Evidence to Scottish Parliament's Net Zero, Energy and Transport Committee on the *Scottish Biodiversity Strategy to 2045: tackling the nature emergency*. Submitted 5th December 2023 by **Fidra**.

We welcome the opportunity to present evidence to the NZET Committee on the Scottish Biodiversity Strategy and its Delivery Plan. While there could be a case to have a separate Marine Biodiversity Strategy, we welcome and support the 6 high level objectives of the Scottish Biodiversity Strategy, which are all relevant to the marine environment.

General comments on the Biodiversity Strategy.

Section 2.3 Drivers of Biodiversity loss across our land and seascapes discusses 'biodiversity decline in marine environments, seas and on our coasts'. This section, quite rightly, aligns the biodiversity crisis with the 'increasing impacts of climate change and ocean acidification', and 'disturbance of the seabed by bottom-contact towed fishing gear'. However there is no reference to the impact of chemical or plastic pollution, both of which can have significant impacts on the natural environment and the wildlife within it. For example, the UK Chemicals Investigation Programme(CIP), which has completed its 3rd phase, has found levels of the banned chemical PFOS (a member of the PFAS group of chemicals) concentrated in coastal and transitional waters at levels exceeding the current environmental quality standard by more than 10 times across all sites monitored. PFAS, a group of persistent, bioaccummulative and toxic chemicals, are being found in increasing levels in the environment in the UK and local wildlife, in particular in gannets[i] and shags[ii] in Scotland. While the environmental monitoring of CIP has focussed on wastewater treatment works and their intakes and outputs, many of these have direct outputs to the sea, or outputs that will lead to rivers that then lead to our seas. There is an urgent need to address this to lower the chemical burden on the natural environment and wildlife, through restriction of the entire chemical group across all relevant regulations, including food contact materials, plant protection products and medicines.

Plastic pollution is an additional pressure on biodiversity through its physical impact (i.e. through entanglement with wildlife and ingestion) and its chemical impact (i.e. through chemicals in the plastics being lost to the environment and affecting wildlife, transferring to wildlife after ingestion, and chemicals in the environment being adsorbed to the surface of plastic particles and pieces. The Marine Conservation Society's Great British Beach Clean and Fidra's Great Global Nurdle Hunt both show increasing levels of plastic pollution. Nurdles, or pre-production plastic pellets, in particular are well documented in the environment and having been ingested by wildlife, with records going back decades. Evidence previously submitted to the NZET Committee has shown that Scotland is currently one of the largest plastic pellet producers in Europe, with Grangemouth producing one-third of the entire UK plastics production[iii]. Across the world 390 million tonnes (Mt) of plastic[iv] were produced weighing more than the total weight of the human population. Annually across Europe between 16,888 and 167,431 tonnes of plastic pellets are lost to the environment[v].

Under **Section 3.2 Objectives for 2030,** the high level objective 3 **'supports… efforts to meet CBD Goal A and Targets 1, 2, 3, 4 and 6'.**

The Scottish Government's current stand supporting expansion of the Scottish salmon industry is at odds with Goal A ambitions to see 'the abundance of native wild species is increased to healthy and resilient levels', when challenges of disease which then require chemical treatments (i.e. sea lice and parasiticides, bacterial infections and antibiotics) will only increase as the industry expands. These issues need to be addressed, for example through ensuring farms are appropriately situated, before the industry expands further. Similarly, by allowing the industry to continue to expand in its use of the open net pen system predominantly in use, there is then an increased risk of escapes of the domesticated Atlantic salmon and introgression into wild Atlantic salmon populations, as well as disease transmission.

Targets 1, 2, 3 and **4** speak to aims to increase protection for the marine environment and its wildlife, yet abandonment of the Highly Protected Marine Area scheme and lack of progress on Marine Protected Area management plans are serious set backs in these ambitions.

