

ALASKA.

In 1891 several of the canneries operating at Karluk, on Kodiak Island, combined forces and built a hatchery on the lagoon at that place. As the cannery men were at swords' points in regard to their fishing rights on the spit, in 1892 the hatchery was closed. In May, 1896, the Alaska Packers Association broke ground for a hatchery at the eastern end of the lagoon, near the outlet of Karluk River, a short distance from where the hatchery was located in 1891, and operated it until 1916, when it was abandoned as a hatchery.

In 1892 Capt. John C. Callbreath, manager of the Point Ellis cannery on Kuiu Island, operated a small hatchery on the left bank of Kutlakoo stream. It was a very primitive place, and an exceptionally high tide destroyed the whole plant in September. It was never rebuilt.

Capt. Callbreath, however, after seeing to the operation of the hatchery, had returned to Wrangell during the summer, where his attention was again attracted to hatchery work, and in the fall of 1892 he built a small hatchery on Jadjeska stream, Etolin Island, about 200 yards from its mouth. The stream is about one-half mile in length and is the outlet of a small lake. Finding the location unsuitable, Capt. Callbreath removed the hatchery in 1893 to the northern side of the lake, about three-eighths of a mile from the head of the outlet, where it still stands. The owner's intention was to build up a stream which had a small natural run of red salmon until it had a large run, with the hope that the Government would then give him the exclusive right to take these fish from the stream for commercial purposes. The experiment was kept up until the end of the season of 1905, when Capt. Callbreath's failing eyesight compelled the cessation of the actual hatching. Until 1910 a man was stationed on the stream during the run of spawning fish for the purpose of lifting them over the dam, so that they could reach the spawning beds at the head of the lake, and the project was abandoned entirely shortly thereafter. The owner's expectation of a big run as a result of hatching operations was never realized.

In 1896 the Baranof Packing Co., which operated a cannery on Redfish Bay, on the western coast of Baranof Island, built a small hatchery on the lake at the head of Redfish stream. The following winter was so cold that not only the flume but the whole cataract froze solid, and as the hatchery was thus left without water the eggs were put into the lake and left to their fate and the hatchery closed down permanently.

In 1897 the North Pacific Trading & Packing Co., at Klawak, Prince of Wales Island, established a hatchery near the head of Klawak stream, close to Klawak Lake. In 1898 the plant was moved to the mouth of a small stream entering the lake about halfway up the western shore. This hatchery was operated continuously until the end of 1917, since when it has been shut down. In 1909 the North Alaska Salmon Co. acquired a half interest in it, which it relinquished to the original owners a few years later.

The Pacific Steam Whaling Co. in 1898 erected a small hatchery on Hetta Lake, on the west side of Prince of Wales Island, which was operated until the close of the hatching season of 1903-4, when the Pacific Packing & Navigation Co., successor to the original owner, went into the hands of a receiver. In 1907 it was reopened by the Northwestern Fisheries Co., which had acquired the interests of the old company, and has been operated each season since, with the exception of 1919.

Up to 1900 the work of hatching salmon was entirely voluntary on the part of the packers. On May 2 of that year the following regulation was promulgated at the Treasury Department, which at that time had control of the Alaska salmon-inspection service:

7. Each person, company, or corporation taking salmon in Alaskan waters shall establish and conduct, at or near the fisheries operated by him or them, a suitable

artificial propagating plant or hatchery, and shall produce yearly and place in the natural spawning waters of each fishery so operated red-salmon fry in such numbers as shall be equal to at least four times the number of mature fish taken from the said fisheries by or for him or them during the preceding fishing season. The management and operation of such hatcheries shall be subject to such rules and regulations as may hereafter be prescribed by the Secretary of the Treasury. They shall be open for inspection by the authorized official of this department; annual reports shall be made, giving full particulars of the number of male and female salmon stripped, the number of eggs treated, the number and percentage of fish hatched, and all other conditions of interest; and there shall be made a sworn yearly statement of the number of fry planted and the exact location where said planting was done.

