

Releases of Otolith Marked Salmon from Alaska in 2014

by

Dion S. Oxman

Alaska Department of Fish and Game
P.O. Box 115526
Juneau, Alaska 99811-5526

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Abstract

In Alaska, mass-marking of salmon using otolith thermal marking is an effective research and management tool for a variety of situations. This document reports the otolith mark patterns applied to hatchery-raised salmon stocks released in Alaska during 2014. It includes five species of salmon from brood years 2012 through 2014. Release numbers, mark patterns, and release locations are summarized.

Summary of Alaska Thermal Marking Programs

In Alaska, thermal marking of otoliths is primarily used to provide information about the contribution of hatchery fish, primarily pink, chum and sockeye salmon, to commercial and cost-recovery fisheries during the summer fishing season. In addition, several on-going programs use this information to aid in the in-season management of mixed stock fisheries. Hatcheries use mark recovery data to evaluate the success of various release strategies. In research applications, thermal marks have been used to answer questions regarding lake survival and straying rates of returning adults. The presence of otolith thermal marks is also being used to determine the origin of juvenile and immature salmon collected during biotic surveys in the Gulf of Alaska and the Bering Sea. In many instances, thermal marks are being applied by hatcheries in the absence of a directed sampling program. This applies primarily to coho and Chinook salmon, but it includes some sockeye releases as well. The reasons for this vary, but it primarily occurs in situations where the marks cost little to apply, and there is anticipation that a thermal mark recovery program will be implemented by the time the fish return.

Thermal mark patterns are assigned annually by the Alaska Department of Fish and Game with consideration based on the constraints of the hatchery, the need to identify specific stocks, and the existence of a program to recover and identify the thermal patterns. It has become increasingly difficult to create and apply unique patterns as the hatchery marking programs have expanded. Consequently, alternative marking strategies, such as the use of strontium chloride and calcein, are currently being explored.

In 2014, hatcheries in Alaska released the following numbers of otolith marked salmon: 6.6 million Chinook, 617 million chum, 8.5 million coho, 807 million pink, and 59 million sockeye. A list of otolith marks applied to hatchery-reared salmon released in 2014 is provided in Table 1. Thermal mark patterns are presented in the Uniform Hatch Code notation (Johnson et al. 2006).

The information presented in this report is based on release year, which is defined as when the fish is removed from artificial culture and released into the natural environment. The data includes fish from brood years 2012, 2013, and 2014. In some instances, fish from the same thermal mark group will be released over several years, so this list may not be comprehensive for each NPAFC number (e.g. a single NPAFC number may appear during multiple release years). Further information regarding thermal mark patterns and

numbers of released fish in Alaska is available from the Alaska Department of Fish and Game, Mark, Tag and Age Laboratory database (<http://taglab.org>) and from the NPAFC Working Group on Salmon Marking's Website (<http://npafc.taglab.org>).

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

Table 1. Releases of otolith marked salmon from Alaska in 2014.

