LIFE IP Rich Waters
AFTER-LIFE REPORT

(LIFE15 IPE/SE/015)

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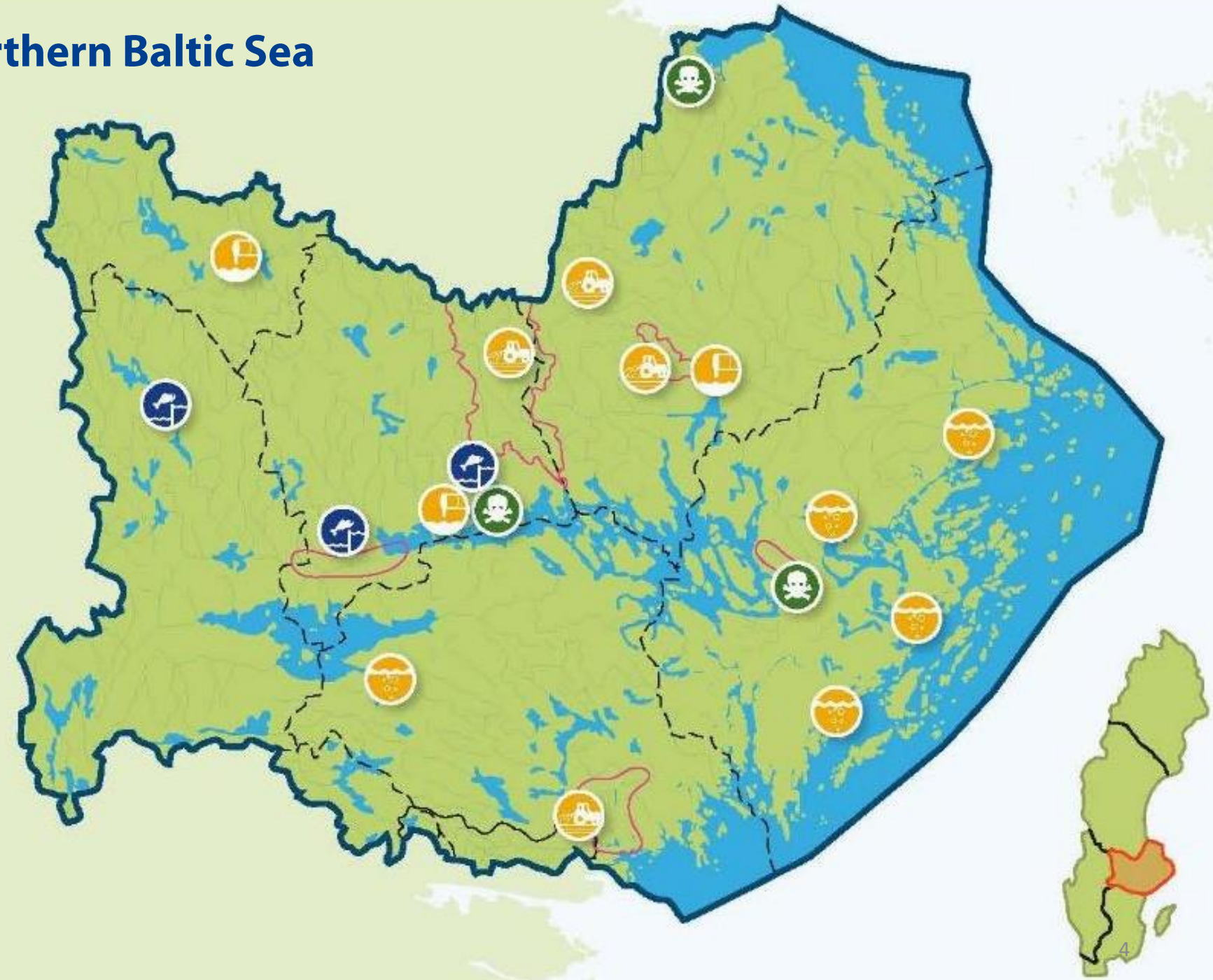
1. PROJECT BACKGROUND

Project name	**LIFE IP Rich Waters (LIFE15 IPE/SE/015)**
Implementation:	1 January 2017 to 30 June 2025
Total budget:	€ 31,530,524
EU funding:	€ 9,736,678
Sector:	The Water Framework Directive, Management Plan and Action Plan for the North Baltic Sea Water District
Coordinating partner:	The County Administrative Board of Västmanland County (LSTU)
Partner organisations:	The County Administrative Boards of Stockholm (LSTAB), Södermanland (LSTD), Uppsala (LSTC), Örebro (LSTT), Dalarna (LSTW), Norrbotten (LSTBD), Västernorrland (LSTY), Kalmar (LSTH) and Västra Götaland (LSTO), Swedish Agency for Marine and Water Management (HAV), Swedish Board of Agriculture (JVE), Federation of Swedish Farmers (LRF), Swedish University of Agricultural Sciences (SLU), IVL Swedish Environmental Research Institute (IVL), Hjälmaren Water Conservation Association (HJÄLM), Lake Mälaren Water Conservation Association (MÄVA), Nyköping Rivers Water Conservation Association (NYV), municipalities of Uppsala (UPP), Heby (HEB), Katrineholm (KAT), Stockholm (STO), Enköping (ENK), Upplands Väsby (UPV), Västerås (VÄS), Älvkarleby (ÄLV), Örebro (ÖRE), Östhammar (ÖST) and Sollentuna (SOL), WBAB Wessman Barken Vatten & Återvinning AB (SMED), Mälarenergi AB (MÄL), Mälarenergi Vattenkraft AB (MEN), Bioremed AB (BIOR), Ecopelag non-profit association (SEA), Julmyra Horse Center AB (JUL).

1.1 Geographic area: Northern Baltic Sea River Basin District



1.2 Objectives

Contributing to the full implementation of the RBMP, striving for good status of all waters

1. Mobilise capacity and resources to implement concrete measures
2. Increase common knowledge among all target groups, to improve the efficiency of the implementation of the water districts' management plans
3. Stimulate and inspire more efforts through "showcase measures" and high-impact actions
4. Reduce nutrient loads, environmental pollution, and migration barriers
5. Increase cost-effectiveness by improving the capacity of new technologies and innovative solutions

2. RESULTS

This section gives examples of results related to the five specific objectives.

