

SWEDEN – VÄSTERVIK MUNICIPALITY

Investment and implementation plan Case area <Västervik> 2020-12-22



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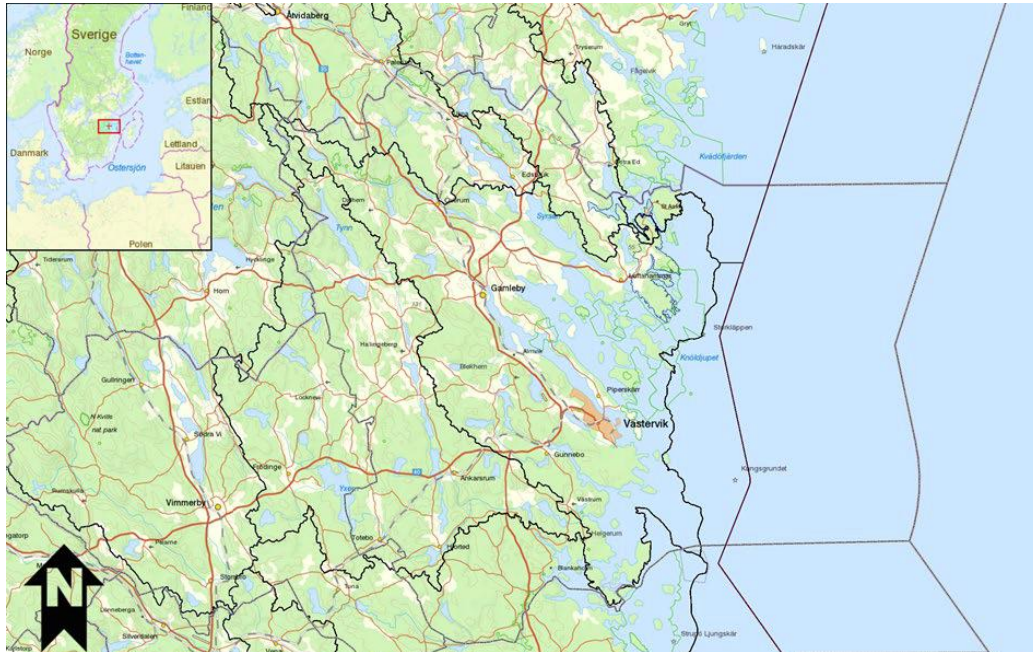
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The case area is the coastal areas in Västervik Municipality (All municipality 1 875 km² including waterarea). The exchange of water between the inner deeper parts of the bays and the open sea is low. Most of the biggest bays in the coastline are deep with a shallow mouth. This makes benthic ecosystems particularly vulnerable. The poor water circulation leads to nutrient-rich water and bad oxygen conditions at the bottom. As Västervik is characterized by its proximity to the Baltic Sea, the eutrophication problem is palpable. Coastal Water sensitivity to eutrophication is higher in the inner archipelago.

Västervik municipality has been working with catchment officers for several years and with measures to reduce nutrient leakage. Local measures to reduce eutrophication from farmland are funded by national grants and distributed through the municipality. The municipality have funds for measures 2019-2024 and will apply for more funds when it is possible. In close collaboration with the local landowners and farmers measures are implemented.

