

	Council <i>Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2021 UK – Scotland</i>	CNL(22)31rev
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Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2021

The Annual Progress Reports allow NASCO to evaluate progress on actions taken by Parties / jurisdictions to implement its internationally agreed Resolutions, Agreements and Guidelines and, consequently, the achievement of their objectives and actions taken in accordance with the Convention. The following information should be provided through the Annual Progress Reports:

- any changes to the management regime for salmon and consequent changes to the Implementation Plan;
- actions that have been taken under the Implementation Plan in the previous year;
- significant changes to the status of stocks, and a report on catches; and
- actions taken in accordance with the provisions of the Convention.

*In completing this Annual Progress Report please refer to the **Guidelines for the Preparation and Evaluation of NASCO Implementation Plans and for Reporting on Progress**, [CNL\(18\)49](#).*

These reports will be reviewed by the Council. Please complete this form and return it to the Secretariat **no later than 1 April 2022**.

Party:	United Kingdom
Jurisdiction / Region:	Scotland

1: Changes to the Implementation Plan
1.1 Describe any proposed revisions to the Implementation Plan (Where changes are proposed, the revised Implementation Plans should be submitted to the Secretariat by 1 November).
<p>As a result of the adoption of a Scottish Wild Salmon Strategy and the feedback received from the review group we intend to submit a revised Implementation Plan later in 2022. This will include revisions to several sections of the IP.</p>
1.2 Describe any major new initiatives or achievements for salmon conservation and management that you wish to highlight.
<p>Despite the continued impact of the Covid-19 pandemic several new initiatives were established in the reporting period.</p> <p>The Scottish Government adopted an ambitious Wild Salmon Strategy (WSS), which establishes a national vision and framework for a range of new and ongoing management measures to tackle the multiple pressures that Atlantic salmon face during their life cycle. The strategy reiterates our commitment making a positive contribution to the effective functioning of NASCO and the development and implementation of NASCO resolutions, agreements and guidelines.</p>

The Scottish Government published its [response](#) to the recommendations made by the Salmon Interactions Working Group (SIWG) to address the interactions between wild and farmed salmon in Scotland.

Management of sea lice:

The SIWG response appointed the Scottish Environment Protection Agency (SEPA) as the lead body responsible for managing the risk to wild fish from sea lice from fish farms. In December 2021 SEPA issued a consultation on a proposed risk-based framework for managing interaction between sea lice from marine finfish farms and wild Atlantic salmon. The proposed framework will assess new and expanding farms on the risk posed to wild salmon post-smolts as they migrate through defined wild salmon protection zones.

In March 2021 the Fish Farming Businesses (Reporting) (Scotland) Order 2020 came in to force. It requires mandatory reporting of average number of female sea lice per fish per fish farm site. The provisions of the Order introduce a change in sea lice reporting, details of which can be found in a [topic sheet](#). The data are published on [Scotland's Aquaculture Website](#) to promote transparency.

The Scottish Government awarded a grant of £400,000 for The West Coast Tracking project (WCTP), to improve understanding of the routes salmon smolts take as they leave rivers and enter the coastal zone. Data collected from Year 1 (2021) of the project showed that upon leaving rivers, salmon smolts disperse widely along the west coast and use many migration routes. Year 2 (2022) will focus on the routes salmon smolts take through sea lochs, with particular emphasis on areas with marine developments, including aquaculture and renewable energy installations. The data from the WCTP will inform the smolt swimming model, which will be used to support the implementation of the proposed SEPA sea lice framework.

Management of farmed escapes:

The SIWG response announced a commitment to strengthen controls on fish escapes and to introduce penalties for fish farm escapes with the ultimate aim of ring-fencing or redistributing this money to support wild salmonid conservation and research.

A [Code of Practice](#) covering the Containment of and Prevention of Escape of Fish on Fish Farms in relation to Marine Mammal Interactions was legally adopted in November 2021. We are also revising the Scottish Technical Standard for Finfish Aquaculture, which determines technical requirements for fish farm equipment in order to help prevent escapes of finfish as a result of technical failure and related issues at Scottish finfish farms. Any suspected escape from a fish farm, or circumstances which give rise to a significant risk of escape, must be reported to the Scottish Government immediately. Details of all escape or suspected escape events are [published online](#).

The [Draft National Planning Framework 4](#) (NPF4), which was published in November 2021, sets out how our approach to planning and development will help to achieve a net zero, sustainable Scotland by 2045. Policies on aquaculture aim to minimise its potential impacts on the environment and for example include the policy that further open pen fish farm developments for salmon and sea trout on the north and east coasts of mainland Scotland should not be supported in order to safeguard migratory fish species.

Habitat protection and restoration:

Scotland's third [River Basin Management Plans](#) were published by SEPA, on behalf of the Scottish Government, on 22 December 2021. The Plans set out revised objectives for the 2021-2027 period, and the associated work programme aims to ensure that 81% (currently 66%) of Scotland's water bodies achieve a 'good' or better classification by 2027, and continue to improve as natural conditions recover beyond that date. SEPA also receives approximately 4,000 applications each year for new activities or changes to existing activities, and through the Water Environment (Controlled Activities) Scotland Regulations 2011 authorisation process sets conditions to protect the water environment.

2: Stock status and catches.

