

**THE NELSON RIVER
LAKE STURGEON FISHERY**

**FROM THE PERSPECTIVE
OF THE BAYLINE COMMUNITIES
OF PIKWITONEI, THICKET PORTAGE,
AND WABOWDEN**

By

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**A Practicum Submitted in Partial Fulfilment
of the Requirements of the Degree,
Master of Natural Resources Management**

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***The Nelson River Lake Sturgeon Fishery: From the
Perspective of the Bayline Communities of Pikwitonei, Thicket
Portage and Wabowden***

By

DONALD S. MACDOWELL.

*A practicum submitted to the Faculty of Graduate Studies of the
University of Manitoba in partial fulfilment of the requirements of the
degree of Master of Natural Resources Management.*

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ABSTRACT

Lake sturgeon (*Acipenser fulvescens*) populations in the upper Nelson River, Manitoba, have decreased dramatically over the last century. The Nelson River Sturgeon Co-management Board views local knowledge as a tool to foster interest in the lake sturgeon stock and encourage support for, and compliance with, management initiatives. This report documents results of a study to collect local knowledge and historical information from the three Co-management Board Bayline communities of Wabowden, Thicket Portage, and Pikwitonei.

Information was collected by interviewing long-time users of the resource and by searching through literature and government files. Information was categorized as "historical" or "local/traditional" knowledge. Historical information focused on data or recollections from specific periods of time. Historical material relevant to the three study communities is presented in a chronological history of the Nelson River sturgeon fishery delineated into the following periods: Early History (prior to 1904); 1904 to 1936; 1937 to 1952; 1953 to 1969; and 1970 to 1995. Local/traditional knowledge focused on lake sturgeon biology, cultural uses, and changes observed over time and is presented in an autonomous section.

The historical review of the fishery demonstrated that isinglass, a gelatin-like substance from air bladders of lake sturgeon, was an important commercial resource for aboriginal communities on the upper Nelson River as far back as the early 1800s. A commercial fishery was established on the upper Nelson River during the early 1900s, but transportation difficulties hindered its development. The fishery was closed for the first time in 1911 because of concern over the depleted Lake Winnipeg stock.

Completion of the Hudson Bay Railway to Kettle Rapids in 1917 facilitated movement of freight south and prompted re-opening of the fishery. This time the lake sturgeon stock was heavily exploited as over 800,000 lbs were harvested in just nine seasons, exceeding the total commercial catch from the area for the next 65 years! Many of the operators at the time were of Icelandic and Norwegian descent. By 1927, harvests had decreased sharply, and the sturgeon fishery throughout Manitoba was closed for a second time in 1934.

The Nelson River sturgeon fishery was opened on two occasions during the next 26 years (1937-1946 and 1953-1960), but never achieved the harvests of the 1920s. By the 1960s, it was clear that the fishery needed much more than a ten year period to recover. However, pressure from fishermen coerced the responsible authorities into reopening the fishery in 1970 with a much reduced quota. This fishery operated for the next 22 years until increased domestic harvests prompted a buy out of the fishermen and closure of the commercial fishery in 1992.

Historically, domestic harvests in the three study communities were relatively low as the focus was on the commercial fishery. Lack of freezer facilities and difficult access to the Nelson River precluded large domestic catches. Two factors had a significant effect on the domestic fishery: a) improved access to the Nelson River and b) the R. vs. Sparrow Supreme Court of Canada decision that clarified aboriginal harvesting rights. Conservation officers reported drastic increases in domestic effort during the early 1990s. The NRSCB is currently attempting to control the harvest which has continued to 1996.

The three study communities originated as stops along the newly constructed Hudson Bay Railway in the early 1900s. Many current residents are decedents of European fathers, who had come north to work as the area was opened, and aboriginal mothers. Since fishing in most families was historically the responsibility of males, knowledge of sturgeon within the communities was generally only based on first hand observations or on observations of parents. This is in contrast to many northern aboriginal communities, where local knowledge of resources is often based on multi-generational gathering of information. Despite the relatively short time span within which the community knowledge base has been generated, the oral information gathered still provides useful insights into: historical and current distribution and spawning areas; behavioural and morphological characteristics; cultural uses and importance of sturgeon in traditional lifestyles; and changes to the Nelson River and the fishery since hydroelectric development. The oral information also clarified and bound together much of the historical information gathered from literature and government files.

The decline of the upper Nelson River sturgeon population is a lesson that should not be disregarded by resource managers. How much longer the population can be impacted before becoming extirpated is unknown. It is essential that sturgeon conservation initiatives are continued if the stock is to be conserved.

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1.0 INTRODUCTION

1.1 BACKGROUND

The lake sturgeon (*Acipenser fulvescens*) is the largest of Canada's freshwater fishes, reaching lengths of over 2 m and weights of up to 140 kg (Scott and Crossman 1979). The range of the species in Canada extends from the Great Lakes west to the headwaters of the Nelson River watershed, and north to the Churchill River. In addition to their size, lake sturgeon possess a number of other biological traits that distinguish them from other freshwater fish including longevity (> 100 years), old age at maturity (up to 20 years), and extended spawning periodicity (up to five years between spawnings).

Historically, lake sturgeon were common in most of Manitoba's larger rivers and lakes. During the past century, however, the abundance and distribution of sturgeon in Manitoba has declined significantly. Lake sturgeon have either been extirpated or are in the process of becoming extirpated in over half of the provincial waterbodies that historically sustained self-reproducing populations (Manitoba Department of Natural Resources [MDNR] 1994). Once abundant in the Red and Assiniboine Rivers and further downstream, they are now considered extirpated upstream of Lockport, and occur only incidentally in catches from Lake Winnipeg. Larger populations still inhabit the Winnipeg, Nelson, Churchill, Saskatchewan, and Hayes river systems, but all are considered to be in decline. In the "Strategy for the Management of Manitoba's Fish Habitat" (MDNR 1991) lake sturgeon have been designated a "heritage species" due to their "unique life history characteristics, limited distribution, and economic, social, and historical significance". The species is listed as NIAC ("not in any category") by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) (Campbell 1990). However, they have been identified as a "vulnerable" species (at risk) by the Endangered Species Advisory Board in Manitoba (MDNR 1994), and are currently under consideration for designation as "endangered". Like elsewhere in North America, the

decline of lake sturgeon in Manitoba is attributable to the reasons summarized by Houston (1987) as a "synergistic product of life history factors, exploitation, and environmental change".

One of the last strongholds for lake sturgeon in Manitoba is the upper Nelson River. For centuries, lake sturgeon have provided local aboriginal people with an important subsistence food source, and by some reports have played an important role in traditional native religious practices (MDNR 1994). W.T. Urquhart, in his 1873 report on Manitoba fisheries (Dominion of Canada [DOC] 1873), quoted an Indian hunter as saying, "It [sturgeon] is to us Indians in the water what the buffalo was on land". Like elsewhere in Manitoba, however, impacts from exploitation and hydroelectric development have caused a drastic decline in the upper Nelson River lake sturgeon stock.

A commercial fishery established on the upper Nelson River in 1907 quickly developed a pattern of high exploitation, followed by collapse, and closure. The fishery was closed on four occasions between 1911 and 1969, and most recently in 1992. Hydroelectric development has also significantly altered sturgeon habitat in the area. Historical water levels and flows have changed substantially since completion of the Kelsey Generating Station on the Nelson River in 1960 and Lake Winnipeg Regulation in 1976. The extent to which these changes have influenced the sturgeon population remains unknown.

Despite evidence of decreasing numbers of sturgeon, the area continues to attract domestic fishing pressure. The most significant population remaining in the upper Nelson River occurs between Whitemud Falls and Kelsey, and this has become the most popular target for domestic sturgeon fishing activity. This area is utilized primarily by residents of Norway House, Cross Lake, Wabowden, Thicket Portage, Pikwitonei, and Split Lake and offers the best, and perhaps the only, opportunity for these communities to fulfil their domestic sturgeon needs.

Concern over reduced fish numbers, and the continued influence of hydroelectric development in limiting the population, prompted the six communities utilizing the upper Nelson River lake sturgeon resource to form the Nelson River Sturgeon Co-management Board (NRSCB) in 1992. The objective of the Board was to provide a forum for stakeholder communities to discuss and implement management strategies aimed at conserving the stock. In meeting this objective the Board developed a Management Plan Implementation Program in 1992. Components of the program include the following: communication and education; stock assessment; habitat assessment; enhancement; harvest statistics; and compliance. A number of the management plan components are currently in the process of being implemented.

The NRSCB believes that local knowledge will be a valuable tool in addressing at least three of the above components: communication and education, habitat assessment, and compliance. Berkes (1993) summarized the utility of local traditional knowledge as not only providing a cultural identity to indigenous peoples but also in providing fresh ecological insight that can be used for contemporary resource management and as a valuable tool for conservation education. Within the NRSCB communities, there remains a wealth of historical knowledge on the biology of the local lake sturgeon population and on the cultural importance of the fishery. This information can be used foster the interest of local residents in conservation of the sturgeon resource and to promote compliance with management strategies. The success of the proposed management strategies will be a key factor in conservation and recovery of the upper Nelson River lake sturgeon population.

1.2 ISSUE STATEMENT

Historically, upper Nelson River lake sturgeon formed an important part of the diet of local aboriginal people, and the fishery was a significant cultural event. However, over the past century, overexploitation and habitat degradation have caused stocks in the upper Nelson River area to decline. Concern over the decrease in sturgeon

abundance led the NRSCB to develop a management plan to conserve and enhance stocks. Education and communication, and compliance are key components of the program which is now in the implementation stage. Local knowledge is seen as a tool that can be used to facilitate achievement of these program objectives.

Although there is a substantial commercial harvest database, there is little documented information on the cultural, spatial, or temporal aspects of either the commercial or domestic fishery in the upper Nelson River area. Documenting the cultural significance of lake sturgeon fishing from a historical perspective is seen as an important step in fostering interest in conservation of lake sturgeon and compliance with the management strategies. Elders in the communities represented on the NRSCB possess a great deal of undocumented traditional and historical knowledge of lake sturgeon. Collection and synthesis of this information will provide a historical perspective of the cultural importance of this fishery to the local communities.

1.3 OBJECTIVES

The primary objective of this study was to initiate the collection of local knowledge relating to lake sturgeon from fishermen living in communities in proximity to the upper Nelson River. The information will be used to foster interest in the cultural importance of lake sturgeon in the area and ultimately to promote compliance with management strategies and conservation of the stock.

Specific objectives include:

- 1) to document local knowledge of the upper Nelson River lake sturgeon stock and fishery (domestic and commercial) held by long-time fishermen living in three Bayline communities (Wabowden, Pikwitonei, and Thicket Portage); and,

- 2) to collect information from published literature and government files and summarize the history of the lake sturgeon fishery (both domestic and commercial) in the three Bayline communities.

1.4 SCOPE

Due to the large temporal and spatial nature of this subject, the study was limited to three of six upper Nelson River communities represented on the NRSCB. The intent was to develop a methodology in the three smaller communities that can be applied to the other, much larger, First Nations (Cross Lake, Norway House, and Split Lake) during a subsequent study. Wherever possible, quantitative information was collected. However, such data must be viewed with caution. According to Usher and Wenzel (1987) fishery harvest studies are often subject to "recall failure" resulting in unreliable numbers. On the other hand, Berkes (1983) stated that for boreal zone native fishermen, lake sturgeon may be the only species considered important enough that numbers caught would be noted and remembered. Regardless, since the study was concerned primarily with local knowledge and fostering interest in the cultural importance of the sturgeon fishery, data collection focused on qualitative rather than quantitative information.

1.5 IMPORTANCE OF THE STUDY

Extirpation of lake sturgeon populations over the past century has left only scattered populations in Manitoba. The populations that remain relatively healthy are still subject to domestic harvest and face ever-increasing developmental pressure and thus, are themselves becoming increasingly more vulnerable to extirpation. Management plans to conserve stocks in northern aboriginal communities rely heavily on voluntary compliance by community members. Fostering interest in the cultural importance of the sturgeon fishery will encourage fishermen to participate in conservation of lake sturgeon and aid the NRSCB in reaching its objectives. The use of local knowledge has been identified by the NRSCB as a key tool for fostering this local interest in sturgeon. It is imperative

that this information be collected in a timely fashion while it is still available. Many of the individuals holding this information are older and subject to failing memories. Erosion of traditional knowledge has taken place due to the assimilation of indigenous peoples into western culture and by the failure of elders to pass on their knowledge to younger generations (Johnson 1992). Johnson (1992) noted that the most urgent problem with gathering traditional knowledge is its rapid disappearance due to the death of elders and the lack of resources available to document it. Johnson further stated that it is only through documentation that the usefulness of traditional knowledge can become apparent. Failure to collect traditional information on sturgeon in the Bayline communities in the short term would result in its irretrievable loss.

2.0 LITERATURE REVIEW

Literature relevant to the proposed study is reviewed in the following two subsections. The first subsection reviews literature on the evolutionary significance, biology, and current distribution and status of lake sturgeon, providing an understanding of sturgeon issues that is necessary to appreciate the significance of the study and to assess and document traditional ecological knowledge of the resource. The second subsection reviews literature pertaining to local/traditional knowledge, its role in wildlife management and scientific assessment, and its cultural importance.

2.1 LAKE STURGEON

Evolution and Distribution

Sturgeon are one of the largest freshwater fish in the world. They are relics of prehistoric times, maintaining many features that have long since disappeared through the evolutionary process in other fishes (Romer and Parsons 1977). Sturgeon-like fossils have been found in rocks laid down during the upper Cretaceous period nearly one hundred million years ago (Harkness and Dymond 1961). Distinctive characteristics of sturgeon include bony plates or scutes covering the sides, a large, lung-like cellular air bladder, a cartilaginous skeleton, and a heterocercal shark-like tail (Houston 1987, Harkness and Dymond 1961).

