



Agenda item 6.1
For information

Council

CNL(16)20

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

Updated 7 July 2016

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Canada

1. *How many of the recommendations from the report of the Ministerial Advisory Committee on Atlantic Salmon were addressed in 2015 and what important developments have resulted?*

Initial review of the report indicates that to a large extent, the recommendations reflect many of DFO's current activities in support of salmon conservation. As such, many of them are either already being advanced or will be during 2016 and subsequently on an on-going basis. Some notable highlights include:

- Continuation of the catch and release strategy in the Gulf region
- Review of the Wild Atlantic Salmon Conservation Policy
- Creation of collaborative venues to coordinate and work collaboratively with university researchers, non-governmental organizations, private researchers, in an effort to identify, prioritize and promote collaboration and information sharing on wild Atlantic salmon research
- Engagement with Provinces and First Nations on recommendations related to their interests or jurisdictions
- Explore use of innovations in technologies and intelligence to improve and strengthen enforcement efforts
- Use the Precautionary Approach framework and its elements to determine harvest levels
- Continue to evaluate the annual and multi-year approaches to the management of stocks on a case by case and province by province basis through annual workshops and consultation processes.

2. *What are the plans for identifying critical marine habitat within the Bay of Fundy (Action H1)?*

Two DFO Science processes were undertaken to assist in identifying marine critical habitat for Inner Bay of Fundy (iBoF) Salmon. In November 2012, a DFO Science peer review process was undertaken to review and evaluate available information to support the identification of important marine and estuarine habitat required for the successful completion of all iBoF Salmon life-history stages (DFO 2013). The Department, informed by this Science advice, is proceeding with identifying critical habitat for iBoF Salmon in three key areas: 1) tidal portion of priority rivers, 2) Minas Basin and Chignecto Bay, and 3) coastal southwest Nova Scotia: Port George to Hall's Harbour. A second DFO Science process was undertaken in 2014 to assist with the delineation of precise boundaries for iBoF Salmon critical habitat being considered within Chignecto Bay and Minas Basin

(DFO 2015) in order to subsequently map these as critical habitat within an amended Recovery Strategy for iBoF salmon. The work to amend the Recovery Strategy is underway and the Amended Recovery Strategy will be available on the Species at Risk Public Registry once completed.

Additional information on iBF Salmon can be found with the following links.

http://sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=672.

DFO. 2013. Important marine and estuarine habitat of inner Bay of Fundy Atlantic Salmon. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2013/054.

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2013/2013_054-eng.html

DFO. 2015. Support for Delineation of Inner Bay of Fundy Salmon Marine Critical Habitat Boundaries in Minas Basin and Chignecto Bay. DFO Can. Sci. Advis. Sec. Sci. Resp. 2015/035.

http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2015/2015_035-eng.html

3. *What measures will be taken to ensure that the proposal to rear triploid European strain salmon in Newfoundland and Labrador is consistent with the Williamsburg Resolution and NAC Protocols on Introductions and Transfers and that the risk of any adverse ecological impacts on the wild salmon stocks is minimal (Action A2)?*
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)*

Response to Questions 3 and 4:

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 have been undertaken to strengthen federal and provincial regimes that will result in further information being reported on both sea lice and containment management in the 2016 Progress Report.

On the federal level, the *Aquaculture Activities Regulations* came into force on June 29, 2015. These new Regulations require licence holders to do the following:

- Notify DFO of their intent to deposit pest-control products, including the species to be treated, treatment reason, product type/name, amount to be deposited, and expected date of deposit.
- Should any morbidity/mortality event be observed within 96 hours of deposits of drugs or pest control products, licence holders must notify DFO immediately. If directed, licence holders must take water, sediment and tissue samples to be analyzed under laboratory conditions to determine the cause of the event.
- Licence holders must report annually on a variety of mitigation measures, as well as consideration of alternatives to use of drugs and pest control products. The annual report must also contain a wrap-up of all drugs and pest control products used during the year, including verification that drugs were administered under supervision of a licensed veterinarian and pest control products were used according to label specifications.

These data will provide DFO with baseline information on the use of treatments from which we will be able to extrapolate trends and further measures of improvement over time. The first public report on aquaculture activities will be released on the DFO web site in early 2017.

Provinces also play an important role in the day-to-day monitoring of sea lice:

- In October 2015, Nova Scotia released new Aquaculture Management Regulations setting out the requirements to operate aquaculture farms. The new Regulations establish Aquaculture Management Areas, and require farms to develop Farm Management Plans which must include procedures for managing sea lice.
- New Brunswick has reviewed and modified its Integrated Pest Management Program for Sea Lice. The aquaculture industry continues its weekly treatment report to stakeholders and development of its annual sea lice management report.
- In 2015, Newfoundland and Labrador announced an investment for oceanographic research to support further development of Bay Management Areas to enhance fish health management and biosecurity for marine aquaculture sites.

Fisheries and Oceans Canada is exploring the possibility of expanding the *Aquaculture Activities Regulations* to include containment. New elements could include national standards for design, installation and maintenance of net pens, training and response protocols, and a national Code of Containment.

Currently, companies must adhere to strict Codes of Containment, and implement pre-developed and approved response protocols. These vary by province.

Companies must report breaches to provincial authorities within a prescribed period of time; Fisheries and Oceans Canada is also notified so that recapture licences can be issued.

Provinces also play an important role in containment and reporting:

- New Brunswick has revised its Governance for Containment and is working on changes to its Aquaculture Act and General Regulations. These could be in place by the end of 2016 or early 2017. Discussions will continue on a pan-Atlantic approach to containment, where possible.

- The Government of Nova Scotia's new Aquaculture Management Regulations require finfish licence holders to include containment management in their Farm Management Plans. Plans must include information and procedures related to a variety of containment issues such as (amongst others) processes for installing and maintaining infrastructure to limit risk of a breach, responses to breaches, and inventory levels during production. The containment management sections of the Farm Management Plans must be audited by a third party annually and immediately following a reported breach. Marine cage site designs must also be approved by a qualified engineer before deployment.
- The Newfoundland and Labrador Code of Containment continues to be implemented as a condition of the aquaculture licence. The Province is currently evaluating a proposal to grow triploid (sterile) salmon as a means of growing European-strain fish in Newfoundland and Labrador without the potential for genetic interactions between farmed and wild stocks.
- All provinces require that breaches be reported; reporting requirements differ from province to province.

Denmark (in respect of the Faroe Islands and Greenland)

Faroe Islands

1. *The figure provided under Action A1 appears to show increased lice levels in salmon farms in late 2015. What sea lice thresholds are applied on salmon farms to trigger action to control sea lice, how many instances were there of farms breaching lice limits in 2015 and what action was taken (Action A1)?*

- A) the sea lice threshold applied at Faroese salmon farms triggering action to control sea lice has been and is forthwith 2 adult female lice or 10 developing mobile lice
- B) there were 63 instances of farms breaching the threshold in 2015
- C) reach or breach of threshold triggers/triggered the following actions:
 - immediate mandatory notification of the Chief Veterinary Officer (CVO)
 - immediate mandatory treatment in all fish units in the farm to be concluded within a fortnight and, if the CVO so demands, in all farms and units on the same fjord and/or nearby fjords
 - mandatory evaluation and new counting immediately after each treatment
 - mandatory scrutiny of the cause of ineffective treatment (each farm must have an in- or external veterinary consultant)
 - mandatory reporting to the CVO of ineffective treatment, suspicion of immunity/resistance or other inconsistency with expected results

The CVO may demand further/more frequent counting/counting of other species of lice.

The CVO may demand coordinated fallowing of nearby fjords if found needful to impede lice infestation.

In case of ineffective treatment, other agents/treatments are to be used.

If such also prove ineffective, the CVO can order other action including imminent slaughter or destruction.

In case of elevated infestation, disproportionally frequent or incomplete/defective treatments, the CVO may freeze or decrease the number of smolts put to sea at the following production cycle. In addition to owners realizing and following their own best interest, such limitations may be the most efficient tool to secure adherence to regulative requirements.

The CVO may allow exception or postponement of treatment:

- if the breach is diminutive and other effective action is likely to lower the infestation
- if coordinated treatment with other farms is imminent or
- in case of imminent slaughter

D) In addition to mandatory requirements, the following actions were taken by the CVO in 2015:

- Demanding imminent slaughter in 5 cases
- Reducing the allowed no of in smolts put to sea by 30 % in one case (comming into force early 2016)
- Reducing the allowed no of smolts put to sea by 10 % in 2 cses (1 put into force in 2015, 1 early 2016)
- Denial of 2 applications to increase stocking/no. of smolts put to sea (1 put in force in 2015, 1 in 2016)
- Exemption from treatment due to slaughter in one case
- Reevaluation of legislation and regulatory procedures (lacking efficiency and other facts indicate a high level of immunity and a need to rethink lice containment strategies)
- Preparation of legislative proposal to lower threshold and allow treatment of individual infested cages to limit immunity/resistance awaiting hearing and expected to come into force in 2016

2. *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 containment levels at salmon farming facilities in the Faroe Islands.*

Production statistics

Faroese production statistics are available at Bureau of Statistics, Hagstova Føroya, Home page: hagstova.fo.

