

Project information

Keywords

Arctic, sub-Arctic, wetlands, mire, floodplain, Finnmark, ecosystem services, socioeconomic framework

Project title

Current and future state of northern wetlands and their ecosystem services (WETLAND)

Year

2018

Project leader

Senior Researcher Jarle W. Bjerke, NINA

Geographical localization of the research project in decimal degrees (max 5 per project, ex. 70,662°N and 23,707°E)

Finnmark is in the centre of our study area. Localization provided for a wetland system in the middle of the county: 69.720 N 24.260 E (Vahttagávva).

Participants

Current project participants from Fram Centre institutions:

Research Director Signe Nybø, NINA

Prof Jan Vermaat, NMBU

Associate Prof Camilla Brattland, UiT

External national partner: Kristin Magnussen, Menon Economics

Administrative responsibility: Research Director Cathrine Henaug, NINA

Flagship

Terrestrial

Funding Source

Norwegian Environment Agency and the terrestrial flagship of the Fram Centre.

Summary of Results

As stated in the proposal submitted November last year, this project builds on an assessment project financed by the Norwegian Environment Agency. In June 2018, we completed a detailed report on the value of ecosystem services provided by Norwegian wetlands. The objective of this study was to carry out a national assessment of the ecosystem services provided by Norwegian wetlands, and of the relation of society's development, health and welfare with these services. The mandate spelled out a range of premises amongst which an important one was to work *within* the framework proposed by the IPBES where possible and meaningful. The study was intended to contribute to a coordinated, comprehensive, cross-disciplinary and effective management of Norwegian wetlands, and to serve as a pilot for similar international assessment studies. This was primarily a literature survey of the most important ecosystem services provided by Norwegian wetlands, gauging their current and possible future value to society. As we received flagship funding before this report was completed, the added funding made it possible for us to place a bit more focus on northern wetlands than originally planned in the final report. Therefore, we consider the report also as a flagship project product.

With the flagship funding for 2018, we could direct the focus towards the state of northern wetlands and the value of their historic, current and future ecosystem services. Starting shortly after the completion of the abovementioned report, we extracted and analyzed data relevant for northernmost Norway, supplying with data that were not included in the national report. We are preparing a manuscript intended for publication in an international scientific journal. The main study area in this manuscript is Finnmark, the northernmost county of Norway. We analyze the state of the wetlands and their provisioning of ecosystem services within a DPSIR framework (i.e. Drivers-Pressures-State-Impact-Response). We show that the wetlands of Finnmark are changing due to changing impacts from drivers and pressures, which again affect the value of ecosystem services. Some drivers cause declines in the value of ecosystem services; for example, increasing use of all-terrain vehicles in wetlands reduce the value of cloudberry productivity, game bird abundance and carbon sequestration. Changes in the scale of other drivers may lead to increasing value of ecosystem services. For example, farm abandonment and increasing climate warming may increase primary productivity of mires leading to increased peat production, which serve as a reservoir for carbon. The manuscript is expected to be ready for submission soon.

We have also scheduled a publicly open workshop. This will be held at Uit on 14 February 2019. WETLAND project partners will be key

note speakers at this workshop, highlighting results from our upcoming scientific article and from our published report. The workshop will be arranged in collaboration with the Norwegian Ecological Society and SIER, which is a network for Social- and Interdisciplinary scientists in Environmental Research in Tromsø. At the workshop, we will contribute to a critical discussion on the use of ecosystem services valuation in Norway and in the Nordic countries, as well as stimulate to a discussion on the experiences on using an IPBES approach in national environmental assessments.

Master and PhD-students involved in the project

None.

For the Management

This project was initiated by national management authorities as a follow-up of the international IPBES process. We provided a report valuable for the management of Norwegian wetlands. With this follow-up study focusing on a northern area rich in wetlands, we assemble numerous datasets in one joint analysis, enabling a more directed management of northern wetlands for the benefit both of local communities (for example through improved knowledge on provisioning services) and the global community (for example through improved knowledge on climate-regulating services).

Published Results/Planned Publications

Published:

Magnussen K., Bjerke J.W., Brattland C., Nybø S. & Vermaat J. 2018. Verdien av økosystemtjenester fra våtmark. Rapport. *Menon-publikasjon* 42/2018. 199 pp.