Twenty-five species of sturgeon are distributed throughout Europe, Asia, and North America (Harkness and Dymond 1961). Lake sturgeon (*Acipenser fulvescens*) are found exclusively in North America and, although they have one of the widest geographic ranges of any fish on the continent, they are restricted to three major watersheds: the Great Lakes; Hudson Bay; and the Mississippi (Houston 1987) (Figure 1). In the United States, lake sturgeon are restricted to the Mississippi drainage and its larger tributaries south to Nebraska, Missouri, and Alabama (Harkness and Dymond

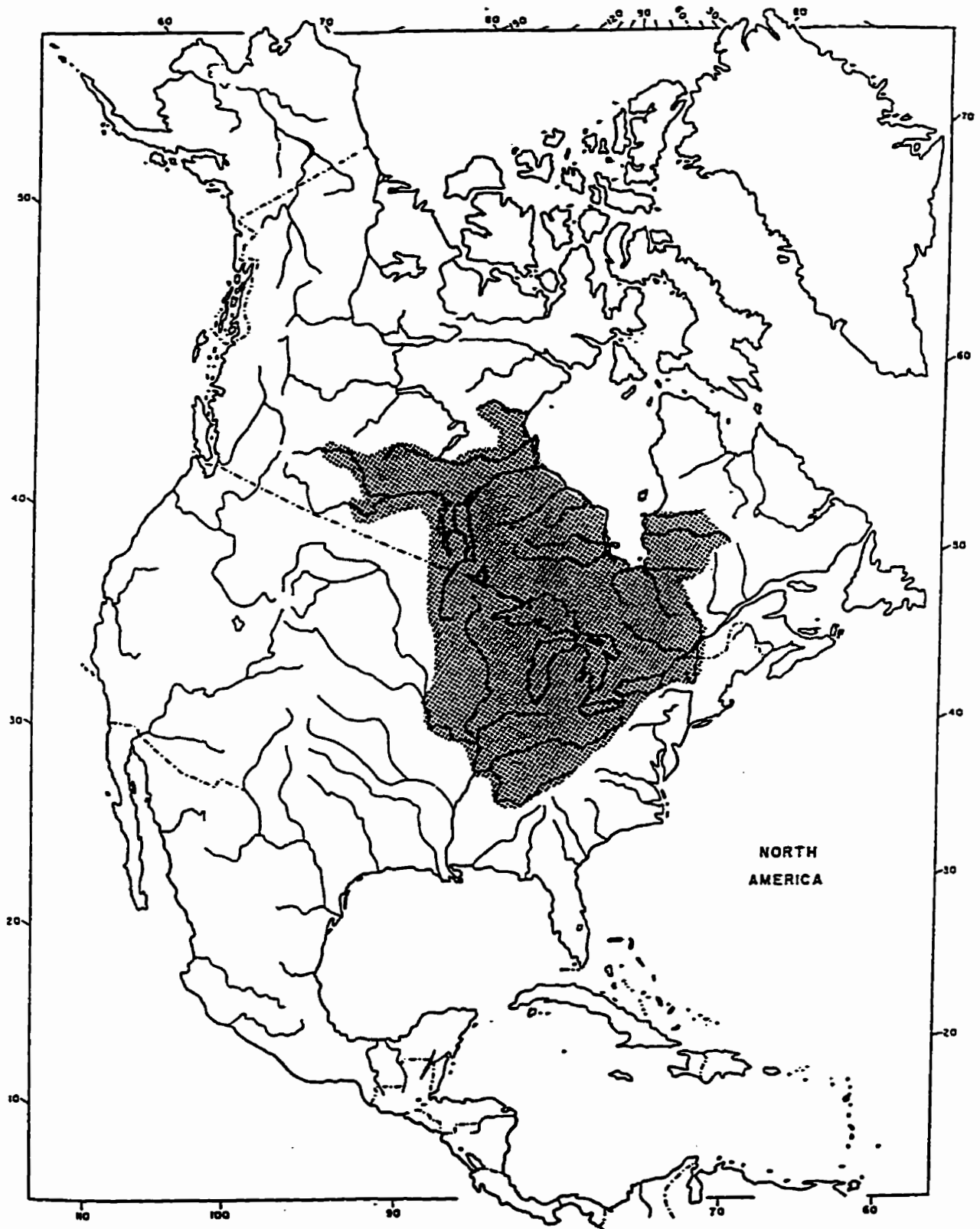


Figure 1. North American distribution of lake sturgeon as presented in Houston (1987).

1961, Scott and Crossman 1979). Harkness and Dymond (1961) reported sturgeon occurring, to at least some degree, in nineteen states. In Canada, sturgeon are reported from the Great Lakes, the upper St. Lawrence River, and most of the large rivers draining into James Bay and the lower half of the western shore of Hudson Bay (Scott and Crossman 1979). They are also found in the upper North and South Saskatchewan rivers and the upper Churchill River in Alberta and Saskatchewan (Houston 1987).

In Manitoba, lake sturgeon were known historically from the Red River and its tributaries and were caught in large quantities from Lake Winnipeg (Harkness 1980). While a remnant population has survived in Lake Winnipeg, sturgeon have been extirpated upstream of Lockport (MDNR 1994). Remnant populations remain in a few of the rivers flowing into the east side of Lake Winnipeg (MDNR 1994). Bajkov (1933) reported catching sturgeon in the Pigeon River during the 1930s, but stated that the stocks were considerably depleted even then. Populations also remain in the Winnipeg River and several northern rivers including the Saskatchewan, Nelson, Churchill, Hayes, Fox, and Bigstone (Sopuck 1981). Houston (1987) and Scott and Crossman (1979) reported lake sturgeon occurring as far north as the Seal River.

Biology

Lake sturgeon are spring spawners, with year to year variation between spawning dates being as much as two weeks (Sopuck 1987). Water temperature is believed to be the determining factor. Scott and Crossman (1979) give 13-18°C as the preferred range while MacDonell (1994) determined that Nelson River sturgeon spawned in the Weir River at temperatures between 11 and 17°C. Lake sturgeon have been observed to move under the ice to spawning locations (Scott and Crossman 1979). Kempinger (1988) documented sturgeon moving into spawning rivers during fall and remaining there throughout the winter. Migratory patterns of sturgeon are not well understood, but they seldom exceed 400 km (Scott and Crossman 1979). Sturgeon will congregate at spawning locations until the appropriate temperature is reached (Scott and Crossman

1979). Strong homing tendencies to spawning locations have been reported, but fish will also move to other locations (Priegel and Wirth 1971).

Spawning migrations are differentiated sexually, with males reaching the spawning area first (Houston 1987). Females are in spawning condition for only a brief period of time, but may spawn over a period of a few days (Harkness and Dymond 1961). Sopuck (1987) found that spawning occurred in early June in the Landing River in northern Manitoba and lasted for up to two weeks. Kempinger (1988) observed sturgeon spawning from mid April to early June in Wisconsin. Lake sturgeon in the lower Nelson River in northern Manitoba have been observed in spawning condition in early July (MacDonell 1993).

The spawning habitat of lake sturgeon is cited as being in areas of shallow (0.6-4.7 m), swift water in rapids, or at the base of small falls which limit upstream migration (Harkness and Dymond 1961, Scott and Crossman 1979, Houston 1987). In lakes where suitable spawning rivers are not available they are reported to spawn over rocky shorelines or ledges where wave action produces the level of oxygenization required for the eggs (Houston 1987).

During spawning, sturgeon lie together in groups of two or three, one or two males to each female (Harkness and Dymond 1961). Eggs are randomly scattered and adhere to rocks and any other objects in the water (Kempinger 1988). Egg number varies between females, usually increasing with age and size, but is also variable in fish of approximately the same weight (Houston 1987). Individual lake sturgeon commonly lay between 50,000 and 700,000 eggs (Harkness and Dymond 1961).

At incubation temperatures of 15-18°C, the eggs hatch in five to eight days and the young fish, which are approximately 8 mm in length, are nourished via the yolk sac for 9 to 18 days (Scott and Crossman 1979). The young grow rapidly in the first summer (199 mm +), but for the first five years growth is manifested primarily in the

form of increased length, rather than weight (Harkness and Dymond 1961). After sexual maturity is reached, growth in weight becomes more rapid.

Growth of lake sturgeon varies considerably, both within and between populations (Priegel and Wirth 1971). This variation depends on several factors including water temperatures, amount of available food, and sex (Kooyman 1955, Houston 1987). Sturgeon from larger, warmer waterbodies to the south generally demonstrate faster growth rates than those farther north (Houston 1987). Sunde (1959) reported growth rates from the Nelson River of 0.9 pounds and 1.9 inches per year for both sexes of sturgeon under 20 years of age. Growth of sturgeon over 20 years of age averaged 0.4 pounds and 0.4 inches per year for males and 0.7 pounds and 0.5 inches per year for females. Kooyman (1955) pointed out that although the sturgeon is often perceived to be a slow growing fish, this is not actually the case in terms of increasing size with age. He noted that few other fish grow faster than one pound per year. Sunde (1961) reported that sturgeon from the Nelson River in northern Manitoba grew slower than those from waterbodies in Quebec and Wisconsin. Scott and Crossman (1979) suggested that the accuracy of ageing older sturgeon is in question, which perhaps limits the usefulness of comparing growth of different populations.

The age of first spawning in sturgeon is different in the two sexes and varies with location from north to south (Houston 1987). In addition, not all individuals within a population will spawn for the first time at the same age (Harkness and Dymond 1961). Within a given population, males tend to mature before females. In general, males mature between 12 and 20 years of age, while females mature between 14 and 26 years of age (Harkness and Dymond 1961).

Lake sturgeon do not spawn every year (Houston 1987). Spawning periodicity has been listed as every 2-3 years for males and every 4-6 years for females, primarily depending upon the northerness of the locality (Scott and Crossman 1979). Magnin (1966) suggested that the interval between successive spawnings for sturgeon in the

Nottaway River, northern Quebec, increases with age and may be four to six years in females and two to three years in males. In contrast, Sunde (1961) and Kooyman (1955) suggested that the time between spawnings among female lake sturgeon from the Nelson River in northern Manitoba decreases with increasing age.

Lake sturgeon are perhaps one of the longest lived freshwater fish (Scott and Crossman 1979). Females live longer than males (Sunde 1961), explaining the disparate sex ratios of older fish (Houston 1987). The usual maximum age for males has been given as 55 years and for females as 80 years (Houston 1987). A 154 year old sturgeon weighing 94.6 kg is the oldest on record (Scott and Crossman 1979).

Lake sturgeon are a shallow-water fish, most often found in productive waters 4-9 m deep; although they have been taken in depths of up to 46 m (Houston 1987). They are bottom dwellers, adapted to feeding on mud, or gravel and mud bottoms (Scott and Crossman 1979). Little is known about the life history of juvenile sturgeon. Harkness and Dymond (1961) reported taking juvenile sturgeon ranging from 20-75 cm in size in summer near rocky river mouths at depths ranging from 3-4.5 m. Usually confined to freshwater, lake sturgeon have also been taken from brackish water in the St. Lawrence River and in the Moose River near James Bay (Scott and Crossman (1979). Swanson et al. (1988) reported sturgeon utilizing the Nelson River estuary in northern Manitoba during both summer and winter.

Lake sturgeon most often feed on benthic organisms because of their protrusile tube-like mouth. However, lake sturgeon are opportunistic feeders, sucking up and consuming virtually anything edible while passing non-edible materials out through their gill opening or mouth (Houston 1987). Food is searched for by constant movement and use of the sensory barbels. Feeding continues through the winter (Priegel and Wirth 1971), but apparently ceases during spawning (Houston 1987). Harkness and Dymond (1961) reported that the sturgeon diet consists of mayfly nymphs, chironomid larvae, molluscs, crustaceans, and fish eggs. Haugen (1969) found that 25% of the lake

sturgeon stomachs he examined from the South Saskatchewan River contained fish. There is little definite information on the food of the very young (Harkness and Dymond 1961).

Natural mortality of sturgeon after their first year of life is low relative to other fish species (Houston 1987). Predation is limited by the bony scutes of the young and the size of the adults (Houston 1987). Sopuck (1987) found the total annual survival rate (S) of sturgeon in the Nelson River to be 0.89. Choudhury and Dick (1991) provided a list of parasites that affect lake sturgeon. The actual extent of damage caused by most of the parasites listed remains to be ascertained. A coelenterate parasite has been identified as having important implications to lake sturgeon in Canada due to its predilection for infecting sturgeon eggs.

Sopuck (1987) suggested, "... that sturgeon have evolved a life history strategy which maximizes stability in that they are a long-lived, slow growing species whose populations are never large relative to other species. This implies that prior to commercial exploitation, sturgeon populations were well-buffered against environmental uncertainties".

Impacts to Lake Sturgeon Populations

Commercial Exploitation

Prior to 1860, lake sturgeon were considered as an incidental species by North American fishermen and considered to be worthless (Scott and Crossman 1979). They were, however, valued as a source of food by native peoples long before the European settlers arrived. W.T. Urquhart, in his 1873 report on Manitoba fisheries (DOC 1873), quoted an Indian hunter as saying, "It is to us Indians in the water what the buffalo was on land". Lake sturgeon were highly prized not only as a food source but were also important in traditional native religious practices (MDNR 1994). In Manitoba, domestic

harvest of sturgeon by First Nation peoples continues to this day in almost all waterbodies that support a sturgeon population (MDNR 1994).

After 1860, the worth of sturgeon flesh was realized and an intensive commercial fishery commenced (Houston 1987). The commercial production of caviar and smoking of sturgeon began in Sandusky, Ohio in 1855 and 1860, respectively, and these were the principal reasons for the intensification of the fishery (Harkness and Dymond 1961). Caviar which brought 10 cents a pound in 1885, increased to \$1 per pound by 1900 (Harkness and Dymond 1961). In addition to its food value, sturgeon were also boiled for their oil (to make paint base), the skin was tanned for leather, and the swim bladder was used in the production of isinglass. Isinglass was used extensively as a clarifying agent in the wine and beer industries, in the manufacture of glue, to size and stiffen textiles, as a setting agent in the production of jams and jellies, and as a water proofing agent (Harkness and Dymond 1961). By 1902, however, the demand for isinglass disappeared with the advent of seaweed derivatives (Harkness and Dymond 1961).

As commercial sturgeon fishing intensified, fisheries throughout North America underwent drastic declines. Within ten years (1885-1895) the Lake Erie catch in Ontario fell from over five million pounds to less than one million pounds, a decline of 80% (Harkness and Dymond 1961). In Lake of the Woods, the harvest fell by 95% within a decade (1893-1903, Mosindy 1987). The Lake Huron fishery declined a little more slowly, dropping by 56% over 10 years (Harkness and Dymond 1961).

The rise and fall of lake sturgeon fisheries in Manitoba have roughly paralleled those in other North American waters. Commercial production from Manitoba waters began with the harvest of lake sturgeon from Lake Winnipeg upon completion of a railroad linking Winnipeg to eastern markets in 1887 (Sunde 1959). Prior to 1906 virtually all of Manitoba's commercial harvest was taken from Lake Winnipeg (Harkness 1980). Coincident with the ever increasing demand at the time, there was a steady increase in the production from Lake Winnipeg, peaking in 1900 at 445,000 kg (Patalas

1988). Despite continued high prices and increased fishing effort the harvest of sturgeon from Lake Winnipeg declined rapidly and by 1910 was only 13,700 kg (Patalas 1988). The fishery was subsequently closed. Bajkov and Neave (1930) gave an account of the sturgeon industry of Lake Winnipeg during the late 1920s and recommended the creation of special reserves to protect spawning grounds and young fish.

The impending collapse of the Lake Winnipeg fishery, combined with a continued high level of demand for sturgeon, caused those involved with the commercial sturgeon fishery in Manitoba to look further afield for their product (Patalas 1988). Sturgeon production began on the drainage of the lower Saskatchewan in 1898 (Tough 1987). Shortly thereafter a sturgeon fishery was initiated on the Nelson River (Sunde 1961) and quickly developed a pattern of exploitation, followed by a collapse, and subsequent closure. After four closures in 49 years, the fishery was closed for a fifth time in 1992. Commercial fisheries for sturgeon have also been conducted on the Winnipeg, Churchill, Poplar, Fox and Bigstone rivers (Tough 1987, MDNR 1994). All but the Fox and Bigstone rivers have now been closed to commercial fishing.

Construction of Dams and Barriers

The construction of dams and barriers on large rivers prevent sturgeon from migrating to suitable spawning habitats (Priegel and Wirth 1971). If access to rocky rapid habitat in streams is interfered with, reproduction of sturgeon is seriously reduced (Harkness and Dymond 1961). Harkness and Dymond (1961) suggested that construction of dams to power saw mills may have had an early effect on lake sturgeon and may have been a major factor in their decline in Lake Ontario. Houston (1987) stated that the effect of a dam may be more subtle than mere prohibition of upstream migration; recent dams designed to manipulate river flow may result in spawning habitat disruption and destruction. Parks (1978) noted reductions in available habitat for white sturgeon (*Acipenser transmontanus*) due to dam construction. Votinov and Kas'yanov (1978) established a correlation between shifts and reductions in peak flows from dams and a

reduction in recruitment for siberian sturgeon (*Acipenser baeri*). Brousseau and Goodchild (1989) blamed water fluctuations between dams on six rivers in northern Ontario as being the cause of declining sturgeon populations in that area. Low water levels immediately after spawning trap fry in shallow pools and cause variable water temperatures and low oxygen levels. Horne and Baker (1993) cited habitat fragmentation as a negative impact of hydroelectric generating station construction on the lower Nelson River in northern Manitoba. Relatively small, run-of-the-river reservoirs have isolated pockets of sturgeon in the Nelson River. Given the periodicity of sturgeon spawning, populations currently existing in the forebays are believed to be too small to successfully reproduce.

