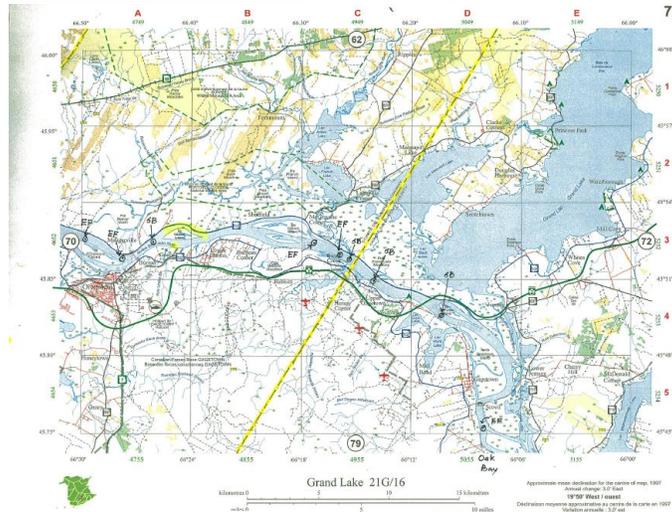


Evaluation of the efficacy of presenting Aboriginal Traditional Knowledge (ATK) about wildlife Species at Risk (SAR) using GIS technique



Maliseet Nation Conservation Council

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Introduction

The Maliseet Nation Conservation Council (MNCC) representing all six Maliseet First Nation communities in New Brunswick is funded by the Aboriginal Aquatic Resources and Ocean Management (AAROM) program of the Department of Fisheries and Oceans (DFO) of Canada. It was first established in 2004 to collaborate on the management of aquatic resources and increase Maliseet First Nation participation in watershed management within our traditional territory, the Saint John River watershed and Bay of Fundy. One of the MNCC's major conservation missions is the Species at Risk (SAR) program. The program addresses vital issues pertaining to wildlife SAR in the trans-border watershed level. MNCC has been in the process of gathering and archiving traditional knowledge of Maliseet elders/knowledge holders about wildlife SAR which are listed under Species at Risk Act (SARA) of Canada. At present MNCC is on a number of recovery strategies formulated for conservation of endangered wildlife species such as inner Bay of Fundy (iBoF) Atlantic salmon and north Atlantic right whale. As a part of the ongoing traditional knowledge process of MNCC, present study was undertaken to evaluate the efficacy of presentation of Traditional Ecological Knowledge (TEK) of Maliseet elders/knowledge holders about wildlife species that are significant to culture and practices of Maliseet First Nations using GIS technique.

Methods

GIS maps were formulated during recently concluded study to present TEK of Maliseet elders/knowledge holders about Atlantic salmon and American eel. The information gathered during previous traditional knowledge studies was mainly used to prepare maps. In addition to that a few elders from Maliseet First Nations, Tobique, Kingsclear, St. Mary's and Oromocto were also interviewed to gather information necessary to supplement the existing knowledge about biology and ecology of American eel and Atlantic salmon. Questionnaires were prepared to gather TEK of elders and maps of the river close to each community were also used during the interview process. The elders/knowledge holders were given maps for identification of traditional fishing sites, migration routes, nursery and spawning areas of above species. They were also interviewed based on the prepared questionnaire to gather necessary information. Existing information and information gathered during the current study were then digitized to prepare maps to present TEK of Maliseet elders/knowledge holders about biology, ecology and fishery of Atlantic salmon and American eel in the St. John River, New Brunswick.

Results

As GIS maps have effectively been used to present biological and ecological information about aquatic and terrestrial flora and fauna, it was attempted during the present exercise to utilize GIS technique to present TEK of Maliseet elders/knowledge holders about the biology and ecology of Atlantic salmon and American eel. TEK of Maliseet elders/knowledge holders about migration routes of Atlantic salmon and American eel, salmon pools, nursery and spawning areas of salmon, traditional fishing sites and native and non-native salmon fishing camps was presented during the recently concluded study. When Maliseet elders/knowledge holders were given maps of the river close to their communities, some of the elders identified areas of the St. John River near Fredericton where Maliseets have fished for salmon and eels using different gear types such as spears and gillnets. The formulated GIS maps to present TEK of Maliseet elders/knowledge holders about the biology and ecology of American eel and Atlantic salmon

are currently stored in the ATK data repository at MNCC and will be available for management of eel and salmon populations in the river in ethically and culturally significant manner.

Concluding remarks

MNCC has been gathering, processing and preserving the TEK of Maliseet elders and knowledge holders that are important for conservation of wildlife SAR since 2010. MNCC is currently formulating a mechanism (which would ensure ownership of the information retains with knowledge holders) to share traditional knowledge with outside entities such as two levels of the government, Committee on the Status of Endangered Wildlife in Canada (COSEWIC), SARA etc. with the help of other aboriginal organizations in Atlantic Canada who have similar concerns. Until an effective strategy is finalized, MNCC has initiated a process to develop products and also to experiment effective ways of presentation of traditional knowledge of Maliseet elders about wildlife SAR.

Major objective of the recently completed study was to evaluate the efficiency of presentation of TEK of Maliseet elders/knowledge holders about the wildlife SAR using GIS maps. Present investigation indicated that GIS technique was one of the most effective tools to present TEK about biology and ecology of wildlife species. This is partly due to the ability of GIS to present data precisely and accurately. In general graphical presentation of data is more effective than a number of other ways of data presentation. Moreover, due to the versatility of technique, differentiation of data based on different categories is fairly simple. Apart from that, location maps of the study area close to communities were used to gather TEK of elders to prepare GIS maps during the present study, which was found to be an effective way of recalling historical memories of elders about the environment over a number of other interview methods. However, prior to make final conclusion, it is advisable to conduct a comprehensive study to evaluate the effectiveness of different methods that can be used for collection and presentation of traditional knowledge. Outcome of the present study would provide a basis for such a comprehensive investigation.

In the scientific process of Canada, and also during the COSEWIC process of listing of wildlife species under the species at risk act, priority is given to the wildlife species of national significance. However, according to our elders/knowledge holders, there are number of wildlife species of social, cultural and economic significance to Maliseet people, and whose existence is severely threatened due to various factors. Unfortunately these species were not captured by the current mechanisms of identification of wildlife species for conservation. Therefore, it is important to formulate a comprehensive mechanism to identify important species from aboriginal perspective for conservation.

Acknowledgement

MNCC thanks Aboriginal Fund for Species at Risk (AFSAR) and Department of Fisheries and Oceans (DFO) Canada for providing funds and assistance to conduct present study to prepare maps to present traditional knowledge of Maliseet elders/knowledge holders. Thanks are also due to elders/knowledge holders participated at interviews and provided valuable information to supplement existing information for preparation of maps.