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|  | Council <i>Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2022 UK – Scotland</i> | CNL(23)44 |
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Annual Progress Report on Actions taken under the Implementation Plan for the Calendar Year 2022

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 2023**.

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| Party: | United Kingdom |
| Jurisdiction / Region: | Scotland |

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| 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). |
| No further changes are proposed at this time. |
| 1.2 Describe any major new initiatives or achievements for salmon conservation and management that you wish to highlight. |
| <p>The Scottish Wild Salmon Strategy Implementation Plan was developed during 2022 (Wild salmon strategy: implementation plan 2023 to 2028 - gov.scot (www.gov.scot)). A companion piece to the high-level strategy published in early 2022, the Plan sets out a suite of actions and initiatives that will be the focus of collective efforts across a range of government and non-government stakeholders over the period 2028.</p> <p>Work under the Scottish Wild Salmon Strategy will also contribute to the Scottish Biodiversity Strategy. A draft strategy published in December 2022 (Biodiversity strategy to 2045: tackling the nature emergency - gov.scot (www.gov.scot)) sets out our clear ambition for Scotland to be</p> |

| <i>(e.g. via links to websites) may assist those seeking more detailed information, this will not be evaluated by the Review Group.</i> | | |
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| Action F1-1: | Description of action <i>(as submitted in the IP)</i> | Continued annual assessment of Scotland's stocks using an adult based assessment method based on rod catch information and additional ancillary data. |
| | Expected outcome <i>(as submitted in the IP)</i> | 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. |
| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | In advance of the 2022 season the overall aim is to be in a position to assess the combined impacts of five years of the conservation measures being in place, alongside continuing developments in the adult model, which will have been fully and transparently peer-reviewed. |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | <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%). In 2022 the conservation status of stocks was assessed using data for the return years 2017 to 2021, and was used to inform fisheries management measures for these stocks that will apply for the 2023 fishing season.</p> <p>Of the 173 areas assessed in 2022, 29 (17%) were categorised as grade 1; 31 (18%) as grade 2 and the remaining 113 (65%) as grade 3. Weighting these data by the most recent estimated stock size in the areas assessed, 83% of the Scottish salmon stock was associated with grade 1 areas, 11% with grade 2 areas and 6% with areas categorised as grade 3.</p> <p>Work on developing and publishing the assessment methods is ongoing following delays caused by the COVID-19 pandemic.</p> |
| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | [Ongoing] |
| If 'Completed', has the action achieved its objective? | [| |
| | Description of action <i>(as submitted in the IP)</i> | Development of a complementary juvenile assessment tool based on a strategically designed programme of electrofishing |

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| Action F1-2: | | (National Electrofishing Programme for Scotland: NEPS) delivered through local fisheries management organisations. |
| | Expected outcome <i>(as submitted in the IP)</i> | 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. |
| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | Juvenile assessments will be used to supplement adult assessments on the status of salmon populations and inform management actions at national and local scales. Data on the status of juvenile fish populations will provide further assurance of the efficacy of conservation measures. |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | <p>The findings of electrofishing surveys in 2021 were published in a report (National Electrofishing Programme for Scotland (NEPS) 2021: analysis - gov.scot (www.gov.scot)) that also included comparisons to previous surveys (inter-annual variability in abundance). The NEPS 2021 report also added assessments for individual rivers where they contained at least 5 samples in every year, and a comparison of juvenile densities and rod catch data showing that the different abundance metrics were broadly coherent.</p> <p>Substantial new work was undertaken in 2022 to identify with greater accuracy where rivers could be sampled by wading and electrofishing through consultation with local fisheries managers. This information was used to refine the sample frame (the rivers on which survey sites could be allocated) and strata for NEPS and has resulted in a greater inclusion of larger rivers. A new long-term (9 year) survey design is now being developed that will meet the needs of national and local managers. This survey design would be available for any future data collection where funding allowed.</p> <p>The NEPS juvenile assessment method for salmon is now well established and supported scientifically, providing important information on the status of salmon (and associated pressures) at national, regional, catchment and sites scales. The general scientific approach could be used in a variety management. However, given the paucity of reliable and detailed catchment / sub-catchment scale stock-recruitment data for juveniles, it remains unclear exactly how the “benchmark” developed for NEPS relates to other reference points. This makes direct comparisons between methods challenging and affects straight forward integration.</p> |

