

# Expression of Interest Form: *Multi-PLE*

**1.1 Project Title:** *Managing Multifunctional Peatland Landscapes for Everyone (Multi-PLE)*

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**1.2 Project Acronym:** MULTIPLE

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**1.3 Project Beneficiary:** RSPB

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**1.4 Start date:** 01/06/2016      **End date:** 31/05/2020

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## **1.5 Programme Priority**

Priority 3: Sustainable North Sea Region: Protecting against climate change and preserving the environment

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## **1.6 Specific Objective**

3.2 Develop new methods for the long-term sustainable management of North Sea ecosystems

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## **2.1 Project Summary (1,500 characters)**

This 4 year project working across the UK, Belgium, the Netherlands and Germany aims to achieve a better balance between human activity and the environment, focusing on sustainable management and use of water. It will tackle some of the most pressing threats to the North Sea Region's unique lowland peatland landscapes - including bogs, fens and lakes - where water quality/quantity is so key to the functioning of the many ecosystem services they provide.

The project will work towards new agreements on how a balance between the many changing demands on water can be maintained in the long-term, focusing on mutual benefits for the environment, economy and society. It will generate and share knowledge across a coherent and multifunctional network of peatland habitats to tackle common threats within the region, including nitrogen and phosphorous overloads, chemical pollution, and resulting biodiversity loss, as well as use of water in a changing climate. This knowledge will inform the development and trialling of new and effective methods for restoring and managing peatland landscapes in the context of predicted climate change. The project will also engage with key stakeholders to encourage a sense of ownership of the landscape and reduce conflicts between different sectors, jointly developing solutions that will win long-term backing and benefit the wider population. All learning will be shared with a broad range of stakeholders, extending the impact far beyond the project sites.

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## **2.2 What are the shared territorial challenges that will be tackled by the project? (5,000 characters)**

*"More than half of the countries in Europe have lost 90% or more of their original natural peatlands."* (Wetlands International, 2003)

Lowland peatlands, made up of bogs and fens interspersed by natural and man-made lakes, are a key feature of many North Sea floodplains. For centuries they have played an important part in

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people's lives, providing fuel, building materials, drinking water and food. Human usage has also increased the cultural and historical value of these landscapes. Peatlands continue to serve a multifunctional role by representing a large array of ecosystem services (the benefits people obtain from ecosystems). The interdependence of these services increasingly attracts the attention of a diverse group of actors that have a stake in the ecosystem. Historically peatlands have always been inaccessible, wild places and as a result have all too often been exploited instead of managed sustainably. However research is starting to show the full range of services they provide although this hasn't yet fully reached wider public. To many who live in peatland areas, ecosystem services contribute to their livelihoods, especially tourism and agriculture, which make a significant contribution to local economies. To others, peatlands reduce downstream flood risks, provide clean water, store carbon, and contribute to climate regulation. They also contain the highest biodiversity found among wetlands with associated attractions for visitors and tourists. However, lowland peatlands across the North Sea Region have experienced a number of changes, some of which may compromise the future provision of these services.

One of the main causes of loss and poor condition of surviving peatlands across the region is changes in the way water is managed across the floodplain. Peatland ecosystems have been converted and drained for agriculture, forestry and peat extraction throughout Europe, and many of the remaining ones are under pressure. Peatlands are waterlogged systems so any major loss of water will damage them. Excessive water abstraction from aquifers and surface sources can lower water tables, which can lead to changes in vegetation composition and the drying of the peat soil, with severe consequences in terms of greenhouse gas emissions, increased fire risk and biodiversity loss. Water abstraction can also worsen water quality by reducing the ability to dilute pollutants while abstraction from coastal aquifers can cause the intrusion of saltwater, diminishing groundwater quality and harming crops. Moreover, peat drainage for agricultural production can lead to peat subsidence, exposing land to permanent flooding and making it unsuitable for agricultural use, which in turn endangers livelihoods and food security. Subsidence and the related flood risk have occurred throughout the region, particularly in the Netherlands where a large part of the highly populated west is situated below sea-level as a result of soil subsidence.

