

AN ECONOMIC ANALYSIS
OF THE
SUMMER COMMERCIAL FISHERY
AT CEDAR LAKE, MANITOBA

by

Pamela Homenick

A Practicum Submitted in Partial Fulfillment
of the Requirements for the Degree,
Master of Natural Resources Management

Natural Resources Institute
The University of Manitoba
Winnipeg, Manitoba
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ABSTRACT

The economic performance of the 1988 summer commercial fishery at Cedar Lake was analyzed. Eighty fishermen delivered 431,569 kgs of fish, for an estimated return of \$1,160,458. The net incomes of 12 fishing firms, comprised of 19 fishermen, ranged from \$2,003 to \$25,037. Net incomes of individual fishermen ranged from -\$1,982 to \$21,240. Three fishermen had negative net incomes. Gross revenue to the sample was \$233,440.

All fishermen attempted to fish for the minimum number of weeks required to qualify for unemployment insurance benefits. Several fishermen hunt while they are out fishing, and consume part of their commercial fishing catch domestically.

The availability of credit is an important part of the economy of Easterville, particularly for the commercial fishery. However, unlimited credit and the purchase of non-fishing items have resulted in fishermen accumulating large debts to the Easterville Fishermen's Association and the Denbeigh Point fish station.

Pickeral stocks in Cedar Lake have been declining in the last few years, and fishermen are concerned that their incomes may be reduced if this decline continues. There is a need for the development of a co-operative management plan by the Easterville Fishermen's Association and Manitoba Natural Resources to identify goals and objectives for the fishery, and to address the problem of declining pickeral stocks.

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Chapter I

INTRODUCTION

1.1 PROBLEM STATEMENT

In 1964, the treaty Indian and Metis residents of the Chemawawin Indian Reserve #32 (now called Chemawawin Reserve #1), located near Oleson Point on the southwest side of Cedar Lake, were relocated to the new settlement of Easterville, on the south shore of the lake. This relocation came about as a result of the construction and operation of the Grand Rapids Hydro-Electric Generating Station and Spillway, on the Saskatchewan River at Grand Rapids. The subsequent impoundment of Cedar Lake has caused many problems for the residents of Easterville, including the flooding of their traditional hunting and trapping grounds. Easterville is now dependent on a single, uncertain industry, commercial fishing, as its main economic activity.

There have been few recent economic studies done on the commercial fishery at Cedar Lake. Most studies to date have been post-impoundment biological reports on the effects of the Grand Rapids station on the commercial fishery.

This study describes the economic performance of the commercial fishery at Cedar Lake, and discusses its importance to the community of Easterville. Economic performance is measured primarily by net income of a sample of fishermen from Easterville. The importance of the

commercial fishery is discussed in the context of a traditional activity of a northern native community.

1.2 DESCRIPTION OF THE STUDY AREA

Cedar Lake is located in the west central portion of Manitoba, northwest of Lake Winnipeg (Figure 1), centred on 53°20'N latitude and 100°10'W longitude. The Saskatchewan River flows into Cedar Lake and Cross Bay (formerly Cross Lake), and then into Lake Winnipeg. Cross Bay is the eastern extension of Cedar Lake. The Grand Rapids Hydro-Electric Generating Station and Spillway, completed in 1965, are situated on the eastern end of Cross Bay, a short distance upstream from Lake Winnipeg (Green and Derksen, 1980).

Prior to the completion of the Grand Rapids Generating Station, Cedar Lake covered an area of approximately 500 mi.² (1,295 km²), with an elevation of 831 ft. (253 m) above sea level. Maximum post-impoundment area and elevation are approximately 1100 mi.² (2,849 km²) and 842 ft. (257 m) above sea level, respectively (Moshenko and McGregor, 1978). Due to impoundment, Cedar Lake merged with Cross Bay and the marsh areas of the Saskatchewan River Delta.

Easterville is located on the south side of Cedar Lake (Figure 2), approximately 450 km north of Winnipeg and 100 km west of Grand Rapids. The community is accessible by Provincial Road #327, via Provincial Trunk Highway #60 and Provincial Highways #6 and #10. The town consists of the Chemawawin First Nation Indian (Swampy Cree) Reserve #2 and a Metis community on Provincial Crown land. The Easterville fish station is located on Provincial Crown land.

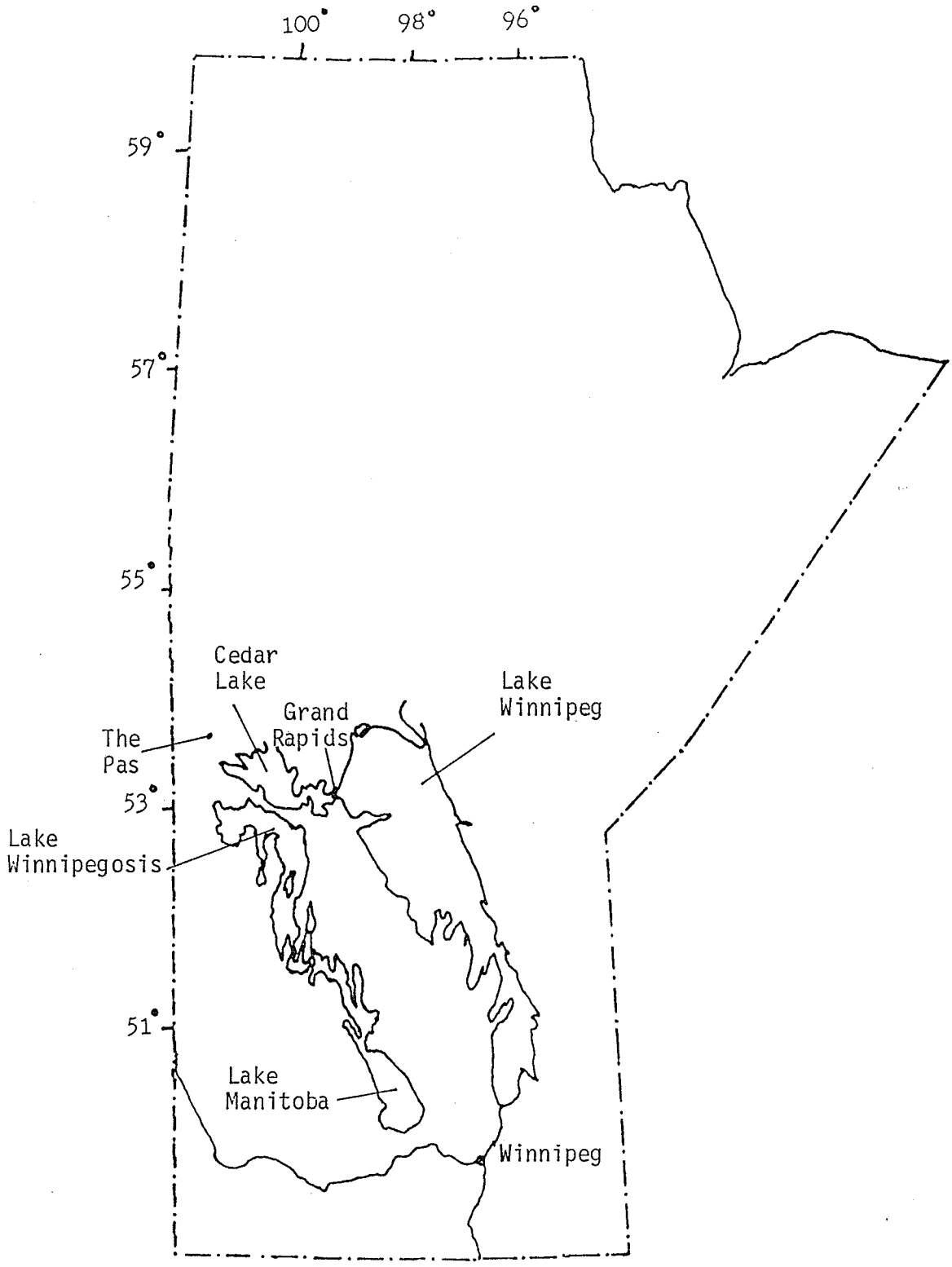
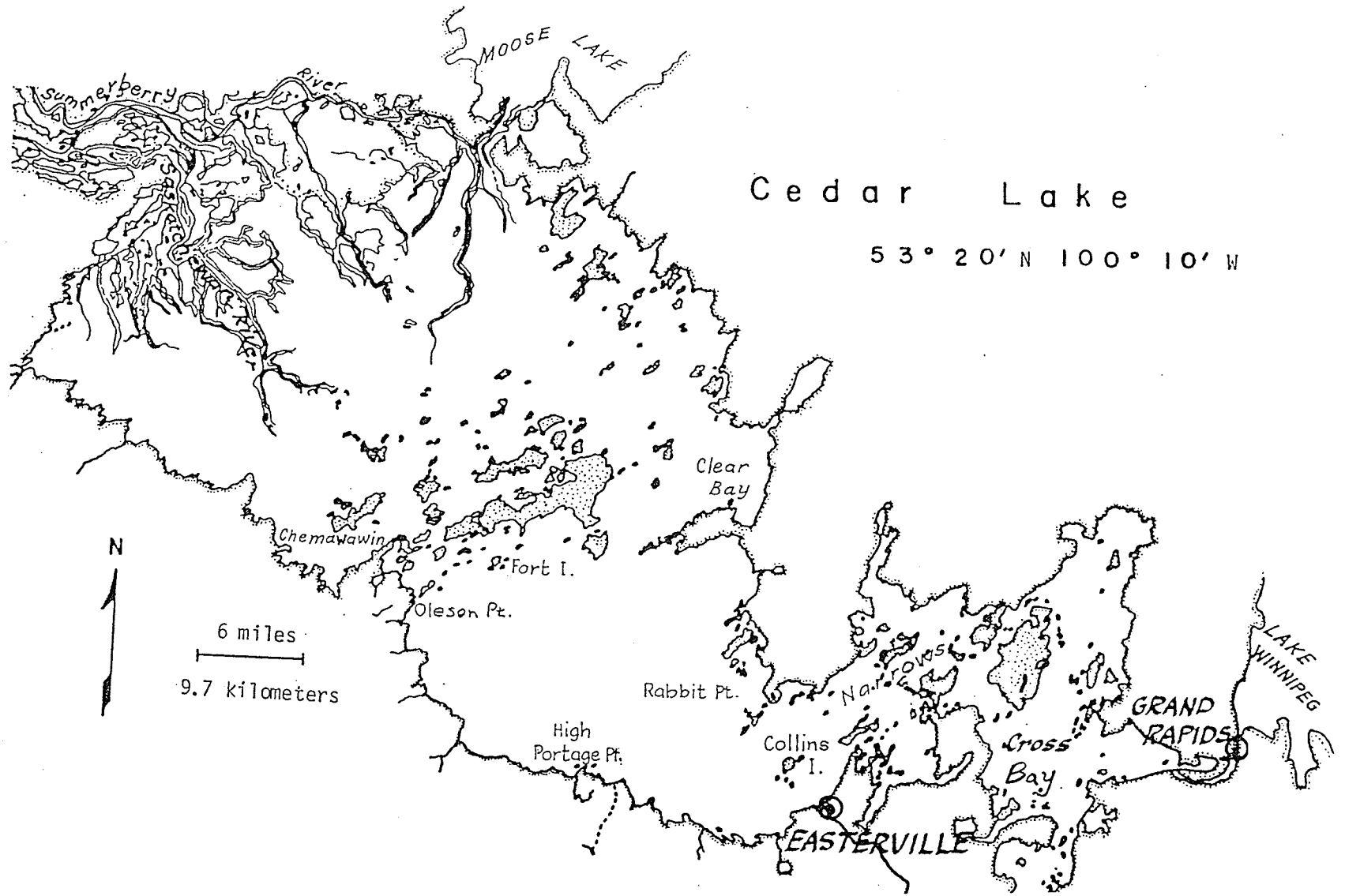


Figure 1: Location of Cedar Lake in Manitoba

Figure 2: Location of Easterville and Chemawawin
Source: Moshenko and MacGregor, 1978



The reserve at Easterville covers approximately 586 acres (237 ha). In addition to this land, 11,000 acres (4,452 ha) at Denbeigh Point, on the north shore of Lake Winnipegosis, have been designated as the Chemawawin Reserve #3. This new reserve was chosen by the Chemawawin Band as the balance of their compensation for land lost from the impoundment of Cedar Lake (Canada, 1984). This area was officially confirmed as reserve land in June, 1989.

The Denbeigh Point Fish Packing Company is located at Denbeigh Point. This company was recently purchased by the Band and the Easterville Fishermen's Association (EFA). Approximately eight people, associated with the operations of the fish plant, live at Denbeigh Point.

The EFA is the local purchasing agent for the Freshwater Fish Marketing Corporation (FFMC). The previous owner of the Denbeigh Point fish plant was also a purchasing agent for FFMC.

1.3 RESEARCH OBJECTIVES

The primary goal of this research was to describe the economic performance of the 1988 summer commercial fishery at Cedar Lake, Manitoba and to discuss the importance of the fishery as a traditional activity and the main source of employment in Easterville.

This goal was attained by pursuing specific objectives, which were:

1. to determine the net income of fishing firms and to estimate the net income of the commercial fishery as a whole;
2. to determine the social benefits of the commercial fishery to the community of Easterville;

3. to determine the role of credit in the economy of Easterville, and its relationship to the commercial fishery;
4. to make recommendations that may increase or enhance the economic viability of the commercial fishery and the economic returns to individual fishermen.

1.4 LIMITATIONS

The economic analysis in this report was based on the performance of a small sample of fishermen during the 1988 summer commercial fishing season. The winter fishery is not included. Variations from year to year in fish populations, markets and prices, fishing regulations and the management practices of fishermen will affect the applicability of these results in forecasting future economic returns.

Unless otherwise stated, all dollar values in this report are presented in nominal units. Units of measurement are presented in metric form, unless the literature cited used imperial units. In this case, the imperial units are accompanied by their approximate metric equivalents.

Chapter II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

There has been a considerable amount of literature written on both the residents of Easterville and their commercial fishery, particularly since the relocation of the community and the impoundment of Cedar Lake.

The relevant literature will be discussed under the following headings:

1. Socio-Economic Studies
2. Pre- and Post-Impoundment Studies
3. Biological Studies

2.2 SOCIO-ECONOMIC STUDIES

Landa (1969) and Waldram (1980) studied the effects of the relocation to Easterville on the people of Chemawawin.¹ Both studies examined the economic structure of the community before and after the relocation, including the roles of the "free trader" and fishing in the lives of the people of Chemawawin, and the introduction of a co-operative economic structure to the people in their new community at

¹ The name "Chemawawin" refers to both the Band and to the original reserve at Oleson Point. In this review, "Chemawawin" refers to the original reserve.

Easterville.

2.2.1 The Chemawawin Economy

Waldram (1980) described economic life at Chemawawin before relocation. He found that the economy of Chemawawin was closely tied to the natural resources of the area. Fishing, hunting and trapping, logging and gathering seneca root and berries were the major economic and domestic activities. Casual wage labour was available, mostly within the free trader's operations, but it did not contribute significantly to the economy of the community. As a result of the availability of economic opportunities, social assistance payments were not a significant part of the local economy.

Waldram (1980) found that "fishing for individual consumption and commercial sale was the most important facet of the Chemawawin economy. Almost every family had at least one net to be used for domestic fishing year round."

Commercial fishing was carried out close to the community, requiring only small boats of 16 ft. (4.9 m) and small motors of 5 hp. The highest priced species were pickerel and whitefish. In winter, the catch would be sold to the free trader, who transported it to The Pas. In summer, the commercial fishermen used their own barges to transport the fish for resale.

The free trader was a Euro-Canadian who had moved to Chemawawin in 1941, when the Hudson Bay Company closed its store there. He had become familiar with the community of Chemawawin through his dealings

with local commercial fishermen and trappers. He had seen the opportunity to benefit from the natural resources of the area, and centred his operations at the old Hudson Bay Company store.

Waldram (1980) described the free trader and the magnitude of his operations in Chemawawin:

"Every possible resource was exploited under the trader's direction to the benefit of both himself and the people of the community. He was the all important middle-man between the people and the larger economic system with which they had little contact or understanding."

The free trader built a very diversified economic structure during his time at Chemawawin. He managed the commercial fishing operations (including a fish shed and ice house) and owned the general store, sawmill and blacksmith shop, among other things.

The free trader also played a significant role in other aspects of community life. He dealt with most outside contacts, since he owned the only two-way radio in the community. Government officials and other people from outside the community often went to the free trader when they had business with the community (Landa, 1969). A notable exception to this was during the period between the announcement of the relocation and the actual move, when the free trader was virtually excluded from any negotiations and meetings between the community and the government officials charged with facilitating the relocation (Waldram, 1980).

The trader was the community's most influential leader, since the leadership in the treaty and Metis communities was not strong. There was little need for strong leadership at that level, however, since

Chemawawin was largely self-sufficient, and the trader handled any necessary dealings with the outside world (Waldram, 1980).

An important aspect of the free trader's operations was his liberal credit policy at Chemawawin. There was very little need for cash in the community, since most transactions and purchases were made through the free trader. The cash value of the natural resources harvested, and most wages earned, were usually used to pay off a previous debt to the trader, or placed on credit. The trader maintained strict control of the credit system, and made sure that no one got so far in debt that they could not pay it off. Landa (1969) pointed out that there was sufficient economic opportunity in the community for people to pay off any debts they incurred to the free trader. Waldram (1980) found that the people of Chemawawin were satisfied with the free trader and his control of the economy of the community, and that this was probably due, in large part, to his credit policy.

2.2.2 Easterville Economy

After relocation to Easterville and the impoundment of Cedar Lake, favoured hunting and trapping grounds on the Saskatchewan River and Summerberry Marsh were flooded, and consequently lost to the people of Easterville.