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| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | [Ongoing] |
| | If 'Completed', has the action achieved its objective? | [] |
| Action F1-3: | Description of action <i>(as submitted in the IP)</i> | 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 <i>(as submitted in the IP)</i> | 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. |
| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | This project will improve our understanding of the impacts of catch and release on stocks. If impacts are shown to be greater than currently understood then this could inform future decisions on the use of catch and release in rivers that fail to meet their Conservation Limit. |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | [The research study has completed and published (see 2021 APR) In 2022 stakeholder views on increasing catch and release rates and reducing post-release mortality were sought through a public consultation. Following this there are no plans to change the current approach, however we intend to refresh and promote national guidance on best practice for catch and release. |
| | Current status of action | [Completed] |

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| | <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | |
| | If 'Completed', has the action achieved its objective? | [Yes |
| Action F2: | Description of action <i>(as submitted in the IP)</i> | 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 <i>(as submitted in the IP)</i> | Reduced illegal wild Atlantic salmon catches by the end of the five-year NASCO plan period. |
| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | Marine Scotland will work closely with FMS and its members, as well as sea fisheries stakeholders, including but not limited to Inshore Fisheries Groups (IFGs). |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | [No substantive progress in the reporting period. However, we have reaffirmed a commitment to undertake a review of enforcement powers, the offences and penalty regime for salmon poaching and other offences, aiming to increase penalties if necessary.] |
| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | [Ongoing] |
| | If 'Completed', has the action achieved its objective? | [|
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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. Please report in relation to the reporting year only or the most relevant recent year. 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.

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| <p>Action H1-1:</p> | <p>Description of action (as submitted in the IP)</p> | <p>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.</p> <p>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 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 (as submitted in the IP)</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> |

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| | <p>Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i></p> | <p>SEPA has produced an annual RBMP classification for all the water bodies in Scotland since 2007. Classification results for the current and previous years can be found on the Water Classification Hub. In general, the classification of water bodies describes by how much their condition or status differs from near natural conditions and includes a range of biological quality elements supported by measurements of chemistry.</p> <p>The new online, GIS pressures mapping tool should allow us to identify the length and proportion of individual and/or collective rivers impacted by this pressure.</p> <p>SEPA’s work to ensure compliance with GBR requirements to reduce diffuse pollution from agriculture is being scaled up, with visits to more catchments to be undertaken.</p> |
| | <p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i></p> | <p>Due to the combined impact of COVID 19 and a cyber-attack the SEPA did not produce a classification update in 2022 (for the year 2021). SEPA have been rebuilding the necessary systems, and will be in a position to update and publish the classification update on the Water Classification Hub by late 2023.</p> <p>SEPA continued to deliver the objectives set out in the third river basin management plans to improve water quality and although farm visits were impacted by COVID 19 and the cyber-attack they have now resumed.</p> |
| | <p>Current status of action <i>(Please note: ‘Completed’ means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as ‘Ongoing’)</i></p> | <p>Ongoing</p> |
| | <p>If ‘Completed’, has the action achieved its objective?</p> | <p>[</p> |
| Action H1-2: | <p>Description of action <i>(as submitted in the IP)</i></p> | <p>Explore the benefit and feasibility of nutrient enrichment in upland oligotrophic parts of river systems.</p> |
| | <p>Expected outcome <i>(as submitted in the IP)</i></p> | <p>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.</p> |
| | <p>Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i></p> | <p>We have established and published in peer-reviewed literature that 1) that addition of nutrients to streams in nutrient-poor upland streams increases density and/or growth and condition of salmon parr (reviewed in Bernthal, F. R., Armstrong, J. D., Nislow, K. H., & Metcalfe, N. B. (2022). Nutrient limitation in Atlantic salmon rivers and streams: Causes, consequences, and</p> |

