000						
Beaver creek—Columbia river							20,000
Big Sheep creek							25,000
Bjerkness creek—Kootenay lake			790				
Boundary lake							15,000
Corn creek						25,000	
Cottonwood lake		30,000					
Crawford bay retaining pond (Capt. Hincks)		2,371					
Duck creek—Kootenay river	10,000						
Frie lake							20,000
Flint lake-Kaslo creek, south fork	10,000						
Inonoaklin river							25,000
Kaslo creek, north fork	20,000						
Kaslo creek, south fork							20,441
Kokanee creek				100,000	313,298		
Kootenay lake, west arm		14,674					
Kootenay river		30,000					
Leviathan lake							10,000
Loon lake							20,000
Milford lake	10,745						
Private pond, Mr. A. L. Harris, New Denver, B.C.		2,000					
Private pond, Mr. E. Newbrand, Nakusp, B.C.		1,000					
Redfish creek					50,000		
Ross lake	8,000						
Salmon river	20,000						
Sitkum creek					75,000		
Six Mile creek					50,000		
Six Mile lake	15,000	35,000					
Slocan lake	30,000			50,000			
Little Slocan lakes							20,000
Slocan pool		30,000					
Slocan river	20,000						
Summit lake	10,000						
Whatshan lakes	30,000						
Westminster district—							
Jones lake, near Hope				50,000			
	318,745	199,045	790	200,000	488,298	80,000	175,441

Total distribution..... 1,462,319

PEMBERTON HATCHERY

—	Kamloops trout eyed eggs	Kamloops trout fry	Sockeye salmon fry
Alta lake	.....	47,200	.....
Birkenhead river	.....	.....	9,977,655
Brennen lake-Howe Sound	10,000	.....	.....
Conroy lake-Cheakamus river	.....	1,900	.....
Eva lake-Cheakamus river	.....	1,900	.....
Henrietta lake-Howe Sound	10,000	.....	.....
Horse lake-Quesnel district	15,000	.....	.....
Lac La Hache	40,000	.....	.....
Lost lake-Cheakamus river	4,000	.....	.....
Lower Owl creek-Birkenhead river	15,000	.....	.....
Upper Owl creek-Birkenhead river	15,000	.....	.....
Lucille lake	10,000	.....	.....
McLeese lake-Quesnel district	50,000	.....	.....
Millburn lake-Quesnel district	30,000	.....	.....
Nukko lake-Prince George district	50,000	.....	.....
Ogre lake-Owl creek	15,000	.....	.....
Small lake-Prince George district	10,000	.....	.....
Ten Mile lake-Quesnel district	30,000	.....	.....
Tenquille lake-Birkenhead river	15,000	.....	.....
Williams lake-Quesnel district	40,000	.....	.....
	359,000	51,000	9,977,655

Total distribution 10,387,655

PENASK LAKE HATCHERY

—	Kamloops trout eyed eggs	Kamloops trout fry
Cameron lake	80,000	.....
Cariboo lake	50,000	.....
Cranbrook Hatchery (Cranbrook Rod and Gun Club)	360,000	.....
Great Central lake	80,000	.....
Jackson lake	.....	20,000
Link lake	70,000	.....
Neveu lake	.....	10,000
Okanagan lake—		
Chute creek	40,000	.....
Deep creek	40,000	.....
Peach Orchard creek	136,120	.....
Penask lake	.....	378,665
Mud lake	.....	20,000
Peterson lake	.....	10,000
Powell lake	70,000	.....
Similkameen river—		
Ashnola creek	30,000	.....
Missezula lake	40,000	.....
Otter lake	30,000	.....
Wolfe lake	30,000	.....
Sproat lake	80,000	.....
Stanley Park hatchery	120,000	.....
Veitch creek pond (Provincial)	360,000	.....
	1,616,120	438,665

Total distribution 2,054,785

PITT LAKE HATCHERY

—	Kamloops trout fry	Sockeye salmon green eggs	Sockeye salmon eyed eggs	Sockeye salmon fry	Sockeye salmon No. 1 fingerlings
Pitt river—					
Boise creek		150,000	1,640,000	390,000	
Cox's slough	10,000				
Four Mile creek			800,000	200,000	149,930
Four Mile slough	20,000			368,850	
Mountain slough				220,000	
Peter's slough				440,000	
Seven Mile creek	18,510			440,000	
Seven Mile slough			480,000		
	48,510	150,000	2,920,000	2,058,850	149,930

Total distribution..... 5,327,290

QUALICUM BEACH PONDS

(Provincial)

—	Brown trout No. 4 fingerlings	Brown trout No. 5 fingerlings
Biological Research	100	
Little Qualicum river	1,573	4,500
Arrowsmith slough	2,000	4,000
Chatsworth creek		1,000
Lockwood creek		5,200
Whiskey creek	10,969	6,600
Little creek		1,564
	14,642	22,864

Total distribution..... 37,506

RIVERS INLET HATCHERY

—	Sockeye salmon eyed eggs	Sockeye salmon fry	Spring salmon fry	Spring salmon No. 4 fingerlings	Steelhead salmon eyed eggs
Owikeno lake				57,620	
Asklum creek		1,493,860			
Cheo river		921,396			
Dallick river		894,133			
Genesi creek	3,223,535	674,099			
Indian river		897,268			
Markwell river		774,088			
Medowse creek			87,496		
Nookins river	1,594,655				
Quap creek	529,775	2,514,279			
Second Narrows			162,625		
Shumahault river	2,932,365				
Walkus lake					2,828
Wauquash river	1,500,000				
	9,780,330	8,169,123	250,121	57,620	2,828

Total distribution..... 18,260,022

SMITHS FALLS HATCHERY

—	Sockeye salmon No. 1 fingerlings	Sockeye salmon No. 2 fingerlings	Sockeye salmon No. 3 fingerlings	Sockeye salmon No. 5 fingerlings
Cultus lake	3,100	28,143	25,000	40,000
Pacific Biological Station, Nanaimo, B.C.	3,100	.....	.....	.....
	6,200	28,143	25,000	40,000

Total distribution 99,343

SPROAT RIVER EYEING STATION

	Spring salmon eyed eggs
Somass river—	
Stamp river-Alberni district	449,265
Total distribution	449,265

SUMMERLAND HATCHERY

—	Kamloops trout eyed eggs	Kamloops trout fry	Kennerly's salmon fry
Clearwater lake-Salmon river (Keremoes, B.C.)	30,000	.....	.....
Okanagan district—			
Chute lake	.....	10,000	.....
Dog (Shaha) lake	40,000	.....	.....
Fish lake-Summerland	.....	10,000	.....
Hill lake	.....	15,000	.....
Island lake	.....	20,000	.....
Long lake, Vernon, B.C.	.....	30,000	.....
Okanagan lake	.....	58,402	149,200
Osoyoos lake	30,000	.....	.....
Silver lake	.....	5,000	.....
Woods lake	.....	20,000	.....
Pillar lake-Salmon river, Falkland, B.C.	.....	30,000	.....
Shuswap district—			
Echo lake	.....	10,000	.....
Mable lake	70,000	.....	.....
Sugar lake	40,000	.....	.....
Similkameen river—			
Blue lake	.....	20,000	.....
Davis lake	.....	10,000	.....
Osprey lake	.....	10,000	.....
Princeton Rod and Gun Club	.....	20,000	.....
Roche river	30,000	.....	.....
Wolf lake	.....	5,000	.....
	240,000	273,402	149,200

Total distribution 662,602