In many cases lake sturgeon continue to thrive in systems that have been segmented by hydroelectric dams. The Menominee River in Michigan and Wisconsin contains one of the few fishable lake sturgeon populations remaining in either state (Thuemler 1985). Two sections of this river are known to harbour naturally reproducing populations. Similarly, the Winnipeg River in Manitoba continues to harbour a self-reproducing population more than 75 years after construction of the first hydroelectric generating station on the river, and is estimated to be still yielding over 0.15 kg per hectare per year to the native domestic fishery (Beyette 1992).

Pollution

Pollution is another accompaniment of industrial development which has been seriously detrimental to sturgeon reproduction in some places (Harkness and Dymond 1961). Wood fibres escaping from pulp and paper mills on the Rainy River in Ontario have been blamed on degrading sturgeon spawning habitat and contributing to the decline of lake sturgeon in Lake of the Woods (Harkness and Dymond 1961). Harkness and Dymond (1961) stated that sturgeon eggs would be particularly susceptible to fibres accumulating on their surface. Wood fibres deposited on the bottom are also detrimental to many of the bottom organisms constituting the preferred food of sturgeon. Graham

(1981) demonstrated the negative effects of dams and poor water quality from mining operations leading to the decline of white sturgeon in Montana through an impact on food supply and reproduction. Disturbance of fish during spawning has also been shown to have a negative impact on reproductive success (Harkness and Dymond 1961).

Summary of Impacts

Houston (1987) stated that the reasons for failure of sturgeon to maintain higher population levels are not fully understood, but are likely a synergistic product of life history factors, exploitation, and environmental change. Harkness and Dymond (1961) listed a number of factors affecting lake sturgeon productivity: late attainment of commercial size; late maturity; infrequency of spawning; and unfavourable environmental changes resulting from industrial and other developments. Houston (1987) stated that population declines resulting from overexploitation might be expected to be reversed if the fishery were to be closed for a number of years. He pointed out that in many cases this has not occurred with sturgeon, and suggested that a closure would not be beneficial in waters that have suffered environmental change. Any management undertaken to prevent over exploitation, whether it be complete closure, size limitations, or regulation of a catch or season, will probably not be successful if water and other habitat conditions do not remain favourable (Houston 1987).

Current Status of Lake Sturgeon and Management Considerations

Johnson (1987) listed 14 states in which lake sturgeon are legally protected and five where the species is given special concern due to low numbers or limited distribution. Deacon et al. (1979) listed the lake sturgeon as being threatened in twenty two states including Wisconsin and Michigan. The decline of sturgeon populations and the closure of fisheries are not unique to North America. There is no fishing for any species of sturgeon in western Europe, and even the Russian fishery is in trouble (Lord 1984).

Houston (1987) reported that lake sturgeon is not an important sport fish in Canada due to low population levels and limited distribution. An exception to this is the sturgeon fishery in Alberta which is purely recreational (Bishop 1990). As of 1995, sport fishing for sturgeon on all rivers in Manitoba is exclusively catch and release. There are only a few places in Ontario that sustain sturgeon abundant enough for sport fishing (Brousseau 1987). Brousseau (1987) suggested that the future of lake sturgeon in Ontario is considered bleak since current regulations are inadequate to protect the stock from depletion. Important sport fisheries still exist in the United States in Michigan, Wisconsin, and Minnesota (Houston 1987). The State of Wisconsin has managed to sustain a viable sport fishery through a combination of regulatory procedures including length of season, size limits, catch limits, gear restrictions, and licensing of anglers. Priegel and Wirth (1971) believe these measures have insured population stability. Despite the decline of sport and commercial fisheries throughout North America, Canadian native peoples still derive significant nutritional value from this fish through domestic fisheries (Houston 1987).

Lake sturgeon have been identified as a "Heritage Species" in the "Manitoba Fisheries Strategy" (MDNR 1991). This designation elevates the value and importance of this species to Manitobans and therefore requires that it be given special consideration and protection. Although lake sturgeon are listed as NIAC (not in any category) by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) (Campbell 1990), they have been identified as a "vulnerable" species (at risk) by the Endangered Species Advisory Board in Manitoba (MDNR 1994). The Manitoba Fisheries Branch is in the process of developing a sturgeon management strategy to ensure conservation of stocks within the province (MDNR 1994). Guidelines and principles of the strategy, in order of priority, are: maintain genetic diversity; protect existing lake sturgeon stocks - focusing on conservation, aboriginal domestic harvest, and other uses; maintain and enhance existing lake sturgeon habitat; and, stock lake sturgeon to accelerate recovery.

The geographic scope of the management plan in order of priority will be the Nelson River, Winnipeg River, Churchill River, Saskatchewan River, Hayes River, and a few other scattered populations within the province.

The importance of including native peoples and local stakeholders in sturgeon management was recognized as early as the turn of the century. As sturgeon fisheries opened, the Manitoba Department of Fisheries adopted the policy of favouring local residents for sturgeon fishing (Tough 1987). Of the 180 sturgeon licences issued for the Nelson river in 1903, all but four went to Indian and Metis fishermen. Similarly, only residents of the lower Saskatchewan River were granted licenses for that fishery in 1903. Ninety years later, co-management arrangements with local stakeholders are quickly becoming the route of the future in lake sturgeon management. A Nelson River Sturgeon Co-Management Board including local native bands and the MDNR has been organized to conserve stocks on the Nelson River in northern Manitoba (MDNR 1992). Similarly, Saskatchewan Fisheries Branch has also recently proposed a co-management arrangement with the Province of Manitoba, DFO, SaskPower, commercial fishing groups in both provinces, and the Cumberland House community to implement a sturgeon restoration program (American Fisheries Society 1993). The program will consist of five phases:

1. Habitat inventory, evaluation, and population assessment;
2. Habitat protection, enhancement, and creation;
3. Population enhancement through stocking and conservation;
4. Co-management: information transfer, training and shared management responsibility with stakeholders; and
5. Assessment of program effectiveness.

The recovery plan is outlined in Wallace (1991).

Harkness and Dymond (1961) outline the history of conservation of sturgeon stocks in Canada. Management methods are also described and evaluated as to their effectiveness. Management strategies considered include licensing, size limits, closed

seasons, prevention of overfishing, artificial replenishment, introduction of exotic species, and preservation of habitat.

Houston (1987) described the current management emphasis in fisheries as linking available harvest to sustained yield. Thus, he suggested that it is of utmost importance to determine population sizes to prevent over-exploitation. Houston (1987) stated that basing harvests on catch statistics for a species with a long lifespan, late maturity, and rigid habitat requirements for spawning is not a sound management practice. He suggested that in order to maintain a sustained yield, population sizes as well as other factors of population dynamics (natural mortality, etc.) must be known and harvests must be regulated to prevent the taking of fish before they reach reproductive potential. Size limits alone have not proved practical in the regulation of sturgeon populations in Wisconsin (Priegel and Wirth 1971) and perhaps the best tool has been the combined use of restricted length and number of seasons (Houston 1987). Sunde (1961) proposed that minimum legal size restrictions be based on length rather than weight. He stated that the relationship between round and dressed weights are variable due to differences in condition or stage of sexual maturity and make enforcement very difficult.

Natural mortality of adult lake sturgeon is believed to be very small (Baker 1981), but recruitment also occurs at a low level. Priegel and Wirth (1975) estimated the annual recruitment of legal size sturgeon into the Lake Winnebago fishery to be 4.7% and suggested that annual harvest should not exceed this rate. Baker (1981) also stressed that rates of exploitation should not exceed average rates of recruitment. History has shown that once they are overfished lake sturgeon populations tend to decline to very low levels from which they may take decades to recover (Baker 1981).

Houston (1987) stated that exposure of populations in spawning areas and loss or degradation of spawning habitat are critical problems for lake sturgeon. Thus, maintenance of suitable habitat is a crucial factor for the survival of this species. Anderson (1956) suggested that the closure of the lake sturgeon fishery as the sole

management strategy in Ohio was of little use without restoring damaged spawning habitat. Harkness (1980) stated that while moving towards their spawning beds or concentrated upon them, "sturgeon are exposed to two destructive factors: fishermen and Indians". The intensive use of nets, setlines, or spears, set or used at strategic points can practically wipe out a spawning school of sturgeon in one year (Harkness 1980). From a conservation standpoint, the regularity with which sturgeon return to the same annual spawning areas is both good and bad (Sopuck 1981). It is good in that special management plans for these locations can be devised, but bad in that the fish are vulnerable to poaching and environmental change (Sopuck 1981).

Artificial propagation of lake sturgeon has been suggested as one means of improving recruitment (Harkness and Dymond 1961), but up until 1971 this had not proven practical (Priegel and Wirth 1971). Thuemler (1988) found that juvenile lake sturgeon reared in a hatchery moved out of sections of a river that were stocked. Juvenile sturgeon transplanted from a riverine source stayed within the intended reach and proved to be more useful for repopulating a river section.

Attempts to culture sturgeon in the past have generally met with limited success (Czeskleba et al. 1985). The Wisconsin Department of Natural Resources has been experimenting with artificial propagation of this species since 1979. Hatching success has ranged from 42-96%. Hatchery sturgeon grew more slowly than did wild fish. Anderson (1984) had a survival of 45% with hatchery raised sturgeon fed a natural diet, but had no success with hatchery raised sturgeon fed an artificial diet. Doroshov (1985), Harkness and Dymond (1961), Bardach et al. (1972), Anderson (1986), Shivley and Kmiecik (1989), and Czeskleba et al. (1985) all present accounts of culturing lake sturgeon. With ever increasing knowledge, lake sturgeon culture has improved dramatically in the past decade.

Houston (1987) summed up his report on the status of lake sturgeon in Canada by stating that control of exploitation and habitat requirements are now the most

important factors in maintaining the conditions necessary for the continued success of lake sturgeon. He stated that continued industrial development and urban sprawl may be the most serious threats facing this species. Pollution can and is being reduced, but dams and other flood control measures do irreparable damage to vital spawning habitat, and when spawning habitat is not protected, all other management efforts fail. Houston concluded that the threat of serious declines and extirpations loom large if necessary stock assessments and habitat protection measures are not forthcoming.

2.2 LOCAL/TRADITIONAL KNOWLEDGE

Knowledge is the condition of knowing something with familiarity gained through experience (Bielawski 1992). Every society has a "local knowledge base" that has been built up through life experiences such as observation, instruction, or spiritual teachings, and all societies strive to apply this knowledge to explain how the natural world behaves.

Some knowledge of the natural environment is gained from first hand experience, or is passed on from parents who have accumulated the knowledge within their life times. In contrast, some cultures pass on information about the natural environment that has been collected through countless generations. Such information transfer is often referred to as "indigenous" or "traditional" knowledge.

Traditional Knowledge

Waldram (1986) described traditional knowledge systems as "the patterned ways in which people from a non-literate tradition learn about their reality and communicate such information amongst themselves and from generation to generation". Traditional knowledge is based on oral transmission and is concerned primarily with qualitative observations (Johnson 1992). Hobson (1992) described it as "the accumulated knowledge and understanding of the place of human beings in relation to the world in both an ecological and spiritual sense". An Inuit elder participating in a traditional knowledge

working group (Government of the Northwest Territories 1991, in Bielawski 1992) called it "a common understanding of what life is about".

Traditional knowledge is based on generations of experience. Many traditional knowledge based systems possess data sets of sufficient length to cover several population "cycles" where periodicity may be measured in 70-80 year intervals (Freeman 1992a). This knowledge is constantly being revised by interpreting new information based on the context of existing information (Waldram 1986). Traditional knowledge first operates on a rational basis, employing critical comparative analysis (Freeman 1992b). Data gaps are then filled intuitively to provide a holistic view. Traditional knowledge is subjective rather than objective (Johnson 1992).

Historically, the survival of northern aboriginal peoples depended on their knowledge, their special relationship with the environment, and their ways of organizing themselves and their values (Hobson 1992). Berkes (1990) noted that extensive traditional knowledge exists on distributions and life cycles of fish simply because it was essential for productive fishing and at one time essential to survival. As Hobson (1992) noted traditional knowledge is both spiritual and ecological. Each type of knowledge heavily influences the other and ultimately both influence the laws and customs of aboriginal peoples.

Traditional ecological knowledge is a characteristic of non-Western, non-industrial, pre-scientific societies in which knowledge is transmitted by culture. Thus, such knowledge is typical in horticultural or subsistence agricultural societies and hunting and fishing societies. These groups are the most likely to have accumulated long series of historical observations of relevance to conservation (Gadgil et al. 1993). All members of the group are involved with management as well as harvesting (Usher 1987). Self regulatory mechanisms tend to evolve in such societies when they are faced with resource limitations. Among these mechanisms is a recognition and accumulation of knowledge about the important role that species play in generating ecological services and natural

resources (Gadgil et al. 1993). Traditional ecological knowledge systems are usually based on an integrated, non-compartmentalized view of the environment (Usher 1987).

In the past, science-based authorities have often disregarded or disbelieved TEK because of the importance it ascribes to single observations and to the unquestioned observations of others. However, Waldram (1986) argued that traditional knowledge systems are equally as historical and scientific as those of western tradition. He argued that "in certain areas such knowledge may be even more scientific since it is the product of a much longer process of inquiry by people directly dependent on the accurateness of such knowledge for their cultural and physical survival". Berkes (1993) stated that western science and TEK are the result of the same intellectual process of creating order out of disorder.

Scientific and traditional knowledge also differ in several ways. Howard and Widdowson (1996) argued that while the "spiritualism (of TEK) is obviously inconsistent with scientific methodology, the experience and observation (of TEK) form the basis of modern empirical research. Science differs only in that it has developed a method by which these experiences and observations can be systematically verified and understood". Banuri and Apfell-Marglin (1993) listed the characteristics of modern (scientific) and non-modern (traditional) knowledge (Figure 2). They described modern knowledge systems to be oriented more to universality and individuality rather than the local and community orientation of traditional knowledge. Berkes et al. (1993) described traditional knowledge as a series of concentric bodies of knowledge (Figure 3). In the centre lies the knowledge of land and animals, surrounded by land and resource management knowledge systems, and then institutions and common property systems. All three of these knowledge bases lie within a worldview. It is this worldview that is often the fundamental difference between scientific knowledge and traditional knowledge.

Modern knowledge	Non-modern knowledge
Disembeddedness	Embeddedness
Universalism	Locality
Individualism	Community
Objectivity	No separation between subject and object
Instrumentalism	Non-instrumental

Figure 2. Characteristics of modern and non-modern knowledge systems (from Banuri and Apfell-Marglin 1993).