NPAFC ID	BROOD YEAR	SPECIES	STATE	REGION	FACILITY	RELEASE SITE	DATE RELEASED	MARK TYPE	MARK ID	HATCH CODE	STAGE	NUMBER RELEASED
AK12-75	2012	CHINOOK	ALASKA	SOUTHEAST	HIDDEN FALLS	KASNYKU BAY	5/4/2014	Thermal	HIDDENFALLS12CHIN	4,2H	SMOLT	558,227
AK12-76	2012	CHINOOK	ALASKA	SOUTHEAST	MEDVEJIE	BEAR COVE	5/15/2014	Thermal	GREENLAKE12CHIN	3,4H	SMOLT	1,642,352
AK12-77	2012	CHINOOK	ALASKA	SOUTHEAST	WHITMAN LAKE	COFFMAN COVE, HERRING COVE, NEETS BAY, PORTNICHOLAS CR	5/24/2014	Thermal	WHITMAN12CHIN	1,5H	SMOLT	1,880,866
AK12-78	2012	CHINOOK	ALASKA	SOUTHEAST	MEDVEJIE	BEAR COVE, HALIBUT PT	5/20/2014	Thermal	MEDVEJIE12CHIN	2,3nH	SMOLT	516,149
AK12-80	2012	CHINOOK	ALASKA	SOUTHCENTRAL	WJ HERNANDEZ	CHENEGA BAY, FLEMING SPIT, VALDEZ OLD TOWN SITE, WHITTIER HBR	6/4/2014	Thermal	PWS12CHIN	2,4H	SMOLT	25,800
AK12-65	2012	COHO	ALASKA	SOUTHCENTRAL	WALLY NOERENBERG	CHENEGA BAY, FLEMING SPIT, LAKE BAY, WHITTIER HBR	6/4/2014	Thermal	WNH12COHO	3H	SMOLT	907,000
AK12-67	2012	COHO	ALASKA	SOUTHCENTRAL	TRAIL LAKES	BEAR CR	5/25/2014	Thermal	BEARLAKECOHO12	3,2H	SMOLT	55,000
AK12-68	2012	COHO	ALASKA	SOUTHCENTRAL	WJ HERNANDEZ	BIRD CR, CAMPBELL CR, EKLUINA TAILRACE, HOMER SPIT, SHIP CR	6/3/2014	Thermal	COOKINLET12COHO	1,5H	SMOLT	505,342
AK12-69	2012	COHO	ALASKA	SOUTHCENTRAL	SOLOMON GULCH	BOULDER BAY, SOLOMON GULCH	6/20/2014	Thermal	SGH12COHO	6H	SMOLT	1,810,315
AK12-70	2012	COHO	ALASKA	SOUTHCENTRAL	WJ HERNANDEZ	SEWARD LAGOON	5/23/2014	Thermal	RESURRECTION12COHO	2,4H	SMOLT	97,675
AK12-71	2012	COHO	ALASKA	SOUTHEAST	MEDVEJIE	BEAR COVE, DEEP INLET	5/19/2014	Thermal	DEEPINLET12COHO	4H	SMOLT	366,876
AK12-72	2012	COHO	ALASKA	SOUTHEAST	KLAWOCK RIVER	KLAWOCK ESTUARY, KLAWOCK LK and R	6/1/2014	Thermal	KLAWOCK12COHO	4,2H	SMOLT	4,282,242
AK12-03	2012	SOCKEYE	ALASKA	SOUTHCENTRAL	MAIN BAY	MAIN BAY	5/15/2014	Thermal	MAINBAY12A	2,2H3	SMOLT	2,310,000
AK12-04	2012	SOCKEYE	ALASKA	SOUTHCENTRAL	MAIN BAY	MAIN BAY	5/22/2014	Thermal	MAINBAY12B	3,2H2,2	SMOLT	2,270,000
AK12-05	2012	SOCKEYE	ALASKA	SOUTHCENTRAL	MAIN BAY	MAIN BAY	5/22/2014	Thermal	MAINBAY12C	3,2H5	SMOLT	2,280,000
AK12-06	2012	SOCKEYE	ALASKA	SOUTHCENTRAL	MAIN BAY	MAIN BAY	5/15/2014	Thermal	MAINBAY12D	2,2H3,3	SMOLT	2,280,000
AK12-07	2012	SOCKEYE	ALASKA	SOUTHCENTRAL	MAIN BAY	MAIN BAY	5/15/2014	Thermal	MAINBAY12E	2,2H	SMOLT	2,320,000
AK12-12	2012	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	SPEEL ARM	6/4/2014	Thermal	SPEELARM12A	3,2nH	SMOLT	1,932,200
AK12-13	2012	SOCKEYE	ALASKA	SOUTHCENTRAL	TRAIL LAKES	RESURRECTION BAY	6/5/2014	Thermal	TRAILLAKES12B	3,3,2H	SMOLT	1,742,000
AK12-15	2012	SOCKEYE	ALASKA	SOUTHCENTRAL	TRAIL LAKES	TUTKA BAY	6/7/2014	Thermal	ENGLISHBAY12SMOLT	2,3,2H	SMOLT	599,500
AK12-16	2012	SOCKEYE	ALASKA	SOUTHCENTRAL	TRAIL LAKES	SHELL LK	6/1/2014	Thermal	SHELLLAKE12	4,2,3H	SMOLT	80,000
AK12-17	2012	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	SPEEL ARM	6/10/2014	Thermal	SPEELARM12B	7H	SMOLT	1,288,700
AK12-22	2012	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	SPEEL ARM	6/5/2014	Thermal	SPEELARM12C	4,3nH	SMOLT	1,283,400
AK12-23	2012	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	SPEEL ARM	6/2/2014	Thermal	SPEELARM12D	5n,3H	SMOLT	4,374,000
AK-12-87	2012	SOCKEYE	ALASKA	WESTWARD	PILLAR CREEK	TELROD COVE	5/31/2014	TM	SALTERY12LATE	5,2H	SMOLT	607,274

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Table 1 (continued). Releases of otolith marked salmon from Alaska in 2014.