Waldram (1980) found only six people involved in trapping in 1979, and only one of these people pursued trapping on a regular basis. Hunting was still a favoured activity, although the availability of wild game in the area was poor. Hunters and trappers were forced to

travel greater distances to find adequate game. The increased costs and diminished returns of these expeditions caused many people to cut down or abandon their participation.

The reduction in hunting and trapping increased the importance of wage labour. In 1979, there were approximately 14 full-time jobs available in Easterville, as well as some part-time and casual jobs. However, this employment was not available to everyone who needed it.

After relocation, Waldram (1980) found that:

"commercial fishing has developed as the dominant and, on many occasions, essentially the only form of economic activity pursued by the people of Easterville."

Production and revenue to fishermen increased considerably after relocation. (This is discussed further in Section 2.3.) Although revenue to fishermen increased, so did their expenses. The relocation moved fishermen away from the prime fishing areas (near Chemawawin), forcing them to travel greater distances to these areas. Large waves and floating logs and debris, which were not a problem before impoundment, necessitated the purchase of larger boats (20 to 24 ft., or 6.1 to 7.3 m) and more powerful motors (minimum 50 hp). Nets were often lost to the logs and debris floating in the lake. Although Manitoba Hydro replaced lost nets (see Chapter 3), the fishermen had to retrieve these nets, with the debris intact, before they could receive new ones. This was generally considered an inconvenience, and was sometimes impossible to do. As a result, fishermen would have to replace these nets at their own expense (Waldram, 1980).

Landa (1969) found that there were few fishing partnerships at Easterville, and most that were arranged were short-lived. Most fishermen preferred to work alone or to hire helpers. Waldram (1980) observed that there were still very few partnerships in 1979, and that most fishermen had hired helpers.

2.2.3 The Easterville Co-Operative

Landa (1969) analyzed the effectiveness of a co-operative enterprise, introduced to the people of Chemawawin after they had moved to Easterville, in meeting their particular needs. Waldram (1980) described the continuing problems with the co-operative in 1979. Although the Easterville Fishermen's Association took over the fishermen's co-operative in 1980, and the consumers' co-operative was replaced by a privately owned store in 1983, the findings of these studies with respect to the change in the economic structure of the community are relevant to the current study.

When the community was relocated, the people were given the choice of retaining the free trader's form of operations, or to change to a co-operative structure. The people chose the co-operative, apparently without fully understanding the concept of a co-operative. Landa (1969) found that inadequate education was provided to the community on how a co-operative operates before they made their choice. One common misconception was that, since the residents would "own" the co-operative, they would be able to get merchandise for free.

The Easterville Co-operative consisted of two parts: the consumers' co-operative, to which all residents of the community belonged, and the fishermen's co-operative, which was restricted to the commercial fishermen. The fishermen's co-operative operated the fish packing plant.

The people of Easterville quickly became dissatisfied with the new enterprise. A major problem was the lack of credit at the Co-operative. Although a true co-operative does not allow credit (Landa, 1969), the people of Easterville expected a credit policy similar to that of the free trader. The need for cash presented by the Co-operative introduced a somewhat alien economic system to the community. Coupled with this problem was the lack of economic opportunity to acquire the cash needed.

Landa's (1969) study did not mention any credit being offered by the Co-operative. However, Waldram (1980) stated that there was a limited credit policy introduced, available only to the fishermen. An initial advance of \$300 was given, at the beginning of each season, to each person who intended to fish during that season, regardless of their experience. This initial advance was usually the only credit given, although additional credit would also be given against fish "tickets" and for new capital equipment. Fish tickets are the weekly records of fishermen's deliveries. They indicate the number of kilograms of each species delivered and the total payment to be made to the fisherman. These are forwarded to FFMC with each shipment delivered.

This credit policy was damaging to the Co-operative, especially because of unpaid debts. Prices had to be increased to cover these bad debts, and people became annoyed with the price increases. As a result, they were less inclined to pay off their debts to the Co-operative, thus causing prices to be raised even higher.

In order to recover the advances to fishermen, the Co-operative would make deductions from the fishermen's payments for deliveries. Fishermen could avoid these deductions by delivering their catch and purchasing consumer goods at the Denbeigh Point station, located 17 miles (27 km) from Easterville. Waldram (1980) found that this practice was still quite common in 1979. The operator of this station also had a fairly liberal credit policy, which was similar to that of the free trader. It appears that this credit policy was available to anyone, not just the fishermen. With respect to the Denbeigh Point station, Landa (1969) found that:

"The status of this operation as a private enterprise more closely conforms to the type of operation conducted by the trader at Chemawawin, and the relationship between the operators and the community parallels that at Chemawawin to a high degree."

The practices of the operator at Denbeigh Point contributed to a feeling of loyalty towards this operator by the people of Easterville.

Both fishermen and other consumers took advantage of the credit available at Denbeigh Point. This was still the case at the time of the current study, as will be discussed in Chapter 5.

The conclusions of both studies discussed in this section were that the relocation had been unsuccessful, and that the economic base had

shifted from the utilization of many natural resources to the dependence on a single industry, commercial fishing. In addition, the economic structure had changed from one that operated on credit to one which required cash.

The closure of the Easterville Co-Operative has not led to the complete return to the old system. Credit is now available to fishermen and other residents. However, the liberal credit available at the Denbeigh Point station and, to some extent, from the EFA, has led to an unmanageable debt load for many people, especially fishermen. This will be discussed further in Chapter 5.

2.3 PRE- AND POST-IMPOUNDMENT STUDIES

Two studies on the impact of the Grand Rapids Hydro-Electric Generating Station on the fishery at Cedar Lake have been conducted; one by the United States Department of the Interior (USDI) (1961) and one by Doan (1979).

The USDI (1961) study was carried out before completion of the station to "examine and analyze the probable effects of the project on fish and wildlife resources and to point out possible mitigative measures or detailed investigations necessary to the planning of mitigative measures" for the reservoir area, which includes Moose, Cedar, Cross and Cormorant Lakes.

The purpose of the study by Doan (1979) was to "compare the commercial fishery of Cedar Lake preceding and subsequently to the operation of the Grand Rapids hydroelectric project." Doan (1979)

studied the effects of the project on the fishery alone, whereas the USDI (1961) study predicted the effects of the project on both the fish and wildlife resources of the area. For the USDI (1961) report, this review will be limited to the predictions for the commercial fishery resources.

The USDI (1961) report predicted that the fishery resources of the reservoir area would be adversely affected by the hydroelectric project. It was estimated that average harvests, without the project, could at least double over the next 50 year period. Although not stated specifically in this report, it is assumed that this predicted doubling could occur if fishing effort was increased. The study found that Cedar Lake was underharvested at the time, and that it provided "excellent conditions for the rearing and growth of fishes tolerant to turbid water" (eg. northern pike, goldeye and pickerel). Average annual production at the time of the USDI (1961) study was 183,700 lbs. (83,350 kgs) for Cedar Lake, not including domestic consumption or rough fish production. This was considerably lower than the quota at the time: 150,000 lbs. (68,000 kgs) in summer, and 100,000 lbs. (45,400 kgs) in winter. The study stated that this low production probably indicated underharvesting.

Predictions for fish resources after completion of the project stated that, initially, spawning and rearing conditions for pickerel, northern pike and goldeye would be improved, due to increased vegetation, and that populations and harvests would increase for these species. However, within 5 to 10 years after completion of the project, some vegetation in the area would be lost, due to increased

erosion, ice action and decay; as a result, the abundance of pickerel, northern pike and goldeye in the reservoir would decline below 1960 levels. It was also predicted that whitefish populations would be sharply reduced because of adverse spawning conditions expected to result from the creation of the reservoir. Excessive populations of carp, suckers and other rough fish were expected to develop, "due largely to water level fluctuations and deterioration of the main delta area into a shallow, muddy bay without vegetation." Commercial fishing was expected to be very difficult in parts of the reservoir, due to increased turbidity, and timber and debris fouling nets.

Doan (1979) based his analysis on averages of several years, "so as to determine trends rather than short annual fluctuations in fishing effort and sales." He compared total and average catches and gross revenue before and after construction of the Grand Rapids project, using the 11 year periods from 1953 to 1963 inclusive and the fishing years from 1964 to 1977 inclusive. There was no fishing during 1970-72, due to high mercury levels.

Doan (1979) did not indicate whether he used nominal or discounted dollars for his gross revenue comparisons. It appears that nominal dollars were used; therefore, the revenue comparisons may not be an accurate indication of the magnitude of changes in revenue.

Doan (1979) found that fishermen produced a total of 7.8 million lbs. (3.5 million kg) more fish during the 1964-1977 period than during the period from 1953 to 1963. From 1964 to 1977, the annual fishery averaged 1,000,000 lbs. (454,000 kg), compared to approximately 342,000 lbs. (155,000 kg) in the previous period.

Table 1 shows the percentage changes in total catch and gross income between the two periods. Catches for the summer and winter seasons increased for each species, except sauger. Goldeye increased for the summer seasons, but declined substantially during the winter seasons. Gross fishing income for the full-year seasons increased by more than 500%. Note that, since Doan (1979) has probably used nominal dollars in his study, the increases in gross incomes to the fishery as a whole, and to individual fishermen, are likely to be overstated.

Although overall catch and gross income increased considerably after 1963, Doan found that average catch and gross income per fisherman did not increase by the same magnitude. Table 2 shows the percentage changes in average catch and income per fisherman. Average summer catch per fisherman increased for all species, except sauger. However, average winter catch increased for northern pike and whitefish only. Gross income per fisherman increased significantly for both seasons.

Several reasons were given for the overall increases in catch and gross income. The number of fishermen increased after 1963, which increased the overall catch. Gross income increased with the increases in total catch and improved prices to fishermen. An important factor in the improvement in prices to the fishermen was the completion of Provincial Road # 327 to Easterville. This allowed for direct delivery from Easterville to Winnipeg. Prior to impoundment and relocation, summer catches were shipped from the old reserve at Chemawawin to The Pas by boat, and then by rail and truck to Winnipeg. Winter catches were weather frozen and shipped out by similar routes. Fresh fish (especially pickerel) command higher prices, particularly in the

TABLE 1

Percentage Changes in Total Catch and Income of Cedar Lake Between the
Periods 1953-1963 and 1964-1977

	<u>Summer</u>	<u>Winter</u>	<u>Total</u>
Marketed Weight:			
Pickerel	+138	+ 6	+ 79
Whitefish	+103	+195	+143
Northern Pike	+149	+395	+376
Goldeye	+125	- 88	+ 85
Sauger	- 65	- 80	- 68
All Species	+195	+222	+208
Gross Income	+584	+468	+530

From: Doan, 1979.

winter. The long shipping time in both seasons, and the need to freeze fish in the winter, affected the amount and quality of fresh fish that could be delivered to Winnipeg. The movement of fish directly from Easterville to Winnipeg shortened delivery time considerably, which made it possible to deliver better quality and greater quantities of fresh fish.

The establishment of the FFMC in 1969 was cited as another reason for improved catches and incomes. Prices were announced at the beginning of each season, and remained constant throughout the season. "Cedar Lake was no longer a 'captive' fishery and prices were the same for all fisheries in Manitoba." Cedar Lake fishermen did not have to

TABLE 2

Percentage Changes in Average Catch and Income Per Fisherman on Cedar Lake Between the Periods 1953-1963 and 1964-1977

	<u>Summer</u>	<u>Winter</u>
Number of Licences	+ 64	+138
Marketed Weight:		
Pickerel	+ 45	- 55
Whitefish	+ 24	+ 24
Northern Pike	+217	+ 93
Goldeye	+ 37	n/a ¹
Sauger	- 78	n/a ¹
All Species	+ 80	+ 35
Gross Income	+317	+139

Note:

1. Percent changes were not provided for these species. It was indicated that these were "substantial decreases".

From: Doan, 1979.

compete with fishermen from other lakes on the basis of price. The only differences between lakes were in species composition, grade, and packing and freight costs (Doan, 1979).

Other reasons for increased catches and incomes were the increased area of the lake, greater populations of certain species and increased populations as a result of the closure of the fishery due to mercury contamination.

Another factor that would have led to increased catches was the periodic increase in quota. Prior to 1966, the quota had been 200,000 lbs. (90,700 kgs) each for summer and winter. In 1968, this was increased to 500,000 lbs. (226,800 kgs) total for the year. This was increased further, in 1974, to 600,000 lbs. (272,200 kgs) for the year (Moshenko and McGregor, 1978).

Doan (1979) compared the findings of his study with the predictions made in the USDI (1961) study. It was found that harvests of pickerel, northern pike and goldeye did increase shortly after impoundment, as predicted. However, only goldeye harvests declined within 5 to 10 years after impoundment. Overall pickerel and northern pike harvests did not decrease during this period, and whitefish catches did not decline after impoundment. Annual harvests more than doubled after impoundment; the USDI (1961) study predicted that annual harvests would double without the project.

Doan could not comment on the USDI (1961) prediction that excessive carp, suckers and other rough fish populations would develop, since "before flooding only a small production of these fish was recorded as marketed because most were discarded, and cannot be compared with increased sales on record in more recent years."

2.4 BIOLOGICAL STUDIES

2.4.1 Experimental Fisheries

In November, 1969 high levels of mercury contamination were identified in fish from the Saskatchewan River. High levels were subsequently identified in fish from the Saskatchewan River drainage area, especially in northern pike, sauger and pickerel. In April, 1970, commercial fishing ceased on the Saskatchewan River, the Summerberry River, Cedar Lake and Lake Winnipeg (Moshenko and McGregor, 1978).

A series of experimental fisheries and studies were implemented to monitor the mercury levels on Cedar Lake. Reports by Derksen (1978) and Moshenko and McGregor (1978) describe the results of experimental fisheries in August, 1972 and September, 1973, respectively.

The first monitoring project was carried out in the summers of 1971 and 1972. The 1971 program indicated that mercury concentrations in large pike (5 to 7 lbs., 2.3 to 3.2 kg, dressed) were, on the average, above the 0.5 parts per million (ppm) Canadian marketing tolerance level. The commercial fishery at Cedar Lake remained closed (Derksen, 1978).

The results of the sampling program for the summer of 1972 are contained in Derksen (1978). The purpose of this program was to determine if a large pike fishery was feasible on Cedar Lake. The FFMC indicated that there was a sizeable market for large pike in Europe, and that France had a mercury tolerance level for marketed fish of 1.00 ppm. If a significant catch of large pike, with mercury levels of less

than 1.00 ppm, could have been taken from Cedar Lake, it would have been possible to export the catch to France.

Results of this program indicated, however, that such a fishery was not feasible. Ninety percent of all large pike caught had mercury levels of 1.00 ppm or more. Pickerel were found to have mercury contamination levels higher than that of pike. The report recommended that the commercial fishery at Cedar Lake remain closed.

The next experimental fishery on Cedar Lake was carried out in August and September of 1973. The results of this fishery indicated that mercury levels in northern pike and pickerel had decreased significantly (8% and 12% respectively) from 1971 to 1973. Results also indicated that the use of gillnet mesh sizes smaller than 4 1/4 inches (108 mm) to selectively catch smaller fish (which had lower mercury levels) was not a feasible alternative, since "it would likely have detrimental effects on the size and abundance of the fish stocks in Cedar Lake." The alternative recommended by the study was to use 4 1/4 inch (108 mm) mesh and to selectively process pike and pickerel at the FFMC, which had shown that it could prevent the marketing of processed fish with mercury levels greater than 0.5 ppm. On the basis of these results, the commercial fishery was re-opened in November, 1973.

The closure of the commercial fishery had resulted in the loss in production of approximately 1,000,000 lbs. (454,000 kg) per annum, valued at approximately \$150,000 per annum for the three years. Between 60 and 70 fishermen were affected (Moshenko and McGregor,

1978). Compensation was primarily in the form of employment programs on reserve. For example, some fishermen were hired to assist in the mercury monitoring program.

The monetary losses to the fishermen estimated by Moshenko and McGregor (1978) appear to be low compared to Doan's (1979) findings. According to Doan, in the year immediately preceding the closure (1969/70), gross revenue from the fishery was \$268,552. Gross revenue in the year the fishery was re-opened (1973/74) was \$266,349. It is possible that Moshenko and McGregor's estimates were based on net operating income, which would explain why they were lower than Doan's.

2.4.2 Fish Stock Assessment Program

In 1979, the Manitoba Department of Natural Resources, Fisheries Branch, initiated a yearly fish stock assessment program at Cedar Lake, to address demands by fishermen for increased commercial quotas of whitefish and pickerel. A series of reports by Lysack (1980a, 1980b, 1983) describes the results of this program from 1979 to 1982. The 1983 report (1981 and 1982 assessment programs) also includes a description of fish stock dynamics from 1979 to 1982.

The main objective of the 1979 assessment program (Lysack, 1980a) was to begin the monitoring and assessment of Cedar Lake pickerel and whitefish stocks, on a regular (annual) basis.

One of the main management recommendations arising from the results of the 1979 program was that "since the mean age of the pickerel catch is approaching (decreasing towards) the mean age of pickerel maturity,

no further quota increases should be instituted until the effects of the most recent quota increase have been comprehensively described."

Another recommendation that arose from Lysack (1980a), with respect to quotas, was that "the institution of an individual quota system, as opposed to an open or area quota system, would be beneficial because it would dilute fishing intensity over time and would relieve heavy fishing effort during the spring and fall spawning periods." A system of individual quotas has been in effect on Cedar Lake since 1980.

The study also indicated that the stock assessment program should continue, with the use of standardized sampling methods, locations and time periods.

Two objectives of the 1980 assessment program (Lysack, 1980b) were to continue the monitoring of whitefish and pickerel and to determine if any changes had occurred in the status of fish stocks since 1979.

The general finding by Lysack (1980b) was that the status of whitefish and pickerel stocks appeared not to have changed significantly since the previous year. Although there were minor changes in the stocks, they were attributed to seasonal variation in sampling time. It was recommended that the 1981 assessment be carried out at the same time of year as the 1980 assessment (late May), using the same set locations and types of gangs of nets, to reduce such variations.