On January 24, 1902, this regulation was amended so as to require the planting of "red-salmon fry in such numbers as shall be equal to at least ten times the number of salmon of all varieties taken from the said fisheries."

Although the regulation was mandatory, but few of the packers obeyed it, some because no suitable place was to be found within a reasonable distance of their plants; others because the establishment and operation of such a hatchery would cost more than their returns from the industry justified, and others because of lack of knowledge required in hatchery work. The greater number of them absolutely ignored it, and as a result those who conformed to the regulation were placed under a heavy financial handicap. The injustice of this arrangement was patent on its face, and in 1906, when a comprehensive revision of the law was made by Congress, provision was made for reimbursing in the future those cannery men who operated salmon hatcheries. The section covering this point reads as follows:

SEC. 2. That the catch and pack of salmon made in Alaska by the owners of private salmon hatcheries operated in Alaska shall be exempt from all license fees and taxation of every nature at the rate of ten cases of canned salmon to every one thousand red or king salmon fry liberated, upon the following conditions:

That the Secretary of Commerce and Labor may from time to time, and on the application of the hatchery owner shall, within a reasonable time thereafter, cause such private hatcheries to be inspected for the purpose of determining the character of their operations, efficiency, and productiveness, and if he approve the same shall cause notice of such approval to be filed in the office of the clerk or deputy clerk of the United States district court of the division of the District of Alaska wherein any such hatchery is located, and shall also notify the owners of such hatchery of the action taken by him. The owner, agent, officer, or superintendent of any hatchery the effectiveness and productiveness of which has been approved as above provided shall, between the thirtieth day of June and the thirty-first day of December of each year, make proof of the number of salmon fry liberated during the twelve months immediately preceding the thirtieth day of June by a written statement under oath. Such proof shall be filed in the office of the clerk or deputy clerk of the United States district court of the division of the District of Alaska wherein such hatchery is located, and when so filed shall entitle the respective hatchery owners to the exemption as herein provided; and a false oath as to the number of salmon fry liberated shall be deemed perjury and subject the offender to all the pains and penalties thereof. Duplicates of such statements shall also be filed with the Secretary of Commerce and Labor.

It shall be the duty of such clerk or deputy clerk in whose office the approval and proof heretofore provided for are filed to forthwith issue to the hatchery owner, causing such proofs to be filed, certificates which shall not be transferable and of such denominations as said owner may request (no certificate to cover fewer than one thousand fry), covering in the aggregate the number of fry so proved to have been liberated; and such certificates may be used at any time by the person, company, corporation, or association to whom issued for the payment pro tanto of any license fees or taxes upon or against or on account of any catch or pack of salmon made by them in Alaska; and it shall be the duty of all public officials charged with the duty of collecting or receiving such license fees or taxes to accept such certificates in lieu of money in payment of all license fees or taxes upon or against the pack of canned salmon at the ratio of one thousand fry for each ten cases of salmon. No hatchery owner shall obtain the rebates from the output of any hatchery to which he might

otherwise be entitled under this act unless the efficiency of said hatchery has first been approved by the Secretary of Commerce and Labor in the manner herein provided for.

Of recent years so much objection has been raised to the system of hatchery rebates that the matter of the Federal Government taking over all private hatcheries in Alaska, at a fair valuation, and operating same, is being favorably considered.

In 1901 the Pacific Steam Whaling Co. established two small hatcheries—one on Nagel Stream, which enters the northern side of Quadra Lake, on the mainland of southeast Alaska, and one on a stream entering Freshwater Lake Bay, Chatham Strait. Both were closed down in 1904 when the company failed. In 1908 the Northwestern Fisheries Co., which had acquired the Quadra plant, removed it to a small stream entering the head of the lake and has operated it ever since.

