

Chisasibi – James Bay Fishery, Canada

November 11, 2015

1 Static Analysis – Collective Action

Fort George is a large native settlement in the eastern James Bay area and the home of the Fort George band of the James Bay Cree Indian People. The resource units in the study are two species of *Coregonus*, whitefish (*C. clupeaformis*) and cisco (*C. artedii*). The original case, which spans from 1974 to 1976, documents an action situation involving 20 fishing groups or individuals who cooperated with the study for two years. The community uses social practices to regulate the fishery.

This case study is part of the original Common-Pool Resource (CPR) database. A summary of the original CPR coding conducted in the 1980's by Edella Schlager and Shui Yan Tang at Indiana University may be found [here](#).

1.1 Commons Dilemma

There is no commons dilemma at the time of the study, only the possibility of the overexploitation of the fishery. There is good evidence that the two fish species have remained an important food source for the communities along the James Bay area. There is no evidence that the fish stocks have ever collapsed. It appears that the Cree have not depleted their fish stock and catch levels have remained high. By contrast, commercial fishing enterprises in north Canada have resulted in overfishing of the stocks.

1.2 Biophysical Context

- **Natural Infrastructure** The study area about 1000 km north of Montreal, lies in the Canadian subarctic, close to the fringe of the arctic zone. The exposed coastline and the islands have a typical tundra landscape; the interior consists of muskeg and open-crown forest dotted with thousands of lakes. The treeline dips farther south on the Hudson Bay coast than in any other continental region of the world. The indented, low-lying coast is a unique environment where the transition from the marine to the freshwater ecosystem is gradual, and where the arctic fauna and flora blend into assemblages characteristic of more southerly ecosystems.

The two fish stocks in the study are whitefish and cisco. Whitefish is a larger fish (average weight 525.7 g) than the more abundant cisco (average weight 277.5 g). The two species are of similar sizes and have similar growth rates between the ages of 3 and 5 years. After 5 years, whitefish

grows more rapidly than does cisco, attains a larger size, and probably lives longer. The age at maturity of whitefish could not be determined conclusively for lack of mid- and late-summer samples. Among the cisco examined, all of those 5 years and older were reproductively mature, as were some of the 4-year-olds, but not the younger fish. The two species together make up 64% of the samples by weight and 69% by numbers of the total catch.

- **Hard Human-made Infrastructure** The principal gear used in the fishery was a 50 m long multi-filament nylon gillnet measuring $2\frac{1}{2}$ in. (63.5 mm), 3 in. (76.2 mm), or $3\frac{1}{2}$ in. (88.9 mm) mesh (stretched measure), referred to as a No. $2\frac{1}{2}$, No. 3, and No. $3\frac{1}{2}$, respectively. In water, the nets measured about 35 m long and 1.3 m deep. There were weighted with small rocks and buoyed by about 1 m-long floats of dry cedar wood. The nets were usually set perpendicular to the coastline in shallow water, almost never deeper than about 3 m so that the tips of the floats showed above water. On the coast, fishing boats were mostly 24 ft canoes powered with 20, 25, or 40 HP outboard motors.

1.3 Attributes of the Community

Fort George [was] the name of the permanent settlement of 1,582 resident native people, including 1,399 Cree Indians, 106 nonstatus Indians (Metis), and 55 Inuit (Eskimo) according to a census in winter 1973-1974. With only some 225 nonnatives, mainly transient white people who [were] administrators, teachers, and hospital personnel, Fort George [was] one of the largest native-run communities in Canada's north.

Up until only about 1960, Fort George was essentially a trading post with a few permanent buildings. People came to the settlement principally after their winter trapping for trade and social exchanges (Weinstein, 1976). In Fort George [1976] the Cree people live[d] in fixed dwellings and there [were] a large variety of permanent structures, including a hospital, two schools, two missions, several stores, a restaurant, and a lodge. Hunting and trapping parties depart[ed] intermittently from the settlement for varying periods of time throughout the year. There [was] much harvesting on a commuter basis and on weekends (Weinstein, 1976). The Fort George area, as with much of Canada's north, [was] being opened up for resource exploitation, and the original development plans for the area were contested in court by the Cree and Inuit. A long court case, followed by negotiations, resulted in a treaty (1975) involving four parties: the Cree of James Bay, the Inuit of Northern Quebec, and the governments of Quebec and Canada. According to this treaty, the native peoples were provided with some safeguards for the retention of local control and the retention of exclusive hunting, fishing, and trapping on a large part of the land (some 29,000 square miles for the 6,500 Cree) in exchange for relinquishing their land claims. They were "guaranteed" a harvest level equal to present levels of all species in the area of the treaty.

1.4 Rules in Use

- **Position Rules:** The set of positions in this study contains only one position: fisher. Any member of the Cree People or Inuit can be a fisher.
- **Boundary Rules:** The boundary rule is the James Bay and Northern Quebec Agreement of 1975. It gives the native people exclusive fishing in this area. A fisher would have to be a member of this community.
- **Choice Rules:** 1) May extract only necessary resource unit and must fully utilize it.
2) May conduct fishing activity in shallow waters.
3) May conduct fishing in a few traditional sites.
4) May use No. $2\frac{1}{2}$ size nets within 15 km of Fort George.
5) May use No. $3\frac{1}{2}$ and 4 size nets outside 15 km of Fort George.
6) May use greater than No. 2 size net.
- **Aggregation Rules:** Not mentioned in the study.
- **Information Rules:** Not mentioned in the study.
- **Payoff:** The fishery is one of sustenance. Fishing provides one-quarter of the peoples' diet. There was no incentive to create a surplus.
- **Scope:** Not mentioned in the study.

1.5 Summary

This case is about the sustenance fishery of the Cree People located near the James Bay area in northern Canada. The motivation was to explain the success of the fishery in a time and place where over fishing was common. The null hypothesis was that the Cree harvested what they could, and that they had not over fished their stock because the human population was small. The author of the study showed that there was order in the fishery and they had the capability of over fishing the stocks which allows the rejection of the null hypothesis.

The success of the fishery was attributed to the strategies of fishing multi-species stock, and the “social practices” that limited the size of the catch, the mesh size, depth areal extent of fishing, and ensuring that all the catch was utilized.

2 Dynamical Analysis – Robustness

3 Case Contributors