

Agenda item 7.2  
For information

**COUNCIL**

**CNL(06)34**

**DRAFT IMPLEMENTATION PLAN OF THE RUSSIAN FEDERATION**

# DRAFT IMPLEMENTATION PLAN OF THE RUSSIAN FEDERATION

## 1. Introduction

### 1.1. Objectives of the national management strategy

A principal objective of the national management strategy is to preserve biodiversity and high abundance of Atlantic salmon stocks in rivers of the Russian Federation, minimize the risk from management actions taken, rationally utilize natural biological resource to ensure continuity of its reproduction, preservation of its habitat and taking into account socio-economic considerations.

### 1.2. Nature and extent of resource

**In the northern regions of Russia the Atlantic salmon is found in 119 rivers:**

- a) Kola Peninsula – 79
- b) Archangel Region – 23
- c) Republic of Karelia – 17

#### **Description of rivers:**

- b) for Kola Peninsula rivers the following data is available:
  - position of river head and mouth;
  - length;
  - catchment area;
  - area of spawning and nursery habitat
- c) for rivers in the Archangel Region:
  - position of river head and mouth;
  - length;
  - catchment area;

Attached to this Draft Implementation Plan is Table 1, which, as an example, contains details of information available for the Barents Sea rivers in the Kola Peninsula.

#### **Description of stocks:**

- a) for rivers in the Kola Peninsula the following estimates are available:
  - carrying capacity (smolts);
  - carrying capacity (adult fish);
- b) for 23 rivers in the Archangel Region and 17 rivers in Karelia:
  - no estimates are available.

Attached to this Draft Implementation Plan is Table 1, which, as an example, contains details of information available for Atlantic salmon stocks in the Barents Sea rivers in the Kola Peninsula.

### 1.3. Overview of fisheries

- a) fishing methods in the Kola Peninsula:
  - in-river commercial fishery – no;
  - commercial fisheries in the coastal area – 24 netting stations in the White Sea;
  - recreational catch-and-retain fishing – 79 rivers;

- recreational catch-and-release – 24 rivers;
- b) fishing methods in the Archangel Region:
  - in-river commercial fishery – 1 river;
  - commercial fisheries in the coastal area – 78 netting stations in the White Sea;
  - recreational catch-and-retain fishing – no;
  - recreational catch-and-release – 3 rivers;
- d) fishing methods in Karelia:
  - in-river commercial fishery – no;
  - commercial fisheries in the coastal area – no;
  - recreational catch-and-retain fishing – no;
  - recreational catch-and-release – no;

**Types of regulations:**

- TAC
- quota;
- limit on fishing season;
- limit on time of fishing
- restrictions on fishing methods

Attached to this Draft Implementation Plan is Table 2, which, as an example, contains details of fisheries in the Barents Sea rivers in the Kola Peninsula.

**1.4. Management entities involved in fishery regulation and habitat protection/restoration**

- a) Ministry of Agriculture:
  - approval of TAC according to quota types;
  - legislature.
- b) Ministry of Nature management:
  - peer-review of scientific advice by external experts.
- c) Federal Agency for Fisheries:
  - Formulation of proposal for a TAC according to quota types to the Ministry of Agriculture;
  - Allocation of quotas to coastal fishery, scientific fishery, fishery for educational purposes, fishery for aquaculture purposes and introductions; recreational fishery;
- d) Organs of executive power of subjects of the Russian Federation:
  - allocation of quotas to recreational fishery, subsistence fishery of First Nations;
- e) Basin Directorates for conservation and enhancement of aquatic biological resources, and fisheries management:
  - management of salmon fisheries;
  - salmon habitat management and restoration of salmon stocks.
- f) Territorial Directorates of Federal Service for Veterinary and Phytosanitary Control:
  - state control and enforcement.

**2. Status of stocks**

**2.1. Abundance**

- a) rivers in the Kola Peninsula:
  - adult counts – 17 rivers;
  - declared catch – 17 rivers;
  - parr density estimates – 79 rivers;
  - CL estimates – 79 rivers.
- b) rivers of the Archangel rivers:

- adult counts – 1 river;
  - declared catch – 1 river;
  - parr densities estimates – 1 river.
- c) rivers in Karelia:
- adult counts – 1 river;
  - declared catch – 1 river;
  - parr densities estimates – 1 river.

Attached to this Draft Implementation Plan is Table 3, which, as an example, contains details of information available for the Barents Sea rivers in the Kola Peninsula.