As natural lowland raised bogs receive water inputs from rainfall alone, they are particularly sensitive to inputs of surface or ground water, even more so if these are polluted or enriched. Alkaline fens in valley settings are particularly sensitive to pollution from agricultural run-off as the status of surface and groundwater is crucial in maintaining optimal conditions for fen vegetation. In both bogs and fens, water pollution can have severe effects on biodiversity. Similarly for shallow peat lake ecosystems across the region nutrient inputs can have disastrous effects. As nutrients can enter the lake from both the surrounding land and base flows, maintaining a water quality suitable for the users of the lake is extremely challenging. Nitrogen and phosphorus pollution are common impairments of lake water quality, often leading to algal bloom. As well as affecting biodiversity, this can damage drinking water supplies and the recreational and aesthetic values of lakes, which also affects the local economy. Human activities within a lake's watershed such as urbanisation, sewage discharges, and agricultural practices can accelerate the amount of nutrients that enter lakes, bogs and fens via surface water runoff.

There are a number of cross-cutting challenges involved in trying to address these threats, which are shared across the region. Firstly, lack of understanding and agreement on the complex relationship between human activity, water quality/quantity and ecology within peatlands makes the process of making informed decisions and developing appropriate management techniques challenging. This can also polarise stakeholders and lead to confrontation. Secondly, a lack of management of peatland habitats can result in poor condition of sites. Thirdly, conflicting stakeholder interests and a lack of awareness of the importance of peatlands and the ecosystem services they provide can

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impede the realization of measures that are put forward to effectively address these threats on a landscape scale.

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### **2.3 What is the project's approach in addressing these shared challenges and/or joint assets and what is new about the approach the project takes? (5,000 characters)**

Only with enough information can we make well balanced decisions. This is particularly important because of the complex relationship between water quality/quantity and ecology across peatland landscapes and the wide range of stakeholders that both contribute to and benefit from this relationship. The collective knowledge base is currently insufficient. Therefore to fill this gap, this project will develop and share new knowledge on eco-hydrology to inform decision making and targeted action.

A comprehensive monitoring network will be developed across the partnership, building on existing monitoring of water quality/quantity and ecology, which will include use of new monitoring methods and technologies such as underwater drones. This will provide information about the relationship between water quality/quantity and ecology, and identify both current and potential sources of water quality/quantity problems. Along with existing knowledge, this information will be pooled and shared in order to make a significant contribution to peatland eco-hydrology and habitat management across Europe. It will also provide a baseline for evaluating the success of measures that are implemented through this project.

This knowledge, as well as effectiveness of current practices, will inform the development of a suite of cutting-edge approaches to sustainable water/land management and habitat restoration of sensitive peatland ecosystems. These will be trialled across nine locations, including three fen, one bog and five lake ecosystems. All approaches implemented will either be new to the partner or their site, new methods that have not yet been widely trialled or evaluated, or adaptations of existing practices.

A range of approaches will be adopted such as reusing dredged sediment from lakes, developing reedbed buffer zones between agricultural land and ecologically sensitive sites, and trialling a tool that provides solutions for addressing nutrient enrichment in lakes. These approaches will offer win-win outcomes, providing benefits to the environment (e.g. improved biodiversity), to businesses (e.g. increased tourism) and to local communities (e.g. flood prevention). This suite of measures will also include trialling alternative land uses such as a pioneering and alternative form of agriculture on wet/rewetted peatlands called paludiculture. The approaches will all be tested (some through a 'research farm' or farmer networks), evaluated and developed into case studies, giving practical, effective guidance to partners, businesses and other stakeholders that own or manage land in areas dominated by peatlands, ensuring benefits aren't confined to partner sites.

This project will adopt a catchment-based approach to ensure that improvements to peatland ecosystems are not restricted to isolated sites. This is also vital due to the interconnectedness of the catchment landscape. This project will build on current catchment management initiatives by consulting with a wider range of stakeholders - of whom many have had historically conflicting needs - who will feed into the development and implementation of the suite of management and restoration approaches. Partners will adopt a range of participatory approaches to engage with these stakeholders, including use of existing and newly established community structures such as landowner groups. Case studies with recommendations will be developed and shared that highlight the most effective approaches for reducing conflict and creating synergy between different sectors, particularly agriculture and nature conservation, leading to improved water management across the

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wider landscape. The project will also seek to develop and share new methods for attracting sustainable business investment within these peatland landscapes e.g. by running a local 'water expo' for water related industry and developing a toolkit that farmers can use to diversify and grow their business while at the same time enhancing ecosystem services.

