

Proposed Otolith Marks for Brood Year 2017 Salmon in Japan

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Abstract

Japan plans to mark approximately 404 million salmon of the 2017 brood year (262 million chum, 138 million pink, 3.5 million masu, and 230 thousand sockeye salmon) using 123 discrete thermal patterns and two ALC (alizarin complexone) patterns at 55 hatcheries. Two rings in the first band are adopted as the base mark to distinguish Japanese chum and pink salmon from other stocks.

Keywords: Japan, otolith mark plan, 2017 brood year salmon

Background

In Japan, thermal otolith marks have been used for migration, growth and survival surveys of juvenile salmon in the coastal waters, and for offshore migration surveys in the Okhotsk Sea, North Pacific Ocean and Bering Sea (Kawana et al. 1999; Urawa et al. 2000a, 2004, 2006, 2009, 2016; Sato et al. 2009). In addition, otolith marking is expected as a tool to evaluate the accuracy of homing migration and abundance of hatchery and natural spawning stocks.

Mark Plan

The proposed otolith marks for the 2017 brood year salmon include 123 discrete thermal patterns and two ALC (alizarin complexone) patterns (Table 1). We plan to mark approximately 262 million chum, 138 million pink, 3.5 million masu, and 230 thousand sockeye salmon at 55 hatcheries (Fig. 1).

The thermal marking pattern is presented as the hatch code notation (Hagen et al. 2000; Josephson et al. 2006). As the base mark, two rings in the first band have been adopted to distinguish Japanese chum and pink salmon from other stocks since 1999 brood year stock (Urawa et al. 2000b). All thermal rings are induced by cooler temperature exposures.

ALC marks are used for chum, pink and masu salmon surveys by the Hokkaido Research Organization, Japan Fisheries Research and Education Agency, and Yamagata Prefectural Inland Water Fisheries Experimental Station.

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Table 1. Proposed otolith mark releases from Japan for 2017 brood year stocks of chum, pink, masu and sockeye salmon. ALC, alizarin complexone; TM, thermal marking; AITC; Aomori Industrial Technology Center; FRA, Japan Fisheries Research and Education Agency; HAPC; Hokkaido Aquaculture Promotion Corporation; HOKK; Hokkaido Research Organization; IFTC; Iwate Fisheries Technology Center; IIFTC; Iwate Inland Fisheries Technology Center; NPH, Non-profit Private Hatchery; SSM, Sapporo Salmon Museum; TFRI, Toyama Fisheries Research Institute; YIE, Yamagata Inland Water Experimental Station.

Note: Red and blue text lines indicate otolith mark plans updated on September 13 and November 30, 2017, respectively.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-01	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	FRA	Shari Hatchery	Shari River	Shari River
JP17-02	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	NPH	Horonai Hatchery	Horonai River	Horonai River
JP17-03	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	NPH	Horonai Hatchery	Horonai River	Horonai River
JP17-04	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	NPH	Horonai Hatchery	Horonai River	Horonai River
JP17-05	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	FRA	Tokushibetsu Hatchery	Tokushibetsu River	Tokushibetsu River
JP17-06	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	FRA	Tokushibetsu Hatchery	Tokushibetsu River	Tokushibetsu River
JP17-07	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	FRA	Tokushibetsu Hatchery	Tokushibetsu River	Tokushibetsu River
JP17-08	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	FRA	Tokushibetsu Hatchery	Tokushibetsu River	Tokushibetsu River
JP17-09	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	NPH	Shintombetsu Hatchery	Tombetsu River	Tombetsu River
JP17-10	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	NPH	Shintombetsu Hatchery	Tombetsu River	Tombetsu River
JP17-11	TM	2017	2018	Chum	Hokkaido	Okhotsk Sea Coast	NPH	Shintombetsu Hatchery	Tombetsu River	Tombetsu River
JP17-12	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Teshio Hatchery	Teshio River	Teshio River
JP17-13	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Teshio Hatchery	Teshio River	Teshio River
JP17-14	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Teshio Hatchery	Teshio River	Teshio River
JP17-15	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Teshio Hatchery	Teshio River	Teshio River
JP17-16	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Teshio Hatchery	Teshio River	Teshio River
JP17-17	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Nakagawa Hatchery	Teshio River	Teshio River
JP17-18	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Teshio Hatchery	Teshio River	Teshio River
JP17-19	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-20	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-01	Fry	11,600,000	Shari17Chum	2-2-2-2H			Down
JP17-02	Fry	1,700,000	Horonai17Chum1	2.5nH			Down
JP17-03	Fry	1,700,000	Horonai17Chum2	2.8H			Down
JP17-04	Fry	1,700,000	Horonai17Chum3	2.9H			Down
JP17-05	Fry	7,900,000	Tokushibetsu17Chum1	2.2,2,3H			Down
JP17-06	Fry	600,000	Tokushibetsu17Chum2	2-2,2,3H			Down
JP17-07	Fry	1,800,000	Tokushibetsu17Chum3	2-3,4H			Down
JP17-08	Fry	1,400,000	Tokushibetsu17Chum4	2-3-3H			Down
JP17-09	Fry	1,700,000	Tombetsu17Chum1	2.5nH			Down
JP17-10	Fry	1,700,000	Tombetsu17Chum2	2.8H			Down
JP17-11	Fry	1,700,000	Tombetsu17Chum3	2.9H			Down
JP17-12	Fry	1,200,000	Teshio17Chum1	2n-3H			Down
JP17-13	Fry	700,000	Teshio17Chum2	2,1-3H			Down
JP17-14	Fry	700,000	Teshio17Chum3	2-1,3H			Down
JP17-15	Fry	1,400,000	Teshio17Chum4	2-1-2H			Down
JP17-16	Fry	1,000,000	Teshio17Chum5	2,3,2H			Down
JP17-17	Fry	2,100,000	Teshio17Chum6	2-5H			Down
JP17-18	Fry	2,100,000	Teshio17Chum7	2,2,1,2H			Down
JP17-19	Fry	12,900,000	Ishikari17Chum6	2,3-3H			Down
JP17-20	Fry	1,300,000	Ishikari17Chum1	2,2n,3H			Down

No	Otolith Mark Schedule	Comments
JP17-01	(1X)12C:12H,(1X)12C:36H,(1X)12C:12H,(1X)12C:36H,(1X)12C:12H,(1X)12C:36H,(2X)12C:12H	
JP17-02	(1X)24C:24H,(1X)24C:48H,(5X)12C:12H	
JP17-03	(1X)12C:12H,(1X)12C:24H,(8X)12C:12H	
JP17-04	(1X)12C:12H,(1X)12C:24H,(9X)12C:12H	
JP17-05	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-06	(1X)12C:12H,(1X)12C:48H,(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-07	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(1X)12C:24H,(4X)12C:12H	
JP17-08	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(1X)12C:48H,(3X)12C:12H	
JP17-09	(1X)24C:24H,(1X)24C:48H,(5X)12C:12H	
JP17-10	(1X)12C:12H,(1X)12C:24H,(8X)12C:12H	
JP17-11	(1X)12C:12H,(1X)12C:24H,(9X)12C:12H	
JP17-12	(1X)12C:12H,(1X)12C:36H,(3X)24C:24H	
JP17-13	(1X)12C:12H,(1X)12C:24H,(1X)12C:48H,(3X)12C:12H	
JP17-14	(1X)12C:12H,(1X)12C:48H,(1X)12C:24H,(3X)12C:12H	
JP17-15	(1X)12C:12H,(2X)12C:48H,(2X)12C:12H	
JP17-16	(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(1X)12C:24H,(2X)12C:12H	
JP17-17	(1X)12C:12H,(1X)12C:48H,(5X)12C:12H	
JP17-18	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(2X)12C:24H,(2X)12C:12H	
JP17-19	(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(1X)12C:36H,(3X)12C:12H	
JP17-20	(1X)12C:12H,(1X)12C:24H,(1X)3C:9H,(1X)3C:21H,(3X)12C:12H	