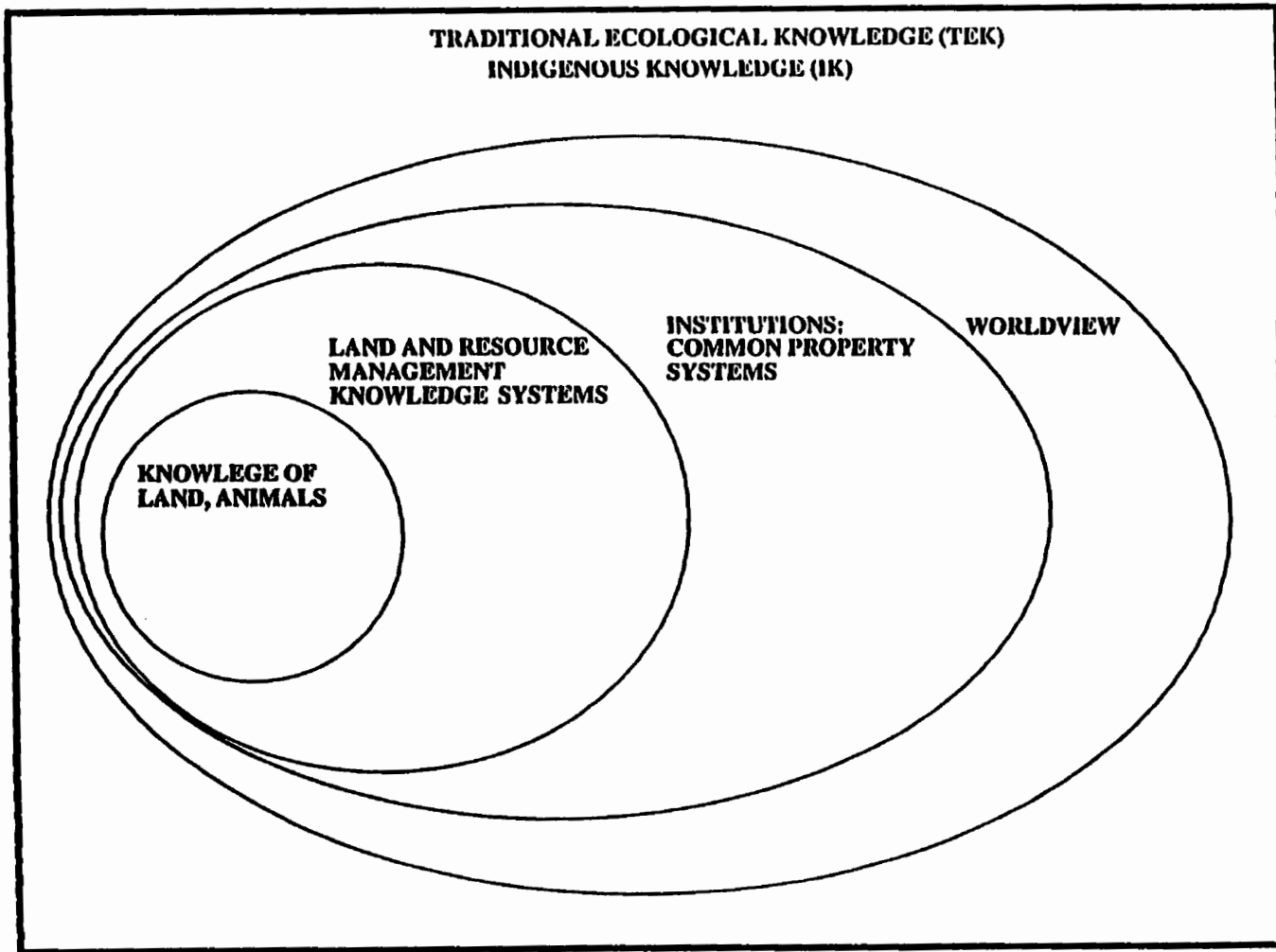


Figure 3. Components of traditional ecological knowledge (from Berkes et al. .1993).

Importance of Collecting Local/Traditional Knowledge

The International Union for the Conservation of Nature and Natural Resources (IUCN) (1986, in Berkes 1993) list a number of tangible and practical reasons for using local/traditional knowledge. They contend that TEK: provides new ecological insight; is relevant for contemporary natural resource management; can be used for conservation education; can assist in development planning; and, is a valuable tool to assess past and future environmental impacts associated with development projects.

Capra (1982, in Freeman 1992b) suggests that we need to "combine our rational knowledge with an intuition for the non-linear nature of our environment". In this regard, some resource managers are now beginning to realize that the long-term historical knowledge and conservation mechanisms of some cultures can be incorporated with science-based management to achieve sustainable development goals and in impact assessment. Traditional ecological systems with their access to lengthy time series data would add a feedback control system to signal the need to reduce harvest levels when stocks fall below some appropriate size (Freeman 1992b). Such systems would also employ locally sanctioned corrective actions with a minimum of delay. Traditional, and even short-term local knowledge can also provide information on pre-impact conditions that might otherwise not be available for projects conducted prior to our current environmental impact assessment requirements. The scientific approach would promise a degree of rationality and precision that the traditional non-scientific approaches lack (Freeman 1992b). Verification of predictions and the speed with which knowledge is accumulated are two additional contributions of the scientific approach (Berkes 1993). State level management remains important in areas in which several groups have legitimate interests (e.g. waterfowl) and in providing legal recognition for the communal property rights of aboriginal groups (Berkes 1994). Today aboriginal people are well aware that they must integrate their traditional knowledge into the institutions that serve them if they are to ensure their survival as a distinct people (Hobson 1992).

One of the biggest problems associated with the integration of local and traditional knowledge into existing institutions is its rapid disappearance. An erosion of TEK has occurred due to the rapid assimilation of aboriginal peoples into Western culture and the failure of elders to pass on the knowledge to younger generations (Johnson 1992). In addition, major ecological disturbances such as hydroelectric development have had substantial impact on local knowledge by obliterating reference points and the resources that it is based on (Wavey 1993). The most urgent problem with documenting local knowledge, however, is with the passing of elders. Orally based knowledge systems lost in this way cannot be retrieved (Johnson 1992). Chief Robert Wavey (1993) sums up the disappearance of local/traditional knowledge as a "loss for the larger society".

3.0**METHODS**

Compilation and presentation of information was conducted in three phases: acquisition of secondary data; acquisition of primary data; and data collation and report preparation.

3.1 ACQUISITION OF SECONDARY DATA

The first component of the study was to acquire all existing historical information on the Nelson River sturgeon fishery relevant to the three study communities. This component of the study was conducted initially so the author would have a context within which to place the primary data collected in the second phase of the study. Information was compiled from MDNR files in Thompson on July 2-3, 1995. Data from MDNR files in Winnipeg and published literature were obtained from the library at North/South Consultants Inc. in Winnipeg. Annual Federal Fisheries reports and additional published literature were obtained from the Freshwater Institute Library in Winnipeg. All relevant information collected was summarized into a chronological sequence. Historical harvest data were extracted primarily from Harkness 1980 and Sopuck 1987. More recent harvests were derived from production forms found in MDNR files.

3.2 ACQUISITION OF PRIMARY DATA

Historical and local/traditional knowledge of Nelson River sturgeon was collected by interviewing long-time Nelson River sturgeon fishermen, or elders familiar with the Nelson River before hydroelectric development. Potential sources of information were identified by a NRSCB representative in each of the communities, and arrangements were then made for the researcher to come into the house of each "key informant" to conduct an interview. Prior to each interview, the purpose and methods of the study were explained, and each key informant was asked to sign a letter of consent to participate in the study (Appendix 1). In some cases, interpreters were used to facilitate interviews.

To encourage participation in the process, honoraria were provided to those individuals interviewed.

Interviews were conducted informally and had no time limit. An interview guide (Appendix 2) was used to facilitate discussion, but questions were basically unstructured and followed the train of thought of the key informant. Key informants were also asked to mark directly on 1:50,000 topographic maps recollections of fishing and camping sites, travel routes, and areas of important habitat. This information is designated in red ink on composite maps contained in the report. The maps detail local geographic names, key habitat features, and historical spawning areas.

The majority of interviews were conducted between July 6 and July 12, 1995. A total of 25 interviews were conducted including seven in Pikwitonei, ten in Thicket Portage, and six in Wabowden. One individual who lived in Thompson, MB. was interviewed by telephone on September 20, 1996. Another individual, who resided in Selkirk, MB. was interviewed in her home on August 17, 1996.

Twenty of the key informants were born in upper Nelson River communities. Ten identified themselves as Treaty Indians, while seven identified as aboriginal mothers and fathers of non-aboriginal descent. The origins of some of the fathers included: United States, England, Sweden, Poland, Yugoslavia, and the Selkirk/Hecla Island and Gladstone areas of Manitoba. Seventeen of those interviewed had participated in the commercial sturgeon fishery at some time. Brief profiles of key informants interviewed are provided in Appendix 3.

3.3 DATA COLLATION AND REPORT PREPARATION

Information collected from the interviews was categorized as historical information or traditional knowledge. Historical information focused on recollections from specific periods of time. This information is presented along with the information

summarized from the government files and literature in a chronological history of the fishery. Local/traditional knowledge generally transcended eras, and focused primarily on lake sturgeon biology, cultural uses, and changes observed over time. Local/traditional knowledge is presented in an autonomous section delineated by subject rather than time. Subjects include: distribution, biology, cultural uses, changes since Kelsey, and stock status and current management.

Information is presented as it was conveyed to the author. Some information that was obviously contradictory to information provided by the majority of informants was omitted. Otherwise, the author did not attempt to verify the authenticity of the information provided.

Individual names highlighted in the text indicate that the information provided in that paragraph was provided by that individual. To remain consistent with historical commercial records, weight data up to 1980 are provided in pounds (lbs) in the text. After 1980, weights are provided in kilograms (kg). For direct comparison, total harvests are presented in kilograms in the appendices.

4.0**RESULTS****4.1 HISTORY OF THE UPPER NELSON RIVER LAKE STURGEON FISHERY FROM THE PERSPECTIVE OF FISHERMEN FROM PIKWITONEI, THICKET PORTAGE, AND WABOWDEN****4.1.1 Early History (prior to 1904)**

Exploitation of lake sturgeon in the upper Nelson River (Figure 4) predates the arrival of European settlers. It has been demonstrated both archaeologically and ethnohistorically that sturgeon formed an important part of the pre-European contact subsistence economy of the upper Nelson River area (Virginia Petch, Northern Lights Heritage Service, pers. comm.). The sturgeon was an important source of oil, its bladders could be used as glue, and its skin was made into jars (Holzkamm et al. 1988). However, records of the extent of the harvest are virtually non-existent. As is the case with most of North America's natural resources, records of their existence and exploitation are found to coincide with the arrival of Europeans. Even then, these early records are generally limited to harvest quantity and anecdotes in journals and reports.

Hudson's Bay Company archive material from the Norway House district contain numerous anecdotes mentioning local fishermen harvesting sturgeon and bringing them back to the settlement. In a spatial model of local resources used in the Norway House area, circa 1870, developed by Tough (1987) (Figure 5), sturgeon is listed as one of the primary resources and is even differentiated from other fish species.

Tim and Louise Jones, who collected traditional knowledge at Cross Lake in 1972, noted that informants recalled an old man saying that "something" from inside the sturgeon was mixed with red ochre to make paint (Virginia Petch, pers. comm.). The "something" was probably isinglass, and it this substance that gives us the first clues to the historical extent of the sturgeon fishery on the upper Nelson River.

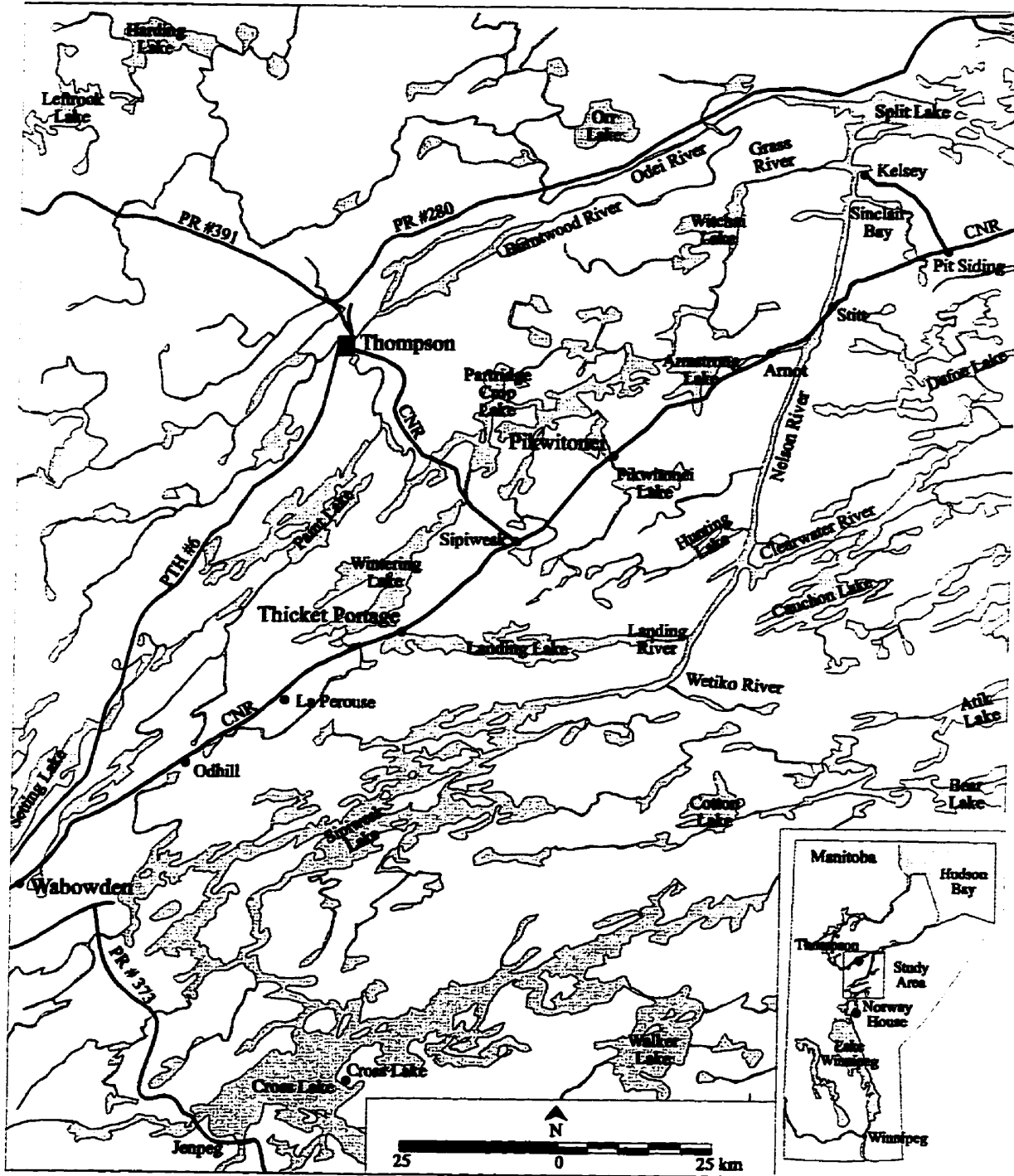


Figure 4. Map of the upper Nelson River.