## **2.2. Biodiversity**

- a) for rivers in the Kola Peninsula information is available on:
- stock age structure – 17 rivers;
  - dynamics of spawning run – 17 rivers;
  - age and weight composition, sex ratio –17 rivers;
- b) for Archangel region:
- stock age structure – 2 rivers;
  - dynamics of spawning run – 2 rivers;
  - age and weight composition, sex ratio –2 rivers;
- c) for Karelia:
- stock age structure – 1 rivers;
  - dynamics of spawning run – 1 rivers;
  - age and weight composition, sex ratio –1 rivers.

Attached to this Draft Implementation Plan is Table 3, which, as an example, contains details of information available for the Barents Sea rivers in the Kola Peninsula.

## **2.3. Threatened or endangered stocks**

- a) Kola Peninsula:
- threatened stocks – 12;
  - endangered- 8;
- b) Archangel Region:
- threatened stocks – 11;
  - endangered- 12;
- c) Karelia:
- threatened stocks – 1;
  - endangered- 16;

Attached to this Draft Implementation Plan is Table 3, which, as an example, contains details of information available for the Barents Sea rivers in the Kola Peninsula.

## **3. Threats to stocks, and current management measures**

### **3.1. Effects of all salmon fisheries**

- a) Kola Peninsula rivers:
- in-river commercial fishery – no fishery;
  - commercial fishery in coastal area in the White Sea – 37 stocks;
  - recreational catch-and-retain fishery – no threat;
  - recreational catch-and-release fishery – no threat;

- illegal fishery – 54 stocks;
  - fishery for herring and humpback in the White Sea (by-catch of adult salmon) – no data available;
- b) Archangel Region:
- in-river commercial fishery – no threat;
  - commercial fishery in coastal area in the White Sea – 12 stocks;
  - recreational catch-and-retain fishery – no threat;
  - recreational catch-and-release fishery – no threat;
  - illegal fishery – 23 stocks;
  - fisheries for herring and humpback in the White Sea (by-catch of adult salmon) – no data available;
- c) Karelia:
- in-river commercial fishery – no fishery;
  - commercial fishery in coastal area in the White Sea – no fishery;
  - recreational catch-and-retain fishery – no threat;
  - recreational catch-and-release fishery – no threat;
  - illegal fishery – 17 stocks;
  - fishery for herring and humpback in the White Sea (by-catch of adult salmon) – no data available;

Attached to this Draft Implementation Plan is Table 4, which, as an example, contains details of information available for the Barents Sea rivers in the Kola Peninsula.

### **3.2. Factors affecting estuarine and freshwater salmon habitat**

- a) Kola Peninsula:
- hydropower stations – 5 rivers;
  - dams for water abstraction – 6 rivers;
  - industrial and sewage discharges – 12 rivers;
  - logging – 2 rivers;
- b) Archangel Region:
- hydropower stations – 2 rivers;
  - dams for water abstraction – no data available;
  - industrial and sewage discharges – no data available;
  - logging – no data available;
- c) Karelia:
- hydropower stations – no;
  - dams for water abstraction – no data available;
  - industrial and sewage discharges –no data available;
  - logging – no data available;

Attached to this Draft Implementation Plan is Table 4, which, as an example, contains details of information available for the Barents Sea rivers in the Kola Peninsula.

### **3.3. Impacts of aquaculture, introductions and transfers and transgenics**

- a) Kola Peninsula:
- aquaculture (occurrences of farmed salmon reported) – 3 rivers;
  - introductions and transfers (introduced humpback present) – 79 rivers;
  - diseases and parasites– no impacts identified;
- b) Archangel Region:
- aquaculture (occurrences of farmed salmon reported) – no data available;
  - introductions and transfers (introduced humpback present) – 23 rivers;

- diseases and parasites– no impacts identified;
- c) Karelia:
  - aquaculture (occurrences of farmed salmon reported) – no data available;
  - introductions and transfers (introduced humpback present) – 17 rivers;
  - diseases and parasites–impacts of *G.salaris* identified;

Attached to this Draft Implementation Plan is Table 4, which, as an example, contains details of information available for the Barents Sea rivers in the Kola Peninsula.

### **3.4. Other influences affecting salmon abundance or diversity**

Impaired access to spawning habitat due to waterfalls impassable for salmon on 37 rivers in the Kola Peninsula.

## **4. Management approach**

### **4.1. Management of fisheries:**

- a) Rivers in the Kola Peninsula:
  - new regulations for fisheries in the White and Barents Sea;
  - phasing-out commercial fisheries in the coastal area in the White Sea;
  - increasing quota for catch-and-retain fishery;
  - increasing quota for catch-and-release fishery;
- b) Archangel Region:
  - new regulations for fisheries in the White and Barents Sea;
  - phasing-out commercial fisheries in the coastal area in the White Sea;
  - development of sporting fishery on the Pechora river;
- c) Karelia:
  - new regulations for fisheries in the White and Barents Sea.

