Nith Catchment Source to Sea plan

Framework

Final Report –

LUC

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Galloway and Southern Ayrshire Biosphere / South Scotland Enterprise

Nith Catchment Source to Sea plan
Framework

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Contents

Framework for developing a Nith Catchment Source to Sea plan

1. Introduction: Purpose and structure of document

This document commissioned jointly by South of Scotland Enterprise in partnership with Galloway and Southern Ayrshire UNESCO Biosphere sets out a robust method for developing a catchment scale land use plan for the Nith source to sea project.

The document is structured as follows:

- Section 2 sets out the policy context guiding the approach
- Section 3 provides an overview of the Nith catchment and a summary of the baseline situation
- Section 4 then outlines recommended actions to develop the catchment plan

A series of Appendixes are also provided containing supporting information.

2. Policy context guiding the approach

The policy context for developing the Nith Catchment Source to Sea framework is summarised below. Further details of the policy context can be found in the South of Scotland RLUF, Appendix 4.

The **National Strategy for Economic Transformation** describes Scotland's ambition for a wellbeing economy that thrives economically, socially and environmentally; is fairer, inclusive, wealthier and greener; and delivers a just transition to a net zero, nature-positive economy. Rebuilding Scotland's natural capital is key to the long-term productivity of the many sectors of the economy which rely on the resources and services nature provides.

Scotland's third national Land Use Strategy sets out Scottish Government's long-term vision for sustainable land use, prioritising climate and nature emergencies. It highlights opportunities for sustainable job creation, nature-based solutions, and a circular economy. It also acknowledges that we ask a lot of our land and that the demands are growing, recognising that the climate and nature emergencies are the most urgent challenges of our generation. These cannot be addressed without changes to the way we use, manage and live on the land.

To achieve a **Just Transition to Net Zero** by 2045 and align with Scottish Government's emerging **Land Use and Agriculture Just Transition Plan** we must understand where the costs and benefits from the way we use the land lie (both now and in the future), recognising the economic prosperity that sustainable land management can provide to existing communities and future generations. The Land Use Strategy for Scotland recognises that our landscapes may look very different as a result, with significantly more, (and better) afforestation (albeit we note that parts of the South of Scotland are already heavily forested) and peatland restoration, and efficient and environmentally friendly food production that helps restore nature. It promotes a holistic systems approach to land use and management, rather than a sectoral approach, to help balance the competing demands placed on the land in a way that protects and enhances our land, encouraging a wider range of interests to engage to enable meaningful debate about our priorities for land use.

The **Nature Conservation (Scotland) Act 2004** sets out a series of measures which are designed to conserve biodiversity and to protect and enhance the biological and geological natural heritage of Scotland. The act requires a report on Scotland's Biodiversity Strategy every three years. It also includes a new general duty on all public bodies and office holders to further the conservation of biodiversity. The Act provides the principal legislative components of a new, integrated, system for nature conservation within Scotland.

The **Wildlife and Natural Environment (Scotland) Act 2011** (asp 6) or WANE Act introduced legislation affecting the way land and the environment is managed. A key element of the WANE Act is the requirement for public bodies to report on their biodiversity duty, ensuring accountability and progress in biodiversity conservation efforts. The Act also affected game-shooting (including close seasons and "poaching" offences); abolished "areas of special protection" for wild birds; the use of snares to catch animals; extended the regime for controlling non-native and invasive species;

delegation of licensing functions under the Act; new wildlife offences, including for vicarious criminal liability for certain offences; and the powers of wildlife inspectors.

The **Natural Environment (Scotland) Bill** seeks to help restore nature and protect biodiversity in Scotland and recognises how this is interconnected with tackling climate change. Recently introduced to Parliament, if it became an Act it would place a duty on Ministers to set legally-binding nature restoration targets and modernise how national parks and deer are managed. The legislation is a key part of the Scottish Government's Strategic Framework for Biodiversity and complements the Scottish Biodiversity Strategy and related delivery plans.

The Convention of South of Scotland has agreed to position the region as the **Natural Capital Innovation Zone** (NCIZ) to encourage and accelerate responsible investment across the region. This recognises how the region can positively address climate and nature impacts by strengthening business and community resilience, whilst growing the economy for future generations. The region will pioneer innovative methods of land and marine management built on partnerships and develop a pipeline of Natural Capital investment opportunities that identify nature-based solutions including regenerative agricultural projects, providing opportunities for community wealth building, to deliver the wellbeing economy. Activity will also help halt loss of biodiversity by 2030 and reverse it with landscape scale restoration by 2045, including projects such as the Wild Heart Expansion Project in Southern Scotland.

The South of Scotland Regional Economic Strategy (RES) (2025-2027), overseen by the Regional Economic Partnership, aims to deliver a fair, green, and flourishing economy in the region. As key components of the RES, the NCIZ and RLUF play an integral role in supporting the strategy's vision. Specifically, Action 5 of the RES Delivery Plan, outlines they aim to champion the NCIZ by launching pilot programs to pioneer innovative land and marine management and build and strengthen partnerships with public, private and third sector organisations.

The natural capital innovation zone designation is very much in line with the **Investing in Nature** plan from the Scottish Government to support investment in biodiversity and climate adaptation in Scotland. Scotland's Biodiversity Strategy and National Adaptation Plan 3 identify enabling conditions necessary for successful delivery, including an Investment Plan which sets out the actions needed to mobilise public, private and philanthropic finance to deliver a nature positive future. This plan is the first iteration of that commitment, setting out actions including developing a nature investment prospectus, addressing nature finance skills gaps and leading/accelerating delivery. Scottish Government aims to develop natural capital markets that also deliver benefits for local communities and wider society, in line with Scotland's Just Transition principles and land reform objectives.

This framework builds on the work initiated by the Galloway and Southern Ayrshire Biosphere (GSAB) and supports the delivery of its 2023-2033 Strategy. The GSAB area promotes integrated land use and landscape-scale restoration, focusing on payments for ecosystem services, habitat networks, and the celebration of cultural traditions and associations. The framework aligns with GSAB's vision by enhancing biodiversity, supporting sustainable land practices, and reinforcing the UNESCO Biosphere designation, which adds significant value and serves as a key asset when seeking private finance.

The Scottish Government's Land Use Strategy identifies **Regional Land Use Partnerships** (RLUPs) and the National Planning Framework as key platforms for change to help achieve Scotland's ambitions for sustainable land use. Scottish Government established five RLUP pilots, that are aligned with groupings of planning authorities developing Regional Spatial Strategies. The South of Scotland was one of the areas selected. The RLUPs are intended to help stakeholders work together to find ways to optimise land use in a fair and inclusive way. The South of Scotland pilot was delivered through a partnership of South of Scotland Enterprise, Dumfries and Galloway Council and Scottish Borders Council. After extensive research and engagement activity, structured around a natural capital approach that ensured recognition of the value of the area's assets, the South of Scotland Regional Land Use Framework (RLUF) was successfully published in September 2024. The RLUF identifies some of the priority changes in land use that are going to be needed in the South of Scotland (e.g. more native woodland creation and peatland restoration, renewable energy generation and more efficient and environmentally friendly food production) and starts to explore where these priority land use changes might be best delivered. The RLUF can act as a delivery plan for the NCIZ.