The weight of slaughtered Atlantic Salmon *Salmo salar* and Rainbow Trout *Oncorhynchus mykiss* for 1997-2015 can be seen in the below chart.

Slaughtered weight in tonnes of Atlantic Salmon <i>Salmo salar</i> and Rainbow Trout <i>Oncorhynchus mykiss</i> from 1997-2015																			
Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total	17947	16858	35149	28660	40545	46896	52269	38191	19593	15662	25173	38272	48622	39012	49588	62783	63338	70893	66090
Salmon	16651	15724	32187	27477	37731	36861	43071	33608	15549	10728	18290	31565	42134	37221	49588	62783	63266	70893	66090
R. Trout	1296	1134	2963	1184	2813	10034	9198	4583	4044	4934	6883	6707	6488	1791	-	-	72	-	-

Source: Hagstova Føroya (Statistical Bureau of Faroe Islands), www.Hagstova.fo

Due to the following reasons, the quantity of slaughtered tonnes does however not correlate well with number of smolts put to sea, with the stocking number of fish at sea and with stocking density.

- The weight of slaughtered Atlantic salmon was ~5 kg live weight in the late 1990-ies and 6.6 kg in 2015
- Annual mortality at sea, including escapees, was 12-28% in the late 1990-ies and 5-12 % in 2007-15
- In 2000-2002 ~20 mill. smolts were put to sea annually, while the number is now ~15 mio. annually
- The average size of smolts put to sea was ~50 gr in the late 1990-ies and ~170 gr in 2015
- The average production time at sea until 6 kg was 19 months in 2008 and 16 months in 2015
- The average no. of days with fish at each production site dropped from 714 in 2008 to 612 in 2015
- Average stocking density was up to and above 25 kg/m³ in late 1990ies and is now ~7-9 kg/m³

Courtesy of Avrik/Rúni Dam, Havbúnaðarfélagið & Fiskaaling. Further information may be found at:

file:///C:/Users/In49275/Downloads/Alir%C3%A1%C3%B0stevnan2016_Framlei%C3%B0sluhagt%C3%B8l_R%C3%BAniDam.pdf

Escapees

Reporting of escaped aquaculture fish to the Chief Veterinary Officer (CVO) is mandatory, and farmers are obliged to attempt to catch escapees. Escape incidents mostly occur as incidents relating to stormy weather or to handling of nets in relation to delousing, transport to slaughter etc. In such cases, prevention of further escapes, mending of nets and alike logically becomes a priority.

From 2011 to 2014, the following incidents have been reported:

2011: 2 incidents, no information on number/quantity given. Average weight 1,9 kg. The incidents are reported to have occurred as perforation in relation to delousing and in relation to moving fish into a new net pen.

2012: 4 incidents, whereof 2.741 fish escaped in two incidents, while no numbers have been reported in the 2 other incidents. The average weight of escapees was 4,8 kg. The incidents are reported to have occurred in relation to moving fish to slaughter, sorting of fish into two net pens and stormy weather.

2013: 4 incidents, estimated at 25.000 fish averaging 2,8 kg. The incidents are reported to have occurred in relation to stormy weather during winter of 2013 and to moving fish into a new net pen.

2014: 2 incidents estimated at 40.000 fish averaging 4,8 kg. The incidents are reported to have occurred in relation to stormy weather and to moving fish into a net pen in relation to slaughter.

The numbers must be taken with some caution and are in most cases based on decreased fodder intake in net pens. More accurate numbers may be achieved when the net pens are slaughtered.

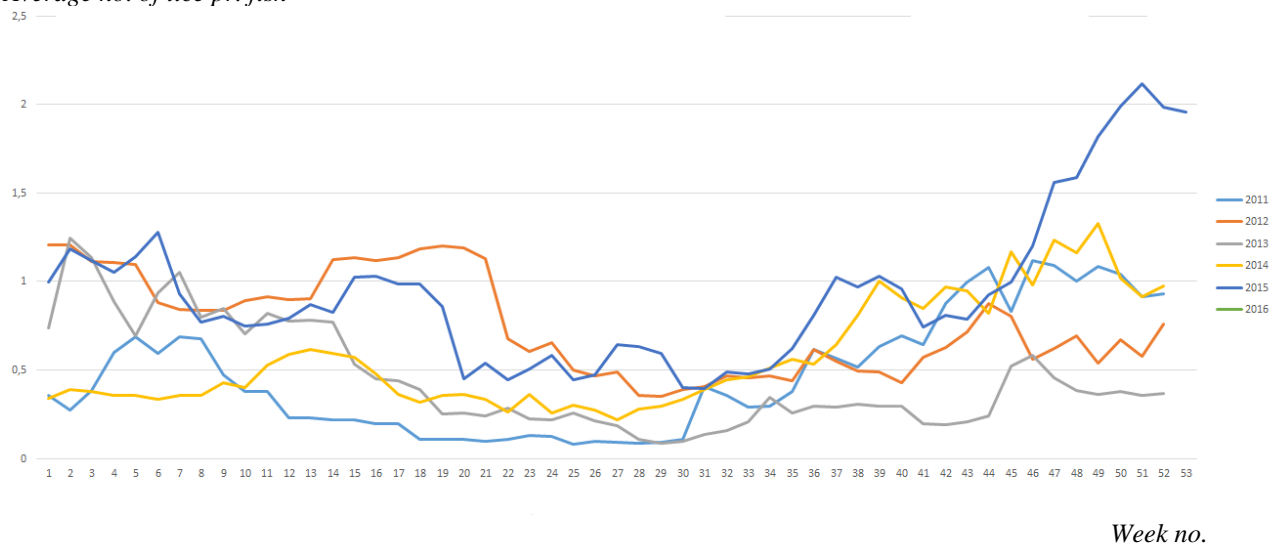
Lice

In general, it may be said that lice is the most serious veterinary challenge of Faroese aquaculture with:

- Increasing immunity/resistance to treatment
- Relatively few therapeutic options
- Effective doses near toxic/lethal levels to salmon
- Recurrent treatment & treatment at high dose affect welfare and resilience of salmon
- Early life stage of lice spreads throughout islands within a fortnight (the total size of the islands is such as they may comfortably fit within a single fjord system of the neighbouring countries)
- The same specie/strain of lice is throughout the islands leading to lasting immunity

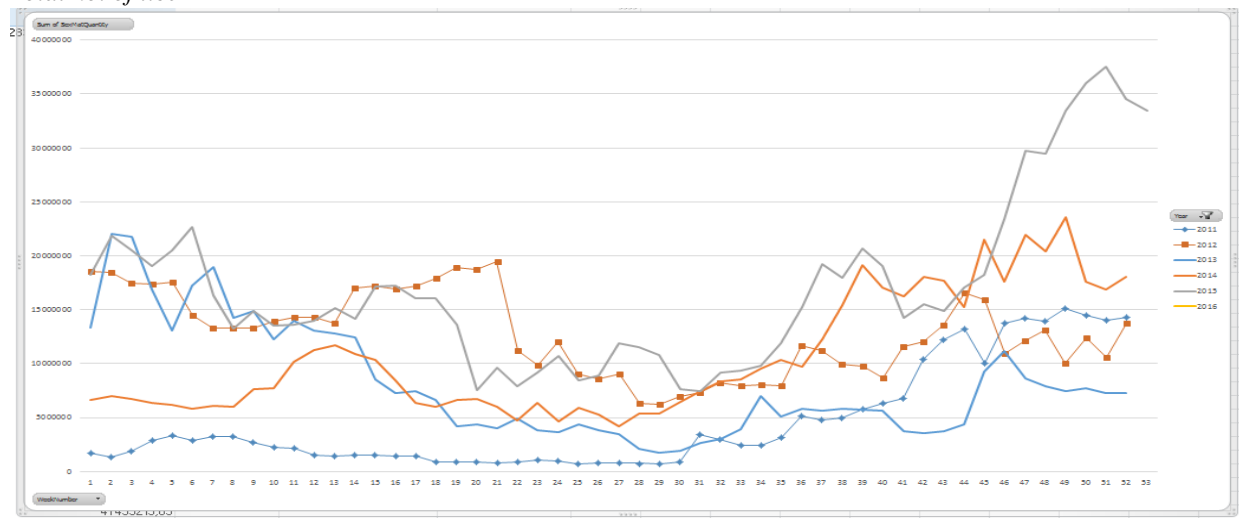
Average no. of lice pr. fish according to season (week by week) in 2011-2015

Average no. of lice pr. fish



Total calculated no. of lice according to season (week by week) in 2011-2015

Total no. of lice



Week no.

