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NASCO Implementation Plan for the period 2019-2024

UK – Northern Ireland
(Revised version received 4 May 2020)

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The main purpose of this Implementation Plan is to demonstrate what actions are being taken by the Parties / jurisdictions to implement NASCO's Resolutions, Agreements and Guidelines.

*In completing this Implementation Plan please refer to the **Guidelines for the Preparation and Evaluation of NASCO Implementation Plans and for Reporting on Progress**, CNL(18)49.*

Questions in the Implementation Plan are drawn from the following documents:

- *NASCO Guidelines for Management of Salmon Fisheries, CNL(09)43 (referred to as the 'Fisheries Guidelines');*
- *Report of the Working Group on Stock Classification, CNL(16)11;*
- *Minimum Standard for Catch Statistics, CNL(93)51 (referred to as the 'Minimum Standard');*
- *Revised matrix for the application of the six tenets for effective management of an Atlantic salmon fishery, WGCST(16)16¹;*
- *NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat, CNL(01)51;*
- *NASCO Guidelines for Protection, Restoration and Enhancement of Atlantic Salmon Habitat, CNL(10)51 (referred to as the 'Habitat Guidelines');*
- *Williamsburg Resolution, CNL(06)48;*
- *Guidance on Best Management Practices to address impacts of sea lice and escaped farmed salmon on wild salmon stocks (SLG(09)5) (referred to as the 'BMP Guidance');*
- *Guidelines for Incorporating Social and Economic Factors in Decisions under the Precautionary Approach (CNL(04)57); and*
- *Road Map' to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of G. salaris and eradicate it if introduced', NEA(18)08.*

Party:	UK
Jurisdiction / Region:	Northern Ireland

¹ This document can be obtained from the NASCO Secretariat; email hq@nasco.int

1. Introduction

1.1 What are the objectives for the management of wild salmon? (Max 200 words)

Give the core national objectives guiding the legislation for your jurisdiction

The central aims of management in the Department of Agriculture, Environment and Rural Affairs (DAERA) and Loughs Agency area will be to conserve, enhance, restore and manage wild salmon stocks in catchments throughout Northern Ireland (NI) by continuing to:

- 1) Monitor salmon numbers in the primary salmon rivers in NI annually.
- 2) Ensure that in primary salmon rivers, in all years, sufficient adult salmon are spawning to optimise output of smolts from freshwater and to maintain stocks above their CLs.
- 3) Maintain the safeguard of catch and release and only allow the harvest of salmon where there is a sustainable surplus and rivers are meeting their Management targets
- 4) To seek to protect the weakest stock(s) in mixed stock fisheries
- 5) Identify and address problems where possible in primary salmon rivers where the number of returning adults is consistently below management targets.

1.2 What reference points (e.g. conservation limits, management targets or other measures of abundance) are used to assess the status of stocks? (Max 200 words) (Reference: Sections 2.4 and 2.5 of the Fisheries Guidelines)

Biological reference points, for individual catchments, have been established in both DAERA and Loughs Agency jurisdictions based on the salmon habitat data used and incorporating NASCO's guidance on establishing BRPs for stocks. The status of stocks in the DAERA and LA area are assessed against Conservation Limits (CL's) while higher Management Targets (MTs) are used to manage stocks to determine if there is a surplus for harvest or not. This can be achieved in real time within the LA area. In the DAERA area all primary salmon rivers have now CLs determined. Primary Salmon rivers are those rivers that have shown a historical mean annual rod catch return of more than 5 salmon a year and above a maximum of more than 10 salmon for any given year. The River Lagan does not meet this criteria currently and is classified as a secondary salmon river.

The River Bush salmon population has been monitored since the 1970's and represents the long term index river for NI. Emigrating smolts and returning adults are monitored at a series of traps on the River Bush and estimates of freshwater and marine survival are determined annually.



1.3 What is the current status of stocks under the new classification system outlined in CNL(16)11?		
Stock Classification Score	Salmon Classification Category	No. rivers
0	Not at Risk	0
1	Low Risk	6
2	Moderate Risk	4
3	High Risk	8
N/A	Artificially Sustained	0
N/A	Lost	0
N/A	Unknown	0
Additional comments:		
1.4 How is stock diversity (e.g. genetics, age composition, run-timing, etc.) taken into account in the management of salmon stocks? (Max 200 words)		
<p>There is good information on genetic structure / composition of salmon stocks in both the DAERA and LA areas and this is used to inform salmon management decisions including for eg commercial exploitation, mixed stock fisheries etc.</p> <p>Salmon stocks tend towards a relatively low age diversity within the DAERA and Loughs Agency areas. Smolt age is typically 1 or 2 years (mostly 2 years) and the majority of fish spend 1 or 2 years at sea (mostly 1 and 2 Sea Winter). Age composition and run timing are routinely monitored on the R Bush. Since 2003 special protection has been given to early season running fish (2 Sea Winter) within DAERA where catch and release applies to any fish caught before 1st June and similar regulations apply in the Loughs Agency area.</p>		
1.5 To provide a baseline for future comparison, what is the current and potential quantity of salmon habitat? (Max 200 words) (Reference: Section 3.1 of the Habitat Guidelines)		
<p>Salmon habitat surveys have been completed on all the primary salmon rivers in NI, but the amount of habitat used by salmon has not yet been worked out. Some of this data needs refreshed and it is our intention to calculate the quantity of current habitat and the potential habitat for the primary salmon rivers within the period of the Implementation plan.</p> <p>River habitat data to be refreshed in the DAERA area will include the Blackwater, Glendun, Margy / Glenshesk rivers (see Action H4).</p> <p>In the Loughs Agency area surveys have been completed and an ongoing programme of habitat monitoring exists, however severe flooding events have changed the shape of some salmonid rivers and re-evaluation of the quality of habitat has commenced and will continue in 2019 / 20.</p>		
1.6 What is the current extent of freshwater and marine salmonid aquaculture?		
Number of marine farms	1 marine fish farm (2 sites)	
Marine production (tonnes)	563.60 tonnes (2017)	
Number of freshwater facilities	18 units (2 of which have Brown trout production as well)	
Freshwater production (tonnes)	641.45 tonnes (Rainbow trout) 42.48 tonnes (Brown trout) (2017)	
Append one or more maps showing the location of aquaculture facilities and aquaculture free zones in rivers and the sea.		
Please see Appendix 1		