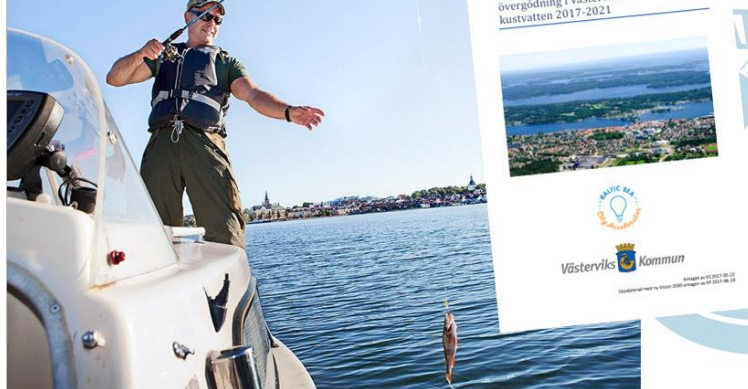


Västervik Catchment area

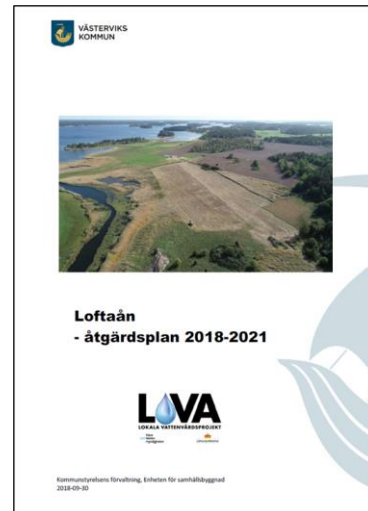
Actionplan at municipal level

Water, environment and the status of the Baltic are very important issues in Västervik. Tourism and agriculture are important business. The politicians in the municipality 2017 accepted a plan for working with eutrophication. In the biggest agriculturing areas – Lofta/Gamleby – the politicians one year after this accepted a local plan how to work with measures in the area. This plan has become an investmentplan. Thanks to funds from the state all the measures in the area will be realized if the landowners accept the measures on their land. The fact that landowners have taken part of the process will guarantee that they will be interested in implementing the measures.

Local municipality strategy for reducing nutrient load 2017



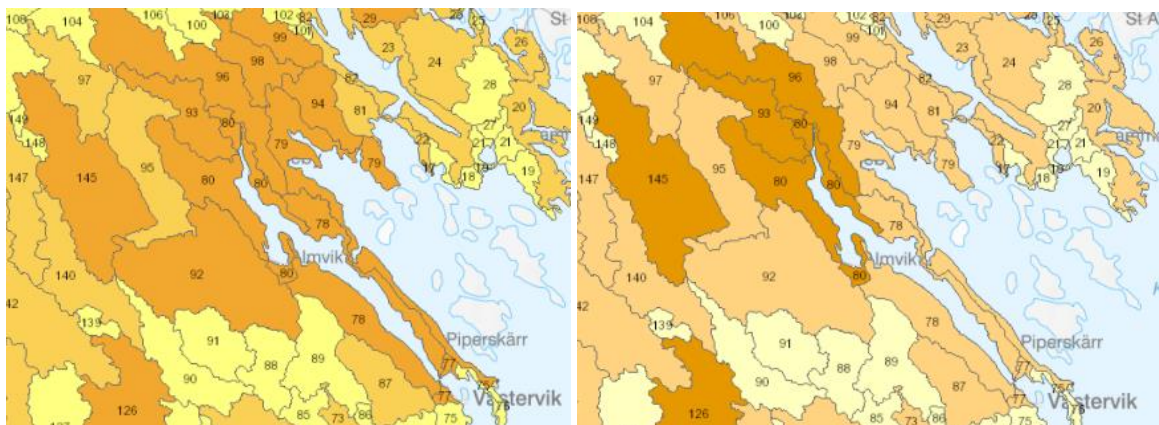
Strategy for reducing nutrients 2017
2018



Investment plan in Lofta/Gamleby area

[Åtgärdsplan för minskad övergödning i kustvattnet - Västerviks kommun \(vastervik.se\)](http://vastervik.se)

The plan is based on both modelling and monitoring. Nutrient load nitrogen and phosphorus are described and the nutrient sources. Priority of areas and need for actions is described.