### **4.2. Protect and restore salmon habitat**

- a) Rivers in the Kola Peninsula:
  - monitoring;
  - develop and implement salmon habitat restoration programmes for rivers Pechenga and Umba;
- b) Archangel Region:
  - monitoring;
- c) Karelia:
  - monitoring.

### **4.3. Manage aquaculture, introductions and transfers**

- a) rivers in the Kola Peninsula:
  - monitoring of occurrences of farmed salmon in rivers;
  - establishing an inventory of “fishing sites” intended for aquaculture purposes;
  - development of regional regulations for operating “fishing sites” intended for aquaculture purposes;
- b) Archangel region:
  - monitoring of occurrences of farmed salmon in rivers;
  - establishing an inventory of “fishing sites” intended for aquaculture purposes;

- development of regional regulations for operating “fishing sites” intended for aquaculture purposes;
- c) Karelia:
- monitoring of *G.salaris* in river Keret.

#### **4.4. Actions to be taken in relation to other influences**

- monitoring of by-catch of salmon in pelagic fisheries in the Norwegian Sea;
- sampling programmes on the fishery for herring and humpback in coastal area of the White Sea to identify potential by-catch of salmon.

### **5. Evaluation**

Status of Atlantic salmon stocks will be monitored by relevant state fisheries research institutes. Description of actions to monitor and evaluate the effectiveness of measures taken is not included as due to ongoing restructuring of the fisheries sector in Russia it is still unclear which of the bodies will be responsible for this.

Table 1 – Description of rivers and Atlantic salmon stocks in the Barents Sea rivers in the Kola Peninsula

№ п/п	River	Region	Position (00°00'N-00°00'E)		Length	Catchment area, km <sup>2</sup>	Spawning and Nursery habitat, km x 10 <sup>-2</sup>	Carrying capacity (smolts), x10 <sup>3</sup>	Carrying capacity (adults), x10 <sup>3</sup>
			head	mouth					
1	2	3	4	5	7	8	9	10	11
1	Paz	Kola Peninsula			116,6	2532,3	4	1,7	0,16
2	Petchenga	-«»-	59°06' - 30°04'	59°33' - 31°15'	101,2	1828,9	165,6	72,1	6,49
3	Anikeeva	-«»-			19,3	58	4,9	2,1	0,19
4	Tipanova	-«»-			16,1	60	2,5	1,1	0,1
5	Motche	-«»-			12,2	50	1,7	0,7	0,07
6	Ejna	-«»-			8,9	40	1,1	0,5	0,04
7	Titovka	-«»-	59°07' - 31°12'	59°31' - 31°58'	79,1	1226,3	107,6	46,8	4,21
8	B.Z.Litsa	-«»-	58°20' - 33°15'	58°53' - 33°02'	98,9	1687,9	124,7	54,3	4,88
9	M.Z.Litsa	-«»-			23,1	126,1	10	4,3	0,39
10	Uritsa	-«»-			16,7	106,5	4,3	1,9	0,17
11	Ura	-«»-	58°57' - 30°08'	59°17' - 32°49'	73,4	1029,5	84,6	36,8	3,31
12	Sajda	-«»-	59°18' - 32°58'	59°15' - 33°14'	14,7	57,9	7,8	3,4	0,31
13	Belokamenka	-«»-	69° - 32°	69° - 33°	12	44,6	1,8	0,8	0,07
14	Kulonga	-«»-	59°05' - 33°08'	59°11' - 33°07'	19,1	105,7	4,6	2	0,18
15	B.Lavna	-«»-	58°59' - 32°35'	59°02' - 33°00'	23,3	245,7	26,3	11,4	1,03
16	Tuloma	-«»-	58°37' - 31°43'	58°50' - 32°49'	59,8	18232	364	194,8	21,43
17	Kola	-«»-	58°20' - 33°15'	58°53' - 33°02'	75	3845,6	178,8	133	14,63
18	Vaenga	-«»-	59°02' - 33°31'	59°05' - 33°29'	7,3	142,8	1,3	0,9	0,1
19	Srednjaja	-«»-	58°44' - 33°48'	59°07' - 33°35'	55,3	567,4	41,2	30,7	3,37
20	B.Tjuva	-«»-	59°10' - 33°38'	59°03' - 33°50'	37,2	351	17,7	13,2	1,45
21	M.Tjuva	-«»-	59°10' - 34°01'	59°11' - 33°39'	17,8	119,9	5,1	3,8	0,42
22	Zarubicha	-«»-			28,1	181,3	7,6	5,6	0,62
23	Tipunkova	-«»-			15,7	186,9	9,8	7,3	0,8
24	Klimkovka	-«»-			34,5	183,8	6,4	4,7	0,52
25	Dolgaja	-«»-			17,9	92,8	9	6,7	0,74
26	Teriberka (Mutchka)	-«»-			31,1	192,1	42,6	31,7	3,49
27	Voronja (Belousicha)	-«»-			150,1	9944	22,3	16,6	1,82
28	Sarubicha (1)	-«»-			17,7	72,2	2,1	1,6	0,18
29	Olenka	-«»-			52,8	490,6	20	14,9	1,64
30	Trjastchina	-«»-			17,7	129,4	5,8	4,3	0,48
31	Rynda	-«»-			97,6	1018,5	92,1	95,7	10,53
32	Zolotaja	-«»-			36,1	212,8	10	7,4	0,82
33	Tchegodaevka	-«»-			27,5	145	3,3	2,5	0,27
34	Kcharlovka	-«»-			126	2016,4	165,4	69,1	7,6
35	V.Litsa	-«»-			118	1872,4	61,7	45,9	5,05
36	Sidorovka	-«»-			39	335	27,8	20,2	2,22
37	Warsina	-«»-			28,3	473	48,7	36,2	3,98
38	Drosdovka	-«»-			53,4	468	14,4	10,7	1,18
39	Tchernaja	-«»-			23,6	103,8	4,8	3,6	0,39
40	Ivanovka	-«»-			21,5	135,2	6,8	5	0,55
41	Savicha	-«»-			26,4	207,2	4,1	3	0,34
42	Iokanga	-«»-			202,7	5944,2	282,3	133,1	14,64
Total:					2053	56862	2007	1169,6	123,9