In 1901 the Alaska Packers Association erected a hatchery on Heckman Lake, the third of a series of lakes on Naha Stream, Revillagigedo Island, and about 8 miles from Loring, where the association has a cannery. This, known as Fortmann hatchery, is without question the largest and costliest salmon hatchery in the world, having a capacity of 110,000,000 eggs, and the association is entitled to great credit for the public spirit it has shown and the work it has done, entirely without remuneration until 1906, in building and operating not only this hatchery but also the one at Karluk.

The Union Packing Co., at Kell Bay, on Kuiu Island, and F. C. Barnes, at Lake Bay, on Prince of Wales Island, in 1902 built and operated small hatcheries, both of which were abandoned after one season's work.

Up to 1905 the work of hatching salmon in Alaska was confined to the salmon cannery men. In that year, however, the United States Bureau of Fisheries erected a hatchery on Yes Lake, which empties through a short stream into Yes Bay, on Cleveland Peninsula. In 1907 the Bureau constructed another hatchery, on Afognak Lake, near Litnik Bay, Afognak Island.

The eruption of Katmai volcano, on the Alaska Peninsula, June 6, 1912, covered the island of Afognak with volcanic ash and sand to an average depth of 9 inches. It is estimated that 20,000 salmon perished at the head of Litnik Lake, while thousands were driven back into the ocean. As a result of these conditions the work at the Afognak station was much hampered and curtailed. Even as late as 1915 work at this station was still being hampered by the volcanic ash and sand which fell in 1912.

In 1913 collecting stations were established at Eagle Harbor and Uganak Lake, on Kodiak Island. In 1915 another was established at Seal Bay, on Afognak Island.

In 1913 a collecting station was established on Ketchikan Creek, but, owing to the objections of the citizens of the town against the taking away of the eggs, the station was abandoned in 1915.

The following tables show the eggs and fry distributed by the Government and privately owned hatcheries in Alaska:

OUTPUT OF THE SALMON HATCHERIES IN ALASKA OWNED BY THE U. S. BUREAU OF FISHERIES, 1906 TO 1919.

Year ending June 30—	McDonald Lake or Yes Bay hatchery.							
	Red, or sockeye.		Coho, or silver fry.	Steel-head fry.	Humpback.		Total.	
	Eggs.	Fry.			Eggs.	Fry.	Eggs.	Fry.
1906.....		6, 638, 550					6, 638, 550	
1907.....		54, 810, 800		143, 500			54, 764, 300	
1908.....		01, 399, 000					01, 399, 000	
1909.....		48, 653, 000	9, 900				48, 662, 900	
1910.....		69, 879, 000					69, 879, 000	
1911.....		68, 239, 900			100, 000	100, 000	68, 239, 900	
1912.....		68, 335, 000					68, 335, 000	
1913.....		60, 422, 100					60, 422, 100	
1914.....	2, 000, 000	42, 726, 400				4, 500, 000	47, 226, 400	
1915.....		37, 445, 000			2, 000, 000		39, 445, 000	
1916.....	18, 100, 000	52, 175, 000					70, 275, 000	
1917.....	2, 000, 000	51, 175, 000					53, 175, 000	
1918.....		32, 539, 200					32, 539, 200	
1919.....	47, 300, 000	42, 650, 000			1, 365, 000	630, 000	92, 945, 000	
Total...	69, 400, 000	687, 001, 050	9, 900	143, 500	3, 465, 000	6, 430, 000	692, 584, 450	

