2011 MANITOBA ENVIROTHON

ORALS QUESTION

The town of Churchill, Manitoba lies on the shore of the Churchill River Estuary where the river enters Hudson's Bay. The town has about 950 residents, but when tourists arrive to watch birds, beluga whales, and Polar Bears, the population can easily double. Anthropologists state that the region was settled between 500 A.D. and 1500 A.D. by Inuit and Dene people. Up until Europeans arrived in 1619, Cree and Chipewyan First Nations people also lived in the area.

Churchill is located in an ecotone known as the Hudson Plains, and intersects with 3 distinct ecoregions: the Boreal Forest to the south, Arctic Tundra to the northwest, and the Hudson Bay Lowlands to the north. The topography of the region consists of thin infertile soils lying above ancient igneous rock, which is part of the Canadian Shield. These soils are affected by permafrost. Combined with a short growing season, only the Black Spruce trees, and willow shrubs can survive, along with small arctic plants which only grow to a height of a few centimeters. GPS readings show that the lowest elevation along Hudson Bay is 0 m above sea level, with local rock ridges rising to 29 m (94 feet).

The Churchill River forms an enclosed estuary approximately 13 km long and up to 3 km wide, with a weir* (operated by Manitoba Hydro) located in the upstream portion of the esturay. The Churchill River Estuary is home to Manitoba's only sea water port and as such services a variety of ships, such as cruise liners and grain carriers. The estuary and the land surrounding it attract a significant number of bird species with recordings of Snowy Owl, Tundra Swan, American Golden Plover, etc. In July and August of each year thousands of beluga whales move into the warmer waters of the estuary to calf. In addition to estuarine and marine fish species that utilize the estuary, a number of salmonid species (lake whitefish, cisco, round whitefish and brook trout) that also reside in the Churchill River are tolerant of salt water and go into the estuary as part of their lifecycle. The land surrounding the estuary includes features such as the Port, Town of Churchill, weir, Fort Prince of Wales, Canadian shield and vegetation as described above.

Throughout the years there have been radar installations built by the military, local mineral exploration, ecotourism and hydro developments along the Churchill River and in the estuary, which have all impacted the estuary. Yet, none of these projects ever received environmental assessments before work started because assessments were not mandatory at the time of the developments.

Looking to the future, civic leaders have identified three main activities that will have an impact on the estuary area:

1. SHIPPING – the high cost of shipping means that more ships want to reach Canada through shorter routes such as through the Port of Churchill. Port officials hope for a 25% increase in the next 5 years.
2. HYDRO – continued maintenance of the Churchill River weir and potential modifications to it may decrease the amount of water reaching the estuary.
3. TOURISM – as the world economy improves, ecotourism activity is predicted to double from 2010 – 2020 bringing many more people to the region.

You are members of a panel struck to advise local civic leaders on how to conserve the Churchill River Estuary given these development activities and existing conditions. Your task is to:

i. **Outline the potential impacts that the above activities might have on the estuary and the land surrounding it that should be considered before development.**
ii. **Describe what types of data and information you would collect to understand these potential impacts and how you would track and store it.**
iii. **Identify steps that might be taken to conserve the estuary area and reduce or mitigate the impacts that any approved development might have.**
iv. **Establish who should be involved in decision-making about development and conservation of the estuary and suggest a public participation plan to involve them.**

***** A weir is a small overflow dam used to alter the flow of a river or stream.