<p>1.7 Please describe the process used to consult NGOs and other stakeholders and industries in the development of this Implementation Plan. (Max 200 words)</p>
<p>In the DAERA area the Salmon and Inland Fisheries forum (SIFF) has been consulted with on the plan. This body was set up in 2009 to advise on salmon and Inland Fisheries policies and is comprised of a wide range of stakeholders including angling groups, governing bodies, fishery owners (both commercial and recreational), land owners, member of the Institute of Fisheries Management etc. The body meets quarterly and a draft Implementation plan for this period was discussed at meeting on the 12th December 2018 and the 10th January 2019.</p> <p>Loughs Agency have an advisory forum made up from stakeholders, and while the forum covers a wide range of functions, there is a salmon and inland fisheries focus group that meets on a regular basis to review operations, policy and input into the holistic development of legislation. The focus group has representatives of commercial salmon fisheries, angling clubs, fishery owners and environmental NGOs</p>
<p>2. Management of Salmon Fisheries: <i>In this section please review the management approach to each of the fisheries in your jurisdiction (i.e. commercial, recreational and other fisheries) in line with the relevant NASCO Resolutions, Agreements and Guidelines. For Parties / jurisdictions that prosecute mixed-stock fisheries, there should at least one action related to their management.</i></p>
<p>2.1 What are the objectives for the management of the fisheries for wild salmon? (Max. 200 words)</p>
<p>The central aims of the management of wild fisheries in the Department of Agriculture, Environment and Rural Affairs (DAERA) and Loughs Agency areas will be to:</p> <ol style="list-style-type: none"> 1) Ensure that in primary salmon rivers affected by fisheries, in all years, sufficient adult salmon are spawning to optimise output of smolts from freshwater and to maintain stocks above their CLs. 2) Maintain the safeguard of catch and release and only allow the harvest of salmon where there is a sustainable surplus and rivers are meeting their Management targets over a sustained period of time 3) To seek to protect the weakest stock in mixed stock fisheries so that no harvesting is allowed until all stocks affected by the fishery meet their MTs
<p>2.2 What is the decision-making process for the management of salmon fisheries, including predetermined decisions taken under different stock conditions (e.g. the stock levels at which regulations are triggered)? (Max. 200 words) <i>(This can be answered by providing a flow diagram if this is available.)</i> <i>(Reference: Sections 2.1 and 2.7 of the Fisheries Guidelines)</i></p>
<p>There is a current presumption against permitting fisheries on stocks which are below reference points. Legislation was introduced for the DAERA & LA area which suspends commercial netting for salmon until a series of criteria have been met. This will only allow consideration of the commercial exploitation where all affected stocks are above their CL and have consistently exceeded Management targets. The same policy is applied for recreational fisheries also where the default position is catch and release in the DAERA area and catch and release for rivers not meeting management target in the Loughs Agency area. Stocks are assessed annually for compliance against management targets and fishing regulations set accordingly. In the Loughs Agency area Regulation exists that allows introduction of catch and release angling in year if targets are not met.</p>
<p>2.3 (a) Are any fisheries permitted to operate on salmon stocks that are below their reference point (e.g. Conservation Limits)? If so, (b) how many such fisheries are there and (c) what approach is taken to managing them that still promotes stock rebuilding? (Max 200 words)</p>

<i>(Reference: Section 2.7 of the Fisheries Guidelines)</i>	
(a)	No There is a current provision in legislation that there is no exploitation on stocks which are below MTs and this applies to both commercial and recreational fisheries. Enforcement patrols are carried out on a regular basis to ensure full compliance with existing legislation and to prevent any illegal fishing activity directed at salmon stocks subject to availability of resources.
(b)	
(c)	
2.4	(a) Are there any mixed-stock salmon fisheries? If so (b) how are these defined, (c) what was the mean catch in these fisheries in the last five years and (d) how are they managed to ensure that all the contributing stocks are meeting their conservation objectives? (Max. 300 words in total) <i>(Reference: Section 2.8 of the Fisheries Guidelines)</i>
(a)	There are no mixed stock fisheries operating in NI. Mixed stock fisheries are defined as fisheries exploiting a significant number of salmon from 2 or more river stocks.
(b)	None from 2012
(c)	
(d)	
2.5	How are socio-economic factors taken into account in making decisions on management of salmon fisheries? (Max. 200 words) <i>(Reference: Section 2.9 of the Fisheries Guidelines)</i>
In evaluating management options, the conservation of the salmon resource takes precedence over any socio economic factors. The decision to allow harvesting of salmon by commercial netmen is decided on scientific data collected on all stocks affected and not based on any economic argument. Financial compensation measures are in place for commercial fishermen that have been affected by fishery closure. Rod fisheries operate on a catch and release basis only unless there an identifiable surplus of fish to harvest. No economic consideration is factored into this decision it is based on scientific data only. Any changes to the existing policy on the management of salmon fisheries requires a public consultation exercise with stakeholders. All responses received would be reviewed by the Department and considered before finalising the new policy.	
2.6	What is the current level of unreported catch and what measures are being taken to reduce this? (Max. 200 words) <i>(Reference: Section 2.2 of the Fisheries Guidelines and the Minimum Standard)</i>
Levels of unreported catch are deemed low (0.3 tonnes annual average), some may occur in freshwater and estimates are made annually in returns to ICES and NASCO. Enforcement activities are regularly monitored and there is a good communication / co-operation system in place between fisheries agencies (Loughs Agency, Inland Fisheries Ireland (IFI) and DAERA) and also with angling clubs / fishery owners which can help identify any illegal fishing activity. Enforcement actions are regularly reported and compiled. Both Loughs Agency and DAERA carryout patrols on a regular basis using existing resources and a 24 hour telephone contact number available for the public to report illegal fishing activity.	
2.7	Has an assessment under the Six Tenets for Effective Management of an Atlantic Salmon Fishery been conducted? If so, (a) has the assessment been made available

to the Secretariat and (b) what actions are planned to improve the monitoring and control of the fishery? (c) If the six tenets have not been applied, what is the timescale for doing so? (Max. 200 words)
(Reference: Six Tenets for Effective Management of an Atlantic Salmon Fishery, WGCST(16)16)

