Agenda items 6.2, 6.4(a),
6.7, 6.8(a), 7
For information

# Council

## CNL(05)32

***Supplementary Returns by the Russian Federation***

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## *Supplementary Returns by the Russian Federation*

### *Comment on Application of the Decision Structure for Management of Atlantic Salmon Fisheries in Russia in 2004*

The Decision Structure continued to be applied for management of fisheries on 38 White Sea rivers and 37 Barents Sea rivers on the Kola Peninsula. For each river the Polar Research Institute provides advice on the abundance of spawning stock, conservation limit, and catch options. On the basis of this advice the Science and Fisheries Council makes management decisions concerning catch limits in each fishery: commercial, catch-and-retain, catch-and-release, on a river-by-river basis. Murmanrybvod (Control and Enforcement authority) details fishing regime for each river including time of fishing, fishing gears, sites, catch limit for each site. Users then base their operations on these decisions. The application of the Decision Structure was expanded in 2004 to include a number of rivers in the Archangel region, Nenets okrug, Komi Republic and Karelia. Specifically, the Decision Structure was applied to decide on management measures for the salmon fishery on the rivers Pechora, Severnaya Dvina, Onega (Archangel) and Keret (Karelian Republic).

No suggestions have been made on how the Decision Structure could be improved as it requires the use of practically the same information as was provided by the control schemes and monitoring programs conducted in Russia and used previously to inform management decisions concerning salmon fisheries. Russian managers find it useful.

***Progress with the Development and Implementation of Habitat Protection and Restoration Plans***

**1. Has an inventory of rivers, as envisaged in Annex 2 of the NASCO Plan of Action, been established or updated since the last notification? If "yes" please provide a brief description of the inventory or of any changes to an existing inventory.**

As has already been reported, in accordance with the NASCO Plan of Action adopted in 2001 the Russian Federation undertook compilation of data to establish an inventory of salmon rivers; this included mainly information to describe physical characteristics of salmon rivers and biology and production of Atlantic salmon. Information concerning the status of salmon habitat is still fragmentary. By 2004 a list of rivers was established with the worst habitat problems; this included rivers in the vicinity of large communities such as rivers Kola, Tuloma, Northern Dvina, regulated rivers (Teriberka, Voronja, Niava, Kem) and river catchments where large mining companies operate (Pechora, Pechenga, Umba). A major deterrent to compiling more detailed information for the inventory is a poorly developed infrastructure, which makes the majority of rivers difficult for access.

**2. Has a comprehensive salmon habitat protection and restoration plan been developed in accordance with the aims of the NASCO Plan of Action, or an existing plan updated, since the last notification? If "yes" please provide brief details of the plan and the extent of its implementation or of any changes to an existing plan since the last notification.**

In 2004 a task to further develop and update the inventory was included in the research program of the Polar Research Institute, based in Murmansk, Kola peninsula, which now, in accordance with its new status, has responsibility for conducting research on all salmon rivers in northern Russia. This is a project designed for 5 years. Last year as a part of this project studies were undertaken to update the data in the inventory, concerning physical characteristics, salmon production and habitat impacts on 6 rivers – Pechenga, Titovka, B.West Litsa, Tuloma, Kola. For instance, for Pechenga river catchment, where a large mining and smelting combine 'Pechenganikel" is located, a detailed description of impacts caused by industrial discharge and sewage was given; the most badly impacted habitat was mapped.

**3. If a Plan has been developed or updated since the last notification have evaluation and monitoring systems been introduced or updated to assess the effectiveness of the plan in protecting and restoring salmon habitat? If the response to question 2 was "yes" please provide details of these systems or of changes to existing systems since the last notification.**

In all rivers where commercial and recreational fisheries are conducted, the stock and fishery performance are monitored. Data on size and weight of salmon, sex and age structure of populations, juvenile densities are collated on a yearly basis to assess the productive capacity of habitat and effectiveness of habitat restoration plans.