The study also recommended that no further quota changes be made in the near future in order to determine, through future stock assessment

programs, the effect of the most recent quota increase on the status of fish stocks. It was stated in this study that the quota was increased by 100,000 lbs. (45,400 kg) in 1980. However, other sources (Manitoba Natural Resources; Lysack, 1983) indicate that the quota was increased from 800,000 lbs. (362,900 kg) in 1980 to 1 million lbs. (454,000 kg) in 1981. The quota for 1979 was also 800,000 lbs. Lysack (1980b) hypothesized that future assessment programs would indicate that "growth rates and maturity rates would increase to compensate for heavier fishing pressure." Lysack's (1980b) recommendations were based on findings for pickerel and whitefish only.

The fish stock assessment programs of 1981 and 1982 (Lysack, 1983) found that, since 1977, annual catches had been increasing, with the proportions of pickerel in these annual catches increasing and proportions of whitefish decreasing, due to the higher value by weight for pickerel.

Lysack (1983) also found that the annual catch per fisherman had decreased since 1979, caused by a lack of entry control. Lysack (1983) stated that "from a strictly economic viewpoint, limited entry must be rigidly enforced in order to stabilize the amount of money earned per person. The economic benefit of a major increase in annual quota is easily dissipated by allowing minor increases in new individuals entering any fishery." This study pointed out the need for both biological and economic studies and management regimes to be considered in the overall management of a commercial fishery.

Lysack (1983) also recommended that, in order to increase their annual income, Cedar Lake fishermen should examine the potential of a recreational fishery. The large numbers of northern pike found in the lake are highly valued by sport anglers.

Lysack's (1983) final conclusion from this study was that the 1980 management agreement between the fishermen and the Department of Natural Resources, which fixed the annual quota at 1,000,000 lbs. (454,000 kg) for five years, "has not proven to be a viable management tool."

2.5 SUMMARY

The studies reviewed in this chapter give an indication of the importance of the commercial fishery on Cedar Lake, and the potential problems that can arise with such an industry.

Commercial fishing is the main economic activity in Easterville, and is essentially the only resource-based activity remaining for the residents. Commercial fishing has actually improved since impoundment, due mostly to increased fishing effort, higher prices and improved transportation to market.

The relocation caused other problems for the community, particularly in the shift from a credit-based economy to one that relied on the availability of cash. This was due mainly to the introduction of an unfamiliar co-operative economic structure to the community.

The commercial fishery is subject to certain perils, such as the mercury contamination of 1970-73, which resulted in a loss of income and activity to the fishermen.

The Fish Stock Assessment Program stressed the need for the control of entry to the fishery to maintain incomes of individual fishermen. The results of this program also indicated that future quota changes should not be considered until the effects of one quota change can be evaluated.

Chapter III

SETTING

3.1 CEDAR LAKE COMMERCIAL FISHERY

3.1.1 Regulations

The commercial fishery at Cedar Lake has been in operation every year since 1940, except for the period 1970-73, when it was closed due to the mercury contamination of fish. Fishing is pursued in both summer ("open water") and winter seasons. The summer season starts June 1 and ends October 31 or at freeze-up, whichever is earliest. The winter season begins November 1, or at freeze-up, whichever is later. It concludes on April 15.

The summer season at Cedar Lake is actually made up of what could be considered as two separate seasons: summer and fall. This summer season lasts from June 1 until late July or August, at which time the fishery closes for a few weeks because of hot weather. The fall season begins when the lake is re-opened. The fall season is considered to be the most productive season of the year. In 1988, 62.9% of production for the whole summer season (June 1 to October 31) was delivered after August 20. Five of the 19 fishermen interviewed did not start fishing for the summer until the beginning of September, 1988.

There is a maximum allowable aggregate quota for Cedar Lake of 454,000 kg (round weight equivalent) or one million pounds. Prior to

1980, there was a lake quota system in effect for Cedar Lake. Each fisherman could catch as much quota fish as possible, until the lake quota was reached. This system was changed because the better fishermen were hoarding the bulk of the quota, leaving very little for the less successful fishermen. Now, each licensed fisherman is assigned an individual quota. These individual quotas range from 4,090 kg to 10,900 kg and are assigned by the EFA. The individual quota categories were decided on by the EFA and Manitoba Natural Resources. If a fisherman does not attain his quota in any particular year, he may not carry the remainder over to the next year.

If the aggregate quota is not attained during the summer season, fishermen have until a certain date during the winter season (eg. January or February 1) to finish their individual quotas. After that date, the winter season is open to any licenced fisherman, even if he reached his individual quota in the summer. The overall catch for both seasons must still remain within the 454,000 kg total quota.

The quota species for Cedar Lake are whitefish, pickerel, goldeye and sauger. Goldeye and sauger make up a very small part of the catch and landed value of the commercial fishery. Pickerel has the highest price (per kg) of the commercial species found in Cedar Lake. Other important commercial species harvested at Cedar Lake are northern pike, tullibee and whitefish. Yellow perch, mullet and carp are also found in the commercial catch, although their value is low relative to the other species. Mullet is a general term applied to various species of sucker. In Cedar Lake, the predominant species of sucker are sturgeon sucker and white sucker. Scientific and other common names for these species are found in Appendix A.

The aggregate and individual quotas can be filled by any of the quota species. That is, if it were possible, Cedar Lake fishermen could deliver 454,000 kgs of pickerel to fill the quota. There is no restriction as to what percentage each species can or must contribute to the quota.

Quotas based on individual species are difficult to handle. The quota for a single species may be reached in one week, leaving the fishermen to fish exclusively for the remainder of the quota species (K. Campbell, MNR, Pers. Comm.). It is virtually impossible to avoid catching more than one species in the nets at one time.

The aggregate quota is based only on the commercial catch; domestic catch is not taken into consideration in the determination of the quota. The round equivalent weights of quota species delivered to FFMC are used to determine whether or not the quota has been reached.

The type of gear (nets) that may be used is restricted to gill nets. The maximum length of net that may be set at one time for each license is 1400 m, with a minimum stretch mesh size of 108 mm.

The number of licenses available for Cedar Lake is 80. The number of licences is decided on by Manitoba Natural Resources. It was determined that this was the highest number of fishermen that could earn enough from the fishery to make it a viable source of income. The EFA allocates the quota levels to each licence. However, they cannot go over the total of 80 licences (K. Campbell, MNR, Pers. Comm.).

3.1.2 Historic Catch and Revenue

Table 3 shows the marketed weights and revenues for both seasons for the latest ten years for which complete information is available. From this table, it can be seen that the commercial fishery is a year-round activity, with the winter fishery making an important contribution to total revenue. Winter season revenues are generally lower than in the summer because lower priced species (eg. northern pike, mullet, perch) make up the bulk of the winter catch. Also, fewer fishermen fish in the winter season, resulting in lower catches than in the summer.

Table 4 shows the breakdown of total revenue from 1978/79 to 1987/88 by initial and final payments. The right hand column of Table 4 indicates the percentage of total revenue that final payments represented for those years. For most years, final payments represented a significant portion of total revenue, especially for 1986/87 and 1987/88. FFMC made record profits in those years of \$14 million and \$16 million, respectively. FFMC attributed these profits to the balance achieved between deliveries and market demand, and to the increased demand by consumers for fish and seafood for nutritional reasons. A relatively buoyant economy in those years meant that consumers could afford to pay higher prices for those products (FFMC, 1989).

FFMC has cautioned its fishermen, however, that it believes the market is approaching its peak. A softer market and a lower exchange rate on the American dollar have led FFMC to warn fishermen not to depend on receiving high final payments, especially for pickerel:

TABLE 3

Catch and Total Revenue of the Cedar Lake Commercial Fishery: 1978/79 - 1987/88

<u>Year</u> ⁴	<u>Marketed Weight(kg)</u> ¹			<u>Total Revenue (\$)</u> ²			<u># of Fishermen</u> ³	
	<u>Summer</u>	<u>Winter</u>	<u>Total</u>	<u>Summer</u>	<u>Winter</u>	<u>Total</u>	<u>Summer</u>	<u>Winter</u>
1978/79	316,783	448,265	765,048	368,087	444,171	812,258	65	70
1979/80	371,528	424,167	795,695	482,592	524,247	1,006,839	64	66
1980/81	403,506	426,500	830,006	767,379	624,383	1,391,762	65	76
1981/82	463,181	270,049	733,230	826,249	462,799	1,289,048	68	75
1982/83 ⁵	530,270	233,058	763,328	684,385	209,157	893,542	77	56
1983/84	498,094	137,739	635,833	961,398	170,264	1,131,662	76	n/a
1984/85	519,313	149,668	668,981	1,005,653	234,111	1,239,764	80	54
1985/86	384,664	172,510	557,174	710,073	291,678	1,001,751	81	82
1986/87	440,561	227,723	668,284	1,360,735	518,028	1,878,763	80	-
1987/88	410,338	266,695	677,033	1,264,580	534,771	1,799,351	89	-

Notes:

1. Marketed weight is the number of kilograms delivered by fishermen to FFMC.
2. Total revenue is the total payment made to fishermen by FFMC, including final payments.
3. Manitoba Natural Resources ceased issuing separate summer and winter licences in 1986/87. Since some fishermen fish both seasons, the numbers for licences are not additive.
4. Fishing year is May 1 to April 30. This is the fiscal year for the FFMC.
5. No final payments for this year.

Source: Manitoba Natural Resources

TABLE 4

Initial and Final Payments of the Cedar Lake Commercial Fishery: 1978/79 - 1987/88

<u>Year</u>	<u>Initial Payment (\$)</u>			<u>Final Payment (\$)</u>			<u>% of Total Payments</u>
	<u>Summer</u>	<u>Winter</u>	<u>Total</u>	<u>Summer</u>	<u>Winter</u>	<u>Total</u>	
1978/79	238,345	307,124	545,469	129,742	137,047	266,789	32.8
1979/80	351,308	430,593	781,901	131,284	93,654	224,938	22.3
1980/81	466,733	471,704	938,437	300,646	152,679	453,325	32.6
1981/82	760,336	421,504	1,181,840	65,913	41,295	107,208	8.3
1982/83	684,385	209,157	893,542	0	0	0	0
1983/84	561,727	117,931	679,658	399,671	52,333	452,004	39.9
1984/85	673,334	151,650	824,984	332,319	82,461	414,780	33.5
1985/86	491,978	212,123	704,101	218,095	79,555	297,650	29.7
1986/87	637,044	302,489	939,533	723,691	215,539	939,230	50.0
1987/88	652,442	343,875	996,317	612,138	190,896	803,034	44.6

Source: Manitoba Natural Resources

"[The] need for realistic expectations is especially important in the case of species like pickerel, for which fishermen have come to expect huge final payments. . . . although selling prices are still relatively good, they are now lower than last year. The combination of reduced selling prices, this year's large increase in production [32% in the 1988 summer fishery] and the forces at play in the market mean that reductions in profits are very likely to occur" (FFMC, 1989).

This warning is particularly important for Cedar Lake fishermen, since pickerel is the predominant commercial species. Cedar Lake fishermen have come to expect large final payments every year. In fact, a number of fishermen said they continue fishing because of the final payments. Some fishermen will hire another licenced fisherman to catch their quota for them. The hired man keeps the initial payment for the catch, and the final payment goes directly to the employer. This practice is not legal, and it is not likely that it is a common one. However, it illustrates the importance, and the size, of the final payments. This practice probably would not occur if final payments were not substantial. Final payments for some fishermen can amount to \$10,000 or more. In 1987/88, some fishermen received final payments in excess of \$15,000.

Final payments are important to the fishermen because they are a means by which they can acquire fishing equipment and consumer goods from the EFA and the Denbeigh Point station. They can go a long way in paying off these debts. Final payments are also relied upon to pay any income tax that the fishermen may owe.

Figures 3 to 4 show the species composition of catch and revenue (including final payments) for Cedar Lake from 1978/79 to 1987/88. In these figures, "other" refers to mullet, goldeye, perch and carp.

Figure 3 shows the total catch in kilograms of all species for both summer and winter seasons. Pickerel and northern pike have made up the bulk of the total catch for this ten year period. Pickerel appears to have reached its production peak in 1982/83, and has been decreasing since that time.

Total revenue for the period is shown in Figure 4. Pickerel has contributed the greatest amount to total revenue of all the commercial species, except in 1978/79. Northern pike is the next highest contributor to total revenue.

Figures 5 to 13 show catch and revenue for individual species. Figure 5 shows that, although pickerel production has been declining since 1982/83, revenue from pickerel has increased in most years, except 1985/86. In 1982/83, although pickerel production had peaked, revenue dropped sharply. Table 4 shows that there were no final payments for any species in that year. The reason pickerel peaked that year could have been because of a high initial price. This may not be the only reason, since pickerel is the highest priced species available in commercial quantities in Cedar Lake, and fishermen will catch as much pickerel as their quota will allow. Production of other species, however, will be affected by price as much as by the availability of those species, especially "rough" fish (eg. mullet and carp). Cedar Lake is well known for its diverse species mix, and the fishermen can deliver a great deal of rough fish, if the price is right. Rough fish requires much more labour than other species, as they are usually required to be delivered dressed or headless. These species also have a smaller proportion of flesh than species such as pickerel or