Table 2 – Description of fisheries

River	Fisheries					Are there any measures introduced to regulate the fishery?				
	Commercial		Recreational		Illegal fishing	Commercial		Recreational		Illegal fishing
	In coastal area	In rivers	Catch-and-retain	Catch-and-release		In coastal area	In rivers	Catch-and-retain	Catch-and-release	
12	13	14	15	16	17	18	19	20	21	
Paz	-	-	-	-	+	-	-	-	-	+
Petchenga	-	-	+	+	+	-	-	+	+	+
Anikeeva	-	-	+	-	<i>n/a</i> *	-	-	+	-	-
Tipanova	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Motche	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Ejna	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Titovka	-	-	+	-	+	-	-	+	-	+
B.Z.Litsa	-	-	+	+	+	-	-	+	+	+
M.Z.Litsa	-	-	+	-	+	-	-	+	-	+
Uritsa	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Ura	-	-	+	+	+	-	-	+	+	+
Sajda	-	-	+	-	+	-	-	+	-	+
Belokamenka	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Kulonga	-	-	+	-	+	-	-	+	-	+
B.Lavna	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Tuloma	-	-	+	+	+	-	-	+	+	+
Kola	-	-	+	+	+	-	-	+	+	+
Vaenga	-	-	+	-	+	-	-	+	-	+
Srednjaja	-	-	+	-	+	-	-	+	-	+
B.Tjuva	-	-	+	-	+	-	-	+	-	+
M.Tjuva	-	-	+	-	+	-	-	+	-	+
Zarubicha	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Tipunkova	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Klimkovka	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Dolgaja	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Teriberka (Mutchka)	-	-	+	-	+	-	-	+	-	+
Voronja (Belousicha)	-	-	+	-	+	-	-	+	-	+
Sarubicha (1)	-	-	+	-	+	-	-	+	-	+
Olenka	-	-	+	-	+	-	-	+	-	+
Trjastchina	-	-	+	-	<i>n/a</i>	-	-	+	-	-
Rynda	-	-	+	+	+	-	-	+	+	+
Zolotaja	-	-	+	+	+	-	-	+	+	+
Tchegodaevka	-	-	+	+	<i>n/a</i>	-	-	+	+	-
Kcharlovka	-	-	+	+	+	-	-	+	+	+
V.Litsa	-	-	+	+	+	-	-	+	+	+
Sidorovka	-	-	+	+	+	-	-	+	+	+
Warsina	-	-	+	+	+	-	-	+	+	+
Drosdovka	-	-	+	+	+	-	-	+	+	+
Tchernaja	-	-	+	-	<i>n/a</i>	-	-	+	+	-
Ivanovka	-	-	+	-	<i>n/a</i>	-	-	+	+	-
Savicha	-	-	+	-	<i>n/a</i>	-	-	+	+	-
Iokanga	-	-	+	+	+	-	-	+	+	+

\* *n/a* - No data available

Table 2 – Description of fisheries (cont.)