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| | | management strategies. <i>Aquatic Conservation: Marine and Freshwater Ecosystems</i> , 32(6), 1073-1091); 2) that longer and better condition smolts have higher marine survival (Armstrong, J. D., McKelvey, S., Smith, G. W., Rycroft, P., & Fryer, R. J. (2018)). The current field stage of the work is establishing how distribution (scattered vs clumped) and mode (single or multiple application) affect demographic responses of salmon populations. Results are being incorporated into a modelling framework to examine effects of change in size and number of salmon parr on returning adults. Application of nutrients in headwaters for management (eg restoration of spring salmon) will need to be considered within the wider aims of the RBMP process to ensure appropriate nutrient balance. An incidental output of the project was empirical data on performance of salmon parr in relation to local temperature (Bernthal, F. R., Seaman, B. W., Rush, E., Armstrong, J. D., McLennan, D., Nislow, K. H., & Metcalfe, N. B. (2023). High summer temperatures are associated with poorer performance of underyearling Atlantic salmon (<i>Salmo salar</i>) in upland streams. <i>Journal of Fish Biology</i> , 102(2), 537-541.). |
| | Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated) | [Workshops were held with major stakeholders to review pros and cons of nutrient additions and routes for practical applications. Field trials of effects of nutrient pellets on density, growth and condition of salmon parr are complete. Field trials of effects of form and timing of nutrient additions in analysis. Model linking nutrient additions to number of adult salmon almost complete. Review published, other papers and thesis in production, incidental paper published (see above). |
| | Current status of action (Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing') | Ongoing |
| | If 'Completed', has the action achieved its objective? | I |
| Action H2: | Description of action (as submitted in the IP) | 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. |

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| | | <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> |
| | <p>Expected outcome <i>(as submitted in the IP)</i></p> | <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> |
| | <p>Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i></p> | <p>The Scottish Environment Protection Agency (SEPA) has produced an annual RBMP classification for all the water bodies in Scotland since 2007. Classification results for the current and previous years can be found on the Water Classification Hub. In general, the classification of water bodies describes by how much their condition or status differs from near natural conditions and includes supporting hydrology (changes to water levels and water flows) elements.</p> <p>The effectiveness of changing flow regimes will be assessed through regular WFD monitoring. Where fish are the target of the altered flow regime, they will form part of the assessment process. Regular inspections by SEPA staff will be used to assess compliance with licenses and license reviews will be carried out as necessary.</p> <p>MSS has undertaken significant research to improve understanding of the effects of flow regime on Atlantic salmon. These studies reveal the limitation of historical approaches such as Physical Habitat Simulation System (PHABSIM) for decision making and have the potential to improve understanding of the relationships between discharge and Atlantic salmon in managed systems and inform scientifically defensible adjustments to flow regime in the future.</p> |
| | <p>Progress on action to date</p> | <p>Due to the combined impact of COVID 19 and a cyber-attack SEPA did not produce a classification update in 2022 (for the year 2021). SEPA have been rebuilding the</p> |

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| | <p><i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i></p> | <p>necessary systems, and will be in a position to publish the updated classification on the Water Classification Hub by late 2023. The updated classification will use monitoring data collected in 2021 and 2022.</p> <p>SEPA continued to deliver the objectives set out in the third river basin management plans and work with land owners and operators to identify mitigation and improvement actions for water bodies impacted by changes to water levels and flows. This includes improving our understanding of the impacts of reduced flows. This work is on-going.</p> <p>In August 2022, due to a prolonged period of dry weather, SEPA temporarily suspended abstraction licences in two river catchments to protect the sustainability of water environments and avoid significant impact on fish populations and river habitats.]</p> |
| | <p>Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i></p> | <p>[Ongoing]</p> |
| | <p>If 'Completed', has the action achieved its objective?</p> | <p>[]</p> |
| <p>Action H3:</p> | <p>Description of action <i>(as submitted in the IP)</i></p> <p>Expected outcome <i>(as submitted in the IP)</i></p> <p>Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i></p> | <p>Implement Scotland's Second Climate Change Adaptation Programme (SCCAP2). This will highlight Scotland's adaptation priorities going forward.</p> <p>Riparian shade to be increased in sensitive and appropriate water bodies, through collaborative projects undertaken by DSFBs and/or Fisheries Trusts.</p> <p>MSS has established the Scotland River Temperature Monitoring Network (SRTMN), in collaboration with FMS members and University of Birmingham.</p> <p>This project has produced models to map rivers' reaches that are most vulnerable to temperature change. This project will continue to monitor river temperature and improve tools for management decision making, focussed on riparian tree planting. These tools will be made available online through the National Marine Plan Interactive (NMPi) website and other appropriate online resources.</p> |