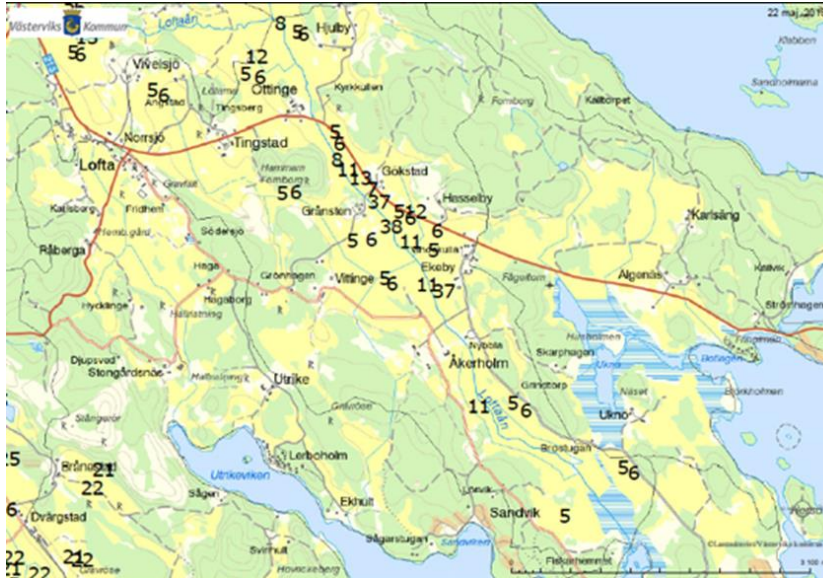
The load of nutrients (P) and what to do for good status in water basins from modellings.
Example from a catchment area

Local plans in collaboration with landowners

Local plans for reducing nutrients are created in close collaboration with landowners and farmers. Focus always is on winwin-effects and the goal is higher production at the farmland and in areas where the eutrophication is a problem. On-field meetings with farmers and landowners are important in the process. These local plans collaborate with applications (state funds for measures) which is made by the municipality.

Meetings in prioritized areas - The focus for meetings are local catchment areas where there are intense agriculture production with a lot of cattle within a small area. Meetings and close contact lead us to the most interested landowners and hopefully the best spots for local measures. Usually we are using ordinary meetings in the farmers union for the environment/measures project. The meetings are

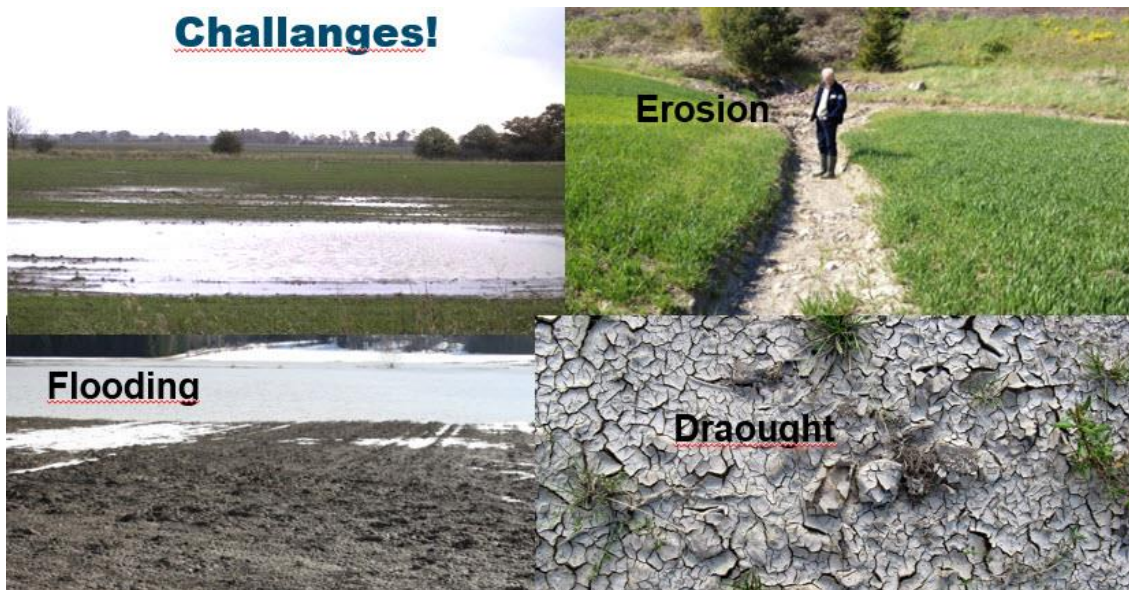
also a way to develop the methods for a successful work in collaboration with the landowners. So far it seems to work – the meetings lead us to the right farmer and the right spots.



