

Information on Lebedinoe Lake Chum Salmon Population

Historical background:

Iturup Island waters is the place for autumn Chum Salmon breeding . This species are widely found in the Island rivers and lakes. Due to well-defined mountain terrain, river network density ($0,84 \text{ km/km}^2$) is not so big as on Sakhalin Island ($1,3 \text{ km/km}^2$). However lithological composition of reservoirs of Kuril Islands, formed by modern volcanism, preconditioned deep circulation of ground water and their intensive discharge to river beds and floor of lakes. Therefore, the increment of ground water feed of Kuril Island rivers in average water year makes up 50% of annual volume, while this value ranges from 20 to 30% for most Sakhalin Island rivers. Abundance of ground water discharges causes Chum Salmon broad distribution in rivers and lakes (mostly lagoon-type), except for the rivers with hard-to-move across falls and water bodies with aggressive environment (Sernaya River, etc.).

We first heard of Pacific Salmon breeding in the Kurilka River basin in the late 19th century. However, no references on Chum Salmon breeding in Lebedinoe Lake, spawners taking off or juvenile release to the Lake are available. There were no harvests of Chum Salmon from the Lake.

Recorded Chum Salmon spawning grounds in the Lake make up 4250 m^2 , and 2500 m^2 in feeders (Total 6750 m^2). From Sakhalinrybvod experts survey, Chum Salmon, spawning in the Lake in 2008 and 2009 amounted to 11-12 K. ea. (i.e. 101-103%).

Detailed survey of the Lake was carried out in August 1985. Records (“passport”) for the spawning place was drawn up following the survey results (ref. Attachment).

In 2003 fishery biologists of Sakhalinrybvod Kurilsk Office conducted test seining of smolt moving from creeks to the Lake and directly from the Lake and determined Chum Salmon downstream migration periods as follow:

Average biological parameters of Chum Salmon smolt, Bezymyanniy Creek- Lebedinoe Lake

Dates	Water body	Average length, mm.	Average weight, mg.
30.05.2003	Bezymyanniy Creek	37,7	404
05.06.2003		38,2	395
10.06.2003		37,6	382
15.06.2003		38,4	386

Average biological parameters of Chum Salmon smolt, Zmeika Arm-Lebedinoe Lake

Dates	Water body	Average length, mm	Average weight, mg.
25.05.2003	Zmeika	40,4	467
30.05.2003		40,4	483
05.06.2003		42,9	628
10.06.2003		42,8	595
15.06.2003		41,6	520

Chum Salmon downstream migration periods

Dates		
Downstream migration beginning		April 10-20
Mass downstream migration		May 20 – June10
End of downstream migration		July 20-25

During 2007-2008 Chum Salmon spawners were fished out of the Lake to provide biological material to Vavilov Institute specialists for genetic identification of Iturup Chum Salmon population. Total species caught :

	Sampling year	Chum Salmon caught, ea.
1	2007	42
2	2008	31
BCEFO		73

Observations and findings were documented in reports and discussed at public consultations with the involvement of independent parties in September 2011.

Lebedinoe Lake is a part of Kurilka River spawning system. It is a fresh flowage lake. Water flow goes through Zmeika Arm to Kurilka River and further to the Sea of Okhotsk. There is the Kurilskiy Hatchery at Kurilka River for reproduction of Pink (73 mln. juvenile release) and Chum Salmon (20 mln. juvenile release), thus the entire spawning Kurilka River including its tributaries is under control during performance of spawners passage operations and observation over Pink and Chum Salmon run to spawning grounds. It is registered that escapement of Chum Salmon spawners to Lebedinoe Lake is quite regular, but moderate in numbers. That said, there is awareness of the necessity of Lebedinoe Lake extended monitoring, and currently the implementation program is under development.

The Program will include the following activities:

1. Visual observation of the Lake and inflowing streams.
2. Estimating of Chum Salmon abundance.
3. Dynamics identification for Chum Salmon spawners run to the Lebedinoe Lake.
4. Otolith sampling from the Lake and stream- spawned-out Chum Salmon.
5. Spawners morphometric data acquisition.
6. Lake ecosystem anthropogenic impact assessment.

Monitoring Program implementation results will help:

1. To assess the population condition (stock abundance, size, age, Chum Salmon spawners straying);
2. To identify possible risks (harvest, poaching, hatchery fish);
3. To outline the follow-up Plan to monitor the Lebedinoe Lake Chum Salmon population.

These works are scheduled to be carried out in 2013. The detailed Program will be submitted to SCS and posted on Gydrostroy web-site before March 01, 2013.

As for responsible parties opinion, and Mr. R. Ericksen, in particular, on the Lebedinoe Lake Chum Salmon population conditions, we can state as follows:

1. Is there any genetic intermingling risk?

- Based on available observations and data, risk probability of Kurilskiy Hatchery fish and Lebedinoe Lake wild fish intermingling is not identified and not proved.

2. Can the wild (or lake-origin) Chum Salmon population be over exploited in the commercial fishery?

This is unlikely in the commercial fishery, considering that:

- 2.1. the dates for delta fishery beginning and termination are fixed;
- 2.2. the harvest operations in these places are performed evenly during the fishery period under the monitoring of Sakhalinrybvod specialists and in cooperation with a salmon hatchery personnel;
- 2.3. The possibility of overexploitation when spawners are harvested at a hatchery is excluded, as only those spawners are harvested that reach egg collectors. Spawners from streams or other tributaries of Kurilka River system and other systems are not harvested.

3. What are the plans for Lebedinoe Lake Chum Salmon protection against reproduction program impact? Is there any lake-origin chum salmon replacement plan available?

The questions are inappropriate for the below reasons:

3.1. There is no clear definition and direct evidence of reproduction program impact on the Lebedinoe lake-origin Chum Salmon. It is explicitly determined that Lebedinoe Lake Chum Salmon population remains insignificant in number, but permanent during the whole period of Gidrostroy Salmon Hatchery performance.

3.2. The concept for development of lake-origin chum salmon reproduction program is premature and requires strong justification. In this regard, JSC Gidrostroy does not consider the Federal Program for Salmon Hatchery construction, and specifically at Lebedinoe Lake either today or for the short term, i.e. the construction of hatchery at the Lebedinoe Lake is outside the company's plan.

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