2.1 Mobilise capacity and resources to implement concrete measures

Physical actions: Within the context of the project, we have built water parks and fauna passages, developed technology for mussel farming and the purification of environmental toxins using willow, and restored eutrophicated lakes through aluminium treatment and low-flow dredging technology. Through detailed documentation of processes, follow-up of the results, and the dissemination of good examples, we have made it easier for others to apply for funding and implement similar initiatives. We also know more about the positive effects that actions to improve water can have on ecosystem services, climate adaptation, and the local economy.

Policy instruments: LIFE IP Rich Waters has contributed to the policy measures in the Action Plan for the North Baltic Sea Water District, thereby contributing to better Swedish compliance with the Water Framework Directive. Our evaluation shows that together, its sub-projects have contributed to the implementation of 26 of the 76 policy measures in the Action Plan. These are measures for which central authorities, county administrative boards and municipalities are responsible.

Complementary projects actions: An important part of the EU's integrated LIFE project is to mobilise more resources for environmental work. By the end of 2023, LIFE IP Rich Waters had helped mobilise over €90,000,000 in so-called complementary projects actions – projects that are somehow tied to or have benefited from our work. At the time of the report, the complementary actions that are a direct result of Rich Waters together contributed to a load reduction of an estimated 2,780 kilogrammes of phosphorus and 1,090 kilogrammes of nitrogen per year and have created 3.6 kilometres of free migration routes for fish in the district's waterways. Since then, the number of complementary actions has more than doubled.

Capacity development: The project has led to increased capacity and knowledge among many of those whose daily work involves improving Sweden's waters. Over the years, more than 150 people have directly contributed to the work of LIFE IP Rich Waters. Many hundreds more have participated in our training courses, seminars, conferences, study visits, and other events.

2.2 Increase common knowledge among all target groups, to improve the efficiency of the implementation of River Basin District management plans

Several sub-projects developed methods that can be used to plan measures, assess which ones are most cost-effective, and develop tools to ensure that the right action is implemented in the right place – where it is most beneficial. Within the context of efforts to remediate environmental toxins, the project has contributed several major studies of Lake Mälaren and other lakes. As a result of these studies, we now have better knowledge of the substances found in sediments, water and fish and can trace the sources of pollution. When it comes to eutrophication from internal loading, the project developed a completely new tool to assess whether a measure is necessary and, if so, which measure is the most appropriate.

LIFE IP Rich Waters has placed great emphasis on compiling and disseminating the knowledge produced, both within Sweden and to other countries in Europe. To this end, we have not only published reports and articles about our work, but we have also arranged numerous seminars, webinars, conferences and study visits. The events have also created opportunities for establishing new contacts and networks.

2.3 Stimulate and inspire more efforts through showcase measures and high impact actions

The project has contributed with physical actions measures of different types and scopes.

What these projects have in common is that they have had a major impact and can serve as instructive examples for others. Some projects, such as the fauna passage established in central Västerås by the City of Västerås and Mälarenergi, or the multifunctional water parks in Västerås, Uppsala and Smedjebacken, have been well-visited by both members of the public and employees of municipalities and other relevant organisations. In other cases, new methods to reduce the nutrient load in lakes and coastal waters have been developed.

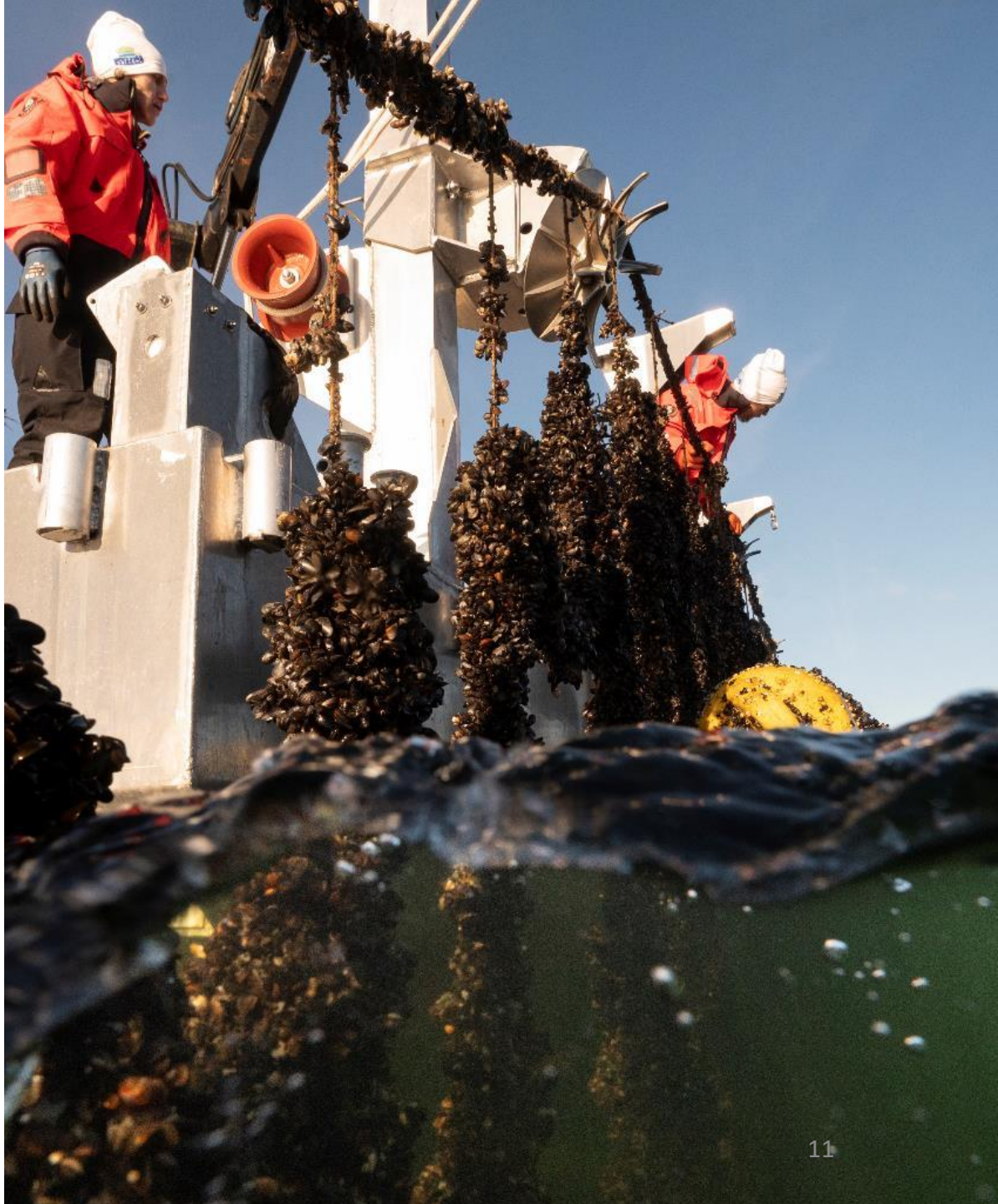
- 1 stormwater pond in an urban environment
- 3 multifunctional water parks to purify water, increase biodiversity, and create recreational opportunities
- 2 lake restorations using different techniques (aluminium treatment and low-flow dredging)
- 1 mussel farming pilot project aimed at reducing phosphorus loads in coastal waters
- 1 pilot project involving willow cultivation to clean up a contaminated area
- 2 fauna passages in urban environments
- 2 fauna passages for hydropower adaptation
- 1 hull cleaning/Boat bottom wash
- 1 exhibition environment on a horse farm for actions against eutrophication
- 1 demonstration loop for agricultural actions