(a) Yes

(b) Consideration of IT applications to target anglers that have not made catch returns and to make other options available to enable them to make these eg e mail, telephone, angling club returns etc.

(c)

2.8 Identify the threats to wild salmon and challenges for management associated with their exploitation in fisheries, including bycatch of salmon in fisheries targeting other species.

Threat / challenge F1	To manage salmon stocks in rivers affected by both commercial and recreational fisheries to exceed their CLs
Threat / challenge F2	Update Conservation limits and Management targets for primary salmon rivers in Northern Ireland using refreshed habitat data
Threat / challenge F3	Long Term Monitoring of Wild Salmon Stock in an Index River (R Bush) for NI
Threat / challenge F4	Unknown mortality of wild salmon smolts moving from the freshwater to the marine environment
Threat / challenge F5	To improve recreational catch returns and statistics
Threat / challenge F6	To protect wild salmon stocks from illegal activity

Copy and paste lines to add further challenges which should be labelled F5, F6, etc.

2.9 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 2.8 to implement NASCO’s Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for the management of salmon fisheries?

Action F1:	Description of action:	The target is to manage the 18 primary rivers affected by both commercial and recreational fisheries to exceed their CLs
	Planned timescale (include milestones where appropriate):	Continued within the current plan period 2019-2024 with 18 Primary salmon rivers assessed for compliance against CLs annually
	Expected outcome:	More primary salmon rivers increasing their adult returns and exceeding their CLs.
	Approach for monitoring effectiveness & enforcement:	Primary salmon rivers are assessed for compliance against CLs annually and this will be reported in the APR. Legislation used to maintain rivers as catch and release only fisheries unless individual river MTs are met on a consistent basis to allow harvest options.

	Funding secured for both action and monitoring programme?	Expected
Action F2:	Description of action:	Update Conservation limits and Management targets for 3 primary salmon rivers in Northern Ireland using refreshed habitat data
	Planned timescale (include milestones where appropriate):	To be completed within the current plan period 2019-2024
	Expected outcome:	To update CLs for the 3 rivers identified in Section 1.5
	Approach for monitoring effectiveness & enforcement:	To review CLs once new habitat data is available and to report rivers which have had their CLs updated in the APR report
	Funding secured for both action and monitoring programme?	Expected
Action F3:	Description of action:	Maintain the Long Term Monitoring of Wild Salmon Stock on the R Bush - used as an Index River for NI
	Planned timescale (include milestones where appropriate):	Already in place since 1972 and to continue over the period 2019 - 2024
	Expected outcome:	Maintain and build the long term dataset of adult returns, smolt migration, stock recruitment data, freshwater survival, marine survival, biological characteristics of the R Bush stock over the 5 year period.
	Approach for monitoring effectiveness & enforcement:	Full time adult trap in place and smolt trap for smolt run period, an annual programme of juvenile fry surveys of the main spawning areas and an annual assessment of both freshwater and marine survival for R Bush stocks. Data collected provided to the public once completed. This will also be reported as part of the NASCO APR process.
	Funding secured for both action and monitoring programme?	Expected
Action F4:	Description of action:	To assess mortality of wild salmon smolts moving from the freshwater to the marine environment
	Planned timescale (include milestones where appropriate):	Studies to be carried out each year for the current plan period 2019-2024 with a target of 100 smolts to be tagged annually.
	Expected outcome:	To assess riverine mortality and identify possible areas of losses
	Approach for monitoring effectiveness & enforcement:	Acoustic and radio telemetry studies of smolts actively monitored in freshwater and into the marine environment using automatic listening stations. Reports completed on each study carried out and this will be reported as part of the NASCO APR process.

	Funding secured for both action and monitoring programme?	Expected

Action F5:	Description of action:	To improve recreational catch returns and statistics from the current baseline of 5 - 10% to 30%
	Planned timescale (include milestones where appropriate):	To be achieved within the current plan period 2019-2024
	Expected outcome:	To increase catch returns / data for recreational caught salmon
	Approach for monitoring effectiveness & enforcement:	Monitoring use of digital licensing system and any trends in the number of catch returns completed by recreational anglers. To encourage anglers to report catches by issuing reminder notices to angling clubs and fishery owners. To obtain catch data from fishery owners and angling clubs for catchments. Data on catch returns to be reported as part of the APR
	Funding secured for both action and monitoring programme?	Expected

Action F6:	Description of action:	To protect wild salmon stocks from illegal activity
	Planned timescale (include milestones where appropriate):	Continued within the current plan period 2019-2024
	Expected outcome:	To protect salmon stocks by detecting, deterring and disrupting any illegal activity directed at damaging or removing salmon stocks subject available resources.
	Approach for monitoring effectiveness & enforcement:	Difficult to put in a smart target here but a qualitative measure is appropriate. Enforcement activities are recorded and the number of patrols / enforcement outcomes are compiled and regularly reported annually. There is a good communication / co-operation system in place between fisheries agencies (Loughs Agency, Inland Fisheries Ireland (IFI) and DAERA) and also with angling clubs / fishery owners which can help identify illegal fishing activity. A 24 hour telephone service is available to report illegal fishing activity and on call staff can respond if required. The number of patrols carried out and detections made will be reported as part of the NASCO APR process.
	Funding secured for both action and monitoring programme?	Expected

Copy and paste lines to add further actions which should be labelled F5, F6, etc.