In the context of the range of policies outlined above, the **Nith catchment source to sea project** is an exciting opportunity to pilot a catchment-based approach that adds catchment-specific definition to the South of Scotland RLUF, taking into account its unique environmental, social and economic characteristics, pressures and opportunities, whilst being guided by the vision, objectives, principles and evidence therein. Looking at spatial data at the catchment scale creates opportunities to identify and prioritise the 'right locations' for different types of nature-based actions so that the benefits can be maximised (e.g. flood risk reduction; nature recovery; improved access to nature) and the disbenefits (e.g. loss of high quality agricultural land; negative ecological or landscape impacts) and costs can be minimised (i.e. maximise 'bang for buck'). The project will also seek to attract and coordinate a range of public, private and philanthropic funding to deliver a nature positive, climate resilient and prosperous future for the catchment.

3. Understanding the Nith Catchment

This section provides an overview of the Nith Catchment, detailing its geographical characteristics, ecosystem services, and the key challenges shaping its future. It outlines the latest environmental trends, pressures, and opportunities for land use change. By consolidating this information, this section provides a quick-reference foundation for informed decision-making, ensuring stakeholders have the necessary context to develop land use strategies that maximise benefits across the catchment.

Further details including full references are provided in Appendix A.

Introduction

This section introduces the Nith Catchment, summarising its geographical extent, land use, and ecological significance. It provides context on how the catchment functions as an interconnected system, supporting both natural habitats and local communities.

The Nith Catchment spans 1,230 km² in southwest Scotland and is the longest river in the Galloway and Southern Ayrshire UNESCO Biosphere and the country's seventh-largest catchment. Originating in the upper catchment hills of East Ayrshire, the majority of the River Nith catchment (RNC) extends through Dumfries & Galloway. The tidal limit of the River Nith is at Dumfries, but the river enters the sea at Glencaple village, approximately 7 km further south. To the west, the catchment includes Moniaive and extends eastward to the Lowther Hills. The River Nith flows into the Solway Firth, a large estuary designated as a Special Area of Conservation (SAC).

The Nith is among the most populated catchments in southwest Scotland. It supports a diverse range of land uses and provides several vital ecosystem services. The area comprises a mix of agricultural land, commercial forestry, urban development, and natural habitats, including wetlands, peatlands, and river corridors. The landscape features various habitats, such as peat bogs, upland moorland, coniferous and broadleaf woodlands, wetlands, and semi-natural grasslands. Grasslands are the dominant habitat, covering 66.45% of the area, followed by woodlands at 18.46%.

In the 2022 census, the Nith catchment population is 47,392 (excluding rural areas). 75.6% reported being in very good or good health, while 7.7% were in bad or very bad health. 46.5% of the population is employed. The highest levels of deprivation are concentrated in Dumfries, New Cumnock, and Upper Nithdale, while rural areas generally experience lower deprivation levels.

Key Ecosystem Services

This section highlights the essential benefits provided by the Nith Catchment, which support both the environment and local communities. These ecosystem services are categorised into four main types: provisioning, cultural, regulating, and supporting.

Provisioning

RNC's land use is largely **agricultural**, with sheep and beef farming being the primary activities. The most productive land is concentrated in the southern portion of the catchment, particularly along a narrow corridor following the River Nith towards Dumfries. In contrast, the upper catchment consists primarily of land suited to rough grazing, pasture, or forestry. More intensive dairy farming is

concentrated in the lower valley areas, while sheep grazing dominates the hilltops. **Woodlands** cover 18% of the RNC, with 7.8% of this being coniferous plantations.

Commercial **fishing** methods used in the Nith catchment include one stake net (where nets are anchored to the riverbed), haaf netting (a traditional and long-established method of fishing for salmon and sea trout where fishermen wade into the river with a long-handled net) and a net and cobble fishery (uses a net set over a rocky riverbed, targeting fish as they are funnelled through narrow channels). There has been rapid development of **renewable energy** schemes, largely wind farms in the upper areas of the catchment.

Cultural

Recreation and tourism - Activities include field sports, boating and water sports and walking and nature observation. The Nith catchment fishing industry is predominantly recreational, with salmon and sea trout angling playing a key role. Atlantic salmon and sea trout angling are important in the local economy, with angling alone contributing £2.9 million to the local economy in 2000. Rod and line fishing is practiced over the entire length of the River Nith from New Cumnock to Dumfries. The catchment is also rich in historical and cultural assets, such as the Drumlanrig castle. There are several Regional Scenic Areas and Local Landscape Areas. The south of the catchment is well served by core paths.

Regulating

Peatlands are a crucial carbon store in the RNC. Data on peatland coverage in the area differ, with most recent data classifying 23% of the RNC as peatland and only 8% of these peatlands remaining pristine or are protected.

The **River Nith catchment** features a varied and dynamic water environment, spanning rugged upland streams, tranquil lowland rivers, and a vital estuarine zone. The **main channel** of the River Nith is categorised as being of moderate status / ecological potential. The majority of **tributaries** have good status / ecological potential, with only one classified as high and two downstream tributaries both flowing into the Nith north of Dumfries classified as having poor status / ecological potential. The Dumfries **aquifer** is considered one of the most important and exploited in Scotland. The freshwater environment plays a crucial role in regulating water quality through natural filtration, while features like wetlands and floodplains help manage water flow and reduce flood risks

Supporting

RNC contains a variety of **habitats** which filter pollutants, act as carbon sinks, stabilise soil and regulate water flow. They support a variety of protected **species**, are a vital feeding ground for wintering birds and a nursey for Atlantic salmon. Designated conservation sites comprise 11% of the area, with 80% of the Nith catchment within the Galloway and Southern Ayrshire UNESCO Biosphere (GSAB). **Ancient woodland** covers approximately 5% of the RNC, 2.61% of which is native, with Drumlanrig Castle and Country Estate having the largest concentration of native woodland.

Current pressures, emerging trends & needs

This section explores the key environmental pressures and land-use challenges influencing the Nith Catchment. These challenges have been assessed using baseline data, expert knowledge, and stakeholder insights, providing a comprehensive understanding of the factors shaping the catchment's future.

For a detailed overview of baseline data, please refer to Appendix A, which provides an in-depth analysis of the land cover, benefits and pressures within the Nith Catchment.

Climate change – Rising temperatures and shifting weather patterns - including projected warmer, drier summers and wetter winters - are increasing flood and drought events, altering habitats, and affecting local communities and species such as Atlantic salmon. Rising water temperatures is a concerning trend already affecting local biodiversity. Rising sea levels and more severe storms

threaten infrastructure, agriculture, and biodiversity, with impacts including altered migration patterns, declining native species, and heightened flood risks to homes, businesses, and wildlife habitats.