2.4 Reduce nutrient loads, environmental pollution, and migration barriers

Naturally, the work of LIFE IP Rich Water has had direct environmental effects, among them reduced loads of nutrients and environmental pollutants in the water and greater opportunities to create and preserve biodiversity and free migration routes for fish. But at the same time, many of the actions measures and initiatives undertaken as part of the project are of a long-term nature, and it will be some time before we see their full impact on the environment.

2.5 Increase cost-effectiveness by improving the capacity of new technologies and innovative solutions

Sometimes we need to develop new, innovative solutions to solve environmental problems. This work is often difficult to achieve as part of regular operations, such as those of a municipality. The type of project and funding from the EU have made it possible to test new actions and develop established technologies. Within the context of LIFE IP Rich Waters, we have been able to implement and evaluate techniques for mussel farming in coastal waters, low-flow dredging to return nutrient-rich sediments to land, and fast-growing willow plants as a way to remediate contaminated soil. In another example, the Swedish University of Agricultural Sciences (SLU) has been able to test and evaluate the use of sensors to obtain high-frequency data, in order to gain better knowledge of how water quality is affected by different flows.



2.6 The value of investing in water

Actions to improve the aquatic environment can have positive effects for society as a whole. When LIFE IP Rich Waters asked a consultant to analyse the social and economic impact of the project, it became clear that the project's water improvement measures had many benefits.

Increased employment: many actions measures are taken done by entrepreneurs and can stimulate the local labour market.
Well-being and health: better aquatic environments have a direct effect on our well-being. Considering accessibility and user-friendliness in the design of measures can benefit outdoor and recreational values.
Industry development: Investing in innovation and new technology, can boost the development of various industries and lead to new similar projects.
PR: Investments in the aquatic environment can help create a positive image of municipalities and companies.

Positive actions measures become concrete examples of what sustainability work really is all about. This generates greater understanding and motivation for implementing similar initiatives in the future. In conclusion, there is a flood of great arguments for investing in water improvement measures, even if they may sometimes be perceived as expensive.

3. AFTER-LIFE PLAN AND OBJECTIVES

The main objective of this After-LIFE plan is to ensure sustainability of project results and further ripple-effects. The After-LIFE plan clarifies activities, roles and responsibilities in ensuring continued impact of the project. It has been developed through workshops at full partner meetings and through dialogues with partners in connection to the final reporting period.

After-LIFE objectives and activities can be found in the following broad areas:

- **Maintaining physical measures:** Constructed measures, such as multifunctional waterparks and fauna passages will be maintained and continue to serve as good examples and inspiration.
- **Continued monitoring of effectiveness of measures:** All but one of the physical measures carried out within LIFE IP Rich waters will continue to be monitored for their effectiveness by the partners in charge after the end of project. As a result, the understanding of the actual environmental impacts of the project will grow over the years following its completion.
- **Continued knowledge sharing and exchange**: The networks created in the project will be managed by different partners to ensure sustainability.
- **Uptake and integration of project results** into policy making, including forthcoming RBMP-cycles
- **Continued use and development of project results**, such as handbooks and decision-making tools.
- **Availability of documentation** of results and lessons learned on www.richwaters.se

The following pages give a thematic analysis of After-LIFE plans and activities.

3.1 Municipal water planning

During the LIFE IP Rich Waters project, the County Administrative Board of Stockholm County (LSTAB) has supported municipalities that want to improve their strategic water planning. Most importantly, LSTAB developed a Handbook for Strategic Municipal Water Planning, based on municipal experiences. The handbook has already been used by many municipalities, as well as by county administrative boards in their efforts to support their municipalities through advice and training. Within this thematic area, two municipalities (Sollentuna and Enköping) have developed their own water planning and documented the process as good examples for others. These examples have been widely shared with other municipalities and evaluation reports are available.

Support for municipal water planning is increasingly in demand since the RBMP PoM includes a new requirement for such planning. The support function maintained by LSTAB within LIFE IP Rich Waters should therefore be sustained.

Main After LIFE-actions:

- ✓ Support for municipal water planning will continue through a dedicated website, www.vattenplanering.se. The website includes all content from the Handbook, as well as templates, guidelines and inspirational examples of municipal water planning. The website is hosted by LSTAB, which will also continue the promotion and development of the support function.
- ✓ Well documented examples of municipal water planning processes, including lessons learned, are available at www.richwaters.se
- ✓ Water preservation associations MÄVA, NVVF and HJÄLM continues to promote the use of the Handbook and include it in contacts and trainings for municipality staff and politicians.
- ✓ The handbook for water planning developed within action C2.1 will be continuously evaluated and updated. The water plans developed in action C2.2 and C2.3 will be evaluated every term of office to decide whether a revision is needed.

3.2 Climate and water

During the LIFE IP Rich Waters project, the County Administrative Boards of Västmanland, Stockholm, Västra Götaland and the Swedish University of Agricultural science have developed various methods and guidelines for identifying suitable areas to channel overflow, thereby reducing flood risks while promoting good water quality and enhancing ecosystem services related to flooding. In a risk analysis of Lake Mälaren, climate change and environmental toxins have been highlighted as the largest threats. Mälaren Water Conservation Association has carried out work to increase knowledge about the effects climate change can be expected to have on freshwater systems.

A method was developed to demonstrate the added value and socio-economic benefits of water measures. The fauna passage at Turbinbron (action C16) is a good example of synergies created in removing a migration barrier, highlighting the cultural environment and obtaining a technical solution that will withstand centennial rain.