Year ending June 30—	Afognak hatchery.						
	Red, or sockeye.		Coho, or silver fry.	Humpback.		Total.	
	Eggs.	Fry.		Eggs.	Fry.	Eggs.	Fry.
1909.....		39, 325, 870			10, 000		39, 335, 870
1910.....		71, 647, 170			863, 740		72, 510, 910
1911.....		26, 755, 000			394, 150		27, 149, 150
1912.....		18, 394, 700		8, 271, 740		3, 271, 740	26, 666, 440
1913.....		12, 551, 100					12, 551, 100
1914.....		7, 781, 705	50, 000		12, 034, 399	3, 970, 000	19, 846, 104
1915.....	3, 970, 000	76, 387, 080		12, 500, 000	7, 843, 480	12, 500, 000	94, 700, 560
1916.....		22, 833, 640					22, 833, 640
1917.....		62, 116, 000					62, 116, 000
1918.....	18, 000, 000	31, 427, 000				18, 000, 000	67, 427, 000
1919.....	54, 081, 000	24, 903, 000		8, 697, 000	2, 142, 000	63, 378, 000	115, 023, 000
Total.....	76, 651, 000	233, 202, 265	50, 000	24, 468, 740	15, 257, 769	101, 119, 740	298, 510, 034

a Includes 2,925,000 fingerlings, yearlings, or adults.
 b Includes 19,402,500 fingerlings.
 c Includes 1,575,000 fingerlings.
 d 1,059,900 sockeye eggs were shipped to the Little White Salmon hatchery, and 3,440,100 to the Oregon Fish Commission.
 e Includes 0,000,000 fingerlings.
 f Includes 5,444,830 fingerlings, yearlings, or adults.
 g Includes 119,480 fingerlings, yearlings, or adults.
 h Includes 11,100,440 fingerlings. Of the eggs from which these fry and fingerlings were hatched 15,000,000 came from Yes Bay hatchery.
 i Includes 10,180,000 fingerlings.
 j 5,100,000 of these eggs were shipped to the Bureau's Quinault (Wash.) hatchery, and 20,700,000 to the Province of British Columbia.
 k 5,760,000 of these eggs were shipped to the Bureau's Puget Sound hatcheries.

OUTPUT OF THE SALMON HATCHERIES IN ALASKA OWNED BY THE U. S. BUREAU OF FISHERIES, 1906 TO 1919—Continued.

Year ending June 30—	Total, by species, both hatcheries.						Grand total.	
	Red, or sockeye.		Coho, or silver fry.	Steel-head fry.	Humpback.			
	Eggs.	Fry.			Eggs.	Fry.	Eggs.	Fry.
1906.....		6,038,550						6,638,550
1907.....		54,610,800		143,500				54,754,300
1908.....		61,369,000						61,369,000
1909.....		87,978,870	9,900			10,000		87,998,770
1910.....		141,526,770				363,740		141,890,510
1911.....		94,994,900			100,000	364,150	100,000	95,359,050
1912.....		86,729,700			3,271,740		3,271,740	86,729,700
1913.....		72,973,200						72,973,200
1914.....	5,970,000	50,488,105	50,000			16,534,390	5,970,000	67,072,504
1915.....		43,832,080			14,500,000	343,480	14,500,000	44,175,560
1916.....	3,100,000	75,251,140					43,100,000	75,251,140
1917.....	2,000,000	72,291,000					2,000,000	72,291,000
1918.....	18,000,000	63,966,200					18,000,000	63,966,200
1919.....	101,981,000	57,553,000			10,062,000	3,072,000	112,043,000	60,625,000
Total.....	131,051,000	970,203,315	59,900	143,500	27,933,740	20,687,769	158,984,740	991,094,484

^a Includes 8,369,830 fingerlings, yearlings, or adults.

^b Includes 119,480 fingerlings, yearlings, or adults.

^c Includes 8,489,310 fingerlings, yearlings, or adults.

^d 15,000,000 of the red salmon eggs shown under Yes Bay were transferred to Afognak, hatched out there and the fry counted under the "Fry" column of that hatchery.

TAKE OF EGGS, AND OUTPUT OF PRIVATE SALMON HATCHERIES OF ALASKA, 1893 TO 1919.

[Unless otherwise stated in footnotes, all of the fry liberated were red salmon.]

