

Project information

Keywords

Coastal zone planning, impact assessment, ecosystem services, cultural ecosystem services

Project title

Ecosystem services and coastal governance (ECCO)

Year

2018

Project leader

Alma Thuestad, alma.thuestad@niku.no, Norwegian Institute for Cultural Heritage Research (NIKU)

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

Mining case: Repparfjord, Finnmark (planned mining project in Nussir and Ulveryggen in Kvalsund municipality): Longitude/latitude 24.21622478/70.49362356 Aquaculture case: Planned aquaculture in areas regulated by the Kystplan Midt- og Sør-Troms (Berg, Dyrøy, Gratangen, Harstad, Ibestad, Kvæfjord, Lavangen, Lenvik, Salangen, Skånland, Sørreisa, Torsken and Tranøy) and Kystplan Tromsøregionen (Balsfjord, Karlsøy, Lyngen, Målselv and Tromsø).

Participants

Project participants/institutions:

Sanne Bech Holmgaard (leader WP2), sanne.holmgaard@niku.no, NIKU

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Ann-Magnhild Solås, ann-magnhild.solås@nofima.no, Nofima

Patrick Berg Sør Dahl (leader WP1), patrick.sordahl@nofima.no, Nofima

Eirik Mikkelsen, eirik.mikkelsen@nofima.no, Nofima

Stakeholder partner: Harald Johnsen, Heritage Department, Troms County

Flagship

MIKON

Funding Source

MIKON– Environmental Impacts of Industrial Development in the North

Summary of Results

ECCO explores the potential and implications of integrating the concept of ecosystem services (ES) in impact assessment (IA) methodology. The focus is on knowledge production in IA concerning industrial activities in the coastal zone, as well as the potential for and implications of applying cultural ecosystem services (CES) as a conceptual tool in IA. Based on case studies, the project has investigated IAs and IA processes with regard to how an ES approach could have influenced the processes with regards to knowledge demands, knowledge production and valuation, as well as trade-offs between ES. Knowledge production and how an ES/CES approach may affect the translation of knowledge into governing instruments is a key issue.

Reviews of planning processes pertaining to aquaculture ventures along the Norwegian coast conducted in 2016, showed that IA are hardly ever used for aquaculture ventures on the project level; so-called extended studies are the preferred option. Henceforth Ecco placed a greater focus on IAs in coastal zone planning. Case studies are the IAs for planned aquaculture in areas regulated by the Coastal Zone Plan for Mid- and South Troms County (*Kystplan Midt- og Sør-Troms*) and the Tromsø region (*Kystplan Tromsøregionen*) and the IAs linked to Nussir ASA's (<http://www.nussir.no/>) planned copper mine in Kvalsund municipality in Finnmark. The work on cultural heritage and ES has continued in 2018, now with a greater focus on exploring a conceptual framework for how CES can be understood in IA-processes. In accordance with the project plan presented in the application, the primary focus in 2018 has been on dissemination and scientific publication.

WP 1 (led by Patrick Berg Sør Dahl) has been in the forefront of the work on "Impact assessments in Norwegian Coastal Zone Planning" which study the impact assessments of proposed aquaculture areas in two inter municipal coastal plan processes for the Tromsø region and Central and South Troms conducted in 2013-2015. We look at the knowledge base, the methodological approach, the interests and values thought to be especially impacted by aquaculture, whether the assessments recommending and politically adopting proposed

aquaculture areas are consistent across municipalities and sites, and which themes that most affect the assessments. In total, 143 proposed aquaculture areas were assessed.

Impact assessments should have consistent cross-municipal assessments in terms of national and regional ("over-municipal") interests and values. However, in one municipality, local interests and values can be assessed differently than in other municipalities, despite the need for consistent assessments within each municipality across proposed aquaculture areas. The knowledge base is largely based on existing information. The IA for Central and South Troms involved 22 different themes where values, impact and the overall consequences of aquaculture were assessed on a scale. In the Tromsø region there were 14 themes were evaluated; 5 on an orderly scale (as, none-small-medium) while the other 9 were given a verbal description which did not really involve any actual impact assessment. For the Tromsø region, the investigation was conducted by a hired consultant, while in Mid- and South Troms was carried out by planners in the individual municipalities.