NPAFC ID	BROOD YEAR	SPECIES	STATE	REGION	FACILITY	RELEASE SITE	DATE RELEASED	MARK TYPE	MARK ID	HATCH CODE	STAGE	NUMBER RELEASED
AK13-86	2013	CHINOOK	ALASKA	SOUTHCENTRAL	WJ HERNANDEZ	CROOKED CR, DECEPTION CR, EKLUTNA TAILRACE, HALIBUT CV, HOMER SPIT, NINILCHIK R, SELDOVIA	6/25/2014	Thermal	COOKINLET13CHIN	2,3H	SMOLT	1,167,824
AK13-87	2013	CHINOOK	ALASKA	SOUTHCENTRAL	WJ HERNANDEZ	SHIP CR	6/14/2014	Thermal	SHIPCREEK13CHINS	2,3H3	SMOLT	205,481
AK13-88	2013	CHINOOK	ALASKA	SOUTHCENTRAL	WJ HERNANDEZ	SHIP CR	6/14/2014	Thermal	SHIPCREEK13CHINL	2,3H5	SMOLT	153,036
AK13-89	2013	CHINOOK	ALASKA	SOUTHCENTRAL	WJ HERNANDEZ	COVE CR, FLEMING SPIT	6/19/2014	Thermal	PWS13CHIN	2,4H	SMOLT	180,891
AK13-90	2013	CHINOOK	ALASKA	SOUTHCENTRAL	WJ HERNANDEZ	SEWARD LAGOON	6/18/2014	Thermal	RESURRECTION13CHIN	2,5H	SMOLT	183,464
AK13-42	2013	CHUM	ALASKA	SOUTHEAST	SHELDON JACKSON	CRESCENT BAY	5/14/2014	Thermal	SJ13CHUM	1,3H	FED FRY	2,946,059
AK13-44	2013	CHUM	ALASKA	SOUTHEAST	PORT ARMSTRONG	PORT ARMSTRONG	4/30/2014	Thermal	PORTARMSTRONG13CHUM	1,2,2H	FED FRY	25,028,988
AK13-45	2013	CHUM	ALASKA	SOUTHEAST	MEDVEJIE	DEEP INLET	5/1/2014	Thermal	DEEPINLETMV13	1,3,2H	FED FRY	22,403,743
AK13-46	2013	CHUM	ALASKA	SOUTHEAST	MEDVEJIE	DEEP INLET	5/13/2014	Thermal	DEEPINLETMV13LL	5,2,3H	FED FRY	8,482,830
AK13-47	2013	CHUM	ALASKA	SOUTHCENTRAL	WALLY NOERENBERG	LAKE BAY	5/16/2014	Thermal	WNH13A	1,3,1H	FED FRY	76,300,000
AK13-48	2013	CHUM	ALASKA	SOUTHEAST	MEDVEJIE	DEEP INLET	5/8/2014	Thermal	DEEPINLETHF13	5,2nH	FED FRY	21,348,596
AK13-49	2013	CHUM	ALASKA	SOUTHEAST	HIDDEN FALLS	KASNYKU BAY	5/27/2014	Thermal	HIDDENFALLS13	4n,3nH	FED FRY	25,970,400
AK13-50	2013	CHUM	ALASKA	SOUTHEAST	HIDDEN FALLS	KASNYKU BAY	6/7/2014	Thermal	HIDDENFALLS13LL	4n,3,2nH	FED FRY	6,395,064
AK13-51	2013	CHUM	ALASKA	SOUTHEAST	MEDVEJIE	BEAR COVE	4/24/2014	Thermal	BEARCOVE13	3n,4H	FED FRY	15,218,379
AK13-52	2013	CHUM	ALASKA	SOUTHEAST	MEDVEJIE	BEAR COVE	5/9/2014	Thermal	BEARCOVE13LL	6,2H	FED FRY	3,563,709
AK13-53	2013	CHUM	ALASKA	SOUTHCENTRAL	A F KOERNIG	SAWMILL BAY	5/15/2014	Thermal	WNH13B	1,2,1,2H	FED FRY	31,600,000