<p>3. Protection and Restoration of Salmon Habitat: <i>In this section please review the management approach to the protection and restoration of habitat in your jurisdiction in line with the relevant NASCO Resolutions, Agreements and Guidelines.</i></p>
<p>3.1 How are risks to productive capacity identified and options for restoring degraded or lost salmon habitat prioritised, taking into account the principle of ‘no net loss’ and the need for inventories to provide baseline data? (Max. 200 words) <i>(Reference: Section 3 of the Habitat Guidelines)</i></p>
<p>Interrogation of habitat and electrofishing datasets help identify areas of where productive habitat is at risk and to prioritise areas for improvement or intervention on the primary salmon rivers consistent with NASCO guidelines on habitat. Rivers not meeting their CLs are priority areas to target such interventions with habitat development plans being drawn up. Meetings with local stakeholders help prioritise actions to improve fish access, continuity issues and poor habitat areas. Inter Agency co-operation is ongoing to identify habitat problems and areas for improvement / restoration. DAERA and DFI Rivers are co-funders of the Rivers Restoration Centre which enable specialist help with assessing and designing habitat schemes.</p> <p>DAERA & Loughs Agency have funding available for restoring and improving degraded salmon habitat in prioritised catchments. The DAERA Challenge fund provides money for projects which will deliver key environmental outcomes such as water bodies that reach a good ecological status, developing and delivering actions to address habitat fragmentation for freshwater priority species etc.</p> <p>The main aim is to maintain and where possible, increase the productive capacity of Atlantic Salmon habitat and to ensure no net loss principle is applied. Risks are identified through statutory consultation and multi stakeholder engagement processes, which include planning applications, water abstraction licensing, drainage maintenance programmes, alterations to weirs or barriers, approvals to remove river bed materials, etc.</p> <p>Public stakeholder engagement is facilitated by Water Framework Directive (WFD) catchment stakeholder liaison groups, facilitated by Northern Ireland Environment Agency (NIEA) and inclusive of all statutory stakeholder bodies.</p>
<p>3.2 How are socio-economic factors taken into account in making decisions on salmon habitat management? (Max. 200 words) <i>(Reference: Section 3.9 of the Habitat Guidelines)</i></p>
<p>Legislation is already in place to protect the removal of salmon habitat from rivers without the necessary approvals. Applications to remove habitat are reviewed by a technical assessment panel and the policy priority is to protect and conserve suitable salmon habitat and prevent any further degradation. Depending on the impact of any proposed works an application maybe refused entirely or approved with legally binding instructions. Works are monitored to ensure compliance with any permit conditions. Socio economic factors for such applications are not considered as salmon conservation and protection of habitat takes primacy.</p> <p>Where formal planning applications are made that could impact on salmon habitat, DAERA and Loughs Agency are consulted. They provide fisheries advice on the application to identify any impacts on salmon habitat and will seek to protect habitat so that losses are avoided or minimised and that appropriate mitigation measures are incorporated to comply with the no net loss principle set out in the NASCO Habitat Guidelines. The main aim is to</p>

maintain or where possible, increase the productive capacity of Atlantic Salmon habitat. All planning applications are available for the public to review and provide comment on. The management of fisheries habitat is considered alongside other relevant factors including socio economic factors by the planners before approving any applications.

3.3 What management measures are planned to protect wild Atlantic salmon and its habitats from (a) climate change and (b) invasive aquatic species? (Max. 200 words each)
(Reference: Section 3.2 of the Habitat Guidelines)

(a) Annual juvenile survey data is being used to monitor river stocks and river tree planting schemes to reduce the impact of heat will be carried out where the necessary permissions can be obtained. Any actions will be reported as part of the NASCO APR process. To recognise the threat from climate change Loughs Agency with partners have implemented programs of riparian tree planting in upper catchments in an attempt to keep upland rivers cool, increase biodiversity and to act as a mitigation against flooding.

(b) DAERA has developed an Invasive Alien Species Strategy for Northern Ireland'. The aim of the Strategy is to minimise the risk posed, and reduce the negative impacts caused, by invasive alien species in Northern Ireland, increasing awareness and understanding of the risks and issues involved in tackling invasive alien species is a central overarching issue. The implementation plan for it has been launched in 2018. A “check, clean, dry” UK wide campaign was organised this year to target water users and anglers about the threat from aquatic invasives and this was to help inform and educate the public. Anglers have been made aware of specific threats such as GS etc in relation to those that would affect salmon. Loughs Agency have adopted stringent biosecurity protocols for all staff and surveys.

3.4 Identify the main threats to wild salmon and challenges for management in relation to estuarine and freshwater habitat.

Threat / challenge H1	Protection of salmon habitat in rivers where drainage maintenance works are scheduled
Threat / challenge H2	Management and Control of water quality in salmon producing rivers in Northern Ireland
Threat / challenge H3	The impact of barriers on Primary salmon rivers in NI is not fully quantified
Threat / challenge H4	To contribute to the production of an overall inventory of current and potential salmon habitat on primary salmon rivers in NI
Threat / challenge H5	To increase salmon habitat in salmon rivers in NI

Copy and paste lines to add further threats/challenges which should be labelled H5, H6, etc.

3.5 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 3.4 to implement NASCO’s Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for the Protection, Restoration and Enhancement of Atlantic Salmon Habitat?

