

Study on the small pelagic fisheries for capelin, herring and mackerel on the west coast of Newfoundland

Barbara Paterson

Introduction

The main goal of this study was to conduct a social-ecological analysis of the small pelagic fisheries along the west coast of Newfoundland with the further aim to develop a methodology for social-ecological analysis that can be applied to fisheries in Namibia. This project was also designed to strengthen a developing collaboration with Barbara Neis, a leading scholar in the field of fishers' knowledge and science and other Canadian researchers. Professor Neis is the principal investigator of the Community-University Research for Recovery Alliance (CURRA, www.curra.ca), a 5-year initiative funded by the Social Sciences and Humanities Research Council and the host project for this work. The CURRA is working together with a large number of community partners looking for ways to promote the recovery of local fish and shellfish stocks and fishing communities on Newfoundland's west coast. Professor Neis (along with Grant Murray, CRC, Vancouver Island University) helped develop the methodology for social-ecological fisheries research that was utilized in the study and transferred through this fellowship.

The Marine Research Institute of the University of Cape Town (UCT) initiated a project on integrating fishers' knowledge into the existing science-dominated system for managing fisheries. This project raised interest at UCT in the Canadian "Coasts Under Stress" approach to understanding interactivity within social-ecological systems and the methods developed by Professor Neis and Murray to do this research using historical reconstruction and fishers' ecological knowledge and other data sources. Initial collaboration between the UCT team and Professor Rosemary Ommer led to a visit by Barbara Neis to South Africa to participate in a workshop on fishers' knowledge. This cooperation led to the wish to strengthen collaborative ties with the CURRA a community-engaged fisheries research program that grew out of issues raised by coastal communities during Coasts Under Stress. The CURRA work and, in particular, the social-ecological research approach, are highly relevant to the Benguela Current Commission (BCC) a tri-lateral association promoting regional fisheries management co-operation between Angola, Namibia and South Africa. Since gaining independence in 1990, Namibia has been working towards rebuilding fish stocks. These efforts notwithstanding, the Namibian purse-seine fishery, once one of the biggest small pelagic fisheries in the world, is in a critical state. There is concern that overfishing may have resulted in long-term changes in the trophic structure of the Northern Benguela ecosystem.

In western Newfoundland, purse-seine fishing is part of a multi-sector fishery that targets mackerel, herring and capelin. The interactions between the different fleet

sectors and fishing gears in the Bonne Bay area on Newfoundland's west coast, their relationship to the resource and associated ecosystem effects, and the flow of benefits from the fishing operations into the surrounding communities, are not well understood.

The Robin Rigby fellowship and additional funding from the UCT project "Fishers Knowledge for an Ecosystem Approach to Fisheries" under the "Society, Ecosystem and Change" program of the National Research Foundation of South Africa and funding from the CURRA provided the resources needed to expand the existing research collaboration between Canada and the BCC region through a joint research project on marine social-ecology in Bonne Bay, NF. The project had three main objectives:

1. to strengthen the existing research collaboration on the social-ecology of fisheries involving fisheries researchers in Namibia and Newfoundland, Canada;
2. to conduct a collaborative study to document the knowledge of fishers who are active in the purse-seine fishery of Bonne Bay, Newfoundland;
3. to develop and transfer an appropriate research methodology to document fisher knowledge in the purse-seine fishery of Walvis Bay, Namibia.

Project implementation

The research proposal was given full ethics clearance in accordance with the Tri-Council Policy Statement on ethical conduct for research involving humans (TCPS2) by the Interdisciplinary Committee on Ethics in Human Research (ICEHR) of Memorial University of Newfoundland. After receiving this clearance I joined the CURRA as a visiting postdoctoral fellow and spent three months in Newfoundland (16 July – 15 October) working with Professor Neis and others on the CURRA team. A CURRA-funded Conservation Corps intern, Katherine Rundquist, helped with the background and field research. .

Professor Neis and I designed the study and secured ethics clearance prior to my journey to Newfoundland. The first three weeks in Newfoundland were spent in St John's gathering background information on the Newfoundland pelagic fisheries and conducting key informant interviews with DFO scientists and resource managers as well as other St John's based stakeholders in the fishery. In addition, I visited St Andrews Biological Station in New Brunswick to learn more about herring management in Canada in general and the Bay of Fundy in particular (where the management regime is very different from the one in western NL), from Dr R. Stephenson.

During the next four weeks we conducted semi-structured career history interviews with both active and retired fish harvesters in the study area and ranging between Port au Choix in the north and Stephenville in the south (Figure 1). For the final four weeks we returned to St John's to carry out follow-up key informant interviews and to start transcribing the interviews, organizing our data and formulating initial

findings. The time in Canada was sufficient to do the research. However, it turned out that the 2011 mackerel fishery started much later than in previous years, so we missed the opportunity to observe the actual fishing and landing processes for this fishery. Although this would have been interesting it was not vital to accomplish the project objectives.



Figure 1 Study area and number of interviews with fish harvesters per community.

The social-ecological research methodology that was used for this research is a multi-methods approach combining social and ecological data from different sources, i.e. resource users (career history interviews), other stakeholders (key informant interviews), fisheries dependent and independent data (landings data, fisheries survey data, quota reports) and historical sources (library research). We also accessed a small set of career history interviews conducted with pelagic harvesters in this region during Coasts Under Stress in a dataset held by Grant Murray.

