Agenda item 6.3
For information

Council

CNL(17)20

Written responses from the Parties/jurisdictions to the questions raised by the Implementation Plan/Annual Progress Report Review Group

Note:

At the time of issuing this paper no responses had been received for EU-Ireland and EU-Spain (Cantabria). We will issue these as soon as we receive them.

Secretary
Edinburgh
31 May 2017

CNL(17)20

Written responses from the Parties/jurisdictions to the questions raised by the Implementation Plan/Annual Progress Report Review Group

Canada

1. *Are the guidelines that are being developed in relation to pipeline and transportation watercourse crossings, large and medium water intakes, and marine and coastal infrastructure under the Fisheries Protection Program being developed with relevant government departments and planners and are they being supported by legislation? (Action H2).*

The guidelines projects described are being developed through collaborations between Fisheries and Oceans Canada's (DFO's) Fisheries Protection Program and proponent groups that work with the Department on a regular basis to complete reviews of routine types of development projects. The focus of the guidelines is to ensure that the projects meet the requirements of the fisheries protection provisions of the Fisheries Act, and therefore other government agencies are not directly involved in their development. That being said, where there is potential interest from other government departments, DFO shares information and explores opportunities to cooperate on the implementation of the guidelines.

The guidelines are intended to provide advice on how to remain in compliance with the fisheries protection provisions, and therefore are policy-based. As guidelines are used and their effectiveness is assessed, the Department anticipates that it may consider enshrining these guidelines in regulation to give them force of law. At this point however, the guidelines are used to allow proponents to avoid impacts to fish and fish habitat, and thus avoid the need for regulatory reviews under the Act. Where these impacts cannot be avoided, and the guidelines cannot be followed fully, the proponents are recommended to request authorization from DFO under the Act.

2. *Given the announcement that Fisheries and Oceans Canada will explore options for aquaculture legislative reform, including the development of an Aquaculture Act, will this be used as an opportunity to develop measures to support the achievement of the international goals for sea lice and containment set out in the NASCO Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks (Action A1)?*

It is too early in the exploratory process to be able to say definitively which legislative options Canada may wish to consider; however, international best practices will certainly be incorporated into discussions, where appropriate.

3. *The North American Commission Protocols for the Introduction and Transfer of Salmonids appended to the Williamsburg Resolution state that: 'Reproductively viable strains of Atlantic salmon of European origin, including Icelandic origin, are not to be released or used in aquaculture in the North American Commission Area'. With*

regard to the approval of the Placentia Bay aquaculture project, can triploid rates of 100% be assured and will the salmon reared be all-female strains (Action A2)?

Triploid eggs are produced by application of hydrostatic pressure to fertilized eggs produced on a family-basis (i.e. eggs from one female) using a standardized protocol of application of 65,500 kPa for five minutes, at approximately 300 degree-minutes post-fertilization. At 360 degree-days post-fertilization, triploidisation is confirmed by measuring extracted DNA content using flow cytometry in which DNA from a pooled sample of pressure-treated larvae from each family is compared to average DNA content values from a diploid control sample. Triploidisation rates of 99% and above are expected from this protocol. Confidence in reported triploidy success rates is determined through selection of samples sizes from individual families using normal statistically appropriate methodologies.

Demonstration of 100% efficacy in all families is not possible unless every animal was tested, is logistically and cost prohibitive, and is not required by the Williamsburg Resolution. Failure of the triploid production process may be a consequence of egg fertilization failure where there is no incorporation of the paternal chromosomes or failure of pressure treatments to retain the second set of maternal chromosomes post-fertilization. "Failed" triploids will be composed of a mosaic of ambiguous results when measured DNA content falls out of range of both diploid and triploid groups due to poor sample preparation and aneuploid, gynogenetic, or normal diploid organisms. Families producing test results demonstrating presence of normal diploids are not authorized for transfer. Additional sampling to confirm triploidisation will occur during regular animal health surveillance in the hatchery by the provincial veterinary authorities.

