

NPAFC
Doc. 1789
Rev.

Releases of Otolith Marked Salmon from Canada in 2017

by

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Submitted to the

NORTH PACIFIC ANADROMOUS FISH COMMISSION

by

Canada

April 2018

THIS PAPER MAY BE CITED IN THE FOLLOWING MANNER:

Till, J. 2018. Releases of otolith marked salmon from Canada in 2017. NPAFC Doc. 1789. 4 pp. Fisheries and Oceans Canada, South Coast Stock Assessment (Available at <http://www.npafc.org>).

Keywords: otolith, thermal mark, salmon, Canada, 2017 releases

Abstract

Thermal mass marking of salmon has, for a number of years, played an important role in stock, hatchery, and both fisheries and research management within Canada. This document follows up on two previous documents outlining Canada's thermal marking proposals for brood years 2015 and 2016 (DiNovo and Luedke, 2015 and 2016). It summarizes all thermally marked salmonids released from BC hatcheries in 2017 by species, hatch mark, facility, release location and release number.

Summary of Canadian Thermal Marking Programs

Thermal marking in British Columbia is one tool that is helping us to answer a number of questions regarding the spatial and temporal migration, and magnitude of, hatchery raised salmonids and infer information about some natural (wild) populations.

Thermal marks are being used to assess hatchery contributions to escapement, to infer the success and contribution of natural (wild) spawners, and to assess hatchery straying. On the West Coast of Vancouver Island (WCVI) thermal marks are also being used along with CWT's and DNA to reconstruct Chinook terminal returns. Results such as migration timing and distribution patterns will inform fishery management, improve forecasting terminal returns, and allow the assessment of the relative success of different release strategies over time, including timing and location of releases, fast or slow growth strategies and naturalized rearing habitats.

Results from the thermal marking are also being compared with those using CWT to assess the relative biases in CWT.

Canadian facilities released a total of 61.5 million thermally marked salmon in 2017. Of these, 350 thousand were yearling Chinook and Coho from the 2015 brood year. The remaining 61.2 million were sub yearling releases from the 2016 brood year. Of these, 21.9 million Chinook were released with 42 thermal marks at 53 different locations. 7 different marks were applied to 32.6 million chum and released at eight locations. Most sockeye marked in Canada are from the Okanagan where 4 marks were applied to 5.2 million fish. Limited numbers of Coho and pink were also released in 2017.

A further 4.5 million sockeye were marked in Alaskan facilities but released into Canadian waters. These consisted of five different marks raised at Snettisham hatchery and released to 3 Transboundary systems.

All release details have been entered into the NPAFC thermal marking database and are listed in Table 1 using the Uniform Hatch Code notation (Johnson et al. 2006).

References

- Johnson, W.F., R.P. Josephson, T.R. Frawley, and D.S. Oxman 2006. Revised web-based north pacific salmon otolith mark directory. (NPAFC Doc. 971). 39p. Alaska Dept. Fish and Game, Juneau Alaska
- DiNovo, S. and W. Luedke. 2016. Proposed Thermal Marks for Salmon from Canada, Brood Year 2016. NPAFC Doc. 1632. Rev. 1. 4 pp. Fisheries and Oceans Canada, South Coast Stock Assessment (Available at <http://www.npafc.org>).
- DiNovo, S. and W. Luedke. 2015. Proposed thermal marks for salmon from Canada, brood year 2015. NPAFC Doc. 1592. Rev.1. 4 pp. Fisheries and Oceans Canada, South Coast Stock Assessment (Available at <http://www.npafc.org>).

Table 1. Releases of otolith marked salmon from Canada in 2017.