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| | | <p>Future work aims to (1) Model mean daily temperature to better understand relationships between river temperature and salmonids in the natural environment; (2) incorporate river temperature into the national juvenile Atlantic salmon density model to identify critical thresholds for production; and (3) undertake climate change projections for Scottish rivers.</p> <p>The new online, GIS pressures mapping tool should allow us to identify the length and proportion of individual and/or collective rivers impacted by loss of shading; over-shading; changing temperature patterns; thermal discharge; hydro modification; and/or other.</p> |
| | <p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i></p> | <p>SRTMN has delivered national scale mapping tools and advice to prioritise areas where riparian tree planting can have the greatest overall benefits in terms reducing river temperatures. All tools are made available online through the National Marine Plan Interactive (NMPi) website, web-based mapping services and other appropriate online resources. SRTMN webpages provide a central location for all project outputs. Outputs and tools - Scotland River Temperature Monitoring Network (SRTMN) - gov.scot (www.gov.scot)</p> |
| | <p>Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i></p> | <p>Ongoing</p> |
| | <p>If 'Completed', has the action achieved its objective?</p> | <p></p> |
| Action H4: | <p>Description of action <i>(as submitted in the IP)</i></p> | <p>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.</p> |
| | <p>Expected outcome <i>(as submitted in the IP)</i></p> | <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 morphology pressures and will prioritise future targets up to 2027.</p> |

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| | | 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. |
| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | <p>The Scottish Environment Protection Agency (SEPA) has produced an annual RBMP classification for all the water bodies in Scotland since 2007. Classification results for the current and previous years can be found on the Water Classification Hub. In general, the classification of water bodies describes by how much their condition or status differs from near natural conditions and includes supporting morphology elements.</p> <p>The new online, GIS pressures mapping tool should allow us to identify the length and proportion of individual and/or collective rivers impacted by this pressure.</p> <p>A range of new indicators is also being developed by SEPA to improve assessment of fine sediment and morphological impacts.</p> |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | <p>Due to the combined impact of COVID 19 and the cyber-attack SEPA did not produce a classification update in 2022 (for the year 2021). SEPA have been rebuilding the necessary systems, and will be in a position to publish the updated classification on the Water Classification Hub by late 2023. The updated classification will use monitoring data collected in 2021 and 2022.</p> <p>A range of new indicators is also being developed by SEPA to improve assessment of fine sediment and morphological impacts.]</p> |
| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | [Ongoing] |
| | If 'Completed', has the action achieved its objective? | [|
| Action H5: | Description of action <i>(as submitted in the IP)</i> | 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 20 carried out; details of the assessment procedure should be agreed with the water regulatory authority'. This guidance, agreed by |

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| | | <p>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> |
| | <p>Expected outcome <i>(as submitted in the IP)</i></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 loss of natural riparian vegetation and/or conifer afforestation.</p> |
| | <p>Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i></p> | <p>Guidance, agreed by the relevant forestry, water and nature conservation authorities in the UK, describes how to meet the requirement described above, 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>We acknowledge that it is important to ensure that any impacts on fish, including wild salmon, are picked up by the current processes in order that management action can be prioritised. In some cases, particularly in SW Scotland, local monitoring suggests impacts on juvenile fish.</p> |
| | <p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i></p> | <p>[Work continued on reviewing the UK Forestry Standard (UKFS) and an updated edition of the is due to be published by the end of 2022/23.]</p> |
| | <p>Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i></p> | <p>[Choose an item.]</p> |

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| | If 'Completed', has the action achieved its objective? | |
| Action H6: | Description of action (as submitted in the IP) | <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.</p> <p>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> |
| | Expected outcome (as submitted in the IP) | <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> |
| | Approach for monitoring effectiveness & enforcement (as submitted in the IP) | <p>The Scottish Environment Protection Agency (SEPA) has produced an annual RBMP classification for all the water bodies in Scotland since 2007. Classification results for the current and previous years can be found on the Water Classification Hub. In general, the classification of water bodies describes by how much their condition or status differs from near natural conditions and includes range of biological quality elements, supported by measurements of morphology. Scientists from MSS, University of Aberdeen and the James Hutton Institute have authored a scientific paper, published in the journal Science of the Total Environment in 2019, that identifies the impacts of barriers (e.g. dams, weirs and other in river structures) on river connectivity for Atlantic salmon. This information forms a valuable resource to inform and prioritise river restoration efforts and financial investment and provides a substantial methodological improvement on previous assessments that estimate the value of habitat from river length or area.</p> <p>Scotland's third River Basin Management Plan will be finalised by December 2021. MSS' research will be considered during</p> |