Location of measures in a local investmentplan. The numbers stands for different measures as Wetlands, P-ponds, Two stage ditches, filter ditches, ecological functional zones, structure liming.

Swot-analyses are made together with landowner and includes the following advices:

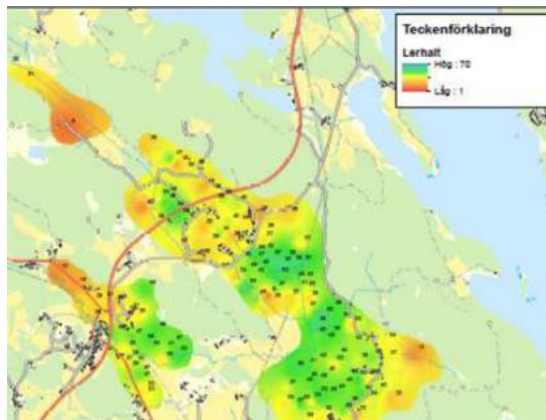
- Optimize the plant environment by efficient nutrients use (advice, adapted crops, increased root growth, adapted fertilization and improved soil structure)
- Keep the nutrients in the soil profile (reduces erosion, reduce soil compaction, improve soil structure, increase soil fertility)
- Stop the load of nutrients before it reaches the sea (sedimentation ponds, wetlands)



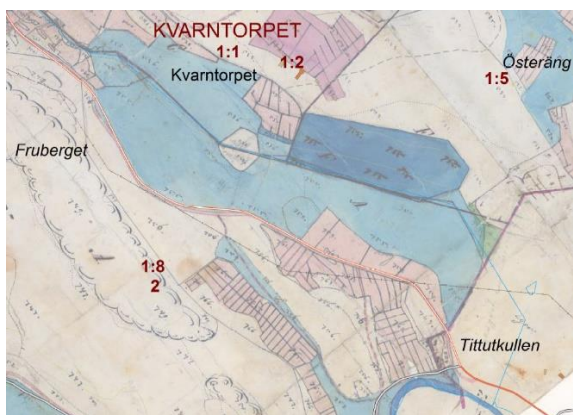
Information on field are completed with GIS-analyses, soil mapping and different kind of information from maps as historical maps, status of the body of water etcetera.



Detailed altitude map



Soil map, clay content



Historical map



Photo from a drone

The way of comprehensive work is a local method – The Västervik method. The method includes investment plans and implementation plans in collaboration with landowners, authorities and stakeholders. The work contents:

1. Comprehensive action plan
2. Building partnerships and interest by kick off meetings in sub-areas and focus groups.
3. Create interest among landowners and farmers in water issues, sustainable farming and measures for reducing nutrients.
4. Individual advice for landowners and farmers - Swot analyses and planning of measures and location in cooperation with farmers. Multifunction and production always in focus.
5. Helping landowners and farmers in designing of measures, contact with entrepreneurs, and contacts with authorities.
6. Applications of (national and regional) grants for measures in cooperation with landowners

Success factors “The Västervik method”

- Act locally to create commitments between stakeholders in the area
- Increased knowledge provides greater understanding of the measures
- Make SWOT analysis on field/watercourses level with landowners

- Develop a Local Action Plan for the watercourse in dialogue with stakeholders
- Simplify as much as possible with clear objectives
- Set common objectives that generate "win-win" concept both reduced eutrophication and increased harvest
- Holistic work close to farmers, stakeholders, local and regional

Local plans at farmlevel

In collaboration between the landowner and catchment officer a local investment plan and implementation plan will be created. The plan will include measures for reducing nutrients and climate adaption but win-win effects like higher production on the fields and local biodiversity are very important. Analyses of strength and weakness of the production today are important in the process. The landowner and the farmers experiences are very important and will complete the knowledge and input from the adviser.