Action H1:	Description of action:	To assess and provide fishery advice for 100% of River drainage maintenance schemes to protect salmon habitat and to incorporate mitigation / improvement measures where possible.
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	Planned timescale (include milestones where appropriate):	This advice on 100% planned maintenance schemes is provided annually over the current plan period 2019-2024
	Expected outcome:	Ensure sensitive / mitigated engineering solutions to maintain or where possible seek opportunities to restore or enhance salmonid habitat.
	Approach for monitoring effectiveness & enforcement:	Both DAERA and LA are informed in advance of river maintenance works and provide advice to ensure the protection of fish habitat present. There is regular monitoring and inspection of stretches where river drainage maintenance works and or habitat improvements are carried out. Rivers maintenance schemes where advice is provided and improvements carried out will be reported as part of the NASCO APR process.
	Funding secured for both action and monitoring programme?	Expected
Action H2:	Description of action:	Management and control of water quality in salmon producing rivers in NI - the target is to have 70% of rivers at good ecological status by 2021.
	Planned timescale (include milestones where appropriate):	Continued within the current plan period 2019-2024
	Expected outcome:	Protection against degradation of salmonid habitat through pollution or waste disposals
	Approach for monitoring effectiveness & enforcement:	Water quality is regularly assessed and reported on as part of the EU WFD requirements. All discharges are licensed and conditions of that licence are regularly assessed for compliance. Enforcement action maybe taken for non compliance issues. Pollution incidents are investigated and appropriate enforcement action maybe taken which in some cases may result in a criminal prosecution for offenders. All enforcement activity is regularly reported to the public and will be included in the NASCO APR Process. Status reports on progress on the WFD goals are reported through the WFD process.
	Funding secured for both action and monitoring programme?	Expected
Action H3:	Description of action:	To identify and assess the impact of barriers on 18 primary salmon rivers in NI by 2024.
	Planned timescale (include milestones where appropriate):	Work to be commenced within the current plan period 2019-2024 with at least 2 rivers surveyed each year
	Expected outcome:	To carry out surveys to identify all potential barriers to fish passage in primary salmon rivers in NI subject to resources and assess fish passage at them.
	Approach for monitoring	Where opportunities are identified and the necessary resources / permissions obtained to mitigate and reduce the

	effectiveness & enforcement:	number of barriers or improve fish passage at the site where they cannot be removed. Rivers where barrier surveys have carried out and assessed along with any mitigation / removal works to be reported as part of the NASCO APR process.
	Funding secured for both action and monitoring programme?	Expected
Action H4:	Description of action:	To update inventory of current and potential salmon habitat on 3 primary salmon rivers in NI.
	Planned timescale (include milestones where appropriate):	To be completed within the current plan period 2019-2024 with at least one river completed annually
	Expected outcome:	To update salmon habitat inventory data on a GIS database for the Blackwater, Glendun, Margy /Glenshesk rivers This will help identify and prioritise subsequent habitat enhancement actions. In the Loughs Agency area surveys have been completed and is recorded on GIS layers which are available.
	Approach for monitoring effectiveness & enforcement:	Habitat surveys updates carried out to be reported as part of the NASCO APR process.
	Funding secured for both action and monitoring programme?	Expected

Action H5:	Description of action:	To enhance degraded habitat or improve salmon habitat on 2 primary salmon rivers annually in NI, with rivers below CL being prioritised
	Planned timescale (include milestones where appropriate):	To carryout works in areas of at least two rivers each year
	Expected outcome:	To enhance degraded habitat or improve salmon habitat on primary salmon rivers in NI including government and stakeholder schemes.
	Approach for monitoring effectiveness & enforcement:	Rivers where degraded habitat is enhanced or habitat is improved carried out to be reported as part of the NASCO APR process and where resources permit both pre and post assessments may also be carried out to consider the effectiveness of the works.
	Funding secured for both action and monitoring programme?	Expected

Copy and paste lines to add further actions which should be labelled H5, H6, etc

<p>4. Management of Aquaculture, Introductions and Transfers, and Transgenics:</p> <p><i>Council has requested that for Parties / jurisdictions with salmon farms, there should be a greater focus on actions to minimise impacts of salmon farming on wild salmonid stocks. Each Party / jurisdiction with salmon farming should therefore include at least one action relating to sea lice management and at least one action relating to containment, providing quantitative data in Annual Progress Reports to demonstrate progress towards the international goals agreed by NASCO and the International Salmon Farmers Association (ISFA):</i></p> <ul style="list-style-type: none"> • <i>100% of farms to have effective sea lice management such that there is no increase in sea lice loads or lice-induced mortality of wild salmonids attributable to the farms;</i> • <i>100% farmed fish to be retained in all production facilities.</i> <p><i>In this section please provide information on all types of aquaculture, introductions and transfers, and transgenics (including freshwater hatcheries, smolt-rearing etc.</i></p>
<p>4.1 (a) Is the current policy concerning the protection of wild salmonids consistent with the international goals on sea lice and containment agreed by NASCO and ISFA? (b) If the current policy is not consistent with these international goals, when will current policy be adapted to ensure consistency with the international goals and what management measures are planned to ensure achievement of these goals and in what timescale? (Max. 200 words for each) <i>(Reference: BMP Guidance)</i></p>
<p>(a) Yes. The policy is to have effective sea lice management and containment such that there is no increase in sea lice loads or lice-induced mortality of wild salmonids attributable to the farms and that regular inspections of gear are carried out to reduce the risks of escapement from aquaculture facilities.</p>
<p>(b)</p>
<p>4.2 (a) What quantifiable progress can be demonstrated towards the achievement of the international goals for 100% of farms to have effective sea lice management such that there is no increase in sea lice loads, or lice-induced mortality of wild salmonids attributable to sea lice? (b) How is this progress monitored, including monitoring of wild fish? (c) If progress cannot be demonstrated, what additional measures are proposed and in what timescale? (Max. 200 words each) <i>(Reference: BMP Guidance)</i></p> <p><i>The measures by which these goals may be achieved, and against which the Review Group will be measuring the effectiveness of the Implementation Plan, are set out in the BMP Guidance SLG(09)5 (Best management practice; reporting and tracking; factors facilitating implementation) as agreed by NASCO and ISFA.</i></p>
<p>(a) There is some evidence that the marine aquaculture site has an effective management regime in place for its sea lice burden on farm stocks and there is progress towards achieving the International goals. Sea lice numbers are monitored in the farm marine environment, results reported are taken at the time of harvests. A threshold of >30 sea lice per kg of fish would be considered an infestation requiring notification to the Dept and treatment action by the operator. The organic production model of the existing farm site, in combination with local environmental conditions (strong tidal streams), negate the requirement for sea lice treatment. There has been no historic requirement to treat lice as infestations remain very low and there is a strict monitoring regime in place by DAERA to assess this. Regular inspections are carried out on a target sample of harvested fish to assess adult sea lice loading of individual fish. Results are reported as part the NASCO APR Process. To date all inspections carried out by DAERA have confirmed that sea lice levels are consistently well below the threshold level and there are no increases in sea lice numbers at the aquaculture</p>