Table1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-21	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-22	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-23	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-24	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-25	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-26	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	SSM	Sapporo Salmon Museum	Ishikari River	Ishikari River
JP17-27	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Kyogoku Hatchery	Yoichi River	Yoichi River
JP17-28	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Kyogoku Hatchery	Yoichi River	Yoichi River
JP17-29	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Kyogoku Hatchery	Yoichi River	Yoichi River
JP17-30	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Kyogoku Hatchery	Shiribetsu River	Shiribetsu River
JP17-31	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Kyogoku Hatchery	Shiribetsu River	Shiribetsu River
JP17-32	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Kyogoku Hatchery	Shiribetsu River	Shiribetsu River
JP17-33	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Yakumo Hatchery	Ainumanai River	Ainumanai River
JP17-34	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Yakumo Hatchery	Ainumanai River	Ainumanai River
JP17-35	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Fukushima Hatchery	Hekirichi River	Oyobe River
JP17-36	TM	2017	2018	Chum	Hokkaido	Japan Sea Coast	NPH	Fukushima Hatchery	Hekirichi River	Oyobe River
JP17-37	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Ichani River	Ichani River
JP17-38	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Ichani River	Ichani River
JP17-39	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Ichani River	Ichani River
JP17-40	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Ichani River	Ichani River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-21	Fry	1,300,000	Ishikari17Chum2	2,4n,3H			Dow n
JP17-22	Fry	1,300,000	Ishikari17Chum3	2,6n,3H			Dow n
JP17-23	Fry	11,200,000	Ishikari17Chum7	2-2-3H			Dow n
JP17-24	Fry	1,000,000	Ishikari17Chum4	2-3,3H			Dow n
JP17-25	Fry	1,000,000	Ishikari17Chum5	2-3-2H			Dow n
JP17-26	Fry	80,000	Ishikari15Chum8	2-2H			Dow n
JP17-27	Fry	1,500,000	Yoichi17Chum1	2,2,1,4H			Up
JP17-28	Fry	1,500,000	Yoichi17Chum2	2,2,1,5H			Up
JP17-29	Fry	1,000,000	Yoichi17Chum3	2-3,2H			Up
JP17-30	Fry	1,700,000	Shiribetsu17Chum1	2-5H			Up
JP17-31	Fry	1,700,000	Shiribetsu17Chum2	2,2,1,2H			Up
JP17-32	Fry	1,700,000	Shiribetsu17Chum3	2,2,1,3H			Up
JP17-33	Fry	2,200,000	Ainumanai17Chum1	2-5H			Dow n
JP17-34	Fry	2,200,000	Ainumanai17Chum2	2,2,1,2H			Dow n
JP17-35	Fry	1,350,000	Oyobe17Chum1	2,3-2H			Dow n
JP17-36	Fry	1,350,000	Oyobe17Chum2	2-2,3H			Dow n
JP17-37	Fry	1,150,000	Ichani17Chum4	2-3,5H			Dow n
JP17-38	Fry	600,000	Ichani17Chum5	2-4-2H			Dow n
JP17-39	Fry	2,650,000	Ichani17Chum1	2-3,6H			Dow n
JP17-40	Fry	1,800,000	Ichani17Chum2	2-4-4H			Dow n

No	Otolith Mark Schedule	Comments
JP17-21	(1X)12C:12H,(1X)12C:24H,(3X)3C:9H,(1X)3C:21H,(3X)12C:12H	
JP17-22	(1X)12C:12H,(1X)12C:24H,(5X)3C:9H,(1X)3C:21H,(3X)12C:12H	
JP17-23	(1X)12C:12H,(1X)12C:48H,(1X)12C:12H,(1X)12C:48H,(3X)12C:12H	
JP17-24	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-25	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-26	(1X)24C:24H,(1X)24C:72H,(2X)24C:24H	
JP17-27	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-28	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(5X)12C:12H	
JP17-29	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(1X)12C:24H,(2X)12C:12H	
JP17-30	(1X)12C:12H,(1X)12C:48H,(5X)12C:12H	
JP17-31	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(2X)12C:24H,(2X)12C:12H	
JP17-32	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-33	(1X)12C:12H,(1X)12C:48H,(5X)12C:12H	
JP17-34	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(2X)12C:24H,(2X)12C:12H	
JP17-35	(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-36	(1X)12C:12H,(1X)12C:48H,(1X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-37	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(1X)12C:24H,(5X)12C:12H	
JP17-38	(1X)12C:12H,(1X)12C:36H,(3X)12C:12H,(1X)12C:36H,(2X)12C:12H	
JP17-39	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-40	(1X)12C:12H,(1X)12C:48H,(3X)12C:12H,(1X)12C:48H,(4X)12C:12H	

Table1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-41	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Ichani River	Ichani River
JP17-42	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Ichani River	Ichani River
JP17-43	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Ichani River	Ichani River
JP17-44	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	NPH	Shibetsu Hatchery	Shibetsu River	Shibetsu River
JP17-45	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	NPH	Shibetsu Hatchery	Shibetsu River	Shibetsu River
JP17-46	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	NPH	Shibetsu Hatchery	Shibetsu River	Shibetsu River
JP17-47	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Nijbetsu Hatchery	Nishibetsu River	Nishibetsu River
JP17-48	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Nijbetsu Hatchery	Nishibetsu River	Nishibetsu River
JP17-49	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Nijbetsu Hatchery	Nishibetsu River	Nishibetsu River
JP17-50	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Nijbetsu Hatchery	Nishibetsu River	Nishibetsu River
JP17-51	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Nijbetsu Hatchery	Nishibetsu River	Nishibetsu River
JP17-52	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Nijbetsu Hatchery	Nishibetsu River	Nishibetsu River
JP17-53	TM	2017	2018	Chum	Hokkaido	Nemuro Strait Coast	FRA	Nijbetsu Hatchery	Nishibetsu River	Nishibetsu River
JP17-54	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tsurui Hatchery	Kushiro River	Kushiro River
JP17-55	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tsurui Hatchery	Kushiro River	Kushiro River
JP17-56	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tsurui Hatchery	Kushiro River	Kushiro River
JP17-57	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tsurui Hatchery	Kushiro River	Kushiro River
JP17-58	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	NPH	Ashibetsu Hatchery	Kushiro River	Kushiro River
JP17-59	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	NPH	Ashibetsu Hatchery	Kushiro River	Kushiro River
JP17-60	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-41	Fry	600,000	Ichani17Chum3	2-4-3H			Down
JP17-42	Fry	600,000	Ichani17Chum6	2,2,7H			Down
JP17-43	Fry	600,000	Ichani17Chum7	2-2,6H			Down
JP17-44	Fry	1,700,000	Shibetsu17Chum1	2,3,4H			Up
JP17-45	Fry	1,700,000	Shibetsu17Chum2	2,3-4H			Up
JP17-46	Fry	1,700,000	Shibetsu17Chum3	2-2,4H			Up
JP17-47	Fry	3,400,000	Nishibetsu17Chum1	2,1,2,6H			Down
JP17-48	Fry	8,500,000	Nishibetsu17Chum2	2,1,2,5H			Down
JP17-49	Fry	9,700,000	Nishibetsu17Chum3	2-1-5H			Down
JP17-50	Fry	850,000	Nishibetsu17Chum4	2,1,2,7H			Down
JP17-51	Fry	850,000	Nishibetsu17Chum5	2,1-2,4H			Down
JP17-52	Fry	850,000	Nishibetsu17Chum6	2-1-6H			Down
JP17-53	Fry	850,000	Nishibetsu17Chum7	2,1,2,3H			Down
JP17-54	Fry	1,300,000	Kushiro17Chum1	2-9H			Down
JP17-55	Fry	1,600,000	Kushiro17Chum2	2-2-3-3H			Down
JP17-56	Fry	3,000,000	Kushiro17Chum3	2-8H			Down
JP17-57	Fry	3,200,000	Kushiro17Chum4	2-10H			Down
JP17-58	Fry	1,550,000	Kushiro17Chum5	2n,2n-2H			Down
JP17-59	Fry	1,550,000	Kushiro17Chum6	2n-2n,2H			Down
JP17-60	Fry	2,400,000	Tokachi17Chum1	2-5-3H			Down

No	Otolith Mark Schedule	Comments
JP17-41	(1X)12C:12H,(1X)12C:48H,(3X)12C:12H,(1X)12C:48H,(3X)12C:12H	
JP17-42	(1X)12C:12H,(1X)12C:48H,(3X)12C:12H,(1X)12C:48H,(3X)12C:12H	
JP17-43	(1X)12C:12H,(1X)12C:48H,(3X)12C:12H,(1X)12C:48H,(3X)12C:12H	
JP17-44	(1X)12H:12C,(1X)12H:24C,(2X)12H:12C,(1X)12H:24C,(4X)12H:12C	
JP17-45	(1X)12H:12C,(1X)12H:24C,(2X)12H:12C,(1X)12H:48C,(4X)12H:12C	
JP17-46	(1X)12C:12H,(1X)12C:48H,(1X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-47	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-48	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(5X)12C:12H	
JP17-49	(1X)12C:12H,(1X)12C:48H,(1X)12C:48H,(5X)12C:12H	
JP17-50	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(7X)12C:12H	
JP17-51	(1X)12C:12H,(1X)12C:24H,(1X)12C:48H,(1X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-52	(1X)12C:12H,(1X)12C:48H,(1X)12C:48H,(6X)12C:12H	
JP17-53	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-54	(1X)12C:12H,(1X)12C:48H,(9X)12C:12H	
JP17-55	(1X)12C:12H,(1X)12C:36H,(1X)12C:12H,(1X)12C:36H,(2X)12C:12H,(1X)12C:36H,(3X)12C:12H	
JP17-56	(1X)12C:12H,(1X)12C:48H,(8X)12C:12H	
JP17-57	(1X)12C:12H,(1X)12C:48H,(10X)12C:12H	
JP17-58	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:48H,(2X)24C:24H	
JP17-59	(1X)12C:12H,(1X)12C:48H,(1X)12C:12H,(1X)12C:24H,(2X)24C:24H	
JP17-60	(1X)12C:12H,(1X)12C:48H,(4X)12C:12H,(1X)12C:48H,(3X)12C:12H	