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| | | SEPA's barrier prioritisation in the updated plan. Where complete barrier removal is carried out, the expected improvements are self-evident and no monitoring is currently proposed. Stakeholder feedback from our consultation of the draft plan has challenged whether there is a need to monitor to assess the length of time taken for Atlantic salmon to recolonise newly available habitats and to assess whether riverine processes (including the transport of bed material) has occurred and are actually being used. Where barrier easement or improvements to fish pass passage are carried out, appropriate site specific monitoring is required to indicate achievement of Good Ecological Status/Potential under WFD or local fisheries management objectives. |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | Due to the combined impact of Covid 19 and a cyber-attack SEPA did not produce a classification update in 2022 (for the year 2021). SEPA have been rebuilding the necessary systems, and will be in a position to publish the updated classification on the Water Classification Hub by late 2023. The updated classification will use monitoring data collected in 2021 and 2022. SEPA continued to work with partners to remove or ease redundant barriers in rivers. Projects included both barrier easement and morphology restoration, benefiting river habitat and social and economic well-being. |
| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | Ongoing |
| | If 'Completed', has the action achieved its objective? | I |
| Action H7: | Description of action <i>(as submitted in the IP)</i> | 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. 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. |

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| | | 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. |
| | Expected outcome <i>(as submitted in the IP)</i> | Improved understanding of the potential impacts of marine renewable energy installations (during construction and operation) on Atlantic salmon. Improved assessment of the risks marine renewables developments pose to salmon populations during construction and operation, and whether mitigation should be implemented. |
| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | The outputs of these research projects will be improved knowledge of the density of Atlantic salmon smolts in the vicinity of marine renewables development sites and what rivers they are associated with. This information will be considered in the context of known stressors, such as the clearance by detonation of unexploded ordnance at construction sites, and potential stressors, such as possible increased predation resulting from the structures providing shelter and feeding opportunities to predators. The outputs will be used to reduce any risk the construction and operation of marine renewable developments pose to salmon populations. |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | During 2022, Marine Scotland continued to assess marine renewables developments at all stages in relation to migrating salmon presence and potential risk to salmon populations, based on the information currently available. The pace of future offshore wind development in Scotland increased in 2022 with 15 new areas made available for lease by Crown Estate Scotland, mainly further offshore. This was via the first Scottish offshore wind leasing round (ScotWind) in a decade, and the successful applicants were announced in January 2022 (https://www.crownestatescotland.com/news/scotwind-offshore-wind-leasing-delivers-major-boost-to-scotlands-net-zero-aspirations). The majority will use floating wind turbines, which minimises concern about impacts of underwater noise from piling during the construction phase. The underpinning Sectoral Marine Plan (https://www.gov.scot/publications/sectoral-marine-plan-offshore-wind-energy/) highlights areas where particular receptors, including salmon, will need further project level consideration and assessment at the application stage. In February 2022, Crown Estate Scotland also announced the proposed details of its Innovation and Targeted Oil and Gas (INTOG) offshore wind leasing process (https://www.crownestatescotland.com/news/new- |

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| | | <p>leasing-opportunity-unveiled-to-boost-innovation-and-help-decarbonise-north-sea).</p> <p>No new investigations on the spatial and temporal distribution of emigrating salmon smolts in and in the vicinity of existing and proposed development areas were carried out in 2022. However, good progress was made in compiling and analysing the data from previous years' trawling and tagging studies, and a report on the spatial distribution of seaward-migrating juvenile Atlantic salmon and brown trout leaving the Rivers Dee and Don in North East Scotland was completed (link to the published report will be available imminently).</p> <p>In 2022 under the Scottish Marine Energy Research (ScotMER) programme a fully updated diadromous fish evidence map, with an emphasis on salmon, was developed (published in January 2023, available through https://www.gov.scot/publications/diadromous-fish-specialist-receptor-group/) and three new projects were initiated under the programme by Marine Scotland - to be carried out in 2023:</p> <ul style="list-style-type: none"> - passage of salmon smolts through two Moray Firth development areas as an add-on to the PrePARED (Predators and Prey Around Renewable Energy Developments) project which is investigating how seabirds, marine mammals and fish respond to offshore windfarms, - passage of salmon smolts through development areas off the North Coast of Scotland as an add-on to the Atlantic Salmon Trust's West Coast array, and - a review and evaluation of current knowledge regarding diadromous fish in relation to marine renewable energy production in Scotland and identification of future research needs.] |
| | <p>Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i></p> | <p>[Ongoing]</p> |
| | <p>If 'Completed', has the action achieved its objective?</p> | <p>[</p> |