As may be observed, the number of lice/fish tends to fall in the spring and summer and to increase in the fall. The unusual increase in late 2015 is mainly due to ineffective louse treatment at a single producer and exacerbated by lacking capacity for immediate slaughter of infested fish. In the spring of 2016, the average no. of lice/fish is within the level found at the same season during 2011-2014.

There have been increasing breaches of lice thresholds.

Year	Breaches	Countings
2009	0	2
2010	4	80
2011	16	183
2012	32	357
2013	23*	555
2014	45*	469
2015	63	470
2016	4	15

*In 2013 & 2014, treatments were coordinated, at first appearing to lower infestation, but also to lead to increased immunity/resistance towards therapeutics.

Research, treatment regimes, empiric results and beneficial regulatory instruments are taken into account as a new proposal for firmer legislative action has been prepared and is soon sent to hearing.

With caution of approval, it includes:

- Lowering of the treatment threshold to 1,5 sexually mature female louse pr. salmon
- Allowing treatment of cage by cage at this threshold (or voluntarily at lower thresholds)
- Making the threshold absolute, breaches automatically leading to immediate mandatory slaughter and restrictions in future stocking

Main elements of the current legislation:

(All farms must have an in- or external veterinary consultant and an effective plan for the impediment of lice infestation)

On each farm and in each unit, counting of sexually mature females, of moving and of adhering lice of the species *Lepeophtheirus salmonis* and *Caligus elongatus* by an external non-aligned party is mandatory fortnightly 1. May – 31. Dec. and monthly from 1. Jan. – 30. April

The data is to be available to the Chief Veterinary Officer (CVO) no later than the following day (in practice it is entered into a database available to/shared by the CVO)

The treatment thresholds are: a) 2 adult female lice or b) above 10 developing mobile lice

If thresholds are reached, the CVO must immediately be notified

Hitherto, reach or breach of the threshold triggers immediate mandatory treatment in all fish units in the farm and, if the CVO demands, in all farms and units on the same fjord and/or nearby fjords

The CVO may allow postponement if the breach is diminutive and other effective action may decrease the infestation, if coordinated treatment with other farms is imminent or in case of imminent slaughter

The CVO may demand coordinated following of nearby fjords if found needful to impede lice infestation

Evaluation and new counting is mandatory immediately after each treatment

The cause of ineffective treatment must be analyzed

Ineffective treatment, suspicion of immunity or other inconsistency with expected results are to be must immediately reported to the CVO

The CVO may demand further counting and counting of other species of lice

In case of ineffective treatment, other therapeutics/agents/treatments are to be used

If such also prove ineffective, the CVO can order other action including imminent slaughter or destruction

In case of elevated infestation, disproportionately frequent or defective treatments, the CVO may freeze or decrease the number of smolts put to sea at the following production cycle

Other comments:

In addition to owners realizing and following their own best interest, limitations in no of smolts putt o sea may be among the most efficient tools to secure adherence to regulative requirements.

Voluntary coordinated treatments were jointly undertaken by the aquaculture industry in 2013/14 leading to a preliminary decline in the number of sea lice, however also building up immunity/resistance against the used drugs, which have likely contributed to recent increases.

Thus, new approaches are asked for

R&D is ongoing – much of it in collaboration with the Aquaculture Research Station of the Faroes, Fiskaaling
Aquaculture companies also try to adapt and test new approaches

Use of lumpfish, *Cyclopterus lumpus* in cages to combat lice, partly effective

Plans for breeding of better adapted *C. Lumpus* with a “better appetite for” salmon lice
Use of fresh water treatment

Increasing size of smolts put to sea up to ½ kg or more and thus shortening the life cycle at sea further

Denmark (in respect of the Faroe Islands and Greenland)

Greenland

- 1. Given that the provisional catch statistics indicate that the quota for the 2015 fishery of 45 tonnes was exceeded by 13.4 tonnes, what actions will be taken to improve control of the harvest (Action F2)?*

Following the implementation of the three year agreement running from 2015 to 2017 the private fishermen are for the first time met with restrictions. Naturally, this calls for an extensive information campaign which was also carried out in 2015 - especially during the fishery season. However it seems obvious that we need to continue this work and at the same time acknowledge that this is a learning process for all parties in the fishery. The Greenland authorities is aware of its obligations and commitments and will do its utmost to ensure that the quota for 2016 will not be exceeded. Again Greenland will carry out an extensive information campaign in order meet the expectations.

European Union

European Union - Denmark

1. *What action was taken in 2015 to reduce the mortality of salmonid smolts caused by cormorants (Action F1)?*

Overall, the management plan shall ensure that cormorants can survive and are continuously protected as a Danish breeding bird and simultaneously ensuring that the number of cormorants will not be an unacceptable nuisance neither to fish stocks nor to fishery. According to the plan, plot owners and can seek permission through the Danish Nature Agency to shoot away a limited number of cormorants except in a three months period from 1 May to 31 July. The Danish Nature Agency is in the process of revising the current management plan. Culling of eggs is still taking place, but there is no assessment of the effects yet. A two-year project is initiated in 2016 to assess the effect of egg-culling and planned cormorant-deterrent activities.

2. *What levels of by-catch of salmon and sea trout were observed in the Ringkøbing Fjord in 2015 (Action F2)?*

The by-catch data of salmon and sea trout in fisheries in the Ringkøbing Fjord is being assessed and a report is planned published early 2017. At a first-hand glance salmon by-catches are low, and sea-trout by-catches are substantial.

3. *What was the result of the assessment under the new management plan for 2013/2014 regarding whether reliable reference points can be established for Danish salmon rivers (Action F3)?*

The new management plan for salmon has not yet been published. Present and potential salmon production has been published for the River Ribe and is in draft for River Storaa. The investigations are expected to give reliable reference points.

For River Skjern the investigation of present and potential salmon production has been delayed. This will be published in 2017.

4. *How much new habitat was made available to salmon by the removal of migratory obstructions in 2015 (Action H1)?*

New habitat has been made available to salmon by the removal of migratory obstructions in 2015. At present the size of the new habitat is not available, but the new management plan will collate the data.

5. *What activities were undertaken in 2015 to restore habitat in smaller streams from earlier canalisation, pipe-laying and dredging (Action H2)?*

The primarily information on these activities lies in the municipalities, however they are not obligated to report this information and hence it is not collated.

6. *What action is planned to make use of the information on present and potential salmon production in the Rivers Skjern and Ribe (Action H3)?*

The information is used to ongoing revision of the management plan (see above).

European Union - Finland

1. *In the absence of a new bilateral agreement, were the measures introduced by local fishing right owners on the Tenojoki in 2015 considered to be effective and will these measures continue to apply in 2016 (Action F1)?*

In the Teno main stem, no new management measures were introduced by local fishing right owners. The local fishing right owners have earlier placed special protective measures to some tributaries. These measures (temporal fishing restrictions, off-limit areas, total closure of certain tributaries for fishing) are considered effective and they continue to apply in 2016. Main focus has been on the negotiations for the new agreement with Norway that can give a more comprehensive solution to salmon management.

2. *The 2015 APR indicated that spawning targets had been set for 24 sites on the Tenojoki. The Review Group understands that attainment is now being assessed for nine tributaries and the main stem. What steps are being taken to assemble data to allow assessments for the remaining sites (Action F2)?*

Increasing the number of assessed populations depends on the availability of relevant, stock-specific monitoring data. Fishing effort in many of the individual tributaries is very low and thus no reliable catch information is, or will be, available. In the absence of other means of assessing abundance, e.g. spawner counts or juvenile surveys, there are no realistic possibilities for assessing the CL attainment in many tributaries. Nonetheless, possibilities to include new populations in the annual assessment procedure of the Teno system are under consideration. A sonar counting system will be experimented in couple of tributaries in 2016-2017, and in one tributary, compilation of existing information is underway for potential assessment of CL attainment in 2016.

3. *What are the plans and timeframes for developing new salmon fishing agreements for the Näätämönjoki (Action F1)?*

New fishing agreement for the river Teno has been prioritized and it is planned to be finalized within a short timeframe. The forthcoming Teno agreement can be used as a model of a flexible, science-based management in the River Näätämönjoki as well, but no timeframe for starting a process towards a new bilateral fishing agreement between Finland and Norway has been set so far. Monitoring data on the River Näätämönjoki salmon stock are available, including juvenile surveys, catch statistics, catch sampling (sea age composition) etc. Locally, co-operation among fishing right owners has resulted in voluntary reduction of their fishing effort in latest years.