Table1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-61	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River
JP17-62	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River
JP17-63	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River
JP17-64	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River
JP17-65	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River
JP17-66	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River
JP17-67	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River
JP17-68	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	FRA	Tokachi Hatchery	Tokachi River	Tokachi River
JP17-69	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	NFH	Hiroo Hatchery	Hiroo River	Hiroo River
JP17-70	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	NFH	Hiroo Hatchery	Hiroo River	Hiroo River
JP17-71	TM	2017	2018	Chum	Hokkaido	East Pacific Coast	NFH	Hiroo Hatchery	Hiroo River	Hiroo River
JP17-72	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NFH	Saruru Hatchery	Shizunai River	Erimo Msaki Fishing Port
JP17-73	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NFH	Hidakahorobetsu Hatchery	Hidakahorobetsu River	Hidakahorobetsu River
JP17-74	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NFH	Hidakahorobetsu Hatchery	Hidakahorobetsu River	Hidakahorobetsu River
JP17-75	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NFH	Hidakahorobetsu Hatchery	Hidakahorobetsu River	Hidakahorobetsu River
JP17-76	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Shizunai River	Shizunai River
JP17-77	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Shizunai River	Shizunai River
JP17-78	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Shizunai River	Shizunai River
JP17-79	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Shizunai River	Shizunai River
JP17-80	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Shizunai River	Shizunai River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-61	Fry	1,450,000	Tokachi17Chum2	2-5,3H			Down
JP17-62	Fry	1,450,000	Tokachi17Chum3	2,5,2H			Down
JP17-63	Fry	1,400,000	Tokachi17Chum4	2,5-3H			Down
JP17-64	Fry	1,400,000	Tokachi17Chum5	2-5-2H			Down
JP17-65	Fry	1,400,000	Tokachi17Chum8	2,5,4H			Down
JP17-66	Fry	1,450,000	Tokachi17Chum6	2-5,2H			Down
JP17-67	Fry	1,450,000	Tokachi17Chum9	2,5,3H			Down
JP17-68	Fry	2,900,000	Tokachi17Chum7	2,5-2H			Down
JP17-69	Fry	1,700,000	Hiroo17Chum1	2n-4H			Down
JP17-70	Fry	1,700,000	Hiroo17Chum2	2,4,1,2H			Down
JP17-71	Fry	1,700,000	Hiroo17Chum3	2,4,1,3H			Down
JP17-72	Fry	2,000,000	Erimo17Chum	2-3,1,2H			Down
JP17-73	Fry	1,700,000	Hidakahorobetsu17Chum1	2-7H			Down
JP17-74	Fry	1,700,000	Hidakahorobetsu17Chum2	2,2n-2nH			Down
JP17-75	Fry	1,700,000	Hidakahorobetsu17Chum3	2,3n,3nH			Down
JP17-76	Fry	700,000	Shizunai17Chum1	2,2,5H			Down
JP17-77	Fry	600,000	Shizunai17Chum3	2,2,6H			Down
JP17-78	Fry	600,000	Shizunai17Chum2	2,2-4H			Down
JP17-79	Fry	2,900,000	Shizunai17Chum4	2,2-5H			Down
JP17-80	Fry	800,000	Shizunai17Chum5	2-2,4H			Down

No	Otolith Mark Schedule	Comments
JP17-61	(1X)12C:12H,(1X)12C:48H,(4X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-62	(1X)12C:12H,(1X)12C:24H,(4X)12C:12H,(1X)12C:24H,(2X)12C:12H	
JP17-63	(1X)12C:12H,(1X)12C:24H,(4X)12C:12H,(1X)12C:48H,(3X)12C:12H	
JP17-64	(1X)12C:12H,(1X)12C:48H,(4X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-65	(1X)12C:12H,(1X)12C:24H,(4X)12C:12H,(1X)12C:24H,(4X)12C:12H	
JP17-66	(1X)12C:12H,(1X)12C:48H,(4X)12C:12H,(1X)12C:24H,(2X)12C:12H	
JP17-67	(1X)12C:12H,(1X)12C:24H,(4X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-68	(1X)12C:12H,(1X)12C:24H,(4X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-69	(1X)12C:12H,(1X)12C:48H,(4X)24C:24H	
JP17-70	(1X)12C:12H,(1X)12C:24H,(3X)12C:12H,(2X)12C:24H,(2X)12C:12H	
JP17-71	(1X)12C:12H,(1X)12C:24H,(3X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-72	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(2X)12C:24H,(2X)12C:12H	
JP17-73	(1X)12C:12H,(1X)12C:48H,(7X)12C:12H	
JP17-74	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-75	(1X)24C:24H,(1X)24C:48H,(2X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-76	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(5X)12C:12H	
JP17-77	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-78	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-79	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:48H,(5X)12C:12H	
JP17-80	(1X)12C:12H,(1X)12C:48H,(1X)12C:12H,(1X)12C:24H,(4X)12C:12H	

Table1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-81	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Shizunai River	Shizunai River
JP17-82	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Toyohata Hatchery	Shizunai River	Shizunai River
JP17-83	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Toyohata Hatchery	Shizunai River	Shizunai River
JP17-84	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Toyohata Hatchery	Shizunai River	Shizunai River
JP17-85	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Toyohata Hatchery	Shizunai River	Shizunai River
JP17-86	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Shikiu Hatchery	Shikiu River	Shikiu River
JP17-87	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Shikiu Hatchery	Shikiu River	Shikiu River
JP17-88	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Yakumo Hatchery	Yurappu River	Yurappu River
JP17-89	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Yakumo Hatchery	Yurappu River	Yurappu River
JP17-90	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Yakumo Hatchery	Yurappu River	Yurappu River
JP17-91	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Yakumo Hatchery	Yurappu River	Yurappu River
JP17-92	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Yakumo Hatchery	Yurappu River	Yurappu River
JP17-93	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Yakumo Hatchery	Yurappu River	Yurappu River
JP17-94	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Yakumo Hatchery	Yurappu River	Yurappu River
JP17-95	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	FRA	Yakumo Hatchery	Yurappu River	Yurappu River
JP17-96	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Todohokke Hatchery	Torisaki River	Torisaki River
JP17-97	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Todohokke Hatchery	Torisaki River	Torisaki River
JP17-98	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Todohokke Hatchery	Shirikishinai River	Shirikishinai River
JP17-99	TM	2017	2018	Chum	Hokkaido	West Pacific Coast	NPH	Todohokke Hatchery	Shirikishinai River	Shirikishinai River
JP17-100	ALC	2017	2018	Chum	Hokkaido	East Pacific Coast	HOKK	Ashibetsu Hatchery	Kushiro River	Horoto River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-81	Fry	800,000	Shizunai17Chum6	2-2.5H			Down
JP17-82	Fry	400,000	Shizunai17Chum7	2,3,1,2H			Down
JP17-83	Fry	600,000	Shizunai17Chum8	2,3,1,3H			Down
JP17-84	Fry	600,000	Shizunai17Chum9	2,3,1,4H			Down
JP17-85	Fry	600,000	Shizunai17Chum10	2-3,1,3H			Down
JP17-86	Fry	1,400,000	Shikiu17Chum1	2-7H			Up
JP17-87	Fry	1,400,000	Shikiu17Chum2	2,2n-2nH			Up
JP17-88	Fry	650,000	Yurappu17Chum1	2,2n-4nH			Down
JP17-89	Fry	850,000	Yurappu17Chum2	2,3n-2nH			Down
JP17-90	Fry	1,000,000	Yurappu17Chum3	2,3n-3nH			Down
JP17-91	Fry	1,000,000	Yurappu17Chum4	2,3n-4nH			Down
JP17-92	Fry	1,000,000	Yurappu17Chum8	2,2n,3nH			Down
JP17-93	Fry	1,000,000	Yurappu17Chum5	2,2n,4nH			Down
JP17-94	Fry	1,000,000	Yurappu17Chum6	2,2n,5nH			Down
JP17-95	Fry	1,000,000	Yurappu17Chum7	2,2n,6nH			Down
JP17-96	Fry	850,000	Torisaki17Chum1	2-7H			Down
JP17-97	Fry	850,000	Torisaki17Chum2	2,2n-2nH			Down
JP17-98	Fry	1,700,000	Shirikishinai17Chum1	2-7H			Down
JP17-99	Fry	1,700,000	Shirikishinai17Chum2	2,2n-2nH			Down
JP17-100	Fry	1,800,000	Horoto17Chum	A1H			-