Peatland degradation - Historic drainage, overgrazing, and afforestation have led to peatland loss, reducing carbon storage, increasing flood risk, and affecting water quality. The RNC was identified by the Scottish Environment Protection Agency (SEPA) as a pilot area for peatland restoration with several projects already undergoing restoration.

Agriculture intensification - Although agriculture is vital for food production and security, it also poses environmental challenges, with a significant portion of the catchment designated as a Nitrate Vulnerable Zone (NVZ) and seven water bodies failing to meet Good Ecological Status.

Fish species decline - Fish populations in the River Nith catchment, particularly Atlantic salmon and sea trout, have experienced a severe decline, with salmon catches dropping from 4,500 in 2008 to just 389 in 2023. This trend, driven by climate change, habitat degradation, pollution, and biological pressures, has led to fewer anglers and netsmen fishing in the area, threatening both the local fishing heritage and the long-term sustainability of the fishery.

Commercial forestry - Large-scale plantations, especially non-native conifers, contribute to acidification, sedimentation, and biodiversity loss while altering natural drainage patterns. The Nith Fisheries Management Plans seek to remove riparian coniferous trees, replacing them with native broadleaf species. There is a direction to move away from plantations on ancient woodland sites (PAWS) in the river catchment as it is considered detrimental to river health, towards restoration of native woodland.

Freshwater environment - Seven water bodies in the Nith Catchment have failed to meet Good Ecological Status due to morphological change. This is largely caused by land reclamation and river channel modifications linked to farming practices and historic mining. It has also resulted in increased sedimentation.

Water quality degradation - The groundwater within the Dumfries aquifer has been found to have elevated levels of nitrate. The region between Thornhill and Dumfries has been designated as a Nitrate Vulnerable Zone. This issue arises from fertiliser runoff, historic mining, livestock manure, and soil erosion, which introduce excess nitrates into the river system. Key pollution sources include raw sewage overflows, agricultural runoff from silage and slurry, malfunctioning septic tanks, forestry-related sediment runoff, and inadequate water management during construction activities. This pollution can lead to eutrophication, where excess nutrients reduce oxygen levels in the water, negatively impacting aquatic life. To address these risks, NVZ regulations impose restrictions on fertiliser application, manure storage, and soil management.

Flood risk – Climate change, land-use changes, and historic river modifications are leading to more frequent and severe flooding, impacting communities, infrastructure, and agricultural land. The catchment is at risk from various types of flooding, including river (fluvial), coastal, and surface water flooding. There are seven Potentially Vulnerable Areas within the catchment including Dumfries as the largest PVA, followed by New Cumnock and Kirkconnell. There are ongoing flood mitigation initiatives across the River Nith to mitigate impacts.

Biodiversity Loss – Habitat degradation and fragmentation, pollution, invasive species, and climate change are driving declines in key species including salmon and trout.

Invasive species – There are 13 biosecurity issues identified in the RNC which threaten native species and habitats. There has been previous emphasis on eradicating the presence of Japanese knotweed, Himalayan balsam, Giant hogweed and American skunk cabbage.

Renewable energy sites – There is pressure from renewable development across the RNC, particularly wind farms in the uplands for example in Kyle South, North Kyle, Corseing, Euchanhead and Cleuden.

Land use change opportunities

This section presents a high-level long list of land use change opportunities, developed through research and engagement with stakeholders from key organisations in the area. This is intended as

an initial, tentative list only; further input from key stakeholders will be necessary to refine priorities and ensure alignment with local needs and capacities.

The opportunities identified align with the environmental challenges previously identified, with a focus on interventions that provide multiple benefits. Given the profound impact of climate change on all aspects of the catchment's ecosystems and the region's vulnerability to flooding, there is a particular emphasis on land use change opportunities that address climate resilience and water management.

Top priority:

1. **Peatland restoration** to reduce greenhouse gas (GHG) emissions, hold water, improve water quality
2. **Native woodland expansion** to capture and store GHG, hold water, enhance biodiversity
3. **Riparian woodland** to provide shade and food for fish, stabilise riverbanks and help filter run-off from agriculture, reducing pollution and siltation
4. **Wider natural flood risk measures** such as river re-meandering, leaky barriers, storage ponds and floodplain reconnection to reduce flood risk
5. **Habitat restoration** and **creation of nature networks** for example connecting riparian woodland to designated sites and to wetlands.

Medium Priority:

6. **Access improvements** and support for **eco-tourism** with improved access routes along riverbanks
7. Improved planning and **design of productive forestry expansion**
8. **Renewable energy development in appropriate** locations
9. Action to **support agricultural viability** and sustainability, including adopting methods that reduce pollution/siltation and sustain soils such as regenerative agriculture and/or agroforestry

Natural Capital Initiatives

This section highlights key natural capital initiatives within the Nith Catchment that focus on restoring and enhancing critical ecosystems. A number of restoration and conservation projects have been identified in the RNC, focused on rivers, peatlands, woodlands, and coastal ecosystems. A full catchment-wide understanding of existing initiatives allows for better coordination, helping stakeholders to learn from one another and maximise the combined positive impacts of restoration efforts.

This following list is not exhaustive, as interviews have indicated that many landowners are undertaking their own restoration efforts that are not publicly documented. Ongoing engagement with landowners will be essential to developing a more comprehensive understanding of all initiatives across the region.

For further details and a map highlighting the specific locations of each initiative, please refer to Appendix C.

River restoration: The Restoring the River Nith, Upper Nith River Restoration, and Lower Nith River Restoration projects aim to enhance river habitats, restore natural water flow, and reconnect waterways to their floodplains, improving biodiversity and resilience to climate change.

Peatland restoration: Peatland restoration is also a key focus, with initiatives such as Buccleuch Estates' peatland restoration, Afton Reservoir Peatland Restoration, Kirkconnell Flow, and the Muirkirk and North Lowther Uplands SPA Cooperation Across Borders for Biodiversity (CABB) project working to rehabilitate degraded peatlands, enhance carbon sequestration, and support biodiversity recovery.

Woodland restoration: Woodland conservation and restoration is also a priority, with the Keyr Wood restoration project focused on rejuvenating ancient oak forests.

Coastal/marine restoration: The 'Link Caerlaverock' and Solway Coast and Marine Project (SCAMP) initiatives are revitalising coastal and marine habitats to strengthen ecological diversity and protect vulnerable species.

Regeneration of industrial sites: Beyond ecosystem restoration, former industrial sites are being transformed for environmental and renewable energy purposes. For example, the Glenmuckloch Energy Park is repurposing a former coal mine into a renewable energy hub with hydro and wind power.