Statistical analyses show that the recommendations for the Tromsø region appear to be more consistent than the assessments made for Central and South Troms. Consistency here means that there was a relatively clear statistical correlation between how different themes were considered and the yes or no recommendation for each proposed aquaculture area. In the Tromsø region, the overall consistency, i.e. the sum of the consequences for the assessed themes is very close to the recommendations. Furthermore, the risk and vulnerability assessment and the assessment of the impact on "diversity of nature" are in line with the recommendations for the proposed aquaculture areas. In Central and South Troms, there are single themes considered to be of great importance or consequence that appear to have been decisive for the recommendations. Assessments of risk and vulnerability, impacts on landscape, outdoor life, fishing and the positive effects for business and employment were important for the resulting overall assessments. The municipal councils changed almost 1 in 4 of the assessments made administratively for the Tromsø region; twice as high as for Central and South Troms. The most consistent assessments made administratively were also those that most often were changed by political processes. Although we found that assessments for the Tromsø region were more consistent than for the Mid and South Troms region, seeing each region as a whole, we have not been able to conclude on comparable levels of consistency at municipality level since we have not distinguished between local, and regional and national interests.

Also answering research questions in WP 1, "Ecosystem services in impact assessment – copper mining in coastal Northern Norway" discusses ecosystem services and cultural ecosystem services in light of impact assessment and how an ES framework may contribute to IA. We have found that the shortcomings of current IA practices justify looking for alternative approaches, such as using the ecosystem services frameworks to identify and compare benefits and values associated with alternative actions. Use of ES as tool for quantification and evaluation of impact on natural and cultural values and to enable value trade-offs is potentially coherent with the IA methodology. Ecosystem services can potentially be used as a tool for prioritization in landscapes and marine areas with multiple ES and conflicting interests between multiple stakeholders highlighting inequities between stakeholders and enabling identification of winners and losers. For the purpose of impact assessment, the ES framework could be used either as philosophical approach, framing the IA methodology rather than defining it, or as a comprehensive approach entirely defining the methodology. In either case, the ES approach might contribute to a stronger ecosystem orientation in choice and prioritization of assessment themes and draw attention to identification of services and benefits from affected ecosystems, thus moving the focus from prediction of negative impacts on specific ecosystems components. Improved consistency of knowledge, analysis and values across the subthemes, as well as more focus on combined and cumulative effects are among the potential benefits of applying an ES framework as a comprehensive approach.

The papers «Kulturelle økosystemtjenester som begrep og redskap i planlegging og konsekvensutredning» and «Conceptualizing and assessing cultural heritage values in coastal zone planning» answer research questions posed in WP2. «Kulturelle økosystemtjenester som begrep og redskap i planlegging og konsekvensutredning» discusses the concepts of ecosystem services and cultural ecosystem services, problematising their use in planning and impact assessment. The paper intended target audience is, amongst others, Norwegian management authorities as it discusses how such concepts may impact identification and valuation of cultural heritage and cultural landscapes compared to current practices. «Conceptualizing and assessing cultural heritage values in coastal zone planning» explores identification, valuation and management of cultural values within IA processes. Analyzing a specific case of intermunicipal coastal zone planning (Kystplan Sør- og Midt-Troms) the role of cultural values in coastal zone management and IAs is discussed. This paper thereby contributes to ongoing efforts to incorporate cultural values in coastal zone planning.

Master and PhD-students involved in the project

Not relevant

For the Management

Management authorities, represented by the Heritage Department at Troms County, is a stakeholder partner in ECCO. Johnsen (Troms County) has highlighted important societal needs with regard to cultural heritage and coastal zone planning from the cultural heritage management authorities point of view. Management has thus contributed to ensuring that the research is relevant for management authorities.

