

Project information

Project title

Use of local/traditional ecological knowledge (LEK) on ecological change, climate change, resource use and cultural env. in fjord and coastal areas

Year

2011/2012

Project leader

Einar Eythórsson, NIKU

Participants

- Einar Eythórsson, NIKU, project leader
- Alma Thuestad, NIKU
- Else Grete Broderstad, SESAM / UiT
- Svanhild Andersen, SESAM /UiT
- Jørn Weines, SESAM /UiT
- Camilla Brattland, SESAM/UiT
- Arild Buanes, Norut
- Jan Åge Riseth, Norut

Flagship

Fjord and coast, Theme: Human dimensions of ecosystem response to climate change

Funding Source

Fram Centre, (University of Alaska)

Summary of Results

The focus of the project is to apply an existing methodology for documentation and analysis of LEK in fjord areas, particularly the Porsanger fjord, in a study on ecological/social-ecological change in North Norwegian fjords. The project will be complementary to biological research on fjord ecology and collaborate with IMRs fjord ecology program (EPIGRAPH). An important objective of the project is to adapt and develop the methodology to make it suitable for cross-disciplinary analysis and as a tool for including LEK in the knowledge base for resource management and coastal zone planning. Map-based interviews, production of digital maps and local collaboration/participation in documentation and analysis of data are important elements of the methodology.

1. Further development of methodology and skills for collecting, analyzing, storing and communicating local ecological knowledge

Building on the experience from the Fávllis project (Traditional knowledge and management of fjords as ecosystems, funded by Norwegian Research Council 2009-2011) and collection of local knowledge on land- and resource use in Finnmark (funded by the Finnmark Commission), NIKU and SESAM/UiT have collaborated on development of methods for effective collection and analysis of local ecological knowledge, including design and structure of interview-guides for map-based interviews, digitalization of maps from interviews, coding of interviews in Nvivo (software for qualitative analysis), design and structure of a LEK-database and web-presentations of LEK (see publication 5). A test-website for presentation of LEK, relevant statistics and research results in a multimedia format (including film and audio) has been developed in collaboration with Coastal Sami Resource Centre in Porsanger.

2. Tipping points, fishery management and local communities

As a part of the project Else Grete Broderstad (SESAM) and Einar Eythorsson (NIKU) are developing an article focuses on the potential role of local involvement for anticipating tipping elements and critical thresholds in the field of local ecological knowledge, but also in local involvement and local influence on natural resource management, markets and social infrastructure. This is a comparison study on social adaptation in the fjords of Porsanger and Varanger in Finnmark. The fjords are in many respects similar, but different distinctions appear concerning socio-ecological changes. In the theoretical discussion a point is made about tipping elements like a decline of inlet fish stocks may sum up to "national" tipping points of importance for national management (e.g. the red listing of the coastal cod stock). The most striking difference, in ecological terms between Porsanger and Varanger is in Porsanger the absence of recovery for local cod and kelp beds, leaving open the question of reversibility of the collapses as two decades have passed. The Porsanger fishermen had to cope with the collapse of cod and the quotas at the same time, while in Varanger, quotas and recovery of cod happened simultaneously. While king crab in Varanger gradually became a source of income for fishermen in the 1990s, while they were rebuilding a fishing fleet in the fjord, the situation was different in Porsanger. Here king crab became a source of income almost two decades after the collapse of fjord cod. The article will be finalized by December 2011 (see publication 3).

3. Science and LEK in ecosystem based fisheries management

As a follow-up on the collaboration between NIKU, SESAM and Institute for Marine Research (IMR) established in the

Fávllis-project, marine biologist Knut Sunnanå (IMR), Einar Eythórsson (NIKU) and Camilla Brattland (SESAM) are developing a cross-disciplinary paper on the combined use of marine biology and LEK in ecosystem based fisheries management based on data from Porsanger fjord. Boundaries and scale of marine ecosystems may be defined differently. Fjord ecosystems connect to larger systems, and it may be argued that marine life in an individual fjord should not be treated as an ecosystem, but as a part of a larger system. Important fish species as cod, herring and coalfish are highly mobile and appear in the fjords in variable numbers during certain seasons. On the

other hand, even if the overall trends of ecological change in fjords in Finnmark is in many ways similar, there are also remarkable differences, even between neighbouring fjords. The situation in fjords may be easier to describe if put on a background of large scale fluctuations of the open sea ecosystem neighbouring the fjord system. Although the influence of this large system onto the fjord system is not known – the extra dimension of the knowledge of the larger system may add to the description given by local ecological knowledge and refine the picture.

Marine/Fisheries biology and management; research design and scale is adapted to stock-based fisheries management on a national scale. The sampling schemes on a national level will never be able to confirm local knowledge in full details and single samples from fjord areas should never be used to compare local knowledge. On the other hand – these local sampling points are included in a larger assessment – and the result of this assessment may be interpreted on a local scale – given the use of all other available information. The paper will be finalized by the end of the year.

4. New Attitudes – New Challenges: Perspectives on LEK-research and Local Partnership. Einar Eythórsson (NIKU) and Camilla Brattland (SESAM) presented a paper on LEK in management and planning, and the need for collaboration with local partners, at the 27. Lowell Wakefield Fisheries Symposium, Anchorage Alaska, Sept. 14. – 17. 2011.