2.1 Provide a description of any new factors that may affect the abundance of salmon stocks significantly and, if there has been any significant change in stock status since the development of the Implementation Plan, provide a brief (200 word max) summary of these changes.

As in 2020, the Covid-19 pandemic had a negative impact on Scottish salmon fisheries during the 2021 season through restrictions on national and international travel between January and April. Information collected by Marine Scotland on fishing effort shows a decrease in effort during January to April 2021 compared to the same months in 2019 (the last year not impacted by Covid-19 restrictions). This decrease in effort is likely to have contributed to lower than expected catches and makes comparisons with previous years challenging. Low water in the late summer and autumn will also have led to a reduction in effort, and catches, in some areas. Although both the decrease in effort due to Covid-19 and reduced flow are accounted for in the stock assessments (Action F1-1) it does further complicate among year comparisons of catches.

2.2 Provide the following information on catches: (nominal catch equals reported quantity of salmon caught and retained in tonnes 'round fresh weight' (i.e. weight of whole, ungutted, unfrozen fish) or 'round fresh weight equivalent').

	In-river	Estuarine	Coastal	Total
(a) provisional nominal catch (which may be subject to revision) for 2021 (tonnes)	4.6	2.1	0	6.7
(b) confirmed nominal catch of salmon for 2020 (tonnes)	11	2.6	0	13.6
(c) estimated unreported catch for 2021 (tonnes)	0.46	0.21	0	0.67
(d) number and percentage of salmon caught and released in recreational fisheries in 2021	<p>34,074 salmon were caught and released in rod & line recreational fisheries in 2021 (95% of the total rod catch).</p> <p>See also: Salmon fishery statistics - 2021 (www.gov.scot)</p> <p><i>Scotland's official catch statistics for 2021 were published on 1 June 2022. This section was therefore updated in June 2022 when confirmed catch for 2021 was provided to NASCO.</i></p>			

3: Implementation Plan Actions.

3.1 Provide an update on progress on actions relating to the Management of Salmon Fisheries (section 2.9 of the Implementation Plan).

*Note: the reports under 'Progress on action to date' should provide a **brief overview** of each action. For all actions, provide **clear and concise** quantitative information to demonstrate progress. In circumstances where quantitative information cannot be provided for a particular action because of its nature, a clear rationale must be given for not providing quantitative information and other information should be provided to enable progress with that action to be evaluated. While referring to additional material (e.g. via links to websites) may assist those seeking more detailed information, this will not be evaluated by the Review Group.*

Action F1-1:	Description of action (as submitted in the IP):	Continued annual assessment of Scotland's stocks using an adult based assessment method based on rod catch information and additional ancillary data.
	Expected outcome (as submitted in the IP):	Various aspects of the process are published in peer reviewed journals in advance of the 2022 fishing season, recognising the robustness of Scotland's assessment.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p>The status of the stocks in assessable areas is estimated annually and expressed as the average probability that the potential egg deposition exceeded the egg requirement over the previous 5 years. Stocks are allocated to one of three categories; 1 (greater than 80% chance of meeting CL), 2 (between 60% and 80%), and 3 (less than 60%).</p> <p>The conservation status of stocks was assessed using data for the return years 2016 to 2020, and was used to inform management measures for these stocks that will apply for the 2022 season. In 2020 fisheries, and therefore catches, were impacted by travel restrictions imposed during the Covid-19 pandemic. Methods were developed, and published, which account for this reduction in effort in the stock assessment process. These methods were used for the 2020 stock assessments and will be applied to the 2021 assessments.</p> <p>Of the areas assessed for the 2022 season, 35 (20%) were categorised as grade 1; 37 (21%) as grade 2 and the remaining 101 (59%) as grade 3. Weighting these data by the most recent estimated stock size in the areas assessed, 78% of the Scottish salmon stock was associated with grade 1 areas, 16% with grade 2 areas and 6% with areas categorised as grade 3.</p> <p>The Salmon Conservation Regulations for 2022 were laid in the Scottish Parliament in December 2021 and are in force from 1 April 2022.</p>

		Work on developing and publishing the assessment methods is ongoing. After being heavily impacted by the pandemic it is hoped that progress will be made on publishing the methods during 2022.
	Current status of action:	Ongoing
	If 'Completed', has the action achieved its objective?	[
Action F1-2:	Description of action (as submitted in the IP):	Development of a complementary juvenile assessment tool based on a strategically designed programme of electrofishing (<u>National Electrofishing Programme for Scotland: NEPS</u>) delivered through local fisheries management organisations.
	Expected outcome (as submitted in the IP):	An adult based assessment method, based on rod catch information and additional ancillary data, read alongside a juvenile assessment tool, based on electrofishing data collected at a local level, deliver a greater level of confidence in the status of Scotland's wild Atlantic salmon stocks and a better measure of the potential impact of our measures to mitigate the pressures on the stocks.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p>A peer reviewed paper was produced in 2019 that outlined an approach for setting benchmarks for expected (healthy) juvenile salmon densities. In 2018 the National Electrofishing Programme for Scotland (NEPS) was developed using a Generalised Random Tessellation Stratified survey design. The NEPS programme consisting of 810 survey sites was completed in 2018 and 2019 and reported in 2019 and 2020. It was not possible to undertake the survey programme during 2020 due to travel and other constraints associated with the Coronavirus pandemic. A survey was undertaken again in 2021 with a new survey design that reflected changes to the sample frame associated with removal of barriers, identification of new barriers or other local management priorities and contributions (e.g. increased sample densities). These NEPS 2021 data are the focus of current analysis that aims to report in 2022.</p> <p>The 2020 NEPS report explored approaches for combining surveys across years and for combining separate surveys within years to obtain regional assessments. The 2022 report will explore the effects of changing the sample frame as well as making comparisons to stock status in previous years.</p> <p>Future work will develop a long-term (5-10 year) survey design that aims to meet the requirements of both national and local fisheries management.</p>