Magnussen K., Bjerke J.W., Brattland C., Nybø S. & Vermaat J. 2018. Verdien av økosystemtjenester fra våtmark. Sammendrag for beslutningstagere. *Menon-publikasjon* 43/2018. 19 pp.

Both reports are published in Menon's report series. Issue 42 constitutes the full report, including an executive summary in English. Issue 43 is a summary for policymakers in Norwegian.

Planned:

A scientific article intended for an international audience. Draft title: *Status of a large boreoarctic wetland region: an assessment of changes in pressures and delivery of ecosystem services.*

Communicated Results

Magnussen, Kristin; Bjerke, Jarle W.; Vermaat, Jan; Nybø, Signe, 14 March 2018: *Økosystemtjenester fra norske våtmarker*. Sluttkonferanse for Økosystemtjenester fra norske våtmarker. Oral presentation.

Bjerke, Jarle W., 10 April 2018: *Vegetasjonens rolle i klimasystemet*. Guest lecture in the lecture series «Natur i endring», Natural History Museum, University of Oslo, Oslo. Oral presentation. Public announcement: <http://www.nhm.uio.no/besok-oss/arrangementer/2018/0410-natur-i-endring.html>

News feature, 22 May 2018: *Våtmarkene truet av utbygging*. Interview with the Minister of Climate and Environment Ola Elvestuen, who described the importance of the published report.

<https://www.regjeringen.no/no/aktuelt/vatmarkene-truet-av-utbygging/id2601702/>

Magnussen, Kristin, 22 May 2018: *Verdien av økosystemtjenester fra våtmark*. Oral presentation at seminar on The United Nations' International Day for Biological Diversity. Ministry of Climate and Environment, Oslo.

News feature, 23 May 2018: *Rapporter overlevert til miljøvernministeren*. Press release. <https://www.menon.no/rapporter-overlevert-miljovernministeren/>

News feature, 28 June 2018: *Våtmarker er verdt flere milliarder kroner*. Interview with Bjerke, Nybø and Magnussen. <https://www.nina.no/Aktuelt/Nyhetsartikkel/ArticleId/4536/Vatmarker-er-verdt-flere-milliarder-kroner>

Bjerke, Jarle W., 22 August 2018: *Raske vegetasjonsendringer i Arktis og i Nord-Norge: hvordan kan det påvirke naturforvaltningen?* Oral presentation at “The Fram Day, and the official opening of the new Fram Centre”, Fram – High North Research Centre for Climate and the Environment, Tromsø.. Public announcement: <https://framsenteret.no/2018/06/klima-og-miljokonferansen-du-ikke-bor-ga-glipp-av-framdagen-tromso-22-august-2018/>

Brattland, Camilla, 26 September 2018: *Lokal og urfolks kunnskap om våtmarker*. Oral presentation, Centre for Sami Studies, UiT – The Arctic University of Norway, Tromsø.

Magnussen, Kristin, 1 October 2018: *Verdsetting av økosystemtjenester fra våtmark mm*. Oral presentation at meeting in a research network with attendances from NIBIO, NTNU and additional institutions. Campus NTNU, Ålesund.

Magnussen, Kristin, 18 October 2018: *Verdsetting av økosystemtjenester fra våtmark og andre økosystemer*. Oral presentation for employees and students. OsloMet, Oslo.

Interdisciplinary Cooperation

The project consortium includes researchers from several disciplines: ecology, social sciences, resource economics, environmental biology, and environmental management.

Budget in accordance to results

The entire funding from the Fram Centre for 2018 will be consumed within this calendar year. Funding has been allocated to the partners according to the budget provided in the proposal. The funding obtained has allowed us to work on the above-mentioned manuscript and plan and the above-mentioned workshop and finance direct costs related to the workshop.

Could results from the project be subject for any commercial utilization

Yes

If Yes

The enhanced competence on drivers of environmental change and nature vulnerability gained by the institute researchers make the personnel more attractive for consultancy assignments in environmental sciences. Knowledge-based consulting services are in such context a commercial product. For example, Bjerke, Nybø and Magnussen are readily engaged in assignment reporting for public management authorities and private companies, and this is related to their steadily increasing know-how on the specific topics in question.

Conclusions

The added funding from the Fram Centre has been invaluable for the project. It has strengthened our DPSIR assessment of an important northern wetland area and made it possible for us to develop a manuscript intended for an international scientific audience. We will continue this process in the weeks to come.