Target 5 is at odds with the Scottish Government's support for the expansion of Scottish salmon farming, with increased farm sizes and farm sites using open net pen structures leading to an increased risk of escapes of the domesticated Atlantic salmon and introgression into wild Atlantic salmon populations, as well as disease transmission to both Atlantic salmon and sea trout.

Within **Section 4.2 Scotland's Biodiversity Delivery Framework** the inclusion of the case study on Integrated Multi-trophic Aquaculture (IMTA) is welcomed, as a clear demonstration of circular economy. The salmon farming industry in Scotland has not indicated support for IMTA however, often citing the challenges involved in scaling up it up to the level at which salmon farming is currently performed in Scotland. However this should not preclude its use in smaller operations, or further research and development into scaling it up. In addition, this could be an indication of the need to scale down the present level of salmon farming to smaller operations. While this may be less profitable on an economy of scale, environmental impacts at some point need to be taken into consideration ahead of profits in order to slow down our present rate of biodiversity loss and reduce the pressures on our natural environment.

Comments on the Scottish Biodiversity Strategy delivery plan.

A general comment is that the key ecosystems need to be set out clearly in the main text of the plan. Timelines are needed across all the actions, rather than just a few as at present. There also needs to be greater clarification of where the responsibility for delivering actions lies, and what the links to other policies and sectors are. The framework should align with the River Basin Management Plan (RBMP) 2021-2027, with river and estuary health of vital importance to the seas which they feed into.

Objective 1: Accelerate Restoration and Regeneration

On the action '**Introduce Statutory Nature Restoration Targets**', more clarity is needed on how gaps will be covered by actions in the delivery plan once targets are developed, at a minimum reiterating the commitment in the Bute House Agreement. The Bill should outline how targets will be monitored and evaluated, including dates. The action **'Publish a plan for marine and coastal ecosystem restoration, including prioritising habitats and locations suitable for restoration by 2025'** should be expanded to include robust execution and implementation of the plan as well as its publication.

The action to **'Improve Resilience in Coastal and Marine Systems by reducing pressures and increase and safeguard space for coastal habitat change'** is a good ambition but needs to lead to effective and timeline action, detailing next steps. The wording focuses on coastal systems, whereas the priority action includes 'Marine Systems', with the result that the actions listed do not fully reflect the Scottish Biodiversity Strategy text. A source to sea approach should be taken to ensure actions in the marine environment are supported by actions on land and in freshwaters, where the majority of plastic and chemical pollution into the sea currently originates from. Timescales are needed for the implementation of plans as well as their publication, for example the action '**Contribute to the OSPAR action to agree a regional action plan by 2025**…'does not give a timeline for implementing the plan.

We welcome the action to '**reduce marine litter and marine plastics**' through enabling 'improved plastic pellet handling and management across the plastics supply chain to reduce pellet loss, and provide guidance to support pellet clean up in the environment by end 2025'. We would point to evidence submitted to the NZET committee recently on pellet pollution in Scotland. While we welcome the action to '**Develop policy by 2028 to address contaminants that exceed OSPAR threshold values**', the timeline to develop policy should be shortened to enable policy to be implemented by 2028.

More thought should be given about how Marine and Coastal Systems can be integrated within the strategic national programme of ecosystem restoration and the programme for species recovery, and the actions to achieve that. This section should also consider:

- Climate change and its cumulative effects in the marine environment - identifying their key impacts and pressures and actions to minimise or mitigate them.
- Impacts from different sectors and activities (eg. commercial fisheries, aquaculture, oil and gas and offshore renewables).
- Actions to link holistic marine spatial planning and recovery of coastal and marine systems.
- Supporting diversification of the aquaculture industry ensuring climate change mitigation and adaption is incorporated into the sector.
- Further exploring the potential of shellfish and seaweed aquaculture as a means of providing beneficial environmental services
- Accelerating the adoption of approaches in aquaculture which minimise, reduce or remove the discharge of medicine residues and increase the use of effective non-medicinal treatments, waste recovery and preventative measures.