	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	[
Action F1-3:	Description of action (as submitted in the IP):	A small research study conducted over three-years with three main goals: 1) to assess immediate effects of catch-and-release angling on the physiology and behaviour of adult Atlantic salmon; 2) to study, for the first time in the context of catch-and-release angling, transgenerational effects of maternal stress on offspring physiology and behaviour; and 3) potentially to provide new understanding of the impacts of catch-and-release angling for consideration in guidelines for anglers and models underpinning national fishery regulations.
	Expected outcome (as submitted in the IP):	This project will provide the first scientific evidence for incorporating lethal and sub-lethal effects of catch-and-release into MSS's estimates of spawning escapement and conservation limits. The information will be important for devising catch-and-release protocols and setting angling seasons if effects of catch-and-release are sensitive to time from spawning. Findings will be disseminated by MSS through FMS, the IFM and the International Council for Exploration of the Seas working groups to NASCO.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	[The PhD has been completed successfully and the first resulting paper has been published (Papatheodoulou et al., 2021: Simulated pre-spawning catch and release of wild Atlantic salmon (Salmo salar) results in faster fungal spread and opposing effects on female and male proxies of fecundity. Canadian Journal of Fisheries and Aquatic Sciences.) The study "examined how stressors related to catch and release experienced shortly before spawning affects adult mortality, vulnerability to Saprolegnia spp., and reproductive traits. Adult salmon were collected from the river Blackwater, Scotland, towards the end of their migration and were exposed to one of four protocols comprising exercise and air exposure of different durations. The experimental stressors increased the growth rate of the fungus Saprolegnia spp. over the body of the fish. Moreover, male salmon from the most disturbed group exhibited an increase in the maximum duration of their sperm motility. Lastly, females that experienced exercise and (or) air exposure spawned at the usual time but with fewer eggs. These suggest that there may be benefits from preventing angling close to the time of spawning."
	Current status of action:	[Ongoing]

	If 'Completed', has the action achieved its objective?	[
Action F2:	Description of action (as submitted in the IP):	Review of Scotland's inshore marine gill net legislation. Illegal gill netting, very close to the shore, remains a recurrent issue, because the existing regulation allows illegal operators to claim that they are targeting species other than Atlantic salmon and sea trout. We will consider introducing new legislation to prohibit the deployment of gill nets where this could result in a high risk of a salmon and/or sea trout bycatch.
	Expected outcome (as submitted in the IP):	Reduced illegal wild Atlantic salmon catches by the end of the five-year NASCO plan period.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	[The Scottish Wild Salmon Strategy commits to a wider review of the offences and penalties available to effectively deter the illegal exploitation of salmon in Scotland. A detailed programme of work will be developed and published in 2022
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	[

3.2 Provide an update on progress on actions relating to Habitat Protection and Restoration (section 3.5 of the Implementation Plan).
*Note: the reports under 'Progress on action to date' should provide a **brief overview** of each action. For all actions, provide **clear and concise** quantitative information to demonstrate progress. In circumstances where quantitative information cannot be provided for a particular action because of its nature, a clear rationale must be given for not providing quantitative information and other information should be provided to enable progress with that action to be evaluated. While referring to additional material (e.g. via links to websites) may assist those seeking more detailed information, this will not be evaluated by the Review Group.*