No	Otolith Mark Schedule	Comments
JP17-81	(1X)12C:12H,(1X)12C:48H,(1X)12C:12H,(1X)12C:24H,(5X)12C:12H	
JP17-82	(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(2X)12C:24H,(2X)12C:12H	
JP17-83	(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(2X)12C:24H,(3X)12C:12H	
JP17-84	(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(2X)12C:24H,(4X)12C:12H	
JP17-85	(1X)12C:12H,(1X)12C:48H,(2X)12C:12H,(2X)12C:24H,(3X)12C:12H	
JP17-86	(1X)12C:12H,(1X)12C:48H,(7X)12C:12H	
JP17-87	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-88	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-89	(1X)24C:24H,(1X)24C:48H,(2X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-90	(1X)24C:24H,(1X)24C:48H,(2X)12C:12H,(1X)12C:48H,(3X)12C:12H	
JP17-91	(1X)24C:24H,(1X)24C:48H,(2X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-92	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-93	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:24H,(4X)12C:12H	
JP17-94	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:24H,(5X)12C:12H	
JP17-95	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-96	(1X)12C:12H,(1X)12C:48H,(7X)12C:12H	
JP17-97	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-98	(1X)12C:12H,(1X)12C:48H,(7X)12C:12H	
JP17-99	(1X)24C:24H,(1X)24C:48H,(1X)12C:12H,(1X)12C:48H,(2X)12C:12H	
JP17-100		Single ring

Table1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-101	ALC	2017	2018	Chum	Hokkaido	East Pacific Coast	HOKK	Ashibetsu Hatchery	Kushiro River	Mochirippu River
JP17-102	ALC	2017	2018	Chum	Hokkaido	East Pacific Coast	HOKK	Ashibetsu Hatchery	Kushiro River	Mochirippu River
JP17-103	ALC	2017	2018	Chum	Hokkaido	East Pacific Coast	HOKK	Ashibetsu Hatchery	Kushiro River	Mochirippu River
JP17-104	TM	2017	2018	Chum	Honshu	Japan Sea Coast	AITC	Oirase Hatchery (Jpn sea)	Nida River	Oirase River (Jpn sea)
JP17-105	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Kawabukuro Hatchery	Kawabukuro River	Kawabukuro River
JP17-106	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Kawabukuro Hatchery	Kawabukuro River	Kawabukuro River
JP17-107	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Masukawa Hatchery	Gakko(Masukawa) River	Gakko River
JP17-108	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Masukawa Hatchery	Gakko(Minowa) River	Gakko River
JP17-110	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Masukawa Hatchery	Gakko(Minowa) River	Gakko River
JP17-109	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Masukawa Hatchery	Gakko(Masukawa) River	Gakko River
JP17-111	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Masukawa Hatchery	Gakko(Masukawa) River	Gakko River
JP17-112	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Masukawa Hatchery	Gakko(Minowa) River	Gakko River
JP17-113	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Miomote Hatchery	Miomote River	Miomote River
JP17-114	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Miomote Hatchery	Miomote River	Miomote River
JP17-115	ALC	2017	2018	Chum	Honshu	Japan Sea Coast	FRA	Miomote Hatchery	Miomote River	Miomote River
JP17-116	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Jintsu Hatchery	Jintsu River	Jintsu River
JP17-117	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Jintsu Hatchery	Jintsu River	Jintsu River
JP17-118	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Jintsu Hatchery	Jintsu River	Jintsu River
JP17-119	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Shogawa Hatchery	Shogawa River	Shogawa River
JP17-120	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Shogawa Hatchery	Shogawa River	Shogawa River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-101	Fry	1,000,000	Mochirippu17Chum1	A1H			-
JP17-102	Fry	500,000	Mochirippu17Chum2	A2H			-
JP17-103	Fry	1,500,000	Mochirippu17Chum3	A1H			-
JP17-104	Fry	1,500,000	OiraseJ17Chum1	2,3n,2H			Down
JP17-105	Fry	2,000,000	Kawabukuro17Chum1	2,1,2,2H			Down
JP17-106	Fry	2,000,000	Kawabukuro17Chum2	2-1,2H			Down
JP17-107	Fry	1,050,000	Gakkou17Chum1	2,3nH			Down
JP17-108	Fry	1,050,000	Gakkou17Chum2	2,3nH			Down
JP17-110	Fry	1,050,000	Gakkou17Chum4	2,1-2H			Down
JP17-109	Fry	1,050,000	Gakkou17Chum3	2,1-2H			Down
JP17-111	Fry	500,000	Gakkou17Chum5	2,1-4H			Down
JP17-112	Fry	500,000	Gakkou17Chum6	2,1-4H			Down
JP17-113	Fry	1,750,000	Miomote17Chum1	2-3H			Down
JP17-114	Fry	1,750,000	Miomote17Chum2	2,7nH			Down
JP17-115	Eyed Egg	100,000	Miomote17Chum3	A1H			-
JP17-116	Fry	300,000	Jintsu17Chum1	2,1,2H			Down
JP17-117	Fry	300,000	Jintsu17Chum2	2,4nH			Down
JP17-118	Fry	200,000	Jintsu17Chum3	2,6nH			Down
JP17-119	Fry	800,000	Shogawa17Chum1	2,1,2H			Down
JP17-120	Fry	800,000	Shogawa17Chum2	2,4nH			Down

No	Otolith Mark Schedule	Comments
JP17-101		Single ring
JP17-102		Double ring
JP17-103		Single ring
JP17-104	(1X)12C:12H,(1X)12C:24H,(2X)3C:9H,(1X)3C:21H,(2X)12C:12H	
JP17-105	(1X)12C:12H,(2X)12C:24H,(1X)12C:12H,(1X)12C:24H,(2X)12C:12H	
JP17-106	(1X)12C:12H,(1X)12C:48H,(1X)12C:24H,(2X)12C:12H	
JP17-107	(1X)24C:24H,(1X)24C:48H,(3X)12C:12H	
JP17-108	(1X)24C:24H,(1X)24C:48H,(3X)12C:12H	
JP17-110	(1X)12C:12H,(1X)12C:24H,(1X)12C:48H,(2X)12C:12H	
JP17-109	(1X)12C:12H,(1X)12C:24H,(1X)12C:48H,(2X)12C:12H	
JP17-111	(1X)12C:12H,(1X)12C:24H,(1X)12C:48H,(4X)12C:12H	
JP17-112	(1X)12C:12H,(1X)12C:24H,(1X)12C:48H,(4X)12C:12H	
JP17-113	(1X)12C:12H,(1X)12C:48H,(3X)12C:12H	
JP17-114	(1X)12C:12H,(1X)12C:24H,(7X)3C:9H	
JP17-115		Single ring
JP17-116	(1X)12C:12H,(2X)12C:24H,(2X)12C:12H	
JP17-117	(1X)12C:12H,(1X)12C:24H,(4X)3C:9H	
JP17-118	(1X)12C:12H,(1X)12C:24H,(6X)3C:9H	
JP17-119	(1X)12C:12H,(2X)12C:24H,(2X)12C:12H	
JP17-120	(1X)12C:12H,(1X)12C:24H,(4X)3C:9H	

Table1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-121	TM	2017	2018	Chum	Honshu	Japan Sea Coast	NPH	Shogawa Hatchery	Shogawa River	Shogawa River
JP17-122	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Oirase Hatchery (Pacific)	Oirase River (Pacific)	Oirase River (Pacific)
JP17-123	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Oirase Hatchery (Pacific)	Oirase River (Pacific)	Oirase River (Pacific)
JP17-124	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Shimoakka Hatchery	Akka River	Akka River
JP17-125	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Shimoakka Hatchery	Akka River	Akka River
JP17-126	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Shimoakka Hatchery	Akka River	Akka River
JP17-127	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Akedo Hatchery	Akedo River	Akedo River
JP17-128	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Akedo Hatchery	Akedo River	Akedo River
JP17-129	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Akedo Hatchery	Akedo River	Akedo River
JP17-130	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Akedo Hatchery	Akedo River	Akedo River
JP17-131	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Taro Hatchery	Taro River	Taro River
JP17-132	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Taro Hatchery	Taro River	Taro River
JP17-133	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Tsugaruishi Hatchery	Tsugaruishi River	Tsugaruishi River
JP17-134	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Tsugaruishi Hatchery	Tsugaruishi River	Tsugaruishi River
JP17-135	TM	2017	2018	Chum	Honshu	Pacific Coast	FRA	Fra.Miyako Lab.	Orikasa River	Orikasa River
JP17-136	TM	2017	2018	Chum	Honshu	Pacific Coast	FRA	Fra.Miyako Lab.	Orikasa River	Orikasa River
JP17-137	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Orikasa Hatchery	Orikasa River	Orikasa River
JP17-138	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Orikasa Hatchery	Orikasa River	Orikasa River
JP17-139	TM	2017	2018	Chum	Honshu	Pacific Coast	FRA	Kasshi Hatchery	Kamashuochiba	Kasshi River
JP17-140	TM	2017	2018	Chum	Honshu	Pacific Coast	FRA	Fra.Miyako Lab.	Orikasa River	Yamada Bay