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| 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. |
| | Approach for monitoring effectiveness & enforcement (as submitted in the IP) | Results of the research will inform the approach to managing piscivorous birds. |
| | Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated) | [Research on the diet of cormorants (<i>Phalacrocorax carbo</i>) and goosander (<i>Mergus merganser</i>) on four Scottish rivers in 2019 and 2020 was finalised and published in 2022. Bird stomach contents analysis - final report: Goosander and Cormorant diet on four Scottish rivers 2019 to 2020 - gov.scot (www.gov.scot) The study found evidence of both adult and juvenile salmon in diets with salmon comprising a higher proportion of diet in northern rivers than in southern ones, consistent with previous studies. The results also indicate that predation on pre-smolts during autumn and winter could influence the strength of the smolt run in the following spring, although further research is required to confirm and quantify this.] |
| | Current status of action (Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing') | [Ongoing] |
| | If 'Completed', has the action achieved its objective? | [|
| 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. |
| | Approach for monitoring effectiveness & enforcement (as submitted in the IP) | A joint research project between MS, the Ness DSFB and Aberdeen University commenced on 9 July and successfully acoustically tagged 109 adult grilse. |

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| | <p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i></p> | <p>[Results are being incorporated in a PhD report of investigations into the behaviours of dolphins in the Moray Firth.]</p> |
| | <p>Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i></p> | <p>Ongoing</p> |
| | <p>If 'Completed', has the action achieved its objective?</p> | <p>I</p> |
| Action H8-3: | <p>Description of action <i>(as submitted in the IP)</i></p> | <p>The Seals and Salmon Interactions (SSI) work to identify the impact of seal predation on wild Atlantic salmon.</p> |
| | <p>Expected outcome <i>(as submitted in the IP)</i></p> | <p>Provision of estimates of potential Atlantic salmon removals from the River Dee by seals.</p> |
| | <p>Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i></p> | <p>MS will progress the purchase of suitable surface cameras, in order for SMRU to trial their ability to record seal movements both upstream and downstream in the River Dee.</p> |
| | <p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i></p> | <p>[The Sea Mammal Research Unit reported on their analysis of seal event data extracted from four months of near-continuous video recordings at a salmon fishery on the River Dee in February 2023. A total of 198 seal events were reviewed to provide further information on the effectiveness of a CCTV system to detect seals and provide a better understanding of how seals use the river. The report noted that seals appeared to follow predictable routes up the river and were observed to forage close to riverbanks in shallow water at specific times. Identification of such habitual behaviours may allow seal capture techniques to be developed using low cost approaches. The majority of seal events were detected by more than one video channel, with some specific camera angles better suited to seal detection than others. In addition, there were areas of the river generally not used by seals.</p> |

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| | | <p>This knowledge may allow system refinement by either allowing for a reduced number of cameras to be deployed, or deploying more widely distributed cameras to improve detection of seals moving downriver in key areas of the river.</p> <p>Furthermore, targeting cameras on specific locations where seals routinely surface may allow the collection of seal photo-ID data during daylight hours.</p> <p>Models relating seal events to environmental covariates explained a modest amount of variation in presence/absence and number of events (5-12%), but a number of covariate relationships were consistently observed across various models. Seal events were most likely to occur around dawn, when river flow was low, and after mid-December (within the bounds of the study period, November-February). Events were less frequent at dusk, earlier in the study period (November), and when river flow was high.]</p> |
| | <p>Current status of action (Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</p> | [Completed] |
| | <p>If 'Completed', has the action achieved its objective?</p> | [yes] |

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. Please report in relation to the reporting year only or the most relevant recent year. 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.*

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| 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. |