<p>sites. Of 10 inspections carried out from 21/3/18 – 16/1/19 the average sea lice count per fish was 2. An annual health surveillance sampling programme is in operation at the site in compliance with the Aquatic Animal Health Regulations 2009. The nearest salmon river is the Glenarm river and it continues to exceed its management targets with surplus fish available for recreational harvest and this has been the situation consistently for a number of years. Though there is no direct measurement in place of background sea lice levels in wild stocks yet but see proposed programme at c)</p>
<p>(b) There are 12 assessment of sea lice each year where harvesting operations are inspected and DAERA staff collect data on sea lice levels. The data collected is regularly reviewed by DAERA and will be included in the NASCO APR Process. Annual assessment of sea lice levels on adult salmon returning to the River Bush with a full time adult trap in place to monitor all adults returning there. These fish maybe subject to impacts form other Non NI Aquaculture sites on their return journey form feeding grounds.</p>
<p>(c) To create a NI programme for monitoring sea lice levels through the establishment of a sea lice-mortality risk index in wild anadromous salmonids in an area with aquaculture production. A pilot study is proposed to commence in 2021 with results reported in the subsequent APRs. See A6 for details.</p>
<p>4.3 (a) What quantifiable progress can be demonstrated towards the achievement of the international goals for achieving 100% containment in all (i) freshwater and (ii) marine aquaculture production facilities? (b) How is this progress monitored, including monitoring of wild fish (genetic introgression) and proportion of escaped farmed salmon in the spawning populations? (c) If progress cannot be demonstrated, what additional measures (e.g. use of sterile salmon in fish farming) are proposed and in what timescale? (Max. 200 words each) <i>(Reference: BMP Guidance)</i> <i>The measures by which these goals may be achieved, and against which the Review Group will be measuring the effectiveness of the Implementation Plan, are set out in the BMP Guidance SLG(09)5 (Best management practice; reporting and tracking; factors facilitating implementation) as agreed by NASCO and ISFA.</i></p>
<p>(a)(i) There is no aquaculture facility within this jurisdiction for farmed salmon in freshwater stage of the life cycle. The 18 facilities licensed by DAERA are for the production of rainbow or brown trout. They have physical containment measures as part of their consent conditions, which include grids / gratings at both the inlets and outlets or other agreed measures. These grids are subject to regular inspection by fishery officers to ensure compliance with legislation and the containment of fish. Bio security measures are compulsory and must be in place and inspected prior to granting any authorisation by DAERA under the Aquatic Animal Health Regulations and are subject to ongoing routine annual inspections. Following a major flood event in 2017 at one site, where a significant number of rainbow trout escaped into the river Strule, the Department is conducting research into the effects of rainbow trout escapees on Salmonid habitat. Any outcomes learned will inform policy on aquaculture production facilities.</p>
<p>(a)(ii) Bio-security is a priority of the consenting authority and a requirement prior to granting of an Aquatic Animal Health Authorisation. DAERA’s policy is to reduce opportunity for escape by ensuring good bio-security is in place and it is also a requirement in their consent conditions. DAERA staff have confirmed that there have been no fish escapes in recent years (last escape was in the early 1990s) and cage inspections carried out to date have not shown any signs of net damage or holes where fish could escape. In addition</p>

<p>no such escaped fish have been reported recently by the fishery owner or angling club that fish on this small coastal river. It should also be noted that, being so close to other parts of the UK, that fish escaped from aquaculture units outside NI, have been picked up when coastal netting was taking place all along the NE coastal area in the past. Thus it may be difficult to assign where any aquaculture impacts are arising from. See also results from the monitoring programme of levels of genetic introgression at part (b) below & new Action at A5.</p>
<p>(b) See Action A4 – A programme is in place for Monitoring levels of genetic introgression of aquaculture salmon into wild stocks in NI every three years. This takes place on rivers close to the Marine aquaculture sites. The most recent data suggests there has been a decrease in the level of genetic introgression of farmed genetic material into wild stocks in UK NI between 2014 and 2018. In the 2014 study a maximum of 5.9% of juveniles had genomes of part farmed origin, compared to 1.9% in the 2018 study. An Escapes Monitoring Programme is also in place which routinely examines the numbers of farm origin salmon which could be from both NI and Non NI sources through both coastal and freshwater monitoring programmes. In freshwater, escaped salmon are monitored at the adult salmon trap at the River Bush Salmon Station. The number of escaped salmon, which may originate from outside NI, has been either 0 or <5 each year. The number of fish farm escapees in 2018 was zero. Data has also historically been collected from commercial fishermen on presumed escaped farmed salmon in the UK (NI) coastal fishery, although at present this fishery is closed. Farmed salmon from escape events at the Marine aquaculture site have been seen in these coastal commercial fisheries and at the trap in Bushmills. See Action A5 - DAERA will carry out an annual inspection of the cages to assess the potential for escapement of fish and thus compliance with the International goal of 100% containment over the period of the IP. The outcome of the inspection will be reported through the APR.</p>
<p>(c)</p>
<p>4.4 What adaptive management and / or scientific research is underway that could facilitate better achievement of NASCO’s international goals for sea lice and containment such that the environmental impact on wild salmonids can be minimised? (Max 200 words) <i>(Reference: BMP Guidance and Article 11 of the Williamsburg Resolution)</i></p>
<p>None – current regime is already deemed effective in minimising sea lice levels.</p>
<p>4.5 What is the approach for determining the location of aquaculture facilities in (a) freshwater and (b) marine environments to minimise the risks to wild salmonid stocks? (Max. 200 words for each)</p>

