

Project information

Project title

Impacts of eider predation on benthic communities in a range of climatic zones

Year

2011/2012

Project leader

Sveinn Are Hansen, NINA

Participants

NINA (Dr. Sveinn Are Hanssen and Geir Helge Systad) is the leading institution of this project.

Participants:

Other projects like Epigraph (IMR, UiT), can deliver prerequisite material for the project, and the ongoing PhD study at UiTØ with supervisors from Akvaplan NIVA (Paul Renaud) and NP (Haakon Hop) by Mikko Vihtakari are an important cooperator in the project.

International collaboration includes Magella Guillemette and Samantha Richman, Université du Québec à Rimouski. Dr Magella Guillemette is a distinguished expert in sea duck physiology and behavior. Dr Samantha Richman is an expert in seaduck diving behavior.

Flagship

Fjord and coast, Theme: Structure, function and change in Arctic and boreal fjord ecosystems

Funding Source

Fram Centre, internal NINA

Summary of Results

2011: Data collection in Svalbard:

□ 16 eiders shot and samples for SIA, FATM, contaminants, diet & parasites taken. (figure 1).

□ Benthos samples.

□ Eider feeding observations august.

Data collection in Balsfjord:

□ Distribution of common eiders in the fjord during two periods: Mars and August, earlier data (2010). Data collection in Porsanger:

□ Distribution of common eiders in the fjord during two periods: Mars and August 2011.

□ Local activity patterns and area use sampled in august. □

Some benthos samples in august. The project was delayed this autumn because of one of the project leaders being on sick leave for three months. The project is now on track again.

We applied for shooting eiders both on the mainland and on Svalbard to sample actual food intake. The application on the mainland was rejected. It is important to get samples from what and where eiders eat at the same time as we sample the benthic community, and we have to search for other approaches to get such data on the mainland. The use of loggers tracking location, time under water and diving depth gives information which will be useful. Loggers will be purchased on this year's budget.



Figure 1. Location of eiders shot in Isfjorden august 2011. 16 eiders were shot and samples for SIA, FATM, contaminants, diet & parasites taken.