Information compiled in 2004 was used to inform a draft plan of action for protection and restoration of salmon habitat in the Pechenga river. However, finalizing and implementing of this plan, as well as a national plan of action to protect and restore

salmon habitat are delayed by restructuring of management bodies under the administrative reform launched in 2004, which were responsible for implementing these plans, is not yet finalized. Therefore, last year in practical terms only efforts to implement a plan of action developed for the Umba river continued, and namely those aimed at clearing the river from sunken logs resulting from logging operations in the catchment in the past.

***Report of the Russian Federation on the Stock Rebuilding Programmes***

A comprehensive stock rebuilding programme has been developed so far only for the salmon population in the Umba river (Kola Peninsula, the White Sea basin). It was continued in 2004. The stock of salmon in this river began to decline in the beginning of the 1990s for two main reasons: logging operations in the river catchment and failure of the local logging company to fulfill its environment protection obligations, having gone into decline, and increased illegal fishery due to worsened livelihoods in local communities. To protect the stocks, the commercial fishery on the river was closed in mid-90s. A number of other threats were identified and measures designed to address them proposed for inclusion in the program. At present the stock continues to be very much declined; its current abundance is 2,408 salmon (according to direct counts at the barrier fence operated by the hatchery) against a conservation limit of 6,260 salmon. In 2003 the program was updated; it was, in fact, developed very much in line with the NASCO Guidelines on the stock rebuilding program. To date the program includes the following measures:

**Control of exploitation** – ban on commercial in-river fishery, strictly regulated recreational fishery, mostly catch-and-release.

**Stocking** – increased number of fish stocked, different age groups from fry, new sites for release with more favourable habitat, earlier timing of stockings (under the ice).

**Research** – monitoring programmes to provide information on the quantity and quality of spawning and nursery habitat, predator-prey interactions, status of stocks of other fish species, biology of Atlantic salmon, run timing, adult numbers, parr and fry densities.

**Habitat management** – management of predatory fish populations, clearing the river of logs, rehabilitation of spawning areas.

**Control and enforcement –** enhanced protection of the river from illegal fishing, control of commercial coastal fishery of herring, potential interception of salmon (increased from early 1090s, possible suppression of information on salmon catch).

***Report by Russia on Application of Guidelines for Incorporating Social and Economic Factors in Decisions under the Precautionary Approach***

*Management of fisheries*

**1. Describe the proposal, its objective and the options within the relevant legislative framework for achieving the objective.**

The proposal is to maintain a traditional coastal fishery in 2004. Its objective is to meet the needs of dependent coastal communities by providing employment to local people on the coast of the White Sea.

In accordance with existing legislation (Regulation by the Government of the Russian Federation № 704 of 20 November 2003) the federal organ of executive power in fisheries (the Federal Agency for Fisheries) developed a proposal for approval by the Russian Government on aggregated quotas for fishing aquatic biological resources in commercial fisheries in the coastal zone of the White Sea and aggregated quotas for fishing aquatic biological resources in subsistence fishery by first nations of the North; these were approved by the Government Regulation issued on 31 December 2003.

**Options:**

*Option 1* – to set the quota for coastal fishery, but offer a compensation to the netsmen from fishing communities on the White Sea coast for not taking the quota.

*Option 2* – to close the coastal fishery, provided that other businesses are being developed in the area to provide alternative employment to the local people.

*Option 3* - to maintain the coastal fishery regulated by a quota, gradually phasing it out. Development of a recreational fishery in the area to provide employment to local people in the fishing tourism sector.

**2. Assess for each option whether there is a risk of serious or irreversible deleterious impact on the salmon and its environments.**

*Option 1* – beneficial to salmon conservation

***Option 2* – beneficial to salmon conservation and addressing socio-economic problems at the same time**

*Option 3* – scientific evidence suggests that the coastal fishery harvests up to 33% of salmon stock from the Varzuga river and from a number of smaller rivers in this area (the White Sea coast of the Kola Peninsula).