All-female triploid production is planned subject to completion of hatchery and nursery construction and completion of the normal federal and provincial legislative and regulatory review and approval processes in Canada. If all approvals are secured, hatchery construction is planned to begin in 2017, first egg imports would occur in late fall 2017, first fish would be transferred to sea cages in fall 2018 or spring 2019, and first harvests realized in 2020. If all goes according to plans, peak stocking would occur in 2022.

4. *The Review Group considers that all Parties and jurisdictions with salmon farming should have presented quantitative data in a transparent manner in their Implementation Plans as a baseline for demonstrating progress towards meeting the international goals for sea lice and containment set out in the NASCO Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks. Summary data are requested to provide the baselines for Canadian salmon farming facilities (Actions A1 and A2).*

Canada's Implementation Plan, developed in 2012 for the period 2013-2018, contains a commitment to implementing and improving sea lice and containment management tools which could include such elements as legislation, regulation, policy, standards, monitoring and reporting.

While Canada remains committed to the objectives of SLG(09)5 (*Guidelines on Best Management Practices to address impacts of sea lice and escaped farmed salmon on wild salmon stocks)*, the commitment in the current Implementation Plan is to ensuring that

participants, including industry and governments, act in a coordinated manner that, using a risk and evidence-based approach, addresses impacts to wild fish populations.

As is indicated in the 2015 Progress Report, a number of federal and provincial initiatives are underway that will result in further information being reported on both sea lice and containment management in the 2016 Progress Report.

On behalf of Canada, DFO surveys provinces for the Progress Report and shares findings with the international community through regular NASCO reporting cycles. A comprehensive picture of Canada's management regime for sea lice and escapes has been developed and was presented at the NASCO Special Session on Aquaculture in June 2016.

European Union

EU Denmark

1. *What further action is planned to reduce the mortality of salmonid smolts caused by cormorants given the 'devastating effect' identified in the APR (Action F1)?*

The revised cormorant management plan gives wider options for management measures and the efficiency of these is now being tested in Skjern/Ringkøbing. So far, the results indicate that it is very difficult and resource demanding to substantially reduce the predation on smolts from cormorants as long as the number of birds is high. Cormorants are shot. Both in the river and in the estuary, at night roosts and newly established colonies are being removed. A major problem is winter predation on pre-smolts in the rivers. This predation is partly from wintering birds from Sweden and Finland, so it seems that the problems cannot be addressed without (Nordic) cooperation in attempt to reduce the number of cormorants overall. We seem to be running out of options for management on a national scale.

2. *What levels of by-catch of salmon were observed in the Ringkøbing Fjord and why is the project considered to have only partially achieved its objectives (Action F2)?*

The project in Ringkøbing Fjord aimed at estimating by-catch of sea trout, not salmon. Very few (if any) salmon are caught in the whitefish fishery (small mesh sizes), but the nets are rather problematic for the sea trout of 30-50 cm. The estimated bycatch of these were substantial and higher than the entire spawning run of sea-trout in Skjern River. The objectives were to suggest ways to regulate the whitefish gill-net fisheries to minimize the by-catch of salmonids, but both spatial and temporal management measures did not achieve this, so if the gill-netting is to continue a substantial bycatch must be expected.

3. *When is it anticipated that reliable reference points will be established for Danish salmon rivers (Action F3)?*

The data for establishing reference points in the 4 main rivers has been collected. The challenge is to agree on such points, because the systems are rather dynamic, still barrier removals and habitat restoration are ongoing and continue to increase the potential for smolt production, so the reference points should be adjusted accordingly. We are determined to

find ambitious, but realistic reference points. If agreement can be reached the points can be established soon.

4. *Please provide quantitative data to demonstrate the great benefits to salmon of the restoration projects being undertaken in most watersheds (Action H1).*

We do have a number of quantitative data on this, but these are being (some have been) published internationally as well as being included in the output from the H2020 AMBER project, so to list them here in a NASCO report would not be feasible. However, the increase of the annual salmon runs in the 4 rivers of West-Jutland from app. 100 individuals in 1985 to well over 15,000 now can almost exclusively be attributed to the habitat restorations (including barrier removal), because nothing else has changed.

