

Proposed Otolith Marks for Brood Year 2011 Salmon in Russia

by

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Abstract

Otolith marking of salmon of 2011 generation will be conducted in four regions of the Far East: Kamchatka, Sakhalin, Magadan and Khabarovsk region. Marking will be carried out using two methods: thermal and “dry”. Their application will be determined by the possibilities and specificity of water supply of incubated embryos at hatcheries of the Far East. The dominating method of marking will be a “dry” one – it will be used on the 83% of salmon at hatcheries. Salmon will be marked at 26 hatcheries. Totally 29 otolith marks will be used.

The plan of otolith marking of salmon of 2011 generation

Mass marking of juvenile salmon is an important instrument allowing to evaluate the rate of survivability of hatchery raised juvenile salmon after its seaward run from the rivers into the seashore area, and to study the ways of migration and fry salmon distribution in the Sea of Okhotsk and regions of fattening in the ocean. Moreover, otolith marking allows determining the effectiveness of hatcheries' work by looking at the amount of returned hatchery raised fish.

Salmon of 2011 generation will be marked at 26 hatcheries of the Far East: 11 in Sakhalin, 5 in Kamchatka, 4 in Magadan, 3 in Kuril Islands and 3 in Khabarovsk. At present 50% of fish are already marked at the hatcheries of the Far East. Totally 29 marks will be used: 26 marks will be used for chum, 9 – for pink, 7 marks for coho, 3 – for sockeye, 1 for Chinook and 1 for masu. Like in previous years marking of the juvenile salmon in the Far East will be carried out by using two methods: thermal at 5 hatcheries and “dry” at 21 hatcheries. Thermal marking will be conducted by decreasing temperature rate.

It is necessary to mention that otolith marking will dominate at the “prehatch” stage. Nine marks will be used at the “post hatch” stage. One and the same marks will be used for marking broods of different kinds of salmon for the convenience of controlling the returned fish.

Russian plan of marking is shown in the Table 1. Samples of thermal and “dry” marking are given in RBr records (Munk and Geiger, 1998) and the system of Hatch code (Hagen et al., 2000).

References

Hagen, P., H. J. Geiger, E. C. Volk, and J. J. Grimm. 2000. Thermal mark patterns applied to salmon from Alaska, Washington and Oregon for brood year 1999 and some proposed marks for brood year 2000. (NPAFC Doc. 463 rev. 1) 8 p. Alaska Department of Fish and Game, Juneau, Alaska 99801-5526, USA.

Munk, K. M., and H. J. Geiger. 1998. Thermal marking of otoliths: the "RBr" coding structure of thermal marks. (NPAFC Doc. 367) 19 p. CWT & Otolith Processing Lab., Alaska Department of Fish and Game, Juneau, Alaska, USA.

Table1. Summary of otolith mark codes to be applied to Russia hatchery salmon in brood year 2011.