AK13-54	2013	CHUM	ALASKA	SOUTHEAST	MACAULAY	AMALGA HARBOR, BOAT HARBOR, GASTINEAU CH, LIMESTONE, THANE	6/4/2014	Thermal	DIPAC13	6H	FED FRY	115,633,600
AK13-56	2013	CHUM	ALASKA	SOUTHCENTRAL	WALLY NOERENBERG	PORT CHALMERS	5/15/2014	Thermal	WNH13C	1,2n,3H	FED FRY	43,600,000
AK13-57	2013	CHUM	ALASKA	SOUTHEAST	HIDDEN FALLS	TAKATZ BAY	5/27/2014	Thermal	TAKATZ13	8n,2H	FED FRY	32,028,756
AK13-58	2013	CHUM	ALASKA	SOUTHEAST	HIDDEN FALLS	TAKATZ BAY	6/7/2014	Thermal	TAKATZ13LL	6,3H	FED FRY	10,420,817
AK13-59	2013	CHUM	ALASKA	SOUTHEAST	HIDDEN FALLS	SE COVE	6/7/2014	Thermal	SECOVE13	3,3,2H	FED FRY	9,142,373
AK13-60	2013	CHUM	ALASKA	SOUTHEAST	BURNETT INLET	ANITA BAY	4/30/2014	Thermal	ANITABAY13	5,1,2H	FINGERLING	22,658,000
AK13-61	2013	CHUM	ALASKA	SOUTHEAST	WHITMAN LAKE	KENDRICK BAY	4/29/2014	Thermal	KENDRICK13	3,5H	FINGERLING	27,249,000
AK13-62	2013	CHUM	ALASKA	SOUTHEAST	NEETS BAY	NEETS BAY	5/1/2014	Thermal	NEETSBAY13SUM	4,4H3,2	FINGERLING	65,455,000
AK13-63	2013	CHUM	ALASKA	SOUTHEAST	NEETS BAY	NEETS BAY	5/1/2014	Thermal	NEETSBAY13FALL	4,2,2H3,2	FINGERLING	13,579,000
AK13-64	2013	CHUM	ALASKA	SOUTHEAST	WHITMAN LAKE	NAKAT INLET	4/29/2014	Thermal	NAKATINLET13SUM	4,3,1H	FINGERLING	8,137,000
AK13-65	2013	CHUM	ALASKA	SOUTHEAST	WHITMAN LAKE	KENDRICK BAY	5/14/2014	Thermal	KENDRICKLL13	4n,2n,2H	FINGERLING	2,312,000
AK13-66	2013	CHUM	ALASKA	SOUTHEAST	NEETS BAY	NEETS BAY	5/1/2014	Thermal	NAKATINLET13FALL	3,4,1H2,3	FINGERLING	100,000
AK13-69	2013	CHUM	ALASKA	WESTWARD	KITOI BAY	KITOI BAY	6/6/2014	Thermal	KITOI13CHUM	3,1,3H	FED FRY	21,908,923
AK13-93	2013	CHUM	ALASKA	SOUTHEAST	BURNETT INLET	BURNETT INLET	5/8/2014	Thermal	BURNETT13	4,2,4H	FINGERLING	4,906,000
AK13-73	2013	COHO	ALASKA	SOUTHCENTRAL	TRAIL LAKES	BEAR LK	6/19/2014	Thermal	BEARLAKE13COHO	2,2H	FINGERLING	468,000
AK13-30	2013	PINK	ALASKA	SOUTHCENTRAL	A F KOERNIG	SAWMILL BAY	5/15/2014	Thermal	AFK13B	4H	FED FRY	154,000,000
AK13-31	2013	PINK	ALASKA	SOUTHCENTRAL	WALLY NOERENBERG	LAKE BAY	5/15/2014	Thermal	WNH13PINKB	8H	FED FRY	128,000,000
AK13-33	2013	PINK	ALASKA	SOUTHEAST	SHELDON JACKSON	CRESCENT BAY	5/12/2014	Thermal	SJ13PINK	4,1H	FED FRY	2,971,630