Published Results/Planned Publications

Scientific publications in prep. The listed publications are nearing completion and are expected to be made ready for submission in 2018

- E, Mikkelsen, P. B. Sjørdahl & B. Sundsvold. Impact assessments in Norwegian Coastal Zone Planning
Scientific paper intended for *Ocean and Coastal Management* (<https://www.journals.elsevier.com/ocean-and-coastal-management>)
- A. E. Thuestad, E. Eythorsson & S. Bech Holmgaard & C. Brattland. Ecosystem services in impact assessment – copper mining in coastal Northern Norway
Scientific paper intended for *Arctic Review on Law and Politics* (<https://arcticreview.no/index.php/arctic>) which is open access.
- S. Bech Holmgaard. Conceptualizing and assessing cultural heritage values in coastal zone planning.
Scientific paper intended for *Arctic Review on Law and Politics* (<https://arcticreview.no/index.php/arctic>) which is open access.
- Johnsen, Harald G., Eythorsson, E., Holmgaard, S.B. & Thuestad A.E. Kulturelle økosystemtjenester som begrep og redskap i planlegging og konsekvensutredning.
Scientific paper intended for *PLAN* (<https://plantidsskrift.no/>) or *Norsk geografisk tidsskrift – Norwegian Journal of Geography* (<https://www.tandfonline.com/loi/sgeo20>)

Digital dissemination 2018

- Holmgaard, S.B.: Økende press på kystområder – hva skjer med kulturarven?
<https://forskning.no/blogg/kulturminnebloggen/okende-press-pa-kystomrader-hva-skjer-med-kulturarven>

Research and findings have been presented and discussed at an international workshop held by the International Council for the Exploration of the Sea (ICES) on 6 - 9 February 2018 in Geesthacht, Germany.

- Sanne Bech Holmgaard, S.B. 2018. ICES workshop Vulnerabilities and Risks to Culturally Significant Areas. The report is available at <http://www.ices.dk/community/groups/Pages/WKVCSA.aspx>

Communicated Results

The project, the research, analyses and results have been presented and discussed at international scientific conferences and workshops, through seminars with joint participation of researchers from Coreplan and Ecco as well as representatives for stakeholders/reference group. Information about both projects has also been made available through Coreplan's project web page <http://coreplan.no/> and <https://niku.no/>.

Findings, publications and further dissemination of results from Ecco will be discussed at a final seminar held for project participants on November 29 at the Fram Centre. On 30 January 2019 Coreplan will arrange a final seminar with joint participation of invited researchers, representatives for stakeholders/reference group, interested parties as well as the project groups from Coreplan and Ecco. The seminar will be held at the Fram Centre.

Presentations at international scientific conferences and workshops in 2018

- Mikkelsen E & Sjørdahl PB 2018: Impact assessments in Norwegian Coastal Zone Planning. Presentation at Arctic Frontiers conferences. Tromsø, 24 January 2018.
- Mikkelsen E & Sjørdahl PB 2018: Impact Assessments of Aquaculture in Norwegian Coastal Zone Planning. Presentation at IIFET conference, Seattle, July 2018.
- Holmgaard, S.B. ICES workshop Vulnerabilities and Risks to Culturally Significant Areas. 6 - 9 February 2018 in Geesthacht, Germany.

