COMPLETED | PROJECT

STUDY OF SHORELINE SENSITIVITY AND COMMUNITY VULNERABILITY TO CLIMATE CHANGE IMPACTS IN THE GULF OF ST. LAWRENCE

PROJECT LENGTH

28 months
September 2005 - December 2007

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CONTEXT

The global rise in temperatures, due mainly to human activity, is affecting many climate and hydrodynamic variables in the Gulf of St. Lawrence: mean sea level, ice conditions, frequency and intensity of storms, winds, waves, precipitation, processes linked to freeze and thaw cycles and winter thaws. The study evaluated the impacts of most of these variables on the stability of coastal shorelines and infrastructures for three test areas: the Magdalen Islands, Percé and Sept-Îles.

OBJECTIVES

- Evaluate the main impacts of climate change on coastal shoreline dynamics in the Gulf of St. Lawrence region.
- Suggest appropriate solutions for adapting to these impacts by involving users in coastal areas from the outset in the quest for solutions.

ACHIEVEMENTS

The study identified the role of winter conditions on shoreline erosion. During cold winters, most of the hydrodynamic processes that cause shoreline erosion are mitigated. During mild winters, the ice season is shorter, exposing beaches and shorelines to more wave action from winter storms. The study showed that the number of storms could decrease with global warming, but not enough to offset the negative impact of reduced ice cover.

The study made it possible to test the participatory mechanisms that encourage a quest for consensus among the different committees involved. The committees began by focusing on preventive methods where possible, and then on solutions for moving infrastructures and buildings, or less intrusive methods. Finally, more drastic and irreversible methods were considered in some cases.

OUTLOOK

- Complete ongoing analyses of interactions between the climate and coastal dynamics.
- Track pilot projects at the three test sites, with regard to the solutions adopted and measures applied.
- Hone and refine the consensus-based "bottom-up/top-down" approach for this project and examine its applicability to other sensitive regions.

PARTNERS

- Ouranos
- Ministère de la sécurité publique (MSP)
- Université du Québec à Rimouski (UQAR)
- Université du Québec à Montréal (UQAM)
- Institut des sciences de la mer (ISMER)
- Environment Canada (EC)
- Fisheries and Oceans Canada
- Îles-de-la-Madeleine, Percé and Sept-Îles municipalities

FUNDING

- Natural Resources Canada (Climate Change Action Fund)
- Ouranos

TEAM

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PROJECT OVERVIEW

- Include the impacts of climate change in the integrated shoreline management process being developed in the Gulf of St. Lawrence.
- Provide decision-makers and users with a framework for solutions aimed at mitigating and adapting to the effects of this phenomenon.
- Draw on the latest climate-trend findings by encouraging direct co-operation between scientists, decision-makers and users.