<p>(a) Opportunities are extremely limited due to lack of availability of suitable sites, the Department has no current applications. Any new application would involve direct consultation with interested parties and public consultation by way of newspaper advertisement. This procedure also involves the completion of a prior “appropriate assessment” in order to comply with Article 6(3) of the Habitats Directive.</p> <p>Existing fish farm sites are on historic industrial sites where water is impounded and dependant on gravity flow to rear fish. Determination of the Fish Culture licence involves the full assessment of environmental impacts including those on water quality and containment. Authorisation is also required under the <u>Aquatic Animal Health Regulations (Northern Ireland) 2009</u>. Prior to granting a licence and authorisation, Fish Health Inspectorate inspect the facility for bio-security and containment. These are also part of the annual inspection regime. The Authorisation includes licence conditions to ensure good bio-security, risk based surveillance and movement, mortality recording and reporting.</p> <p>The <u>Water (Northern Ireland) Order 1999</u>, makes it an offence to operate a fin fish farm that includes feeding and/or treating the fish with chemicals except in accordance with the terms and conditions of a discharge consent granted by the NIEA. This consent forms part of the application process for a Fish Culture Licence.</p>
<p>(b) NI has one marine farm on two sites. Determination of the Fish Culture Licence involves extensive Environmental assessment including hydro dynamic surveys which confirmed minimal risk to the marine environment including wild salmon stocks. These sites are subject to an ongoing programme of inspections by DAERA staff. DAERA also carryout benthic monitoring every 6 months to assess the sea bed condition and impact of aquaculture on it at the sites.</p>
<p>4.6 What progress has been made to implement NASCO’s guidance on introductions, transfers and stocking? <i>(Max. 200 words)</i> <i>(Reference: Articles 5 and 6 and Annex 4 of the Williamsburg Resolution)</i></p>
<p>Salmon stocking in both Loughs Agency and DAERA jurisdictions is only conducted using local stocks in compliance with the Williamsburg Resolution. Stocking of non-indigenous salmon species is prohibited. Introduction of salmon from outside NI is controlled under EU and domestic fish health legislation by DAERA. The number of stocking programmes has significantly declined over several years with the focus now on addressing habitat / water quality / barrier issues which are impacting on stock levels. There are only 4 existing supplementary salmon stocking programmes, the majority of which seek to use habitat not utilised by salmon to increase the number of wild smolts migrating to the sea. The Whitewater hatchery has been restricted to Sea Trout only following genetics report from AFBI and as such there are no salmon stocking programs in the Loughs Agency area. Marine Harvest do have a Hatchery at the top of the River Derg system for commercial salmon farming only.</p>
<p>4.7 Is there (a) a requirement to evaluate thoroughly risks and benefits before undertaking any stocking programme and (b) a presumption against stocking for purely socio-political / economic reasons? <i>(Max. 200 words each)</i> <i>(Reference: Guidelines for incorporating social and economic factors in decisions under the Precautionary Approach and Annex 4 of the Williamsburg Resolution)</i></p>
<p>(a) Stocking requires specific approval from both DAERA and the LA. All such applications are assessed and evaluated on the purpose of the stocking in discussion with the applicants and in line with NASCO advice. All such applications are time bound and must demonstrate need and are monitored, with reporting also required.</p>

(b) There is a presumption against stocking rivers which have a residual wild salmon population for socio economic reasons.	
4.8 What is the policy / strategy on use of transgenic salmon? (Max. 200 words) <i>(Reference: Article 7 and Annex 5 of the Williamsburg Resolution)</i>	
Northern Ireland has one salmon farm for the production of fish for human consumption. It abides by organic principles and adheres to the International Salmon Farmers Association (ISFA) adopted 'Policy on Transgenic Salmon', which states: "In accordance with sound environmental practices, the ISFA firmly rejects transgenic salmon production. In accordance with Article 7 there is a strong presumption against their use in NI. No applications have been received by DAERA requesting permission to transfer any transgenic salmon into NI. Any application would be subject to existing process which includes consultation and appropriate assessment. Any consent would be based on NASCO principles and scientific advice with regards to transgenic salmon.	
4.9 For Members of the North-East Atlantic Commission only: What measures are in place, or are planned, to implement the eleven recommendations contained in the 'Road Map' to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of <i>Gyrodactylus salaris</i> and eradicate it if introduced, including the development and testing of contingency plans? (Max. 200 words) <i>(Reference 'Road Map' to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of G. salaris and eradicate it if introduced, NEA(18)08)</i>	
<p>Recommendation 1 – in place. GS monitoring is carried out as part of DAERA Fish Health's disease testing regime. A rolling regime of testing takes place across both operational fin fish farms and wild catchment areas (by electrofishing) This equates to between 10 – 12 sites each for both farmed and wild stock areas being monitored each year. The testing work is carried out by AFBI on our behalf as a part of their Annual Work Program. NI continues to be free from GS since the records began in 2007 for GS monitoring with all results negative.</p> <p>Recommendation 2 – Will fully comply with the steps outlined.</p> <p>Recommendation 3 & 4 – Content to support where necessary steps outlined.</p> <p>Recommendation 5 & 6 – No research is currently planned in NI but DAERA participates in the working party.</p> <p>Recommendation 7 – Publicity material exists to prevent the spread of invasives and is available on Government websites. Any new material on GS can be added and angling clubs / fishery owners made aware.</p> <p>Recommendation 8 – The intention is after Brexit to maintain current EU legislation</p> <p>Recommendation 9 – Content to comply with the OIE standards</p> <p>Recommendation 10 – Recommendations in place already</p> <p>Recommendation 11 – Cross border GS Contingency plan has been drafted and this will be reviewed between the relevant authorities in NI and the ROI.</p>	
4.10 Identify the main threats to wild salmon and challenges for management in relation to aquaculture, introductions and transfers, and transgenics.	
Threat / Challenge A1	Long term monitoring of baseline sea lice levels in a wild adult salmon stock on the R Bush an area with no aquaculture production
Threat / challenge A2	Monitor for non NI escapee aquaculture salmon in a wild stock in Northern Ireland
Threat / challenge A3	Monitoring sea lice levels in aquaculture salmon production in Northern Ireland
Threat /	Monitoring levels of genetic introgression of aquaculture salmon into wild