Local investment plan on farm level. White dots are planned structure liming, yellow dots – planned filter ditches, blue – small wetlands, black – two step ditches

In Västervik municipality there is a catchment officer employed since many years working as a project manager in close collaboration with the landowners. The idea with the service is helping the farmers/landowners making steps for a sustainable development - Doing the right measure on the right spot and to reduce the nutrient lode by implementing measures. The catchment officer is the link between the landowners, the municipality, the County and different funding agencies, as well as a link to consultancies that construct the actual measure or restore the landscape function(s). The catchment

officers are a contact to authorities and academia and will also help with the administrative burden that often follows landowners when, and if, they want to implement measures on their land.

Cooperation structures - Catchment officer in the municipality

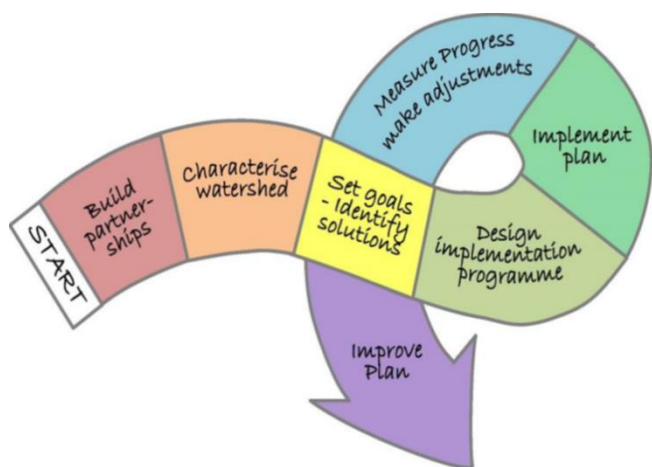
- Close contact with landowners/farmers and to the local farmers union
- Close contact with local authorities
- Advising service
- Financing – Applications from state funds. Help with calculations, description of measures, effects etc.
- Contact with other authorities and academia
- Monitoring – Handling monitoring and reporting of results.
- Planning and designing the measures in collaboration with the farmer/landowner
- Reporting, information - Reporting to the authorities how implementation are working.



From investment plan to implementing measures there are many steps. Description of the catchment officer works in a smaller catchment area in collaboration with the farmer/landowner:

- Initial dialog in the Catchment area – Building partnerships. Meetings inside in small groups and one by one in the field. Discussion of the investment plan and how to implement in this area and their farms. Appointments of meetings in field (interested farmers/landowners). An important role is sharing of information and knowledge.
- Local plan in collaboration with landowners - SWOT-analyses are made together at the farm.
- Financing – Discussion of costs for the farmer/landowner, state funds now and possibilities.
- Agreement – When the farmer/landowner seems ready to implement a measure a written agreement will be signed. It contains what to do, when, by whom, costs, and management.
- Procurement – It is not always the farmer/landowner the measure themselves. The catchment officer are taking care of procurement if it is necessary.
- Implementation – When the farmer/landowner are digging/working the catchment officer are supplying by phone and on site. Adjustments will be realised in consensus.
- Final inspection – By the catchment officer
- Monitoring – The catchment officer will follow-up the measure in collaboration with the farmer/landowner. Contacts with authorities by the catchment officer.

- Reporting - The catchment officer will report the measures to the authorities.



The corona pandemic changed things. Instead of Focus groups inside with big groups we arrange Focus groups on site in the field.