5. *Please provide quantitative data to demonstrate restoration of habitat from earlier canalisation, pipe-laying and dredging (Action H2)?*

The number of restoration projects in the Danish rivers span from the large EU-Life NSH-project of 14 million EURO to small projects carried out by volunteers, so to gather even loose figures of the total area restored or influenced by restoration, is not possible. It is, however estimated that more than 2/3rd of the now available salmon habitat has been restored. However, most of this area was before in reasonably good condition, but upstream barriers and was only accessible after dam removal. When it comes to the proportion of river length re-meandered, opened from pipes and where gravel has been added for spawning substrate the area is smaller, but still substantial. On a national level, there are hundreds of restoration projects ongoing and even just in the 4 salmon rivers covered by the MP, nobody has an overview of all the projects being planned and carried out on a local level.

6. *When is it anticipated that information on the present and potential salmon production will become available for all rivers (Action H3)?*

The data has been collected, so they are available for all 4 rivers now, but the analyses and reports are still to be finalized.

EU France

1. *Please provide additional information to demonstrate progress on all ongoing actions (Actions F1, F2, F3, H2 and H4).*

Action F1: For the maritime (ie mostly downstream part of the estuary of river Adour) part of the French salmon fishery official data from the Direction in charge of the maritime fisheries give the amount of catches per year as it follows: for the year 2015 about 3.9 tons were declared. Among them 3.3 tons are coming from the EMU (Eel management unit) Adour and coastal streams and rivers which corresponds with ICEAS division VIII b. Almost all of that 3.3 tons were fished by professional boats from the department Pyrénées Atlantiques which correspond with the professional estuarine fishery of Adour river).

For the year 2016 data give 3.4 tons fished by maritime part of salmon fishery. Among them 2.5 tons were fished in the EMU of Adour and 2.4 tons of that 2.5 tons were precisely fished in Adour.

To assess by-catch a study has been made on the composition of declared catches. Indeed, professional downstream estuarine and coastal (within the 3 miles from the shore) fish of salmon is possible only for boats whose companies owners have a special license which is delivered at the national level in each region (regulation being the "*arrêté du 15 septembre 1993 instituant un régime commun de licences pour la pêche dans les estuaires et la pêche des poissons migrateurs le long des côtes du littoral de la mer du Nord, de la Manche et de l'océan Atlantique*"). We have then to see on the amount of catches how much were caught by authorized boats. It is indeed clear that those boats are boats which target salmon as a main fish among some other estuarine species as eel.

For 2016 that study has been made and it shows quite a high level of catches by those authorized boats: ie 2.2 t among 2.5 tons fished in Adour region. Precisely for Adour downstream estuary and transitional waters 257 kg on 2366 fished there were fished by some non-authorized boats. Only 7 referred boats fished bycatch salmon in 2016 for individual amounts close to 100 kg, which remain for those boats little amounts when compared to their global fishery.

We can then say that bycatch fishery is clearly assessed, and that on the other hand it concerns little quantities.

Action F2: For the maritime and estuarine fishery the Direction of maritime fisheries recalled to the control units of the department of Pyrénées Atlantiques the importance to target controls at sea and in downstream part of the estuary on the fishery of salmon to make sure boats targeting salmon have the specific salmon license.

The juridical framework about declaration of catches by that boats has been updated, within the framework of European regulations 1224/2009 and 404/2011, through the national regulation of 18 mars 2015 as follows: "*arrêté du 18 mars 2015 relatif aux obligations déclaratives en matière de pêche maritime*".

The local administrative services in charge of police of the sea targeted in 2016 five actions to control specifically that salmon is fished legally. No one of them lead to stress any infraction to the regulations."

Action F3: the Renosaum project has been delayed due to lack of qualified people. The project is now reoriented toward a PhD thesis. A master student is working (until September 2017) on stock-recruitment relationship and a new definition of CL. The PhD should start by the end of the year and will both develop and apply the new concept of CL on Brittany region and develop new management system of salmon angling in Brittany with the administration and stakeholder (though COGEPOMI).

Action H2: A collection of data on the various improvements carried out is under way and will be transmitted during the next report.