Action H1-1:	Description of action (as submitted in the IP):	Reductions in point source and diffuse pollution will be achieved through River Basin Management Planning (RBMP) and associated Regulations including "General Binding Rules" (GBRs). Adherence to other guidelines, such as Managing forest operations to protect the water environment, will also contribute to the reduction of diffuse pollution. GBRs include a range of land use requirements to reduce diffuse pollution through measures such as buffer strips to reduce fine sediment and nutrient delivery and encourage the growth of riparian vegetation. In RBMP cycle 1 there were 14 Priority Catchments selected where SEPA worked with farmers to reduced diffuse pollution. In RBMP cycle 2 from 2015 to 2021 all other predominantly agricultural catchments (57 in total) have been selected with audits of all farms to reduce diffuse pollution. To date SEPA
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		<p>has visited 5277 farming units in 43 of the 57 Priority catchments.</p> <p>Through RBMP the Diffuse Pollution Management Advisory Group (DPMAG) was set up as partnership that focuses on protecting and improving Scotland's water environment by reducing rural diffuse pollution. DPMAG have developed a two tiered strategy approach to reduce diffuse pollution in Scotland: a national campaign to prevent water bodies from deteriorating in status and make improvement where they are not far from a status boundary; and a targeted approach in priority catchments. The Rural Diffuse Pollution Plan for Scotland aims to ensure that the key stakeholders in Scotland work in a co-ordinated way to reduce diffuse pollution from rural sources.</p>
	<p>Expected outcome <i>(as submitted in the IP):</i></p>	<p>RBMPs utilise SEPA classification results to set objectives for improving the water environment over a six year cycle, the current being from 2015 to 2021. The third RBMPs will build on the work completed under RBMP2 up to 2021 to reduce point source and diffuse pollution pressures and will prioritise future targets up to 2027.</p> <p>Once the new online, GIS pressures mapping tool is delivered, our target will be for it to show a reduction, by the end of the five-year NASCO plan period, in the river length affected by acidification; point-source pollution; diffuse pollution; other pollution; changing rainfall patterns; eutrophication; and/or oligotrophication.</p>
	<p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</i></p>	<p>SEPA's most recent classification of Scotland's water environment through River Basin Management Plans (RBMPs) indicates 87% has good water quality up from 82% at the start of the second RBMPs in 2015. The actions to address rural diffuse pollution and improve wastewater infrastructure through the third RBMPs aim to contribute to an overall improvement in water quality to 92% by 2027.</p> <p>Since 2010, at the start of the first RBMP, Scottish Water has worked with SEPA to upgrade 104 wastewater treatment works and 279 storm overflows by investing £686 million to improve water quality. Through the third RBMPs Scottish Water has committed to investing £150 million over the next 6 years to develop solutions for 40 wastewater treatment works and 24 storm overflows to address the remaining impacts on water quality from wastewater point sources.</p> <p>To date SEPA has visited around 6,000 farming units in 47 of the 57 Priority catchments along with 3,000 revisits. For example in the Tay and South Esk catchments compliance with the diffuse pollution rules relating to</p>

		<p>cultivation has increased from 62% at the time of the first farm visit to 94% at the time of revisit.</p> <p>The third RBMPs 2021-2027 set out the continuation of this work , in the remaining 10 catchments (in addition to 47 catchments where work is already underway). Measures to bring about more effective slurry management to reduce diffuse pollution risks have also been introduced by means of The Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021.</p>
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	[
Action H1-2:	Description of action (as submitted in the IP):	Explore the benefit and feasibility of nutrient enrichment in upland oligotrophic parts of river systems.
	Expected outcome (as submitted in the IP):	Our aspiration is that nutrient enrichment in upland oligotrophic parts of river systems improves the size, condition and therefore marine survival of smolts. Next stages of work are expected to provide knowledge on how to add nutrients effectively on large scale and across a range of river types.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p>[The first two years of field experiments in a PhD project were completed to compare effects of nutrient pellets scattered or bagged and to monitor longitudinal effects of nutrient additions through streams.</p> <p>Significant effects of nutrient additions on densities of salmon parr from scatter treatment were measured. Other data are being processed.</p> <p>Additionally, a review of applications of nutrient additions has been published in Aquatic Conservation. The review "considers the impact of increasing nutrient limitation in temperate basin stream and river systems, focusing on upland areas that currently or previously supported wild Atlantic salmon populations. It found evidence that growth and biomass of juvenile salmon can be increased via appropriate additions of nutrients, offering potential as a conservation tool. However, further research is required to understand the long-term effects of these additions on salmon populations and stream ecosystems, and to assess the vulnerability of downstream habitats to eutrophication as a result. While purposeful nutrient addition with the aim of enhancing and conserving salmonid populations may be justified in some cases, it should be undertaken in an adaptive management</p>

		<p>framework. Further, nutrient addition should be linked to nutrient retention and processing, and integrated into large-scale habitat restoration and recovery efforts. Finally, both the scientific and the management community should recognise that the ecological costs and benefits associated with adding nutrients to salmon streams may change in a non-stationary world."</p>
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	[
Action H2:	Description of action (as submitted in the IP):	<p>River Basin Management Plans (RBMP) have identified that the main pressures on flows and levels in Scotland are from water abstractions or reservoirs used for hydroelectricity generation, the irrigation of crops and the manufacture of food and drink along with public water supplies to a lesser extent. This assessment includes consideration of salmon flow requirements.</p> <p>SEPA will work with hydroelectricity producers, farmers and other businesses abstracting water or storing it in reservoirs, to ensure that they take the actions necessary to improve water flows and levels during the current RBMP cycle and beyond.</p> <p>Scottish Water is investing, in the current investment programme 2015-21, to improve abstraction regimes in nine water resource zones to ensure that there is sufficient water remaining in the water bodies during periods of low rainfall.</p> <p>SEPA assesses any new abstraction proposal against standards in the current regulatory framework to prevent deterioration of good ecological status/ potential of the water environment and protect wild salmon.</p>
	Expected outcome (as submitted in the IP):	<p>River Basin Management Plans (RBMPs) utilise SEPA classification results to set objectives for improving the water environment over a six year cycle, the current RBMP2 being from 2015 to 2021. The third RBMPs will build on the work completed under RBMP2 up to 2021 to reduce abstraction and flow regulation pressures and will prioritise future targets up to 2027.</p> <p>Once the new online, GIS pressures mapping tool has been delivered, our target will be for it to show a reduction, by the end of the five-year NASCO plan period, in the river length affected by abstraction; flow regulation; upland/agriculture land-use and drainage; and/or forestry drainage.</p>
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress.	<p>[Scotland's water resources (flow and levels) are currently classified by SEPA at 90% being in good condition in 2020 up from 88% in 2015 when the second River Basin Management Plans (RBMPs) were published. Scotland's third RBMPs sets out work to manage agricultural irrigation; water use for hydropower generation; and</p>