4. *Given that recommendations have been given to road constructors, but that monitoring is not undertaken, have any works been approved since last year that were not consistent with these recommendations (Action H1)?*

No information on such possible works exists. Road network in the catchment is very sparse; most of the area is wilderness or conservation area with no roads.

5. *No progress was reported on Action A2. What are the results of the monitoring programme for escaped farmed salmon in the Tenojoki in 2015 (Action A2)?*

As indicated in the APR, the annual monitoring of the occurrence of aquaculture escapees in the River Teno (and Nääämöjoki) salmon catches is ongoing. The proportions of escaped farmed salmon in the Teno salmon catches has always been very low, being typically below 0.5% of the thousands of salmon sampled each year, and the figure in 2015 was 0.08% (three individuals out of the 3819 sampled), one of the lowest figure in the 31-year time series. No aquaculture escapees were detected in the catch samples of the River Nääämöjoki.

A genetic study on the required methods for detecting possible hybrids of farmed x wild salmon and backcrosses, and first indications of their occurrence in the Teno system, is under preparation in collaboration with the University of Turku.

European Union - Germany

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

A summary of the study to which the information about the Dutch fisheries refers in Action F1 can be provided in German. This study was commissioned by the Dutch Government (Rijkswaterstaat) and it is an examination of salmonid by-catches in Dutch coastal waters. The report does not mention salmon, but only salmonids. The best guess of the proportion salmon: sea trout is 1 : 10, based on catches from telemetry studies. The shore near the Haringsvliet sluices is the “Voordelta”.

European Union - Ireland

1. What quantitative information can be provided to demonstrate progress made in 2015 on the four actions relating to habitat protection and restoration (Actions H1, H2, H3 and H4)?

To address the review group comments above, additional information has been appended by the Department of Communications Energy and Natural Resources and Inland Fisheries Ireland as the Competent Authorities for wild fish. This additional submitted in the section *Progress on Action to date* for H1, H2 and H3 (highlighted in red font):

Action H1:	Description of Action (as submitted in the IP):	<p>Agricultural enrichment</p> <p>Following the implementation of the Water Framework Directive and the formation of River Basin District management structures, a collective approach to reducing all adverse impacts including agricultural enrichment and eutrophication on aquatic resources is now in place. Having characterised the risks posed to water-bodies nationally, Programmes of Measures are being developed to address habitat impacts / land use practices and to restore impaired water bodies to good status. The aim of the Water Framework Directive is to prevent any deterioration in the existing status of our waters, including the protection of good and high status where it exists, and to ensure that all waters are restored to at least good status by 2015. As a consequence of the implementation of the WFD and the Nitrates Directive, the impact of agricultural enrichment on salmon rivers is expected to reduce considerably over the coming decades.</p> <p>The CAP reform due in 2013 also provides an important opportunity for aligning agriculture objectives with habitat protection.</p>
	Expected Outcome (as submitted in the IP):	Significant improvement in water quality due to improved agricultural practice
	Progress on Action to Date (see note above):	<p>There is evidence of an overall improvement in water quality. However, Ireland faces major challenges to achieve water quality targets set for 2021 and 2027 as required by the WFD. The target for 2015 is unlikely to have been met. The latest published WFD assessments (2010-2012 period) show that approximately 53% of Irish river channels, 43% of Irish lakes, 45% of transitional waters and 93% of coastal water are unpolluted (good or high status). The main success story has been the virtual elimination of seriously polluted (bad ecological status) river sites. In addition, assessment, using the biological Q value scheme, showed that Irish rivers were in high or good condition along 73% of the monitored river channels.</p> <p>More recent quantitative information on the water quality status of Ireland's freshwaters is not currently available and thus cannot be provided in this year's submission to NASCO. Such information will be available in the third quarter of 2016 when the Irish Environmental Protection Agency (EPA) publishes their report <i>Water Quality in Ireland 2012-2015</i>.</p> <p>The second round of WFD River Basin Management Plans (RBMPs) covering the period 2015-2021 are currently in development and will be published in December 2016 / 2017. This will include a re-alignment of the main WFD target which is to ensure that all relevant waters are restored to at least good status. Following reviews of the first round of RBMPs (2010-2015), the Irish Government has recently established (in 2015/16) a new structure and assigned responsibility for various tasks in developing and implementing the next cycle of RBMPs. This includes a: 1) a Water Policy Advisory Committee, responsible for policy, legislation and resourcing; 2) the EPA, responsible for technical reporting and implementation; and 3) and Local Authorities Water and Communities Office (LAWCO),</p>

		<p>responsible for undertaking and enforcing programmes of measures and associated public consultations.</p> <p>Related catchment-focused initiatives include the set-up by the EPA of a <i>WFD Integration and Coordination Unit</i>. The main purpose of the unit is to protect and improve water resources, while ensuring that any water body remains productive for the communities that depend on it. The unit will work together with local authorities, other public authorities, government agencies, and local communities in establishing effective integrated catchment management in Ireland.</p> <p>One of the key milestones in designing the second cycle of the RBMPs is the identification of the significant water management issues in Ireland (SWMI). In June 2015, the SWMI public consultation document was published which provided an overview of the status of Irish waters (including the quantitative information presented above) and outlined the challenges ahead.</p>
	Current Status of Action (e.g. 'Not started'; 'Ongoing'; 'Completed'):	Ongoing
	If Completed, has the Action achieved its objective?	

Action H2:	Description of Action <i>(as submitted in the IP):</i>	Forestry Related Impacts Many Irish forests that are now mature, or approaching maturity, were planted in landscapes that were unsuited to economically viable forest production. The increasing recognition of the impacts from forestry on water resources has led to the development of a Code of Practice for forestry (Forest Service, 2000). Generally, forest management is based on the Code of Practice, although a new Forestry Bill, which will replace the out of date Forestry Act 1946, has been drafted with the opportunity to ensure that forestry management is better able to protect sensitive habitats.
	Expected Outcome <i>(as submitted in the IP):</i>	Improved water quality and protection of habitats
	Progress on Action to Date <i>(see note above):</i>	<p>The Forest Service's IFORIS GIS-based management system for forestry grants is being used to ensure that planting, felling and road building operations in forests are approved only following detailed environmental consultation with a range of public bodies and the general public. There was general compliance with the forestry codes of practice nationally. Many companies are also participating in additional independent forest certification schemes (e.g. FSC & PEFC). Many estates are being managed with biodiversity as the primary objective, e.g. when conifer trees are felled, there is now a greater percentage of broadleaved trees being planted in their place.</p> <p>The Forestry Act was passed into law in October 2014 (Number 31 of 2014). This confers responsibility on the Minister for Agriculture, Food and the Marine to promote and monitor the protection and enhancement of water quality in all aspects of forestry, including ensuring that forestry operations and forest-based activities regulated under this Act are compatible with the requirements of the EU Water Framework Directive.</p> <p>In 2015, Coillte (the state-sponsored forestry company) updated their Business Area Unit (BAU) strategic plans for their national estate which is comprised of eight forestry regions for the period (2016-2020). In addition to setting out how Coillte's policies and objectives will be implemented within each BAU, these plans re-enforce their commitment to sustainability and environmental protection including</p>

		outlining measures to protect water quality during forestry management practices. Such measures (as in previous policies) include specifying aquatic buffer zones to minimise adverse impacts to aquatic species and habitats.
	Current Status of Action (e.g. 'Not started'; 'Ongoing'; 'Completed'):	Ongoing
	If Completed, has the Action achieved its objective?	