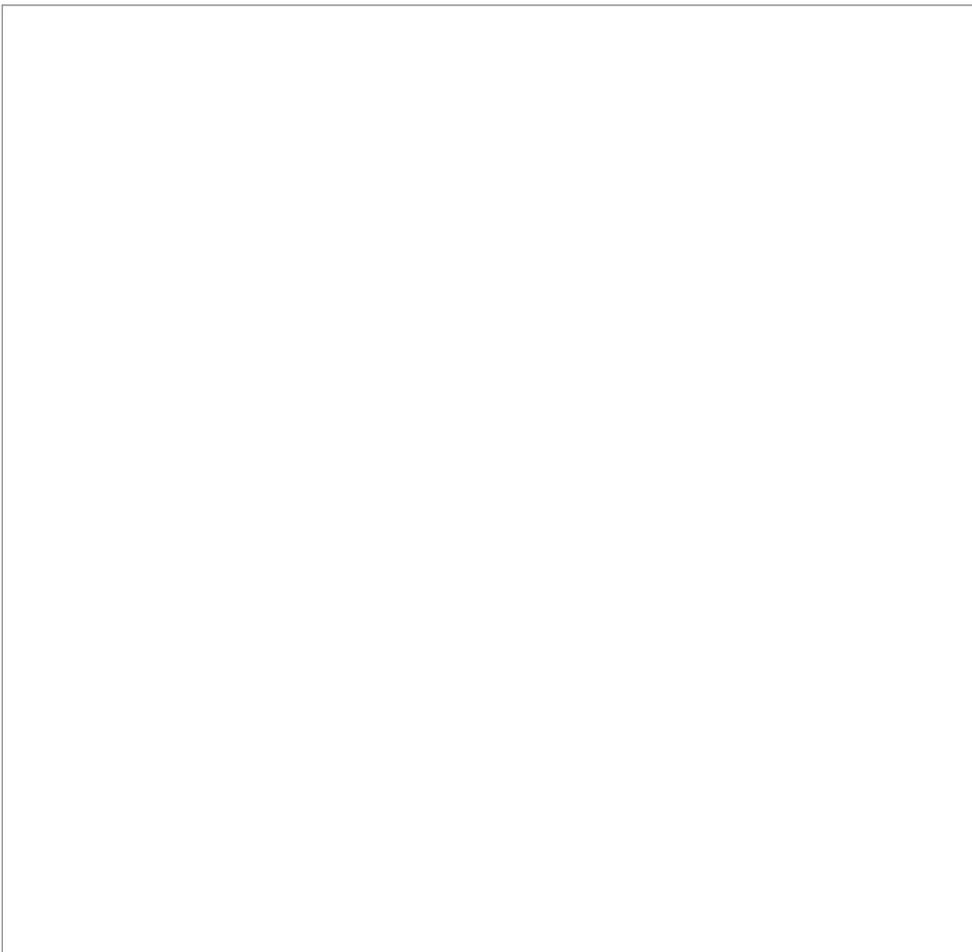


Figure 2. Eider distribution in the Svalbard area during august 2010 (NP/H. Strøm 2010).