Key to ensuring the long-term protection of peatlands is securing support from the people who live within these landscapes, as well as those who enjoy the leisure and recreational benefits they offer. This project will develop a suite of new and innovative approaches that can be applied across North Sea Region peatland landscapes to raise public awareness of the value of this landscape, including the array of ecosystem services provided and the links between water use, food, agriculture, leisure and nature. This will encompass a mix of infrastructure improvements, volunteering opportunities and outreach activities, including development of a peatland/water curriculum for schools and development of citizen science activities. Key to the whole process is de-mystifying water as a resource and making clear every single one of us has a role to play in improving and valuing this resource for our generation and for generations to come.

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### **2.4 Why is transnational cooperation needed to achieve the project's objectives and result? (5,000 characters)**

This project works across nine unique locations spread evenly across the southern most point of the North Sea Region, including work in the UK, Belgium, the Netherlands and Germany. The complexity of fen, bog and lake management and restoration makes transnational cooperation around this theme crucial. Collaborative working on shared territorial challenges can be addressed much more effectively e.g. joint working across the Norfolk Broads and Lake Zuidlaardermeer will be key in overcoming some of the engineering challenges associated with lake restoration and working with peat substrates.

European policies and regulations, such as the Water Framework Directive, provide a framework for the protection and, where needed, the improvement of all European water bodies. To ensure these continue to be effective and can be contextualized for each country, there is a need to generate evidence using standardized methods across the partnership. Through a workshop at the project outset all partners will share their methods for monitoring water quality/quantity in order to develop a joint monitoring plan and best practice approaches, which can be used to generate standardized data and evidence to influence European wide policies. These methods will be shared with a range of stakeholders across the region, building on existing networks e.g. of previous NSR Interreg projects that partners have been involved in. There is also potential to build relationships between supervisors of individual partner research projects to share methods, tools and knowledge, which will continue post project.

There is no single solution to water quality/quantity issues for the North Sea Region as a whole and no single organisation can try everything. Organisations are limited in terms of the number of management approaches they can test on site – but through a partnership this number can be increased significantly. The project will pilot a number of different approaches, identifying solutions to water quality/quantity issues that can be applied much more widely across the North Sea Region, benefitting not only the project partners but a range of organisations and localities. These will be shared through a project manual/toolkit and website that will be jointly developed by the partners.

One such approach is PCLake, a tool - not yet widely trialled - used to study effects of nutrient enrichment in shallow lakes/ponds that offers several options on how to restore water quality. A number of partners will trial PCLake by evaluating the success of the solutions it offers. By trialling it

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across a number of sites this will demonstrate whether it's effective enough to be mainstreamed across the region.

Due to the wide variety of project locations across the partnership, which encompass both designated (e.g. Natura 2000) and non-designated sites and both rural and peri-urban sites, there are a wide range of stakeholder interests represented. Some partners have developed successful and mutually beneficial relationships with other sectors such as farming, recreation and tourism industries, whereas others have struggled to do so. This will provide a clear opportunity for learning to be shared across the partnership, through project workshops, and with stakeholders throughout the North Sea Region, through the project manual/toolkit. Norfolk Rivers Trust has, for example, developed an extremely effective model for engaging with farmers and landowners, which will be extremely beneficial to partners working across landscapes dominated by farming such as northern Germany and the traditional polders of the Netherlands.

The range of partners involved will provide a mix of experience, knowledge and skills, providing added value and unique perspectives to each project element. These perspectives are partly influenced by history of the regions represented e.g. the Dutch, with a history that revolves around adaptation to water, are well known for their water management skills; and the Norfolk Broads, having been exploited for its natural resources over hundreds of years, is now the largest nationally protected wetland in the UK. Each partner will focus their strengths on particular elements of the project, as a collective ensuring the wider project objectives and results are achieved. Some partners are further ahead of others in their thinking and understanding on certain issues such as groundwater pollution and paludiculture. This provides clear opportunities for partners to learn from one another e.g. through site visits, which will take place throughout the project. As well as an information hub for the public, the project website will also provide a forum where partners can post updates, successes, and challenges so that they can support and learn from one another.