River	Description of management measures										
	Commercial						Recreational			Illegal fishing	
	In coastal area			In rivers			Catch-and-retain, catch-and-release				
	TAC, quota, types of fishing gear	Limit on fishing season	Limit on time of fishing	TAC, quota, types of fishing gear	Limit on fishing season	Limit on time of fishing	TAC, quota, types of fishing gear	Limit on fishing season	Limit on time of fishing	Patrolling to protect spawning and nursery habitat	Development of recreational fishery
22	23	24	25	26	27	28	29	30	31	32	
Paz	-	-	-	-	-	-	-	-	-	-	-
Petchenga	-	-	-	-	-	-	+	+	+	+	+
Anikeeva	-	-	-	-	-	-	+	+	+	+	+
Tipanova	-	-	-	-	-	-	+	+	+	+	+
Motche	-	-	-	-	-	-	+	+	+	+	+
Ejna	-	-	-	-	-	-	+	+	+	+	+
Titovka	-	-	-	-	-	-	+	+	+	+	+
B.Z.Litsa	-	-	-	-	-	-	+	+	+	+	+
M.Z.Litsa	-	-	-	-	-	-	+	+	+	+	+
Uritsa	-	-	-	-	-	-	+	+	+	+	+
Ura	-	-	-	-	-	-	+	+	+	+	+
Sajda	-	-	-	-	-	-	+	+	+	+	+
Belokamenka	-	-	-	-	-	-	+	+	+	+	+
Kulonga	-	-	-	-	-	-	+	+	+	+	+
B.Lavna	-	-	-	-	-	-	+	+	+	+	+
Tuloma	-	-	-	-	-	-	+	+	+	+	+
Kola	-	-	-	-	-	-	+	+	+	+	+
Vaenga	-	-	-	-	-	-	+	+	+	+	+
Srednjaja	-	-	-	-	-	-	+	+	+	+	+
B.Tjuva	-	-	-	-	-	-	+	+	+	+	+
M.Tjuva	-	-	-	-	-	-	+	+	+	+	+
Zarubicha	-	-	-	-	-	-	+	+	+	+	+
Tipunkova	-	-	-	-	-	-	+	+	+	+	+
Klimkovka	-	-	-	-	-	-	+	+	+	+	+
Dolgaja	-	-	-	-	-	-	+	+	+	+	+
Teriberka (Mutchka)	-	-	-	-	-	-	+	+	+	+	+
Voronja (Belousicha)	-	-	-	-	-	-	+	+	+	+	+
Sarubicha (1)	-	-	-	-	-	-	+	+	+	+	+
Olenka	-	-	-	-	-	-	+	+	+	+	+
Trjastchina	-	-	-	-	-	-	+	+	+	+	+
Rynda	-	-	-	-	-	-	+	+	+	+	+
Zolotaja	-	-	-	-	-	-	+	+	+	+	+
Tchegodaevka	-	-	-	-	-	-	+	+	+	+	+
Kcharlovka	-	-	-	-	-	-	+	+	+	+	+
V.Litsa	-	-	-	-	-	-	+	+	+	+	+
Sidorovka	-	-	-	-	-	-	+	+	+	+	+
Warsina	-	-	-	-	-	-	+	+	+	+	+
Drosdovka	-	-	-	-	-	-	+	+	+	+	+
Tchernaja	-	-	-	-	-	-	+	+	+	+	+
Ivanovka	-	-	-	-	-	-	+	+	+	+	+
Savicha	-	-	-	-	-	-	+	+	+	+	+
Iokanga	-	-	-	-	-	-	+	+	+	+	+

Table 3 –Description of status and biodiversity of Atlantic salmon stocks in the Barents Sea rivers, Kola Peninsula