Main After LIFE-actions:

- ✓ In a web-based guide, concrete tips are given on how maps and various GIS layers can be used to assess risks of flooding and to prioritize the supervision of contaminated areas. The web-based guide remain available through a well-established database (the MIFO database) for officials at municipalities and county administrative boards who work with contaminated areas.
- ✓ Mälaren Water Conservation Association will continue to carry out competence-enhancing work. A follow-up conference is planned in autumn 2025 with a focus on climate adaptation measures.
- ✓ In an ongoing complementary action, "Puddlejump", knowledge and GIS layers are developed to show where in the landscape measures that reduce flood risk should be implemented to give least negative impact and the most effect. More project applications are underway, with a focus on connecting actors responsible for social protection, water and food supply, and the environment.

3.3 Eutrophication from agriculture

In LIFE IP Rich Waters, policy instruments to decrease eutrophication from agriculture have been analyzed and evaluated. This work has resulted in a better dialog and understanding between stakeholders. Planning tools for farmers and catchment officers are crucial to ensure measures are implemented in the optimal place. The method of water management plans has been developed in action C6, to help farmers and horse keepers to identify and prioritize cost-effective measures. The methods are published and available to advisors, farmers and horse keepers. High-resolution maps have been developed by SLU with information regarding erosion risk, nutrient transport, wetlands placement, size and efficiency. Other tools that have been developed are sensor-based monitoring systems and a prototype for communication about mitigation measures. Action C7 has developed actions plans with relevant stakeholders for the areas of for example Hågaån, Kilaån, Sagån, Lillån and Vibybäcken as a basis for implementation of measures.

Main After LIFE-actions:

- ✓ The high-resolution maps developed by SLU in C8 have gained funding to scale up and cover the whole country. Decision support tools will be further developed within new research projects (Puddle Jump, Nordbalt ECOSAFE).
- ✓ NYV has together with WWF initiated the project BaltCOP financed by Interreg Central Baltic (CA no. 118). The project aims to reduce nutrient loading in several countries around the Baltic Sea and to further develop methods for local catchment approach that has been used in action C7.
- ✓ The Swedish Board of Agriculture has a funding initiative for pilot projects to implement and evaluate the method of water management plans for catchment areas developed in action C6.
- ✓ A project application was developed and submitted by the horse industry to increase knowledge about the environmental impact of horses and the need to reduce nutrient leakage from horse farms.
- ✓ The demonstration site established at Brunnby Farm describing different types of measures to reduce eutrophication will be maintained by the City of Västerås and Hushållningssällskapet.
- ✓ IVL has applied the knowledge and lessons learned from action C9 to four complementary actions that explore various methods of monitoring stormwater, including the SCOREwater project (CA no.121).

3.4 Internal loading

LIFE IP Rich Waters has developed a handbook (*Handbook – a decision support tool for measures against internal phosphorus loading in lakes*) to support the assessment and decision-making process regarding measures to combat the internal loading of phosphorus in lakes. The handbook was published in April 2023 and is Sweden's first comprehensive decision-making tool for addressing internal loading. It presents a four-step method for assessing whether a body of water is internally loaded. It also includes descriptions of possible measures and information regarding costs and funding opportunities. Measures to combat internal loading are often quite expensive and require extensive research and preparation. We need to be able to make better assessments of which lakes require remediation and, if so, which measures are most appropriate. The handbook, published by HAV, will continue to support regional authorities, municipalities and water associations to determine if internal loading is a problem and if so, what type of measure that is appropriate.

Main After LIFE-actions:

- ✓ The Handbook on internal loading is a well-known tool and is available for download from the HAV website. The method for assessing internal loading has already been used throughout the country.
- ✓ Documented lessons learned and detailed descriptions of the process applied for best practice measure (aluminium treatment in Lake Norrviken) and for new circular method (low-flow dredging in Lake Öljaren).
- ✓ In Lake Öljaren, low flow dredging will continue for some time with other funding after LIFE IP Rich Waters has ended. Sampling and analysis will take place after the project period according to the developed monitoring program.
- ✓ Monitoring in Lake Norrviken will continue after end of project. A monitoring program (within Oxunda Vattensamverkan) for 2022-2025 is in place. The monitoring will be financed by Sollentuna and Upplands Väsby municipalities.
- ✓ The mussel farms in the Baltic Sea will continue monitoring of settlement and biomass, nutrient content and environmental effects of the mussel farms. The intent is to cover all future costs with revenues from the harvested mussels.

3.5 Multifunctional water parks

During the LIFE IP Rich Waters the Municipality of Uppsala, the City of Västerås and the Municipality of Smedjebacken have established multifunctional water parks. The water parks in Uppsala and Västerås purify stormwater before it reaches Lake Mälaren. In Smedjebacken, the water park serves as an additional purification step for already-treated wastewater. Through a system of ponds, the water parks capture nutrients and heavy metals before the water flows further into the lake. The parks also serve as recreation areas and as show cases for municipalities and other actors that want to implement similar projects.

The parks also function as a place for enhanced biological diversity. Amphibians and birds are attracted by the water. The parks have nesting boxes for birds and sand piles for bees, and the areas attract for example bats, dragonflies and swallows.

Main After LIFE-actions:

- ✓ The multifunctional parks in Uppsala and Västerås are appreciated recreation areas and will be managed and maintained in regular functions in the municipalities.
- ✓ For the water park in Uppsala a monitoring programme of relevant indicators has been set and will continue after end of project. The monitoring will be handled by Swedish University of Agricultural Sciences. The municipality continue to host study visits.
- ✓ Mälarenergi AB and Västerås municipality continue to monitor of the purification by sampling and analysis of relevant parameters in incoming and outgoing water. They will also monitor the progress of biodiversity.
- ✓ The water park in Smedjebacken will be part of the sewage treatment plant's regular operations. The degree of purification will be monitored continuously after end of project. Results and lessons learned will be disseminated to other organisations and staff will be able to host study visits. The maintenance will be done by staff at the municipality and WBAB.

3.6 Connectivity

The county administrative boards of Västmanland, Örebro, Södermanland, Stockholm and Uppsala have worked together to increase collaboration across county borders, create consensus and dialogue between different interests, and produce better data for prioritising actions. The project has compiled information on more than 40 implemented measures in which dams have been removed. This compilation provides an overview of cost items and factors that influence the total cost. The selected cases include various dam types and designs. Overall, the case studies provide a good picture of what it costs to replace a dam with a rapids environment or a lake outlet, as well as what factors play a role in keeping costs down. Västerås municipality has built two fauna passages in central Västerås. The projects showed that is possible to combine measures for fauna passages with cultural heritage interests. Mälarenergi has constructed two fauna passages at two of its hydropower plants. These four physical examples now serve as models for how fauna passages can be built and function, both in urban areas and at a hydropower plant.