	<i>Other material (e.g. website links) will not be evaluated):</i>	investment in public water supply aiming for a six-percentage point uplift in the condition of Scotland's water resources to 96% at good condition in 2027. For example, during the third RBMP SEPA will finalise its review of licences for 34 hydropower schemes across Scotland to deliver improvements as required in flows and levels.
	Current status of action:	<u>Ongoing</u>
	If 'Completed', has the action achieved its objective?	<input type="checkbox"/>
Action H3:	Description of action (as submitted in the IP):	Implement Scotland's Second Climate Change Adaptation Programme (SCCAP2). This will highlight Scotland's adaptation priorities going forward.
	Expected outcome (as submitted in the IP):	Riparian shade to be increased in sensitive and appropriate water bodies, through collaborative projects undertaken by DSFBs and/or Fisheries Trusts.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<u>The updated Climate Change Plan details the Scottish Government's ambition to further increase and accelerate woodland creation, aiming to plant 18,000 hectares a year by 2024/25.</u> The Scottish Wild Salmon Strategy includes a commitment to improve the climate resilience of rivers through supporting targeted riparian tree planting and natural regeneration. Riparian woodland is already supported through the Forestry Grant Scheme but further development to target funding will be undertaken through 2022. Scotland's Forestry Strategy 2019-2029 is supported by an Implementation Plan which is currently being updated and will reinforce the Scottish Government's commitment to riparian woodland creation.
	Current status of action:	<u>Ongoing</u>
	If 'Completed', has the action achieved its objective?	<input type="checkbox"/>
Action H4:	Description of action (as submitted in the IP):	Prevention of morphological impacts and passive recovery of watercourses will be achieved through the controlled activity regulations (CAR) and associated "General Binding Rules" and adherence to other guidelines such as the forest and water guidelines. GBRs include requirements for buffer strips to reduce fine sediment and nutrient delivery and encourage the growth of riparian vegetation.
	Expected outcome (as submitted in the IP):	River Basin Management Plans (RBMPs) utilise SEPA classification results to set objectives for improving the water environment over a six year cycle, the current RBMP2 being

		<p>from 2015 to 2021. The third RBMPs will build on the work completed under RBMP2 up to 2021 to reduce morphology pressures and will prioritise future targets up to 2027.</p> <p>Once the new online, GIS pressures mapping tool is delivered, our target will be for it to show a reduction, by the end of the five-year NASCO plan period, in the river length affected by sedimentation; loss of sediment transfer; lack of, or excessive, large woody debris; canalisation/dredging/boulder removal.</p>
	<p>Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</p>	<p>SEPA assesses the physical condition of the water environment to understand the extent and impacts of modifications and structures, such as embankments; culverts; and the widening and straightening of rivers. The physical condition of Scotland's water environment is now at good or better condition in 90% of waters.</p> <p>Action to tackle modifications to the physical condition of rivers and lochs through the third River Basin Management Plans aim to see improvements to 92% at good or better condition for physical condition by 2027 and 97% in the long-term through natural recovery.</p>
	Current status of action:	Ongoing
	If 'Completed', has the action achieved its objective?	1
Action H5:	Description of action (as submitted in the IP):	<p>The UK Forestry Standard (UKFS) and its supporting Forests and Water Guidelines require that: 'Where new planting or restocking is proposed within the catchments of water bodies at risk of acidification, an assessment of the contribution of forestry to acidification and the recovery process should be carried out; details of the assessment procedure should be agreed with the water regulatory authority'. This guidance, agreed by the relevant forestry, water and nature conservation authorities in the UK, describes how to meet this requirement, including the need to undertake a critical load assessment where new planting or restocking is proposed within the catchments of water bodies that are failing or at risk of failing Good Ecological Status due to acidification, and a site impact assessment where felling is planned.</p> <p>The benefits of riparian native woodland will be reinstated on water courses as part of the initiative to moderate river temperatures outlined in H3.</p>
	Expected outcome (as submitted in the IP):	Once the new online, GIS pressures mapping tool is delivered, our target will be for it to show a reduction, by the end of the five-year NASCO plan period, in the river length affected by loss of natural riparian vegetation and/or conifer afforestation.
	Progress on action to date (Provide a brief overview with a quantitative	The four administrations of the UK have begun work on the review of the UK Forestry Standard (UKFS). The review takes place every five years and the aim is to update and publish the next version by the end of 2022.