Presentations for management authorities on national, regional and local levels, stakeholders and other interested parties in 2018

- Mikkelsen E. & Sjørdahl PB. 2018: Konsekvensutredning av akvakulturlokalteter, verdier og avveininger. Funn fra undersøkelse av to kystsoneplanprosesser i Troms (Impact assessments of aquaculture areas: values and trade-offs. Findings from analysing two coastal zone plan processes in Troms). Presentation at meeting on Impact assessments in new coastal zone plan process for Middle- and South-Troms, Finnsnes, Norway, 21 September 2018.
- Mikkelsen E. 2018: Arealbruk og arealkonflikter (Area use and area conflicts). Presentation for members of the Norwegian Parliament (Storting), Tromsø, 23 August 2018.
- Holmgaard, S. B., Eyþórsson, E. & Thuestad, A.E. 2018. Kulturminner eller kulturelle økosystemtjenester i konsekvensutredning? Coreplan referansegruppemøte. 16.05.2018, Tromsø, Norway
- Mikkelsen E. 2018: Konsekvensutredning av akvakulturlokalteter i kystsoneplanlegging – Verdier og avveininger (Impact assessments of aquaculture in coastal zone planning – values and trade-offs). Presentation at stakeholder and reference group meeting for COREPLAN project, Tromsø, 16 May 2018.

- Holmgaard, S. B. 2018: Økosystemtjenester og verdisetning av kulturmiljøer. Det årlige samarbeidsmøtet for kulturminneforvaltningen i Nord-Norge. Tromsø Museum, 20.04.2018, Tromsø, Norge
- Mikkelsen E & Sør Dahl PB 2018: Konsekvensutredning av akvakulturlokaliteter i kystsonoplanlegging – Verdier og avveininger. (Impact assessments of aquaculture in coastal zone planning – values and trade-offs) Presentation at Havbruk2018, Oslo, 18 April 2018
- Mikkelsen E & Sør Dahl PB 2018: Akvakultur og andre interesser. Kystsonoplanlegging i Troms (Aquaculture and other interests. Coastal zone planning in Troms county). Presentation for Troms County Municipality, Tromsø, 7 March 2018.

Interdisciplinary Cooperation

The researchers involved in Ecco represent disciplines such as planning and social sciences (Eythorsson, Sør Dahl and Mikkelsen), anthropology (Holmgaard), archaeology (Thuestad) and fisheries science (Solås).

Interdisciplinarity is generally highly beneficial, if not crucial for furthering knowledge and understanding of ES and CES. Planning processes, hereunder IAs generally encompass input from multiple disciplines, both natural and social sciences. The ES framework aspires to offer an integrated approach on natural and cultural elements of landscapes or social-ecological systems. Our academic backgrounds are varied, and accordingly our perspectives and understanding of concepts such as ES and CES varies. Project meetings and workshops have been an important forum for allowing the participating researches to explore our varied and common understandings of these concepts and, not least, furthering our understanding of the concepts as well as benefits and potential drawbacks of their use in planning processes.

Budget in accordance to results

ECCO is closely associated with the NRC-funded research project Coreplan. Coreplan primary focus is possible uses of ecosystem services in coastal governance and planning, while ECCO is particularly concerned with cultural ecosystem services and environmental impact assessment. Ecco thus contributes to broaden the scope of Coreplan. The funding from the Fram Centre has been important to strengthen the focus on cultural ecosystem services and on the methodology, role and function of IAs in valuation and tradeoffs in planning and industrial development in the coastal zone. Ecco has contributed to bring ES and CES frameworks to the attention of heritage management authorities

The budget received in 2018 was N.kr. 940.000. Funds remaining per 15.11.18 will be spent in its entirety in 2018 to:

- a) finalize papers in prep and
- b) hold a final seminar on 29. November.

Could results from the project be subject for any commercial utilization

No

Conclusions

The concept of ecosystem services and cultural ecosystem services has attracted a lot of attention from researchers internationally in recent years. Ecco and the project's focus on ES/CES in ongoing planning and IA processes in coastal Northern Norway contributed to these efforts. We have gained some important ground with regard to knowledge and understanding of current planning and IA practices, of ES/CES concepts and frameworks and the place, or perhaps the lack of place, of ES and CES in coastal zone planning. Based on this, future research should focus even more on the practical application of ES and CES frameworks in IA processes.