River	Adult counts, x 10 <sup>3</sup>				Declared catch, x 10 <sup>3</sup>				Parr densities, in number/100 m <sup>2</sup>			
	Years	Min.	Max.	Aver.	Years	Min.	Max.	Aver.	Years	Min.	Max.	Aver.
	33	34	35	36	37	38	39	40	41	42	43	44
Paz	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Petchenga	1960-94	0,53	5,01	1,9	1960-99	0,01	2,5	0,8	2003	11	34	26
Anikeeva	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tipanova	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motche	1978	0,1	0,1	0,1	1978	0,04	0,04	0	n/a	n/a	n/a	n/a
Ejna	1978	0,15	0,15	0,2	1978	0,07	0,07	0,1	n/a	n/a	n/a	n/a
Titovka	1960-68	0,54	1,67	1	1960-05	0,08	0,82	0,5	2004-05	23	61	37
B.Z.Litsa	1958-03	0,48	2,92	1,6	1958-03	0,09	1,36	0,7	1998-03	17	45	30
M.Z.Litsa	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2005	19	19	19
Uritsa	1961-62	0,21	0,66	0,4	1961-62	0,1	0,32	0,2	n/a	n/a	n/a	n/a
Ura	1958-03	0,44	4,46	1,7	1958-03	0,2	2,21	0,8	1998-03	8	110	38
Sajda	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2005	50	50	50
Belokamenka	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Kulonga	n/a	n/a	n/a	n/a	1993-94	1	7	4	2002-05	22	73	36
B.Lavna	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tuloma	1958-05	2,88	12,78	6,6	1958-05	0,18	6,42	2,5	1993-05	7	78	32
Kola	1958-05	2,13	17,42	8,8	1958-05	0,3	14,23	5,7	1992-05	10	112	24
Vaenga	n/a	n/a	n/a	n/a	1993-04	5	17	11	2005	5	5	5
Srednjaja	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2005	14	14	14
B.Tjuva	1965-81	0,11	1,3	0,5	1965-81	0,02	0,65	0,3	2005	10	50	28
M.Tjuva	1965-81	0,09	1,1	0,5	1965-81	0,01	0,55	0,2	2005	40	40	40
Zarubicha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tipunkova	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Klimkovka	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dolgaja	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Teriberka (Mutchka)	1961-81	0,77	9,0	2,57	1961-81	0,08	4,5	1,27	n/a	n/a	n/a	n/a
Voronja (Belousicha)	1965-70	0,3	2,51	1,30	1965-70	0,13	1,22	0,63	n/a	n/a	n/a	n/a
Sarubicha (1)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Olenka	1965	0,11	0,11	0,11	1965	0,05	0,05	0,05	n/a	n/a	n/a	n/a
Trjastchina	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rynda	1963-81	0,33	2,05	1,1	1963-81	0,16	1,15	0,54	1995-05	31	79	45
Zolotaja	1965-78	0,1	1,42	0,52	1965-78	0,05	0,65	0,24	1995-05	29	54	38
Tchegodaevka	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Kcharlovka	1965-80	0,15	1,49	0,8	1965-80	0,07	0,76	0,35	1995-05	26	76	39
V.Litsa	1963-80	0,1	1,2	0,6	1963-80	0,05	0,89	0,35	1995-05	24	41	29
Sidorovka	1965-80	0,14	1,23	0,6	1965-80	0,07	0,61	0,3	1996-05	13	37	25
Warsina	1962-79	0,2	1,82	0,7	1962-79	0,02	1,14	0,4	1993-05	17	1,18	43
Drosdovka	1962-80	0,09	0,57	0,3	1962-80	0,01	0,43	0,19	1996-05	22	40	31
Tchernaja	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ivanovka	1965	0,15	0,15	0,15	1965	0,09	0,09	0,09	n/a	n/a	n/a	n/a
Savicha	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Iokanga	1962-95	0,28	5,72	2,5	1962-95	0,22	2,45	0,56	1992-05	9	53	32

Table 3 –Description of status and biodiversity of Atlantic salmon stocks in the Barents Sea rivers, Kola Peninsula (cont.)