Action H4: Salmoglob is still an ongoing PhD. This has been presented in the last WGNAS meeting. Scientific articles are in preparation.

2. *All the actions in the IP are scheduled to be completed by 2018. Have steps been identified to commence progress on actions F4, H1 and H3?*

We will not be able to start these actions within the timeframe. We commit ourselves to take these topics more into consideration in the next plan by requesting more human resources.

EU Germany

1. *What is the estimated harvest of salmon in the Dutch fisheries and are there any proposals for measures to eliminate these harvests in the gill net fisheries close to the shore near the Haringvliet sluices (Action F1)?*

This question refers to fishing activities beyond the fisheries jurisdiction of Germany. Germany is not authorised to answer on behalf of the Netherlands.

You will find figures about the estimated harvest of migratory salmonids in the Dutch fisheries in the updated next version of the ICPR "Masterplan Migratory Fish Rhine". This will be publicly available not before the end of 2017.

EU Spain *(Asturias)*

1. *Given the fragility of salmon stocks at the southern edge of their range and the level of angler exploitation, what measures are being taken to promote catch and release fishing and what is the current estimated level of catch and release (Action F1)?*

Catch and release areas have increased significantly in recent years. In 2017 10% of the preserves are catch and release.

2. *Given the fragility of salmon stocks at the southern edge of their range, what actions are being taken to mitigate the impact of climate change (Action H2)?*

Climate change translates into decreases in river flow. In this sense, fishing for salmon (except catch & release) has been banned since 15 July since few years.

3. *Have any measures been put in place to optimize the downstream migration of smoltsnotably past hydropower stations (Action H3)?*

Work in progress on this topic for years and, by legislation, it is obliged to place grids to prevent fish entering channels.

4. *Has an assessment been made of the effectiveness of the ongoing stocking programme?*

Estimates of marked and survived fish returns are made. It will take more time (several years) to evaluate this issue.

EU Spain *(Galicia)*

1. *Given the fragility of salmon stocks at the edge of their range, what measures are being taken to establish Conservation Limits (Action F1) and implement guidelines for the management of riparian vegetation in order to control river temperatures (Action H1)?*

We have not adopted yet any special measure to stablish Conservation Limits (Action F1) for any river, other than maintaining the compilation of information on juveniles (all of the rivers) and adults where available. Guidelines for the management of riparian vegetation in RN 2000 rivers are included in the "Management Plan for Natura 2000 Network Areas in Galicia", which is currently pending.

2. *What alternatives to stocking are being implemented to enhance salmon stocks on the in the Rivers Mandeo, Xubia and Mera and to reintroduce salmon to the Rivers Sor, Anllóns and Eume and are stakeholders involved (Action F4)?*

No other measure was considered for the reinforcement of natural populations in rivers Mera or Xubia other than general measures already described (F3 or H3), whilst action H4 should be of major importance in river Mandeo and should be completed before any other action related with reinforcement. No other measures were considered for the reintroduction of salmon in rivers Sor, Anllóns or Eume, though some other actions are related with these rivers (F3, H3, H4). No, stakeholders (local fishermen) are not involved in anything related with action F3.

3. *Has a programme of work been established to enable the Rivers Anllóns, Xubia and Miño to achieve good ecological status (Action H2)?*

There is not a specific plan for the achievement of "good quality" status in rivers Anllóns, Xubia or Miño and just the general plan for the whole basin of Galicia-Costa and for the Miño-Sil system.

EU Spain *(Navarra)*

1. *Given the fragility of salmon stocks at the southern edge of their range, are steps what measures are being taken to establish reference limits (Action F1) and salmonid mesohabitat maps (Action H1)?*

Since the lack of funding is impeding the realization of the establishment of the reference limits (Action F1) and salmonid mesohabitat maps (Action H1), the Government of Navarra is searching for different options to fund these two actions (e.g.: using own resources, etc.). Meanwhile, the provisional reference limits stablished in the IP are being taken into account and the mesohabitat map elaborated in 2007 is being used for management proposes.