Action H3:	Description of Action (as submitted in the IP):	Poor water quality from Inadequate Sewage Treatment and Industrial Discharges In Ireland, there has been considerable investment in upgrading of treatment facilities, primarily in larger towns, and this process will continue with the Programme of Measures under the Water Framework Directive. The Department of the Environment have invested many millions of Euro nationally over the recent years in new treatment facilities, and many of the smaller town and village schemes have been upgraded in this process. It is therefore anticipated that the impact on productive capacity of salmon rivers from inadequate sewage treatment will decrease considerably over the coming years with the requirements of the WFD being achieved. Significant upgrading of wastewater treatment plants has occurred in recent years to assist local authorities in complying with the Urban Wastewater Treatment Directive. The EPA regulates major industrial activities through the Integrated Pollution Prevention and Control (IIPC) regulations while the local authorities license small-scale industrial discharges to waters under the Water Pollution Acts. The Work of the EPA in enforcing the regulations and the implementation of the EU Water Framework Directive are likely to ensure that industrial discharges are adequately regulated to prevent impact on rivers nationally.
	Expected Outcome (as submitted in the IP):	Improved waste water treatment targeting upgrading of the most urgent facilities
	Progress on Action to Date (see note above):	Irish Water has been formed as an independent State-owned subsidiary within the Ervia group. Irish Water has taken over the water investment programmes of the 34 county and city councils, with the key aim of delivering water and sewerage schemes, and water conservation works aimed at finding additional water supply capacity. In recent years, 61 waste water projects have been completed in Ireland with 34 such projects currently in progress. Additional information released by Irish water for the period 2014 to 2015 state that: <ul style="list-style-type: none"> • 319 contracts signed have been signed for new projects to improve water supply and wastewater treatment; and • €320 million has been invested in new and upgraded wastewater infrastructure. <p>The Water Services (Amendment) Act 2012 provides for the introduction of a registration and inspection system for domestic wastewater treatment systems, including septic tanks and similar systems. Owners of domestic waste water treatment systems are required to register their systems in accordance with these regulations to ensure protection of water quality. The EPA has developed a National Inspection Plan. All areas of the country are liable to inspection but priority is given to areas where water quality is most at</p>

		risk from pollution from on-site waste water treatment systems. The aim of the plan is to protect water and human health by using a two-strand approach of education and awareness strategies linked with a risk-based inspection process. 987 inspections were undertaken in the first year of the plan (1st July 2013 – 30th June 2014), with an initial failure rate of 48%. However, by February 2015 79% of these were compliant after remediation works were undertaken. 1,000 inspections annually are planned in the period 2015-2017. This is the latest quantitative information available for submission to NASCO.
	Current Status of Action (e.g. 'Not started'; 'Ongoing'; 'Completed');	Ongoing
	If Completed, has the Action achieved its objective?	

The replies to questions 2 to 5 were provided by the Department of Agriculture Food and Marine (DAFM) as the Competent Authority for Aquaculture policy, development and regulation and by its Agency the Marine Institute.

2. *What data are available to support the statement that the level of escapes is low compared to other countries (Action A1)?*

A recent pan-European review carried out as part of the FP7 project *Prevent Escape* of farm escape events shows that where mandatory reporting and sound regulation and licensing of aquaculture structures are implemented the incidence of escapes is lower. Reductions in the levels of escapes were recorded in Norway following on the introduction of equipment standards. The same study showed that the level of escapes in Ireland is low in comparison to the other countries assessed (Jackson *et al.*, 2015). There were no recorded incidents of fish farm escapes in 2015 or in 2016 to date.

3. *What action is taken when sea lice thresholds are exceeded over an extended period (Actions H4 and A2)?*

During the spring period Sea lice protocols are in place which set out ovigerous lice thresholds (0.3-0.5 ovigerous lice per fish March –May and 2.0 ovigerous lice per fish outside this period). When the threshold is breached a notice to treat is issued to the salmon farm to bring lice levels under control. In 2008, a new pest Management Strategy was developed that introduced detailed fallowing requirements and a new approach to monitoring to deal with situations where target lice levels were not being achieved. This approach among other approaches identifies 'breakout' site options for sites with persistent sea lice problems. When lice levels above the treatment trigger level are recorded at an offshore salmon farm a notice to treat is issued to the operator by the Marine Institute. If the initial treatment is not successful in reducing lice infestations to the required level a second notice to treat is issued, if the subsequent treatment does not result in reduction of lice infestation to the desired level the management cell process is invoked. The details of the process are set out in the Strategy for improved pest control on Irish salmon farms, May 2008 (DAFF).

Management cell interventions can include mandatory treatments, accelerated harvests and extended fallowing periods. In spring 2012, non-compliance with lice thresholds at two salmon farms resulted in the Minister giving an order to harvest fish early, prior to wild smolt migration. Sea lice levels on one-sea-winter salmon decreased in 2015 compared to 2014. The greatest improvement in sea lice numbers in 2015 was on grower fish in the Northwest; in spring the number of inspections below TTLs increased from 61% in 2014 to 81%, and from 48% to 69% outside spring. Continuous on-farm sea lice checks have facilitated early intervention resulting in better sea lice control generally. The use of alternative approaches to complement husbandry and medicinal treatments, coupled with rigorous pro-active regulatory oversight, has led to improved sea lice levels over all in Ireland during 2015. Sea lice infestation levels on farmed salmon to date in 2016 have been low. Notices to treat (NTT) have been issued at two sites, Portlea in Clew Bay and Froachoilean in Ballinakill Harbour. Both of these sites had elevated lice levels in February and corrective actions were initiated on foot of NTTs issued by the Marine Institute. In each case the Pest Management Protocols (as outlined in the first paragraph above) were followed, with full cooperation from the companies.

4. *What evidence can be provided to demonstrate that the incidence of diseases in salmon farming has declined and how has this been achieved (Action A3)?*

The Marine Institute carries out risk based health surveillance on all aquaculture sites in the country in accordance with Council Directive 2006/88/EC and SI No 261 of 2008(as amended). All finfish aquaculture sites must also retain a private veterinary practice to look after their routine health requirements in relation to disease investigation. It is mandatory to report suspicion or confirmation of the presence of a listed or emerging disease to the Marine Institute. It is also mandatory to investigate any increased unexplained mortality which may occur on farms from time to time.

These statutory provisions required under the Directive (surveillance visits plus reporting), and the regular investigations carried out by the private veterinary services, combine to ensure there is a strong national overview in relation to the incidence of disease on salmon farms in Ireland.

Data gathered in 2015 indicates that whilst pathogens such as *Paramoeba perurans* (the causative agent of AGD) and SAV (the causative agent of Pancreas Disease), were present in Ireland in 2015, the mortality levels associated with these pathogens, were low. Selective breeding, strategic vaccination programmes and increased biosecurity measures on farms have combined to ensure that disease related mortalities on Irish farms remained low last year.

Ireland continues to remain free (Category I) in relation to the listed salmonid diseases ISA, IHN, VHS, BKD and *G.salaris*.

5. *Have there been further outbreaks of Pancreas Disease (PD) in 2015, following those reported in the 2015 APR and, if so, have mitigation measures been successful in minimizing losses (Action A3)?*

As outlined above, whilst Pancreas Disease was diagnosed on a number of sites in Ireland in 2015, mortality levels were low. The mitigation measures mentioned above plus ongoing veterinary intervention and adherence to the best practice parameters set out in the Farmed Salmonid Health Handbook (2011) are considered to have been successful in this context.

European Union - Spain (Asturias)

1. *What anti-poaching activities were conducted in 2015; what levels of poaching were recorded; and how many people were prosecuted (Action F1)?*

The number of records for poaching salmon is very low.

2. *What censuses were conducted in 2015; what are the current estimated impacts of the fisheries on stocks; and at what stock levels would action be taken to reduce exploitation (Action F2)?*

The census was conducted through visual surveys in each salmon river and counts carried out in fish passages.

2015 RATIO SALMONS CENSUS/FISHERY	N° SALMONS caught (Until July 2015)	N° SALMONS counted (from September 2015)	Total
ESVA	32	366	398
NARCEA	404	549	953
SELLA	337	1.220	1.557
DEVA-CARES	233	763	996
	1.006	2.898	3.904

3. *What number and proportion of fishways in Asturias are included in the annual programme of cleaning (Action H1)?*

There is no fixed number of cleanings on each scale. The number of cleanings of fishways depends on the needs of the service estimated for each.

4. *How are the initiatives (e.g. lectures) to increase awareness of the fragility of salmon stocks at the edge of their range being used to improve salmon conservation (Action H2)?*

Every year talks are organised with fishermen associations.

5. *Having completed the inventory of river obstacles that impede fish passage, what actions are now planned to achieve the expected outcome of increasing spawning habitats (Action H3)?*

The management focuses on cleaning and maintenance on each scale.

European Union - Spain (Cantabria)

1. *All the actions in the IP were scheduled to commence in 2014, but very little progress has been reported in the last three years. What will be done to ensure that work on actions F1, F2, F3, F4, H3, H4 and A1 is completed before 2018?*

The objectives will be achieved before 2018. However, the lack of resources is complicating the implementation of these actions.

2. *When are the first estimates of marine survival for Cantabrian salmon stocks expected to be obtained (Action F5)?*

Because of its complexity, it is unknown when the first estimation of survival for salmon stocks will be available.

3. *What work is planned to achieve the expected outcome of improving connectivity between freshwater habitats and the sea (Action H1)?*

In the short term it is expected the installation of a fish pass in Miera river (Liérganes). However it should be noted that this action depends on other authorities and as such it might be delayed.

4. *What work is underway or is planned to achieve the expected outcome of obtaining a better understanding of the potential impacts of hydropower (Action H2)?*

To date, resources are not available to start new research on this matter.