	<p><i>measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</i></p>	<p>The Standard includes good practice requirements to enhance the resilience of forests and woodland to mitigate the risks pose their sustainably by the effects of climate change. Advice and information is available to help forest managers implement the UKFS requirements to enhance forest resilience and the potential of forests to protect communities and the environment form the effects of climate change.]</p>
	<p>Current status of action:</p>	<p>Ongoing</p>
	<p>If 'Completed', has the action achieved its objective?</p>	<p>I</p>
<p>Action H6:</p>	<p>Description of action (as submitted in the IP):</p>	<p>Scotland's River Basin Management Plans (RBMPs), published in 2015, set objectives for the protection and improvement of our water environment, with the aim of 87% of water bodies achieving a classification of 'Good Ecological Status' by 2027. Fish passage is recognised as one of the three main priorities of RBMP2 (2015 – 2021), including the challenges faced by Atlantic salmon smolts in their downstream migration, particularly in relation to hydro schemes. The second RBMPs identified fish migration pressures in 392 water bodies across Scotland.</p> <p>SEPA is leading on work to remove or ease redundant barriers in rivers, utilising ca. £5m annual funding from the Scottish Government. Through SEPA regulatory action and the Water Environment Fund more than 1000 kilometres of good-quality salmon habitat has been opened-up by the removal of barriers to fish migration.</p>
	<p>Expected outcome (as submitted in the IP):</p>	<p>River Basin Management Plans (RBMPs) utilise SEPA's classification results to set objectives for improving the water environment over a six year cycle, the current RBMP2 being from 2015 to 2021. The third RBMPs will build on the work completed under RBMP2 up to 2021 to reduce fish barrier pressures and will prioritise future targets up to 2027.</p> <p>Once the new online, GIS pressures mapping tool is delivered, our target will be for it to show a reduction, by the end of the five-year NASCO plan period, in the river length affected by upstream passage (consider cumulative impacts); downstream passage; dams/weirs/large water bodies; and/or other.</p>
	<p>Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</p>	<p>Since 2015, 29 barriers to fish migration have been removed or eased and more than 1000 kilometres of good-quality salmon habitat has been made available. Following field investigations, discussions with stakeholders and further assessments, SEPA has identified additional barriers and confirmed that a number do not need action. When taken together, this now means that 88% of Scotland's rivers and lochs are at good or</p>

		<p>better condition for fish migration. This is up from 86% in 2015.</p> <p>During the third River Basin Management Plans 2021 - 2027 SEPA is aiming to remove or ease 244 impassable man-made barriers. Action to tackle man-made barriers to fish migration aim to see improvements to 99% at good or better condition for fish migration by 2027.]</p>
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	I
Action H7:	Description of action (as submitted in the IP):	<p>Carry out detailed assessments required for the regulation of existing marine renewable developments, new developments and proposed new developments on whether migrating salmon are likely to be present and whether the development will pose risk to salmon populations during construction and operation, and whether mitigation should be implemented to minimise any potential impacts. The existing developments are mainly off the east coast of Scotland and in the Moray Firth.</p> <p>In the five-year NASCO plan period (2019-2024), the work will concentrate on investigations on the spatial and temporal distribution of emigrating salmon smolts in, and in the vicinity of, existing and proposed development areas.</p> <p>The work will be carried out under the ScotMER (Scottish Marine Energy Research) initiative which prioritises research needs, promotes appropriate research and coordinates and records progress with filling in knowledge/ evidence gaps for salmon and other receptors in relation to marine renewables development.</p>
	Expected outcome (as submitted in the IP):	<p>Improved understanding of the potential impacts of marine renewable energy installations (during construction and operation) on Atlantic salmon.</p> <p>Improved assessment of the risks marine renewables developments pose to salmon populations during construction and operation, and whether mitigation should be implemented.</p>
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	[The development of the offshore wind industry continued, with many developments at various stages of planning, consenting, construction and operation, in the Moray Firth, off the Scottish east coast, and in the Solway Firth, and tidal developments operated off the north coast of Scotland and in Shetland. There were detailed assessments for new developments, of whether migrating salmon were likely to be present and whether the proposed development would pose risk to salmon populations during construction and operation, and for

		<p>developments being constructed or operated, what consenting conditions should be implemented to minimise any potential impacts.</p> <p>Following wide consultation, Scottish Government published the Sectoral Marine Plan for Offshore Wind Energy in October 2020 which identified 15 new areas for development, mainly further offshore. The plan aimed to minimise any potential for negative impacts on the environment and flagged up areas where receptors, including salmon, will need further project level consideration and assessment at the application stage. The 15 areas were made available for lease by Crown Estate Scotland, in the first Scottish offshore wind leasing round in a decade, and the successful applicants were announced in January 2022. The majority will use floating wind turbines, which will minimise concern about impacts of underwater noise during the construction phase.</p> <p>The ScotMER (Scottish Marine Energy Research) initiative continued to prioritise research needs, promote appropriate research and coordinate and record progress with filling in knowledge / evidence gaps in relation to marine renewables development. ScotMER is a collaboration between Scottish Government, offshore wind industry, statutory nature conservation bodies and other stakeholders. The main research work carried out in 2021 was further studies on the spatial and temporal distribution of emigrating salmon smolts in the Moray Firth and off the Scottish east coast using epipelagic trawling and acoustic tracking, this work having been delayed from 2020 due to Covid-19.]</p>
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	I
Action H8-1:	Description of action (as submitted in the IP):	Research, review and experimentation to better understand and address, as appropriate, the impact of piscivorous birds on Atlantic salmon.
	Expected outcome (as submitted in the IP):	Increase the scientific information available to underpin the management of piscivorous birds.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified	[A project funded by the European Maritime and Fisheries Fund has been initiated to track salmon smolts as they migrate along rivers to understand and identify areas of loss. For the past two years has been repeatedly delayed use to Covid-19 restrictions but with the relaxation of