Abstract: During the last two decades, there has been a change in attitude towards local/traditional knowledge as a potentially valuable contribution to resource management and planning. In this situation, good research practice in LEK research seems more important than ever. Based on experiences from a recent project on local ecological knowledge (LEK) in Porsanger fjord in Finnmark, we reflect on challenges and limitations of LEK- research and cross-disciplinary collaboration, dealing with different spatial and temporal scales and asymmetric power relations between science and LEK. Partnership with community-based institutions is crucial for the accountability and legitimacy of LEK-research, and for facilitating a dialogue between science and LEK on more equal terms where local stakeholders are able to control knowledge rather than just deliver it.

The paper will be finalized and submitted for publication in *Maritime Studies*, Amsterdam, by the end of 2011.

5. Dilemmas in Utilization of the Potential Power of LEK/TEK. Jan Åge Riseth (Norut) and Einar Eythorsson (NIKU) are working on a joint paper on dilemmas in the utilisation of LEK.

As boundaries between academic disciplines will not apply to it, the term social-ecological knowledge is probably a better description for knowledge held by local resource users, their knowledge is most likely acquired through harvesting and related to use of the environment. The relevance of LEK/TEK/IK is not limited to ecological knowledge, there is an increasing attention to its potential in cultural heritage research, land rights/land reform processes (indigenous and non-indigenous), local and regional planning. Knowledge which is made relevant in this context can however be characterized as social-ecological, as it relates to past and present use of landscape and natural resources within a landscape/seascape.

For studies and monitoring of climate change, and ecological change related to climate change, local/traditional knowledge also has a potential. The paper is to be finalized in 2012.

Published Results/Planned Publications

1. Eythórsson, Einar and Camilla Brattland: New Attitudes – New Challenges: Perspectives on LEK-research and Local Partnership. Paper presented at the 27. Lowell Wakefield Fisheries Symposium, Anchorage Alaska, Sept. 14. – 17. 2011. Under revision for international publication.

2. Riseth, Jan Åge and Einar Eythórsson: Dilemmas in Utilization of the Potential Power of LEK/TEK. Work in progress, for international publication.

3. Broderstad, Else Grete and Einar Eythórsson: Tipping Points, Fishery Management and Local Communities. Paper presented at Arctic Frontiers, Tromsø January 2011. Under revision for international publication.

4. Sunnanå, Knut, Einar Eythórsson and Camilla Brattland: Science and LEK in ecosystem based fisheries management. Paper in progress, for international publication.

Publications from collaborating projects on LEK:

5. Andersen Svanhild and Sigvald Persen (2011): "Den gang var det rikelig med fisk" Lokal kunnskap fra Porsanger og andre fjorder. Sjøsamisk kompetansesenter, Porsanger.

6. Eythórsson, Einar, Marit Myrvoll, Jørn Weines, Håvald Hansen og Trine Länsmann (2011): Innsamling fra muntlige kilder. NIKU oppdragsrapport 261/2011. NIKU/SEG.

Communicated Results

- Eythórsson, Einar and Camilla Brattland: New Attitudes – New Challenges: Perspectives on LEK-research and Local Partnership. Paper presented at the 27. Lowell Wakefield Fisheries Symposium, Anchorage Alaska, Sept. 14. – 17. 2011.

- Broderstad, Else Grete and Einar Eythórsson: Tipping Points, Fishery Management and Local Communities. Paper presented at Arctic Frontiers, Tromsø January 2011

Interdisciplinary Cooperation

Disciplines involved in the project: Social Anthropology (Svanhild Andesen), Archeology/GIS (Alma Thuestad), Planning and Community Studies (Einar Eythorsson and Arild Buanes) Indigenous Studies (Camilla Brattland) History (Jørn Weines), Political Science (Else Grete Broderstad) and Resource Economics (Jan Åge Riseth). Through collaboration with the IMR, marine biology is also involved (Knut Sunnanå).

For research on the different aspects of local ecological knowledge in fjord and coastal areas, the inter-disciplinary composition of the research group has been a strength, while truly interdisciplinary research and writing joint interdisciplinary papers represents a challenge as different approaches and data-sets can be difficult to combine.

Budget in accordance to results

The funding from the Fram Centre has made it possible to follow up on different aspects of LEK research, building on experience and data collection in other related projects. The priorities have been development of methodology, web-presentations and scientific papers. The funding has been crucial for the continued collaboration of the research group, which is the most active academic group working on LEK in Norway. Further funding in 2012-2013 is required to complete the project.

Could results from the project be subject for any commercial utilization

No

Conclusions

Future research :

A. -Completion of a website for multimedia-presentation of local ecological knowledge, in collaboration with the Coastal Sami Resource Centre (SESAM). --Collection of local ecological knowledge among salmon fishers in Finnmark and North-Troms (NIKU/SESAM/NINA). – Collection of local knowledge on use of land and natural resources in Finnmark (NIKU/Norut/SESAM)

B. Methods for collecting, coding, analyzing and storing of LEK by use of Nvivo, GIS and databases, methods for presenting LEK on the web. Models for collaboration with local institutions/partners in research, for presentation of knowledge and joint communication of results. These methods are not entirely new, the project has contributed to experience and skills in their implementation and adaption to local conditions.