2. *Has the success of the stocking programme on the Bidasoa River been evaluated (Action F4)?*

The stocking programme on the Bidasoa River is evaluated every year and results are included in the Annual Salmon Report, published in the webpage of the Government of

Navarra
(http://www.navarra.es/home_es/Temas/Medio+Ambiente/Pesca/Especies+pescables.htm).

EU Sweden

1. *Are there plans to revise the legislation to require reporting to allow in river exploitation levels to be established for rivers other than the index river (Action F7)?*

In the above mentioned national plan for the future conservation and management of salmon it was proposed that reporting from fishing in salmon rivers should be compulsory. A national review of this legislation has not begun. However, actions have been taken, such as information and financial contribution for example reporting systems, to raise the interest especially in the rivers for voluntary reporting of catches. The interest for this is much higher today than for some years ago.

2. *The APR indicates that the Swedish authorities consider G.salaris to be a great threat to salmon stocks. In the light of the spread of G.salaris to a new river in 2015, are there plans to increase monitoring and take additional measures to prevent the further spread of the parasite (Action A1)?*

The Gyro-monitoring programme was adjusted in 2016 because of the new infection. River Rolfsån where the new infection of *Gyrodactylus salaris* was found in 2015 is a river in the County of Halland. This is in the southern part of the Swedish west coast where the salinity is quite low (10-20 psu). Therefore, spread of the parasite is possible from one river to another through migration of salmon. In the northern part of the Swedish west coast were the salinity is much higher (influenced by the North Sea) there has not been any spread of the parasite and the rivers are free from the parasite. Rivers in this area are also more spatially separated and stocking of salmonid fishes are not permitted in the watersheds, not even upstream of migration obstacles. Possible measures to prevent further spread of Gyrodactylus salaris especially through legislation and information will be evaluated. But it is stressed that the spread of Gyrodactylus observed during the latest years is considered to be of natural causes, fish migrating in brackish water in nearby rivers, and not due to stocking of fish or other human activities.

EU UK (England and Wales)

1. *What is the timeline for the delivery of new fish passage regulations?*

England's Department for Environment and Rural Affairs is reviewing the evidence needed to support delivery of new fish passage regulations. As such we cannot provide a timeline for the introduction of the legislation at this stage. Any proposal would be subject to formal consultation and the standard UK Parliamentary process before it could come into force.

EU UK (Northern Ireland)

1. *What level of resources is available to detect illegal fishing activities in both the DAERA area and the Loughs Area (Action F4)?*

There are currently 11 Fishery Protection Officers in the DAERA area of NI. These staff are dedicated enforcement officers tasked with protection and conservation of freshwater fish and salmon and the detection of illegal fishing activities. There are also another 13 DAERA Fishery officers who can provide some support and assistance with enforcement work. In the Loughs Agency area, there are 20 staff involved in protection work to detect illegal activities.

2. *Has an inventory of connectivity issues throughout Northern Ireland been developed and if not when is this expected (Action H6)?*

Some work on the identification of possible fish barriers has already been undertaken on a pilot basis using both anecdotal and physical evidence. To date information has data been assembled for the following rivers:

Ballinderry River
River Lagan
Sixmile Water
River Main
River Moyola

It is hoped to carry out a desk top survey that may assist with the identification of any fish barriers associated with road bridges over the next 12 – 18 months. This information could be used to help compile an inventory of fish barriers for NI and, subject resources being available, it could be considered as an objective for the next NI Implementation plan which has yet to be drafted.

EU UK (Scotland)

1. *Can additional information be provided in relation to the carcass tagging programme for rivers in category 1 and 2 areas (Action F4b)?*

Carcass tagging regulations came into force on 31st March 2016. The regulations apply to anyone taking a salmon above estuary limits in areas which were designated grade 1 or 2 in the Conservation of Salmon (Scotland) Regulations 2016 and The Tweed Regulation (Salmon Conservation) Order 2016.

Marine Scotland carried out and published, on 13 March 2017, an assessment of the first year of the tagging scheme. This was based on the findings of questionnaires issued to 9 fisheries and two boards in areas where tags were issued, and to the River Tweed Commission. Forms were returned by six fisheries and by one Board plus the River Tweed Commission. The report, which includes actions to strengthen compliance and enforcement, can be found at http://www.gov.scot/Resource/0051/00515194.pdf .