- Meetings - One area/valley at the time
- Information by post and email
- Booking by email/phone/text
- 2019-20 we met more than 80 landowners and farmers in the field



The catchment officer in Västervik takes part in the national project LEVA (Local engagement for water). In the project, local catchments officers are financed in 20 pilot areas in Sweden to support local actions and measurements against eutrophication. Catchment officers is a way to improve and speed up the implementation and amount of voluntary measures being made in the agricultural landscape. The project is led by the Swedish Authority for Water and Marine Management together with the Swedish Board of Agriculture, The County administrative boards, the Water district authorities, and the Federation of Swedish farmers as active partners. The method and work with advising services in Västervik are a model for the pilots.

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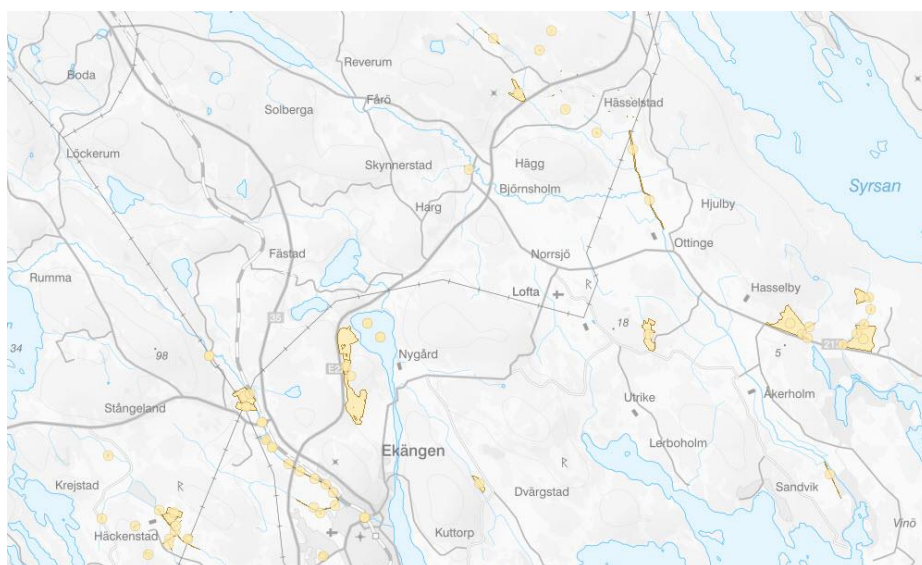
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Measures implemented 2018-2020

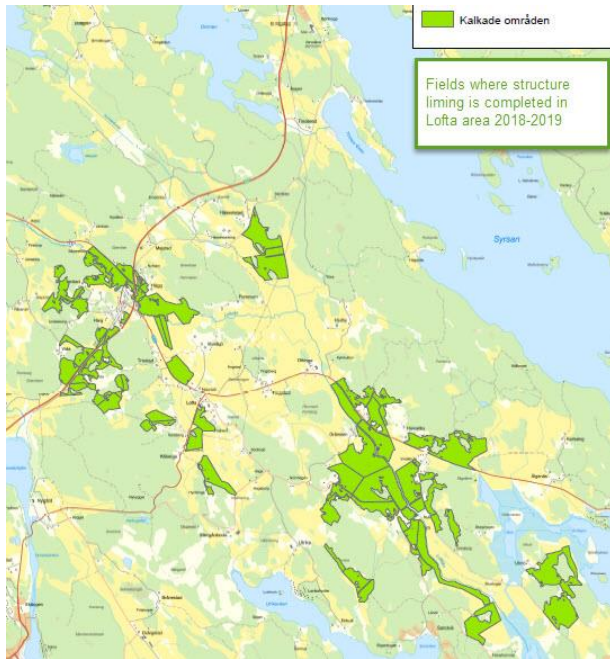
Totally have measures reducing 1 000 kg phosphorous been implemented in the Västervik catchment area. Focus has been Gamleby and Lofta area. The costs of the measures are more than 1 million Euro. More than 1,5 million Euro if the irrigation project is included. In this project we are taking bottom water in a eutrophicated bay for irrigation. The most common measures are;