NPAFC ID	BROOD YEAR	SPECIES	STATE	REGION	FACILITY	RELEASE SITE	DATE RELEASED	MARK TYPE	LOCAL MARK NAME	HATCH CODE	STAGE	NUMBER RELEASED
CA16-52	2016	CHINOOK	BRITISH COLUMBIA	LWFR	CHILLIWACK RIVER H	ALOUETTE R S, BURRARD IN, CAPILANO R UP, CHAPMAN CR, CHAPMAN EST, CHILLIWACK R, COQUITLAM R, IOCO	21-Jun-17	Thermal	CHRH2016CHINOOKH7	H7	SMOLT	1,838,611
CA16-22	2016	CHINOOK	BRITISH COLUMBIA	NWM	CONUMA RIVER H	MUCHALAT LK	26-May-17	Thermal	CORH2016CHINOOKH24	H2,4	SMOLT	297,431
CA16-24	2016	CHINOOK	BRITISH COLUMBIA	NWM	CONUMA RIVER H	GOLD EST	18-May-17	Thermal	CORH2016CHINOOKH25	H2,5	SMOLT	186,513
CA16-21	2016	CHINOOK	BRITISH COLUMBIA	NWM	CONUMA RIVER H	BURMAN EST	17-May-17	Thermal	CORH2016CHINOOKH342	H3/4,2	SMOLT	306,031
CA16-19	2016	CHINOOK	BRITISH COLUMBIA	NWM	CONUMA RIVER H	CONUMA EST	11-May-17	Thermal	CORH2016CHINOOKH52	H5-2	SMOLT	1,307,818
CA16-23	2016	CHINOOK	BRITISH COLUMBIA	NWM	CONUMA RIVER H	CONUMA EST	3-Jun-17	Thermal	CORH2016CHINOOKH53	H5-3	SMOLT	1,237,086
CA16-25	2016	CHINOOK	BRITISH COLUMBIA	NWM	CONUMA RIVER H	CONUMA EST	29-May-17	Thermal	CORH2016CHINOOKH54	H5-4	SMOLT	518,563
CA16-20	2016	CHINOOK	BRITISH COLUMBIA	NWM	CONUMA RIVER H	TAHSIS R, TAHSIS IN (TAHSIS STOCK)	31-May-17	Thermal	CORH2016CHINOOKH9	H9	SMOLT	94,501
CA16-03	2016	CHINOOK	BRITISH COLUMBIA	GSM	COWICHAN RIVER H	COWICHAN R	24-May-17	Thermal	COW2016CHINOOK41H	4-1H	SMOLT	605,785
CA16-29	2016	CHINOOK	BRITISH COLUMBIA	JNST	GWANI H	WOSS LK	17-May-17	Thermal	GWAH2016CHINOOK33NH	3,3nH	SMOLT	149,528
CA16-48	2016	CHINOOK	BRITISH COLUMBIA	TOMF	KLCP'ELK'STIM' H	OKANAGAN R	19-Jun-17	Thermal	KLCH2016CHINOOKH341	H3,4,1	FED FRY	10,396
CA16-50	2016	CHINOOK	BRITISH COLUMBIA	NWM	MARBLE RIVER H	MARBLE R, YOOTOOK CR	30-May-17	Thermal	MBRH2016CHINOOK322H	3,2,2H	FED FRY	598,327
CA16-51	2016	CHINOOK	BRITISH COLUMBIA	NWM	MARBLE RIVER H	MARBLE R	22-Jun-17	Thermal	MBRH2016CHINOOK323H	3,2,3H	FED FRY	70,895
CA16-56	2016	CHINOOK	BRITISH COLUMBIA	GSM	NANAIMO RIVER H	NANAIMO R	15-May-17	Thermal	NANH2016CHINOOKH23	H2-3	SMOLT	178,906
CA16-55	2016	CHINOOK	BRITISH COLUMBIA	GSM	NANAIMO RIVER H	FIRST LK/GSM	19-May-17	Thermal	NANH2016CHINOOKH5	H5	SMOLT	85,212
CA16-04	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	SOOKE HB	26-May-17	Thermal	NITH2016CHINOOK14H	1,4H	SMOLT	263,448