There was broad agreement that the guidance notes issued were fit for purpose, though comments were received on their distribution. Guidance has been reviewed and reissued for 2017. The revised guidance was published on 3 April 2017 and can be found at http://www.gov.scot/Resource/0051/00516332.docx .

2. *In seeking to ensure that growth of the aquaculture industry is sustainable, what measures are being taken to protect wild salmon and achievement of the international goals for sea lice and escapees set out in the NASCO Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks (Action F5b and Action A3)?*

Information provided in the Annual Progress Report already includes a number of examples of past and recent developments aimed at improving sea lice management and strengthening the reporting, inspection and enforcement regime. A new Marine Scotland Topic Sheet setting out revised arrangements has been published and can be found at: http://www.gov.scot/Resource/0051/00516518.pdf. In addition, as noted in the report, Marine Scotland is seeking to improve Permitted Development Rights for fish farms and launched a public consultation on this issue on 5 May 2017. The consultation paper is at: https://consult.scotland.gov.uk/marine-scotland/rights-for-finfish-and-shellfish-developments.

On 30 March 2017 Scottish Government published a joint statement - endorsed by The Cabinet Secretary for the Environment, Climate Change and Land Reform and The Cabinet Secretary for The Rural Economy and Connectivity - to articulate the Scottish Government's vision for a sustainable and competitive aquaculture sector available at: http://www.gov.scot/Topics/marine/Fish-Shellfish/MinStatement

3. *What mechanism exists for engagement with wild salmon interests the establishment of the Aquaculture Industry Leadership Group (Action F5b and Action A3)?*

The Aquaculture Industry Leadership Group (AILG) is an industry led group with a focus on sustainable growth across the entire aquaculture value chain. Part of that group's considerations will be the interactions with the wild fish sector, building on the regular engagement already taking place at a local and representative levels across Scotland. The group has met twice and will next meet in August 2017.

4. *How will the redefining of satisfactory measures under the new sea lice management policy and the accompanying enforcement regime ensure the protection of wild salmon and achievement of the international goals for sea lice set out in the NASCO Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks (Action F5b)?*

See response to question 2 above.

As our original response made clear, the Aquaculture and Fisheries (Scotland) Act 2007, as amended in 2013, gives Scottish Ministers legal powers to carry out inspections, to look at sea lice records and assess the measures in place to prevent, control and reduce parasites on farms.

5. *Action A3 is reported to have been completed. Have the expected outcomes been achieved and if so please provide details (Action A3)?*

The reference to this work being completed is specifically in relation to the conclusion of the Ministerial Group on Sustainable Aquaculture (MGSA) machinery, rather than the

aspirations of sustainable economic growth which remain an ongoing activity, and in part will be championed through the AILG.

6. *The Review Group considers that all Parties and jurisdictions with salmon farming should have presented quantitative data in a transparent manner in their Implementation Plans as a baseline for demonstrating progress towards meeting the international goals for sea lice and containment set out in the NASCO Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks. Summary data are requested to provide the baselines for Scottish salmon farming facilities.*

Data in relation to sea lice are already published by the industry representative body and are available on-line at http://scottishsalmon.co.uk/category/farming/fish-health/.

Norway

1. *What steps have been taken to ensure pre-agreed measures are implemented when mid-season assessments indicate that these are required (Action F2)?*

The Mid-season assessment and pre-agreed measures are based on a formal agreement between local management and the county governor. The spawning target attainments are assessed annually. If the spawning targets are not met and pre-agreed measures have not been introduced as agreed, the power of more local fisheries regulation might be revoked by central authorities and more rigid regulatory measures introduced; e.g a reduction of fishing season.

2. *What level of mortality of wild salmonids is allowed before salmon farm production is decreased and how is this approach consistent with the international goals for sea lice in NASCO's Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks (Action A1)?*

The Norwegian Parliament has adopted a policy of acceptable level of impact that was presented in detail to the NASCO Council at the special session in Germany in 2016. The levels of sea lice induced mortality comprising high, moderate and low impact, has been decided on a scientific basis, and will be adjusted if new knowledge is put forward. It should be noted that this is an instrument to determine growth in the production capacity of the salmon farming industry in a geographical area, and not an instrument to handle sea lice in fish farms, nor to determine the Maximum Allowed Biomass (MAB) at each site.