Species conservation: Various efforts to protect key wildlife species are also underway, both in protected areas and beyond. The Hen Harrier LIFE project (2014–2019) worked to protect the UK's Hen Harrier population through habitat conservation, satellite tracking, and collaboration with land managers, including in Muirkirk and North Lowther Uplands SPA. Black Grouse conservation efforts are focused on Muirkirk Hills, Lowther Hills, and East Galloway, aiming to restore habitat connectivity and safeguard remnant populations. The Forest of Ae has also been identified as a priority area for Red Squirrel conservation, with measures in place to protect their habitat and manage competition from grey squirrels.

Stakeholder Workshop Insights

As part of the Nith Catchment Source to Sea project, a stakeholder workshop was held with key organisations to identify and prioritise environmental pressures, land use change opportunities, and data needs.

Climate change, peatland degradation, and agricultural practices were ranked as the most significant environmental pressures affecting the catchment, with concerns raised about the extent of peatland degradation. Agricultural practices were seen as major contributors to habitat fragmentation and pollution. Participants identified peatland restoration, habitat restoration, and natural flood management as the top land use change opportunities. The importance of riparian woodlands was emphasised for their role in flood risk mitigation and water quality improvement. Landowner engagement was highlighted as essential for successful restoration, along with the need for agricultural sustainability to ensure economic viability and participation.

The discussion also focused on data gaps, especially regarding the detailed condition of peatlands, the scope of existing stewardship schemes, and pollution sources, all of which are essential for effective decision-making. There was also a need for more information on the impacts of forestry and deer grazing on restoration efforts. Regarding funding, participants identified challenges in accessing support and there was also recognition of the need to better package environmental projects for private investment. However, some potential funding sources were discussed.

For further details, please refer to Appendix D.

4. Recommended actions to develop the source to sea catchment plan

This section sets out a series of recommended actions, broadly sequential, to develop a Nith source to sea catchment plan. It draws on the baseline data on the Nith catchment summarised above, including data issues and gaps; targeted interviews and a workshop with selected expert stakeholders; and research on funding options, relevant case studies and governance approaches.

Step 1: Develop a draft vision, strategic aims/objectives and principles

Develop a **draft vision** and set of **strategic aims/objectives** (and potentially also targets) to shape the project. The vision could also draw on the findings of the visioning workshops completed in 2023; the information in section 3 of this report; and the South of Scotland RLUF vision and objectives. It should aim to be specific to the catchment (reflecting what is special about the area, from both a national and local perspective, how nature has changed and the potential for its restoration) yet at the same time be relatively concise, setting out a broad vision for creating a healthier, wildlife-rich and more resilient and beautiful place in which to live, work and visit. A landscape-scale vision can set out

the intention of how to bring together the landscape context, with ecosystem services and access considerations.

The aims and objectives should be simple and clear and potentially linked to quantitative targets to communicate the level of ambition and support monitoring. A supporting explanation/rationale is also recommended to explain how the vision and aims/objectives were arrived at.

For inspiration, the Tweed Catchment Management Plan 2023-2028 sets out a set of seven clear aims the provide a solid structure for the plan:

In addition, SOSE/GSAB might also consider the value of developing some **guiding principles** for the source to sea catchment plan, drawing on those principles included in the RLUF and the Land Use Strategy and other sources such as Scottish Government's Natural Capital Market Framework as a reference. For example, the latter states that investment and management decisions should:

- create benefits that are shared between public, private and community interests;
- provide benefits for local communities;
- support community wealth building by reinvesting value in local economies to their long-term benefit.

Or some of the principles from the live land use consultation in England could be adapted for the catchment scale e.g.

- Co-design: Support participation and leadership at the local scale to develop and align spatial strategies and assess the fairness of changes in land use.
- Multi-functional land: Enable multiple benefits on land, targeted according to societal needs, environmental pressures and opportunity
- Play to the strengths of the land: Support and spatially target land use change to locations where benefits are greater and trade-offs are lower. Give priority to land uses that are more scarce or spatially sensitive.
- Long-term perspective: Take a long-term view of changing land suitability, prioritising resilience (including to the impacts of climate change).

Step 2: Commission specific additional research to strengthen the evidence base

GSAB/SOSE are advised to commission new research to strengthen the evidence base where practicable so that they can ensure the catchment plan is founded on robust data. This will help to ensure a full understanding of the constraints and opportunities provided by the landscape, geology, soils and ecosystems within the catchment, the need to build resilience to climate change and land ownership.

Building on the baseline analysis (see section 3 and Appendix A) we have summarised below our initial assessment of key research needs. Further details are provided in Appendix B.

The priorities have been categorised based on their significance in informing future land use decisions, with a focus on areas that offer the greatest potential benefits at a catchment scale.

High Priority

- Data on peatland condition across the catchment
- Mapping of peatland restoration opportunity areas
- Mapping and dimensioning key point sources of pollution
- Model NFM opportunities on tributary streams/headwaters
- Riparian woodland priority areas
- Up-to-date native woodland opportunity mapping

Low/Medium Priority

- Data on habitat condition
- Data on land use
- Mapping of NFM opportunities (besides riparian woodland) including tributary streams
- Map of recent and planned commercial forestry plantations
- Mapping of new nature networks (note it will often be best to build core areas of nature networks by enlarging, connecting and improving existing high quality wildlife sites)
- Evidence of key drivers of species decline
- Assess drought impact at a catchment scale
- Mapping of current and future renewable energy projects
- Case studies proving that peatland restoration has positive effects at catchment scale
- Up-to-date data on the fishing/angling industry, including its economic importance and contribution to local employment
- Agricultural data including types of farms, employment, livestock numbers, crops, specific to the Nith Catchment
- Tourism routes, tourism revenue and employment, and number of visitors specific to the Nith Catchment
- Data on the effectiveness of woodland creation at catchment scale

- Data on the impact of commercial forestry on water quality/ soil health/biodiversity within the catchment
- Nith Catchment-Scale Climate projections and impact
- Baseline data on economy of catchment and economic trends including key sectors

Note that keeping the evidence base up to date will also be important to inform periodic review of opportunities and priorities. The partnership should seek to capture data from wider sources where possible to supplement their evidence base on an ongoing basis; for example, any ecological surveys undertaken in the area (e.g. as part of planning applications or assessments of designated sites) and data from wider research/surveys (e.g. visitor surveys).

Step 3: Through stakeholder engagement, test and refine the vision, objectives, evidence base and long list high-level opportunities for land use change and hone-in on priorities for land use change.

Extensive stakeholder engagement across the catchment around land use issues and trade-offs and the identification and prioritisation of land use change opportunities will be critical to secure buy-in and co-create the source to sea catchment plan.

Stakeholders are those who feel that they have an interest in an issue or place, either because they are likely to be affected by a project's outcome, benefit from ecosystem services or because they are able to influence key decisions.

