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**Examining potential sea-water intrusion in past and  
current public water supply wells,  
southwest Newfoundland**

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Due to the growing concern about climate change and its current and future impact on coastal communities, adaptation is essential to carry on in a changing climate. The Atlantic Canada Adaptation Solutions (ACAS) Project is a partnership by the Atlantic Provinces in Canada and Natural Resources Canada (NRCAN) to work alongside local communities, organizations, and professionals to investigate the susceptibility and influence of climate change and to offer a basis for community acclimatization decisions. While the Newfoundland and Labrador, Department of Environment and Conservation has taken the lead for inland land use and vulnerability studies, extra efforts are in progress to investigate the impact of sea level rise on groundwater reservoirs. These efforts will serve to identify municipal groundwater supplies thought to be at risk of salt water intrusion due to sea level rise.

Based on the International Panel for Climate Change, predictions of local sea level rise have been made for four zones in Newfoundland and Labrador. The southwest portion of the island falls within zone 2 where sea water for the region is expected to rise less than 2 mm per year. This equates to a projected sea level rise of 40 cm by the year 2049 and greater than 100 cm by the year 2099. The highest risk communities within zone 2 have hydrogeologic units consisting primarily of glaciofluvial sand and gravel deposits with varying thicknesses of 1.5 to 50 m; Carboniferous sedimentary bedrock, or a combination of the two units. Both units have the highest yield for the southwest region and the highest potential for sea water contamination caused by groundwater recharge.

A recent field excursion to communities along the Port au Port Peninsula and St. Georges Bay area helped identify towns that have abandoned or soon to be abandoned wells. During the spring of 2011, parameters such as conductivity, temperature, and static water level will be measured on selected wells and grab samples will be collected and further analyzed for chloride and sodium. The results, available well construction data, and community cooperation will be deciding factors for which wells will be selected for long term observation.