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-121	Fry	600,000	Shogawa17Chum3	2,6nH	II ■■■		Down
JP17-122	Fry	3,755,000	Oirase-p17Chum1	2,6H	II ■■■■■		Down
JP17-123	Fry	3,755,000	Oirase-p17Chum2	2,2,3H	II ■■■		Down
JP17-124	Fry	4,000,000	Akka17Chum1	2,1,3H	II ■■■		Down
JP17-125	Fry	4,000,000	Akka17Chum2	2,1,4H	II ■■■■■		Down
JP17-126	Fry	3,000,000	Akka17Chum3	2,6H	II ■■■■■		Down
JP17-127	Fry	1,000,000	Akedo17Chum1	2,1,3H	II ■■■		Down
JP17-128	Fry	1,000,000	Akedo17Chum2	2,6H	II ■■■■■		Down
JP17-129	Fry	500,000	Akedo17Chum3	2,1,4H	II ■■■■■		Down
JP17-130	Fry	500,000	Akedo17Chum4	2,1,5H	II ■■■■■■		Down
JP17-131	Fry	1,000,000	Tarou17Chum1	2,1,3H	II ■■■		Down
JP17-132	Fry	1,000,000	Tarou17Chum2	2,6H	II ■■■■■		Down
JP17-133	Fry	2,000,000	Tsugaruishi17Chum1	2,4H	II ■■■■		Down
JP17-134	Fry	2,000,000	Tsugaruishi17Chum2	2,7H	II ■■■■■■■		Down
JP17-135	Fry	400,000	Orikasa17Chum1	2,5H	II ■■■■■		Down
JP17-136	Fry	400,000	Orikasa17Chum2	2n-2H	II ■■		Down
JP17-137	Fry	800,000	Orikasa17Chum3	2,1,3H	II ■■■■		Down
JP17-138	Fry	800,000	Orikasa17Chum4	2,6H	II ■■■■■		Down
JP17-139	Fry	400,000	Orikasa17Chum5	2-2,2H	II ■■■		Down
JP17-140	Fry	400,000	Yamada17Chum	2,2nH	I ■■		Down

No	Otolith Mark Schedule	Comments
JP17-121	(1X)12C:12H,(1X)12C:24H,(6X)3C:9H	
JP17-122	(1X)12C:12H,(1X)12C:48H,(6X)12C:12H	
JP17-123	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-124	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-125	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-126	(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-127	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-128	(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-129	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-130	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(5X)12C:12H	
JP17-131	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-132	(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-133	(1X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-134	(1X)12C:12H,(1X)12C:24H,(7X)12C:12H	
JP17-135	(1X)12C:12H,(1X)12C:24H,(5X)12C:12H	
JP17-136	(1X)12C:12H,(1X)12C:36H,(2X)24C:24H	
JP17-137	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-138	(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-139	(1X)12C:12H,(1X)12C:36H,(1X)12C:12H,(1X)12C:24H,(2X)12C:12H	
JP17-140	(1X)24C:24H,(1X)24C:48H,(2X)12C:12H	

Table1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-141	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-142	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-143	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-144	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-145	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-146	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-147	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-148	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-149	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-150	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kasshi Hatchery	Kasshi River	Kasshi River
JP17-151	TM	2017	2018	Chum	Honshu	Pacific Coast	IFTC	Kumano Hatchery	Kumano River	Kumano River
JP17-152	TM	2017	2018	Chum	Honshu	Pacific Coast	IFTC	Kumano Hatchery	Kumano River	Kumano River
JP17-153	TM	2017	2018	Chum	Honshu	Pacific Coast	IFTC	Kumano Hatchery	Kumano River	Kumano River
JP17-154	TM	2017	2018	Chum	Honshu	Pacific Coast	IFTC	Kumano Hatchery	Kumano River	Kumano River
JP17-155	TM	2017	2018	Chum	Honshu	Pacific Coast	IFTC	Kumano Hatchery	Kumano River	Kumano River
JP17-156	TM	2017	2018	Chum	Honshu	Pacific Coast	IFTC	Kumano Hatchery	Kumano River	Kumano River
JP17-157	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Sakari Hatchery	Sakari River	Sakari River
JP17-158	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Sakari Hatchery	Sakari River	Sakari River
JP17-159	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Sakari Hatchery	Sakari River	Sakari River
JP17-160	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Sakari Hatchery	Sakari River	Sakari River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-141	Fry	1,000,000	Kasshi17Chum2	2,1,3H			Down
JP17-142	Fry	1,000,000	Kasshi17Chum3	2,1,4H			Down
JP17-143	Fry	1,000,000	Kasshi17Chum4	2,1,5H			Down
JP17-144	Fry	1,000,000	Kasshi17Chum5	2,6H			Down
JP17-145	Fry	1,000,000	Kasshi17Chum6	2,4H			Down
JP17-146	Fry	1,000,000	Kasshi17Chum7	2,7H			Down
JP17-147	Fry	300,000	Kasshi17Chum8	2,4,3H2			Down
JP17-148	Fry	300,000	Kasshi17Chum9	2,4,3H3			Down
JP17-149	Fry	300,000	Kasshi17Chum10	2,2,3,2H2			Down
JP17-150	Fry	300,000	Kasshi17Chum11	2,2,3,2H3			Down
JP17-151	Fry	200,000	Kumano17Chum1	2,2,3,2H			Down
JP17-152	Fry	200,000	Kumano17Chum2	2,4,3H			Down
JP17-153	Fry	200,000	Kumano17Chum3	2,4H			Down
JP17-154	Fry	200,000	Kumano17Chum4	2,2,4H			Down
JP17-155	Fry	200,000	Kumano17Chum5	2,4H2			Down
JP17-156	Fry	200,000	Kumano17Chum6	2,2,4H2			Down
JP17-157	Fry	500,000	Sakari17Chum1	2,1,3H			Down
JP17-158	Fry	500,000	Sakari17Chum2	2,1,4H			Down
JP17-159	Fry	500,000	Sakari17Chum3	2,1,5H			Down
JP17-160	Fry	500,000	Sakari17Chum4	2,6H			Down

No	Otolith Mark Schedule	Comments
JP17-141	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-142	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-143	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(5X)12C:12H	
JP17-144	(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-145	(1X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-146	(1X)12C:12H,(1X)12C:24H,(7X)12C:12H	
JP17-147	(1X)12C:12H,(1X)12C:24H,(3X)12C:12H,(1X)12C:24H,(3X)12C:12H,HA TCH,(2X)12C:12H	
JP17-148	(1X)12C:12H,(1X)12C:24H,(3X)12C:12H,(1X)12C:24H,(3X)12C:12H,HA TCH,(3X)12C:12H	
JP17-149	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,HA TCH,(2X)12C:12H	
JP17-150	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,HA TCH,(3X)12C:12H	
JP17-151	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(2X)12C:12H,(1X)12C:24H,(2X)12C:12H	
JP17-152	(1X)12C:12H,(1X)12C:24H,(3X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-153	(1X)12C:12H,(1X)12C:24H,(4X)12C:12H	
JP17-154	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(4X)12C:12H	
JP17-155	(1X)12C:12H,(1X)12C:24H,(4X)12C:12H,HA TCH,(2X)12C:12H	
JP17-156	(1X)12C:12H,(1X)12C:24H,(1X)12C:12H,(1X)12C:24H,(4X)12C:12H,HA TCH,(2X)12C:12H	
JP17-157	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-158	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-159	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(5X)12C:12H	
JP17-160	(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	