CA16-36	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	SOOKE R	14-Jun-17	Thermal	NITH2016CHINOOKH3	3H	SMOLT	95,841
CA16-35	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	SOOKE R	13-May-17	Thermal	NITH2016CHINOOKH4	4H	SMOLT	226,450
CA16-05	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	NITINAT LK	25-May-17	Thermal	NITH2016CHINOOKH3232	H2,2,3,2	SMOLT	593,506
CA16-06	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	NITINAT LK	25-May-17	Thermal	NITH2016CHINOOKH232	H2,3,2	SMOLT	692,501
CA16-07	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	NITINAT LK	25-May-17	Thermal	NITH2016CHINOOKH2322	H2,3,2,2	SMOLT	692,352
CA16-08	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	NITINAT LK	25-May-17	Thermal	NITH2016CHINOOKH2323	H2,3,2,3	SMOLT	582,214
CA16-09	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	SARITAR	23-May-17	Thermal	NITH2016CHINOOKH313	H3,1,3	SMOLT	97,914
CA16-10	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	SARITAR	23-May-17	Thermal	NITH2016CHINOOKH314	H3,1,4	SMOLT	96,323
CA16-11	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	SARITAR	23-May-17	Thermal	NITH2016CHINOOKH323	H3,2,3	SMOLT	96,657
CA16-12	2016	CHINOOK	BRITISH COLUMBIA	SWM	NITINAT RIVER H	SARITAR	23-May-17	Thermal	NITH2016CHINOOKH324	H3,2,4	SMOLT	94,439
CA16-30	2016	CHINOOK	BRITISH COLUMBIA	GSM	PUNTLEDGE RIVER H	PUNTLEDGE R	10-Jun-17	Thermal	PUNHCHINOOKH6N	H6	SMOLT	90,774
CA16-32	2016	CHINOOK	BRITISH COLUMBIA	JNST	QUINSAM RIVER H	ELK FALLS CH #3, SECOND IS SL	13-Apr-17	Thermal	QUNH2016CHINOOK34H	3-4H	EMERGENT FRY	779,980
CA16-31	2016	CHINOOK	BRITISH COLUMBIA	JNST	QUINSAM RIVER H	DISCOVERY PASS	4-May-17	Thermal	QUNH2016CHINOOKH22	H2/2	SMOLT	623,587
CA16-34	2016	CHINOOK	BRITISH COLUMBIA	JNST	QUINSAM RIVER H	CAMPBELL R, QUINSAM R	23-Jun-17	Thermal	QUNH2016CHINOOKH222	H2/2/2	SMOLT	2,067,432
CA16-33	2016	CHINOOK	BRITISH COLUMBIA	JNST	QUINSAM RIVER H	QUINSAM LAKE	8-May-17	Thermal	QUNH2016CHINOOKH224	H2/2/4	SMOLT	207,319
CA16-37	2016	CHINOOK	BRITISH COLUMBIA	SWM	ROBERTSON CREEK H	ROBERTSON CR	31-May-17	Thermal	ROBH2016CHINOOK3H	3H	SMOLT, FED FRY	6,180,601
CA16-39	2016	CHINOOK	BRITISH COLUMBIA	SWM	ROBERTSON CREEK H	ALBERNI IN	5-Jun-17	Thermal	ROBH2016CHINOOK3H32	3H3/2	SMOLT	206,288
CA16-38	2016	CHINOOK	BRITISH COLUMBIA	SWM	ROBERTSON CREEK H	ROBERTSON CR	19-May-17	Thermal	ROBH2016CHINOOK3H4	3H4	SMOLT	94,216