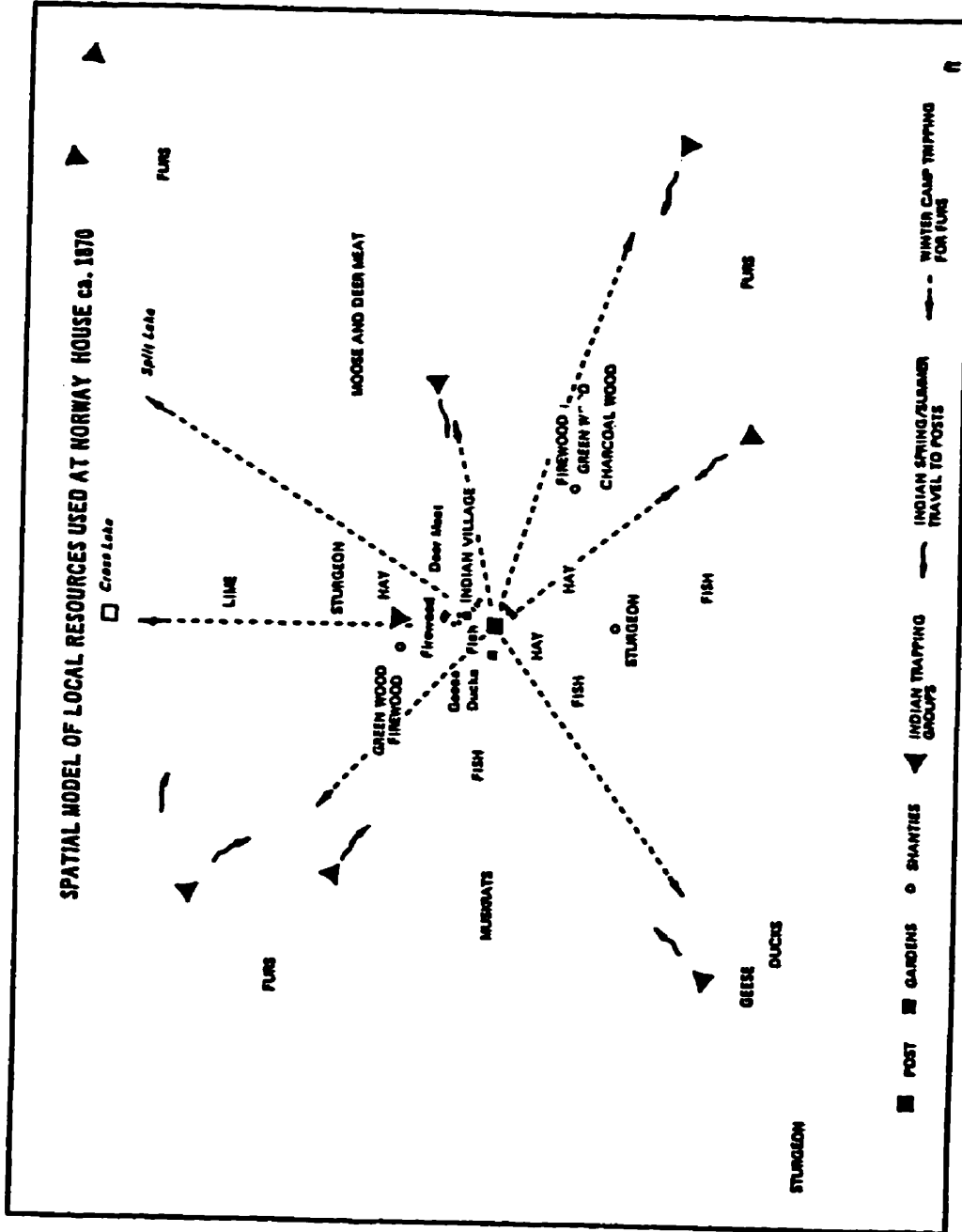


Figure 5. Spatial model of Norway House resource use developed by Tough (1987) showing sturgeon differentiated from other fish species.

Isinglass is described as a "semitransparent, whitish, very pure gelatin prepared from the air bladders of fishes (such as sturgeons) and used as a clarifying agent in jellies and glue (Websters Dictionary 1987). The first record of isinglass being bought by the Hudson Bay Company in the Norway House district occurs in 1832 when 65 kg were purchased. Isinglass appears annually in the records at Norway House for the next 60 years, with an average of 143 kg harvested each year (Appendix 4). The majority of the isinglass was purchased at the Norway House post, although some came from as far away as Berens River, approximately 200 km to the southeast.

Holzmann and McCarthy (1988) derived a ratio for the conversion of isinglass weights to dressed sturgeon weights based on data collected by Evermann and Latimer (1911). The data, collected from commercial fishermen in the Lake of the Woods area between 1888 and 1909, were comprised of dressed sturgeon weights and the amounts of isinglass harvested. Based on these data the following conversion factor was derived:

one kilogram of isinglass = 284 kg of dressed sturgeon.

Using Holzmann and McCarthy's conversion factor, and the weights of isinglass harvested, an idea of the magnitude of the sturgeon harvest from the Norway House district between 1832 and 1891 can be obtained. Given that an average of 143 kg of isinglass was harvested annually during this period, the average harvest of lake sturgeon would have been 40,612 kg dressed weight. Although most of this was likely taken from Lake Winnipeg, its tributaries, and Playgreen Lake, this gives an indication of how extensive the lake sturgeon fishery was in area prior to commencement of a "commercial fishery". By the late 1890s, the demand for isinglass disappeared with the advent of seaweed derivatives (Harkness and Dymond 1961) and purchases by the Hudson Bay Company ceased.

Commercial interest in sturgeon as a food fish and as a source of caviar began to grow in North America during the late-1800s. As sources of sturgeon in the east became

depleted, buyers looked elsewhere to obtain the fish. Harkness (1980) stated that there appeared to be a slight development of the sturgeon fishery in Manitoba after the completion of the railroad link from Winnipeg to St. Paul, Minnesota, in 1878. However, Harkness stated that since there are no statistics available to cover this period, the historical extent of the fishery becomes problematic. With the completion of the Canadian Pacific Railway between Winnipeg and Port Arthur in 1887, there was a gradual increase in production as prices and demand rose (Harkness 1980). The fishery initially focused on Lake Winnipeg due its proximity to the market.

In 1897 it was reported that the value of sturgeon and its products had doubled and trebled, respectively, while the price of whitefish had decreased (Tough 1987). This prompted expansion of the fishery into the Saskatchewan and Nelson Rivers by 1898 and 1900, respectively. Skaptason (1926) stated that Playgreen Lake had been fished since the late 1890s, the catch having been brought out by Lake Winnipeg to Selkirk. Tough (1987) reported that the Norway House and Cross Lake bands both participated in the Lake Winnipeg sturgeon fishery in 1900. Since all sturgeon harvested from northern Manitoba during this era were listed as Lake Winnipeg production, the actual number of sturgeon taken from the Nelson River during this time can not be determined. Fisheries inspector E. Miller (in Tough 1987) stated that the great demand for sturgeon caused the fish companies to push their operations farther afield and that sturgeon were the only fish, under the existing conditions of transportation, that could be profitably marketed from the lower Saskatchewan and Nelson rivers.

Annual production of lake sturgeon from Lake Winnipeg reached almost 80,000 kg by 1896 and peaked in 1900 at over 446,000 kg (Figure 6). Despite continued high prices and increased fishing effort, production began to decline rapidly in the following years and by 1910 only 13,700 kg were harvested and the fishery was closed. As harvests from Lake Winnipeg declined there was ever increasing interest in the Nelson River sturgeon stock.

Lake Winnipeg Commercial Lake Sturgeon Harvest

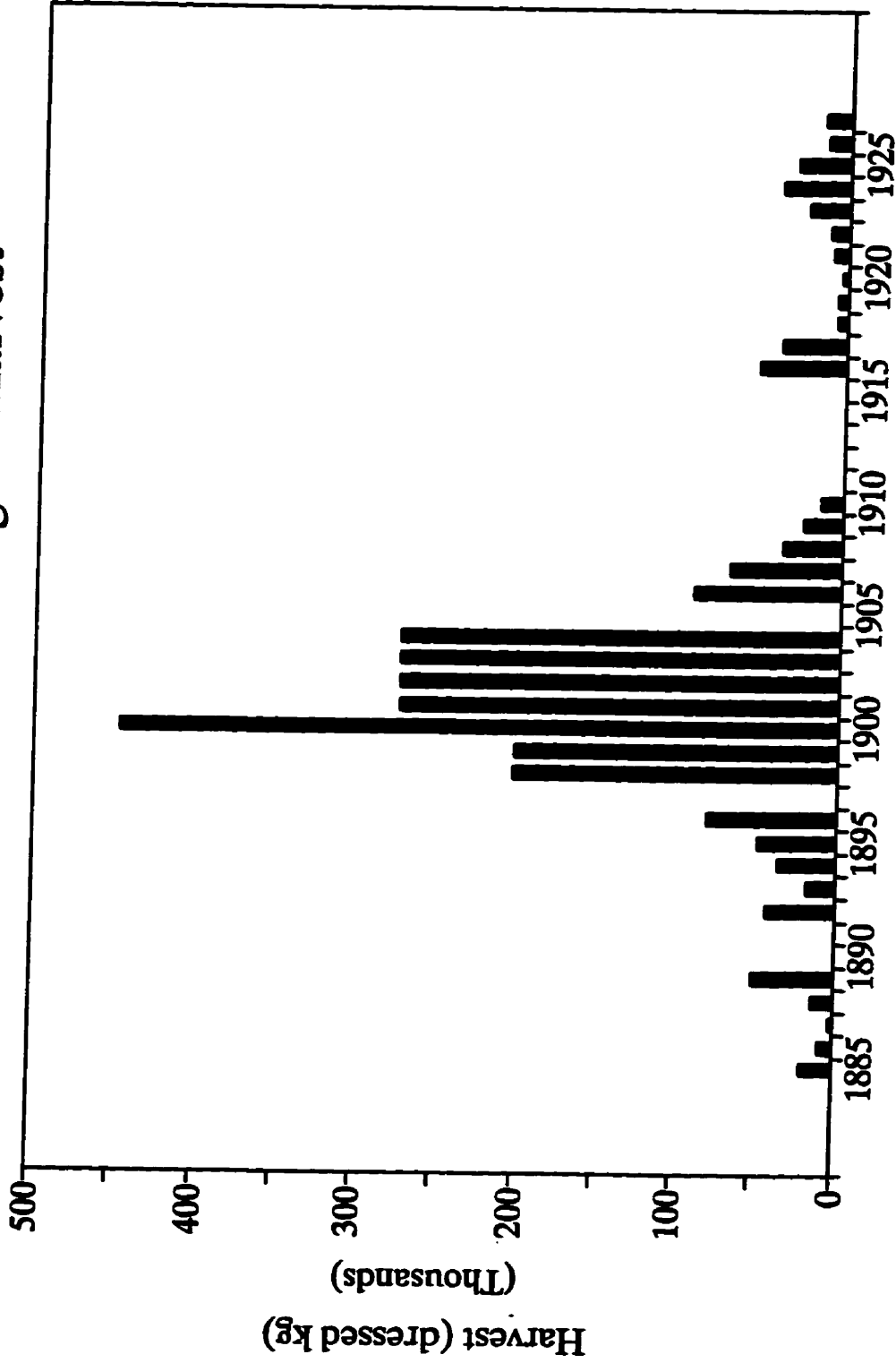


Figure 6. Commercial harvest of lake sturgeon from Lake Winnipeg and its tributaries, 1885-1927 (data from Harkness 1980). Does not include the Nelson River after 1906.

4.1.2 1904 to 1936

Although most authors report 1907 as the first year of commercial sturgeon fishing on the Nelson River (Sunde 1961, Sopuck 1987, Patalas 1988), Tough (1987) reported production beginning in 1902. By 1904, the firm of Ewing and Fryer had found sturgeon fishing on the Nelson River profitable enough to develop a transportation system employing York boats, a gasoline boat, and a steam tug to transport shipments of sturgeon over rapids and downstream from Sipiwesk Lake to the Station at Spider Island on Lake Winnipeg (Tough 1987).

During these early years the Department of Fisheries adopted a policy of favouring local residents for sturgeon fishing (Tough 1987). Tough (1987) reported that of the 180 sturgeon licenses issued to Nelson River fishermen in 1903, all but four went to Indian or Metis fishermen. However, Tough maintained that it was clear that the fish companies derived more benefits from the commercialization of the sturgeon fisheries than the Indians. For example, sturgeon eggs were purchased from fishermen at one dollar per pail and sold by the fish companies for 15 dollars (DOC 1904, in Tough 1987). Tough (1987) stated that by 1900, "the oligopolistic fish companies of Ewing and Fryer and Dominion Fish reduced the price of sturgeon products further by purchasing sturgeon in the round (i.e., uncleaned)". According to Tough (1987), "throughout the expansion of the sturgeon fishery, those charged with fisheries management were well aware of the importance of sturgeon to the local Indians and the legacy of depleted sturgeon fisheries".

The initial boom in sturgeon fishing on the Nelson River was short lived. Tough (1987) reported that after harvesting over 61,000 kg of sturgeon in 1902, the harvest declined to just over 3000 kg by 1907. During this time one of the major sturgeon producers, Ewing and Fryer, ceased operation. An average of 6,400 kg was harvested annually from the Nelson River for the next three years until concern over the depleted

Lake Winnipeg stock prompted complete closure of the Manitoba sturgeon fishery in 1911.

Local First Nations people continued to fish sturgeon domestically during this period. Alex Brightnose, who was born in Split Lake around 1912 and has lived in Pikwitonei since 1914, remembered John Garson telling him Nelson House people used to travel to Norway House via the Burntwood River every year before the railway. On one occasion, when John Garson was a young man, he accompanied five boats from Nelson House and five boats from Split Lake that stopped at the Landing River during spring. One of the men from the boats snared 10 sturgeon at the mouth of the river during their stay.

During the early 1900s the Government of Canada initiated planning of a railway connecting The Pas to a port on Hudson Bay (Bickle 1995). The primary purpose of the line was to provide a cheaper, alternative route to transport prairie grain to foreign markets, although increased northern development (e.g., expansion of commercial fisheries) was envisioned as an additional benefit. The original destination of the rail line was Port Nelson and construction commenced in 1911. By the fall of 1914 the end of steel had reached a point 24 miles to the east of Wabowden (Bickle 1995).

The Manitoba sturgeon fishery remained closed until it was re-opened in 1916 as a war measure (Harkness 1980). Little fishing was carried on in the lakes in the northern portion of the province during the first open year as fishermen were outfitting their boats with refrigerator compartments in order to deliver their catches to the new Hudson Bay Railway (DOC 1918).

By late 1917, the Hudson Bay Railway had been completed through Thicket Portage and Pikwitonei to a point approximately six miles north of Kettle Rapids (Bickle 1995). Bridge crossings over the Nelson River also had been completed at both Manitou and Kettle rapids. It appeared that it would only be a matter of time before the railway

reached the Bay. However, financial difficulties imposed by World War One, and to some extent by a shortage of labour, caused the government to suspend all new construction in December, 1917 (Bickle 1995). Despite the sudden work stoppage, the railway was in sufficient condition to operate between The Pas and Gillam (at mile 327) at speeds up to 30 miles per hour, and subsequently arrangements were made with Canadian National Railways (CNR) to operate the trains required (Bickle 1995).

Percy Laubman, a current resident of Pikwitonei, was born in 1928 at Manitou Rapids. His father had opened a kitchen (restaurant) and store there in 1917 when the railway bridge across the Nelson River was constructed. Bickle (1995) described the area as follows: "Manitou, which is commonly translated as "god" or "spirit", is actually the Algonkian word for "mystery". The water in the area of Manitou Rapids could appear quite smooth, but many whirlpools developed suddenly as an immense amount of water passed through a very narrow channel". **Fred Cordell** recalled Tom Blake telling him that the settlement at the bridge site was called Manitou.

With the existence of the new Hudson Bay Railway and the decline in the Lake Winnipeg fishery, the Nelson River now became a primary target for the commercial sturgeon fishery. Beginning in 1917, the Nelson River began to contribute a much greater proportion of the total provincial sturgeon catch. The fishery began in earnest that year, producing 57% of the total Manitoba sturgeon production of 119,000 kg (Patalas 1988). By 1918, 60% of the catch came from the Nelson River. **Joe Monias** remembers a freezer and icehouse being built north of Duck Rapids on Sipiwesk Lake in 1918 (Figure 7).