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| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | Marine Scotland, the licensing authority, considers each stocking application on its individual merits, fully evaluating the risks and benefits as advised in NASCO's Guidelines for incorporating social and economic factors in decisions under the Precautionary Approach. A record is kept of all applications and decisions ensuring that they are in line with the current stocking policy. |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | Marine Scotland prepared and published a Science of Stocking report , bringing together the science behind the various considerations needed to be taken prior to and following stocking, with a view to aiding design of salmon management strategies that balance risks and benefits within a broad policy framework. This will inform a revised stocking policy. |
| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | Ongoing |
| | If 'Completed', has the action achieved its objective? | |
| Action A2: | Description of action <i>(as submitted in the IP)</i> | 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 <i>(as submitted in the IP)</i> | 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 shot in time and the findings are in line with observations from similar studies in Norway. 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 |

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| | | framework and underpins continuation of the National Introgression Programme for Scotland. |
| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | <p>The national introgression project utilised a panel of genetic markers to screen juvenile fish tissue samples collected from sites around Scotland in structured surveys and is expected to continue over three years, completing by end of March 2021. Levels of introgression are quantified and examined in relation to the presence/absence and concentration of aquaculture production in the different rivers and regions sampled.</p> <p>The technique basically takes two groups of fish and from these creates two sets of reference data, one to represent farmed fish and one to represent wild. Individual fish can then be examined in relation to these two reference sets of fish and characterisation made as to where the individual fish falls along the spectrum of genetic difference between the two groups. This work has focused on distinguishing between wild Scottish salmon and farmed fish of Norwegian origin stock.</p> |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | <p>Building on the conclusions of NEPS thus far, and to start understanding spatial and temporal trends of introgression, a second national introgression programme for Scotland (NIPS) was conducted in 2022. The results of are expected in 2023.</p> <p>Following the escape of ~50K adult salmon from the Carradale North fish farm in 2020, some of which were caught in nearby rivers, an extension to the introgression study was conducted in 2020 and 2021 to determine whether interbreeding between wild fish and escapees had occurred. The results of the study were published in Dec 2022 and found no evidence that the escape event resulted in significant interbreeding of escaped farm fish with wild stocks. Farm salmon escape event: levels of farm/wild hybridisation - gov.scot (www.gov.scot)</p> |
| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | Ongoing |
| | If 'Completed', has the action achieved its objective? | I |
| Action A3(i): | 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. |

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| | Expected outcome <i>(as submitted in the IP)</i> | Improved knowledge of sea lice dispersion, impacts on wild salmonids and migratory behaviours of salmonids in complex sea loch environments. These data will be used to inform the proposed sea lice framework as part of an adaptive management process. |
| | Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i> | Standard programme management approaches are in place to ensure effectiveness and scientific rigour. |
| | Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i> | [Sweep netting took place during the 2022 smolt run, with results published on Fisheries Management Scotland's website. Publications and Data - Fisheries Management Scotland (fms.scot) Sweep netting will also take place for the 2023 smolt run. Following 2023 sweep netting and other monitoring that examines the impact of farmed fish on wild fish, findings will be integrated into the Scottish Environment Protection Agency (SEPA)'s sea lice risk assessment framework, to monitor its effectiveness. Work to develop the framework and its monitoring element are ongoing, with enhanced proposals published in Aug 2022 and SEPA to launch their second consultation on the framework in April 2023, before initial implementation later in 2023..] |
| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | [Ongoing] |
| | If 'Completed', has the action achieved its objective? | [|
| Action A2 & A3(ii): | Description of action <i>(as submitted in the IP)</i> | 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. This process is a critical step in working towards the achievement of NASCO's goals on containment and sea lice. |
| | Expected outcome <i>(as submitted in the IP)</i> | An approach to managing interactions which meets international commitments and 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, |