Two stage ditches, Structure liming, Small wetlands, Phosphorus ponds, Soil mapping, Filter ditches, Beveling ditches, Lime/biochar/woodchips filtration ditches, Ecological functional zones, Protection zones, Adapted groundwater surface

Measure	Area	P-decreas kg/year	Costs in Euro
Structure liming	500 ha	100	400 000
Wetlands (small)	12 ha	120	240 000
Phosphorus ponds	1 ha (8 ponds)	70	30 000
Two stage ditches	2 km	500	100 000
Beveling ditches	1,5 km	25	37 500
Filter ditches (lime)	30 ha	30	150 000
Soil mapping	500 ha	75	15 000
Protection zones			500 /ha
Adapted groundwater surface	10 ha		150 000
Irrigation (restoring eutrophied bay)	300 ha	500	500 000



Measures implemented 2018-2020 on the map (structure liming and soil mapping not included)



Planned measures in case area

Measures planned next year and the common years including new catchment areas – Storån and Kyrksjön. Contacts and paper works are already completed. The municipality has received funds for measures 2020-2021 in Lofta/Gamleby area and recently for 2021-2024 in Storån and Kyrksjön areas.

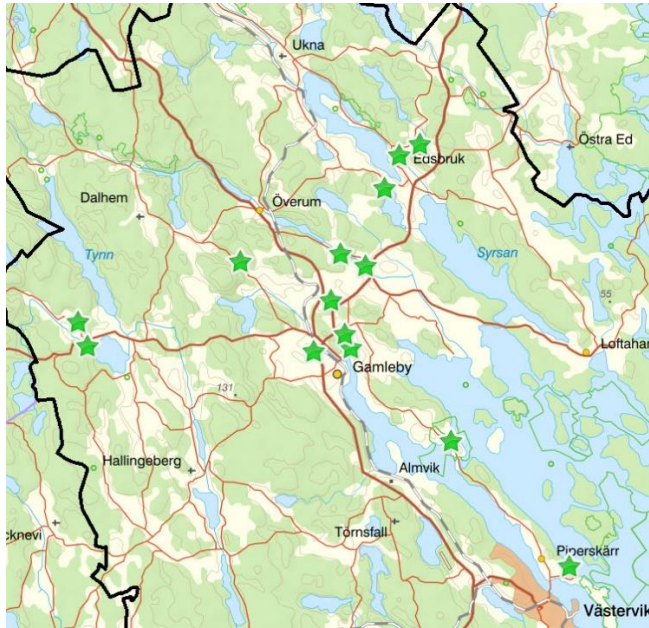


Measures planned 2021

Measure	Area	P-decreas kg/year
Structure liming	300 ha	60
Wetlands (small)	3 ha	30
Phosphorus ponds	0,5 ha	35
Two stage ditches	1 km	250
Filter ditches (lime, woodships, biochar)	10	10
Soil mapping	300	40
Ecological functional zones	2 km	500
Adapted groundwater surface	6 ha	
Protection zones	1 km	

Measures planned 2021-2024

Measure	Area	P-decreas kg/year	Costs in Euro
Structure liming	700 ha	130	560 000
Soil mapping	600 ha	80	18 000
Wetlands (small)	10 ha	100	200 000
Phosphorus ponds	4 ha around 20 ponds	280	120 000
Two stage ditches	4,5 km	390	200 000
Beveling ditches	1 km	16	30 000
Filter ditches (lime, woodships, biochar)	50	50	250 000 Cheaper if they have their own woodchip or biochar
Ecological functional zones	3,5 km	80	160 000
Adapted groundwater surface	16 ha		240 000
Protection zones	3 km		4 000
Irrigation (restoring eutrophied lake/bay)	300 ha	500	500 000



Measures designed and planned 2021. Structure liming not included.