Continued

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CA15-33	2015	CHINOOK	BRITISH COLUMBIA	TOMF	SPIUS CREEK H	SPIUS CR	25-Apr-17	Thermal	SPIUS2015CHINOOKH33	H3/3	YEARLING	64,791
CA16-46	2016	CHINOOK	BRITISH COLUMBIA	TOMF	SPIUS CREEK H	SPIUS CR	8-Jun-17	Thermal	SPIU2016CHINOOKH33	H3/3	FED FRY	30,225
CA15-32	2015	CHINOOK	BRITISH COLUMBIA	TOMF	SPIUS CREEK H	COLDWATER R	20-Apr-17	Thermal	SPIU2015CHINOOKH332	H3/3,2	YEARLING	46,423
CA16-47	2016	CHINOOK	BRITISH COLUMBIA	TOMF	SPIUS CREEK H	COLDWATER R	9-Jun-17	Thermal	SPIU2016CHINOOKH332	H3/3,2	YEARLING	33,292
CA15-31	2015	CHINOOK	BRITISH COLUMBIA	TOMF	SPIUS CREEK H	CHEHALIS R	26-Apr-17	Thermal	SPIU2015CHINOOKH44	H4/4	YEARLING	96,822
CA16-41	2016	CHINOOK	BRITISH COLUMBIA	TOMF	SPIUS CREEK H	CHEHALIS R	16-May-17	Thermal	SPIU2016CHINOOKH54	H5/4	YEARLING	144,955
CA16-40	2016	CHINOOK	BRITISH COLUMBIA	TOMF	SPIUS CREEK H	SALMON R/TOMF	21-Jun-17	Thermal	SPIU2016CHINOOKH542	H5/4,2	SMOLT	7,527
CA16-17	2016	CHINOOK	BRITISH COLUMBIA	NWM	TAHSIS RIVER H	TAHSIS IN (LEINER STOCK)	31-May-17	Thermal	TAHH2016CHINOOKH21	H2/1	SMOLT	159,748
CA16-27	2016	CHUM	BRITISH COLUMBIA	NWM	CONUMAR RIVER H	CANTON EST	24-Apr-17	Thermal	CORH2016CHUMH22	H2,2	FED FRY	835,191
CA16-26	2016	CHUM	BRITISH COLUMBIA	NWM	CONUMAR RIVER H	TLUPANAR	1-May-17	Thermal	CORH2016CHUMH23	H2,3	FED FRY	1,027,846
CA16-18	2016	CHUM	BRITISH COLUMBIA	NWM	CONUMAR RIVER H	CONUMA EST	24-Apr-17	Thermal	CORH2016CHUMH5	H5	FED FRY	1,932,540
CA16-28	2016	CHUM	BRITISH COLUMBIA	NWM	CONUMAR RIVER H	CONUMAR	9-May-17	Thermal	CORH2016CHUMH7	H7	FED FRY	424,032
CA16-42	2016	CHUM	BRITISH COLUMBIA	JNST	GWANI H	NIMPKISH R LOW	17-May-17	Thermal	GWAH2016CHUMH32	H3,2	SMOLT	174,204
CA16-01	2016	CHUM	BRITISH COLUMBIA	COBC	KITIMAT RIVER H	KITIMAT R	13-Apr-17	Thermal	KITH2016CHUMH14	H1,4	FED FRY	1,766,658
CA16-16	2016	CHUM	BRITISH COLUMBIA	SWM	NITINAT RIVER H	NITINAT LK, NITINAT R	13-Apr-17	Thermal	NITH2016CHUM31H	3,1H	FED FRY	26,433,305
CA15-13	2015	COHO	BRITISH COLUMBIA	SWM	NITINAT RIVER H	NITINAT R	12-May-17	Thermal	NITH2015COHOH23	H2,3	YEARLING	46,530
CA15-14	2015	COHO	BRITISH COLUMBIA	SWM	NITINAT RIVER H	NITINAT R	12-May-17	Thermal	NITH2015COHOH3	H3	YEARLING	46,851
CA15-15	2015	COHO	BRITISH COLUMBIA	SWM	NITINAT RIVER H	NITINAT R	12-May-17	Thermal	NITH2015COHOH4	H4	YEARLING	48,910
CA16-02	2016	PINK	BRITISH COLUMBIA	GSM	NANAIMO RIVER H	BRANDON IS, GALLOWS PT, NEWCASTLE IS	5-May-17	Thermal	NANH2016PINKH4	H4	FED FRY	782,088
CA16-53	2016	SOCKEYE	BRITISH COLUMBIA	LWFR	INCH CREEK H	CORBOLD CR, FISH HAT CHERY CR, OLSEN CR, SLOUGH CR	21-Jun-17	Thermal	INCH2016SOCKEYEH43	H4,3	FED FRY	991,987
CA16-43	2016	SOCKEYE	BRITISH COLUMBIA	TOMF	KL CP' ELK' STIM' H	MISSION CR/OKAN	10-Jun-17	Thermal	KLCH2016SOCKEYEH34	H3,4	FED FRY	683,856
CA16-45	2016	SOCKEYE	BRITISH COLUMBIA	TOMF	KL CP' ELK' STIM' H	OKANAGAN R	23-Mar-17	Thermal	KLCH2016SOCKEYEH341	H3,4,1	FED FRY	1,134,620
CA16-44	2016	SOCKEYE	BRITISH COLUMBIA	TOMF	KL CP' ELK' STIM' H	OKANAGAN R	18-May-17	Thermal	KLCH2016SOCKEYEH342	H3,4,2	FED FRY	1,523,120
CA16-49	2016	SOCKEYE	BRITISH COLUMBIA	TOMF	KL CP' ELK' STIM' H	OKANAGAN R	13-Apr-17	Thermal	KLCH2016SOCKEYEH35	H3,5	FED FRY	1,835,837
AK16-11	2016	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TAT SAMENIE LK	29-May-17	Thermal	TAT SAMENIE16	2,1,2H	EMERGENT FRY	1,018,700
AK16-12	2016	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TAHLTAN LK	28-May-17	Thermal	TUYA16	3n,3H	EMERGENT FRY	925,000
AK16-13	2016	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TRAPPER LK	29-May-17	Thermal	TRAPPER16	4,4n,3H	EMERGENT FRY	211,800
AK16-20	2016	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TAHLTAN LK	28-May-17	Thermal	TAHLTAN16	4,3H	EMERGENT FRY	2,211,500
AK16-22	2016	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TAT SAMENIE LK	20-Jun-17	Thermal	TAT SAMENIE16ER	2,2,3H	FED FRY	183,000