	<i>evaluation, of progress. Other material (e.g. website links) will not be evaluated):</i>	measures is now being undertaken. The study will examine the use of acoustic 180khz predation tags and JSATS pin tags for monitoring the fish. The study will be conducted in 2022 and is looking at 4 major salmon rivers on the Scottish East coast and will aim to understand areas of loss caused by predation and the application of the latest acoustic smolt tracking technologies. This will complement previous work that has used larger 69khz tags that suggested predation was high post tagging. A pilot study to track goosanders was undertaken in 2021. This demonstrated that goosanders can successfully be tracked using glue on GPS tags. Responses of tagged birds after tagging did not indicate that they left the river system.]
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	I
Action H8-2:	Description of action (as submitted in the IP):	Pilot study to identify the degree of interaction and potential scale of impact of dolphins on returning adult Atlantic salmon in the Moray Firth.
	Expected outcome (as submitted in the IP):	Improved understanding of the predation interactions between dolphins and salmon.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	[In 2018, a sample of returning adult salmon fitted with temperature sensitive transmitters was released in the Moray Firth, Scotland and monitored by arrays of acoustic receivers. Data collected are being analysed in relation to information on presence of dolphins as part of a PhD project that is near to completion.]
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	I
Action H8-3:	Description of action (as submitted in the IP):	The Seals and Salmon Interactions (SSI) work to identify the impact of seal predation on wild Atlantic salmon.
	Expected outcome (as submitted in the IP):	Provision of estimates of potential Atlantic salmon removals from the River Dee by seals.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	[A study was undertaken to describe the ecology of seals in the River Dee with respect to potential impact on salmonid fisheries, and will provide an estimate of salmonid consumption by seals in the observed area of Aberdeen harbour over a twelve month period. A draft manuscript which is being prepared for peer reviewed journal submission has been delayed due to Covid-19, but

		it is anticipated that the manuscript will be published in 2023.]
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	I

3.3 Provide an update on progress on actions relating to Aquaculture, Introductions and Transfers and Transgenics (section 4.11 of the Implementation Plan).

*Note: the reports under 'Progress on action to date' should provide a **brief overview** of each action. For all actions, provide **clear and concise** quantitative information to demonstrate progress. In circumstances where quantitative information cannot be provided for a particular action because of its nature, a clear rationale must be given for not providing quantitative information and other information should be provided to enable progress with that action to be evaluated. While referring to additional material (e.g. via links to websites) may assist those seeking more detailed information, this will not be evaluated by the Review Group.*

Action A1:	Description of action (as submitted in the IP):	Marine Scotland has reviewed the policy permitting salmon introductions (stocking), and will also revisit options for a new licensing regime under that policy.
	Expected outcome (as submitted in the IP):	A licensing regime aiming at improving the conservation status of local wild Atlantic salmon populations.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	[Marine Scotland carried out a review of the latest scientific evidence and conducted extensive consultation with stakeholders on the existing policy throughout 2021. We expect to publish a revised salmon stocking policy later in 2022.
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	[
Action A2:	Description of action (as submitted in the IP):	In support of Article 11 of CNL(06)48 Marine Scotland initiated a national introgression project in July 2018 to investigate the extent of hybridisation and quantify levels of introgression of genetic material from farm escapees into wild Scottish Atlantic salmon populations. This project provides key data to support the minimisation of adverse genetic interactions by identifying impacted areas.
	Expected outcome (as submitted in the IP):	In October 2021, Marine Scotland Science published the first national assessment of genetic introgression in Scotland. The study shows that there is a risk to wild salmon from introgression of genes from farmed salmon that escape, but that it may be low outside the aquaculture regions even though escaped fish may disperse widely at sea. The study is a snap

		<p>shot in time and the findings are in line with observations from similar studies in Norway.</p> <p>We have given a commitment to continue to invest in the National Electrofishing Programme for Scotland (NEPS), which provides detailed local information on juvenile salmon stocks in the aquaculture regions and elsewhere within a robust structured framework and underpins continuation of the National Introgression Programme for Scotland.</p>
	<p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</i></p>	<p>☐ Samples of juvenile salmon were obtained from across Scotland under the National Electrofishing Programme for Scotland (NEPS). A sub-set of these samples were screened for introgression and classified according to a panel of recently developed single nucleotide polymorphisms which provide high levels of differentiation between farmed and wild fish. A report was published on site-wise measures of introgression in 2021. New samples were collected from all NEPS 2021 sites, establishing a new programme for introgression reporting (National Introgression Programme for Scotland: NIPS). Work is now underway to analyse these new samples in the laboratory.</p> <p>Future work will aim to provide unbiased regional estimates of the levels of genetic introgression in Scotland's wild salmon populations on a regular basis.</p>
	Current status of action:	☐ Ongoing
	If 'Completed', has the action achieved its objective?	☐
Action A3:	Description of action <i>(as submitted in the IP):</i>	Post-smolt, west coast sweep netting and a continued work programme at the Shieldaig site to provide data to investigate potential links between sea lice, farms and sea trout.
	Expected outcome <i>(as submitted in the IP):</i>	Recommendations for a future interactions approach.
	Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):</i>	<p>☐ Work at Shieldaig has continued but was partly disrupted due to Covid 19. Lice counts in the environment and lice data on sea trout continued to be collected although emigrating smolt numbers were not recorded in 2020. These resumed in 2021. Data from the Shieldaig operation regarding returning sea trout has been analysed and is in process of write up.</p> <p>Planned work to track salmon and sea trout smolts were put on hold until 2021. These have now been restarted (See A4 below). Tracking is to be linked to genetic analysis of fish for introgression.</p>