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| | | environmental and social responsibilities – in line with Scotland’s National Marine Plan. |
| | <p>Approach for monitoring effectiveness & enforcement <i>(as submitted in the IP)</i></p> | <p>Standard programme management approaches are in place to ensure effectiveness and reporting of progress (e.g. The Scottish Government response to the Salmon Interactions Working Group Report was published in October 2021: Salmon Interactions Working Group Report: Scottish Government Response - gov.scot (www.gov.scot))</p> |
| | <p>Progress on action to date <i>(Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</i></p> | <p>Sea lice: The Scottish Environment Protection Agency (SEPA) is now the lead body responsible for managing the risk to wild fish from sea lice from fish farms. SEPA is developing a sea lice risk assessment framework – a model that will screen fish farm applications for the risk that the farm poses to increasing the lice load of its respective wild salmon protection zone (narrow or constrained bodies of water wild salmonids pass through). The framework will see advice and regulation for the interactions of sea lice being led by SEPA within an adaptive management framework. SEPA is considering as part of this new framework the conditions which will apply to new and existing farms where greater evidence of risk is available.</p> <p>Following consultation in 2021/22 SEPA published enhanced proposals in Aug 2022 (Proposals for a risk-based framework for managing interaction between sea lice from marine finfish farm developments and wild Atlantic salmon in Scotland - Scottish Environment Protection Agency - Citizen Space (sepa.org.uk)). Further consultation is expected in April 2023, before initial implementation later in 2023.</p> <p>Marine Scotland Science has also published a framework for assessing impact of sea lice from farms on wild smolts: Modelling parasite impacts of aquaculture on wild fish: The case of the salmon louse (Lepeophtheirus salmonis) on out-migrating wild Atlantic salmon (Salmo salar) smolt - ScienceDirect, a book chapter defining a standardised framework for lice particle dispersal models: Sea Lice Biology and Control - Chapter 9 - 5m Books and a meta-analysis of impact of sea lice infection levels on fish health: Inter Research » AEI » v15 » p73-83 (int-res.com), all supporting SEPA’s sea lice risk assessment framework</p> <p>Containment:</p> |

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| | | <p>The Scottish Government is revising the Scottish Technical Standard for Scottish Finfish Aquaculture (originally published in 2015).</p> <p>The Scottish Government is also exploring the introduction of penalties for fish farm escape events, and how this money can be redistributed to support environmental measures related to wild salmon conservation and research.</p> |
| | <p>Current status of action (Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</p> | <p>Ongoing</p> |
| | <p>If 'Completed', has the action achieved its objective?</p> | <p>I</p> |
| <p>Action A3 (iii):</p> | <p>Description of action (as submitted in the IP)</p> | <p>Develop and implement field studies and migration models to better understand migration behaviours and potential interactions between salmonids and aquaculture developments.</p> |
| | <p>Expected outcome (as submitted in the IP)</p> | <p>Improved understanding of salmon migration behaviours and the potential for interactions between migration of smolts and aquaculture installations.</p> <p>Data will inform the smolt swimming model, which will be used to support the implementation of a new spatially adaptive sea lice risk assessment framework to minimise risk to wild salmon.</p> |
| | <p>Approach for monitoring effectiveness & enforcement (as submitted in the IP)</p> | <p>Standard project management approaches are in place to ensure effectiveness and scientific rigour.</p> |
| | <p>Progress on action to date (Provide a brief overview with a quantitative measure, or other justified evaluation, of progress. If sub-actions are completed during the reporting year, this should be made clear. Other material (e.g. website links) will not be evaluated)</p> | <p>The West Coast Tracking project is a three year project (2021-2023) which aims to further our knowledge of smolt migration with a focus on their movements in relation to marine developments, including aquaculture. Preliminary results from the first year showed salmon smolts disperse widely across the west coast of Scotland. In 2022 the project entered its second year, the data collection aspect of the project was successful, with analysis of results currently underway. Funding was secured in 2022 for the third year of the project in 2023, which will focus in more detail on smolt movements through sea lochs.</p> |

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| | | In Loch Torridon, tracking studies to evaluate time to loch escapement in relation to genetic status have been conducted over 4 years to include interannual variation.] |
| | Current status of action <i>(Please note: 'Completed' means that the overall action is complete for the lifetime of the third reporting cycle. If it is an ongoing action that is reported on annually, it should be marked as 'Ongoing')</i> | [Ongoing] |
| | If 'Completed', has the action achieved its objective? | I |

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| 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. |
| [The Conservation of Salmon (Scotland) Amendment Regulations 2022 establishes the areas of inland waters where there is a prohibition on the retention of any salmon caught. |
| 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. |
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| 4.3 Details of any new actions to prohibit fishing for salmon beyond 12 nautical miles. |
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| 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. |
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| 4.5 Details of any actions taken to implement regulatory measures under Article 13 of the Convention including imposition of adequate penalties for violations. |
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| North American Commission Members only: |
| 4.6 Details of any new measures to minimise bycatches of salmon originating in the rivers of the other member. |
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| 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. |
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