Table 1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-161	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Sakari Hatchery	Sakari River	Sakari River
JP17-162	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kesen Hatchery	Kesen River	Kesen River
JP17-163	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kesen Hatchery	Kesen River	Kesen River
JP17-164	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Kesen Hatchery	Kesen River	Kesen River
JP17-165	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Eai Hatchery	Kitakami River	Kitakami River
JP17-166	TM	2017	2018	Chum	Honshu	Pacific Coast	NPH	Eai Hatchery	Kitakami River	Kitakami River
JP17-167	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Shari Hatchery	Shari River	Onnebetsu River
JP17-168	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Shari Hatchery	Iw aobetsu River	Onnebetsu River
JP17-169	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Shari Hatchery	Shari River	Shari River
JP17-170	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Akinokawa Hatchery	Iw aobetsu River	Rusha River
JP17-171	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Akinokawa Hatchery	Iw aobetsu River	Iw aobetsu River
JP17-172	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Akinokawa Hatchery	Okushibetsu River	Okushibetsu River
JP17-173	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Akinokawa Hatchery	Shari River	Shari River
JP17-174	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Yambetsu River	Yambetsu River
JP17-175	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Yambetsu River	Urashibetsu River
JP17-176	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Yambetsu River Etc	Mokoto River
JP17-177	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Yambetsu River Etc	Abashiri River
JP17-178	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Yambetsu River Etc	Bairagi River
JP17-179	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Yambetsu River Etc	Notori Lake
JP17-180	ALC	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	HOKK	Abashiri Hatchery	Abashiri River	Abashiri River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-161	Fry	1,000,000	Sakari17Chum5	2-4H			Down
JP17-162	Fry	1,200,000	Kesen17Chum1	2,1,3H			Down
JP17-163	Fry	1,200,000	Kesen17Chum2	2,6H			Down
JP17-164	Fry	1,000,000	Kesen17Chum3	2-4H			Down
JP17-165	Fry	1,800,000	Kitakami17Chum1	2,3H			Down
JP17-166	Fry	1,800,000	Kitakami17Chum2	2,2H			Down
JP17-167	Fry	1,500,000	Onnebetsu17Pnk1	2,5nH			Down
JP17-168	Fry	1,500,000	Onnebetsu17Pnk2	2,6nH			Down
JP17-169	Fry	4,700,000	Shari17Pnk	2,3nH			Down
JP17-170	Fry	4,000,000	East Okhotsk Coast17Pnk1	2,1,3H			Down
JP17-171	Fry	8,000,000	East Okhotsk Coast17Pnk2	2,1,3H			Down
JP17-172	Fry	7,800,000	East Okhotsk Coast17Pnk3	2,1,3H			Down
JP17-173	Fry	5,300,000	East Okhotsk Coast17Pnk4	2,1,3H			Down
JP17-174	Fry	3,000,000	East Okhotsk Coast17Pnk5	2,1,3H			Down
JP17-175	Fry	3,000,000	East Okhotsk Coast17Pnk6	2,1,3H			Down
JP17-176	Fry	2,000,000	East Okhotsk Coast17Pnk7	2,1,3H			Down
JP17-177	Fry	1,700,000	East Okhotsk Coast17Pnk8	2,1,3H			Down
JP17-178	Fry	2,000,000	East Okhotsk Coast17Pnk9	2,1,3H			Down
JP17-179	Fry	2,000,000	East Okhotsk Coast17Pnk10	2,1,3H			Down
JP17-180	Fry	2,000,000	Abashiri17Pnk-alc1	A1H			-

No	Otolith Mark Schedule	Comments
JP17-161	(1X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-162	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-163	(1X)12C:12H,(1X)12C:24H,(6X)12C:12H	
JP17-164	(1X)12C:12H,(1X)12C:48H,(4X)12C:12H	
JP17-165	(1X)12C:12H,(1X)12C:24H,(3X)12C:12H	
JP17-166	(1X)12C:12H,(1X)12C:24H,(2X)12C:12H	
JP17-167	(1X)24C:24H,(1X)24C:48H,(5X)12C:12H	
JP17-168	(1X)24C:24H,(1X)24C:48H,(6X)12C:12H	
JP17-169	(1X)24C:24H,(1X)24C:48H,(3X)12C:12H	
JP17-170	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-171	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-172	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-173	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-174	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-175	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-176	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-177	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-178	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-179	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(3X)12C:12H	
JP17-180		Single ring

Table 1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-181	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	FRA	Shari Hatchery	Tokoro River	Tokoro River
JP17-182	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Tokoro River	Tokoro River
JP17-183	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Tokoro River	Hamasaroma
JP17-184	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Kamisato Hatchery	Tokoro River	Toppushi Fishing Port
JP17-185	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Yubetsu River	Yubetsu River
JP17-186	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Yubetsu River	Yubetsu Fishing Port
JP17-187	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Shokotsu River	Mobetsu River
JP17-188	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Shokotsu River	Mombetsu Fishing Port
JP17-189	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Shokotsu River	Shokotsu River
JP17-190	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Shokotsu River Etc	Saru River
JP17-191	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Shokotsu River Etc	Mokoppe River
JP17-192	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Shokotsu River Etc	Okoppe River
JP17-193	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Horonai River	Omu River
JP17-194	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Okoppe Hatchery	Horonai River	Horonai River
JP17-195	ALC	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	HOKK	Oketo Hatchery	Tokoro River	Tokoro River
JP17-196	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	FRA	Tokushibetsu Hatchery	Tokushibetsu River	Tokushibetsu River
JP17-197	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Tokushibetsu Hatchery	Tokushibetsu River	Kitamhorobetsu River
JP17-198	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Tombetsu Hatchery	Tokushibetsu River Etc	Kitamhorobetsu River
JP17-199	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Tombetsu Hatchery	Tokushibetsu River Etc	Tombetsu River
JP17-200	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NPH	Tombetsu Hatchery	Tokushibetsu River Etc	Onishibetsu River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-181	Fry	1,000,000	Tokoro17Pnk	2,3n-2nH			Down
JP17-182	Fry	2,800,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-183	Fry	1,400,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-184	Fry	1,500,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-185	Fry	6,000,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-186	Fry	500,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-187	Fry	1,000,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-188	Fry	1,000,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-189	Fry	3,500,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-190	Fry	1,000,000	iddle Okhotsk Coast17Pnk	2,1,4H			Down
JP17-191	Fry	1,000,000	iddle Okhotsk Coast17Pnk1	2,1,4H			Down
JP17-192	Fry	1,500,000	iddle Okhotsk Coast17Pnk1	2,1,4H			Down
JP17-193	Fry	2,000,000	iddle Okhotsk Coast17Pnk1	2,1,4H			Down
JP17-194	Fry	4,000,000	iddle Okhotsk Coast17Pnk1	2,1,4H			Down
JP17-195	Fry	2,000,000	Tokoro17Pnk-alc1	A2H			-
JP17-196	Fry	1,700,000	Tokushibetsu17Pnk	2-3H			Down
JP17-197	Fry	1,300,000	Kitamhorobetsu17Pnk	2n-3H			Down
JP17-198	Fry	4,000,000	West Okhotsk Coast17Pnk	2,1,2H			Down
JP17-199	Fry	5,000,000	West Okhotsk Coast17Pnk	2,1,2H			Down
JP17-200	Fry	2,200,000	West Okhotsk Coast17Pnk	2,1,2H			Down

No	Otolith Mark Schedule	Comments
JP17-181	(1X)24C:24H,(1X)24C:48H,(2X)12C:12H,(1X)12C:36H,(2X)12C:12H	
JP17-182	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-183	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-184	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-185	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-186	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-187	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-188	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-189	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-190	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-191	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-192	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-193	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-194	(1X)12C:12H,(1X)12C:24H,(1X)12C:24H,(4X)12C:12H	
JP17-195		Double ring
JP17-196	(1X)24C:24H,(1X)24C:72H,(3X)24C:24H	
JP17-197	(1X)12C:12H,(1X)12C:36H,(3X)24C:24H	
JP17-198	(1X)24C:24H,(1X)24C:48H,(1X)24C:48H,(2X)24C:24H	
JP17-199	(1X)24C:24H,(1X)24C:48H,(1X)24C:48H,(2X)24C:24H	
JP17-200	(1X)24C:24H,(1X)24C:48H,(1X)24C:48H,(2X)24C:24H	