The assistance of the CURRA-funded Conservation Corps intern Katie Rundquist was extremely important to the success of this project. It gave me the extra research support I needed to do a major study in a short period of time and allowed us to divide up the task, of information collection and collation. Katie has also done some of the transcription. Additional transcription support has been provided by Kelsey Draper at UCT with funding from the UCT Fishers Knowledge project.

Working with Katie also provided an opportunity for me to improve my collaborative research skills, as I had to provide the direction for the work, and had to ask Katie to perform particular tasks. I learned that while I find it easy to show appreciation it is much harder to provide constructive criticism and to keep checking up – rather than taking for granted – that particular tasks are being completed.

Replication of the project

My plan is to replicate this research in Namibia with harvesters and stakeholders in the Walvis Bay small pelagic fishery. This fishery targets sardine and horse mackerel and is today characterized by large industrial type purse-seine and midwater trawl vessels. These differences notwithstanding, the history of the fishery has many parallels with the current situation in Newfoundland: i.e. increasing fishing effort, increasing efficiency and spatial expansion as well as tensions between owner operators and industrial fleets. The interview instrument we used in Newfoundland was developed with fixed gear as well as purse seine harvesters in mind and assumed that a harvester's fishing career can be divided into 3 or 4 meaningful time periods and can be used to elicit spatial and other information for each period, thereby tracking changes over time (e.g. spatial expansion; effort changes etc). However, when interviewing mobile purse-seine fishers in Newfoundland, it proved more productive to elicit information by prompting for unusual occurrences, or to ask "did you ever catch capelin in this area?" Because in Namibia pelagic fish are caught with highly mobile gear and along the entire 1600 km of Namibian coastline we will probably use this insight to adapt the methodology by dividing the study area into meaningful subareas and then prompting for information in relation to each area.

The BCC has initiated a project entitled "Development of ecologically sustainable fisheries practices in the Benguela Current Large Marine Ecosystem (ECOFISH)". This project includes a work package on "Incorporation of stakeholders' knowledge in data collection and analysis" for which I am the work package leader and principal investigator. This project will provide an opportunity to apply this multi-methods social-ecological research approach to the Namibian hake fisheries as well.

Legacy of the research co-operation

In Namibia economic and sociological research on the so-called "human dimension of fisheries" is usually carried out separate from bio-physical fisheries research. Experiencing first hand how social, economic and bio-ecological data can be combined to conduct social-ecological analyses of fisheries and to integrate scientific and stakeholder knowledge has been invaluable and important for our work in Namibia. The process for obtaining ethics clearance in Canada is more stringent than similar processes at Namibian research institutions and has a stronger focus on enabling participants to provide informed consent. Going through

this process was an important learning experience for me because it required careful and early preparation of research methods and interview schedules well ahead of time. Following the Canadian Tricouncil guidelines and CURRA practice, the detailed consent and archival deposit forms gave participants several options regarding the archiving of their interview transcripts and future access to the interview. In addition, participants could request an opportunity to review the final report of the project or to receive a short plain language report. I was struck by the fact that all participants appreciated the information about the project and agreed to sign the forms once they had understood their purpose. However, the options that were chosen by individual participants differed. These differences showed us that although the paperwork was time consuming it was very important to provide this level of flexibility and informed consent. In Namibia there are, as yet, no guidelines for research ethics and acquiring informed consent from research participants. Thus the forms developed for this project will provide useful templates for future social-ecological and other types of fisheries research in Namibia.

I have submitted a session proposal to the international CURRA Symposium “Rebuilding Collapsed Fisheries and Threatened Communities” scheduled for October 1-4, 2012. This session proposal on the social-ecology of the small pelagic fisheries along the west coast of Newfoundland has been accepted. The session will provide an occasion to present and discuss some of the findings of this research with other researchers, community partners and policy-makers in Newfoundland. It will also provide an opportunity to deepen the existing collaborative links with Barbara Neis, the CURRA and other Canadian researchers who have agreed to participate in the session including, in particular, Robert Stephenson and Grant Murray. In addition, I am part of a second session proposal for the same symposium that has also been accepted where I will present a paper dealing with the Namibian hake fishery. That session is being organized by Grant Murray and will focus on local ecological knowledge and the rebuilding of marine social-ecological systems.

Conclusion

The project was concluded successfully. The research collaboration with Canadian researchers has been strengthened and expanded. A host of information has been collected and organized into several databases for further analysis. Several collaborative papers presenting results of the study are in different stages of development. The multi-methods social-ecological research approach will be applied to several Namibian fisheries in the near future. Thus all three objectives have been fulfilled and the first hand experience of conducting research in Newfoundland and the close collaboration with Canadian researchers has been very inspiring and will be highly valuable for my further research career in Namibia. I would like to thank the Robin Rigby Trust for their support; without it this collaboration would have been impossible.



Figure 2 Conservation Corps Intern Katherine Rundquist (left) and Barbara Paterson



Figure 3 Katie and Barb watching while Bonne Bay fishermen are loading a mackerel trap



Figure 4 A purse-seine vessel at Port au Choix, NL