The financial situation brought about by World War One limited funds available for maintenance of the Hudson Bay Railway and the last 100 miles of track quickly deteriorated. Operations were limited to the area south from the Manitou Rapids Bridge (Mile 239). For the next six years there was little talk of improving the route beyond this point, or of completing it (Bickle 1995). The first 239 miles of track to the

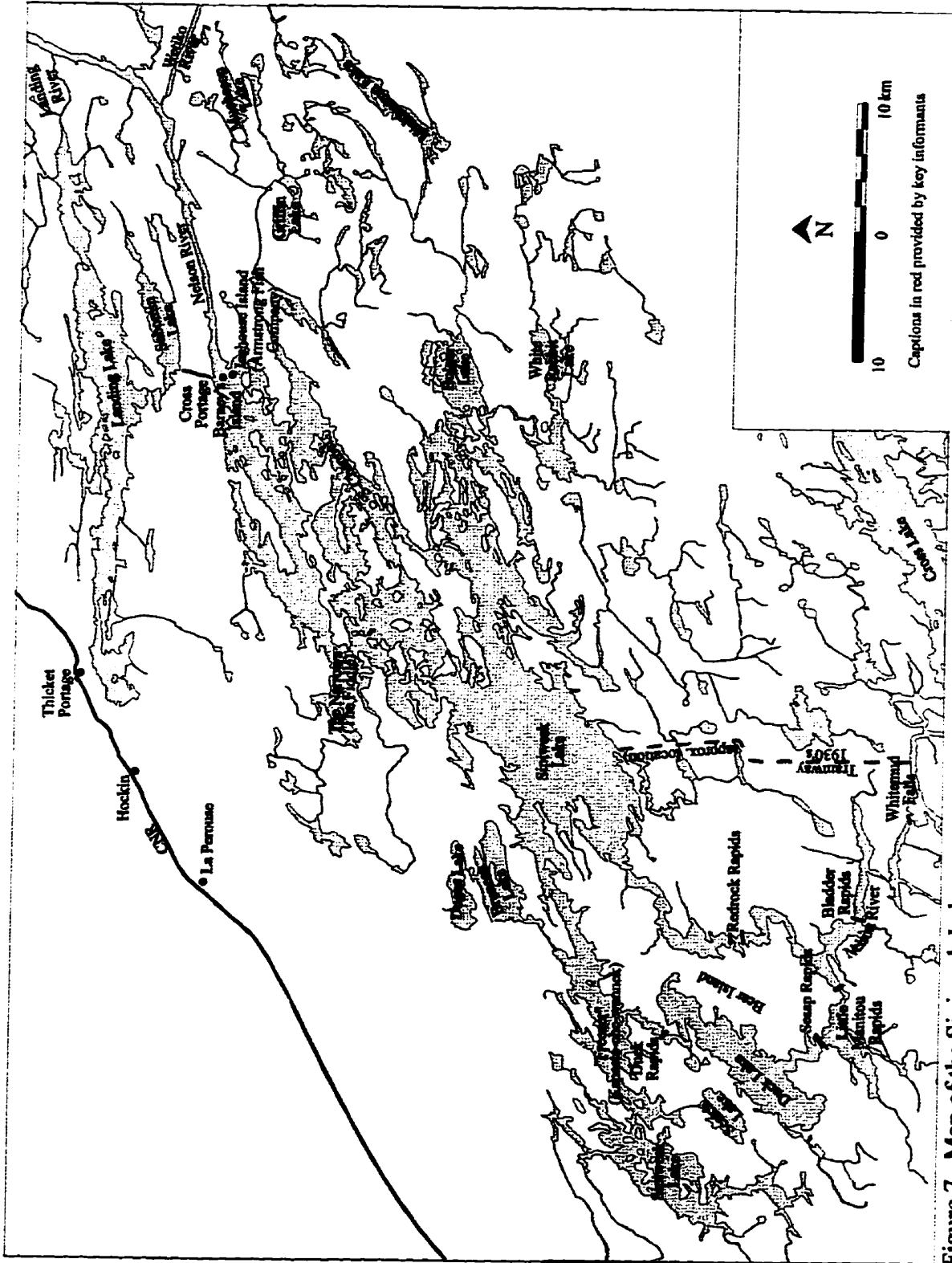


Figure 7. Map of the Sipiwek Lake area.

southwest of Pikwitonei also became so rough that cars had to be chained together so that they would not uncouple and train crews reportedly developed much expertise in re-railing cars (Bickle 1995). Despite the condition of the track, it was still used to ship fish south from the Manitou Rapids packing station in 1918. However, as the war need passed, sturgeon harvests once again became negligible in 1919 and 1920.

High prices once again stimulated the sturgeon fishery in the early 1920s. The price of one pound of sturgeon rose from 10 cents in 1916 to 47.3 cents in 1923 (Harkness 1980). A sturgeon fishing season was established for the Nelson River from June 1 to October 15 with a quota of 100,000 lbs, and a minimum mesh size of 11". Sturgeon fishing was the only fishing that occurred in northern Manitoba in 1923 and it was carried on to a much greater extent than it had in the previous years (DOC 1925). **Arthur Brightnose** used to accompany commercial sturgeon fishermen as a youngster during the 1920s and remembers that most were of Icelandic descent.

By 1924 the price of sturgeon had reached 50 cents a pound (DOC 1925), an unprecedented price for freshwater fish. The high prices resulted in an intensifying of the fishing effort and quite extensive operations were carried out on the Nelson River and its expansions in 1924. **Armstrong Independent Fisheries** operated exclusively on the lower reaches of the river, locating their headquarters at Mile 239 on the Hudson Bay Railway near Manitou Rapids (and Arnot which was at Mile 238) (Figure 8). The company put up an icehouse and freezer at this location (DOC 1925). Their operations extended as far down river as Kettle Rapids, where a second icehouse was built.

Percy Laubman recalled his father telling him about a side track off of the main line at Mile 239 that lead down to Sheli Rapids Bay. There was a Y in the track at the landing, and the train would pull in, load up, back out, and head back south again. A large packing plant operated near where the train stopped that would often receive up to 100 fish in a day, many brought from as far away as Sipiwesk Lake. The sturgeon were

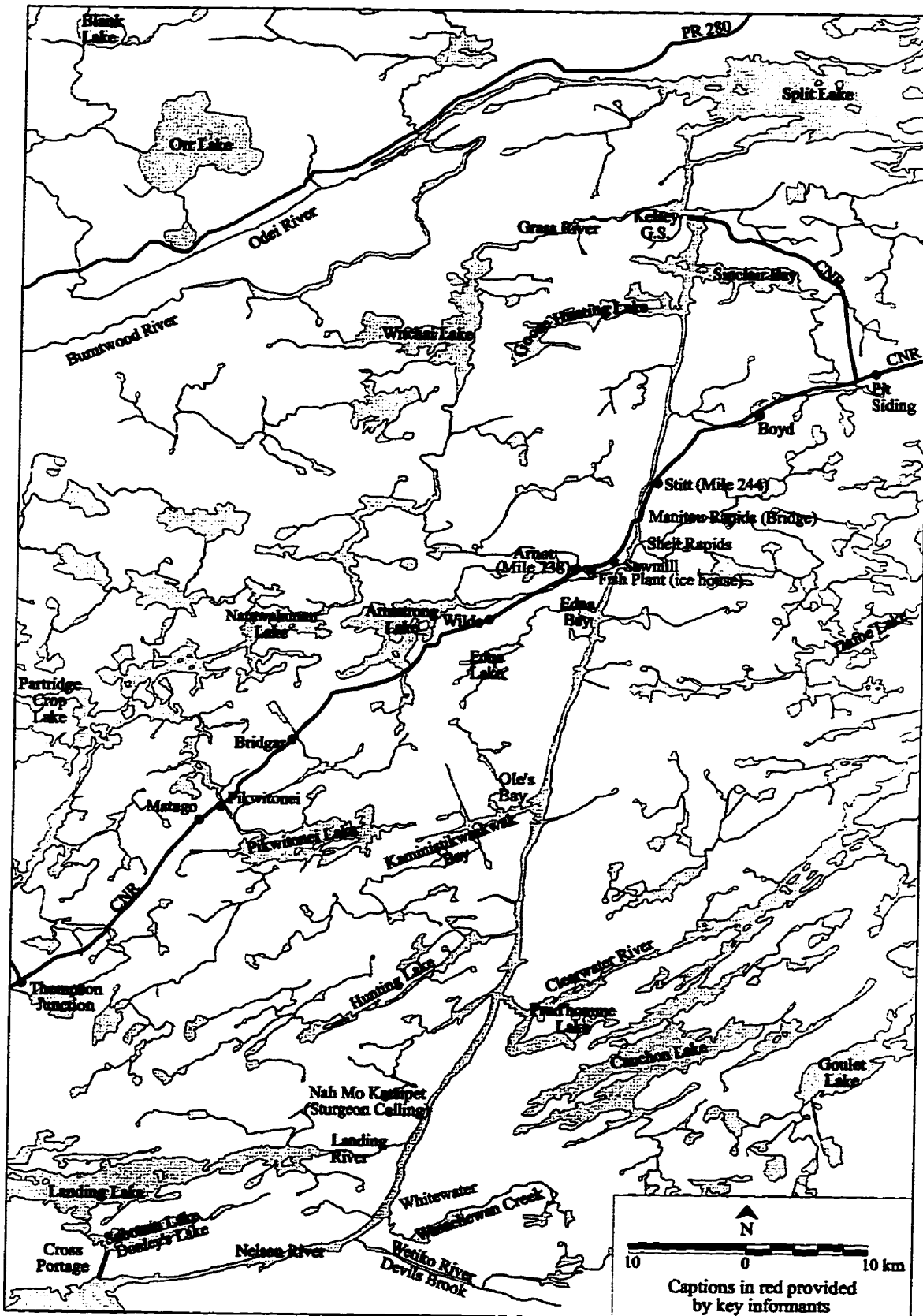


Figure 8. Map of the Nelson River between Devils Brook and Split Lake.

dressed at the plant and then loaded on to the train at the Shell Rapids station. Up to four carloads could be shipped out in a week during the fishery.

The Armstrong Independent Fisheries Company had taken 89,000 lbs by August 9, 1924, at which time all fishing was stopped because the limit for the river had been reached (DOC 1925). The Purvis Bros., fishing in the upper river and Playgreen Lake, had also taken 16,000 lbs by this time, resulting in the quota being exceeded by 5000 lbs. While the Purvis Bros. catch was taken out by boat to Selkirk via Warren Landing, the Armstrong catch was brought out by the Hudson Bay Railroad to The Pas. The average weight of the sturgeon in 1924 was 22 pounds, which was slightly better than in 1923, and much more caviar was taken in 1924 compared to the previous year. Twenty-one percent of all sturgeon marketed in Canada in 1924 came from northern Manitoba.

Joe Monias was born in Cross Lake in 1909 and moved to Wabowden, where he currently resides, in 1930. Joe remembered five or six Icelanders coming to the Sipiwesk Lake area during the 1920s. "They would give you all the nets you wanted, but you had to return them when you finished fishing". He fished with Edward Thomas out of Cross Lake at the time. The "Icelander" who worked at the "Freezer" on Sipiwesk Lake (Figure 7) would buy their fish for "20 cents per pound". Joe explained that although this did not seem like much, the fishermen "could still make a good living at it". The Icelanders took the fish from the "Freezer" to Mile 239 (Figure 8) for shipment by train. Joe and Edward fished mainly around the area of the Freezer, never venturing off of Sipiwesk Lake. They used a canoe with no motor, paddling downstream from Cross Lake.

Olof Hardy (nee Baldwinson), who grew up in Thicket Portage, recalled that Asi Freeman (Ole Freeman's uncle) was a fish buyer on the upper Nelson River during the 1920s. Asi may well have been the "Icelander" Joe Monias remembers selling his fish to at the "Freezer".

In view of the harvest in 1923 and 1924, Federal Government officials (who were responsible for management of the fishery at the time) felt that the quota could be increased in 1925 to 140,000 lbs. A total of 40,000 lbs was reserved for Playgreen and Cross lakes up to Bladder Rapids ("up which a sturgeon cannot pass") (Skaptason 1926), while the remaining 100,000 lbs could be taken north of there. Skaptason (1926) stated, "In this northern area of the river, sturgeon seem to be fairly plentiful, and in any favourable years the full limit should be easily obtained. Some summers, however, conditions do not lend themselves to successful operations in the river. When the flood waters of its various large tributaries start to pour in, the water becomes so dirty and so filled with debris of all kinds it makes the handling of nets impossible, so at times it is necessary to quit fishing in July."

In 1925, the sturgeon operation carried on much the same as it had in 1924, but with one additional operator (there were now three)(DOC 1926). However, the catch was considerably less than the previous year, as only 65,000 lbs were taken from between Cross Lake and Kettle Rapids (DOC 1926). The decrease was attributed to a late spring, which delayed the commencement of fishing, and to an early rise of water in the Nelson River with the accompanying debris and dirt. This made it impossible to keep the nets clean and as a result they were lifted in early July. A significant decline in the price of sturgeon from the previous year may also have had an impact on the effort (from 50 to 40.9 cents per pound). Since the Purvis Bros. and Skuli Sigfusson took only 21,000 lbs out of the Playgreen area the same year, the resulting harvest from the Nelson River as a whole was 54,000 lbs short of the quota.

In 1926, construction of the Hudson Bay railway resumed and the destination had now become Churchill. Within the first year the existing track was improved considerably and the rail was completed to Amery at Mile 356. The line eventually reached Churchill in March of 1929. The improved track greatly facilitated the movement of Nelson River sturgeon to markets in the south.

In a 1926 report describing the fish resources of Manitoba, J.B. Skaptason described the waters of Manitoba "as the last important resort of the sturgeon on the continent". Skaptason claimed that sturgeon from Manitoba were superior to Russian sturgeon in terms of smoking quality, and therefore easily overcame the low price of Russian sturgeon from a competitive point of view. It is clear that despite realizing that Manitoba sturgeon stocks were some of the last sizeable stocks on the continent, the emphasis was still on exploiting the resource.

The Nelson River sturgeon fishery was a "decided disappointment" in 1926 (DOC 1927). The Armstrong Independent Company once again operated exclusively between Cross Lake and Kettle Rapids, but only harvested 45,000 lbs (DOC 1927) of the 100,000 lb quota for that section of the river. This was a decrease of 47% from just two years previous, despite the price rising back to 51.6 cents per pound.

The decrease in harvest in 1925 and 1926 prompted the government to introduce new regulations in the spring of 1927. Most of the regulations were proactive to 1928 and 1929 to allow for a period of adjustment. After the 1927 season, baited hooks were banned and the season would be restricted to winter only. A minimum size was instituted for 1927 when no sturgeon under 18 lbs undressed weight could be retained. Additionally, a \$5 license fee was instituted for the first time. Domestic fishermen were restricted to 100 yds of net or 50 baited hooks. Net mesh would remain at 11" until 1928 after which it could not be smaller than 12". Lake Winnipeg was singled out and closed to sturgeon fishing beginning in 1928.

The Nelson River sturgeon harvest was a disappointment again in 1927 with only a little over 30,000 lbs taken. The annual federal fisheries report stated that "the restrictions placed on sturgeon fishing by the new regulations were not made any too soon" (DOC 1928). The commercial harvest of sturgeon between 1921 and 1927 exceeded 1.3 million pounds, and the total from 1911 to 1927 exceeded the total commercial catch for the area from 1928 until the fishery was closed in 1992 (Figure 9).