Year ending June 30—	Callbreath's hatchery.		Kariuk hatchery.		Klawak hatchery.	
	Eggs.	Fry.	Eggs.	Fry.	Eggs.	Fry.
1893.....	900,000	600,000				
1894.....	3,000,000	2,204,000				
1895.....	6,300,000	5,291,000				
1896.....	6,200,000	5,475,000				
1897.....	4,400,000	4,390,000	3,236,000	2,566,440		
1898.....	3,400,000	2,526,000	8,454,000	6,340,000	2,023,000	800,000
1899.....	3,000,000	2,050,000	4,491,000	3,369,000	3,600,000	3,000,000
1900.....	3,400,000	2,335,000	10,496,900	7,872,000	3,600,000	^a 1,000,000
1901.....	(^b)		19,334,000	15,566,800	(^c)	
1902.....	6,000,000	5,500,000	32,800,000	28,700,000	3,500,000	2,800,000
1903.....	6,000,000	5,000,000	23,400,000	17,555,000	3,500,000	1,500,000
1904.....	6,000,000	5,000,000	28,113,000	22,000,000	3,000,000	1,700,000
1905.....	6,050,000	5,250,000	45,600,000	33,670,000	2,800,000	2,000,000
1906.....	7,700,000	6,500,000	36,933,000	28,236,412	2,800,000	2,300,000
1907.....	(^d)	(^d)	38,679,200	36,846,000	3,600,000	1,187,000
1908.....	(^e)	(^e)	47,808,200	48,655,000	3,500,000	2,776,000
1909.....	(^e)	(^e)	40,320,000	37,105,000	3,500,000	3,200,000
1910.....	(^e)	(^e)	45,228,000	40,620,000	5,800,000	5,300,000
1911.....	(^e)	(^e)	49,626,000	37,722,000	6,786,500	6,200,000
1912.....	(^f)	(^f)	41,026,800	37,495,100	5,600,000	3,530,000
1913.....	(^f)	(^f)	45,600,000	41,803,155	8,833,000	3,675,000
1914.....	(^f)	(^f)	84,629,160	31,546,080	3,045,000	3,465,000
1915.....	(^f)	(^f)	30,240,000	27,704,000	8,816,000	3,653,000
1916.....	(^f)	(^f)	41,135,000	28,948,000	4,180,000	4,020,000
1917.....	(^f)	(^f)	1,016,000	(^f)	8,160,000	7,822,000
1918.....	(^f)	(^f)	(^f)	(^f)	(^f)	(^f)
1919.....	(^f)	(^f)	(^f)	(^f)	(^f)	(^f)
Total.....	62,350,000	52,121,000	628,066,260	524,309,987	77,245,500	59,928,000

^a Many eggs frozen.

^b No run of fish.

^c Hatchery was not used, the eggs being hatched out in the lake.

^d No report.

^e Fish coming in to spawn were lifted over the dam.

^f Not operated.

^g A collection of 7,400,000 humpback eggs was made for Afognak, and these appear in the report of that hatchery.

^h These eggs were turned over to the Afognak hatchery and the hatchery shut down.

ⁱ A considerable portion of these are coho eggs.

TAKE OF EGGS, AND OUTPUT OF PRIVATE SALMON HATCHERIES OF ALASKA, 1893 TO 1919—Continued.