European Union - Spain (Galicia)

1. *All the actions in the IP were scheduled to commence in 2014, but very little progress has been reported in the last three years. What will be done to ensure that work on Actions F1, F2 and H1 is completed by the end of 2018?*

Despite slow progress so far, the target date for completion of these actions remains 2018. Action F1 (development of CLs) depends on data availability from surveys, fish traps/counting stations or catch records, that must be analyzed by our own team with no additional budgets. We stated that Action F2 (river Miño) had “not started” thus it is actually undergoing and each year new fishing rules are developed under the cooperation of representatives of the Central Government and Xunta de Galicia. But unfortunately there is neither a definite system of cooperation nor an explicit document on salmon management in river Miño, so it is not feasible to clearly quantify progress made for this action . Action H1 (riparian vegetation guidelines) has not started yet.

2. *What work was undertaken in 2015 on the development of management strategies for sea trout and trout in salmon rivers other than the River Anllóns to achieve the expected outcomes of minimizing impacts on salmon and reducing unreported catches of salmon (Action F3)?*

Action F3 (sea trout in salmon rivers) is in continuous development. Changes in a season remain for years (if effective) and we improve each year as far as we can the declaration of “salmon waters”, where conflicts between sea trout and salmon are minimized, but little progress can be made due to fishermen opposition and there is a real problem to quantify this action.

3. *What work is planned for the development of a Conservation/Restoration Plan for salmon rivers in the A Coruña province (Action F4)?*

Action F4 (Conservation Plan salmon rivers of A Coruña) was stated to be “Ongoing”. We are expecting results from preliminary works (stocking in Anllóns and Sor) to look for modifications on the document if needed.

4. *What plans are there to remove obstructions and build fishways in rivers other than the River Ulla (Action H4)?*

Action H4 (Improvement of accessibility) is “Ongoing” as it is a continuous process and depends on budget. The construction of a fish pass in river Sor is under study and so it is the removal of some obstacles in river Mandeo, in relation with the preliminary Conservation Plan for salmon rivers in A Coruña.

European Union - Spain (Navarra)

- 1. All the actions in the IP were scheduled to commence in 2014, but work has yet to commence on Actions F1, H1 and H2 (although H2 is scheduled to commence in 2016). What will be done to ensure that work is completed on these actions by the end of 2018?*

Action H2 is included in the framework of the mentioned LIFE project and therefore its completion is guaranteed.

Regarding actions F1 and H1, it is expected that the Government of Navarra will devote funds to subcontract their implementation in 2017 and 2018. However, if by any reason funds were not available, a less ambitious work will be carried out by the experts working at present on salmon recovery in Bidasoa River, to ensure the implementation of the two actions before the end of 2018: the conservation limits foreseen in action F1 would be defined based on bibliographic reviews and the updating of salmonid mesohabitat maps (H1) would be done through the analysis of aerial photographs and other cartographic resources.

European Union - Sweden

No questions from the review group

European Union - UK (England and Wales)

1. How are erosion events measured and were there any penalties in 2015 (Action H4)?

Soils erosion events are measured through cross-compliance inspections by the RPA (Rural Protection Agency), which are undertaken at 1% of all Basic Payment Scheme and Rural Development Beneficiaries as required by Common Agricultural Policy (CAP) regulations and by the Environment Agency in its National Incident Recording System (NIRS). In Wales Natural Resources Wales (NRW) record and investigate reported polluted incidents using the Welsh Incident Reporting System and Welsh Government Rural Inspectorate Wales (RIW) assess compliance with the soil related cross compliance requirements.

In England under cross-compliance soil protection standard Good Agricultural and Environmental Condition (GAEC) 5 - minimising soil erosion, soil erosion that covers an area greater than 1 ha or is caused by livestock trampling along a continuous stretch of more than 20m long and 2m wide of a watercourse this is considered as non-compliance and is enforced by the Rural Payments Agency. In Wales GAEC 5 prohibit mechanical field operations (including harvesting, cultivation and spreading operations on water logged soil, over grazing resulting in poaching or soil run off site (field) or into watercourses and require farmers to complete an accurate rough surface assessment if fields are to left without a crop from harvest to 1st March.

In England and Wales under GAEC 4 – minimum soil cover, all reasonable steps must be taken to protect soil by having a minimum soil cover unless there is an agronomic justification for not doing so, or where establishing a cover would conflict with requirements under GAEC 5.

In recording incidents of erosion, the Environment Agency categorizes erosion events into one of four categories under their Common Incident Classification Scheme (CICS): Category 1 incident (major effect on water quality) where suspended solid concentrations are exceptionally high (>1000mg/l) compared to background levels upstream of incident; Category 2 (significant effect on water quality) >500mg/l; Category 3 (Minimal effect on water quality) >250mg/l and Category 4 (No impact). Nationally for farm related ‘soil and clay’ incidents in 2015 there were 0 Cat 1, 9 Cat 2, 43 Cat 3 and 5 Cat 4 across England recorded on the Environment Agency’s National Incident Recording System (NIRS). In Wales, for 2015, 11 Cat 3 incidents were reported.

Response to date has focussed on gaining compliance through advice and guidance, working in partnership with Catch Sensitive Farming and other catchment-led initiatives. For example, an initiative called ‘Farm Herefordshire’, which involves the Bulmer Foundation, the Wye and Usk Foundation, Catchment Sensitive Farming, the Campaign for the Farmed Environment, Herefordshire Wildlife Trust, Herefordshire Rural Hub, the National Farmers Union, the Country Land and Business Association, Natural England, the Environment Agency and Herefordshire & Ludlow College, provides advice and guidance on managing nutrients, reducing runoff, soil structure and improving water quality. In Wales, similar liaison targeted work has been carried out with conjunction with Farming Connect, the Wildlife Trust’s and the Welsh agricultural unions, NRW has worked with academic

partners developing models that aid in identifying areas with high risk of erosion such that pre-emptive action can be taken.

Where non-compliance with GAEC 5 is reported in Herefordshire, farmers are invited to Soil Awareness Workshops and are asked to develop site improvement plans within an agreed timescale. If remedial measures aren't put in place and a serious breach of compliance conditions remain these are referred to the RPA.

A number of severe incidents have been referred to the RPA, though in 2015 only two of these were concluded and resulted in penalties under GAEC 4 and 5. In Wales, RIW have processed 4 of the referrals they have received for GAEC 5 and, upon inspection, only one was considered a breach.

2. *Are any additional preventative measures planned in response to the findings of project 'Alpheus' described in Action A2?*

We have over the years spent considerable effort investigating routes of Gs introduction. The key elements of national biosecurity are in place and well enforced. However, there are some actions resulting from the exercise that we will pursue this year. We will take opportunities to reinforce the “check-clean-dry” message directed at anglers returning from overseas trips, and make renewed efforts to get message highlighted in the angling press. The Fish Health Inspectorate has a Facebook page, and we will further develop our use of social media, to raise awareness with key groups.

Other work is focused on improving our response if Gs is detected. We have developed a non-lethal method for sampling fish which makes the process of surveillance quicker and easier (and more acceptable as wild salmon can be returned). The next phase is to validate this method in the field. Policies on live fish movements in the event of an outbreak are now well developed and embedded in the contingency plans. We will be working to refine our current strategy to demonstrate freedom on rivers that fall under suspicion.

This summer, Defra will publish a new Contingency Plan for Aquatic Animal Disease which was tested and improved during the exercise. Mechanisms for better cross-border and cross-agency response to disease have also been developed. The exercise indicated that overall, the UK governments have strong response capabilities when partnered with stakeholders and so subject to the knowledge gaps identified above being addressed, no further gaps were identified.

Update to compliance assessments for UK (England and Wales) for 2015

The final assessment of UK (England and Wales) river stocks for 2015 resulted in a small change to the compliance results listed in the response under 2.1 in the relevant APR document (CNL15.797EU-UK (England and Wales)), as follows:

The provisional annual review of stock status for 2015 showed the following river classifications:

- 0 rivers (0 %) 'not at risk' – i.e. $p > 95\%$ of meeting the management objective (MO);*
- 9 rivers (14 %) 'probably not at risk' – i.e. $p > 50\%$ but $< 95\%$ of meeting MO;*
- 32 rivers (50 %) 'probably at risk' – i.e. $p > 5\%$ but $< 50\%$ of meeting MO;*
- 23 rivers (36 %) 'at risk' – i.e. $p < 5\%$ of meeting MO.*

European Union - UK (Northern Ireland)

1. *Has the mandatory catch and release of all rod caught salmon before 1 June in the DCAL area continued in 2015 (Action F3)?*

Yes C&R is mandatory on all rivers in the DCAL for salmon caught before the 1st June with the exception of the L Melvin catchment. This is a transboundary water and its stocks are well above the CL and therefore harvesting is permitted. An annual tag quota has been established and is implemented for the area within the DCAL jurisdiction.