Nelson River Commercial Lake Sturgeon Harvest

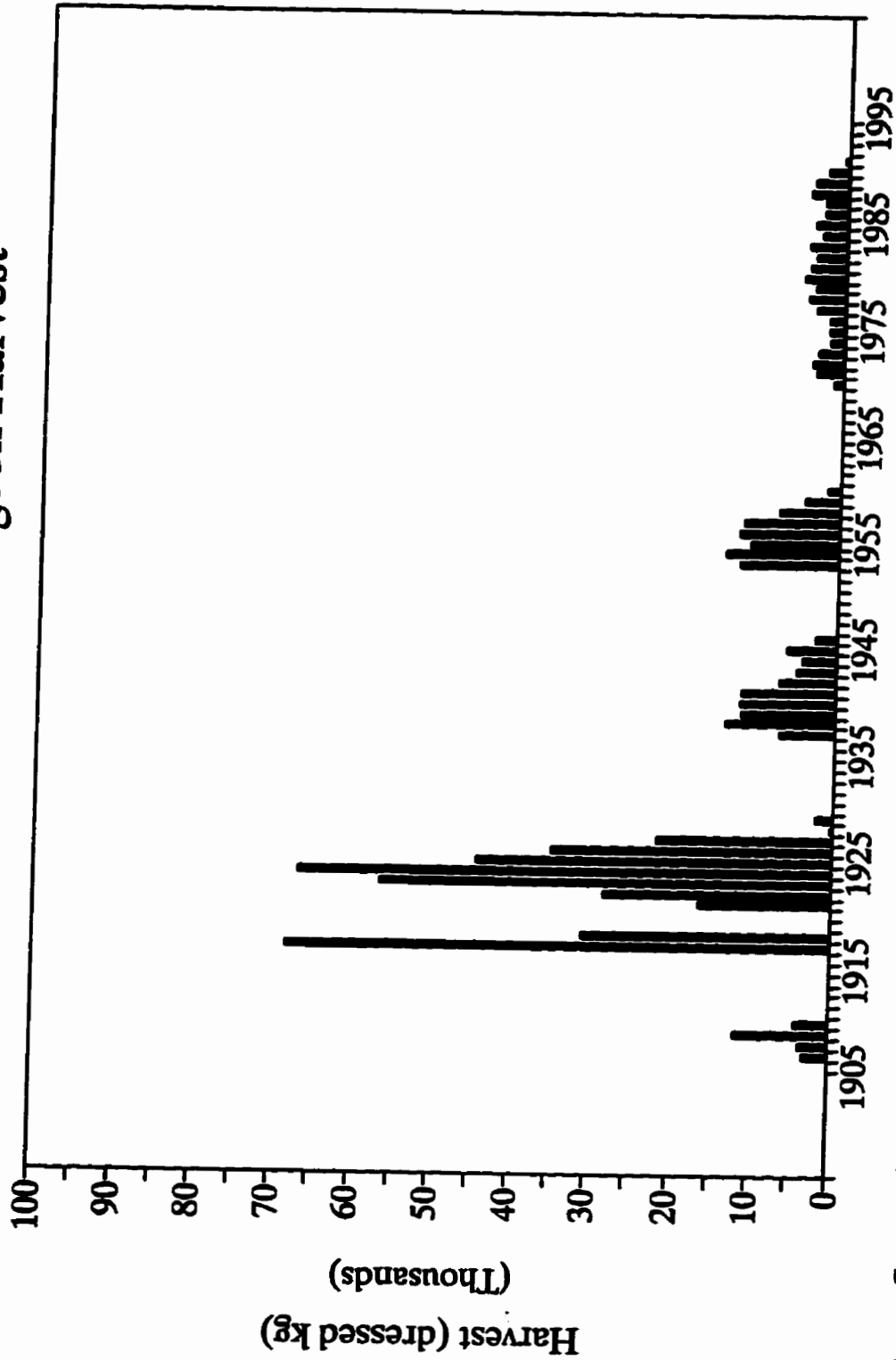


Figure 9. Commercial harvest of lake sturgeon from the Nelson River, 1907-1995 (data from Sopuck 1987 and MDNR files).

In just two years, the outlook on the fishery had changed from one of increasing the quota, to a view that the fishery was in significant difficulty.

Fred Cordell was born in Pikwitonei in 1925 and still resides there. He and **Arthur Brightnose** both recalled a story of a Norwegian sturgeon fisherman who was using set lines somewhere upstream of Manitou Rapids in 1927 or 1928. Upon returning to the lines, he realized he had captured two or three sturgeon on one of them. While attempting to pull in the line, one of the hooks caught on his canoe. Apparently the tenacity of the sturgeon overturned his canoe which was found a few days later floating in the bay below the Manitou Rapids Bridge by a resident of Split Lake. The Norwegian was later found drowned near the Kelsey Portage and was reportedly buried there.

By 1928, sturgeon prices had risen to 57.5 cents per pound but the new winter season and the lack of production in previous years likely dissuaded fishermen from participating. Production in 1928 amounted to only 500 lbs for the entire river. By 1929, only eleven licenses were issued for sturgeon fishing in northern Manitoba. Considerable importation of Russian sturgeon brought the price down 40 cents per pound, a decrease of 17.5 cents per pound in one year. This discouraged many operators where transportation difficulties were great (DOC 1930).

The extremely poor catches in 1928 and 1929, and the winter season restriction, caused the fishery to be abandoned in 1930 and no harvest was recorded from the Nelson River for the next three years. In 1934, in response to declining sturgeon stocks across the province, the government closed the entire Manitoba commercial sturgeon fishery.

Despite the difficulties with the commercial fishery, domestic fishing for sturgeon on the Nelson River continued during the 1930s. **Abel Hall**, who was born in Thicket Portage in 1929 and resided in Wabowden since 1945, remembered going with **George Brightnose's** family to Kelsey Falls when he was quite young (during the 1930s). He recalled that they captured one or two sturgeon, but thinks they were probably too late

in the season. He also fished with his family in the 1930s around Cross Portage, taking only as many sturgeon as their family could eat.

Percy Laubman's wife remembered living out on the land and fishing with her family during this era. She recalled, "Us kids would overhear our parents talking about how our grandfather could talk with the sturgeon. That would scare us!"

Arthur Brightnose recalled fishing at Mile 238 during the closure in the 1930s. He remembered the railway line still coming right up to the icehouse during those years. They fished out of York boats, and since they had no motors, paddled them everywhere they went. There were two portages from Split Lake to Mile 238 at the time (presumably Kelsey and Manitou rapids). Occasionally they would use set lines which were comprised of a series of hooks attached by one foot lengths to a main line. The lines would be anchored with "stones the size of TVs". **Percy Laubman's** father also fished at Mile 238 for a while after closing his store at Manitou Rapids during the 1930s. He would fish only one net, moving it occasionally, and would get two or three sturgeon each lift.

Zach Flett, a native Split Laker and 35 year resident of Pikwitonei, recalled travelling up the Nelson River as a youngster (1930s) with his father (who was a trapper). He recalled that it didn't matter where you set nets, you would always get two or three sturgeon. They usually set 5.25", 6", or 8" mesh homemade nets. He said there used to be lots of sturgeon below Kelsey, and recalled seeing 500-600 in one place there. "The water used to be swift by Arnot. You couldn't take a boat past Kelsey or Manitou rapids because the water was too quick. All the communities - Split Lake, Pikwitonei, and Thicket Portage - fished along the river from Sipiwesk Lake to Kelsey. They would set their nets anywhere. There was generally a race to the best spots and if someone beat you there you would set somewhere else."

4.1.3 1937-1952

The commercial fishery remained closed for three years before reopening in 1937. Since little information exists for this period the rationale for reopening the fishery is uncertain. However, the great depression was in full swing at this time suggesting that economics rather than biology had the greatest influence in the decision.

The regulations instituted for 1937 were: 500 yds of gill net, 12" mesh nets, and a license fee of \$5. Baited hooks were prohibited. A quota of 50,000 lbs was set for the area from the Hudson Bay Railway bridge to the south end of Sipiwesk Lake. The season was June 15 to August 2. **Joe Monias** recalled that this was the first year that fishermen were required to buy licenses. He did not remember paying the \$5 fee instituted in 1927.

During the first year of the fishery only 15,000 lbs were harvested. This doubled in 1938 to 30,000 lbs, but decreased to 26,000 lbs in 1939. The quota was not reached in any of the first three years of the fishery.

Joe Monias recalled that people would fish before the season opened when the fishing was best and then tie the catch up. He only remembered seeing a conservation officer (CO) once in all the time that he fished. There were camps all down the river, and lots of families. They not only sold the fish, but collected the eggs for which they got \$2-3 per lb. Most sturgeon were captured early in the year. "People who stayed out all summer did so just so they could stay out on the land." He was one of those people, and stayed out on the river most of the time. He remembered selling fish to Johnny Johnson from Thicket Portage during the late 1930s. He fished with William Jack Thomas in latter years. Joe never fished with an outboard engine, which meant a lot of paddling around Sipiwesk Lake.

The first outboard motors were making their appearance in the Nelson River region at this time. **Arthur Brightnose** recalled getting his first, a 1.5 hp, in 1939. He remembered only six or seven motors in the Pikwitonei area at the time. Prior to this, Arthur used a 12 ft canoe to fish in the vicinity of the first rapids on the Burntwood River. He recalled catching 75 sturgeon in three nets there on one occasion. He also recalled catching a sturgeon at the first rapids of the Odei River around this time.

In 1940, the season was lengthened to September 30 and the fishing area was extended from Duck Lake to the Angling River. The quota also was raised by 10,000 lbs to 60,000 lbs. This was somewhat curious in that the quota had not been reached in any of the previous three years, but it is assumed that the increased area was the rationale. Despite the increased area and quota, the harvests in 1940 and 1941 were similar to 1939 at around 26,000 lbs. The minimum size restriction was clarified prior to the 1942 season, when possession of sturgeon less than 12 lbs dressed was prohibited.

George Brightnose, who was born in Pikwitonei in 1926, was raised on the Nelson River and fished commercially below Kelsey Rapids for about three years between 1940 and 1946. His fishing partner during the 1940s era was Philip Brightnose, who drowned in Thicket Portage Lake sometime after 1960. They fished for Keystone Fisheries in The Pas, but bought all their own nets. The two of them would take the train from Pikwitonei to Stitt where they put their boat in. They used an 18 ft canoe and 2.5 hp motor. They camped in a tent below where Kelsey Dam is now, and fished below Kelsey Falls, setting nets on each side of Seven Mile Island. Fishing started on June 15 and finished in September; however, only the first 2-3 weeks were any good. They usually started fishing before the season and would tie up the fish until opening day. They used ten, 100 yd, 12" mesh nets, but used to sneak 8" mesh nets into the water as well. George recalled, "We were generally not concerned with bending the rules since there was only one game warden from Kelsey to Churchill". They would get up early in morning and check the nets, and then would do other things during the day. There were never any conflicts with other fishermen about where to set nets and

sometimes they would set right beside each other. They would clean their nets regularly by banging them on a smooth rock or would dry them and clean them with a brush. Sometimes they would get nothing in an overnight set and other times they would get up to four in a net. During the 1940s you could take as much as you could catch, so if a net didn't produce they would usually move it right away. He remembered seeing Bud Johnson catching a 104 lb sturgeon below Kelsey during this era. Occasionally they would catch sunfish (freshwater drum) and jackfish (northern pike) in their sturgeon nets. The sunfish were considered very good for eating. Once they had captured and tethered enough sturgeon to shore, they would take the catch to Stitt at Mile 244 on the railway where Thicket Portage people had put up ice in an icehouse during the winter. They would deliver fish about every three to seven days. Sturgeon under 12 lbs dressed weight were kept to eat. Other commercial fishermen from Thicket Portage also camped at the same location (mostly Icelanders), along with some people from Ilford. Bud Johnson, Barney Baldwinson and Bill Christianson are some of the people he remembers camping there. Besides the commercial fishermen, there also were a number of other people camped at Kelsey Falls just fishing for food. They stayed out on the river most of the time, but when fishing slackened during summer they would go wherever they could find work. The railway was often the only local work they could get. They didn't venture up river much because it took too much gas so they spent the majority of their time close to Kelsey Falls.

Alex Brightnose was born at Cross Portage in 1924 and is now a resident of Thicket Portage. He fished at Kelsey during the 1940s with Barney Baldwinson, who Alex claimed, taught him how to fish. Alex lived in Thicket Portage at the time and took his boat, a 19 ft canoe and 5 hp engine, to Kelsey via Landing Lake and the river and then would come back by train. Both he and Barney stayed in a tent by Kelsey Falls. A number of fishermen including himself bought nets from Barney. He fished 10, 12", 50 yd nets, since 500 yds was all that was allowed for each fisherman. They made floats and weights for the nets themselves out of rocks and sticks, using the same ones year after year. They would set upstream and downstream of the falls, always near

rapids. They generally fished for three weeks checking the nets at 05:00 am and at 3:00 pm. Nets set further away were only checked once per day. They fished until the quota was filled or basically until the dirty water came in July. All the fish were tethered to shore live and would not be killed until 50 or 60 had been captured and the train was coming. They would butcher the sturgeon on land at camp and then threw the guts in the bush or buried them in a hole. The fish were then packed up in gunny sacks and taken up river to Mile 244, where ice had been put up during the winter. There were two portages to Mile 244 at the time; one at Mile 244 and one at Kelsey. The side track at Shell Rapids had been removed by the early 1940s, but the shacks still remained. Once at Mile 244 the fish were packed up the hill and put on ice and then on to the train. Baldwinson shipped the fish to Keystone Fisheries in The Pas. Arthur was paid \$150 per month clear. There were lots of fishermen from Split Lake and Ilford camped at Kelsey at the time. Doug Lindal bought fish from some of the other people and took them out by plane. In the later years, Barney's wife would come out to camp with him at Kelsey. There was a store at Split Lake where the fishermen would go to get food which would take approximately two to three hours to reach by boat.

Lafoy Clemens, who lived on the Grass River in his youth and currently resides in Thompson, remembered fishing for sturgeon with his uncle during the early 1940s. Their catch was for personal consumption only as they did not participate in the commercial fishery. They travelled to the Nelson River via the Standing Stone Portage, Armstrong Lake, and the Armstrong River and then portaged over Mile 235 of the Hudson Bay Railway near Arnot. Since there was no way for them to preserve their catch, it was consumed almost immediately.

Arthur Brightnose fished with Ole Olson at his camp at Ole's Bay from 1940-1942. Ole was about 79 years old at the time. **Rusty Cordell**, a life long resident of Pikwitonei, recalled that everyone in Pikwitonei used to get sturgeon from Ole Olson since he was one of the few residents of the community who fished for them. Arthur remembers two reefs in Oles Bay where they used to set their home-made nets. Arthur

also had a camp at Sinclair Bay during this time, where he raised his children. During winter, he would fish for sturgeon in a narrow area at Kelsey Rapids that remained open throughout the year. "There were lots of sturgeon in there". Arthur remembered that you could always catch sturgeon at the mouth of Grass River during this era, and even up the Burntwood River. Arthur recalled that, "Sturgeon were so plentiful at the Grass you could catch them with your hands". Rusty Cordell remembered people pitching tents at the mouth of the Grass River and fishing at Witchai Lake Falls. They went to Ilford for supplies, which was ten miles down Split Lake.

Arthur Brightnose recalled that you could fish anywhere during the 1940s. "There were no restrictions. They called it land living. You could go anywhere and fish anywhere. You would take what you could eat and smoke it right there. All the fishermen worked together. If they caught too many fish they would dig a hole, bury them, cover them with moss, and use them for dog food at another time".

Percy Laubman fished commercially for sturgeon near the mouth of the Hunting River with his brother-in-law Earl Browner from 1942 to 1946. Percy, who was a teenager at the time, didn't go out to make money, he just wanted to help his brother-in-law. Usually his brother-in-law gave him a little money, and in the last year he was paid. He considered himself lucky because a lot of people who wanted to go out sturgeon fishing at the time couldn't because they didn't have the equipment.

Percy and Earl usually camped at the Hunting River mouth, but also had a camp by Hunting Lake and stayed in cabins or tented between Shell Rapids and Leaf Portage. They chose this location because there were other fishermen at Kelsey and further upstream at the Landing River at the time. Thicket Portage fishermen would come as far as Clearwater. Percy and Earl never went above the Hunting River, usually fishing only as far downstream as Arnot. He recalled numerous sand bars and beaches along this stretch of the river during this era.

Percy and Earl fished from opening day (June 15) until the end of September. They used a 7 or 9 hp Mercury engine on a 19 ft freighter canoe, fishing 10, 100 yd, 9" mesh and up, nets (5 for each person). They moved the nets from location to location until they captured fish, but had some good sets where they would leave the nets in all summer. The only limit on their catch was the season and a total quota, which the fishery never approached during the 1940s. "There were never any battles over fishing areas as everyone respected each others fishing spots. It was on a first come first served basis. If there was a net already in where you wanted to set you would go and find another place to set." They would clean their nets every third day in the summer, usually at Arnot below the landing. The nets would be dried and cleaned by pulling and rubbing. Fishing was best during spring, poor for 3-4 weeks during summer, but picked up again during the end of August. They would come to town every so often for 10 days to two weeks.