Stakeholder mapping will be an important initial step, for example using the popular interest/influence stakeholder matrix or expanding this to consider impact as well. For further details of the options, see Professor Mark Reed's, SRUC useful guidance on stakeholder analysis at https://www.fasttrackimpact.com/post/2019/03/11/how-to-do-stakeholder-analysis.

Mapping who is benefiting from a range of ecosystem services, and where they are benefitting, may also help to identify who to involve. This sort of analysis will help to identify priority stakeholders to engage and mange relationships with, although wider public engagement will be equally important – including more marginalised groups who have no influence, may not be interested in the work, but who nevertheless stand to gain or lose substantially from the work.

Early engagement with landowners and fisheries managers is likely to be particularly important given they will know the land the best and have their own priorities and plans. Securing their buy-in will be crucial to implementing any land use changes. Ways to engage them effectively will need to careful thought. For example, are there opportunities to work through existing advisory agents or farmer events? If new funding opportunities for farmers are forthcoming then these could be an important incentive for landowners to engage.

A range of engagement approaches such as meetings/workshops (online and face to face), drop-in sessions and event stalls could be used to engage far and wide, aiming to share, test and refine the vision and objectives first; and then the evidence base and long list of high level opportunities for land use change (see section 3 above), seeking to hone-in on agreed priorities for land use change in different parts of the catchment.

The following documents may provide useful guidance: Highlands Rewilding's Engagement Roadmap (2023) and Nattergal's Stakeholder Engagement Best Practice report (2023). The mix of methods used to support development of the South of Scotland RLUF could also be reviewed.

Note that **building trusted relationships** through ongoing, targeted engagement that demonstrably shapes processes and outputs (and takes time to understand people's circumstances and views) will also important. Having a voice in the community and feeling a sense of empowerment gives citizens a stronger commitment to their local area. As a consequence they will be more likely to contribute to local activities and participate in the longer-term care and investment in a place. Longstanding relationships between stakeholders are often very important foundations to build on (e.g. farmers often have established relationships with trusted advisors), as is faith that something 'tangible' will be delivered through a project.

Investing in **transparent communication** through regular updates (meetings, newsletters, online platforms) will also be worthwhile to keep stakeholders informed and engaged; and to dispel any myths, rumours or conspiracy theories. Where resources allowed, this could extend to wider activities

such as awareness raising and educational events/activities and empowering residents to engage in citizen science projects.

Step 4: Develop governance arrangements and seek core funding

The success of a future Nith Catchment Source to Sea partnership project will depend on appropriate and effective leadership and governance. A 'governance model' is a framework that outlines an organisation's leadership accountabilities and describes how leaders, members and partners interact with one another. This section explores different governance models and provides tentative recommendations for selecting the most appropriate model.

When selecting a governance model, it is important to consider what functions the governance model should have, which partners want or need to be involved (and in what roles), the types of funding to be targeted and how risk should be shared.

Key potential governance functions for the project are identified are as follows:

- Oversee the development of a source to sea catchment plan
- Provide strategic direction for the achievement of the vision and objectives.
- Set priorities for the delivery of opportunities which will help meet the objectives.
- Take responsibility for the identification of funding/delivery mechanisms for opportunities, brokering between landowners and funders/buyers and overseeing implementation.
- Engage with landowners, land managers, fisheries managers and a wide range of partners to identify new opportunities and delivery mechanisms and to build and maintain support and buy-in.
- Take responsibility for securing long-term funding to support the ongoing management and maintenance of the project and partnership.
- Monitor and evaluate performance of different elements of delivery, ensuring benefits are secured for the long-term.
- Take responsibility for the promotion of the project and raising its profile as a catalyst for positive change for people and nature.
- Take responsibility for engagement with stakeholders on planning policy relating to the catchment and the implementation of the project.

Based on these strategic functions an assessment of potential governance options/models has been completed. Appendix C sets out an assessment of the relative advantages and disadvantages of four governance options as follows:

- Option 1: an informal partnership of supportive organisations with delegated project delivery responsibility
- Option 2: a semi-autonomous organisation embedded in a partner organisation
- Option 3: independent charitable trust
- Option 4: community interest company (CIC)

While the benefits of having a dedicated lead organisation are clear, additional research and engagement with potential governance partners (e.g. large estate owners) will be necessary to establish the most appropriate model.

In the short term the creation of an **informal partnership** is likely to be an important early step, capitalising on early work to develop the framework and existing support for the project. Seeking to deliver some 'quick wins' could assist in making the case for the establishment of a dedicated delivery organisation in the medium term.

The initial informal partnership could then evolve into one of the other governance models once further assessment and consultation has been undertaken to identify the most appropriate option, and funding has been secured for its formation.

In the short-medium term it is likely that a governance body embedded in a partner organisation would have the most advantages for the delivery of the projects and efforts should be made to identify the most appropriate partner. Having a visible, active and respected local organisation taking

ownership of delivery and actively seeking out funding sources (both public and private) could be an important success factor.

Suggested next steps re governance

- Carry out further engagement with partners to establish and secure their representation on the partnership. Seek to involve a diverse range of partners who all want to help shape the source to sea catchment plan and, importantly, see the project succeed - and are therefore willing to work hard to help find solutions when problems arise.
- Establish an appropriate informal partnership structure and appoint a chair to lead the initial stages.
- Create clear terms of reference which outline the purpose, scope and responsibilities of the partnership, written into a formal memorandum of understanding to which all partners sign up. It should be clear to all who will be responsible for driving forward early projects and continuing to engage with communities. Ongoing engagement with private landowners will clearly be a fundamental to secure their buy-in.
- Identify initial core funding to support initial stages of implementation of the framework through direct contributions from partners and/or from external funders such as the Esmee Fairbairn Foundation.
- Engage with partners, such as SOSE and GSAB, who may have the capacity to embed a Nith catchment partnership organisation within their structure.
- Keep emerging public and private funding opportunities (see separate section) under review.
- Build strong relationships with government agencies and local planning authorities to advocate for recognition of the emerging source to sea catchment plan in their policies and strategies.
- Ongoing engagement with private landowners will also clearly be a fundamental part of this, as securing their support is key to delivering many of the opportunities identified in

Further information sources regarding governance of nature markets projects

- GFI Investment Readiness Toolkit: Steps 5 - 8 of the Investment Readiness Toolkit provides support on the policy and regulation of setting up nature markets and green commerce arrangements.
- GFI Farming Toolkit: Steps 5- 8 of the farmers toolkit provide similar information, with a focus on the supply side.
- Governance of blended finance: Explores the governance structures and legal forms available to entities seeking to deliver nature-based solutions.

Step 5: Keep a watching brief on the evolving policy and funding context and ongoing practice innovations

It will be very important to track developments in policy and funding options (nationally, regionally and locally, not least emerging changes to agricultural funding; see section 2 re existing policy context), as well as wider developments in data and decision making tools (e.g. Landscape Scale Natural Capital Tool, Borderlands Natural Capital Data and Investment Plan) – so that the approach taken can be flexible, adapting to emerging opportunities.