Under the action to '**Enhance water and air quality. Undertake water management measures to enhance biodiversity**' we would highlight that particular focus is needed on the presence and impacts of persistent chemicals in water. Because of the irreversibility of their pollution, their impacts will be felt for generations, therefore their presence in the environment needs to be minimised. While the reference to the water industry's Chemical Investigation Programme (CIP) is good to see, its implementation in Scotland has been limited and lacking in transparency, with the exception of the pharmaceutical data. A comprehensive biomonitoring system needs to be developed for chemicals of concern in Scotland that monitors marine waters, sediment and biota, as well as the adjoining terrestrial and freshwater compartments that can in turn be sources of chemical input into the Marine and Coastal Systems. Long term monitoring needs to be maintained, making use of citizen science to extend the reach of SEPA monitoring programmes when opportune, although not as a substitute. Examples are the Marine Conservation Society's Beachwatch programme and Fidra's Great Nurdle Hunt project.

Alongside this it is widely recognised that there needs to be continued investment in improving the wastewater treatment services, which is poorly addressed by this plan. Commitments to tackle sewage discharges, for example, need to go beyond current plans. There also needs to be a commitment to action around other pollution sources such as runoff from roads and agriculture fields and the impact it could be having on the Marine and Coastal Systems. In particular additional measures are needed to ensure pollution sources do not impact our waters around marine protected areas.

Objective 2: Protect Nature on Land and at Sea Across and Beyond Protected Areas

We support the key actions that have been listed to deliver this objective but suggest the following need to also be considered for the successful implementation of NPF4:

- Local Planning Authorities are adequately resourced to enforce the implementation of commitments made in Habitat Management Plans
- Every Planning Authority needs to ensure it has adequate processes in place for prioritising compliance with planning conditions.

We support the action to '**Ensure that at least 30% of both land and sea is protected or conserved and effectively managed to support nature in good health by 2030 (30 by 30)'** however, the actions in this section need to be made SMART.

Objective 3: Embed Nature Positive Farming, Fishing and Forestry

In the key actions under this objective we welcome the action to '**Implement Scotland's vision for sustainable aquaculture to minimise negative impacts on biodiversity**'. We are supportive of the vision for sustainable aquaculture's ambitions to produce the following outcomes:

- Ecosystem based management for aquaculture alongside other marine users

- Consideration for restorative aquaculture including understanding baseline levels for restoration targets
- Supporting diversification of the aquaculture industry and promoting its role in climate change mitigation and adaption
- Further exploring the potential of shellfish and seaweed aquaculture as a means
- of providing beneficial environmental services
- Accelerating the adoption of approaches which minimise, reduce or remove the discharge of medicine residues and increase the use of effective non-medicinal treatments, waste recovery and preventative measures
- Prioritising non-lethal means of mitigating predator interactions that avoid disturbing protected species or entangling birds
- Improving spatial planning tools including our understanding of and effective management of cumulative risk and impacts to be fed into NMP2 and regional marine plans. Areas deemed unsuitable for use should have industry relocated and consider being returned to nature.

It is crucial that the vision must now be implemented in a timely manner and supported with adequate resources. We also welcome the additional actions to '**Support SEPA in the implementation of the sea lice risk assessment framework, starting to apply the framework to applications for proposed new farms and expansions of existing farms in the second half of 2023**'. However we believe expansion of the farmed salmon industry should be paused while new regulatory systems are imposed, in order to assess the need for relocation or review of licence conditions for farms with poor environmental performance.

Measures should be reviewed against the latest scientific evidence and footprint of marine industries to ensure they are still fit for purpose to tackle climate and nature crisis. For example open net pen finfish aquaculture has increased significantly and its environmental impacts accordingly, however its environmental impact is not considered in combination with other pressures such as chemical or plastic pollution, point source outputs from other industries including wastewater treatment works, or diffuse pollution such as runoff from agriculture and roads.