Rivers	MSY, eggs, $\times 10^6$	MSY, females	Total CL	CL for grilse	CL for MSW salmon	1SW, %			MSW, %		
						min	max	aver.	min	max	Aver.
	46	47	48	49	50	51	52	53	54	55	56
Paz	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Petchenga	3,84	404	1011	687	323			67,0			33,0
Anikeeva	0,12	13	32	21	11	n/a	n/a	n/a	n/a	n/a	n/a
Tipanova	0,2	21	53	34	18	n/a	n/a	n/a	n/a	n/a	n/a
Motche	0,2	21	53	34	18	n/a	n/a	n/a	n/a	n/a	n/a
Ejna	0,2	21	53	34	18	n/a	n/a	n/a	n/a	n/a	n/a
Titovka	2,58	272	679	441	238	37,2	68,9	59,2			40,8
B.Z.Litsa	3,41	359	787	504	283	28,3	87,2	64,0			36,0
M.Z.Litsa	0,26	27	68	44	24	n/a	n/a	n/a	n/a	n/a	n/a
Uritsa	0,22	23	58	38	20	n/a	n/a	n/a	n/a	n/a	n/a
Ura	2,17	228	563	366	197	29,6	96,3	75,4			24,6
Sajda	0,2	21	53	34	18	n/a	n/a	n/a	n/a	n/a	n/a
Belokamenka	0,18	19	47	31	17	n/a	n/a	n/a	n/a	n/a	n/a
Kulonga	0,2	21	53	34	18	n/a	n/a	n/a	n/a	n/a	n/a
B.Lavna	0,26	27	68	44	24	n/a	n/a	n/a	n/a	n/a	n/a
Tuloma	11,65	1353	3383	2030	1353	24,5	77,8	54,5			45,5
Kola	5,92	623	1558	950	608	33,7	90,7	58,1			41,9
Vaenga	0,3	32	79	51	28	n/a	n/a	n/a	n/a	n/a	n/a
Srednjaja	1,19	125	313	204	110	n/a	n/a	n/a	n/a	n/a	n/a
B.Tjuva	0,74	78	195	127	68			63,5			36,5
M.Tjuva	0,25	26	66	43	23			63,5			36,5
Zarubicha	0,38	40	100	65	35	n/a	n/a	n/a	n/a	n/a	n/a
Tipunkova	0,39	41	103	67	36	n/a	n/a	n/a	n/a	n/a	n/a
Klimkovka	0,38	40	100	65	35	n/a	n/a	n/a	n/a	n/a	n/a
Dolgaja	0,19	20	50	33	18	n/a	n/a	n/a	n/a	n/a	n/a
Teriberka (Mutchka)	0,4	42	105	68	37			61,2			38,8
Voronja (Belousicha)	0,39	41	103	67	36			73,1			26,9
Sarubicha (1)	0,15	16	39	26	14	n/a	n/a	n/a	n/a	n/a	n/a
Olenka	1,03	108	271	176	95	n/a	n/a	n/a	n/a	n/a	n/a
Trjastchina	0,27	28	71	46	25	n/a	n/a	n/a	n/a	n/a	n/a
Rynda	2,14	225	563	366	197			68,8			31,2
Zolotaja	0,45	47	118	77	41			70,3			29,7
Tchegodaevka	0,3	32	79	51	28	n/a	n/a	n/a	n/a	n/a	n/a
Kcharlovka	4,23	445	1113	724	390			57,3			42,7
V.Litsa	3,93	414	1034	672	362			53,4			46,6
Sidorovka	0,76	80	200	130	70			65,0			35,0
Warsina	2,73	287	719	467	252			69,9			30,1
Drosdovka	0,98	103	258	168	90	n/a	n/a	n/a	n/a	n/a	n/a
Tchernaja	0,22	23	58	38	20	n/a	n/a	n/a	n/a	n/a	n/a
Ivanovka	0,28	29	74	48	26	n/a	n/a	n/a	n/a	n/a	n/a
Savicha	0,44	46	116	75	41	n/a	n/a	n/a	n/a	n/a	n/a
Iokanga	7,03	740	1850	1147	703	37	65,1	58,3	23,6	58,7	41,7

Table 3 –Description of status and biodiversity of Atlantic salmon stocks in the Barents Sea rivers, Kola Peninsula (cont.)

River	Stock status	
	Threatened	Endangered
	57	58
Paz	-	+
Petchenga	-	-
Anikeeva	<i>n/a</i>	<i>n/a</i>
Tipanova	<i>n/a</i>	<i>n/a</i>
Motche	<i>n/a</i>	<i>n/a</i>
Ejna	<i>n/a</i>	<i>n/a</i>
Titovka	-	-
B.Z.Litsa	-	-
M.Z.Litsa	+	-
Uritsa	+	-
Ura	-	-
Sajda	+	-
Belokamenka	+	-
Kulonga	+	-
B.Lavna	-	+
Tuloma	-	-
Kola	-	-
Vaenga	-	-
Srednjaja	-	-
B.Tjuva	-	-
M.Tjuva	-	-
Zarubicha	<i>n/a</i>	<i>n/a</i>
Tipunkova	<i>n/a</i>	<i>n/a</i>
Klimkovka	<i>n/a</i>	<i>n/a</i>
Dolgaja	<i>n/a</i>	<i>n/a</i>
Teriberka (Mutchka)	+	-
Voronja (Belousicha)	+	-
Sarubicha (1)	<i>n/a</i>	<i>n/a</i>
Olenka	-	-
Trjastchina	<i>n/a</i>	<i>n/a</i>
Rynda	-	-
Zolotaja	-	-
Tchegodaevka	<i>n/a</i>	<i>n/a</i>
Kcharlovka	-	-
V.Litsa	-	-
Sidorovka	-	-
Warsina	-	-
Drosdovka	-	-
Tchernaja	<i>n/a</i>	<i>n/a</i>
Ivanovka	<i>n/a</i>	<i>n/a</i>
Savicha	<i>n/a</i>	<i>n/a</i>
Iokanga	-	-

