

Lévesque, F., R. Lalumière and S. Bernier, 1996. *Bilan de l'exploitation des ressources halieutiques dans les secteurs accessibles du territoire de la Baie James. (Assessment of potential fish yield in the James Bay territory.)* Report submitted to Vice-présidence Environnement et Collectivités, Hydro-Québec and Direction du Nord du Québec, Ministère de l'Environnement et de la Faune, by Groupe Environnement Shooner inc. 164 pages and appendices.

Context and Objectives

The study concerns fish communities in the James Bay territory. The study area covers an area of 401,981 km², which is more than one quarter (27%) of the area of the Province of Québec.

This territory has become more accessible because of the James Bay highway, recent construction of the Route du Nord and development of logging roads in the southern portion. In 1990, Hydro-Québec signed an agreement with the Québec department of the environment and wildlife (MEF) to improve the knowledge of animal communities and habitats affected by hydropower facilities and of techniques for developing, restoring and managing fish and wildlife in the James Bay territory.

This study is part of Hydro-Québec's "northern access" program. The study's objective is to produce an overview of fishing resources that the MEF can use as a basis for developing a land management plan.

Summary

The territory was subdivided into five zones according to biophysical aspects (geology, geomorphology, watersheds and fish species range) and land ownership (Cree land regime, wildlife reserves, road infrastructures). The Southwest zone covers 53,390 km², Mistassini zone is 71,208 km², the Coastal Plain is 29,242 km², the Central Plateau encompasses 67,551 km² and the Northeast zone covers 180,590 km².

The assessment of available fishing resources equals the potential fish yield (harvestable biomass) minus the total demand (harvest). The production value calculated from the data in the literature is 2 kg/ha/year in subarctic lakes. This value, combined with the experimental gill-net fishing data in the Hydro-Québec fish bank, was used to assess the maximum sustainable yield per species in the lakes, rivers and reservoirs in each of the five zones. The harvest is based on the MEF's sport and commercial fishing data and surveys of sport fishing conducted by Hydro-Québec and the Native Harvest Research Committee.

The annual potential yield in the accessible sections of the James Bay territory is estimated to 1520 metric tons (t) of fish. The Mistassini, Southwest, Coastal Plain, Central Plateau

and Northeast zones contain respectively 44, 21, 13, 11 and 10% of this harvestable biomass. The demand for fish totals 837 metric tonnes, with 184, 230, 108, 194 and 121 t in each of the above zones.

In the Southwest zone, the supply/demand balance for fish shows a deficit of 5.2 t for lake sturgeon, indicating that the species may be vulnerable to harvesting there. The Coastal Plain, with a surplus of 8.4 t of coregonids, has one of the lowest supply/demand ratios of all the zones. The species may be in local difficulty there. Concern is warranted for northern pike in the Central Plateau zone because of a negative balance of 30 t. The findings for brook trout are not accurate because the supply, assessed mainly from the large lakes, is underestimated and the calculated demand does not really apply to those types of lakes. Lake trout status appears to give reason for concern everywhere except in the Northeast zone. The demand for walleye in the Southwest and Central Plateau zones is very high, creating a negative balance of about 17 t in each of these two zones.

The text provides recommendations for improving the accuracy of the assessment.