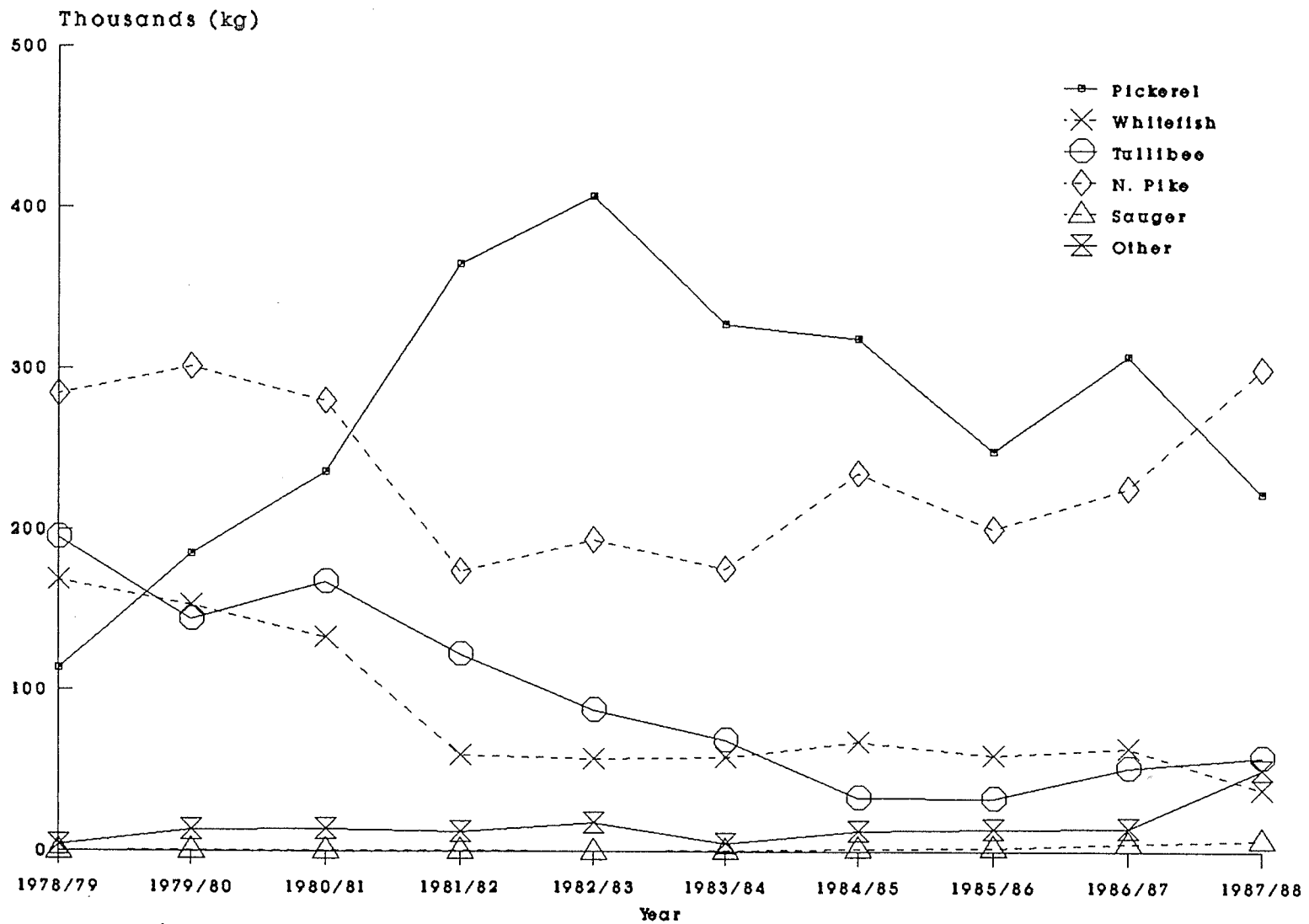


Figure 3: Cedar Lake Commercial Catch: All Species

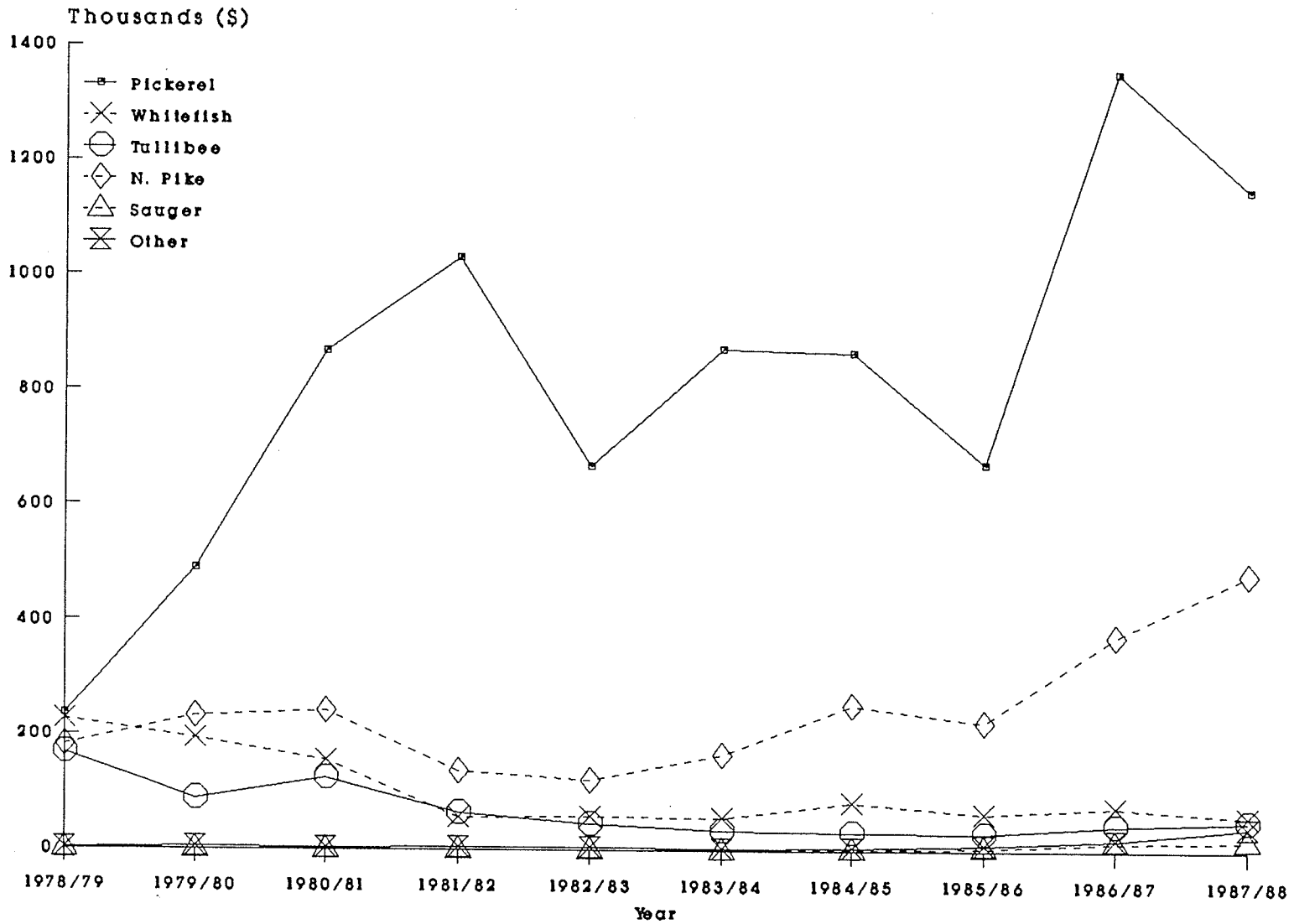


Figure 4: Cedar Lake Commercial Fishing Revenue: All Species

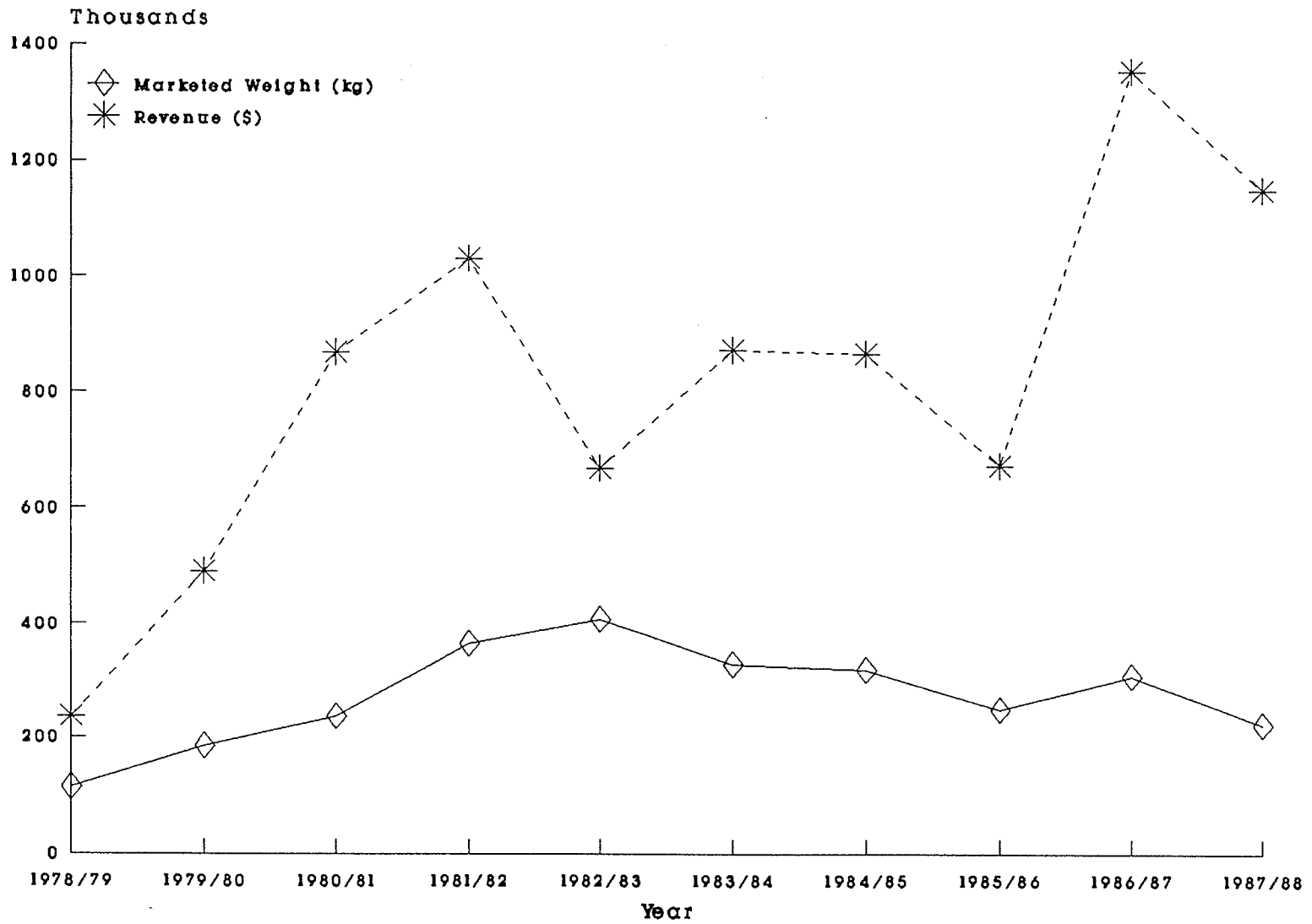


Figure 5: Pickerel Commercial Catch and Revenue, Cedar Lake

whitefish, and a lot of weight is lost in dressing. Ward et al. (1976), in their study of Lake Winnipeg fishermen, found that many suckers (mullet) are thrown away because the price paid for them is not high enough to cover the gas required to haul them and the extra labour required to dress them.

Production of "other" species jumped from 1986/87 to 1987/88 (see Figure 6). This was because of increased summer prices for these species, and could also be due to decreased pickerel production. Figures 7 and 8 show the differences between summer and winter prices for rough species, and the erratic pattern of production for these species.

Sauger and northern pike production and revenue have also increased significantly since 1985/86 (Figures 9 and 10). The prices for these two species are not as high as pickerel, but are significantly higher than those for rough species. Since 1983/84, revenues for northern pike and sauger have increased at a much higher rate than production. In winter, northern pike production is higher than any other species (Figure 11).

Figures 12 and 13 show that catches and revenue for whitefish and tullibee have declined over the period. However, tullibee production has increased slightly since 1985/86.

Cedar Lake fishermen are fortunate in that they have a variety of species available in commercial quantities. Pickerel production has been decreasing in recent years due to the fishing up of stocks. But the other species present, especially northern pike and sauger, could