Table 1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-201	TM	2017	2018	Pink	Hokkaido	Okhotsk Sea Coast	NFH	Tombetsu Hatchery	Tokushibetsu River Etc	Chirabetsu River
JP17-202	TM	2017	2018	Pink	Hokkaido	Japan Sea Coast	NFH	Tombetsu Hatchery	Tokushibetsu River Etc	Masuhoro River
JP17-203	TM	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Ichani River Etc	Ichani River
JP17-204	TM	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Tokushibetsu River Etc	Ichani River
JP17-205	TM	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	FRA	Ichani Hatchery	Shari River Etc	Ichani River
JP17-206	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	HOKK	Kenebetsu Hatchery	Sashirui River Etc	Shibetsu River
JP17-207	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Sashirui River Etc	Rusa River
JP17-208	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Sashirui River Etc	Sashirui River
JP17-209	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Sashirui River Etc	Rausu River
JP17-210	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Sashirui River Etc	Shunkarikotan River
JP17-211	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Sashirui River Etc	Kumbetsu River
JP17-212	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Sashirui River Etc	Churui River
JP17-213	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Sashirui River Etc	Shibetsu River
JP17-214	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Tohoru River Etc	Tohoru River
JP17-215	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Tohoru River Etc	Shumbetsu River
JP17-216	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Tohoru River Etc	Tokotan River
JP17-217	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Tohoru River Etc	Nishibetsu River
JP17-218	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Tohoru River Etc	Furen River
JP17-219	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Tohoru River Etc	Betoga River
JP17-220	ALC	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NFH	Kenebetsu Hatchery	Tohoru River Etc	Onnebetsu River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-201	Fry	2,000,000	/West Okhotsk Coast17Pink	2,1,2H			Down
JP17-202	Fry	2,000,000	/West Okhotsk Coast17Pink	2,1,2H			Down
JP17-203	Fry	1,500,000	Ichani17Pink1	2,4H			Down
JP17-204	Fry	1,500,000	Ichani17Pink2	2-2-4H			Down
JP17-205	Fry	1,500,000	Ichani17Pink3	2-5H			Down
JP17-206	Fry	4,000,000	Nemuro17Pink-alc	A2H			-
JP17-207	Fry	1,000,000	Nemuro Coast17Pink-alc1	A1H			-
JP17-208	Fry	1,000,000	Nemuro Coast17Pink-alc2	A1H			-
JP17-209	Fry	1,000,000	Nemuro Coast17Pink-alc3	A1H			-
JP17-210	Fry	2,000,000	Nemuro Coast17Pink-alc4	A1H			-
JP17-211	Fry	1,000,000	Nemuro Coast17Pink-alc5	A1H			-
JP17-212	Fry	2,700,000	Nemuro Coast17Pink-alc6	A1H			-
JP17-213	Fry	1,000,000	Nemuro Coast17Pink-alc7	A1H			-
JP17-214	Fry	3,000,000	Nemuro Coast17Pink-alc8	A1H			-
JP17-215	Fry	2,000,000	Nemuro Coast17Pink-alc9	A1H			-
JP17-216	Fry	1,000,000	Nemuro Coast17Pink-alc10	A1H			-
JP17-217	Fry	4,000,000	Nemuro Coast17Pink-alc11	A1H			-
JP17-218	Fry	3,000,000	Nemuro Coast17Pink-alc12	A1H			-
JP17-219	Fry	4,000,000	Nemuro Coast17Pink-alc13	A1H			-
JP17-220	Fry	1,000,000	Nemuro Coast17Pink-alc14	A1H			-

No	Otolith Mark Schedule	Comments
JP17-201	(1X)24C:24H,(1X)24C:48H,(1X)24C:48H,(2X)24C:24H	
JP17-202	(1X)24C:24H,(1X)24C:48H,(1X)24C:48H,(2X)24C:24H	
JP17-203	(1X)24C:24H,(1X)24C:48H,(4X)24C:24H	
JP17-204	(1X)12C:12H,(1X)12C:36H,(1X)12C:12H,(1X)12C:36H,(4X)12C:12H	
JP17-205	(1X)12C:12H,(1X)12C:36H,(5X)12C:12H	
JP17-206		Double ring
JP17-207		Single ring
JP17-208		Single ring
JP17-209		Single ring
JP17-210		Single ring
JP17-211		Single ring
JP17-212		Single ring
JP17-213		Single ring
JP17-214		Single ring
JP17-215		Single ring
JP17-216		Single ring
JP17-217		Single ring
JP17-218		Single ring
JP17-219		Single ring
JP17-220		Single ring

Table 1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-221	TM	2017	2018	Pink	Hokkaido	Nemuro Strait Coast	NPH	Nijbetsu Hatchery	Shunkarikotan River	Shunkarikotan River
JP17-222	TM	2017	2018	Masu	Hokkaido	Okhotsk Sea Coast	FRA	Shari Hatchery	Shari River	Shari River
JP17-223	TM	2017	2018	Masu	Hokkaido	Okhotsk Sea Coast	FRA	Tokushibetsu Hatchery	Tokushibetsu River	Tokushibetsu River
JP17-224	TM	2017	2018	Masu	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-225	TM	2017	2018	Masu	Hokkaido	Japan Sea Coast	FRA	Shiribetsu Hatchery	Shiribetsu River	Shiribetsu River
JP17-226	TM	2017	2018	Masu	Hokkaido	Japan Sea Coast	FRA	Shiribetsu Hatchery	Shiribetsu River	Shubuto River
JP17-227	TM	2017	2018	Masu	Hokkaido	Nemuro Strait Coast	FRA	Nemuro Hatchery	Ichani River	Ichani River
JP17-228	TM	2017	2018	Masu	Hokkaido	Nemuro Strait Coast	FRA	Nemuro Hatchery	Shibetsu River	Shibetsu River
JP17-229	ALC	2017	2018	Masu	Honshu	Japan Sea Coast	YIE	Yamato Hatchery	Akagawa River	Iragawa River
JP17-230	TM	2017	2018	Masu	Honshu	Japan Sea Coast	TFRI	Toyama Fish.Res.Inst.	Toyama Fish.Res.Inst.	Jintsu River
JP17-231	TM	2017	2018	Masu	Honshu	Pacific Coast	IIFTC	Iwate In. Fish. Tech. Ctr	Akka River	Akka River
JP17-232	TM	2017	2018	Masu	Honshu	Pacific Coast	IIFTC	Iwate In. Fish. Tech. Ctr	Akka River	Kitakami River
JP17-233	TM	2017	2018	Masu	Honshu	Pacific Coast	IIFTC	Iwate In. Fish. Tech. Ctr	Akka River	Akka River
JP17-234	TM	2017	2018	Sockeye	Hokkaido	East Pacific Coast	IIFTC	Tsurui Hatchery	Kushiro River	Kushiro River
JP17-235	TM	2017	2018	Masu	Hokkaido	Okhotsk Sea Coast	FRA	Shari Hatchery	Shari River	Shari River
JP17-236	TM	2017	2019	Masu	Hokkaido	Okhotsk Sea Coast	FRA	Shari Hatchery	Shari River	Shari River
JP17-237	TM	2017	2018	Masu	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-238	TM	2017	2019	Masu	Hokkaido	Japan Sea Coast	FRA	Chitose Hatchery	Ishikari River	Ishikari River
JP17-239	TM	2017	2018	Masu	Hokkaido	Japan Sea Coast	FRA	Shiribetsu Hatchery	Shiribetsu River	Shiribetsu River
JP17-240	TM	2017	2019	Masu	Hokkaido	Japan Sea Coast	FRA	Shiribetsu Hatchery	Shiribetsu River	Shiribetsu River

No	Stage	Preliminary Number of OM Released	OMID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-221	Fry	5,300,000	Shunkarikotan17Pink	2,4nH			Down
JP17-222	Fry	500,000	Shari17Masu-f	4H			Down
JP17-223	Fry	500,000	Tokushibetsu17Masu-f	2,3nH			Down
JP17-224	Fry	60,000	Ishikari17Masu-f	2,3H			Down
JP17-225	Fry	900,000	Shiribetsu17Masu-f	5H			Up
JP17-226	Fry	500,000	Shubuto17Masu-f	5H			Up
JP17-227	Fry	100,000	Ichani17Masu-f	2,5H			Down
JP17-228	Fry	120,000	Shibetsu17Masu-f	2,4H			Down
JP17-229	Eyed Egg	30,000	Ira17Masu-alc	A1H			-
JP17-230	Fry	3,000	Jintsu17Masu	2,2nH			Down
JP17-231	Fry	50,000	Iwate17Masu1	2n-2H			Down
JP17-232	Fry	100,000	Iwate17Masu2	2n-3H			Down
JP17-233	Fry	50,000	Iwate17Masu3	2n-4H			Down
JP17-234	Fry	50,000	Kushiro17Sockeye-f	2,3H			Down
JP17-235	Juvenile	50,000	Shari17Masu-j	4H			Down
JP17-236	Smolt	50,000	Shari17Masu-s	4H			Down
JP17-237	Juvenile	10,000	Ishikari17Masu-j	2,3H			Down
JP17-238	Smolt	30,000	Ishikari17Masu-s	2,3H			Down
JP17-239	Juvenile	80,000	Shiribetsu17Masu-j	5H			Up
JP17-240	Smolt	220,000	Shiribetsu17Masu-s	5H			Up

No	Otolith Mark Schedule	Comments
JP17-221	(1X)24C:24H,(1X)24C:48H,(4X)12C:12H	
JP17-222	(4X)24C:24H	
JP17-223	(1X)24C:24H,(1X)24C:48H,(3X)12C:12H	
JP17-224	(1X)24C:24H,(1X)24C:48H,(3X)24C:24H	
JP17-225	(5X)24C:24H	
JP17-226	(5X)24C:24H	
JP17-227	(1X)24C:24H,(1X)24C:48H,(5X)24C:24H	
JP17-228	(1X)24C:24H,(1X)24C:48H,(4X)24C:24H	
JP17-229		Single ring
JP17-230	(1X)24C:24H,(1X)24C:48H,(2X)12C:12H	finclips(adipose,left ventral fin)
JP17-231	(1X)12C:12H,(1X)12C:36H,(2X)24C:24H	
JP17-232	(1X)12C:12H,(1X)12C:36H,(3X)24C:24H	
JP17-233	(1X)12C:12H,(1X)12C:36H,(4X)24C:24H	
JP17-234	(1X)24C:24H,(1X)24C:48H,(3X)24C:24H	
JP17-235	(4X)24C:24H	
JP17-236	(4X)24C:24H	
JP17-237	(1X)24C:24H,(1X)24C:48H,(3X)24C:24H	
JP17-238	(1X)24C:24H,(1X)24C:48H,(3X)24C:24H	
JP17-239	(5X)24C:24H	
JP17-240	(5X)24C:24H	finclips(right,left ventral fin)

Table 1. Continued.