Main After LIFE-actions:

- ✓ Well documented examples of measures for migration obstacles, including lessons learned, are available at www.richwaters.se. There are also links to other reports and a film produced within the project.
- ✓ Mälarenergi AB and Västerås municipality continue to have the responsibility of the four physical measures, including monitoring. Their staff will be able to host study visits. Västerås municipality oversees operations and maintenance of the fish camera. The County Administrative Board of Västmanland will continue regular electrofishing and fish roe inventory on annual basis.
- ✓ Mälarenergi will continue monitoring of fish population using fish counters as well as performing mussel and fish egg inventory in the rivers Hedströmmen and Rällsälv. The results will be useful in the ongoing revision of hydro power environmental permits. Regular staff at Mälarenergi will be responsible for carrying out these tasks.
- ✓ Mälaren Water Conservation Association will manage the network that has been created with various stakeholders for continued exchange of experiences and professional development among municipalities primarily.

3.7 Environmental pollutants

Five county administrative boards, Stockholm municipality and Mälaren Water Conservation have taken samples, conducted analyses, and traced the sources of emissions. Such data is necessary to ensure that the right measures are implemented where they are most useful. Measurements have for example revealed that the waters of marinas often are contaminated with high levels of the endocrine disrupting substance TBT, used in antifouling paint. At the request of local boat owners and boat clubs, Västerås municipality set up a boat hull cleaning station. To move forward in this effort, a network was created to share experiences and create consensus on issues relating to environmental toxins tied to recreational boating activities in the municipalities around Lake Mälaren.

Älvkarleby Municipality and Bioremed AB have planted fast-growing Salix trees to remediate the contaminated area. The first two harvests show that the roots, stems and leaves of the willows absorb heavy metals and toxic substances – including PFAS. The plants purify both the soil and the leachate.

Main After LIFE-actions:

- ✓ Pollutants will be monitored within the regional environmental monitoring and within control programs. The increased knowledge generated, for example the presence of certain types of pollutants, has been used for status classification.
- ✓ A network focusing on PFAS around lake Mälaren has been established, including several participating organisations from LIFE IP Rich Waters but also other relevant stakeholders.
- ✓ An Interreg Central Baltic-project has been approved, focusing on continuing and developing sampling PFAS, methods for removal and support to municipalities in their work to detect and remove PFAS.
- ✓ The Salix plantation in Älvkarleby will be harvested every three years following the continuation of the remediation process until 2039 or until it is no longer needed. The landfill area will be open for study visits. Älvkarleby municipality and Bioremed will continue to monitor pollutants in the water from the landfill, in the irrigation water and in stream to control that there is no leakage from the landfill. This will be financed by regular operations.
- ✓ The boat hull cleaning station in Västerås will be maintained and a network on toxic antifouling paint will be further developed around Lake Mälaren.

4. AFTER-LIFE COMMUNICATION PLAN

The After-LIFE communication plan is integrated into the overall After-LIFE plan. This section explains how results and lessons learned will remain available and be further disseminated after the end of the project period.

4.1 Physical measures (demonstration sites)

Many of the physical measures implemented by the project will remain as inspiration and demonstration sites for the future.

Examples:

- ✓ **Multifunctional water parks in Västerås, Uppsala and Smedjebacken:** These already popular recreational parks will be maintained by the partners involved. Information signs ensure that visitors understand the different functions of the dams and the measures for biodiversity.
  Responsibility: VÄS, UPP, SMED, MÄL
- ✓ **Fauna passages in central Västerås:** These passages are centrally located and popular spots for inhabitants and tourists. The information signs explain the purpose of the construction, the importance of free migration passages for fish and are illustrated with typical species that benefit from the measures.
  Responsibility: MEN, VÄS
- ✓ **Fauna passages in Östtuna and Rällsälv:** While these passages are open for visits by the general public, they will mainly continue to serve as good examples and inspiration for hydro power companies and municipalities. Information signs are installed at both locations.
  Responsibility: MEN

4.2 Documentation of implementation processes, lessons learned and results

All project actions have documented results as well as the implementation processes, including lessons learned and budget considerations. These final project reports are published on the Rich Waters website (see below) and will remain available at least until 2031.
Responsibility: LSTU

Examples:

- Environmentally friendly removal of phosphorus-rich sediment from Lake Öljaren and re-using it as fertiliser in agriculture (final report C12)
- Experiences and results of the building of two fauna passages in a city environment (final report C16)
- Stopping internal phosphorus leaking – a full lake treatment in Norrviken (final report C13)

4.3 Other publications and resources

LIFE IP Rich Waters has developed several reports which are not directly linked to results of the different actions. These contain valuable insights and knowledge on relevant aspects.

Examples:

- ✓ **Social and economic effects of water related measures:** Two evaluation reports including a thorough methodology for assessing and evaluating ecosystem services and other effects of common water measures.
- ✓ **Overcoming conflicts of interest:** Guide for organising field visits to create consensus between environmental and cultural interests at barriers for fish migration.
- ✓ **Most important collaborations within LIFE IP Rich Waters:** Network analysis based on in-depth interviews which networks have been created and how they will be maintaind after end of project.
- ✓ **Creating ripples on the water:** Result and lessons learned of complementary action development

4.4 Communication material

Through LIFE IP Rich Waters, a great number of communication support materials have been developed, including infographics, films and presentations. These remain available for partners to use in their communication activities. All video material is kept on the project's YouTube channel. Responsibility: LSTU

Examples:

- ✓ Animated infographic on strategic municipal water planning, which can be used in training courses
- ✓ Short film on measures on agricultural land and the demonstration site at Brunnby gård, re-purposed by the Swedish Board of Agriculture
- ✓ Film with local politicians "Water – at the heart of politics"
- ✓ Online audio guide through measures in Kiladalen
- ✓ Educational package with lessons plans and practical exercises for high school students on horses and eutrophication

4.5 Website and communication through parters

The LIFE IP Rich Waters website www.richwaters.se has been redesigned for the After-LIFE period and will remain online until at least 2031. The website has been structured as a thematic knowledge base on topics coved by the project. Each thematic section of the website contains articles explaining results, links to reports as well as photos, illustrations and video material. Responsibility: LSTU

Results are also available through partner organisations. In some cases, partners continue to host and develop tools and resources developed within the project.