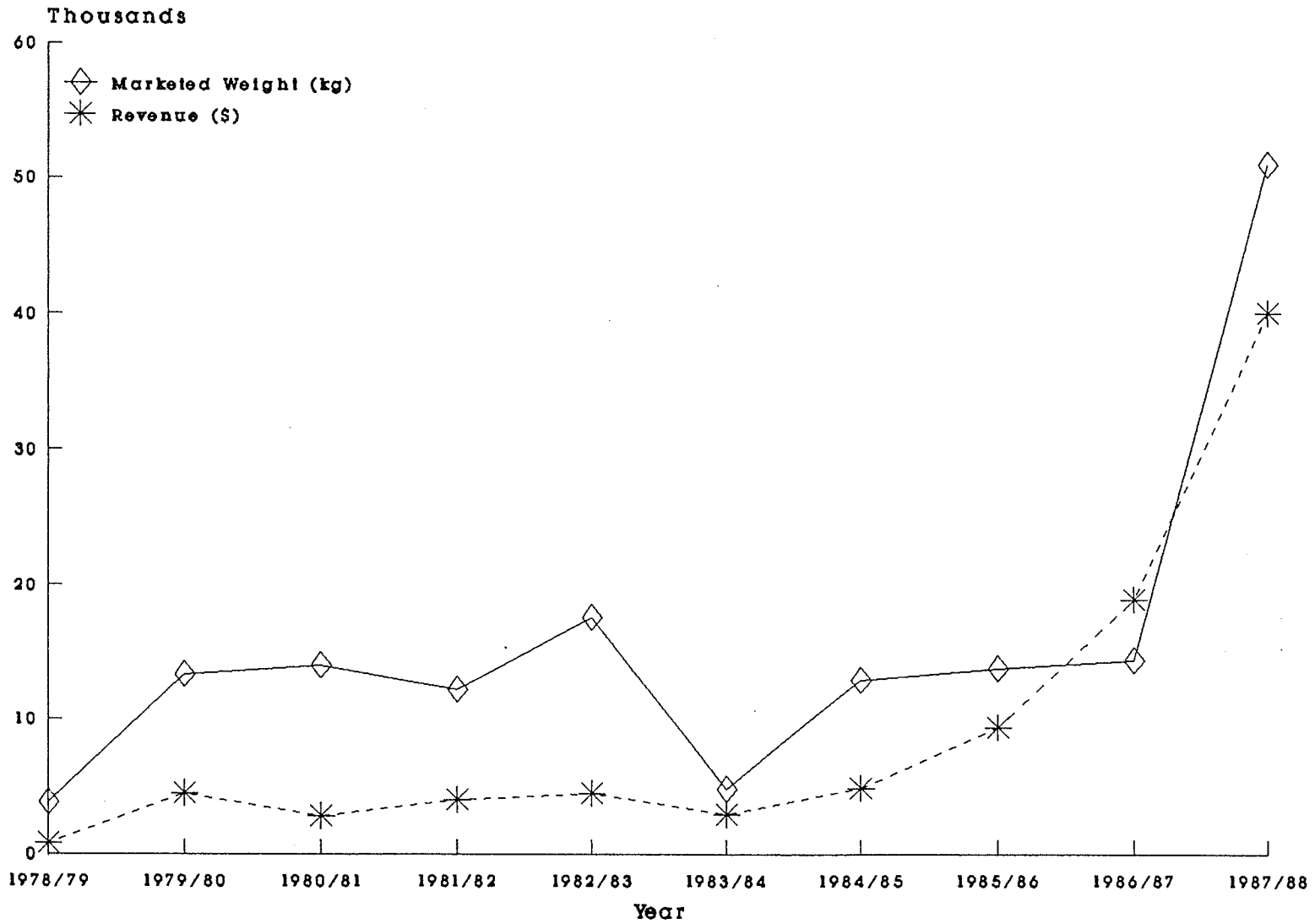


Figure 6: "Other" Commercial Species Catch and Revenue, Cedar Lake

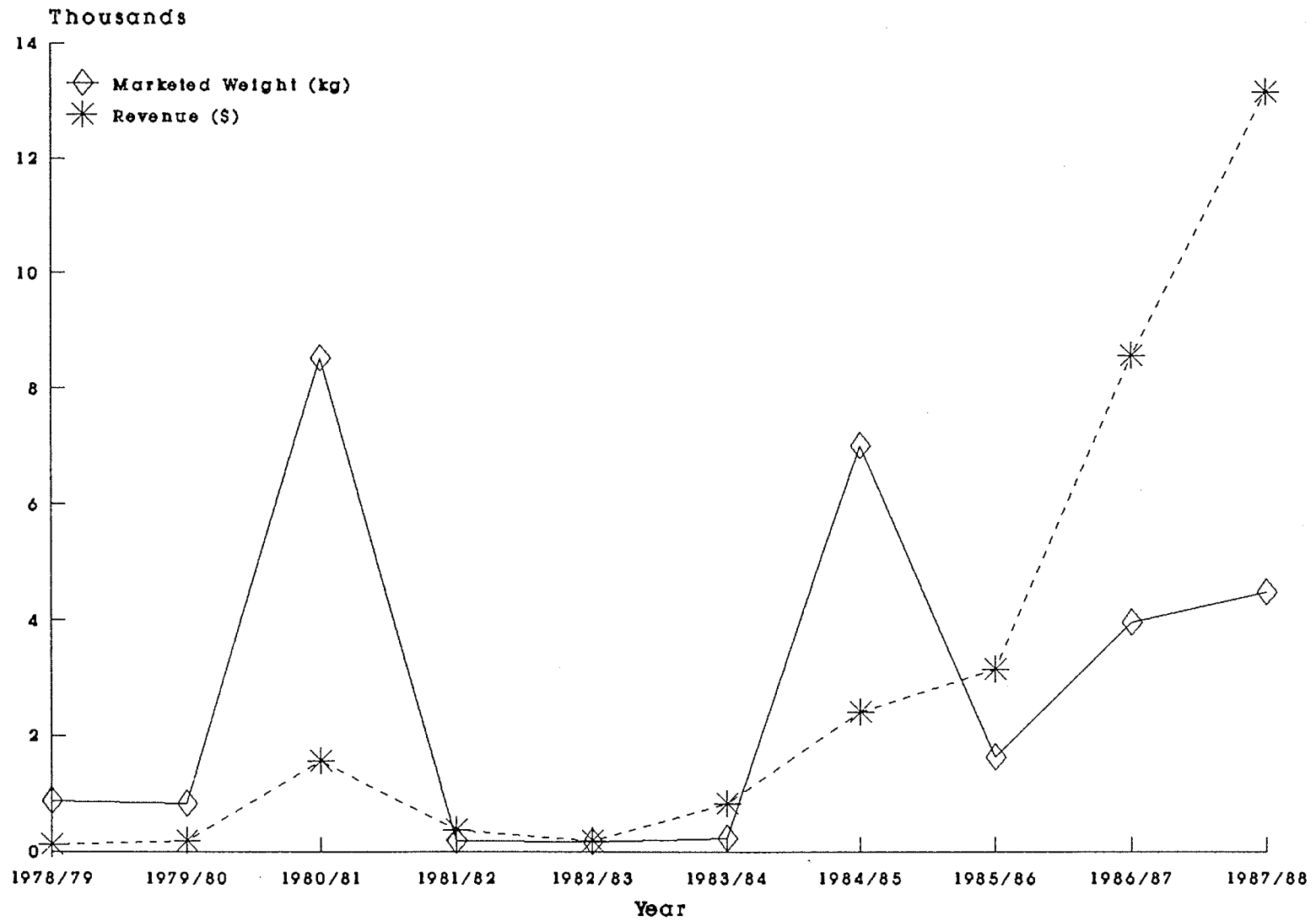


Figure 7: "Other" Commercial Species Catch and Revenue (Summer), Cedar Lake

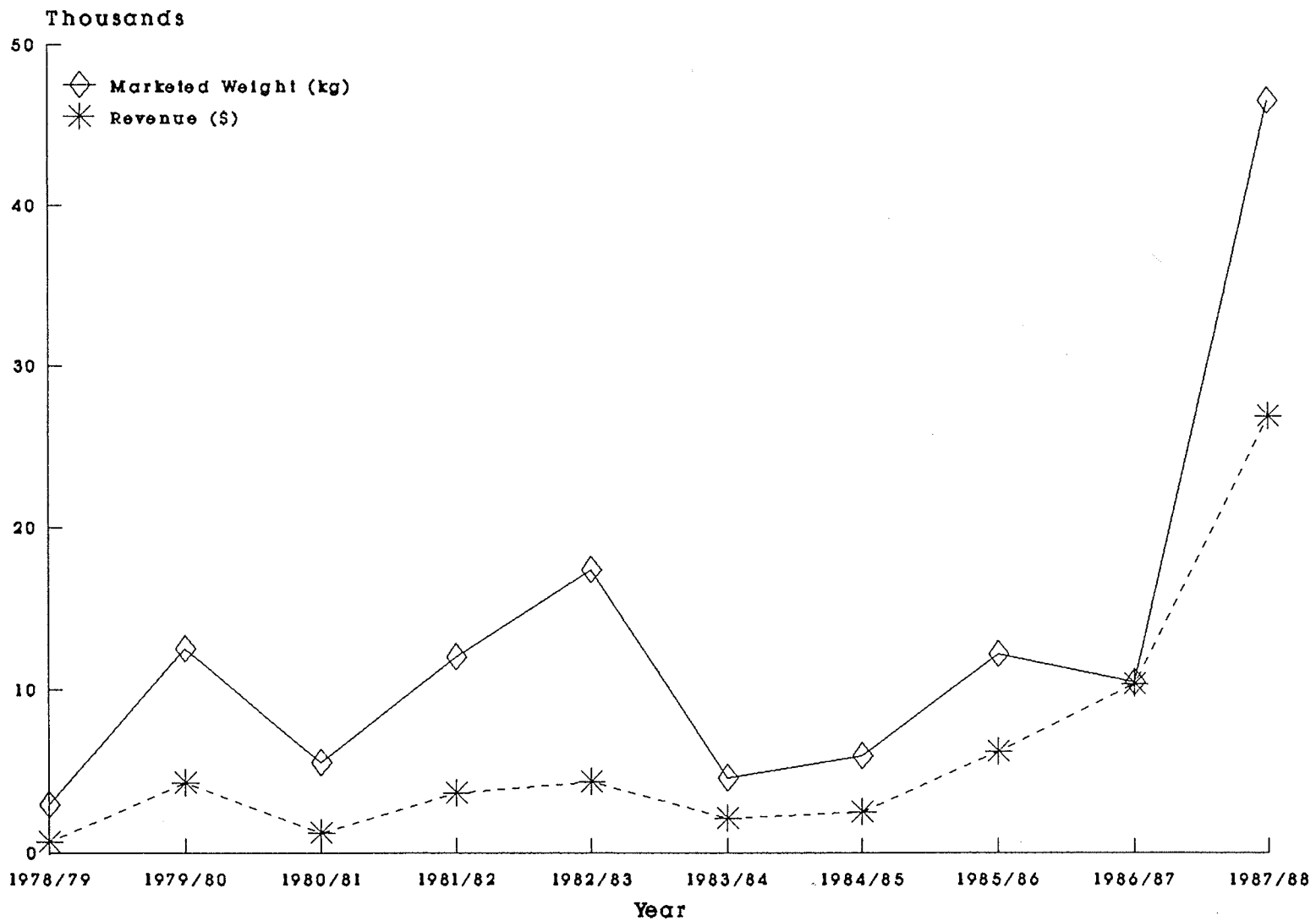


Figure 8: "Other" Commercial Species Catch and Revenue (Winter), Cedar Lake

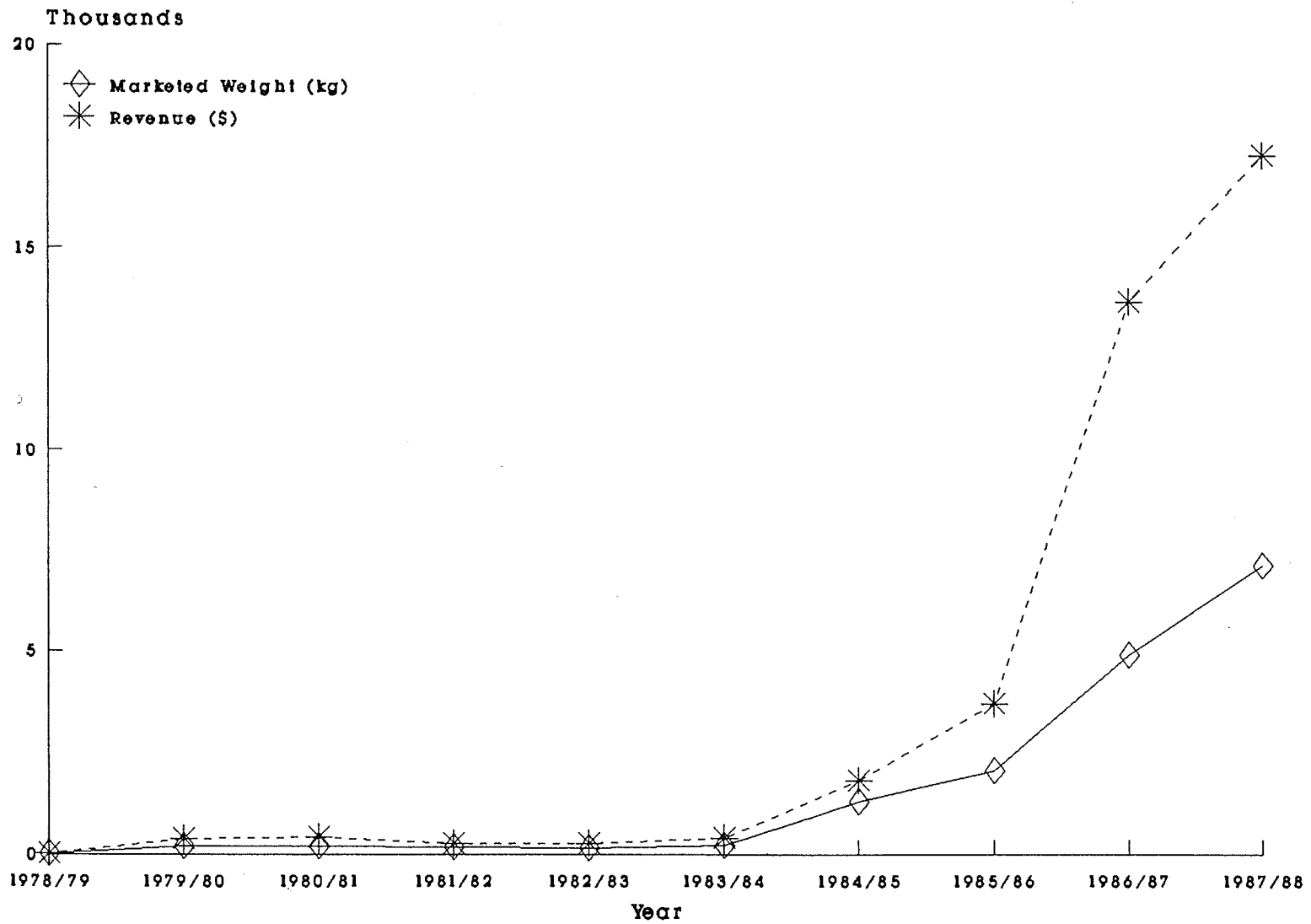


Figure 9: Sauger Commercial Catch and Revenue, Cedar Lake

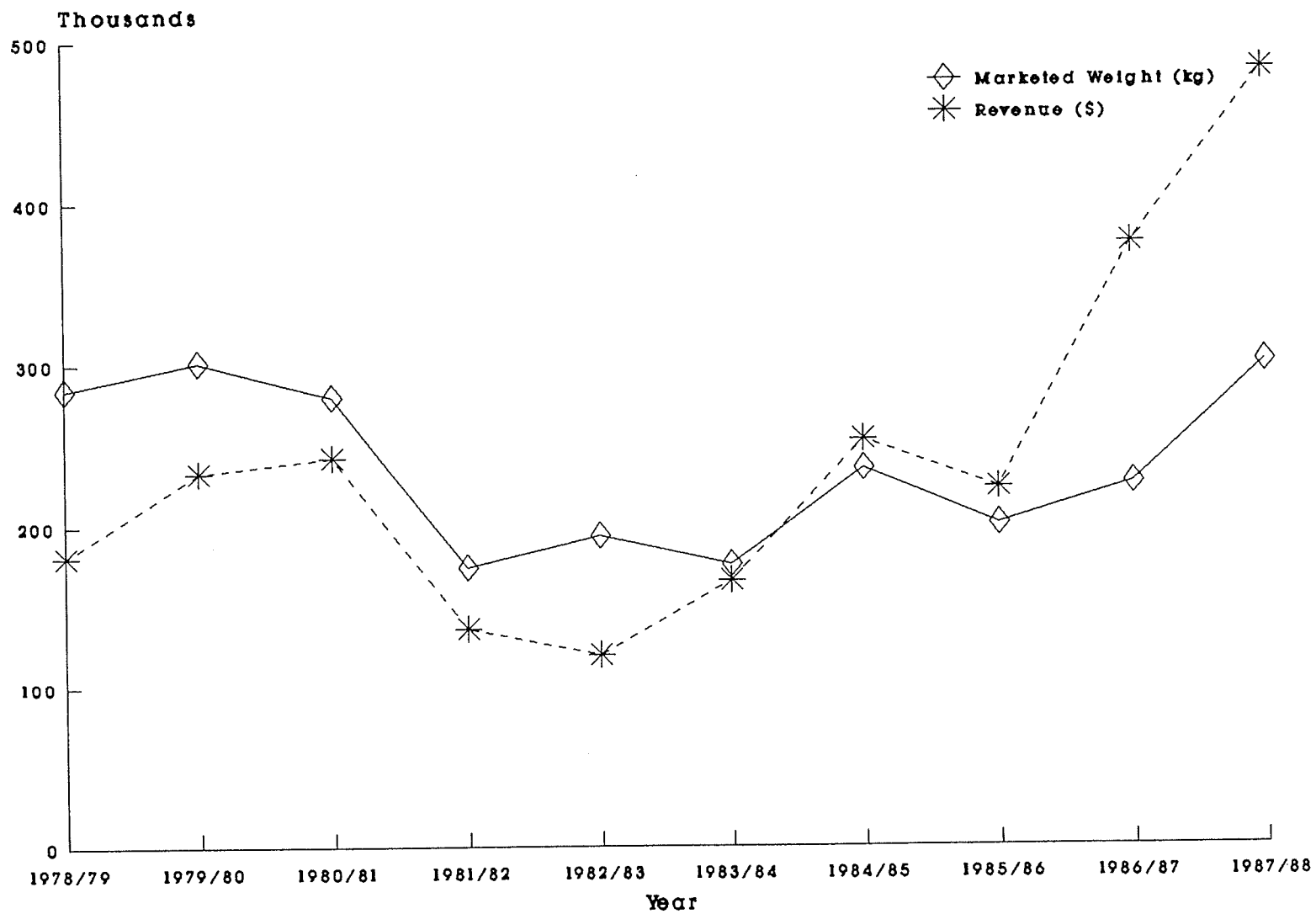


Figure 10: Northern Pike Commercial Catch and Revenue, Cedar Lake

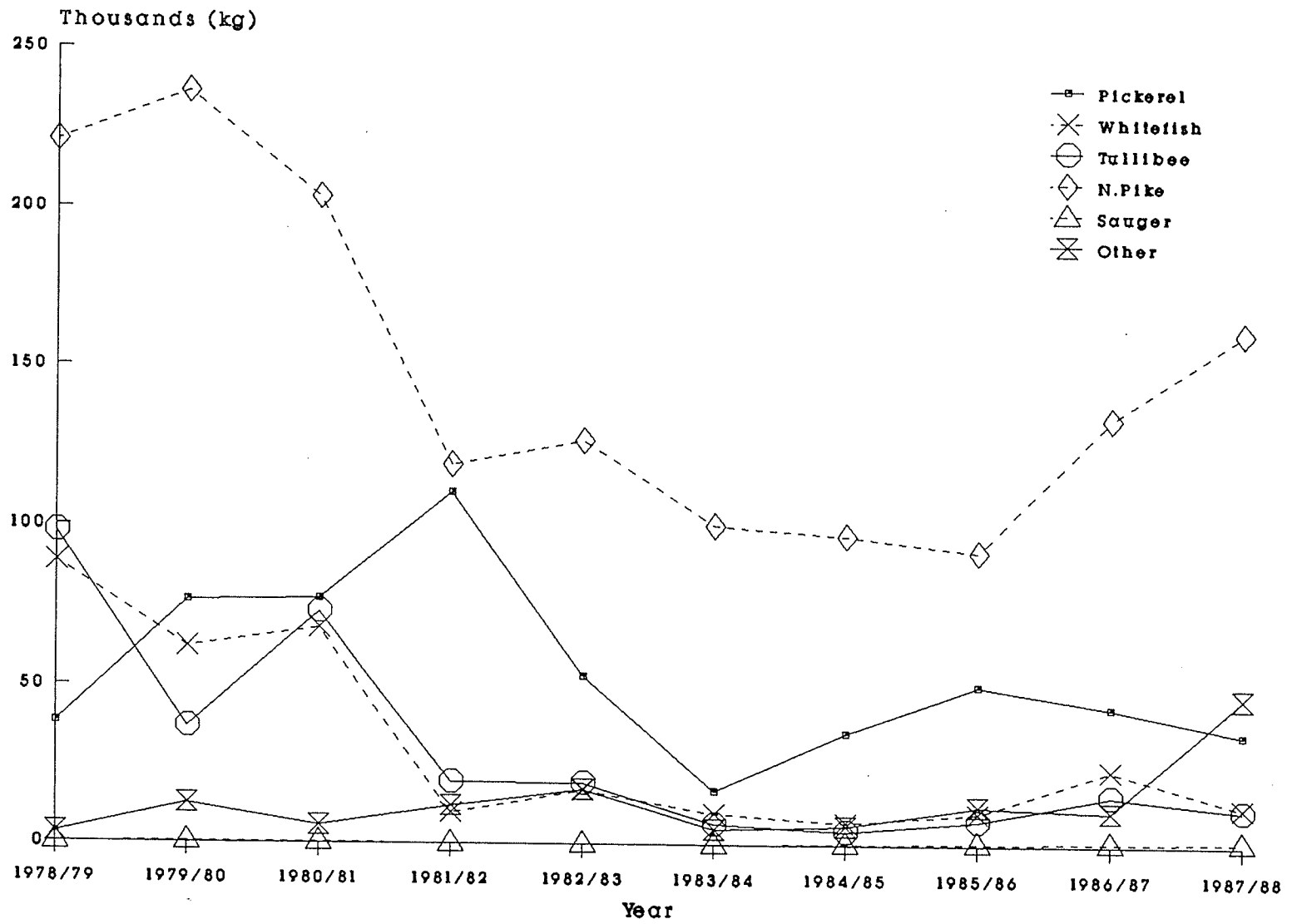


Figure 11: Cedar Lake Winter Commercial Catch: All Species

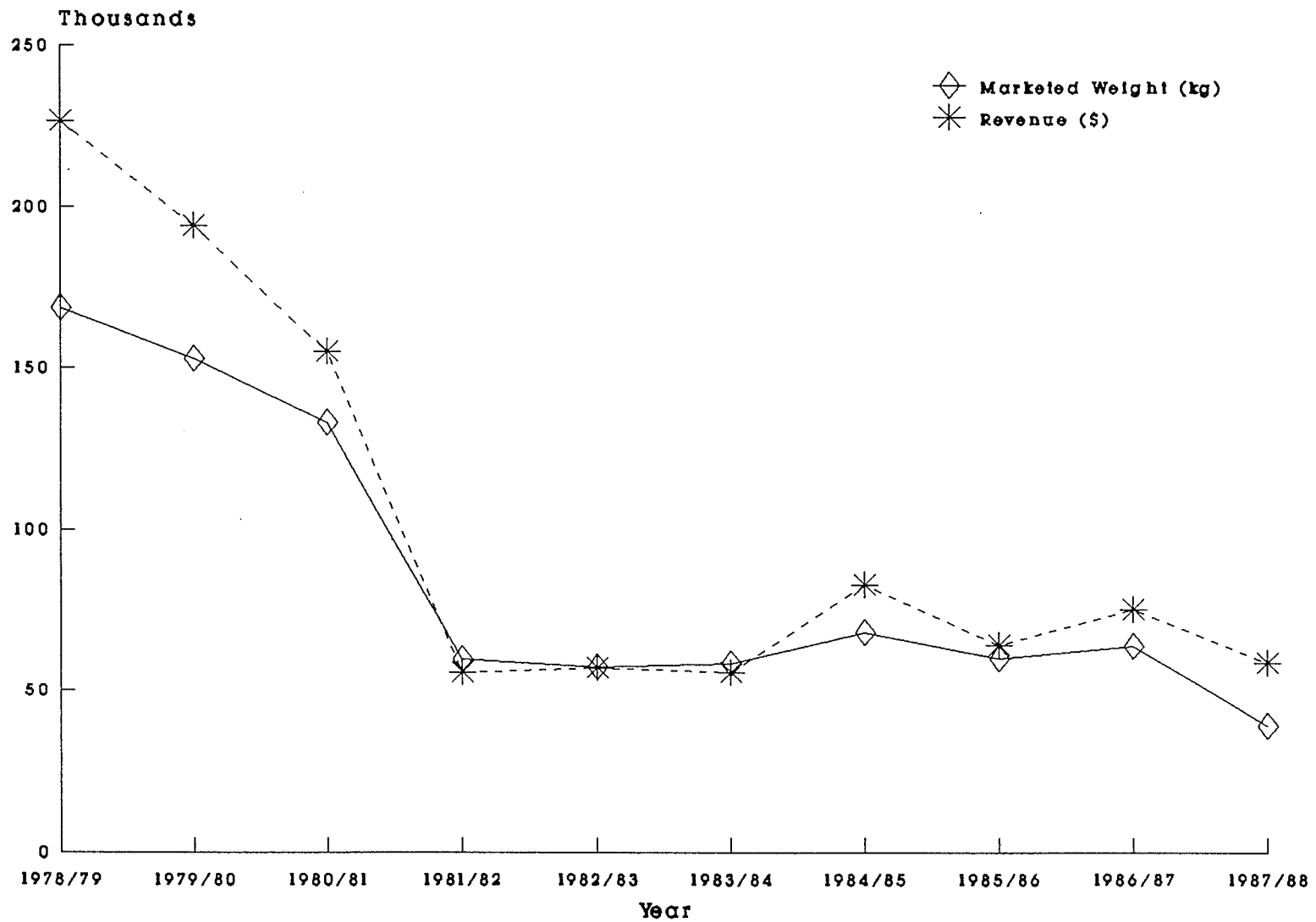


Figure 12: Whitefish Commercial Catch and Revenue, Cedar Lake

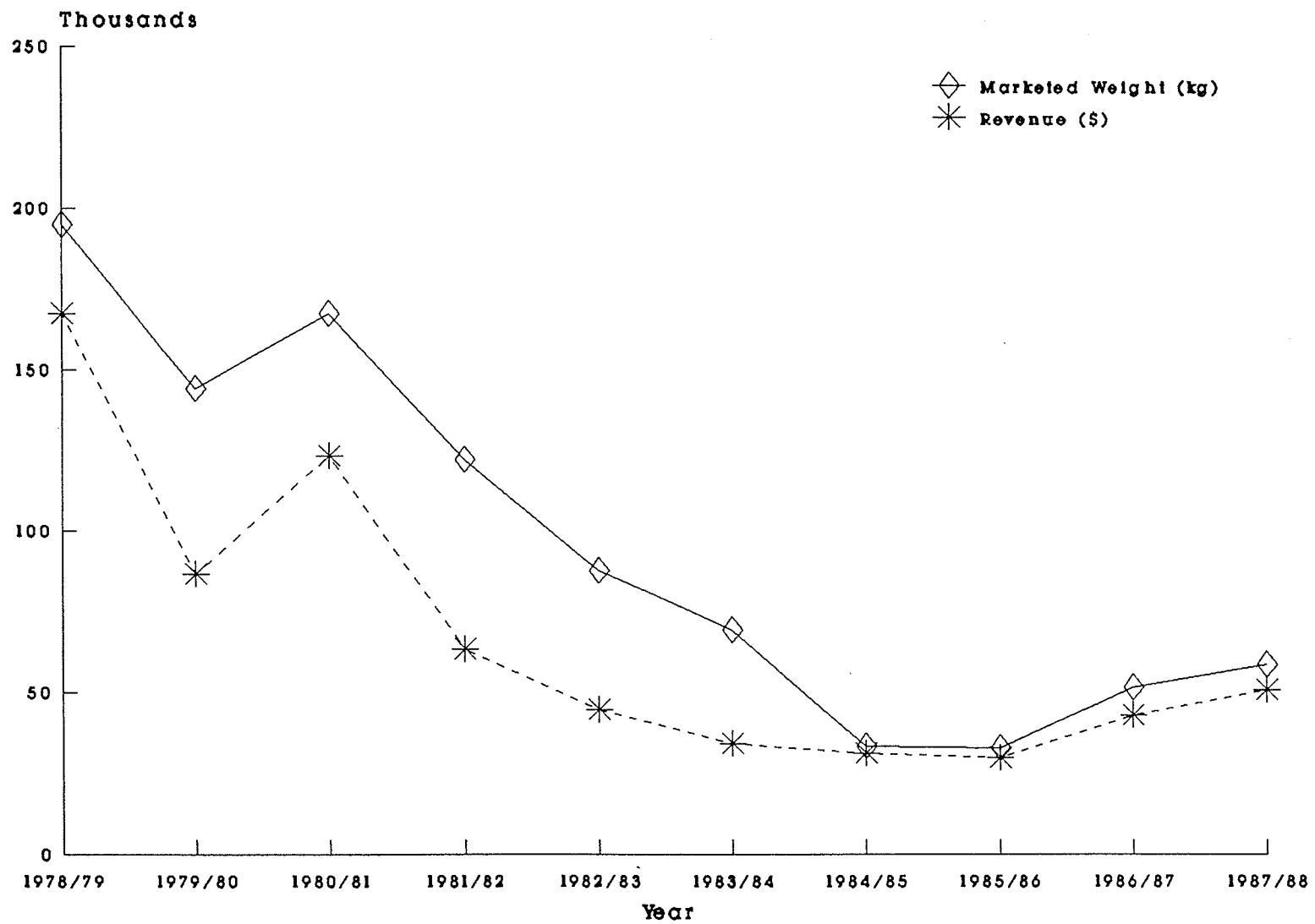


Figure 13: Tullibee Commercial Catch and Revenue, Cedar Lake

sustain the viability of the commercial fishery of Cedar Lake. Another species that is available in large quantities is perch, although production of that species has been very low on Cedar Lake. This is because 3 to 3 1/4 inch (76 to 83 mm) mesh nets are required to catch perch (K. Campbell, MNR, Pers. Comm.). As mentioned previously, the minimum mesh size for Cedar Lake is 4 1/4 inch (108 mm) at this time.

3.2 THE EASTERVILLE FISHERMEN'S ASSOCIATION

The Easterville Fishermen's Association (EFA) manages the commercial fishery at Cedar Lake. It was formed in 1980, at which time it took over the operations of the fish packing plant at Easterville from the fishermen's co-operative. The EFA represents the Cedar Lake fishermen in dealings with regulatory agencies, such as Manitoba Natural Resources and Fisheries and Oceans Canada. All fishermen licenced to fish Cedar Lake automatically become members of the EFA.

The EFA buys fish on behalf of the FFMC. The FFMC reimburses the EFA at the initial price, plus an agency fee. Final payments are sent directly to the fishermen. The EFA is responsible for the quality of fish bought for the FFMC. It is not reimbursed for fish that is delivered in poor condition.

The Board of Directors of the EFA consists of seven elected members, including the president and vice-president. All directors hold two-year terms. The EFA decides who will be licenced and what individual quota will be assigned to each fisherman. These decisions are based on the need and experience of each individual fisherman. As

stated above, it does not decide on the number of licences that are made available, nor does it set the aggregate quota. These regulations are the responsibility of Manitoba Natural Resources. If someone applies for a licence, four of the directors have to approve the application. Fishermen can sell part of their quota to another fisherman who is licenced to fish Cedar Lake, but this also requires the approval of four directors.

Preference for the licences is given to residents of Easterville. If someone from outside the community wants a licence for Cedar Lake, they must work for five years on the lake as a hired helper before they will become eligible. Licences become available only through retirement or death of a licenced fisherman, or if a fisherman breaks fishing regulations. Once a licence becomes available, it is not necessarily re-allocated, even though there are a number of people who want licences. The EFA will hold onto the licence and, if they feel that someone needs the income from fishing, (eg. a young person starting a family), they will give the licence to that person. Manitoba Natural Resources has been urging the EFA not to re-allocate these licences, in order to reduce the aggregate quota, which they feel is too high.

Manitoba Natural Resources is attempting to come to an agreement with the EFA on reducing the overall quota, to take pressure off the pickerel stocks. It is important that the department work closely with the fishermen when trying to change a regulation, since the fishermen will be the ones most directly affected by the change.

The EFA provides other services to the fishermen. Some of the fishermen need down payments in order to get MACC loans for capital equipment. The EFA will provide this down payment, interest-free, if the Board approves. All such decisions are made on an individual basis. Fishermen must sign over their final payments and/or fish tickets to the EFA in order to receive such loans. Fishermen are also allowed \$350 credit per week for fishing expenses, such as groceries, fuel, nets, etc. Repayment is made in the same manner as down payments.

In June, 1989, the EFA purchased the Denbeigh Point fish station, in a joint venture with the Chemawawin First Nation Band. Although the Denbeigh Point station was still operated by the original owner during the time frame for this study, the reasons for this purchase are relevant to this study. The EFA was still having difficulty with fishermen obtaining credit from the EFA, but delivering to Denbeigh Point. The EFA could not compete with this station, because it offered year-round, more liberal credit. With Denbeigh Point being confirmed as reserve land, the opportunity was there to purchase the station. The owner of the station is a non-native and thus cannot live or operate a business on reserve land. Therefore, the business had to be sold or dissolved. At the time of field research for this study, the former owner was still managing the station. He had been hired by the joint venture to continue managing the station until they hired a new manager.

3.3 MANITOBA HYDRO COMPENSATION

Compensation for adverse effects of the Grand Rapids hydro station has been provided by Manitoba Hydro to the EFA in a number of forms. After relocation and impoundment, Manitoba Hydro provided various programs for debris clearing, wharf and ice house construction and net replacement. The prediction by the USDI (1961) that there would be temporary problems with debris and timber fouling nets and causing navigational hazards has been borne out. However, this problem has not been temporary. During field research for the current study, all fishermen complained that sticks and logs still cause damage to nets and boats. Until 1986, Manitoba Hydro would replace nets destroyed in this manner. However, fishermen had to bring in the nets with the debris intact, as proof of their claim.

In 1986, the net replacement program was replaced with a single payment from Manitoba Hydro of approximately \$1.1 million. This payment was made to the EFA to cover all past, present and future adverse effects on the fishery caused by unnatural events (ie. arising from the Grand Rapids station operations). The settlement was based on biological and socio-economic factors. It did not cover domestic fishing (A. Miles, Manitoba Hydro, Pers. Comm.).

The settlement was set up as a trust fund, with interest being paid to the EFA for operating the fish station and replacing nets lost to debris in the lake. The EFA and the Band administer the fund. The purpose for setting up the trust fund was to ensure that funds would be available for the future. No part of the principal could be withdrawn

for 40 years after Manitoba Hydro made the payment. However, there have been some exceptions to this requirement. When the settlement was first awarded, \$7,500 was paid to each licenced fisherman. The terms of the trust were also amended to allow the EFA to withdraw funds to facilitate the purchase of the Denbeigh Point station.

3.4 THE DENBEIGH POINT FISH PACKING COMPANY

Prior to the purchase of the Denbeigh Point station by the EFA and the Band, it was owned and operated by the same person who had been there when the people of Chemawawin were relocated to Easterville. The Denbeigh Point enterprise consists of a fish packing plant and retail store. Fishermen can purchase fishing equipment, fuel and groceries at Denbeigh Point. They could also arrange to purchase cars, trucks, snow machines, boats, motors, furniture and other goods through the station.

In 1988, the Denbeigh Point station still had a fairly liberal credit policy, as discussed in Chapter 2. Anyone from Easterville could get credit at Denbeigh Point, provided they had some means to pay back the debt eg., final payments, social assistance, etc. As Landa (1969) and Waldram (1980) reported, fishermen had started delivering their catches and purchasing goods at the Denbeigh Point station to avoid the automatic deductions that the Easterville Co-operative was taking from their fish payments. This can no longer be avoided, since the Denbeigh Point station also makes these deductions. In fact, in many cases a fisherman's entire monthly cheque and final payment is credited to his account. In 1988, some fishermen had debts to the station in excess of \$10,000. In spite of this, fishermen still make

frequent deliveries to Denbeigh Point. As stated previously, the main reason for this was that it was possible to obtain credit throughout the year at Denbeigh Point. Also, credit was not necessarily limited to the \$350 per week offered by the EFA. Presumably the owner of the station applied some restrictions on credit on an individual basis.

It appeared from the Denbeigh Point records that interest was charged only on cash advances, which could be obtained against fish tickets. No interest was explicitly charged on groceries, fishing supplies, clothing or wages. However, it is likely that customers of Denbeigh Point paid the cost of borrowing through higher prices, rather than by a direct interest charge. Interest was probably charged on larger items, such as trucks, but these transactions were not on the cash register tapes for the study period.