Objective 4: Protect and Support the Recovery of Vulnerable and Important Species and Habitats

Under the key actions for delivering this objective we feel the action to '**Revise Scotland's list of priority species and habitats for biodiversity conservation**' lacks detail of who will be involved in the process, and the intention of the list. As with many actions there is no timescale indicated. The action to '**Adopt a revised Priority Marine Feature list at the end of 2025 to align with National Marine Plan 2**' is welcomed.

We also support the action to '**Manage existing and emerging pressures to improve the conservation status of seabirds, marine mammals and elasmobranchs**' and would like to see a focus on chemical pollution as well as plastic pollution and disease. With chemicals such as PFAS known to bioaccumulate in bird species, and have endocrine disrupting properties, understanding their presence in the environment and wildlife is essential to this action.

Under the key action to **'Implement measures to protect and recover Scotland's wild Atlantic salmon and migratory fish populations', w**e welcome the actions to 'Deliver the actions set out in the Wild salmon strategy Implementation plan 2023-2028 to improve habitat and reduce pressures on salmon and other fish species' and 'Undertake research on post-smolt and adult Atlantic salmon migration routes around Scottish coastal areas, and the use of estuarine and coastal habitats by sea trout, shad, smelt, river and sea lamprey and European eel'.

Objective 5: Invest in Nature

For this objective we welcome the action to '**Increase investment in Scotland's coastal and marine environments**'. The Nature Restoration Fund and SMEEF have criteria for coastal and marine initiatives that focus on restoration, recovery, and enhancement. However, it currently restricts projects to those with

biodiversity and conservation outcomes (i.e. restoration) and excludes those focused on achieving social outcomes. Addressing social outcomes in coastal and marine environments is essential to create conditions that enable the successful delivery of conservation outcomes.
Investing in activities to help restore Scotland coasts and seas by 2028 is good. However, these investments should also focus on increasing enforcement and monitoring. For example, The Marine Directorate of the Scottish Government should carry out a strategic review of its enforcement assets with a view to determining what further equipment or resources may be required in order to ensure an effective deterrence to illegal activities.

Objective 6: Take Action on the Indirect Drivers of Biodiversity Loss

Under this objective there should be 'biodiversity impact' screening for any recipient of public funds, including in their supply chains. In addition the circular economy must be embedded across our economy and lead to a reduction in the consumption of raw materials.

We welcome the actions to '**Develop a decision-making framework within NMP2 that supports marine ecosystem recovery through appropriate management of other supported marine activities by 2026**' and '**Develop policies and objectives within NMP2 that support the mitigation of and adaptation to the impacts of climate change by 2026**'. However it is essential that aspects such as scale, location, ambitions and specific percentages for restoration are further explored. Emphasising the target of actively restoring a percentage of degraded marine areas outlined from the EU biodiversity strategy should be a focal point in the development of the marine ecosystem recovery plan.

---

[i] Pereira, M.G. et al (2021) Contrasting long term temporal trends in perfluoroalkyl substances (PFAS) in eggs of the northern gannet (*Morus bassanus*) from two UK colonies.
Science of The Total Environment, **754**, 141900, https://doi.org/10.1016/j.scitotenv.2020.141900.
[ii] Carravieri, A. et al (2020) Interactions between Environmental Contaminants and Gastrointestinal Parasites: Novel Insights from an Integrative Approach in a Marine Predator. *Environmental Science & Technology,* **54**, 8938-8948, DOI: 10.1021/acs.est.0c03021
[iii] Eunomia. (2018). Investigating options for reducing releases in the aquatic environment of microplastics emitted by (but not intentionally added in) products. Available at: https://www.eunomia.co.uk/reports-tools/investigatingoptions-for-reducing-releases-in-the-aquatic-environment-of-microplastics-emitted-by-products/
[iv] Plastics Europe (2022) Plastics – the facts 2022. Available at https://plasticseurope.org/knowledge-hub/plastics-the-facts-2022/
[v] Oracle Environmental Experts. (2023). Mapping the global plastic pellet supply chain. Pg 77. Available at: https://hub.nurdlehunt.org/resource/oee-mapping-the-global-plastic-pellet-supply-chain-report-only/