Examples:

- ✓ Animated infographic on strategic municipal water planning, which can be used in training courses. Hosted by LSTAB
- ✓ Story map gathering information, measurements and data on PFAS. Hosted by LSTAB
- ✓ Story map with tools and erosion maps supporting placement of measures in the landscape. Hosted by SLU
- ✓ Website on municipal water planning. Hosted by LSTAB

5. AFTER-LIFE PLAN PER ACTION

The table in this section includes a detailed description of how results of the different LIFE IP Rich Waters actions will be integrated into regular operations, maintained or further developed. It points to responsibilities and possible funding opportunities.

Action	Result	Partner	Responsibility for After-LIFE activity	Geographical scope	Description of After-LIFE activities	Resources needed
C1	National guidelines produced within LIFE IP Rich Waters are administrated and made available by the relevant national authority. Methods and guidelines developed in action C1 have been implemented in the RBD Authorities internal processes.	HAV and RBD Authorities (LSTH, LSTO, LSTU, LSTBD, LSTY)	HAV and RBD Authorities	National	Experiences from the pilot projects will be implemented in national guidelines in the coming years. Work to improve national guidelines on heavy modified water bodies, regarding soil drainage has been initiated. In the coming years HAV intends to build a support function for County Administrative Boards and RBD Authorities to determine the environmental quality standards and make action plans for catchment areas.	€€ Financed within existing budget of HAV and RBD Authorities and possible future CAs.
C2:1	The Handbook on Strategic water planning and its annexes, reports and articles with learnings and examples will serve as a source of information and knowledge for water planners also after the end of the LIFE IP Rich Waters project.	LSTAB	LSTAB, MÄVA, HJÄLM and NYV	Northern Baltic Sea District	The support function will be maintained by LSTAB, to continue to help water planners to reach environmental quality standards and to implement the Programme of measures for the RBD. The water preservation associations, MÄVA, HJÄLM and NYV will also continue supporting municipalities with water planning on the basis of the work from sub-action C2.1.	€€ Financed within existing budget of LSTAB, MÄVA, HJÄLM, NYV and possible future CAs.
C2:2	The development of a municipal water plan from an ecosystem services perspective was finalized. The evaluation shows that the applied method has been successful in the water plan process for Sollentuna municipality.	SOL	SOL	Municipal	The water plan will be evaluated every four years to decide whether a revision is needed. The actions in the water plan are for now scheduled to be implemented before the end of 2027. Other municipalities will be able to contact SOL for advice. All documentation of the methodology, process and evaluation is available online for inspiration and possible replication in other municipalities.	€ Financed within existing budget of SOL.
C2:3	The stormwater plan and guidelines have resulted in a new way of managing stormwater in Enköping municipality. The work has deepened internal knowledge and broaden it to include relevant parts of the organisation. The report and lessons learned from the process will benefit other municipalities.	ENK	ENK	Municipal	Communication and continuous review of the plan is integrated to the Enköping municipality's regular operations. Efforts to achieve sustainable stormwater management will continue within the framework of ordinary operations. A culture change has started, and the municipality has now acquired some of the tools needed for this conversion.	€ Financed within existing budget of ENK.

Action	Result	Partner	Responsibility for After-LIFE activity	Geographical scope	Description of After-LIFE activities	Resources needed
C3	This action has led to the creation of various methods and guidelines for identifying suitable areas to channel overflow and management of contaminated areas, thereby reducing flood risks while promoting good water quality and enhancing ecosystem services related to flooding. The results have been shared with the relevant target groups.	LSTU, LSTAB, LSTO and SLU	SLU and LSTU		SLU will continue its work on ecosystem services and their response to climate change. LSTU will continue efforts in the general operation, specifically within the areas the wetland assignment, Flood Directive, management of contaminated areas, climate adaptation coordination in the county, coordination of river groups, physical planning and risk and safety management.	€€ Financed within existing budget of SLU and LSTU and possible future CAs.
C4	Complementary actions have been developed on all thematic areas and almost all municipalities in the water district have been involved in activities related to C4 and project development. By working in catchment areas, including several municipalities and/or stakeholders, smaller municipalities with less resources can support each other to develop projects/measures. Local catchment officers are key to create local engagement and to implement measures.	LSTU, LSTT, LSTAB, LSTD, NYV, MÄVA	MÄVA, NYV, HAV and partners in new projects	Northern Baltic Sea District	Many of the initiated CAs will continue after LIFE IP Rich Waters ends. Through capacity building activities in C4, partners and municipalities are likely to have greater knowledge on project development processes. Several networks have been initiated through action C4 (network for project development, PFAS in Mälaren, connectivity, network for municipalities). These networks will be further developed by MÄVA and NYV. MÄVA will also continue the work with the fundraising account and initiate campaigns to raise funds for measures around Mälaren. HAV has commissioned the Baltic Sea Center at Stockholm University to conduct a complementary study on the need for a Competence Center for water conservation - with a focus on connection between the coast and sea.	€€ Financed within budget of new projects (CAs) and existing budget of MÄVA, NYV and HAV.
C5	Policy instruments in agriculture has been evaluated, to identify which policy instruments that are the most efficient in reaching the nutrient reduction objectives of the WFD. Another key achievement of C5 is a better mutual understanding between stakeholders and joint knowledge that was used in the development of the RBMP 2022-2027.	JVE, RBD Authorities (LSTH, LSTO, LSTU), LRF and HAV	JVE, RBD Authorities, LRF and HAV	National	The knowledge gained has been used in the current RBMP and RBMP-PoM. The project group, expanded with some participants, will continue to meet regularly to discuss current issues in the water management system and the need for mitigation measures in agriculture.	€ Financed within existing budget of JVE, RBD Authorities, LRF and HAV