Both the Norwegian Food Safety Authority (NFSA) and the salmon farming industry have over the past years intensified their work on sea lice control. One of the most efficient tools used by the NFSA is to reduce the MAB at individual sites by 50% in the next production cycle if the operator over a period is unable to meet the regulatory requirements for sea lice control. The assessments of the level of impact of sea lice-induced mortality is done by a panel of independent experts, who take into account all available data in their assessments. The assessments are not mathematical assessment of the acceptable/unacceptable levels of impacts presented to the NASCO Council last year, but rather an overall assessment, taking

into account the uncertainties due to knowledge-gaps and the precautionary principle. The expert group report to a steering group comprising the Institute of Marine Research, the National Veterinary Institute and the Norwegian Institute of Nature Research who give their overall assessment and advice to the government. This advice will be used as a decision-making tool by the government when they decide upon amendments in the production capacity of the salmon farming industry in each of the 13 production areas established along the coast.

3. *Have the intended public consultation on amendments of the Norwegian Aquaculture Act been undertaken and if so has it resulted in a strengthened legal base for protection of wild salmon and achievement of the international goals for sea lice and containment set out in the NASCO Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks (Action A2)?*

The Norwegian Aquaculture Act was amended in 2013 and strengthened the environmental parts of the Act. In short, the following amendments were made:

- A legal basis to introduce mandatory tagging of aquaculture animals and use of sterile fish was introduced. The use of both sterile fish and mandatory tagging raise questions concerning animal welfare, and an actual introduction of these requirements is not likely for a couple of years. However, a number of licences has been granted for triploid fish, in order to gain experience on farming of triploid salmon in commercial size farms.
- In order to finance the removal of escaped aquaculture animals (salmon), there has (pursuant to the Aquaculture Act) been established a pool, financed by the entire salmon aquaculture industry, which will cover the cost to remove escaped farmed fish from a representative numbers of rivers, where the prevalence of farmed salmon is unacceptable.
- Some other minor adjustments were made to strengthen the environmental chapter of the Act, e.g. the obligation for farmers to work preventively to avoid adverse effects on the environment was made clearer.
- Several adjustments were made to the penal provisions of the Act, among them a revised system for administrative sanctioning. The new system i.e. provides that only companies can be given administrative fines and introduces a regime of control liability. Private individuals can still be prosecuted, but this requires gross negligence from the individual.

Russian Federation

1. *The Review Group considers that all Parties and jurisdictions with salmon farming should have presented quantitative data in a transparent manner in their Implementation Plans to provide a baseline for demonstrating progress towards the international goals for sea lice and containment in the NASCO Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks. The Russian Federation has not provided these data. Can the*

results of monitoring and enforcement for sea lice and escaped farmed salmon be provided?

No specific monitoring programs for sea lice have been developed for salmon farms. However, the Veterinary Committee of Murmansk region inspects salmon farms in the Barents Sea quarterly to check salmon for diseases and parasites. No information on the level and dynamics of farmed salmon infestation with sea lice is available.

Monitoring of escaped farmed salmon in wild salmon populations is carried out annually as a part of the state monitoring of the status of salmon stocks. No farmed Atlantic salmon escapees have been found in the Barents Sea index rivers: Tuloma, Kola and Kharlovka.

2. *The APR states the in cases of high sea lice infestation, approved methods are recommended. What are the Treatment Trigger Levels and what remedial actions are taken (Action A1)?*

No specific legislation regarding veterinary control and management of sea lice in aquaculture has been adopted. No information on the Treatment Trigger Levels and the remedial actions is available.