**3. Identify the stakeholders and how their behaviour might be affected by each option.**

*Stakeholders: netsmen from coastal communities, anglers, companies running fishing tourism, fishing-related businesses, conservation agencies, general public, Government.*

*Option 1* – no negative implications for netsmen from coastal communities in the short-term, anglers fishing on the basis of catch-and-release or catch-and-retain, companies running fishing tourism, fishing-related businesses, general public, Government.

*Option 2* - no negative implications for netsmen from coastal communities, anglers fishing on the basis of catch-and-release or catch-and-retain, companies running fishing tourism, fishing-related businesses, general public, Government provided that alternative employment has been offered to coastal fishing communities.

*Option 3* – netsmen from coastal fishing communities will be affected because of some loss of catch due to phasing out the coastal fishery; anglers fishing on the basis of catch-and-release or catch-and-retain on the rivers for reduced opportunities to catch salmon. Adverse effects will lessen with the development of the region.

***4. Assess the changes in social, economic and environmental costs and benefits, both short- and long-term, associated with each option, and determine the economic impacts of those changes. This should be done for each group of stakeholders. The scale of the assessment should be proportionate to the scale of change.***

*Option 1* – temporarily will help mitigate socio-economic problems; however, will not provide a long-term solution to the problem of employment for the coastal communities. Besides, no sources of funds to pay compensation to the netsmen are currently available.

*Option 2* – closure of coastal fishery will lead to a loss of 100% of catch for coastal fishing communities and hence their income. Under this option a long-term program for the development of the area is needed which will require solid investments that will leave socio-economic problems unresolved until the program is implemented.

*Option 3* – maintaining the coastal fishery will leave the netsmen with employment and thereby reduce social tension in the region; however, it will lead to a loss of approximately 20-25% of income from in-river recreational angling.

***5. Rank options and consult with stakeholders as appropriate***

After consultations with stakeholders in the short-term Option 3 was considered as the only one possible.

**6. Review the options, including mitigation measures or compensation where appropriate.**

In the long-term maximum benefit could be achieved by closing the commercial coastal fishery and developing further recreational angling regulated on the basis of scientific evidence on the status of salmon stocks. A quota for a coastal fishery for 2004 was reduced to address conservation issues.

***7. Choose option and implement.***

Option 3 was chosen for having the highest social, economic and environmental benefits in the short-term. The timeframe for implementation – 2004.

## 8. Monitor impacts and consider the need for further mitigation.

Environmental impacts will be monitored through annual monitoring programs aimed at assessing the status of salmon stocks in principal salmon rivers (Ponoi, Varzuga, Umba, Severnaya Dvina) and juvenile surveys on 12-15 smaller salmon rivers in the region on a five-year basis.

## *The Impact of Predators on Survival of Atlantic Salmon in Russian Rivers*

Knowledge of the impact of predation on salmon stocks in Russian rivers is limited. In the Varzuga river (Kola Peninsula), according to Mikhin (1959) stomachs of two pikes examined in the period of the smolt run contained smolts; however, the author believed that the predation of pike on juvenile Atlantic salmon was insignificant as they had different habitats. The same author noted that grayling ate a large amount of salmon eggs on salmon spawning grounds (the number of eggs in some stomachs varied from 12 to 172) and that dace and minnow preyed on salmon alevins. According to I.N. Grinyuk (1971): "The time, when alevins of salmon come out of spawning redds, coincides with the time of incubation and hatching of minnow (*Phoxinus phoxinus*) eggs and larvae. The minnow is always plentiful in areas of salmon reproduction, often on the surface of redds, eats alevins and fry, which have left the redds as well as eggs and newly hatched larval minnow".