challenge A4	stocks in NI
Threat / challenge A5	Escapement of fish from marine aquaculture sites in NI
Threat / challenge A6	To establish Long term monitoring through the establishment of a sea lice-mortality risk index in wild anadromous salmonids in an area with aquaculture production

Copy and paste lines to add further threats/challenges which should be labelled A5, A6, etc.

4.11 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 4.10 to implement NASCO’s Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for aquaculture, introductions and transfers, and transgenics?		
Action A1:	Description of action:	To maintain the long term baseline data sea lice levels on R Bush wild salmon remote from NI Aquaculture production as advised in the BNP guidance
	Planned timescale (include milestones where appropriate):	This will be carried out annually for the period of the Implementation plan 2019 – 2024.
	Expected outcome:	Annual assessment of base sea lice levels on adult salmon remote from Aquaculture returning to the River Bush for each year of assessment
	Approach for monitoring effectiveness & enforcement:	Full time adult trap in place to monitor all adults returning to the R Bush. All adults are assessed for a range of biological parameters including sea lice loading and this will be reported as part of the NASCO APR.
	Funding secured for both action and monitoring programme?	Expected
Action A2:	Description of action:	Monitor for Non NI escapee aquaculture salmon in a wild salmon stock in N. Ireland.
	Planned timescale (include milestones where appropriate):	This will be carried out annually for the period of the Implementation plan 2019 – 2024.
	Expected outcome:	Escapee aquaculture salmon not from NI are monitored annually at the River Bush trap.
	Approach for monitoring effectiveness & enforcement:	Full time adult trap in place to monitor all adults returning to the R Bush. All adults are assessed for a range of biological parameters. All escapees are removed from the system and data recorded. The results will be included in the NASCO APR.
	Funding secured for both action and monitoring programme?	Expected
Action A3:	Description of action:	Monitoring sea lice levels in aquaculture salmon in N. Ireland.
	Planned timescale (include milestones where appropriate):	12 inspections will be carried out annually at harvesting operations for the period of the Implementation plan 2019 – 2024.

	Expected outcome:	An annual assessment of sea lice levels of sea cage reared salmon in N. Ireland.
	Approach for monitoring effectiveness & enforcement:	There is an overall annual assessment of sea lice based on data on sea lice levels obtained during the inspection of monthly harvesting operations by DAERA staff. The data collected is regularly reviewed by DAERA and will be included in the NASCO APR Process.
	Funding secured for both action and monitoring programme?	Expected
Action A4:	Description of action:	Monitoring levels of genetic introgression of aquaculture salmon into wild stocks in NI
	Planned timescale (include milestones where appropriate):	Every three years – reports due in 2021 and 2024.
	Expected outcome:	Triennial assessment of levels of genetic introgression of aquaculture salmon into wild stocks adjacent to the sites for salmon aquaculture in NI
	Approach for monitoring effectiveness & enforcement:	Every three years samples collected are assessed to monitor levels and trends of introgression in wild stocks of rivers adjacent to the salmon aquaculture site. The results will be included in the NASCO APR.
	Funding secured for both action and monitoring programme?	Expected

Action A5:	Description of action:	To assess marine aquaculture sites annually
	Planned timescale (include milestones where appropriate):	An annual Inspection at marine aquaculture sites each year over the period of the IP.
	Expected outcome:	To assess the potential for escapement of fish from marine aquaculture in NI each year
	Approach for monitoring effectiveness & enforcement:	DAERA staff will inspect the cages at marine aquaculture sites each year. The results will be included in the NASCO APR.
	Funding secured for both action and monitoring programme?	Expected

Action A6:	Description of action:	To establish Long term monitoring through the establishment of a sea lice-mortality risk index in wild anadromous salmonids in an area with aquaculture production.
	Planned timescale (include milestones where appropriate):	This will be developed and trialled from 2021 and throughout the rest of the period of the Implementation Plan 2019 – 2024 with the goal to implement the programme fully in the next IP period (2024-2030).

	Expected outcome:	An annual assessment of the risk of sea lice induced mortality in post-smolt salmonids in an area of aquaculture activity.
	Approach for monitoring effectiveness & enforcement:	An annual sampling of wild sea trout post-smolts immediately upon return from the sea in the spring in rivers in the area of aquaculture production. These fish will be assessed for sea lice burden. This data will be used to calculate a salmonid risk index which estimates the increased mortality due to sea lice infestation, based on the assumption (based on peer-reviewed science) that small salmonid post-smolts (<150 g body weight) experience similar sea lice mortality rates. Results will be reported in the APR.
	Funding secured for both action and monitoring programme?	Expected

Copy and paste lines to add further actions which should be labelled A5, A6, etc

APPENDIX 1