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C6:1	Developed methods that will help farmers and horse keepers identify and prioritize cost-effective measures. The methods on how to engage, involve and support farmers (at farm level and at catchment area level) and horse owners to identify and prioritize measures has been tested and evaluated. The methods are published and are available to advisors, farmers and horse keepers. Educational material was developed for schools.	LSTD, LSTC, LSTU, LSTAB, LSTT	JVE, Partners in new projects, County Boards and Upper secondary schools for horse breeding	National	The method for catchment level water plans was recognised by JVE, which announced funding opportunities to support the development of such plans. The funding initiative will be evaluated by JVE and may be included in future programs for funding opportunities. The method also includes farm-specific water plans, which can thereby continue within this context. Additionally, the method will be published on the County Administrative Boards websites as an example of projects eligible for LOVA funding. The educational material "The horse and our water environment" is expected to be used in teaching at Swedish upper secondary schools for horse breeding.	€ Financed within existing budget of JVE, County Boards and Upper Secondary schools and budgets of new projects (CAs).
C6:2	The facilities to reduce nutrient loss have become show case measures and good examples as inspiration to other horse owners. The work has contributed to action C6:1, development of a method for water planning on horse farms, and to knowledge into the national investigation and debate and on the question eutrophication from horse keeping.	JUL and HEB	JUL	Local	The facilities at Julmyra will be monitored and maintained by JUL in line with documented management program. The project has contributed to substantial capacity building at JUL and for its project manager. The water plan and measures implemented are documented and the information is available online. This knowledge will continue to benefit other horse farms also in the future. JUL is continuing its work for environmental sustainability and is currently part of an innovative testing of improved manure management.	€ Financed within existing budget of JUL.
C7:1	The main objective to support and inspire landowners to carry out measures against eutrophication with an optimized cost-efficiency has been achieved as the demonstration site at Brunnby Farm has been completed.	LSTU and VÄS	VÄS and Hushållnings-sällskapet	Local	All knowledge gathered, and all contacts established, will remain and support future work to implement measures. Several measures have been initiated during the project period and they will be carried out after the project. VÄS is responsible for updating the content of the signs and printing new ones as needed. Hushållningssällskapet is responsible for repairing signs and sign holders, as well as general maintenance to ensure the accessibility of the walking trail.	€€ Financed within existing budget of VÄS and Hushållnings-sällskapet.

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C7:2	C7:2 has successfully engaged many farmers, and numerous smaller initiatives and projects have been created within C7:2. In this way, an organization has been established that can carry the work on eutrophication measures forward in the long term.	NYV and LSTD	NYV and LSTD	Local	The ambition is for the work initiated through the Water Hub to continue as a working method and collaboration platform. NYV and LSTD are jointly responsible for that.	€€ Financed within existing and new projects (CAs) by NYV and LSTD.
C7:3	Founding of the water council and development of an action plan have both been important tools to implement measures in the area of Hågaån to reach the objectives in the RBMP. The work has resulted in a recruitment of a catchment officer and a number of initiated new measures in the area.	UPP	UPP	Local	The collaboration between Uppsala municipality, the Hågaån Water Council, and Lurbo Equestrian Club will continue after the projects ends. Personnel resources at the municipality/Hågaån Water Council will continue reaching out to landowners/tenants who may be interested in implementing measures and will offer administrative support.	€€ Financed within existing budget and new projects (CAs) by UPP.
C8	The Story Map with high-resolution maps for NBSD and other decision support tools that have been developed within C8 contributes to better data for decisions about measures for eutrophication. Sensor based monitoring systems for continuous measurements has been developed and applied to additional sites.	SLU	SLU	National	The achieved results in action C8 have already been upscaled on assignment from national authorities and is a valuable step to disseminate results on national scale. In an ongoing complementary action (PuddleJump project) the models used in C8 are further developed to assess the capacity of the landscape to store water, in event of flooding. In the complementary project Nordbalt ECOSAFE, the work with sensors have continued and will be developed further.	€€ Financed within existing and new projects (CAs) and national funds by SLU.
C9	One stormwater treatment plant was constructed that purifies stormwater before it reaches lake Mälaren. Action C9 also contributed to increased knowledge on choice of location, cost-effective and multifunctional measures for stormwater treatment and development of sensors for monitoring.	MÄL and IVL	MÄL and IVL	Local/ National	The stormwater treatment plant at Lögarängen will be monitored and maintained by MÄL. The internal capacity building at MÄL will remain, and the networks with other municipalities will continue after project end. Development work on using sensors to measure turbidity in stormwater is continuing at IVL. Several collaborative projects and complementary actions are ongoing.	€€ Financed within MÄL and IVL internal budgets and new projects (CAs).

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C10:2	The multifunctional wetland park in Västerås has become a popular destination for recreation and learning. The wetland purifies water from the stream Kapellbäcken, to improve the water quality in Lake Mälaren. The wetland park also has become a habitat for many different species.	VÄS and MÄL	VÄS and MÄL	Local	The wetland park will be administrated and maintained in line with the regular routines of MÄL and VÄS. Results and lessons learned from sub-actions C10.2, C10.3 and C10.4 have been compiled in C10_Deliverable No.60, 31/12/2024. The report is published and disseminated, making valuable knowledge available for other organisations interested of multifunctional waterparks.	€€ Financed within VÄS and MÄL internal budgets.
C10:3	One multifunctional stormwater park was constructed in Uppsala. The stormwater park has become an attractive recreation area and used for educational purposes. The waterpark reduces nutrients, clouding and pollutants in stormwater, to improve the water quality in Lake Mälaren.	UPP	UPP and Uppsala Vatten AB	Local	The waterpark will be managed in accordance with the management and monitoring plan made by Uppsala Vatten AB and the Municipality of Uppsala. Uppsala municipality will continue to facilitate visits from other interest groups such as students, researchers, municipalities etc. There will be a continuous management of the park as well as monitoring of water quality, biodiversity etc.	€€ Financed within UPP and Uppsala Vatten AB internal budgets.
C10:4	One waterpark constructed as a post-purification step to the municipal sewage plant was created in Smedjebacken. The status of Lake Norra Barken is good, and the measure contributes to maintaining good water quality. The park is used for recreation and study visits that inspires others to build similar facilities.	SMED	SMED	Local	The water park is part of SMED sewage treatment plant's regular operations. The operation will be adapted due to the monitoring results. Results and lessons learned will be disseminated to other organisations with an interest in this action.	€€ Financed within SMED internal budget.
C11	The Handbook on internal loading can be used to determine whether a lake has internal loading and how to prioritize measures. The action also has resulted in increased cooperation between of authorities, research sector, municipalities, and water associations. And stimulated at least 25 complementary actions.	LSTT, SLU, IVL, LSTD, LSTC, LSTU, LSTAB, ÖRE, ÖST, NYV, HJÄLM	HAV, STO	National	The handbook is published as a national guideline on the website of HAV, which makes it widely available to all stakeholders. STO will continue to operate a professional network on internal loading, created as a result of the project, to share experiences and knowledge between stakeholders.	€ Financed within HAV and STO internal budgets.