Having an evidence-based emerging framework that is given weight by clear governance arrangements and ongoing stakeholder engagement should enable the partnership to be on the 'front foot' to respond to new opportunities.

The Nith Catchment offers significant potential for securing funding for a variety of nature-based solutions. By prioritising restoration and sustainable land management at a catchment scale, projects can address key environmental challenges such as biodiversity, carbon sequestration, flood management and water quality. Restoration projects could attract investment from a range of investors and buyers including those seeking larger-scale, multi-benefit initiatives.

The Nith Catchment is well-positioned to attract funding as a pilot area due to its designation as a Natural Capital Innovation Zone (NCIZ). This recognition highlights the region's importance in managing natural assets to support a resilient, wellbeing economy.

Appendix C sets out existing and emerging funding opportunities in four broad categories:

- Public funding
- Philanthropic/ESG/CSR investment
- Private investment
- Payments for ecosystem services (including established standards such as the woodland carbon code and peatland code and emerging standards such as the woodland water code)

This represents the best available information at the current time but the situation is dynamic so, as highlighted above, this should be kept under review.

Case studies of securing private finance for nature restoration

For inspiration, two relevant case studies of projects that have successfully secured private funding for nature restoration are summarised below along with lessons from each for the Nith catchment.

Case study 1: The Wyre Natural Flood Risk Management project case study

Creation of a novel market for selling Natural Flood Management credits, based on robust modelling of the catchment

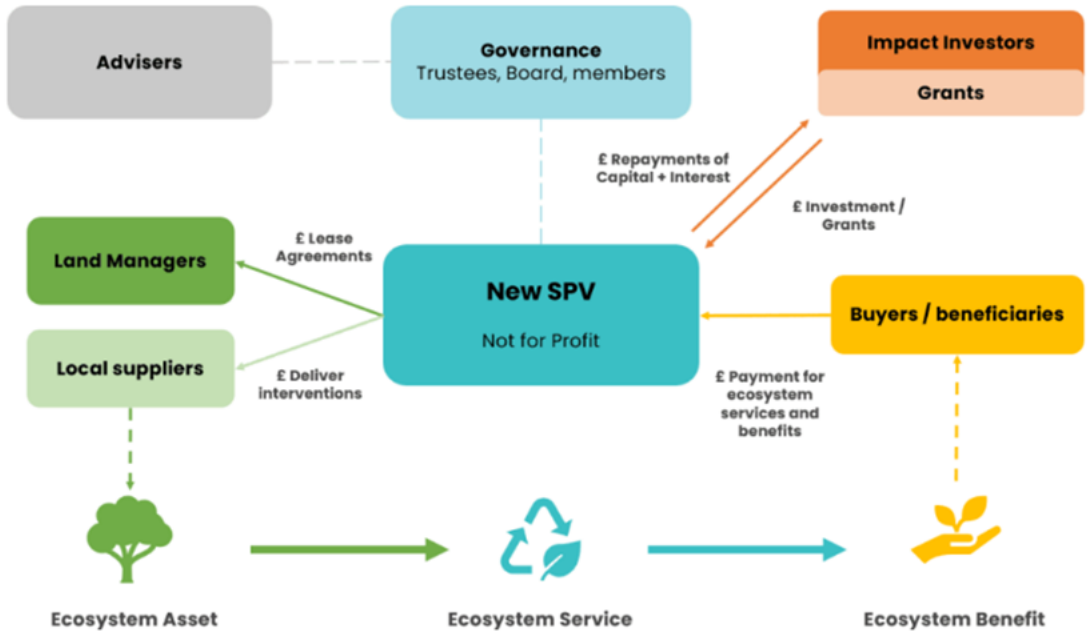
The Wyre catchment covers most of North Lancashire, from the rugged upland fells of the Forest of Bowland National Landscape (adjoining the Bowland Fells Special Protection Area (SPA)) to the broad expanses of intertidal mudflats and sandflats at Morecambe Bay Special Area of Conservation SAC and Wyre Estuary Site of Special Scientific Interest (SSSI). In the south, the catchment borders the urban environment, including around Preston.

The landscape has been modified over several centuries by humans and faces some similar pressures to the Nith catchment - including diffuse pollution form agriculture, physical modifications to watercourses, and the spread of invasive non-native species which all threaten the resilience of functioning ecosystems across the landscape. Flooding is a particular challenge with multiple flood events having impacted communities, local businesses and natural habitats downstream of the project. Flood events are likely to become worse due to the effects of climate change.

The project is also particularly relevant as it is probably the best current UK example of trying to secure private finance for natural flood risk management measures. This is something many projects have struggled to do partly because of perhaps reservations about the evidence base or because of a lack of an accepted standard or code around natural flood management.

The Wyre Rivers Trust, The Rivers Trust and partners have been developing an approach to securing investment for catchment scale delivery of Natural Flood Management (NFM) by selling NFM as an ecosystem service. Creation of a mechanism for these sales has been based on extensive 2D hydrological modelling of the River Wyre catchment to provide the evidence that stakeholders needed of where to implement measures to reduce flood risk downstream. The initial modelling was done by viridian logic and peer reviewed by University of Leeds, the priorities where then run through JBA Jflow model working off existing models they had in the catchment (previously commission by the Environment Agency). This modelling indicated that development of approximately 70 hectares of NFM features could reduce the frequency of flooding to up to 120 properties in Churchtown and provide large potential cost savings to organisations including United Utilities, the Environment Agency, Wyre Council, the insurance industry and locally based businesses. For further information regarding modelling (including costs), Viridian logic (https://viridianlogic.com/) or Wyre Rivers Trust (https://wyreriverstrust.org) could be contacted.

Five buyers of the flood management ecosystem service have been identified, including the Environment Agency, United Utilities (water company) and Wyre Council. Farmers and landowners act as the 'sellers' and are paid to host a variety of NFM measures on their land, including leaky dams, river restoration, bunded hedges, woodland creation, grassland conversion and pond creation. Targets include creating 39 hectares of woodland, over 1700 leaky dams, ponds and scrapes and 10 kilometres of new bunded hedgerows.



Source: https://www.greenfinanceinstitute.com/casestudies/the-wyre-catchment-natural-flood-management-project/

The Wyre Catchment Community Interest Company secured a £850k loan from Triodos Bank and private investors such as Esmée Fairbairn Social Investment Fund, high net worth individuals and United Utilities. A £526k grant has also been awarded by the Woodland Trust through the Northern Forests Grow Back Greener programme, which is part of Defra's Nature For Climate Fund.

A total of £2 million in ecosystem service payments is scheduled over the nine-year period. This will cover the cost of creating, hosting and maintaining the NFM interventions. Payments to sellers are based on delivering agreed outcomes, with an adaptive management element built in so that if monitoring indicates the NFM measure are not functioning as predicted then there is some time to make adjustments before buyers review contracts etc.