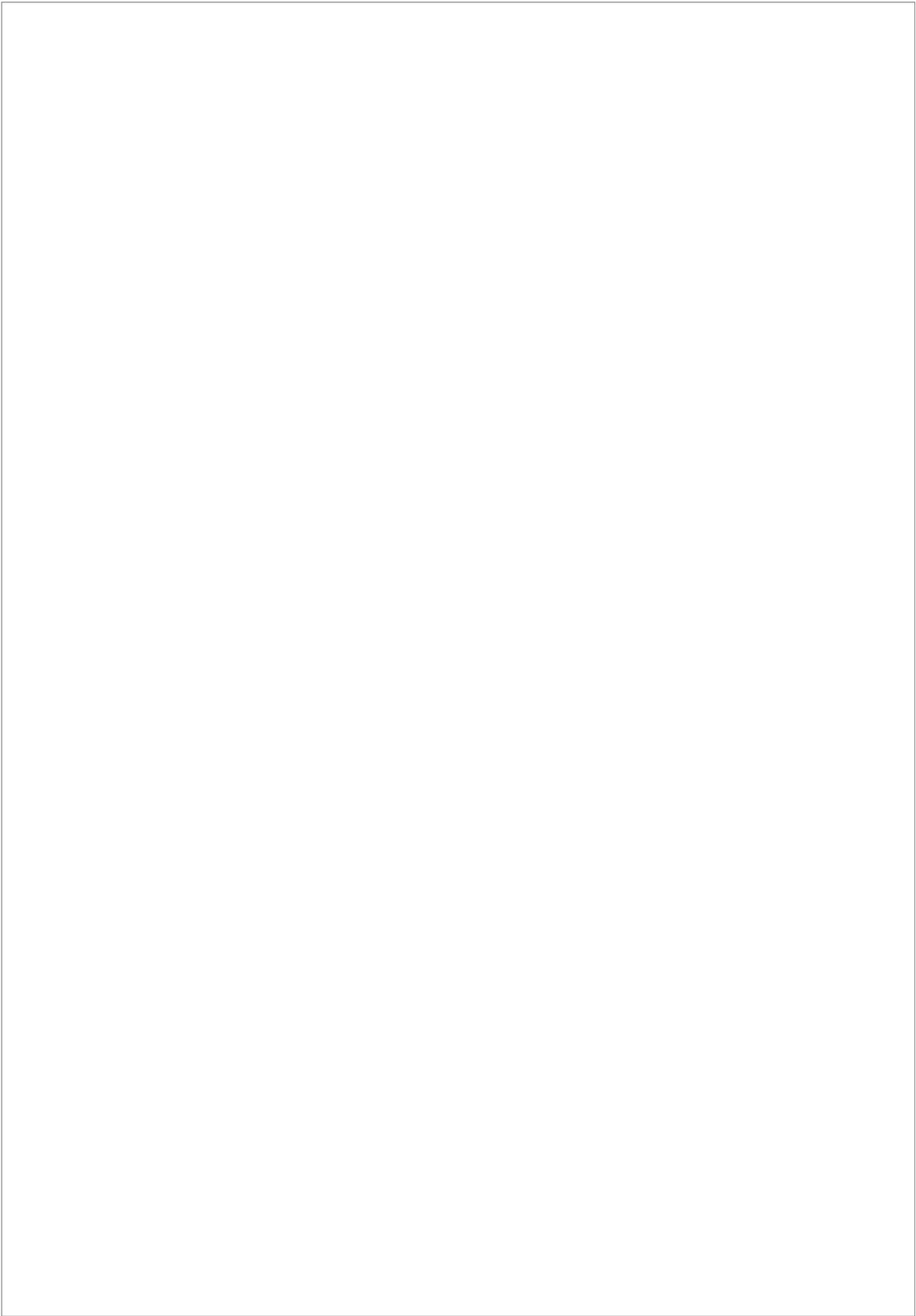


Figure 3. Eider distribution in Porsanger during mars 2011. The lack of eiders observed in the innermost parts of the fjord is due to ice cover during the survey, restricting the feeding to a few open spots due to strong currents (NINA/G.Systad 2011).

Published Results/Planned Publications

No published results yet.

Communicated Results

-

Interdisciplinary Cooperation

-

Budget in accordance to results

The funding from the Fram Centre helped releasing money through the Marine NINA SIS, giving opportunities to follow the three fjords over a longer period. It also makes it applicable to use new logger techniques for the activity pattern of common eiders.

New fundings from the Flagship will in the next years bring the total budget up to a reasonable level for following the eider predation in all the three fjord systems. This is important both in order to track the climatic variation over several years, and in different areas with variations in ice cover during the year.

Could results from the project be subject for any commercial utilization

No

If Yes

Eider feeding on benthos might be an important factor when establishing mussel farms. Knowledge about eider food preferences, diving depth, habitat use and energy need are important information for the localization of mussel farms.

Conclusions

a) Indicate future research and/or perspectives which the project results have led to

The project is in a phase gathering data and experimenting with the methods for obtaining good enough data to show the eider influence on the benthic communities in the three different fjord areas.

The first year of the study has been focused on extracting data from databases from seabird censuses (NP and NINA, SEAPOPOP) and gather more specific data to gain information on the temporal and spatial variation in the eider distribution in the fiord systems.

The temporal and spatial variation in ice cover will be monitored, and satellite albedo measurements and ice maps from the Norwegian Meteorological Institute will be used to reconstruct historical ice distribution maps that can be related to the existing distribution data from seabird censuses.

Mapping of existing eider distributional data to pin-point the eider feeding "hot-spots" i.e. places where a lot of eiders are constantly feeding over long periods of time has been done in this early phase of the project.

Benthic communities and ice cover is mapped in the Kongsfjorden/Isfjorden area by Akvaplan NIVA/NP, and in Porsangerfjorden by IMR and the University of Tromsø through the project Epigraph. Benthic communities will also be mapped in the Kongsfjorden/Isfjorden and Balsfjorden in 2012. Additional mapping of benthos in eider feeding areas will be done in the three areas if necessary

b) List and describe new methods or techniques that have been developed during the project or that the project has revealed a need for

It is important to get samples from what and where eiders eat at the same time as we sample the benthic community, and we have to search for other approaches to get such data on the mainland, since we were not allowed to shoot eiders in these areas. The use of loggers tracking location, temperature, time under water and diving depth gives information which will be useful both regarding energy budgets of eiders and also monitoring local climate. Loggers will be purchased on this year's budget. Also, the need for methods to measure eider energy expenditure and detailed food choice without killing the birds has been focused.

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