Year ending June 30—	Hetta hatchery.		Quadra Bay hatchery.		Freshwater Bay hatchery.	
	Eggs.	Fry.	Eggs.	Fry.	Eggs.	Fry.
1899.....	2,800,000	2,600,000				
1900.....	2,000,000	1,500,000				
1901.....	1,800,000	a 500,000				
1902.....	2,500,000	1,700,000	4,500,000	3,500,000	1,500,000	1,000,000
1903.....	4,800,000	4,000,000	5,500,000	4,000,000	(b)	(b)
1904.....	5,127,500	3,750,000	600,000	c 400,000	(d)	(d)
1905.....	(e)	(e)	(e)	(e)	(e)	(e)
1906.....	(e)	(e)	(e)	(e)	(e)	(e)
1907.....	(e)	(e)	(e)	(e)	(e)	(e)
1908.....	8,000,000	6,125,000			(e)	(e)
1909.....	8,400,000	8,134,000	3,325,000	3,025,750	(e)	(e)
1910.....	10,313,000	9,000,000	10,863,000	9,850,000	(e)	(e)
1911.....	9,141,000	8,552,500	11,200,000	10,350,000	(e)	(e)
1912.....	2,585,000	2,342,000	11,000,000	10,166,000	(e)	(e)
1913.....	3,780,000	3,592,000	10,000,000	8,127,000	(e)	(e)
1914.....	4,052,000	3,590,500	18,400,000	17,054,000	(e)	(e)
1915.....	7,438,500	7,142,500	21,300,000	20,300,000	(e)	(e)
1916.....	7,408,000	7,092,000	8,114,000	7,598,000	(e)	(e)
1917.....	3,247,000	3,120,000	16,125,000	16,003,000	(e)	(e)
1918.....	4,826,000	4,587,000	13,600,000	12,990,000	(e)	(e)
1919.....	(e)	(e)	20,400,000	19,852,000	(e)	(e)
Total.....	88,248,000	77,327,500	164,927,000	142,215,750	1,500,000	1,000,000

Year ending June 30—	Fortmann hatchery.		Kell Bay hatchery.		Total.	
	Eggs.	Fry.	Eggs.	Fry.	Eggs.	Fry.
1893.....					900,000	600,000
1894.....					3,000,000	2,204,000
1895.....					6,300,000	5,291,000
1896.....					6,200,000	5,475,000
1897.....					7,038,000	6,946,440
1898.....					13,877,000	9,666,000
1899.....					13,891,000	11,019,000
1900.....					19,406,000	12,707,000
1901.....					21,134,000	16,066,800
1902.....	11,460,000	10,300,000			62,260,000	53,500,000
1903.....	40,050,000	29,005,000	2,500,000	2,000,000	85,750,000	63,060,000
1904.....	22,203,000	13,780,000	(e)	(e)	65,043,500	46,630,000
1905.....	65,010,000	63,181,000	(e)	(e)	119,360,000	104,101,000
1906.....	68,715,000	67,843,000	(e)	(e)	116,148,000	104,679,412
1907.....	105,450,000	80,973,000	(e)	(e)	147,729,200	119,006,000
1908.....	41,280,000	33,920,000	(e)	(e)	100,538,200	80,476,000
1909.....	24,465,000	22,785,000	(e)	(e)	80,010,000	74,249,750
1910.....	53,340,000	50,725,000	(e)	(e)	125,544,000	115,495,000
1911.....	34,920,000	30,245,000	(e)	(e)	111,673,500	93,069,500
1912.....	107,520,000	100,335,000	(e)	(e)	167,731,800	163,888,100
1913.....	23,160,000	20,800,000	(e)	(e)	86,376,000	77,997,155
1914.....	9,480,000	8,700,000	(e)	(e)	70,236,160	64,356,580
1915.....	22,500,000	20,820,000	(e)	(e)	85,294,500	79,619,500
1916.....	26,520,000	25,615,000	(e)	(e)	87,357,000	68,273,000
1917.....	62,580,000	57,405,000	(e)	(e)	91,128,000	83,350,000
1918.....	4,240,000	4,980,000	(e)	(e)	22,666,000	25,557,000
1919.....	23,200,000	15,205,000	(e)	(e)	43,680,000	35,057,000
Total.....	746,173,000	659,417,000	2,500,000	2,000,000	1,761,009,760	1,518,319,237

a Many eggs frozen
 b No run of fish.
 c Hatchery was not used, the eggs being hatched in the lake.
 d No report.
 e Not operated.
 f Includes 30,000 coho eggs taken and 27,000 fry liberated.
 g Includes 600,000 humpback eggs taken and 560,000 fry liberated.
 h Includes 2,400,000 humpback eggs taken.
 i Includes 1,845,000 humpback fry planted.
 j Includes 3,660,000 humpback eggs.