There was a great deal of resentment on the part of some of the fishermen towards the owner of the station because all of their income was tied up in debts to the station. The only way that many fishermen could get cash for their sales (other than through a cash advance) was to deliver their catch to Grand Rapids.

There were no reasons given by the fishermen as to why they were so deeply in debt. From the net income calculations, most fishermen should have been able to cover their operating costs with their fish sales. However, it is likely that these high debts have not been built up entirely on debts for fishing equipment. The availability of unlimited credit can be tempting, and can push people towards pursuing a lifestyle which they cannot afford. This is obviously not unique to

Easterville residents, but it may have been a force in their accumulation of such high debts.

The problem, on the other hand, may have been the Denbeigh Point operator's method of granting credit. It is possible that he did not set any limits to credit, as long as the people had some means to pay it off.

For the people of Easterville, a credit economy is part of their history. There is a certain security in dealing with a system, particularly an economic system, that is familiar. Although it has been 25 years since the relocation, the families of the people who did business at Denbeigh Point during the days of the Easterville Co-operative are likely to continue doing business there.

The availability of credit at both the Easterville and Denbeigh Point stations is an important part of the economy of Easterville. Although it is causing problems as far as the amount of debt people are taking on, it is especially necessary because of the commercial fishery. Fishermen need to buy nets, fuel and other supplies for fishing at the beginning of the season, before their first payments are received. The large debt loads accumulated by fishermen are due mostly to the purchase of non-fishing expenses.

Chapter IV

METHODS

4.1 FIELD RESEARCH

Field research was carried out from July 16 to July 29, 1989 at Easterville and Denbeigh Point. The commercial fishery closed for one week on July 21, due to hot weather. This aided the author in her activities, since fishermen were usually at home during this time, making contact with them easier.

4.2 DATA SOURCES

Several different sources of data were used during the course of this study. The following were the major sources of data.

4.2.1 Questionnaire

The questionnaire (see Appendix B) used to interview fishermen was based on the one used by Wagner (1981) at Southern Indian Lake. Some suggestions for changes made by Wagner (1981) and G. Baker (NRI, Pers. Comm.) were incorporated into the questionnaire. In addition, questions regarding winter fishing, other sources of income, and subsistence harvesting were included.

Fishermen were approached on an informal basis and asked if they would be willing to be interviewed. Participation was voluntary. Fishermen were interviewed at dockside or in their homes. If the fisherman had a partner or partners, they would be interviewed as well. Using this method, it was assured that the complete firm could be included in the study. Since individual quotas are assigned to fishermen at Cedar Lake, an attempt was made to interview as many fishermen as possible in each quota category.

Since fishermen were interviewed in 1989 about their fishing activities in the summer of 1988, some had difficulty answering a few of the questions. The majority of problems encountered were with questions in Section C of the questionnaire, regarding the purchases they made in 1988. Records of purchases from the EFA and the Denbeigh Point station were relied upon to supplement the interview data.

4.2.2 FFMC Data

FFMC records of catch and revenue for each fisherman interviewed were provided from FFMC offices in Winnipeg. These records included delivered catch (in kgs) and dollar value of the catch, net of the final payment. Final payment prices for the 1988/89 fishing season had not been announced at the time of writing.

Written permission was required from each fisherman interviewed to obtain access to his records. Each fisherman was asked to read and sign a release slip that gave the author access to their records from both FFMC and the EFA. All fishermen interviewed agreed to sign this slip.

4.2.3 MACC Records

Records of fishermen's Manitoba Agricultural Credit Corporation (MACC) payments, loans for 1988 and total interest paid were obtained from the MACC offices in Winnipeg. Fishermen can obtain loans from MACC for capital equipment, such as boats and motors, bombardiers, snowmobiles and certain camp equipment. Repair costs and insurance for capital equipment can also be covered by MACC loans. Loans are not provided for nets and other fishing equipment.

4.2.4 Fish Station Records

Records of purchases made by fishermen during the summer of 1988 were obtained from the Denbeigh Point and Easterville fish stations. Denbeigh Point records consisted of eight cash register tapes. Each fisherman has an account with the station, and their account number is recorded on the tape with each purchase they charge. Purchases were labelled on the tapes as nets, leads, floats, fishing supplies, groceries, etc. There were some cash purchases made at the station, which were not assigned to any account. However, cash purchases accounted for a very small part of total sales for the study period (approximately 10%). Most cash purchases were made for inexpensive, non-fishing items, and therefore were not included in the analysis.

The records at the Easterville plant were not as complete or as readily accessible as the Denbeigh Point records. With the recent purchase of the Denbeigh Point station by the Band and the EFA, some of the records were in transit and could not be found. Purchase orders

for the study period were found, as well as some receipts for repairs. These were included in the analysis. It was determined from interviews with the fishermen and other people involved with the stations that the majority of purchases were made at Denbeigh Point.

4.2.5 Capital Equipment Prices

Replacement costs for boats and motors were obtained from Lake Winnipeg Boat Works and Gimli Boat Works in Gimli, and from interviews. All fishermen interviewed bought their boats and motors from these dealers.

Prices for nets and other fishing supplies were obtained from the Denbeigh Point station and from interviews with fishermen.

Replacement costs were used to determine depreciation on capital equipment charged to each firm.

4.2.6 Other Data Sources

Officials from the Manitoba Department of Natural Resources provided extensive background information on the commercial fishery at Cedar Lake, including regulations, the current state of the fishery, and possible alternate management practices.

In addition to the data obtained from the above mentioned sources, the author had the opportunity to speak further with the fishermen, EFA officials and employees, and other community members about the commercial fishery. These conversations provided a great deal of

information on the state of the fishery and its current problems, and on the importance of the fishery to the residents of Easterville.

4.3 THE FISHING FIRM

For the purposes of this study, a fishing "firm", or enterprise, is defined as one of a) an arrangement (partnership) among two or more fishermen whereby the catch from their operations is shared equally and is sold as such to FFMC, and fishing expenses are shared equally; or b) where a single fisherman operates his own equipment, pays 100% of his fishing expenses, and sells all of his catch to FFMC under his own name.

Some of the fishermen in category (a) would fish on their own at times, using the boat and motor(s) of the partnership. In these instances, fishermen paid their own expenses and their catch was credited to their own accounts.

4.4 CALCULATION OF NET INCOME ACCOUNTS

4.4.1 Revenue

Revenue includes gross fishing sales to FFMC plus an estimate of the final payment for the 1988 summer season. Fishermen are paid by the FFMC under a two price system. They are paid an initial price, set before the start of each season, per kilogram of fish they deliver. This price, which is different for each species, is based on estimates by FFMC of how much they will earn on the sale of each species, less administrative, processing and selling costs. The price paid to the

fishermen is usually around 80% of the estimates, to guard against unexpected losses. The FFMC will sometimes set initial prices below or above 80%, in order to encourage certain levels of production, based on market demand. If the estimates are correct, a profit is made on the sale of fish. Final payment prices are based on this profit. Fishermen receive the final payment price applicable to each species they deliver (FFMC, 1989). The fishermen receive their final payments approximately seven months after the end of the fishing year (ie. final payments for 1988/89 will be distributed in November or December of 1989).

Gross fishing sales were obtained from FFMC records. Because the final payment prices for 1988/89 (June 1988 - April 1989) had not been announced at the time of writing, an estimate was used. The estimates used for this study were 50% of the 1987/88 final payment prices. These prices are reported in Table 5. It was recommended that the full prices for 1987/88 not be used, since this was a record profit year for FFMC (B. Popko, FFMC, Pers. Comm.). The proportion of 50% was considered by the author to be a reasonable estimate. FFMC officials were extremely reluctant to provide an estimate of the final payment prices for 1988/89.