According to Kamyshina and Tsepkin (1973), who studied the diet of pike in the Umba river (Kola Peninsula), stomachs of the predator contained from 1 to 15, more often 5-7, juvenile salmon. E.L. Bakshtansky and V.D. Nesterov (1976) indicated that according to their observations when pike was hunting in the main stem of the Porja river (Kola Peninsula) at the time of smolt run, schools of smolts delayed their migration and stayed 1.5-2.0 m upstream of the pike hunting area for a while. They also noted that the population of pike was quite large in that river and it consumed up to one third of the total number of smolts. They also said: "We have observed heavy predation of pike on smolts of Atlantic salmon many times in different rivers of the Murmansk and Archangel regions in the period from 1958 to 1974. During the smolt run the pike moves closer to rapids and can even stay there. At that time smolts are always found in stomachs of pikes, sometimes up to 10 per stomach. At other times of the year salmon juveniles are rare in pike's food."

Yu.A. Smirnov and others estimated (1977) that in 1972-1974 salmon smolts made up from 30.8% to 33.7% of the diet of pike in the Porja river at the time of the run and suggested that in other rivers pike might probably consume up to 30% of the total smolt production.

Of other species of fish, sea lamprey may affect salmon at sea (Grinyuk, 1970). The author observed Atlantic salmon with prints from lamprey suckers. The same author (Grinjuk, 1977) referred to an occurrence of salmon in the stomach of Greenland shark caught in the Barents Sea.

Presence of juvenile salmon in the diet of sea birds was noted by V.G. Martynov (1983). He found one and two parr, respectively, in the stomachs of two mergansers captured on the Pechora river. References were also made by V.P. Teplov (1948), M.I. Vladimirskaya (1957) and F.E. Bogan (1968) to the presence of Atlantic salmon parr in the diet of merganser on the Pechora river.

Of mammals, V.S. Drebentsov (1966) noted a rather important role of salmon in the diet of the otter: "Otter in the Murmansk region predates mainly on fish, and in the first place, on such species as Atlantic salmon, sea trout, brown trout, grayling …. The role of Atlantic salmon in the diet of otter is likely to be rather important. The matter is that otter has many "spongers" in the season of preying on salmon. In particular, fox eats a larger part of otters' catch. There are references available of otter's catch of Atlantic salmon of more than 5 kg. Otter eats the head of salmon first and it does not keep hold of the remaining part of fish in

the majority of cases." Reports on otter and mink feeding on Atlantic salmon are also available from the Pechora river area (Solovkina, 1975).

And lastly, seals and dolphins. Scientific evidence provided by S.S. Surkov (1966) suggested that predation of harp seal on salmon was unlikely to be significant as the timing of seal and salmon migrations was different. The same author noted that common seal feeds predominantly on cod, herring and, perhaps, on Atlantic salmon, that anadromous fish are not affected by bearded seal, even when it moves into the river, that among other fish species in stomachs of snuffing pig *{Phocaena)* Atlantic salmon and sea trout were found, and that white whale often attacks Atlantic salmon and sea trout in the summer season; however, the author did not quantify the impact of seals and dolphins on Atlantic salmon stocks from rivers of the Kola Peninsula. Such an assessment was undertaken by M.N.Nekljudov and I.N. Grinyuk (1972). According to the estimates they provided, ringed seal and bearded seal preyed on Atlantic salmon caught by a trap in the barrier fence set on the Ponoi river (Kola Peninsula) 7 km upstream from the river mouth: in 1969 – 66 salmon, 1970 – 63 salmon and 60 salmon in 1971, or 3.4%, 2.5% and 2.0%, respectively, of the total number of salmon harvested at the barrier fence in those years. According to rough estimates suggested by these authors, seals might eat up to 25% of Atlantic salmon migrating for spawning at the rapids located 25 km upstream from the river mouth. In their view the information available suggested that seals also entered other rivers on the Kola Peninsula and had significant negative impact on salmon stocks by predating on and damaging the fish.

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