Mark Type	BROOD YEAR	SPECIES	COUNTRY	STATE/ PROVINCE	HATCH CODE	RBr	FACILITY
DM	2011	Chum	Russia	Kamchatka	3,5H	1:1.3,2.5	Ozerkovsky Hatchery
DM	2011	Chum	Russia	Kamchatka	5,2H	1:1.5,2.2	Ketkinsky Hatchery
TM	2011	Chum	Russia	Kamchatka	H1,3,1	2:1.1,2.3,3.1	Paratunsky Hatchery
DM	2011	Chum	Russia	Magadan	5H	1:1.5	Armansky Hatchery
DM	2011	Chum	Russia	Magadan	3,2nH	1:1.3,2.2n	Olsky Hatchery
DM	2011	Chum	Russia	Magadan	4,1H	1:1.4,2.1	Olsky Hatchery
DM	2011	Chum	Russia	Magadan	1,3H	1:1.1,2.3	Olsky Hatchery
DM	2011	Chum	Russia	Magadan	4,1,2H	1:1.4,2.1,3.2	Tauysky Hatchery
DM	2011	Chum	Russia	Magadan	1,2,3H	1:1.1,2.2,3.3	Yansky Hatchery
DM	2011	Chum	Russia	Sakhalin	3,2,2H	1:1.3,2.2,3.2	Ado-Tymovsky Hatchery
DM	2011	Chum	Russia	Sakhalin	1,3n,1H	1:1.1,2.3n,3.1	Pobedinsky Hatchery
DM	2011	Chum	Russia	Sakhalin	7H	1:1.7	Buyuklovsky Hatchery
TM	2011	Chum	Russia	Sakhalin	H1,4,1	2:1.1,2.4,3.1	Sokolovsky Hatchery
TM	2011	Chum	Russia	Sakhalin	H6	2:1.6	Berezhnyakovsky Hatchery
DM	2011	Chum	Russia	Sakhalin	5,1H	1:1.5,2.1	Anivsky Hatchery
TM	2011	Chum	Russia	Sakhalin	H3,2	2:1.3,2.2	Taranaysky Hatchery
DM	2011	Chum	Russia	Sakhalin	3n,2,1H	1:1.3n,2.2,3.1	Sokolnikovsky Hatchery
DM	2011	Chum	Russia	Sakhalin	1,2H	1:1.1,2.2	Yasnomorsky Hatchery
DM	2011	Chum	Russia	Sakhalin	3n,2H	1:1.3n,2.2	Urozhayny Hatchery
DM	2011	Chum	Russia	Sakhalin	3n,2nH	1:1.3n,2.2n	Kalininsky Hatchery
DM	2011	Chum	Russia	Iturup	4,3H	1:1.4,2.3	Kuril'sky Hatchery
TM	2011	Chum	Russia	Iturup	H1,4	2:1.1,2.4	Reydovyy Hatchery
DM	2011	Chum	Russia	Iturup	3,3H	2:1.3,2.3	Hatchery on bay Olya
DM	2011	Chum	Russia	Khabarovsk	8H	1:1.8	Kometa Hatchery
DM	2011	Chum	Russia	Khabarovsk	3,2,1H	1:1.3,2.2,3.1	Anuyskiy Hatchery
DM	2011	Chum	Russia	Khabarovsk	3n,3H	1:1.3n,2.3	Gursky Hatchery
DM	2011	Chum	Russia	Khabarovsk	3n,1H	1:1.3n,2.1	Gursky Hatchery
TM	2011	Pink	Russia	Kamchatka	H1,3,1	2:1.1,2.3,3.1	Paratunsky Hatchery
DM	2011	Pink	Russia	Sakhalin	5,1H	1:1.5,2.1	Anivsky Hatchery
DM	2011	Pink	Russia	Sakhalin	3,2H	1:1.3,2.2	Taranaysky Hatchery
DM	2011	Pink	Russia	Sakhalin	3n,2H	1:3n,2.2	Urozhayny Hatchery
DM	2011	Pink	Russia	Iturup	4,3H	1:1.4,2.3	Kuril'sky Hatchery
TM	2011	Pink	Russia	Iturup	H1,4	2:1.1,2.4	Reydovyy Hatchery
DM	2011	Pink	Russia	Magadan	5H	1:1.5	Armansky Hatchery
DM	2011	Pink	Russia	Magadan	3,2nH	1:1.3,2.2n	Olsky Hatchery
DM	2011	Pink	Russia	Magadan	1,2,3H	1:1.1,2.2,3.3	Yansky Hatchery
DM	2011	Sockeye	Russia	Magadan	4,1H	1:1.4,2.1	Olsky Hatchery
DM	2011	Sockeye	Russia	Kamchatka	3,5H	1:1.3,2.5	Ozerkovsky Hatchery
DM	2011	Sockeye	Russia	Kamchatka	3,4H	1:1.3,2.4	Malkinsky Hatchery
TM	2011	Coho	Russia	Kamchatka	H1,3,1	2:1.1,2.3,3.1	Paratunsky Hatchery
DM	2011	Coho	Russia	Kamchatka	3,3H	1:1.3,2.3	Viluysky Hatchery
DM	2011	Coho	Russia	Magadan	5H	1:1.5	Armansky Hatchery
DM	2011	Coho	Russia	Magadan	3,2nH	1:1.3,2.2n	Olsky Hatchery
DM	2011	Coho	Russia	Magadan	4,1,2H	1:1.4,2.1,3.2	Tauysky Hatchery
DM	2011	Coho	Russia	Magadan	1,2,3H	1:1.1,2.2,3.3	Yansky Hatchery
DM	2011	Coho	Russia	Khabarovsk	8H	1:1.8	Kometa Hatchery
TM	2011	Chinook	Russia	Kamchatka	H3,4	2:1.3,2.4	Malkinsky Hatchery
DM	2011	Masu	Russia	Khabarovsk	5H	1:1.5	Kometa Hatchery