No	Mark Type	Brood Year	Year of Release	Species	Prefecture	Region	Agency	Facility	Stock	Final Release Site
JP17-241	TM	2017	2018	Masu	Hokkaido	Nemuro Strait Coast	FRA	Nemuro Hatchery	Ichani River	Ichani River
JP17-242	TM	2017	2019	Masu	Hokkaido	Nemuro Strait Coast	FRA	Nemuro Hatchery	Ichani River	Ichani River
JP17-243	TM	2017	2018	Masu	Hokkaido	Nemuro Strait Coast	FRA	Nemuro Hatchery	Shibetsu River	Shibetsu River
JP17-244	TM	2017	2019	Masu	Hokkaido	Nemuro Strait Coast	FRA	Nemuro Hatchery	Shibetsu River	Shibetsu River
JP17-245	ALC	2017	2019	Masu	Hokkaido	West Pacific Coast	HAPC	Fukumitsu Hatchery	Saru River	Saru River
JP17-246	TM	2017	2019	Masu	Honshu	Japan Sea Coast	TFRI	Toyama Fish.Res.Inst.	Toyama Fish.Res.Inst.	Jintsu River
JP17-247	TM	2017	2018	Sockeye	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Abira River Etc	Shizunai River
JP17-248	TM	2017	2019	Sockeye	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Abira River Etc	Shizunai River
JP17-249	TM	2017	2019	Sockeye	Hokkaido	West Pacific Coast	FRA	Shizunai Hatchery	Abira River Etc	Abira River
JP17-250	TM	2017	2018	Sockeye	Hokkaido	West Pacific Coast	FRA	Chitose Hatchery	Abira River	Abira River

No	Stage	Preliminary Number of OM Released	OM ID	Hatch Code	Prehatch Graphic Image	Posthatch Graphic Image	Temp Shift Direction
JP17-241	Juvenile	30,000	Ichani17Masu-j	2,5H			Down
JP17-242	Smolt	20,000	Ichani17Masu-s	2,5H			Down
JP17-243	Juvenile	60,000	Shibetsu17Masu-j	2,4H			Down
JP17-244	Smolt	20,000	Shibetsu17Masu-s	2,4H			Down
JP17-245	Smolt	20,000	Saru17Masu-s	A1H			-
JP17-246	Smolt	50,000	Jintsu17Masu-s	2,2nH			Down
JP17-247	Juvenile	30,000	Shizunai17Sockeye-j	2,9H			Down
JP17-248	Smolt	20,000	Shizunai17Sockeye-s	2,9H			Down
JP17-249	Smolt	50,000	Abira17Sockeye-s	2,9H			Down
JP17-250	Eyed Egg	80,000	Abira17Sockeye	2,3-5H			Down

No	Otolith Mark Schedule	Comments
JP17-241	(1X)24C:24H,(1X)24C:48H,(5X)24C:24H	
JP17-242	(1X)24C:24H,(1X)24C:48H,(5X)24C:24H	
JP17-243	(1X)24C:24H,(1X)24C:48H,(4X)24C:24H	
JP17-244	(1X)24C:24H,(1X)24C:48H,(4X)24C:24H	
JP17-245		Single ring
JP17-246	(1X)24C:24H,(1X)24C:48H,(2X)12C:12H	finclips(adipose ventral fin)
JP17-247	(1X)24C:24H,(1X)24C:48H,(9X)24C:24H	
JP17-248	(1X)24C:24H,(1X)24C:48H,(9X)24C:24H	
JP17-249	(1X)24C:24H,(1X)24C:48H,(9X)24C:24H	
JP17-250	(1X)24C:24H,(1X)24C:48H,(4X)24C:24H	

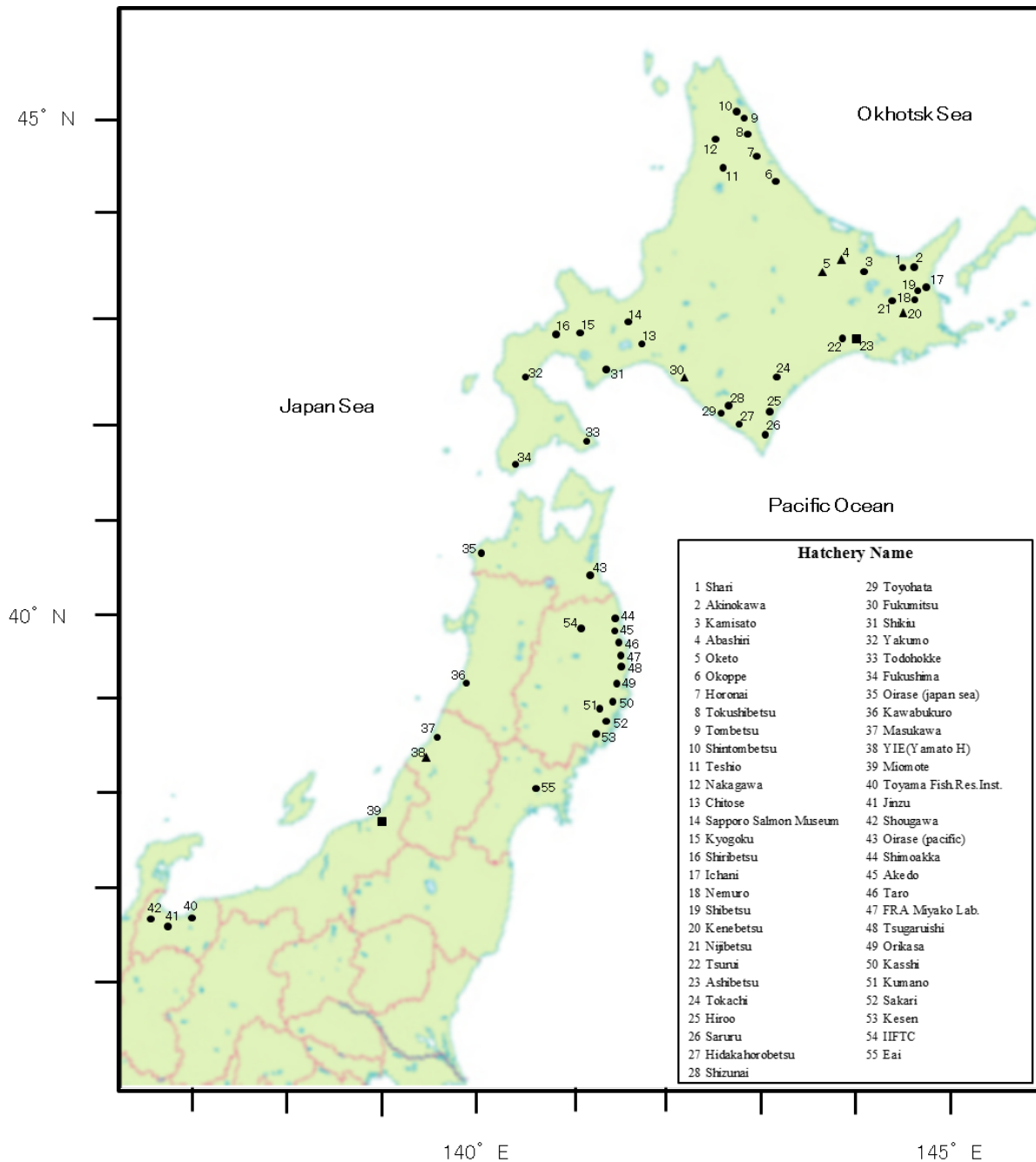


Fig. 1. Locations of hatcheries where brood year 2017 salmon will be otolith-marked. Forty-eight (closed circles) and 5 (closed triangles) hatcheries conduct otolith thermal marking and ALC marking, respectively. Two hatcheries (closed rectangles) plan to mark using both thermal and ALC methods.