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C12	In the project, oxygen-consuming organic material has been extracted from the lake bottom and spread on farmland as fertilizer. The key achievement is the development and testing of methods. The results and lessons learned have generated a lot of interest, in Sweden and abroad.	KAT	KAT	Local	KAT has received funding from other sources to continue the dredging in Lake Öljaren at least one year after the end of the LIFE IP Rich Waters project. There might be a possibility to apply the method in other eutrophic lakes in the municipality. KAT will try to use the sediments and spread it on piles of straw and chips to increase the composting process. The piles will be plowed down to increase the carbon storage. This method could be useful for many purposes and for many farmers.	€€€ Financed within KAT new and future projects (CAs).
C13	A full lake treatment was carried out in Lake Norrviken in year 2021 to stop the internal load of phosphorus. An environmental monitoring program was carried out before, during and after the treatment. The results have been analysed and the targets evaluated in the Final evaluation report (C13_Deliverable No.74, 30/06/2022).	SOL and UPV	Oxunda water collaboration	Local	The monitoring of Lake Norrviken will continue after end of project through Oxunda water collaboration, where the two municipalities SOL and UPV are represented. The operational plan for Oxunda water collaboration states that an investigation of four other lakes within the Oxunda stream catchment area will be conducted to see if there is an internal load problem.	€ Financed within Oxunda water collaboration internal budget.
C14	The action has demonstrated and evaluated mussel farming as an in-situ measure for nutrient reduction in the coastal waters of the Northern Baltic Sea District. The analysis shows that mussel farming has the potential to contribute to nutrient reduction and should be seen as a blue market with a focus on a sustainable way to recirculate nutrients from the sea.	SEA	SEA	Regional	The full-scale submersible farm, located in the bay Jungfrufjärden outside of Dalarö village, is expected to remain and be operated throughout its lifetime (20 years). The barge with harvest machinery, adopted specific for mussel harvesting from submersible farms, will be used for the same purpose also after the end of the project. SEA's work on developing, operating and monitoring the entire product chain from mussel farming to processing of consumer products will continue within existing and future complementary actions.	€€€ Financed within SEAs new and future projects (CAs).

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C15	A regional cooperation within the area of recover connectivity of rivers has contributed to increased joint knowledge and improved consensus. Several reports on evaluation, ecological and economics issues when removing dams have been produced and disseminated via capacity-building conferences, field visits, etc.	LSTU, LSTT, LSTD, LSTC, LSTAB	MÄVA	Regional	The compiled knowledge regarding, among other things, GIS layer on known obstacles, examples of types of measures and information about costs, efficiency and ecological effects are integrated in the line work of the County Administrative Boards of NBSD. A network of free fish paths has been initiated and will be coordinated by MÄVA. The network mainly consist of municipalities working together for more measures and a higher rate of action in the area of free migration paths for fish.	€ Financed within MÄVAs internal budget.
C16	The two fauna passages in the city of Västerås (by Slottsbron and Falkenbergska kvarnen) are established. A large number of fish and many different species have passed through. The passages are also central and visual spaces for dissemination of knowledge about water and cultural values for the residents in Västerås.	VÄS and MEN	VÄS and MEN	Local	The fauna passages and the public areas adjacent to them are permanent facilities that will be managed by VÄS and MEN. This is done according to regular operating procedures. The work is well documented and will provide guidance for others who want to take similar actions.	€€ Financed within VÄS and MENs internal budgets.
C17	Two faunapassages are established to protect and support endangered species. The passage in river Hedströmmen enables fish to migrate to spawning areas, approximately 5000 m2, combined with 1000 m2 in the fauna passage. The passage in river Rällsälv enables fish to migrate approximately 280 000 m2.	MEN	MEN	Local/ National	The fauna passages will be managed by MEN and their sub-suppliers. MEN will continue its monitoring of fish population using fish counters as well as through fish roe inventory in the rivers. The results will be useful in the ongoing revision of hydro power environmental permits and need to be communicated to all stakeholders in this field.	€€ Financed within MENs internal budgets.

Action	Result	Partner	Responsibility for After-LIFE activity	Geographical scope	Description of After-LIFE activities	Resources needed
C18	Collaboration, knowledge exchange and joint efforts on measurements has contributed to substantial new knowledge on the pollutants that threaten the chemical status in the RBD. Totally around 350 waterbodies have been measured in counting all compounds during the project. More than 260 water bodies have been analysed for PFAS.	LSTAB, LSTU, LSTT, LSTD, LSTC, LSTW, STO, HJÄLM and MÄVA	LSTAB and MÄVA	Regional/ International	The new knowledge on the presence of certain types of pollutants are used for status classification, with a direct link to the requirements that EQS place on operators. A network focusing on PFAS around Lake Mälaren is established and will be coordinated by MÄVA. The network includes several of participating organisations from C18 and other relevant stakeholders (such as drinking water producers and relevant municipalities). The Interreg project Baltic PFAS Resolve (a CA) coordinated by LSTAB will continue the work on PFAS with focus on developing methods, measures and support to municipalities. LSTAB will manage the Storymap on PFAS.	€€ Financed within MÄVAs and LSTABs internal budgets and new projects (CAs).
C19	The old landfill Dragmossen now is a closed system, with no signs of leakage of pollutants from the area. The analysis show that the Salix absorbs heavy metals, most of them to a greater extent than what is supplied by the leachate. The PFAS substances are also taken up in the wood and roots, albeit at a slower rate.	ÄLV and BIOR	ÄLV	Local	The closed system to handle leakage water from the landfill will be monitored and maintained by ÄLV. ÄLV will continue the harvest of Salix every three years following the continuation of the remediation process until 2039 or until it is no longer needed. This will be combined with sampling and analysis to monitor the reduction of pollutants. ÄLV and BIOR will keep the landfill area open for study visits, for municipalities and others interested in the project. It will be a show case for how so-called phytoremediation of leachate water works in practice.	€€ Financed within ÄLV internal budget.
C20	VÄS has had a good reach out to the boat owners, hiring 3000 berths from the municipality. The boat bottom wash has been an important alternative complementing the information activities about toxic antifouling paints. STO and MÄVA's network on toxic antifouling paint has facilitated information transfer and knowledge exchange between boating organisations and municipalities.	VÄS, MÄVA and STO	VÄS, MÄVA and STO	Municipal/ Regional	The work to cease the use of toxic antifouling paint in Västerås will continue. The control and measurements with XRF-instrument will be further used to identify boats with toxic antifouling paint. VÄS will also carry out information activities for the municipalities surrounding Lake Mälaren. The network created in C20.2 will be maintained, facilitated by MÄVA. Supervision tutorials, guidelines and common limit values will be further developed and disseminated. STO will continue with the regular monitoring of environmental pollutants in the aquatic environment, which includes biocides used in antifouling paint.	€€ Financed within VÄS, MÄVA and STO internal budgets.