We envisage that this project will lay the foundations for the development of a number of new partnerships that will continue to share best practice and promote joint working for many years to come.

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### 3.1 Project overall objective (no character limit)

- To promote sustainable water and land management across peatland landscapes to ensure that ecosystem services continue to be provided effectively for the mutual benefit of the environment, economy and society.

The overall objective of the project directly contributes to the programme's priority specific objective by focusing on the sustainable management of ecosystems across lowland peatlands in the North Sea Region. It will develop new methods for the long-term sustainable management - as well as restoration - of these ecosystems, focusing on the management and use of water, which is key to both the effective functioning of the ecosystem and the services provided to humans. Fundamental to the long-term sustainable management of these ecosystems is engagement with all stakeholders to reduce conflicts between different sectors and jointly develop mutually beneficial solutions that will win long-term backing. As well as benefitting partner sites through habitat improvements, the learning that will be generated by this project will be shared with other organisations, businesses and stakeholders across the region that own or manage land in areas dominated by peatlands to ensure a project legacy.

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## 3.2 Project results (no character limit)

1. Improved monitoring and dissemination will increase knowledge on peatland habitat eco-hydrology and capacity of the North Sea Region to ensure informed decision making and targeted action.
2. A suite of cutting-edge sustainable water/land management and habitat restoration approaches will be developed and tested to effectively address water quality/quantity issues within peatland landscapes.
3. A suite of case studies with recommendations will be developed and shared that highlight the most effective approaches for reducing conflict and creating synergy between different sectors, leading to improved water/land management across the wider landscape.

These project results will directly contribute to the result indicator by identifying a number of methods for 'the long-term sustainable management of the North Sea Region'. This will include: 1) the development and deployment of new methods and technologies for environmental monitoring e.g. use of underwater drones; 2) the implementation and trialling of a range of methods for sustainable water/land management and habitat restoration e.g. use of silt traps to reduce amount of sediment leaving farms and entering waterways; and 3) the development of new methods for ensuring mutually beneficial collaboration between different sectors to achieve a balance between the environment, economy, society e.g. by setting up landowner/community groups.

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## 3.3 Project detailed objectives (no character limit)

- 1. Develop and share new knowledge on eco-hydrology within peatland landscapes to inform decision making and targeted action**

*Description: To fill the gaps in current knowledge this objective will involve increasing the extent and/or type of water quality/quantity monitoring that partners are carrying out. Together with existing knowledge, this information will be pooled and shared between partners and relevant stakeholders via a project manual/toolkit and website.*

- 2. Develop and test new and sustainable water/land management and habitat restoration approaches to address water quality/quantity issues within peatland landscapes**

*Description: This objective will involve piloting a number of different management and restoration approaches across the partnership to effectively tackle water quality/quantity issues, which can be applied much more widely across the North Sea Region. These approaches will be shared via a project manual/toolkit.*

- 3. Develop and share participatory approaches to win stakeholder support and address/manage conflicting stakeholder interests across peatland landscapes**

*Description: This objective will involve developing new and effective ways of engaging with a range of stakeholders and sharing these, as well as existing approaches, across the partnership and wider North Sea Region. These will focus on managing conflicting stakeholder interests. A suite of case studies with recommendations will be developed and shared.*

- 4. Develop and share new and innovative approaches for raising public awareness of the value of the peatland landscape**

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*Description: This objective will involve the development of a suite of new and innovative approaches that raise public awareness of the value of the peatland landscape, including the array of ecosystem services provided e.g. through citizen science activities. These approaches will be pooled and shared between partners and relevant stakeholders via the project manual/toolkit and website.*

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### 4.1 Project partners overview

<b>Beneficiary name</b>	<b>Legal status</b>	<b>City/country</b>
Water authority van Schieland en de Krimperwaard (HSKK)	Public	NL
Regional water authority Hunze en Aa's	Public	NL
Wetterskip Fryslân	Public	NL
Landkreis Diepholz	Public	DE
Grenspark De Zoom-Kalmthoutse Heide	Private – no IPR	BE/NL
Broads Authority	Public	UK
Norfolk Rivers Trust	Private – no IPR	UK
RSPB	Private – no IPR	UK
Lincolnshire Wildlife Trust	Private – no IPR	UK
VHL University of Applied Sciences	Private – no IPR	NL