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NPAFC ID	BROOD YEAR	SPECIES	STATE	REGION	FACILITY	RELEASE SITE	DATE RELEASED	MARK TYPE	MARK ID	HATCH CODE	STAGE	NUMBER RELEASED
AK13-34	2013	PINK	ALASKA	SOUTHEAST	PORT ARMSTRONG	PORT ARMSTRONG	5/7/2014	Thermal	PORTARMSTRONG13	3H	FED FRY	79,659,097
AK13-36	2013	PINK	ALASKA	SOUTHCENTRAL	SOLOMON GULCH	SOLOMON GULCH	5/19/2014	Thermal	SGH13	6H	FED FRY	219,936,541
AK13-37	2013	PINK	ALASKA	SOUTHCENTRAL	CANNERY CREEK	CANNERY CR	5/22/2014	Thermal	CCH13	3,3H	FED FRY	171,000,000
AK13-39	2013	PINK	ALASKA	SOUTHCENTRAL	TUTKA BAY	TUTKA BAY	6/19/2014	Thermal	TUTKA13PINK	5,3H	FED FRY	51,110,000
AK13-40	2013	PINK	ALASKA	SOUTHCENTRAL	TUTKA BAY	PORT GRAHAM	5/14/2014	Thermal	PORTGRAHAM13	5H3	FRY	188,000
AK13-01	2013	SOCKEYE	ALASKA	SOUTHCENTRAL	GULKANA	SUMMIT LK, CROSSWIND LK, PAXSON LK	5/29/2014	Thermal	GULKANA13	HS1	FED FRY	22,000,000
AK13-02	2013	SOCKEYE	ALASKA	SOUTHCENTRAL	TRAIL LAKES	BEAR LK	6/5/2014	Thermal	TRAILLAKES13A	4H	FED FRY	2,405,000
AK13-08	2013	SOCKEYE	ALASKA	SOUTHCENTRAL	TRAIL LAKES	KIRSCHNER, LEISURE LK	6/8/2014	Thermal	PENINSULA13SOCKEYE	1,3H	FED FRY	1,570,000
AK13-09	2013	SOCKEYE	ALASKA	SOUTHCENTRAL	TRAIL LAKES	HAZEL LK	6/8/2014	Thermal	HAZEL13	4,1,3H	FED FRY	1,223,000
AK13-10	2013	SOCKEYE	ALASKA	SOUTHCENTRAL	TRAIL LAKES	ENGLISH BAY L	10/16/2014	Thermal	ENGLISHBAY13	5H	PRESMOLT	209,000
AK13-11	2013	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TATSAMENIE LK	6/6/2014	Thermal	TATSAMENIE13	2,1,2H	FRY	1,136,400
AK13-12	2013	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TUYA LK	6/12/2014	Thermal	TUYA13	3n,3H	FRY	462,100
AK13-15	2013	SOCKEYE	ALASKA	SOUTHCENTRAL	TRAIL LAKES	HIDDEN LK	5/21/2014	Thermal	HIDDENLAKE13	2,2,2H	FRY	1,540,000
AK13-19	2013	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TAHLTAN LK	5/29/2014	Thermal	TAHLTAN13	4,3H	FRY	1,463,900
AK13-21	2013	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TATSAMENIE LK	6/11/2014	Thermal	TATSAMENIE13ER	2,2,3H	FED FRY	188,300
AK13-22	2013	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	SWEETHEART LK	6/11/2014	Thermal	SWEETHEART13	5,3nH	FRY	492,100
AK13-27	2013	SOCKEYE	ALASKA	WESTWARD	PILLAR CREEK	JENNIFER LK, RUTH LK, SPIRIDON LK	6/5/2014	Dry	KODIAK13A	4,3,2H	FED FRY	2,310,400
AK13-28	2013	SOCKEYE	ALASKA	WESTWARD	KITOI BAY	LITTLE KITOI LK	9/23/2014	Dry	KITOI13	3,2H	SMOLT	56,029
AK13-94	2013	SOCKEYE	ALASKA	SOUTHEAST	SNETTISHAM	R-TAHLTAN LK	5/28/2014	Thermal	TAHLTAN13A	6,3H	FRY	602,100
AK14-98	2014	CHINOOK	ALASKA	WESTERN	NORTON SOUND	SOUTH R	9/29/2014	Thermal	SOUTHRIVER14	3,1H	ZYGOTE	68,500
AK14-72	2014	CHUM	ALASKA	WESTERN	NORTON SOUND	SNAKE R, SOLOMON R	10/8/2014	Thermal	NORTON14CHUM	1,4H	ZYGOTE	164,000
AK14-85	2014	COHO	ALASKA	WESTERN	NORTON SOUND	SNAKE R	12/1/2014	Thermal	NORTON14COHO	2,3H	ZYGOTE	10,000