Critical to success was close working with farmers (the Rivers Trust had existed trusted relationships) and with key expert organisations and funders across the private and public sectors including Triodos Back, Esme Fairburn Foundation, United Utilities, Coop Insurance, Environment Agency and the

Northwest Regional Flood and Coastal Committee – to try to find the 'sweet spot' where catchment and landscape needs overlap with business needs. The high level of flood risk downstream and collecting the evidence to demonstrate NFM could help - including by directly reducing risks to businesses - was also key, alongside telling a strong story about the wider benefits.

Key lessons for the Nith

- Build a broad partnership around exploring NFM opportunities, including identifying and engaging with public and private organisations (including infrastructure providers) that are directly impacts by flooding in the catchment.
- Undertake detailed modelling to demonstrate how NFM measures could reduce flood risk and thus drive investment; alongside telling a clear story about the wider benefits
- Work closely with farmers to jointly explore what NFM options would be appropriate and what incentives would be required for them to host and maintain such measures.
- If there looks to be a viable business model, explore blended public/private funding options and related governance arrangements.

Further information:

- Wyre Rivers Trust website - https://wyreriverstrust.org/wyre-nfm
- GFI video and case study (includes useful deals of the risk sharing mechanisms) - https://www.greenfinanceinstitute.com/?s=wyre
- LUC Nature Markets Pioneers podcast episode on the Wyre - https://www.landuse.co.uk/thoughts/the-wyre-catchment-project/
- Another project that has been seeking to make the same business case to secure investment from local organisations and infrastructure providers in NFM is the Evenlode landscape recovery project - https://www.fwi.co.uk/business/payments-schemes/environmental-schemes/slow-burn-in-private-money-for-public-goods-market

Case study 2: Trees for Life Retail Bond

Development of a sustainable finance model for rewilding, combining retail bonds, premium carbon credits, and eco-tourism revenue to fund long-term conservation efforts.

Trees for Life is a charity dedicated to rewilding the Scottish Highlands. In 2008, the charity acquired a 10,000-acre estate at Dundreggan to further its rewilding goals. The high operational costs however meant that the charity needed a sustainable financial model to support its ambitious conservation efforts while addressing their expenses.

The charity faced significant financial challenges including:

- **Tree Nursery Costs:** Native trees cost between £0.35 and £0.80 each, with rarer species priced at £1.50. Planting costs amount to approximately £0.85 per tree.
- **Operational Expenses:** Covering the costs of running the tree nursery, volunteer programs, and ongoing land management was a significant challenge for the charity.

To generate revenue for ongoing projects, the charity wanted to build a rewilding centre with visitor facilities and accommodation. The total construction cost for the centre was estimated at £6 million. To fund this, the charity raised **£2 million in 2021 through a retail bond on Triodos' crowdfunding platform**, with the remainder covered by a **mix of grants, philanthropic donations, and charity cash reserves.**

Details about the bond:

- Launched with a minimum investment of £50
- Offered a 6% annual return

- Eligible to be held in a Triodos Bank Innovative Finance ISA, making the bond interest payments tax-free.

The fundraising target was met in under 48 hours, with more than 400 investors each contributing an average of £4,800. By 2030, the rewilding centre is expected to generate around £1.5 million annually, providing a sustainable income to support ongoing conservation efforts. This will also enable Trees for Life to repay the bond in four annual instalments from 2027 to 2030.

More information on the experience with Triodos Bank and contact details can be found here.

The Dundreggan Rewilding Centre in Glenmoriston, which opened in April 2023, illustrates how large-scale nature projects can offer inspiring experiences, create jobs, and benefit rural communities. The centre includes a 40-bed accommodation facility designed for extended stays, educational programs, and volunteering opportunities.

Key revenue aspects include:

- **Visitor Numbers:** The centre is projected to attract over 70,000 visitors annually by 2030, contributing to the local economy through job creation and increased tourism.
- **Carbon Credit Sales**: Carbon units sold in 2021 were priced at £32 each, with the price expected to rise due to the additional benefits of rewilding, biodiversity, and land restoration.
- **Local Community Support**: The charity plans to allocate £13.33 per tonne from each carbon credit sale to local community organisations for projects related to land and nature.
- **Carbon Credit Advisory:** Trees for Life has established a small for-profit carbon credit advisory business, leveraging its expertise to guide other Highlands' landowners interested in land transformation.

Key lessons for the Nith Catchment:

There are useful lessons from Trees for Life's approach to funding and revenue generation that could be applicable in the Nith catchment:

- **Crowdfunding and retail bonds:** Consider crowdfunding campaigns linked to a bond like the Triodos retail bond to secure initial funding for its own woodland creation.
- **Sustainable revenue streams:** Trees for Life's Rewilding Centre generates ongoing revenue through visitor accommodation, cafe and educational programs. Is there scope to explore the feasibility of encouraging similar revenue generating projects, such as eco-tourism facilities or educational programs, to support long-term project sustainability of a Nith partnership?
- **Premium carbon units:** The sale of carbon units at a premium price due to the broader ecological benefits of woodland creation is a significant revenue source for Trees for Life. Marketing the wider benefits provided by projects alongside selling carbon or other ecosystem service units – and telling a strong story about a project - could help to secure a premium price (see Wilder Carbon section above as another example of this approach).
- **Community Investment and Benefits:** Trees for Life's willingness to allocate a portion of carbon unit sales to local community projects demonstrates a commitment to social value. A similar strategy could be considered for specific projects in the Nith catchment, directing a percentage of revenue to support local initiatives, thereby strengthening community ties and enhancing the social impact of the project.

For further details see here Trees for Life retail bond.

Step 6: Draft an action plan organised around the strategic aims/objectives

Step 6 follows on from the earlier establishment-phase actions related to setting direction, strengthening the evidence base, engaging stakeholders and formalising governance arrangements.

It involves developing a clear, prioritised action plan, organises around the strategic aims and objectives, to shape delivery going forwards and support monitoring, evaluation and learning.

The action plan will need to identify both strategic actions (relevant to the whole of the catchment) and spatially specific land use change opportunities. Each action should include funding plans and specific proposed steps to progress each project, with action owners and targets clearly identified.

The 'action tables' that form part of the Tweed Catchment Management Plan offer one potential format, with strategic aims sub-divided into supporting objectives and associated actions.

Some examples of potential actions are provided below. Note this is a non-exhaustive list intended for inspiration only, the partnership will need to shape their own set of actions.