The estimated final payment price was multiplied by the number of kilograms of that species delivered by each fisherman. Delivered weights were provided by FFMC. Delivered weights were marketed totals (not broken down by round, dressed and headless). For pickerel and sauger, the round weight price was used for the final payment estimate. This price was used to avoid overestimating the final payment, since

TABLE 5
Final Payment Price Estimates for 1988/89

<u>Species</u>	FFMC 1987/88 Price (\$/kg)	1988/89 Estimated Price (\$/kg)
Whitefish	0.443	0.2215
Pickereel	2.222	1.111
Sauger	0.884	0.442
N. Pike	0.552	0.276
Tullibee	0.278	0.139
Goldeye	1.652	0.826
Perch	1.335	0.6675

round (whole) deliveries are paid a lower price than dressed or headless. Pickerel and sauger were the only species for which differential final payment prices were specified.

4.4.2 Operating Expenses

Operating expenses were determined from Denbeigh Point and Easterville station records, interviews with fishermen, and MACC records. Most purchases were fairly straightforward; however, some items had to be estimated.

Although the Easterville station does not sell groceries, fishermen can get credit through the EFA to buy groceries and supplies from the local store in Easterville. The Denbeigh Point station sells groceries and will charge them to the fishermen's accounts. In both cases, family groceries are sometimes charged to the fishing accounts. As a

result, an estimate of \$5.00 per day per person (including hired helpers) was used for fishermen returning home every day and \$10.00 per day per person for fishermen and helpers staying at camp. Because the exact number of days fished by each fisherman was not known, it was assumed that the number of deliveries each fisherman made was the same as the number of days fished. In light of these deficiencies, the costs reported for food should be viewed with caution.

Insurance costs were determined from MACC records and interviews. In most instances, insurance premiums were paid through MACC loans. A few fishermen did not have insurance.

4.4.3 Depreciation

Depreciation was calculated for capital equipment, which included boats, motors, nets, and other fishing supplies which usually last for more than one season. The straightline depreciation method was used for all capital items.

Skiffs were depreciated over 10 years, aluminum gasboats over 15 years and steel gasboats over 25 years. Outboard motors were depreciated over 2.5 years and inboard engines over 5 years. Most fishing equipment was depreciated over 5 years. These items included stoves, coolers, life jackets and anchors. Plastic tubs were not depreciated. These tubs are often stolen and some have to be replaced on a yearly basis. Also, fishing supplies purchased at the Denbeigh Point station were not broken down by item. In most cases it was likely that plastic tubs were bought at least once during the year.

Depreciating tubs already owned would probably overestimate their costs. Light plants (generators) and camp buildings were depreciated over 10 and 25 years respectively. Nets were depreciated over 2 years. Maintenance costs were not depreciated. Any maintenance or repair costs incurred in the summer of 1988 were considered an operating expense.

These depreciation periods were determined from Wagner (1981), except for gasboats, light plants and camp buildings, which were determined from interviews. Depreciation periods for fishing equipment were determined from G. Baker (NRI, Pers. Comm.). Depreciation was not deducted on items older than the rate for those items.

One capital item missing from the depreciation calculation is a truck or trucks used to deliver fish to the Denbeigh Point station and, on occasion, to other stations outside of Easterville. However, it would have been difficult to determine how much depreciation to charge to fishing, since these vehicles are used for other purposes.

4.4.4 Interest

Interest charged to firms was interest paid on MACC loans for capital equipment. MACC records indicated the interest accumulated for the year. Simple interest is charged on the outstanding balance at the end of each month (Ty Aho, MACC, Pers. Comm.). The rate of interest for the 1988 summer season ranged from 10.875% (June) to 11.375% (October). Fishermen under the age of 35 pay 2% less than the current rate.

The interest charge used in calculating net income was $5/12$ of the yearly interest charge, since the summer season lasts for 5 months of the year. Because some fishermen had loans for winter fishing and non-fishing items, the interest charged may be slightly overestimated.

Chapter V
RESULTS AND DISCUSSION

5.1 QUESTIONNAIRE SAMPLE

A total of 19 fishermen were interviewed, comprising 12 firms. The fishermen interviewed represented 23.8% of licenced fishermen and 26.1% of the lake quota. Their total catches represented 20.1% of the value (before final payments) and 19.8% of the marketed (delivered) product weight of the 1988 summer catch (see Table 6). The number of fishermen interviewed in each category was as follows:

<u>Quota (kg)</u>	<u># in fishery</u>	<u># in sample</u>	<u>% of total in quota category</u>
4,090	14	5	35.7
5,000	28	5	17.9
6,360	20	4	20.0
8,630	14	3	21.4
10,900	4	2	50.0
	-----	-----	-----
Total	80	19	23.8

The number of fishermen interviewed was quite low, due to the limited time available for field work. This restricted the effectiveness of the sample in estimating the net income to all fishermen in the fishery. However, the fishermen interviewed represented a wide range of enterprises operating on the lake.

TABLE 6

Composition of the 1988 Summer Catch and Revenue of Sample Fishermen, Cedar Lake

<u>Species</u>	<u>Catch (kg)</u>	<u>Average kg per Firm</u>	<u>Sample as¹ % of 1988 Aggregate Catch</u>	<u>Initial Payment</u>	<u>Average \$ per Firm</u>	<u>Estimate of Final Payment</u>	<u>Estimated Total Payment</u>
Pickereel	54,887	4,574	20.3	139,440	11,620	60,979	200,419
Whitefish	7,404	617	27.0	5,340	445	1,640	6,980
Northern Pike	18,008	1,501	16.6	13,796	1,150	4,970	18,766
Sauger	1,666	139	22.6	2,467	206	736	3,203
Tullibee	2,431	203	19.7	1,427	119	338	1,765
Perch	300	25	23.5	500	42	200	700
Goldeye	696	58	19.4	1,023	85	575	1,598
Total/Average	85,392	7,117	19.8	163,993	13,667	69,438	233,431 ²

Notes:

1. Percent of the aggregate summer catch of each species caught by sample fishermen.
2. Total does not add up to total in Table 7, due to rounding.

Source: FFMC records

5.2 INCOME STATEMENT ACCOUNTS

The following is an explanation of the account categories used in calculating net income:

Revenue = gross fishing sales plus an estimated final
payment

Fuel = gasoline, diesel, oil, etc.

Fishing Supplies = line, knives, plastic tubs, oilers,
gloves, etc.

Hired Labour = wages paid to hired helpers; no estimate
was made of the opportunity cost of labour,
since other employment opportunities in
Easterville are scarce; it was assumed that
fishermen consider their profits (net income)
to be their salary

Repairs = maintenance and repairs to boats and motors;
includes paint, parts, etc.

Insurance = insurance premiums paid on boats and motors

Net Income = revenue less operating costs, depreciation
and interest

Cash Flow = Net income plus interest and depreciation.

5.3 AGGREGATE SAMPLE

5.3.1 Estimate of Value to the Community

Table 7 shows the net income for the aggregate sample. The objectives of this study stated that the net income to the community as a whole would be estimated, based on the sample. However, the questionnaire sample was very small and is not considered to be adequate to provide a reliable estimate of net income to the community. It was possible, however, to determine the total initial payment and to estimate the final payment for the 1988 summer season for all fishermen.

Table 8 shows the results of the 1988 aggregate summer commercial fishery. Total catch was 431,569 kg, the bulk of which was made up of pickerel and northern pike (62.8% and 25.2%, respectively).

The total initial payment to all Cedar Lake fishermen was \$814,647. Pickerel revenues comprised 84.4% of the total initial payment. The estimated final payment, based on the prices stated in Chapter 4, was \$345,811, giving an estimated gross income to fishermen of \$1,160,458.

TABLE 7
Net Income of Aggregate Sample

	(\$ 1988)

Revenue	233,440
Operating Expenses:	
Fuel	16,149
Food	12,090
Fishing Supplies	6,848
Hired Labour	18,940
Repairs	11,979
Licences	285
Insurance	2,595

Total Operating Expenses	68,886
Net Operating Income	164,554
Depreciation:	
Boats	7,807
Motors	21,140
Fishing Equipment	1,982
Nets	8,753

Total Depreciation	39,682
Interest Expense	4,362
Net Income	120,510
Cash Flow	164,554

TABLE 8

Catch and Revenue of the 1988 Aggregate Summer Fishery¹, Cedar Lake

<u>Species</u>	<u>Total Catch (kg)</u>	<u>% of Total Catch</u>	<u>Initial Payment</u>	<u>% of Total Revenue</u>	<u>Estimate of Final Payment</u>	<u>Estimated Total Value</u>
Pickereel	270,887	62.8	687,631	84.4	300,956	988,587
Whitefish	27,464	6.4	19,823	2.4	6,083	25,906
Northern Pike	108,683	25.2	81,778	10.0	29,997	111,775
Tullibee	12,319	2.9	7,243	0.9	1,712	8,955
Sauger	7,356	1.7	10,758	1.3	3,251	14,009
Perch	1,274	0.3	2,150	0.3	850	3,000
Goldeye	3,586	0.8	5,264	0.6	2,962	8,226
Total	431,569		814,647		345,811	1,160,458

Note:

1. June 1 to October 29, 1988

Source: FFMC records

5.3.2 Unit Cost and Revenue of Fishing

The unit cost of fishing² (the cost of catching 1 kg of fish) was \$1.32 per kg. The unit revenue from fishing was \$2.73/kg. Thus, the net income earned on one kilogram of fish caught by the sample was \$1.41/kg.

5.4 SAMPLE FIRMS

5.4.1 Firm Characteristics

Half of the sample firms were comprised of only one licenced fisherman; all but one of these firms had one or more hired helpers. The remainder of the firms had two or more licenced fishermen as partners; all but one of these firms had one or more hired helpers.

Nine of the twelve firms operated out of 22 foot (6.7 m) fiberglass skiffs and the rest used gasboats of 30 to 47 feet (9.1 to 14.3 m). The average ages of skiffs and gasboats were 5.2 and 9.7 years, respectively. Skiffs were powered by one or two outboard motors, with total horsepower ranging from 75 to 150. Gasboats used diesel inboard engines, ranging from 97 to 230 horsepower. The average ages of outboard motors and inboard engines were 1.5 and 4.7 years, respectively.

² The unit cost of fishing was determined by dividing total costs of fishing for the sample (operating costs plus depreciation plus interest) by the total number of kilograms caught by the sample, ie. $\$112,930/85,392 \text{ kg} = \$1.32/\text{kg}$. The unit revenue from fishing was calculated by dividing fishing revenue received by the sample (initial plus final payments) by the number of kilograms caught by the sample, ie. $\$233,440/85,392 \text{ kg} = \$2.73/\text{kg}$.

The partnership arrangements of the sample firms were fairly simple. Catch and expenses were shared equally amongst the partners. In most cases, the firm used one boat and one or two motors. Usually the boat was owned by one partner and the motors by another. There was only one case in which a fisherman used more than one boat for fishing. The partnership arrangements appeared to be fairly stable, although partners in some firms sometimes went off on their own to fish, paying their own expenses for use of the boat and motor(s) of the partnership. Some partnerships carried over into the winter.

In general, fishermen with lower quotas (4,090 or 5,000 kgs) partnered up with someone with a higher quota. Fishermen with higher quotas have an easier time getting MACC loans, since they are generally higher producers. These fishermen can replace capital equipment when it has worn out and can keep their production at a high rate. As expected, these were generally the older, more experienced fishermen.

5.4.2 Net Income

Table 9 shows the average net income of the 12 sample firms. Table 10 shows the actual net incomes and cash flows of each of the sample firms. The average net income to each sample firm was \$10,041. However, Table 10 shows that there was a wide range of net incomes among the sample firms, from \$2,003 to \$25,037. Three of the firms with the highest net incomes (Firm #'s 2, 3 and 7) consisted of two partners and one hired helper. Firm # 6 was a single operator with one hired helper.

TABLE 9
Average Net Income of Sample Firms

	(\$ 1988)
	<u>-----</u>
Revenue	19,453
Operating Expenses:	
Fuel	1,346
Food	1,008
Fishing Supplies	571
Hired Labour	1,578
Repairs	998
Licences	24
Insurance	216
	<u>-----</u>
Total Operating Expenses	5,741
Net Operating Income	13,712
Depreciation:	
Boats	651
Motors	1,762
Fishing Equipment	165
Nets	729
	<u>-----</u>
Total Depreciation	3,307
Interest Expense	364
Net Income	10,041
Cash Flow	13,712

All firms have positive cash flows and net incomes, meaning that, in theory, these firms are all viable in the long run. They would be capable of replacing capital equipment at the end of its lifetime. However, the firms with low net incomes (eg. Firm #'s 1, 5 and 8) would not have a great deal of income left after equipment replacement and returns to the fishermen's labour. Assuming that net income goes to the fishermen for personal and family expenses, these firms are operating on a marginal basis.

Firms can affect their net incomes by making sure that capital equipment lasts as long as possible. Depreciation for motors was the highest expense for sample firms. One of the problems with analyzing this study sample on a firm basis is that, in most cases where the firm is made up of two or more partners, depreciation could not realistically be attributed to the firm as a whole. This would be based on the assumption that each partner contributed equally to the equity in capital equipment. Although firms on Cedar Lake appear to remain relatively stable over the course of a season, partnerships do tend to change between seasons. Also, if a boat or motor wears out, it is the original owner who goes to MACC to get the loan to replace it. Unless partners had an agreement to stay in the partnership for the life of the jointly-owned equipment, depreciation can not realistically be charged to all partners. Depreciation should be charged to the individual owners, not the firm.

Depreciation for nets and fishing equipment should not be charged to the firm either. Nets are bought individually by fishermen, in most cases. There was one firm where one partner used the other partner's

TABLE 10
Net Incomes and Cash Flows of Sample Firms

<u>Firm #</u>	<u>Net Income</u>	<u>Cash Flow</u>
1	3,168	7,298
2	17,853	19,635
3	19,141	23,336
4	6,324	10,949
5	2,039	6,953
6	21,240	25,111
7	25,037	29,480
8	2,399	6,279
9	3,089	6,241
10	7,989	9,663
11	2,003	6,064
12	10,228	13,545

nets. In this case, the depreciation should be charged to the owner of the nets.

Fishing equipment includes camp gear, such as sleeping bags, life jackets, etc. These are generally personal items owned by individual fishermen; they are not usually purchased jointly by the partners.

Not all operating expenses are shared equally by the partners. Maintenance and repairs of boats and motors are paid for by the owner, as are any insurance premiums. The only expenses that really are shared by the partners are food, fuel and hired labour. These expenses can be charged to either the individual or to the firm. Because of the above reasons, it would be suitable to look at the commercial fishery at Cedar Lake in the context of the individual fishermen.

5.5 CHARACTERISTICS OF SAMPLE FISHERMEN

In the analysis of individual fishermen, it was not possible to disclose full information for each person, since the information obtained on each fisherman is confidential. As a result, the net incomes and cash flows for each individual are presented without the benefit of detailed expense information. Where possible, ranges and averages are used to provide as complete a picture as possible, without disclosing information which may identify the fishermen.

5.5.1 Net Income

Table 11 shows the average net income for the 19 sample fishermen. Table 12 shows the actual net incomes and cash flows for all fishermen. All of the fishermen had positive cash flows, indicating an ability to cover operating costs and they are therefore considered to be viable in the short run. Each of the sample fishermen can generate enough revenue to cover one season of fishing expenses.

Some fishermen had very low cash flows (eg., Fishermen #'s 3, 14 and 17). These three fishermen all had negative net incomes. However, two of these fishermen are planning to get out of fishing, and are not going to reinvest in capital equipment. The third fisherman has just started fishing (as a licenced fisherman) and it is not unusual for start up costs to exceed revenue, especially when investment in capital equipment is necessary. However, this investment can be amortized through MACC financing. The depreciation charged to this fisherman was much higher than his loan payments for the year. He bought a new motor in 1988, and did not fish for very long during the 1988 summer season.

TABLE 11
Average Net Income of Sample Fishermen

	(\$ 1988)

Revenue	12,286
Operating Expenses:	
Fuel	850
Food	636
Fishing Supplies	360
Hired Labour	997
Repairs	630
Licences	15
Insurance	137

Total Operating Expenses	3,625
Net Operating Income	8,661
Depreciation:	
Boats	411
Motors	1,113
Fishing Equipment	104
Nets	461

Total Depreciation	2,089
Interest Expense	230
Net Income	6,342
Cash Flow	8,661

TABLE 12
Net Incomes and Cash Flows of Sample Fishermen

<u>Fisherman</u>	<u>Net Income</u>	<u>Cash Flow</u>
1	3,168	7,298
2	10,626	10,926
3	-1,463	1,406
4	7,989	9,663
5	12,486	16,149
6	3,089	6,241
7	12,551	13,331
8	4,019	4,754
9	2,399	6,279
10	7,227	8,709
11	3,352	5,093
12	4,021	6,732
13	3,466	4,658
14	-1,982	221
15	11,575	13,213
16	21,240	25,111
17	-1,047	1,102
18	10,228	13,545
19	7,566	10,123

5.5.2 Income Taxes

An important consideration when looking at net income is that the fishermen have to pay income tax on their gross revenue less costs for capital equipment, fuel, wages and food at camp. Income tax is not deducted from their FFMC payments. The majority (approximately 67 to 75%) of the fishermen are treaty Indians. Treaty Indians are exempt from income tax if their income is earned on reserve land. However, the Easterville plant is located in the Metis community (ie. on provincial Crown land), not on the reserve. Until June, 1989 the Denbeigh Point station was also on provincial Crown land. However, now that Denbeigh Point is reserve land, the treaty Indian fishermen will not have to pay tax on fish delivered there. Metis fishermen will still have to pay tax. However, a number of Metis fishermen, and community members, are applying to have their treaty status reinstated under Bill C-31. Bill C-31, "An Act to Amend the Indian Act", was proclaimed in June, 1985. Two of the reasons this legislation was put into force were to remove sexual discrimination as a reason for not granting Band membership to a person, and to abolish the concept of "enfranchisement". Enfranchisement was the process whereby a person would give up their treaty status and Band membership for various reasons. For example, up until 1960, treaty Indians had to give up their status in order to vote. They also had to give up their status to join the armed forces. If a treaty Indian woman married a non-native, she, and any children they may have, would lose their treaty status. However, if a treaty Indian man married a non-native, he and his children would retain their status. This was the sexual

discrimination that was the target of Bill C-31. By giving up or losing their treaty status, these people lost the benefits of such status, such as the exemption from income tax of income earned on reserve. Any fishermen reinstated under Bill C-31 will not have to pay taxes on deliveries to the Denbeigh Point station.