Table 4 – Threats to stocks in the Barents Sea rivers in the Kola peninsula

River	Impacts of fisheries					Impacts on habitat					
	Commercial		Recreational		Illegal fishing (% of stock abundance)	Power stations, dams	Dams for water withdrawal	Industrial and sewage discharges	Logging	Bridges	Quarries
	In coastal areas	In-river	Catch-and-retain	Catch-and-release							
	59	60	61	62	63	64	65	66	67	68	69
Паз	-	-	<i>n/i</i> *	<i>n/i</i>	30	+	-	-	-	+	-
Печенга	-	-	<i>n/i</i>	<i>n/i</i>	30	-	-	+	-	-	-
Аникеева	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	+	-	-	-
Типанова	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Моче	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Эйна	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Титовка	-	-	<i>n/i</i>	<i>n/i</i>	20-30	-	-	-	-	+	-
Б.З.Лица	-	-	<i>n/i</i>	<i>n/i</i>	40-50	-	-	-	-	+	-
М.З.Лица	-	-	<i>n/i</i>	<i>n/i</i>	40-50	-	+	-	-	+	-
Урица	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	+	-	-	-	-
Ура	-	-	<i>n/i</i>	<i>n/i</i>	30	-	-	-	-	+	-
Сайда	-	-	<i>n/i</i>	<i>n/i</i>	40-50	-	+	+	-	+	-
Белокаменка	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	+	-	+	-
Кулоньга	-	-	<i>n/i</i>	<i>n/i</i>	40-50	-	-	-	-	+	-
Б.Лавна	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	+	-	-	+	-
Туллома	-	-	<i>n/i</i>	<i>n/i</i>	30	+	-	+	+	+	-
Кола	-	-	<i>n/i</i>	<i>n/i</i>	50	-	-	+	+	+	+
Ваенга	-	-	<i>n/i</i>	<i>n/i</i>	30	-	+	+	-	+	+
Средняя	-	-	<i>n/i</i>	<i>n/i</i>	30	-	-	-	-	+	+
Б.Тюва	-	-	<i>n/i</i>	<i>n/i</i>	30	-	-	-	-	-	-
М.Тюва	-	-	<i>n/i</i>	<i>n/i</i>	30	-	-	-	-	-	-
Зарубиха	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Типункова	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Климковка	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Долгая	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Териберка (Мучка)	-	-	<i>n/i</i>	<i>n/i</i>	30-40	+	-	-	-	+	-
Воронья (Белоусиха)	-	-	<i>n/i</i>	<i>n/i</i>	30-40	+	-	-	-	+	-
Зарубиха (1)	-	-	<i>n/i</i>	<i>n/i</i>	30	-	-	-	-	-	-
Оленка	-	-	<i>n/i</i>	<i>n/i</i>	30	-	-	-	-	-	-
Тряшина	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Рында	-	-	<i>n/i</i>	<i>n/i</i>	10	-	-	-	-	-	-
Золотая	-	-	<i>n/i</i>	<i>n/i</i>	10	-	-	-	-	-	-
Чегодаевка	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Харловка	-	-	<i>n/i</i>	<i>n/i</i>	10	-	-	-	-	-	-
В.Лица	-	-	<i>n/i</i>	<i>n/i</i>	10	-	-	-	-	-	-
Сидоровка	-	-	<i>n/i</i>	<i>n/i</i>	10	-	-	-	-	-	-
Варзина	-	-	<i>n/i</i>	<i>n/i</i>	10	-	-	-	-	-	-
Дроздовка	-	-	<i>n/i</i>	<i>n/i</i>	10	-	-	-	-	-	-
Черная	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Ивановка	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Савиха	-	-	<i>n/i</i>	<i>n/i</i>	<i>n/a</i>	-	-	-	-	-	-
Иоканьга	-	-	<i>n/i</i>	<i>n/i</i>	40	-	-	-	-	-	+

\* *n/i* - No threat identified

Table 4 – Threats to stocks in the Barents Sea rivers in the Kola peninsula

River	Aquaculture, introductions and transfers			Other adverse impacts		
	Occurrences of farmed salmon reported	Humpback present	Diseases and parasites	By-catch in other fisheries in the costal area	Impassable water falls	Acid rain
	70	71	72	73	74	75
Паз	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Печенга	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Аникеева	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Типанова	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Моче	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Эйна	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Титовка	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Б.З.Лица	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
М.З.Лица	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Урица	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Ура	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Сайда	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Белокаменка	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Кулоньга	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Б.Лавна	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Тулома	+	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Кола	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Ваенга	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Средняя	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Б.Тюва	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
М.Тюва	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Зарубиха	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Типункова	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Климковка	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Долгая	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Териберка (Мучка)	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Воронья (Белоусиха)	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Зарубиха (1)	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Оленка	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Тряшина	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Рында	+	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Золотая	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Чегодаевка	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Харловка	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
В.Лица	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Сидоровка	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Варзина	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Дроздовка	-	+	<i>n/i</i>	<i>n/a</i>	+	<i>n/a</i>
Черная	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Ивановка	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Савиха	-	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>
Иоканьга	+	+	<i>n/i</i>	<i>n/a</i>	-	<i>n/a</i>