Potential actions:

- Engage with Dumfries and Galloway Council and East Ayrshire Council to help define and develop the Nature network for the Nith Catchment and make links to local place-plans.
- Engage with Dumfries and Galloway Council, East Ayrshire Council and SEPA to help support the development of flood risk reduction schemes based on Natural Flood Management (NFM) principles. Councils are responsible for creating local Flood Risk Management Plans and these should be available on their websites. The 2021 Solway Flood Risk Management Plan refers to a review and update of NFM opportunity mapping).
- Develop water scarcity plans in priority areas within the catchment as relevant (working with SEPA and Scottish Water).
- Develop a Peatland Restoration Plan to prioritise, guide and coordinate peatland restoration in the catchment, building on existing initiatives covered in section 3 of this framework.
- Develop a programme to raise awareness of the anticipated impacts of climate change within the catchment and the need to mitigate climate change, including through land use change
- Develop a Native Woodland Creation Plan to prioritise, guide and coordinate native & riparian woodland creation in locations where multiple benefits will be delivered and trade-offs will be minimised.
- Develop a River Walks Action Plan to identify opportunities to create/improve riverside walks and work with farmers and potential funders to implement projects.
- Develop opportunities and markets for local sustainable food production based on a local food strategy.
- Develop proposals for responsible and nature-based tourism aligned with East Ayrshire's tourism objectives and the Responsible Tourism Strategy for the South of Scotland 2024-34.
- Engage with Dumfries and Galloway Council and East Ayrshire Council to identify suitable locations for different types of renewable energy projects across the catchment.
- Establish and maintain a baseline data hub and interactive map and develop/pilot natural capital assessment and decision support tools such as the emerging Borderlands Natural capital Data and Investment Plan pilot and NatureScot's Landscape Scale Natural Capital Tool.

We suggest treating the action plan as a 'living document' that is regularly reviewed and updated as policies shift, data and knowledge improves and new opportunities arise.

In developing the action plan in may be useful to bear in mind the potential benefits delivered by creating and implementing a catchment-wide plan:

- **Supports the delivery of the international UNESCO Biosphere Strategy,** the NCIZ, and the RLUF. The plan aligns with the GSAB's 2023-2033 strategy by promoting an inclusive and collaborative culture, attracting diverse funding, enhancing communication,

promoting sustainable land and marine management, supporting a just transition, strengthening sustainable business practices, and fostering research and learning. It also contributes to the NCIZ's goal of addressing biodiversity loss and climate change through natural capital opportunities, responsible investment, and innovation. Additionally, it aligns with the RLUF's objectives by promoting informed and sustainable land use decisions, balancing competing pressures on land, guiding investment in land use, supporting nature-friendly businesses, and strengthening urban-rural connections.

- **Holistic, spatially targeted approach to inform local land use decision making:** Taking a catchment-wide approach addresses upstream and downstream linkages across landscapes (from upland areas to coastal zones), issues, stakeholders and desired outcomes. Looking at spatial data at this scale also creates opportunities to identify and prioritise the 'right locations' for different types of nature-based actions so that the benefits can be maximised (e.g. flood risk reduction; nature recovery; improved fisheries, improved access to nature) and the disbenefits (e.g. loss of high quality agricultural land; negative ecological or landscape impacts) and costs can be minimised (i.e. maximise 'bang for buck'). The South of Scotland RLUF explicitly stated that it provides a foundation to enable future programmes to focus on more local scales within the region, including at catchment scale, to help guide decisions at a local level.
- **Landscape scale ecological connectivity:** Supporting nature recovery and more resilient ecosystems requires a landscape scale approach to reverse the effects of fragmentation and environmental degradation in line with the Lawton Review principles of more, bigger, better, and more joined up. Habitats need to be enlarged, enhanced and better connected (e.g. via green corridors or stepping stones of restored habitat) so that nature can move and thrive. Actions should be coordinated across the landscape to ensure they are well targeted and are mutually reinforcing. Given the importance of hydrology to ecosystems it makes sense to plan at a catchment scale from headwaters to coastal areas.
- **Integration with wider decision-making processes:** Development of a catchment plan provides a single management framework for the many interacting and interdependent ecosystem services and the many different administrative, planning and regulatory systems to sustainably manage the multiple demands on the catchment for the benefit of everyone. For example, a Nith catchment management plan could make links to and inform the Place Planning agenda including the Local Development Plan, Local Place Plans and Community Planning Process; also Just Transition Plans. This would provide a robust platform to help guide land use change to build resilience to our changing climate and lead to nature recovery (e.g. through nature networks), ultimately ensuring that the key issues are addressed - in the right place and at the right scale - to bring about long-lasting, multiple benefits.
- **Drive up participation and enable delivery:** The boundaries of a catchment and the size and identity of the land within it are readily grasped by local people. They can see that the project is relevant to them, especially if it aims to deliver changes to land use and the range of benefits delivered by natural assets can be better communicated (e.g. using a natural capital approach). Working at this scale can thus engage upstream and downstream stakeholders from different sectors/'walks of life', raise awareness about the impacts of human activities and facilitate transparent dialogue about land use (including tensions and trade-offs) and seek to build agreement around preferred changes to land use, and relative priorities, in different parts of the catchment. This is particularly important as local stakeholders in the Nith catchment have emphasised the need for greater communication and collaboration between landowners, conservation groups, and residents. Ultimately such collaboration can support practical action on the ground by identifying site specific opportunities where there is landowner support and helping to attract funding from multiple sources for delivery.

- **Support a collaborative, adaptive approach:** A source-to-sea approach can build on and connect existing initiatives across the area, such as community group and eNGO projects, including the 2023 Nith Life visioning workshops, as well as emerging initiatives like the Natural Capital Partnership project, which seeks to deliver community wealth building from natural capital investments. Hosted by Community Land Scotland and supported by SOSE, Scottish Forestry, and the Scottish Land Commission, the project includes four posts, with one based in the South of Scotland, which could play a key role in a Nith catchment project. By sharing from learning-by-doing across a catchment, including through collaborative or citizen science monitoring and evaluation activities, it can also support an ongoing cycle of adaptive management.
- **Securing funding:** The Borderlands Inclusive Growth Deal Natural Capital Programme and the designation of the region as a Natural Capital Innovation Zone (NCIZ) both recognise the importance of managing the region's environment as the foundation for a vibrant, resilient, wellbeing economy; as does the Regional Economic Partnership. Working at a catchment scale to identify and prioritise nature-based projects (e.g. 'right tree in the right place') should help to make a strong case to potential funders, both public and private, about why these specific projects should be funded over others, particularly if broad stakeholder support can be demonstrated alongside biophysical evidence. Private investors are often interested in larger scale projects so developing a pipeline of projects that can be aggregated together could also help to attract interest. Further details on funding are provided in Appendix C.

As part of creating the action plan, a clear and proportionate **monitoring framework** should also be created to enable progress to be tracked and support ongoing evaluation and learning. Where practicable this should include both indicators to track the progress of individual projects/actions in the action plan, and higher level indicators for tracking progress against the strategic aims/objectives, including any associated quantitative targets.

Monitoring indicators could relate to a combination of activities, outputs and outcomes, though the latter may be more challenging to measure.

Periodic reviews using the monitoring framework can test progress towards the identified aims/objectives. It is suggested the source to sea catchment plan be reviewed at least every five years.