		Work is underway to identify another trap site in the area as the lease on the fish trap comes to an end.
	Current status of action:	<u>Ongoing</u>
	If 'Completed', has the action achieved its objective?	[
Action A2 & A3:	Description of action (as submitted in the IP):	The Salmon Interactions Workstream has provided advice on existing and potential future arrangements to mitigate the 12 high level pressures on wild salmon. As an initial task, a new, independently chaired Working Group was established in October 2018, to examine and provide advice on the interactions between wild and farmed Atlantic salmon.
	Expected outcome (as submitted in the IP):	An approach to managing interactions which enables the protection and enhancement of Scotland's wild Atlantic salmon stocks alongside the sustainable development of aquaculture, maintaining the right balance across our economic, environmental and social responsibilities – in line with Scotland's National Marine Plan.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	<p><u>In</u> October 2021 the Scottish Government published its response to the recommendations made by the Salmon Interactions Working Group (SIWG) to address the interactions between wild and farmed salmon in Scotland.</p> <p>The SIWG response appointed the Scottish Environment Protection Agency (SEPA) as the lead body responsible for managing the risk to wild fish from sea lice from fish farms. In December 2021 SEPA issued a consultation on a proposed risk-based framework for managing interaction between sea lice from marine finfish farms and wild Atlantic salmon. The proposed framework will assess new and expanding farms on the risk posed to wild salmon post-smolts as they migrate through defined wild salmon protection zones.</p> <p>The SIWG response announced a commitment to strengthen controls on fish escapes and to introduce penalties for fish farm escapes with the ultimate aim of ring-fencing or redistributing this money to support wild salmonid conservation and research.</p> <p>A Code of Practice covering the Containment of and Prevention of Escape of Fish on Fish Farms in relation to Marine Mammal Interactions was legally adopted in November 2021. We are also revising the Scottish Technical Standard for Finfish Aquaculture, which determines technical requirements for fish farm equipment in order to help prevent escapes of finfish as a result of technical failure and related issues at Scottish</p>

		finfish farms. Any suspected escape from a fish farm, or circumstances which give rise to a significant risk of escape, must be reported to the Scottish Government immediately. Details of all escape or suspected escape events are published online .
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	[
Action A4:	Description of action (as submitted in the IP):	Develop and implement field studies and migration models to better understand migration behaviours and potential interactions between salmonids and aquaculture developments.
	Expected outcome (as submitted in the IP):	This work will improved understanding of the potential for interactions between migration of smolts and aquaculture installations.
	Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. Other material (e.g. website links) will not be evaluated):	[On-going investigations of the spatial and temporal distribution of emigrating salmon smolts throughout the five-year NASCO plan period. Marine Scotland Science (MSS) is working with the Atlantic Salmon Trust regarding the latter's delivery of a salmon smolt acoustic tracking project on the West coast in 2021 and 2022. This is looking at large scale movements of smolts from sea lochs towards the known migration corridor on the Scottish Shelf. The locations of the smolts detected will be compared to published modelling studies. MSS is also conducting focused tracking studies on Atlantic salmon regarding their behaviours as they migrate through Scottish sea loch systems. These have been focused on Loch Linnhe (2016/2017) and now Loch Torridon (2018-2023). The Loch Torridon studies are incorporating genetic analysis and relating this to escapement.]
	Current status of action:	[Ongoing]
	If 'Completed', has the action achieved its objective?	[

4: Additional information required under the Convention
4.1 Details of any laws, regulations and programmes that have been adopted or repealed since the last notification.

<p>The Scottish Wild Salmon Strategy establishes national vision and framework for a range of new and ongoing management measures to tackle the multiple pressures that Atlantic salmon face during their life cycle.</p> <p>Scotland and Solway-Tweed River Basin Management Plans set out a range of actions to address water quality, physical condition, water resources, and the migration of wild fish.</p> <p>The Conservation of Salmon (Scotland) Amendment Regulations 2021 establishes the areas of inland waters where there is a prohibition on the retention of any salmon caught.</p> <p>The Fish Farming Code of Practice (Scotland) Order 2021 adopts the Code of Practice on the Containment of and Prevention of Escape of Fish on Fish Farms in relation to Marine Mammal Interactions</p> <p>Fish Farming Businesses (Reporting) (Scotland) Order 2020 from March 2021 requires mandatory reporting of average number of female sea lice per fish per fish farm site</p>
<p>4.2 Details of any new commitments concerning the adoption or maintenance in force for specified periods of time of conservation, restoration, and other management measures.</p>
<p>4.3 Details of any new actions to prohibit fishing for salmon beyond 12 nautical miles.</p>
<p>4.4 Details of any new actions to invite the attention of States not party to the Convention to matters relating to the activities of its vessels which could adversely affect salmon stocks subject to the Convention.</p>
<p>4.5 Details of any actions taken to implement regulatory measures under Article 13 of the Convention including imposition of adequate penalties for violations.</p>
<p>North American Commission Members only:</p>
<p>4.6 Details of any new measures to minimise bycatches of salmon originating in the rivers of the other member.</p>
<p>4.7 Details of any alteration to fishing patterns that result in the initiation of fishing or increase in catches of salmon originating in the rivers of another Party except with the consent of the latter.</p>