Holistic catchment management

for the case catchment of Bjørkelangen in Aurskog-Høland Municipality

Aurskog-Høland kommune

A goal for Aurskog-Høland municipality is to manage and facilitate sustainable societies. Many challenges in land-use and community planning are related to water pollution. The solutions are largely to restore ecosystems so that ecosystem services such as water retention, water purification, biodiversity, carbon sequestration, etc. are strengthened.

Aurskog-Høland municipality is a large municipality (1 144 km^2) in southeastern Norway with approximately 18,300 inhabitants, settled in mainly four towns, with a relatively high population growth much due to closeness to Oslo.

Water quality is an important indicator for both sustainable societies and a well-functioning nature. Bjørkelangen lake is an important water body in the upper parts of Halden watercourse and is the reason the Halden river basin is called “inverted”, due to the worst water quality on nutrients and ecology, which then improves down the system.

Several sectors affect the water quality in Bjørkelangen lake, with agriculture, wastewater, forestry and surface run offs being the main contributors, with annual flooding of the areas around the lake. To ensure quality of life for the inhabitants of Bjørkelangen town, reduce flood damages and soil degredation, there is a need of a combination of many different measures to haulter the negative development.

The population growth in Aurskog-Høland municipality, and especially in Bjørkelangen and Aursmoen, which are the two largest urban settlements, is somewhat higher than the average in Norway. Bjørkelangen village consists of a small city center, with one industrial area and residential areas around. Outside the village there are scattered homes and farms.

Based on the challenges associated with society development, Aurskog-Høland municipality has established an interdisciplinary programme for catchment management in which all sectors that affect the aquatic ecosystem are involved within the municipal administration. The condition of Bjørkelangen lake is crucial for the development of the local society and to reduce impact from annual floods and algae blooms. To improve the conditions of Bjørkelangen lake a wide range of measures, from all sectors, is needed in the whole catchment.

Aurskog-Høland municipality follows up the international agreements on climate and nature, of which water is very important.

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Knowledge base and data

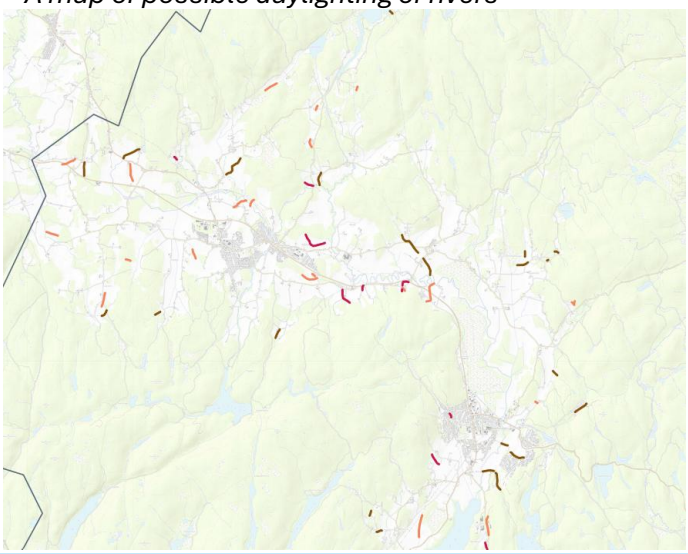
Aurskog-Høland consists of water (8%), productive forest (71%), cultivated land (9%), marsh (5%) and impediment (6%). The land and nature provide important ecosystem services both locally and regionally, that must both be preserved and restored.

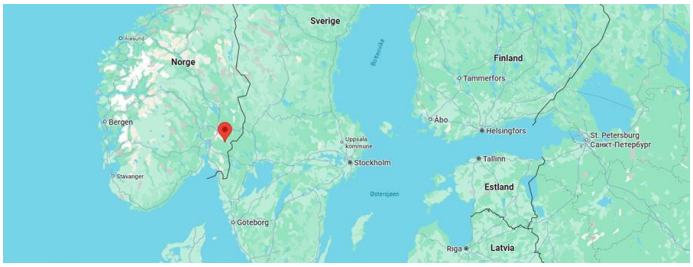
Nature has been degraded over the last hundreds of years. The municipality has taken several initiatives to improve competance and raise the quality of ecosystems such as:

- Strategy plan for Bio-Diversity
- Native and invasive species
- Value of nature and the consequences of changes in land use
- Land use and ecosystem accounting
- Nature-based solutions
- Restorable nature
- Eco-social study for Bjørkelangen

With Bjørkelangen lake as an indicator, a lake which has been a villain in national water management for decades, there is a need for a diverse set of tools and a holistic approach.

A map of possible daylighting of rivers





Stakeholders and landowners

Within Aurskog-Høland municipality there area several hundred landowners (agriculture and forestry), in addition to other industries and landfills. There are existing co-operation with landowners, i.e. stakeholder meetings, hosting field visits and taking part in surveys in different projects.

In the municipality there is an active association for business development where the municipality have a role. This association has a focus on more green industries and develop a mor sustainable local business. Once a year there is a big festival in Aurskog-Høland with the focus on local produce and foods.

With the work forward to better the ecological and chemical status of Bjørkelangen lake, a interdisciplinary programme has been established to look at everything from restoring riparian sones, mercury in pike to road run offs. The work towards this goal has participants from:

- Municipal engineering
- Property management
- Agriculture and forestry
- Planning and development
- Nature and environmental protection
- Politicians

Possible partnerships – holistic sister catchments

To manage a positive change in ecological and chemical status of a lake, we are looking at possible restoration of industrial and ditched bogs, riparian zones and flood plains, daylighting rivers and streams, removal of invasive species, and increase the use of nature-based solutions (i.e. sedimentation ponds, retention dams, constructed wetlands for wastewater treatment).

Withing the municipality the planning and development need to look at how to manage a sustainable management of areas, reuse areas, policy in industry and business development.

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