3. *As the parasite G. salaris has been identified as a threat, what specific veterinary measures have been undertaken to prevent the spread of the parasite (Action A2)?*

Measures to prevent the spread of the parasite *G. salaris* are undertaken under the veterinary regulations for live fish, eggs and crayfish transfers which came in force by the order of the Ministry of Agriculture of USSR, 31.05.1971. The measures include an obligation to have permission from the Chief State Veterinary Inspector for any live fish, eggs and crayfish transfers. Recently the Anti-Epizootic Commission of the Murmansk region restricted live fish transfers from the region of Leningrad and from Republic of Karelia into Murmansk region.

United States

1. *How effective is the 25 inch length limit on brown trout and landlocked salmon in protecting sea run salmon (Action F2)?*

The 25 inch length limit is in place to ensure that sea-run salmon are not harvested by anglers inadvertently. For those anglers who may seek to purposefully take sea-run salmon, the 25 inch length is an "enforceable" restriction. Anglers found to be in violation of this length limit are subject to prosecution by the Maine Warden Service or Marine Patrol. An example of a very public enforcement action conducted by the Maine Warden Service can be found here: https://bangordailynews.com/2011/05/11/news/bangor/dover-foxcroft-man-sentenced-to-six-months-for-taking-selling-salmon/?ref=storyPrevNextLinks.

Quantifying progress on Action F2 remains a challenge. This activity involves both enforcement and deterrent activities of law enforcement. Given the sensitive nature of investigations and activities, it is difficult to publically describe activities under this action.

We can, however, say that the use of the 25 inch length limit has risen steadily in more waters throughout the state of Maine in recent years thanks to collaboration among local fisheries managers and enforcement personnel. We are quite sure that the 25 inch length limit serves as a deterrent to potential poachers, but it is very difficult to quantify this certainty at this time.

2. *Can information the scale of the bycatch reported to be very limited over the time series be provided (Action F3)?*

Yes. We typically query the fisheries observer database for bycatch of salmon on an annual basis and report that information to NASCO. Typically, there are no reports of salmon bycatch in commercial fisheries catch in the United States. These reports are of course limited to what fisheries observers actually verify. To more fully estimate potential bycatch, Wigley et al. (2014) used recent estimates of discards from NOAA databases to estimate total discards of 14 federally managed species groups (including Atlantic salmon) across 56 commercial fleets. They estimated that approximately 49 pounds of Atlantic salmon would be discarded on an annual basis (using data from July 2012 through June 2013).

Wigley SE, Blaylock J, Rago PJ, Shield G. 2014. 2014 Discard estimation, precision, and sample size analyses for 14 federally managed species groups in the waters off the northeastern United States. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 14-05; 157 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026. http://www.nefsc.noaa.gov/publications/crd/crd1405/crd1405.pdf

3. *Are there any penalties in place when authorities track escaped farmed salmon back to the farm of origin (Action A1)?*

In the case of egregious violations, penalties may be levied or permits to conduct aquaculture may be revoked. However, state and federal authorities are working with Cooke USA, Inc. to review their Containment Management System plans and corrective action reports to better understand the likely cause of these escapes and determine what additional measures will be implemented to increase containment effectiveness and reduce the number of escapes overall. At this time, we do not anticipate penalties in these instances given the willingness to improve containment at the sites from which the farm-origin salmon escaped.

4. What was the scale of the escape event in 2016 and are the authorities confident that all escaped fish were recaptured (Action A1)?

The scale of the escape events remains unknown. The Maine Department of Marine Resources (MDMR) led several field investigations to capture putative aquaculture origin fish after receiving reports of many large fish observed in the Dennys River, Maine. On Wednesday, August 31, 2016, regional DMR staff checked six locations between river kilometer (rkm) 1.33 and 5.81. About 36 fish were observed in an area known as Charlies Rips (rkm 2.24) and a second school of 12 fish was observed above Route 86 (rkm 5.12). After several attempts, the MDMR biologists were able to capture two fish from the river on September 2, 2016. The fish were initially determined to be farm-origin by overall appearance and scale analyses. Another farm-origin salmon was captured in the Penobscot River, Maine on September 29, 2016.

With respect to recapture of escapees, we cannot estimate the proportion of all escaped fish that were captured. We can say with certainty that no farm-origin fish spawned in the Penobscot River given the rigorous genetic screening program described in action A3.