2. *What progress was made with enforcement activities in 2015 (e.g. numbers of patrols, numbers of nets seized and numbers of prosecutions taken in 2015 (Action F4)?*

In 2015 - 2695 patrols were carried out in the DCAL area which included areas where salmon maybe. One case is currently being progressed to prosecution. In total 15 illegal nets were seized in the DCAL area which could have also have targeted salmon. In the Loughs Agency area 53 illegal nets were seized and 63 incidents are the subject of regulatory intervention.

3. *What progress was made in reducing the impacts of drainage works on salmon habitat (Action H2)?*

Channel maintenance works on a regular basis have been and are undertaken on a number of drained rivers in NI (E.G. Bush, Main etc). Inland Fisheries and Loughs Agency provide advice to the drainage authority on how to carry out the works thereby reducing the impact and in recent years these have provided opportunities for habitat improvements or barrier removal to be carried out alongside the planned works. Angling clubs and fishery owners are consulted on the proposed works as part of the stakeholder engagement process.

4. *What were the results of any monitoring undertaken in accordance with water pollution legislation in 2015 (Action H3)?*

Compliance results for 2014 are published in the Northern Ireland Environmental Statistics Report. (<https://www.doeni.gov.uk/sites/default/files/publications/doe/ni-environmental-statistics-report-2016.pdf>).

5. *How many routine fishery enforcement patrols were conducted in 2015 (Action H5)?*

See 2 above.

6. *Do the genetic results provide any indication as to the origin of the fish farm escapees (Action A1)?*

The study showed introgression of two commonly used Norwegian origin salmon aquaculture strains. As these two strains are widely used in salmon aquaculture in Ireland and the UK (including NI) it is not possible on the basis of this study to establish an exact origin of these escapes.

Re the review above for the following query:

“The APR indicates that catch and release is N/A in the Loughs Agency Area but it is not clear if this means Not Applicable or signifies that statistics are not available”.

C&R is only mandatory on the R Finn and Foyle, however it is practiced on other rivers in the Loughs Agency area but figs for 2015 are not available. Regulations to introduce C&R are in place and can be implemented in rivers in the Loughs Agency area which fall below the management targets.

European Union - UK (Scotland)

1. *Several progress reports for actions are unclear, do not appear to relate to 2015 or not to the specific action. Some responses refer to websites but provide no summary information (see instructions), and some links do not work. The Review Group requests clarification of the progress reports for the following actions: F4b, F5a, F5b, F5d F5h, F5i, H1c, H1d, H1e, H1f.*

F4b - The Conservation of Salmon (Scotland) Regulations introduced carcass tagging for in estuary net-caught fish for areas in category 1 and 2. The costs for producing the tags will, in the first instance, be subsumed by Marine Scotland.

F5a - The strategy was published in 2014 and is under on-going review and implementation. Studies advanced in 2015 (including planning and the publication of reports) included work on the hearing of salmon and responses to pile driving noise, the responses to Electro Magnetic Fields in relation to cables, the use of genetics to identify regions of origin of salmon, the movements of returning adult salmon, the installation of validation equipment at a salmon counter and design work towards the reinstallation of a different counter, planning work on migration routes of smolts in the Cromarty and Moray Firths, and trials of a video trawl net.

F5b - The Ministerial Group for Sustainable Aquaculture (MGSA) last met in June 2016 where it was agreed that working groups which had delivered agreed priorities (Containment, Wellboats, Science & Research and fish health & welfare) would conclude. Interactions, Capacity and Shellfish working groups would continue to deliver on existing key priorities – Interactions pilots; the consenting review; and shellfish sustainable growth plan and proposals for a shellfish hatchery respectively. Proposals will be developed, following the 2016 Scottish Parliamentary elections, for a revised, streamlined MGSA Board whilst recognising new Government priorities.

F5(d) - enhanced industry-led voluntary sea lice reporting over 30 river catchment areas. The Scottish Salmon Producer Organisation's quarterly reports on fish health management provide information for 30 regions of the north-west coast, western and northern isles. They are based on information supplied by farms during the relevant period. The reports include information on Farm Management Areas, stocking, fallowing, strategic treatments and average sea lice counts. The reporting regions broadly mirror those for the wild salmon and sea trout fisheries. The sea lice numbers reported are average adult female lice count per fish for each reporting region. The reports can be viewed at <http://scottishsalmon.co.uk/category/science-behind-fish-farming/fish-health/>

F5h – Scotland's Aquaculture website has been fully operational since 2013.

F5(i) - Marine Scotland's FHI have proactively published operational activity since October 2013. Information relating to the inspection and operational activities of Marine Scotland's Fish Health Inspectorate is published on a regular basis. For each yearly quarter the following information is published:

- A list of all cases conducted.
- A summary of case inspections and outcomes per region.
- A list of all enhanced inspections conducted under the Aquaculture and Fisheries (Scotland) Act 2007.
- Individual case information, with each case referenced in the list of all cases conducted.

In addition to quarterly publications, the following reports are published annually.

- Annual summary of case inspections and outcomes per region.
- Annual report of operations and activities

H1c-f – this work is on-going and an important area there is not any progress reports available at this stage.

2. *What actions were taken in 2015 with regard to regulating stocking of salmonids and freshwater fish (Action A1)?*

In Scotland it is an offence for any person intentionally to stock any live fish or spawn into inland waters, or possess such with the intention of stocking, without previous written agreement of the appropriate authority:

Where a District Salmon Fishery Board (DSFB) operates and the fish to be stocked are Atlantic salmon or sea trout, then the relevant Board will consider applications to stock. The Board will issue written agreement or refusal to the applicant. Where a DSFB does not operate or where the fish being introduced are not salmon or sea trout (e.g. brown trout from hatcheries), then it is for Marine Scotland to consider applications and issue written agreement or refusal.

Under the Wildlife and Countryside Act 1981 it is also an offence to release fish out-with their native range and to keep certain species of invasive non-native fish species. Scottish Natural Heritage (SNH) are the licensing authority in this respect. If an application for consent to stock fish could also result in one or both of the above offences, Marine Scotland may forward that application to SNH for their consideration as licensing authority in this respect. There is no need to apply separately to SNH for a licence.

Marine Scotland assessed and processed 415 applications to introduce salmonids and other freshwater fish to Scottish inland waters during 2015.

409 licences were issued, 4 were applications were withdrawn after discussion, 1 was refused permission and 1 lapsed while awaiting further supporting information from the applicant.

The applications given permission can be broken down into the following: 261 applications involving brown trout; 219 for Rainbow trout; 7 for sea trout; 1 for Atlantic salmon; 29 for other freshwater fish.

A new policy on sea/brown and rainbow trout stocking was announced in 2015 and is being phased in over the period from January 2016 to January 2020, depending on the type of water and stocking history. These new arrangements seek to protect Scottish native brown trout populations from the potential negative impact on their genetic composition caused by breeding either with introduced wild origin fish or with farm reared stocks. In the case of rainbow trout, the policy aims to minimise potential risk to biodiversity. Exemptions to this policy may only be made on scientific or conservation grounds. England and Wales already have a similar stated policy on brown trout stocking.

The majority of trout stocking occurs in waters which have regularly been stocked, therefore the implementation timetable aims to provide time both for commercial suppliers and other producers to adjust stock production to meet requirements.

3. *What actions were taken in 2015 to implement EC Council Regulation 708/2007 concerning Use of Alien and Locally Absent Species in Aquaculture and to prevent G. Salaris and other parasites occurring in Scotland (Action A2)?*

The Alien and Locally Absent Species in Aquaculture (Scotland) Regulations came into force on 3rd April 2015 implementing the EC Council Regulation 708/2007.

Gs is a listed disease that must be reported under Schedule 1 of the Aquatic Animal Health (Scotland) Regulations 2009. The U.K. is currently recognised as being free from Gs. If introduced it may be impossible to eradicate Gs. We want to protect the health of our rivers and our fish stocks and so Scottish Government continue to promote the Home and Dry campaign. Scotland has a contingency plan outlining the steps which would be considered should Gs be identified in Scotland and the UK. The Scottish Government's response was tested in 2015 through a joint exercise involving UK government and a wide participation of internal and external stakeholders.

4. *What key objectives of the Ministerial Group on Aquaculture have been delivered; and how is the structure of the Ministerial Group on Aquaculture likely to change (Action A3)?*

Key delivered priorities of MGSA are:

An Assessment of the Benefits to Scotland of Aquaculture published 19 May 2014 www.gov.scot/Topics/marine/Publications/publicationslatest/farmedfish/AqBenefits which highlighted the contribution of Scotland's aquaculture industry to Scotland and estimated a potential turn-over value of well over £2 billion a year to the Scottish economy and support of 10,000 jobs by 2020.