The reserve status of Denbeigh Point may be an added incentive for fishermen to deliver there, rather than to the Easterville station. Now that the EFA owns both stations, they will be able to collect from fishermen for outstanding accounts wherever they deliver. It is not likely that fishermen will all of a sudden start delivering 100% of their catch to Denbeigh Point. Not all fishermen have trucks, and it is easier to handle and pack the fish at Easterville. The amount the fishermen may have to pay in income tax may be worth the convenience of delivering to Easterville. In the summer of 1988, the sample fishermen delivered most of their catch to Easterville, before it closed down in October. Of all deliveries made by the sample fishermen, 65% were delivered to Easterville.

5.5.3 Experience

All fishermen interviewed had been fishing for at least five years, either as a licenced fisherman or hired helper. Seven had been fishing for 20 years or more, five for 10 to 19 years, and seven for five to nine years.

Fifteen of the fishermen had started as helpers for their fathers before getting their own licences. Three fishermen said they started

fishing because there is nothing else to do in Easterville. One fisherman said he started fishing because the money was good at the time. All fishermen said they enjoyed fishing, although half of them said it was getting harder because the fish are getting harder to find. All fishermen agreed that fishing was the only steady employment available in Easterville.

A number of fishermen indicated that they also harvested other domestic foods while fishing. Thirteen sample fishermen said they also hunt when they are out fishing. Thirteen said they brought fish home for domestic consumption. The amount of wild game and fish brought home could not be determined from interviews. A separate study would have to be done to determine the consumption of country foods by the residents of Easterville.

5.5.4 Fishing Practices

For the 1988 season, most fishermen delivered to Easterville early in the summer and to Denbeigh Point in the fall. In 1988, this was due to the closure of the Easterville station in October, because of financial difficulties. The Easterville station re-opened in June, 1989. One fisherman delivered to Denbeigh Point only. Five individuals delivered to Grand Rapids once or twice during the season. Fishermen delivering their catch to Grand Rapids receive cash, less their MACC and UIC payments. If they deliver to Easterville or Denbeigh Point, usually their entire payment goes as a credit towards their outstanding account. All of the sample fishermen had outstanding accounts at Denbeigh Point. The Easterville station accounts were not available, so it was not known how many fishermen owed that station.

Fourteen of the fishermen said they set 15 nets at a time, while three set more than 15 and one sets less than 15.

Most of the fishermen said they keep track of their expenses during the fishing season, and will stop fishing if it gets too expensive. One reason these fishermen keep good records may be because they have to keep their receipts for income tax purposes.

There was a general feeling among the fishermen that the fishery has been declining in recent years. This is probably due to the decreases in pickerel deliveries in the last few years. Total catch (by weight) has been fairly consistent over the last few years, but the mix of species in those catches has changed (Section 3.1.2). Decreases in pickerel catch will have a drastic effect on revenue generated by the fishery, since it is the highest priced species. Total catch has also stayed fairly consistent because fishermen are increasing their efforts to catch the same amount of fish. This will result in higher unit costs of fishing, and will reduce net incomes of the fishermen.

5.5.5 Other Sources of Income

Twelve of the fishermen collected unemployment insurance after the 1988 summer season. Five collected welfare because they had not fished enough weeks to qualify for unemployment insurance. Two fishermen had other jobs last year and did not require social assistance. It was not possible to determine how much social assistance the fishermen collected last year, as most could not remember what they received. Three men were planning on quitting fishing the next year to pursue

other interests. These included the two men who had other jobs last year.

All fishermen said they attempted to fish long enough to qualify for unemployment insurance benefits. Fishermen cannot collect welfare during the fishing season, so they will try to fish as long as they can in order to qualify for UIC benefits. A number of the sample fishermen felt that it was getting harder to work enough weeks to qualify for unemployment insurance because it was getting harder to catch fish. The average number of weeks worked by the sample fishermen was exactly ten, the minimum number of weeks required to apply for unemployment insurance. The number of weeks worked by fishermen ranged from 1 to 16. The average number of deliveries made by each fisherman was 28. The number of deliveries ranged from 2 to 57. Two fishermen made less than five deliveries; three made 45 or more deliveries. The average number of deliveries per week was 2.8. Assuming that the number of deliveries made equals the number of days fished, this is very low, considering that a fishing week is a full seven days. And assuming that the goal of the fishermen is to maximize profits, it does not seem likely that this goal could be achieved by making so few deliveries. However, this analysis must be undertaken with the perspective that not all of these fishermen fish because they are profit maximizers. For many native fishermen, fishing is as much a way of life as it is a source of income. As noted previously, fifteen of the sample fishermen started out as helpers with their fathers. Many of these men got their licences from their fathers, and are carrying on a traditional family and cultural activity. As noted in Chapter 2, economic and domestic

activity in Chemawawin were based almost entirely on the surrounding natural resources. Commercial fishing is the only such economic activity remaining after the relocation.

Chapter VI

CONCLUSIONS AND RECOMMENDATIONS

This study analyzed the economics of the 1988 summer commercial fishery of Cedar Lake. The net income of a sample of 12 firms, comprised of 19 fishermen, was estimated. Social benefits arising from the fishery, such as hunting and domestic fishing were also discussed briefly. The role of credit in the economy of Easterville and its importance to the commercial fishery was examined.

6.1 CONCLUSIONS

In the summer of 1988, eighty licenced commercial fishermen delivered a total of 431,569 kgs of fish to the Freshwater Fish Marketing Corporation. The estimated income to the fishermen from these deliveries was \$1,160,458. Because of the difficulties in determining operating costs, and the small sample interviewed, the net income to all fishermen could not be estimated.

The average net income of the 12 sample firms was \$10,041. Net incomes of the individual firms ranged from \$2,003 to \$25,037. The average net income of the 19 sample fishermen was \$6,342. Net incomes of the individual fishermen ranged from -\$1,982 to \$21,240.

The commercial fishery is important not only in terms of income to fishermen, but as a traditional activity tied to their way of life in

Chemawawin. Most fishermen also hunted when they were out fishing and brought fish home for domestic consumption from their commercial catch. The amount of wild game and fish brought home was not be determined.

Unemployment insurance benefits were also an important source of income for fishermen. Fishermen who fish for a minimum of 10 weeks are eligible to apply for these benefits. Most fishermen attempt to fish for the minimum number of weeks in order to collect these benefits.

The availability of credit is an important aspect of the local economy, and is especially important to the commercial fishery. It allows fishermen to buy fishing supplies before they receive their income from fish sales. However, the ability to obtain credit at the Denbeigh Point station has caused problems with unpaid debts to the Easterville Fishermen's Association in recent years, similar to those encountered by the Easterville Co-operative. In addition, individual fishermen are finding themselves burdened with unmanageable debt loads. These large debt loads have accumulated mostly from non-fishing expenses. Interest is not charged on any items except cash advances at the Denbeigh Point station. However, it is likely that the fishermen are paying the cost of borrowing through higher prices.

The EFA has recently purchased the Denbeigh Point Fish Packing Company, eliminating the competition for the fishermen's business. A possible outcome of this purchase is that the EFA could raise prices even further than they are now, forcing fishermen to continue accumulating massive debts, while reducing the debt load of the Association.

The commercial fishery is experiencing some difficulties. In the past few years, pickerel catches have been declining, and fishermen are concerned that their incomes may be greatly reduced if this species continues to decline. This problem must be addressed by the EFA and Manitoba Natural Resources, in a co-operative effort.

The Cedar Lake commercial fishery is extremely important to the community of Easterville, not only in economic terms, but also in added benefits from hunting and domestic consumption of fish. It is a strong fishery, with an excellent species mix. The problems that are arising within the fishery must be addressed in order to sustain the commercial fishery as an important contribution to the local economy.

6.2 RECOMMENDATIONS

The following recommendations are made to suggest possible routes to sustaining the long term viability of the commercial fishery of Cedar Lake.

The Easterville Fishermen's Association should retain their credit policy for both the Easterville and Denbeigh Point stations. However, there should be a limit on the amount that anyone can borrow over a certain period of time, ie. the \$350 per week already in place. In addition, credit should be extended for fishing expenses only. Since all of the sample fishermen earned enough income from fishing to cover operating costs, they should be able to repay their debts to the EFA in one fishing season.

The Easterville Fishermen's Association should ensure that prices of goods sold at the Easterville and Denbeigh Point fish stations remain stable. Increasing prices in order to recover losses from previous years from bad debts will simply shift the debt burden from the EFA to the fishermen. This would lead to people retaining their heavy debts, resulting in the inability, or the unwillingness, of these people to pay their accounts. This, in turn, will result in the EFA again having to write off bad debts. Neither the EFA nor the fishermen will end up in a secure financial situation.

In addition, interest payments should be broken out of the price structure. The cost of credit should be known to the fishermen, rather than this cost being hidden in the form of higher prices.

A management plan for the commercial fishery should be developed by the EFA, in conjunction with Manitoba Natural Resources, to address the problem of the depletion of pickerel stocks. Development of this plan should start with the identification of goals and objectives of both the EFA and Manitoba Natural Resources for the management of the Cedar Lake commercial fishery. These goals and objectives must be known before a plan can be developed that will be agreeable to both parties. The plan should include measures to assist fishermen in retaining their current income levels. This could involve encouraging fishermen to fish for other commercial species.

This plan must be developed in consultation with the fishermen, so they are fully aware of the possible impacts that changes in quota levels, etc. will have on their ability to earn an income from fishing.

Input from the people being affected by the plan is important in ensuring co-operation from these same people.

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Appendix A

SCIENTIFIC NAMES OF COMMERCIAL SPECIES FOUND IN CEDAR LAKE

<u>Common Name(s)</u>	<u>Scientific Name</u>
Carp	<i>Cyprinus carpio</i> (Linnaeus)
Goldeye	<i>Hiodon alosoides</i> (Rafinesque)
Northern Pike (Jackfish)	<i>Esox lucius</i> (Linnaeus)
Pickereel (Walleye)	<i>Stizostedion vitreum vitreum</i> (Mitchill)
Sauger	<i>Stizostedion canadense</i> (Smith)
Sturgeon Sucker (Longnose Sucker)	<i>Catostomus catostomus</i> (Forster)
Tullibee (Cisco)	<i>Coregonus artedii</i> (Lesueur)
Whitefish (Lake Whitefish)	<i>Coregonus clupeaformis</i> (Mitchill)
White Sucker (Common Sucker)	<i>Catostomus commersoni</i> (Lacepede)
Yellow Perch (Perch)	<i>Perca flavescens</i> (Mitchill)

Source: Scott and Crossman, 1973.

B. Maintenance and Repair

Please list repairs and parts purchased:

<u>Repair</u>	<u>Parts cost</u>	<u>Labour cost</u>	<u>Total cost</u>
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C. General Expenses

Did you buy any equipment from anywhere other than FFMC/EFA last year? _____

If yes, where? _____

How much did you purchase in 1988 and what was the cost of (for fishing):

	<u>Amount</u>	<u>Cost (approx)</u>
Oil (l)	_____	_____
Gasoline (l)	_____	_____
Diesel (l)	_____	_____
Kerosene (l)	_____	_____
Propane (kg)	_____	_____
Naphtha (l)	_____	_____
Grease (tubes)	_____	_____
Transmission oil (l)	_____	_____
Anti-freeze (l)	_____	_____
Gillnets (yds/m)	_____	_____
Floats	_____	_____
Leads	_____	_____
Lead core line (yds/lbs)	_____	_____
Seaming twine (kgs/lbs)	_____	_____
Rope (m)	_____	_____
Sideline (lbs/m)	_____	_____
Tarp	_____	_____
Paint (gal)	_____	_____
Shovels	_____	_____
Chisels	_____	_____
Jiggers	_____	_____
Axes	_____	_____
Saws	_____	_____
Plastic tubs	_____	_____
Fish boxes	_____	_____
Net trays	_____	_____
Buoys/flags	_____	_____
Mitts (pairs)	_____	_____
Gloves (pairs)	_____	_____
Boots (pairs)	_____	_____
Oilers	_____	_____
Parkas	_____	_____

Socks (pairs)	_____	_____
Knives	_____	_____
Fire extinguishers	_____	_____
Life jackets	_____	_____
Food	_____	_____
(for how many people?)	_____	_____
Insurance: boat	_____	_____
fishing	_____	_____
Radio licence	_____	_____
Spark plugs	_____	_____
Points & condensers	_____	_____
Fiberglass kit	_____	_____
(for repairs)	_____	_____
Oil filters	_____	_____
Batteries	_____	_____
Ice	_____	_____
Others (specify)	_____	_____
	_____	_____
	_____	_____
	_____	_____

II. FINANCING

Have you borrowed money to finance your fishing business? _____

If yes, Original amount borrowed _____
 Interest rate _____
 Date loan started _____ (month/year)
 Number of years to repay _____
 How often do you make payments? _____
 Amount of payment _____

Who provided the loan? MACC _____
 Bank _____
 FFMC _____
 EFA _____
 Other (specify) _____

Do you have any other loans (eg. for trapping)? _____

If yes, Original amount borrowed _____
 Interest rate _____
 Date loan started _____ (month/year)
 Number of years to repay _____
 How often do you make payments? _____
 Amount of payment _____

Who provided the loan? MACC _____
 Bank _____
 FFMC _____
 EFA _____
 Other (specify) _____

III. FISHING INCOME (PRIVATE)

Do you sell any of your fish privately (ie. not to FFMC) ? _____

If yes, please estimate your income from private sales: _____

Please estimate the amount of fish sold privately:

	<u>#</u> <u>kgs/lbs</u>	
Whitefish	_____	
Pickereel	_____	
Lake trout	_____	
Northern pike	_____	
Tullibee	_____	
Sauger	_____	
Goldeye	_____	
Mullet	_____	
Carp	_____	
Perch	_____	
Other (specify):	_____	_____
	_____	_____

Who did you sell your fish to (eg. restaurants, hotels, pet food co., private individuals)?

1. _____
2. _____
3. _____

IV. INVENTORY

A. Boats

How many boats do you own? _____

What kind is it/are they?

Whitefish boat	_____
Yawl (Inboard/Outboard)	_____
Yawl (Outboard)	_____
Skiff	_____
Bow picker	_____
Canoe	_____
Other (specify)	_____

Are they all used for fishing? _____

If no, which ones are used for fishing? _____

Do you own or rent your boat(s) ? _____

If own, when did you purchase your boat(s)?

Month/Year _____

Date of Mfr. _____

Cost _____

MOT Reg. # _____

Length _____

Width _____

Name of Mfr. _____

Address _____

If rent:

Payment Arrangement

How long?

How old is the boat?

If you share your catch with the boat owner, do you sell all the fish under your name or do you sell his share under his name?

Name of owner: _____

B. Hull Construction

Steel _____

Wood planks _____

Fiberglass _____

Aluminum _____

Plywood _____

Other (specify) _____

C. Outboard Engines

Do you own or rent outboard engines? _____

How many? _____

If own: Make _____

HP _____

Model Year _____

Cost _____

When bought _____

(month/year) _____

How many years do you think your outboard engine will last for fishing? _____

If rent: Cost _____
 Frequency of payment _____
 # periods paid/year _____
 Payment arrangement _____
 (eg. % of catch)

D. Fishing Equipment

Gillnets:

owned Mesh size Twine size Depth (meshes) Length

Is lead core line used on the nets? _____

On how many nets is it used? _____

How many of the following items do you own, how much did they cost, and when did you buy them?

	<u>Number</u>	<u>Cost (approx)</u>	<u>When bought</u>
Depth sounder	_____	_____	_____
Fish finder	_____	_____	_____
Net trays	_____	_____	_____
Plastic tubs	_____	_____	_____
Steel net anchors	_____	_____	_____
Buoys/flags	_____	_____	_____
Chains (ft/m)	_____	_____	_____
Boat anchors	_____	_____	_____
Life jackets	_____	_____	_____
Tents	_____	_____	_____
Sleeping bags	_____	_____	_____
Stoves	_____	_____	_____
Coolers	_____	_____	_____
Lanterns	_____	_____	_____
Other (specify)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

How many nets do you lift and set on a normal day? _____

How many open water fishing seasons do you expect your nets to last? _____

V. MANAGEMENT PRACTICES, GENERAL

A. Do you have an individual quota? _____

If yes, what is it? _____ (kg)

- B. What makes you decide to stop fishing for the summer?
(eg. reach quota, end of season, costs greater than revenue)
- C. Do you keep track of your fishing expenses during the season?
How? _____
- D. When did you start fishing?
Why did you become a fisherman? _____
- E. Do you receive unemployment insurance benefits (UIC)
or welfare when you are not fishing? _____
Are your claims for UIC based on the number of weeks you
fished only, or did you also work at another job?
Do you know how much you received in UIC or welfare last year?
- F. What other income do you receive during the year?
- G. Do you fish in the winter? _____
How long did you fish last winter? _____
- H. Do you keep some of your commercial catch for your own/family
consumption? _____
If yes, please estimate the amount of fish you keep for your
own purposes _____ (kg)
- I. For what other purposes do you use your boat and motor?
- | | # days/
% of time
during summer
<u>fishing season</u> |
|-----------------|--|
| Recreation | _____ |
| Transportation | _____ |
| Hunting | _____ |
| Other (specify) | _____ |
| | _____ |
- J. Do you also hunt/trap when you are fishing?
If yes, how many moose, etc. did you kill last summer?