

# James Bay under siege

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MIGRATING SHOREBIRDS AND waterfowl in Canada's James Bay are facing a threat to their habitat from a series of proposed hydroelectric developments, according to a 34-page report recently released by the National Audubon Society at a press conference in Montreal on July 25, 1989.

Located 700 miles north of the United States border, James Bay is a sub-arctic wilderness, home to Ringed Seals (*Phoca hispida*), Beluga Whales (*Delphinapterus leucas*), and Polar Bears (*Ursus maritimus*). The bay's mudflats and coastal marshes are also critical staging areas for dozens of species of shorebird and waterfowl, one of the few such areas in the western hemisphere. The Cree Indians, who have occupied the area for 5000 years, depend on the land for sustenance as well.

The ecosystem of James Bay is complex, depending on salinity, ice cover, and timing of water flows. The timing of the ice-melt triggers the phytoplankton bloom (Prinsenberg 1982a), which is the base of the food chain. The thickness of the ice determines the air temperature. A key food source for shorebirds is a clam, *Macoma balthica*, which burrows into the sand flats in densities of 7300 clams per square meter (Martini *et al.* 1980). Mosquitos and biting flies are found on the coast in spring, the former in densities estimated at 5 million per acre. Different kinds of marsh grasses and sedges found in the various salinity regimes are also important food sources, especially for Snow Geese (*Chen caerulescens*) and Canada Geese (*Branta canadensis*) (Prevett *et al.* 1985).

Many shorebirds depend on James Bay to meet their enormous metabolic needs; in some cases they need to nearly double their weight while they are there (Morrison and Gaston 1986). James Bay's mudflats are of critical importance for the Red Knot (*Calidris canutus*) and Hudsonian Godwit (*Limosa haemastica*), both of which migrate to the southernmost parts of South America to winter. The salt marshes are important to the Ruddy Turnstone (*Arenaria interpres*), Pectoral Sandpiper (*Calidris melanotos*) and Black-bellied Plover (*Pluvialis squatarola*). James Bay was also the locale of one of the last documented sight records for the critically endangered Eskimo Curlew (*Numenius borealis*) (Hagar and Anderson 1977).

Three enormous dams have already been built on the La Grande River, which empties into the bay. Hydro-Quebec, a utility owned by the provincial government, plans to dam or divert every remaining river on the Quebec side of James Bay, and sell the electricity it generates to the United States. These developments will increase the flow of fresh water into the Bay in winter by a factor of five to ten, while the spring peak flow will decrease (Freeman *et al.* 1982).

The changes in water flows will affect all aspects of the ecosystem. The salinity levels will be altered at various locales and times (Prinsenberg 1982b). Some of the nutrients previously carried by the rivers will silt out in the reservoirs, never reaching the bay (Société de Développement de la Baie James 1971). The change in water temperature will affect the ice melt, in turn disrupting the phytoplankton bloom and further, the climate of the region.

It is clear what is at stake—what is not yet known is exactly what the impacts of these dams would be. If a series of projects of this magnitude were planned in the United States, a Cumulative Environmental Impact Statement would be required before a decision could be made as to whether to build. No such studies have been done in Quebec. Meanwhile, several northeastern states are now planning purchases from Hydro-Quebec; New York has signed a contract, Maine has recently rejected one for economic reasons but does not rule out future contracts, and Vermont is currently considering a 22-year, 450 megawatt purchase.

Public pressure is helping, however. Responding to pressure from Audubon, the Cree and others, Hydro-Quebec announced plans to release impact studies in the Fall of 1989. There are no assurances that they will not build even if the studies show severe impacts, however; Quebec Premier Robert Bourassa insists that energy exports are necessary for the economic development of the province.

The National Audubon Society contends that Quebec can free up enough electricity to export by installing energy-efficient equipment in homes and industry, at a far lower cost than building new dams. Having compelled Hydro-Quebec to do impact studies, Audubon will keep up the pressure in this new phase to try and keep James Bay from being lost as a wildlife resource of international significance.

To obtain copies of Audubon's report, write Jan Beyea, National Audubon Society, 950 Third Ave., New York, NY 10022.

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