- Science & Research Working Group - published Scotland's first comprehensive aquaculture science and research strategy in July 2014 www.gov.scot/Publications/2014/07/4459
- Containment Working Group – developed and published *A Technical Standard for Scottish Finfish Aquaculture* on 11 June 2015 <http://www.gov.scot/Publications/2015/06/5747>

- Wellboats Working Group completed its reconsideration of the rules relating to wellboat behaviour in Scottish waters and agreed changes for inclusion in the industry Code of good practice.
- Farmed Fish Health & Welfare Working Group produced standards for the use of cleaner fish and for mortality reporting and disposal.

The structure of MGSA going forward will be considered in light of the 2016 Scottish Parliamentary elections and reflect revised Scottish Government priorities.

5. *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.*

Escapes

All confirmed reported fish farm escapes are published at http://aquaculture.scotland.gov.uk/data/fish_escapes.aspx a summary is attached below:

Number of fish (number of incidents)

Year	Atlantic salmon	Rainbow trout	Other	All Species
2005	877,883 (19) ¹	7,970 (3)	15,800 (1)	901,653 (23)
2006	155,653 (20)	36,866 (4)	12,230 (1)	204,749 (25)
2007	154,466 (12)	56,151 (7)	26 (2)	210,643 (21)
2008	58,641(8)	10,690 (7)	3,700 (1)	73,031 (16)
2009	131,971(9)	8,591 (6)	0(0)	140,562 (15)
2010	17,987(7)	19,976(3)	0(0)	37,963 (10)
2011	404,451 (10) ²	12,820 (5)	0(0)	417,271 (15)
2012	37,523(4)	3,434(2)	0(0)	40,957(6)
2013	26,355(6)	7,442(2)	6,957(1)	40,754(9)
2014	184,614(11) ³	~750 (3)	0 (0)	185,364(3)
2015	16,004 (4) ⁴	2,091(1)	0	18,095(5)
2016	<10,000(1)	0(0)	0	<10,000(1)

Notes:

1. Major winter storm in January 2005. Five escapes alone accounted for 633,334 fish - many were expected to have died.
2. Major storm in Shetland in December 2011. Two escapes alone accounted for 370,225 fish - many were expected to have died.
3. Severe storms in Shetland in January 2014. One incident involved the loss of nearly 150,000 fish - many were expected to have died.
4. Including one escape of 16,000 fish in June 2015.

Sea lice

Industry annual and quarterly fish health management reports published by the Scottish Salmon Producers Organisation (SSPO) at

<http://scottishsalmon.co.uk/category/industry-information/sspo-publications/>

Norway

1. *What were the major changes in the fishery regulations that were introduced from 2016 (Action F1)?*

The fishery regulations introduced from 2016 are mainly a continuation of earlier regulations, with some adjustments in rivers and at sea following advice from the scientific council. The main changes include a shorter season in the sea fisheries in central and north-eastern parts of Norway. Further restrictions in the northern sea fisheries will follow the enforcement of a new Tana agreement. River specific gear restrictions (type of lure etc.) have been omitted from the national regulations, and is now regulated by local management authorities. Length of fishing season and personal quotas have been adjusted in several rivers based on proposals from local management authorities and present knowledge of stock status.

2. *How many rivers had mandatory mid-season assessments in 2015 compared with previous years (Action F2)?*

Mandatory mid-season assessments have been kept on a fairly constant level in the period 2012-2015. In the new regulations from 2016, these assessments have been introduced in five new rivers and discontinued in two rivers.

3. *How many rivers currently have reliable stock-recruitment data and what new information is being obtained on mesohabitat distribution and juvenile production (Action F3)?*

At present, twelve rivers have reliable stock-recruitment data. The next generation of spawning targets will be based on models using stock-recruitment parameters as a function of habitat and smolt age. Shelters near spawning areas seem to be a determining factor for production of juveniles, and the functional correlation between mesohabitat distribution and production of juvenile salmon is therefore a key factor in development of the next generation of spawning targets.

4. *How many fish farms exceeded the sea lice limit in 2015, and what action was taken? What growth in the salmon farming industry is anticipated based on the new policy decided by the Parliament (Action A1)?*

It is required that fish farmers operate to ensure that the maximum sea lice count at the site does not exceed 0.5 adult female sea lice per fish (using standardized counting method). During the salmon migration period in the spring, the maximum limit is 0.1. The figure below shows the distribution of sea lice reports from Norwegian fish farms with less than 0.1 (green), from 0.1 to 0.5 (yellow) and more than 0.5 (red) adult females in 2014 and 2015. Reports are made weekly from each site, except when sea-temperature is below 4 deg C, when reporting is every 2. week.



According to the law, action taken must be proportional and relevant to the goal to be achieved. Consequently, the action taken varies from ordering of corrective actions to be taken within a certain timeframe, to enforced slaughtering. In 2015, The Norwegian Food Safety Authorities has prioritised the farms with the most severe sea lice problems. The strongest measure has been to reduce the maximum allowed biomass at the site in for the next production cycle with 50 %. This was done at 20 sites in 2015.

The growth in the Norwegian salmon farming industry should be 6 % every other year, provided that the sea lice indicator of all production areas signals green. How many production areas that will achieve this, and hence are allowed to increase their production capacity by 6 %, cannot be foreseen at this stage.

5. *What are the current estimates of pink salmon numbers in Finnmark and have the measures implemented been successful in reducing the breeding populations (Action A4)?*

It is not possible to specify the number of pink salmon that annually migrate up to the rivers in Finnmark other than say that the number seems to increase. In rivers in Eastern Finnmark (8 streams), we expect that pink salmon have self-reproducing populations. We believe that the implemented measures have reduced the number of pink salmon in both the rivers in the eastern part of the county, as well as further west where measures were implemented last year. Measures include fishing for pink salmon, harpooning and digging up spawning beds.

Russian Federation

1. *The Review Group notes that some data are collected on unreported catches but no information is provided on unreported catches in section 2.2. Why were partial estimates of unreported catches not provided and when will these be reported to NASCO (Action F1)?*

The level of unreported catches was estimated for some areas and presented in the Annual Progress Report for the Calendar Year 2014. No new information is available for 2015.

2. *In answer to a question on Action A1 in its 2014 report, the Russian Federation indicated that they would provide more information on how sea lice are managed under the new Federal Law on aquaculture. Please provide this information (Action A1)?*

No by-law regarding management of sea lice in aquaculture has been developed under the Federal Law on aquaculture. However in accordance with the current rules on veterinary control a regional veterinary authority inspects salmon farms quarterly to check salmon for diseases and parasites. Veterinary inspectors check fish for the level of sea lice infestation as well. In case of high level of infestation they recommend relative measures.

3. *The APR indicates that a number of by-laws introduced under the Federal Law on aquaculture came into force in 2015. What general measures did these bye-laws contain (Action A1)?*

The information on by-laws introduced under the Federal Law on aquaculture in 2015 is partially presented in section 4.1. The general measure of the order of the Ministry of Agriculture No. 223 of 3 June 2015 contains methods for calculating aquaculture production which is required to conduct auctions for aquaculture sites in accordance with the order of the Government of the Russian Federation No. 450 of 15 May 2014. The order of the Ministry of Agriculture No. 129 of 6 April 2015 contains rules for water use at aquaculture sites.

4. *Why have obligatory measures not been introduced to prevent the spread of *G.salaris* in the wild (Action A2)?*

Veterinary control is applied for aquaculture however no obligatory measures to prevent the introduction or further spread of parasite through recreational fisheries have been developed. Instead the regional Barents-Belomorskiy Directorate of the Federal Agency for Fisheries of the Russian Federation has developed basic recommendations for users of salmon fishing sites. It should be noted that salmon angling is allowed on designated fishing sites only. Some recreational fishing companies in Murmansk region have started voluntary programmes for anglers to disinfect their tackle, clothes, etc. and others plan to do so. More effort in this area including introduction of obligatory measures is required.

5. *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 salmon farming facilities in the Russian Federation.*

No answer to the question is provided.

United States

1. *What is being done to ensure recreational fisheries for other species do not result in bycatch of Atlantic salmon (Action F2)?*

Recently, discussions within the state of Maine have taken place regarding expanding the maximum length limit (25 inches) for landlocked salmon and brown trout throughout the entire state. The maximum length limit currently applies to over 20 specific rivers, streams, and ponds as well as all of Hancock and Washington Counties (with some exceptions for lakes with trophy landlocked salmon populations):

<http://www.eregulations.com/maine/15mefw/salmon-information/>

If this rule is expanded throughout the entire state, this would result in further protection of Atlantic salmon adults from potential bycatch in recreational fisheries.