Percy and Earl generally averaged three to four sturgeon per day. Most were 20-40 lbs, but Percy recalled a 97 lb sturgeon that he captured off the sand bar at Leaf Portage. They caught sturgeon down to 8 or 9 lbs occasionally, but didn't throw them back. These were the fish that they would give away when they got back to town. All other fish they caught were sold, except on one occasion, when two went bad because the train was late. Occasionally carp and drum would also be captured in their nets.

After catching sturgeon, they would tie them up for a couple of days before killing them. They usually delivered the sturgeon every two to three days. On one occasion they had seventeen tied up, and needed two trips to deliver them to the buyer, eight and nine at a time. They took their fish to Mile 244, where fishermen had put up ice during the winter. Percy recalled three sets of rapids had to be traversed on the way to Mile 244: at Edna Creek, Shell Rapids, and Manitou Rapids. "You couldn't canoe up Shell rapids but you could go down". The train would come by to pick up the sturgeon every three days. The fish would be loaded into a refrigerator car and delivered to Keystone Fisheries in the Pas. He remembered catching 102 sturgeon one summer,

92 or 97 in another year, 50 in another year, and 37 in the final year. He remembered that the final year was not very good because of algae.

Percy recalled capturing nine sturgeon with eggs during the early part of July one year. They managed to get about 30 lbs of eggs from the fish. "Johnny Cook, who was a bridge guard at the Manitou Rapids Bridge at the time (they used to use men from the First World War) knew how to make caviar. So he bought the eggs off us for \$5 per lb. Little did we know that Keystone was paying \$20 per lb for caviar at the time. Johnny invited us to pig-out on the caviar a week later. Earl ate so much of it at one time he threw-up for a day and a half!" Percy remembered some people pickling the eggs. Although some fishermen were collecting the eggs, there was little caviar marketed from the Nelson River at this time. Messrs. Johnson and Freeman of Thicket Portage processed approximately 180 lbs in 1944, but it spoiled prior to being marketed.

Ole Olson and Hans Norman fished commercially at the same time as Percy Laubman (1943-1946). They camped across the river at Oles Bay and fished in the vicinity and Hunting River area. They didn't fish that much because they were primarily trappers, but had a license so they could occasionally catch a sturgeon. They stayed at their camp year-round and would set about five nets during the season. Percy Laubman and Earl Browner would socialize with Hans and Ole during the fishing season and provided help if they needed it.

Percy recalled going to Split Lake with a trapper around 1944 when he was 16 years old. They ran into a number of Thicket Portage fishermen at the Grass River who were working for Ole Freeman. They were fishing before the season and tying their catch up. Jack Lundy and Harold Wells, COs in the area at the time, caught and charged them. "Both of these wardens were thorough and tough on the sturgeon fishermen". All of the fishermen pulled out of the area after the spring. The six or seven fishermen that were there had caught at least 200 sturgeon. Percy remembered Barney Baldwinson, Art Petersen, Bud Johnson, and Chris Goodman as some of the Thicket Portage fishermen

on the river at the time. Ted Erickson fished below the Manitou Bridge, as did Lindal from Ilford.

Albert Dorian was born in Thicket Portage in 1938 and still resides in the community. He recalled that his father took his family out and fished at the mouth of the Landing River in the 1940s. He would pack his fish up the Landing River and across the lake back to Thicket Portage.

John Mercredi, who was born in Thicket Portage in 1933 and still resides there, went sturgeon fishing with his father (Cyril) and family in the early 1940s, camping at "The Fiddle". Ole Freeman would stop by their camp on his weekly fish buying trip. Toward the middle 1940s they moved their camp to the Landing River. Ole also bought fish there, and took them to Cross Portage. Occasionally John's family would take their fish to Thicket Portage themselves, bringing them across the Landing River portage to Landing Lake. They fished upstream and downstream of the Landing River mouth, using canvas covered Chestnut and Kildonan canoes and 2-5 hp Johnson engines. John recalled, "It was like a community out there on the river. There would be a string of tents. Women would cook and look after the children, while men would fish and help with the nets". **Gordon Clemons**, a current resident of Thicket Portage, recalled the number of families that went out and camped in different places during this time. "Kids would stay in the camp and grand parents would look after them. They would stay out on the water and fish commercially from June to August".

John Mercredi's uncle, Joe Mercredi, fished near Clearwater Falls (Cauchon) at the same time as Cyril. "Cyril would fish one side of the river and Joe would fish the other. There were not that many fishermen then". John recalled that Cross Lake people fished around Sipiwesk and occasionally they would meet them at the mouth of the Lake. Tommy Singleton and Ben Larson camped at Cross Portage. William Bittern camped with Cyril, but fished further up river. The Dorian, Mercredi, and Bittern families comprised most of the fishermen in this section of the river. **Gordon Clemons** also

recalled the Grimsley family fishing in the area at this time. Occasionally, Cyril and John would see Earl Browner and Percy Laubman at the Clearwater River and have tea with them.

John recalled that spawning was usually over by the start of the sturgeon season on June 10 or 15. They fished some 100 yd nets, but cut most in half. Sticks and stones were used for floats and weights, which they would get the kids to tie on. Nets were generally set out of the current in bays. Fishing was usually best around the Landing River early in the season, but they would catch sturgeon all over the river back then. The biggest he could remember weighed 95 lbs dressed and was taken near the Landing River in the 1940s. They would usually stay out all summer long, hunting ducks and moose in late summer and fall at the same time they were fishing. Since they had no method to preserve the meat they dried it.

John maintained that, "Even if we only captured one or two fish a month we still made a living". They never gave any sturgeon away, with the exception of the heads, which everyone wanted. They would eat some of the smaller sturgeon once in a while, but Cyril would never let his wife keep any of the legal size fish because they were worth too much. They often ate whitefish instead. To cook sturgeon, they would boil it with potatoes and put ketchup or mustard on it. Sturgeon eggs were usually sold, but occasionally they kept some for the family to eat. They took the fat off, passed them through a fine screen into a galvanized tub and salted them. Much of their time was spent cleaning nets by drying and rubbing them. When they caught sturgeon they tied them up until shipping day, which occurred every second day in spring and every fourth day later on. It would take 3-4 hours to go to Thicket Portage over the Landing River portage, carrying sturgeon in gunny sacks with pack straps. They got \$1.10-\$1.50 per lb. Ole Freeman would bring supplies over Cross Portage with his horse and wagon and then deliver them by boat. John can remember riding the horse across Cross Portage many times during this era.

Abel Hall fished with **Gary Dorfeson** (an Icelander from Thicket Portage) when he was 12 years old (circa 1941). They camped in a tent approximately five miles from Cross Portage into Sipiwesk Lake, travelling from Thicket Portage via Landing Lake and Cross Portage. If Ole Freeman's horse and cart were at the portage they could use them to pack their equipment across. If not, they had to pack the canoe and gear over the portage themselves. Dorfeson brought his wife out with him. They used an 18 ft canoe and 1.5 hp motor and set all their nets near their camp in Sipiwesk Lake. Dorfeson was experienced and knew the sets where they would catch sturgeon. Abel's job was to find net rocks that were the right size for weights. He remembered being restricted by the number of nets they could use, which would have been 500 yds at the time. They cut their nets in half and tied them to shore. Any sturgeon captured would be put into a crib. Dorfeson thought that this was superior to tying the fish up because they would not lose weight. Ole Freeman would come once per week from Thicket Portage in a 20 ft freighter canoe and buy fish. They would have the fish gutted and ready to go on the day he was coming. They cleaned the fish at least 100 ft from shore and buried the guts. The inside of each sturgeon was scrubbed clean with a brush. Eggs suitable for caviar were retained, and Abel would work them through a screen while Freeman watched. Freeman would weigh the fish and eggs when he picked them up and then take them back to Cross Portage where he put up ice during the winter. Abel and Dorfeson usually stayed out about a month, until the limit would fill, and then quit fishing. Dorfeson was Abel's partner again in 1942, but unfortunately he died a year later. Abel didn't go out in 1943, but went back out fishing with Baptiste Crait around 1944. They generally fished in the same places that Dorfeson had, but now Abel was the one with the experience and knowledge of the fishery. Abel only fished one year with Baptiste before quitting and giving Baptiste all his nets after the 1944 season.

Joe Colombe was born in Cross Lake in 1923 and currently resides in Wabowden. Joe recalled going out on the Nelson River with his father in the early 1940s when he was 18 or 20 years old and fished commercially at Duck Lake. He remembered the fishing at Duck Lake being good, but doesn't remember what they

caught. He and his dad would stay out on the land all summer, spending the spring at Duck Falls, going elsewhere during the summer, and then going back to Duck Falls during fall. They usually quit fishing in July and would start again in August. His family went out with them as well, but just his dad and he would fish. They took the seven mile portage from Wabowden to Sipiwesk Lake carrying an 18 ft canoe on their shoulders. Since they had no motor, they paddled all over the lake. The buyer from Thicket Portage (he is probably referring to Ole Freeman) supplied the nets. They fished four or five nets, stayed in a tent, and moved around. There were lots of fishermen in the area at the time. They all fished together setting nets anywhere they wanted. They usually fished the back eddies, avoiding the fast water. Fish captured would be tied to shore until the buyer was coming. The fish would then be gutted on-site and the guts were thrown in the bush. His family kept the small sturgeon to eat and collected and sold any eggs suitable caviar. The eggs were pulled out of the fish and left in water until the buyer came by to pick them up. Joe recalled scooping small 24" sturgeon out of the water with a dip net at Duck Falls while they were fishing. Joe and his dad moved from Duck Lake to the Landing River in 1946 (the year before it closed).

There were at least three fish buyers on the upper Nelson River during this era. Johnson and Freeman operated out of Thicket Portage and bought fish from "The Fiddle" on Sipiwesk Lake to the mouth of the Landing River. Barney Baldwinson bought fish from fishermen at Kelsey and took the fish to Mile 244. Duke Lindal operating out of Ilford also bought fish at Kelsey. The fish were all shipped by train to Booth Fisheries or Northern Lake Fisheries. In a memo to the Department of Mines and Natural Resources (DMNR) in 1946, Booth Fisheries stated that they were happy with the shipments from the buyers and that they always arrived in good condition with plenty of ice.

From 1941 to 1944, sturgeon harvests from the Nelson River decreased from approximately 26,000 lbs to just 9,200 lbs, annually. The reduction in harvest began to raise concerns that the stock was once again in trouble.

The earliest correspondence regarding sturgeon in northern Manitoba that are held in Manitoba Department of Natural Resources files in both Winnipeg and Thompson date back to 1944. At that time G.W. Malaher was Acting Supervisor of the Game and Fisheries Branch in the Pas. In two memoranda to the Director of Fisheries in late 1944 and early 1945, he recommended that sturgeon fishing be closed in 1946 for a number of years because the data collected from the catch suggested that they were approaching the "danger line". A.G. Cunningham (Director of Game and Fisheries) replied shortly thereafter that he anticipated no change for the coming season since adequate notice was required for a closure and had not been given. However, through the winter of 1945-46 the idea of closing the fishery was being given serious consideration within government circles. This information was leaked to the fishermen and buyers and a letter in April 1946 from Booth Fisheries to DMNR indicated their concern about the impending closure. Booth Fisheries stated that they had already put up ice during the winter and had bought nets for the 1946 season.

G.W. Malaher replied as follows to Booth Fisheries: "The limit from the Nelson River was 60,000 lbs and despite an excellent price for fish and caviar only one quarter (13,400 lbs) of the limit was taken by 29 licenses in 1945. Small sturgeon under the legal limit were being shipped and many of the fish were disposed of (sold presumably) along the Hudson Bay railway". Malaher presented the views of a trapper who fished for dog food along the Nelson regularly and always caught sturgeon. He rarely did any more and believed sturgeon were disappearing rapidly. Malaher stated that in both quantity and size of fish taken, sturgeon are "already in the danger zone and that continued fishing can only mean depletion of the stocks."

Pressure from fishermen, operators, and fish companies on DMNR eventually paid off as the Assistant Deputy Minister, J. Cowan persuaded Malaher to relent, and a final season was permitted in 1946. However, the quota was reduced to 15,000 lbs, the season shortened (July 2 to September 28) and no fish under 15 lbs dressed was to be retained. However, Joe Monias remembers sturgeon being extremely scarce by 1946

and the resulting harvest was just 5,800 lbs. The fishery was subsequently closed in 1947.

Despite the closure of commercial fishing, domestic fishing continued during the late 1940s and early 1950s. **Robert Pronteau Sr.**, who was born in Camperville in 1934 and has lived in Thicket Portage since 1946, remembered going out with **Barney Baldwinson** to Landing River Falls during the spring of 1947. They set a short net and caught 16 or 17 sturgeon. **Gordon Clemons** lived with his wife at Mile 238 and worked for CNR from 1947-48. He fished for food, setting a 100 yd 12" mesh net in spring close to the Manitou Bridge. The net was tied to shore and angled downstream with the current. They would can and smoke all the sturgeon they caught. None were ever sold. He didn't bother to set nets in the fall because there were never any fish there at that time of the year.

Alex Jonasson, a current resident of Wabowden, was born in Riverton in 1927 and moved north to work in 1946. Alex went "scale fishing" (which targeted fish with scales, rather than sturgeon which do not have scales) on the Nelson River for the first time in 1948 during the closure. They captured sturgeon all over Sipiwesk Lake at the time. They threw most of them back, but ate some. "They were a nuisance to my operation and increased through the years if anything". Alex remembered coming down the Landing River in the early 1950s with his crew and 3 plywood skiffs to scale fish in lakes off of the Nelson. "We got to the 4 ft waterfall at the mouth of the river and the first boat shot the falls. It survived the falls but couldn't turn in the current and hit the point just below the falls. The two guys in the boat passed each other as they flew into the water". The next two boats threw a line to shore so they could turn before hitting the bank.

Albert Dick, a life long trapper and resident of Pikwitonei, used to go to the Clearwater River with **Hans Norman** around 1948 with a 19 ft Chestnut canoe and 3 hp motor. Hans set 4.25" nets off of the camp north of Clearwater across the creek and

always caught plenty of sturgeon. **Fred Cordell** recalled going through **Pikwitonei Lake** and portaging to the **Nelson River** during this period. He said, "We worked like hell to catch a few sturgeon to share with the community".

During the late 1940s and early 1950s there were numerous requests to **DMNR** to re-open the sturgeon fishery. **Oliver Lindal** at **Ilford** requested a season because of a poor fur catch in 1952. In contrast, **Barney Baldwinson** heard rumours that a season might be re-established in 1952 and wrote a letter expressing his hope that it would not open because he was running a lumber operation and believed he would lose all his help. **S. Sigurdson**, Assistant to the Director of Game and Fisheries, replied to the requests that "the only effective means to re-build the fishery was a complete closure and that it should last for at least 10 years". He did not anticipate any change in this policy. However, within the year, internal memos in the Game and Fisheries Branch began to discuss possible sturgeon regulations and a season for 1953.

4.1.4 1953 to 1969

In 1952, **J. Heard**, Inspector of Northern Fisheries in The Pas, notified Game and Fisheries Head Office in Winnipeg that a number of requests had been received to re-open the commercial sturgeon fishery. Heard felt that sufficient time had elapsed to allow a small tonnage to be taken, and that from information gathered, the sturgeon "had made a good comeback and that a commercial operation could now be permitted without fear of depletion".

A season was subsequently granted by the Game and Fisheries Branch for the spring of 1953. The area opened was from **Whitemud Falls** to **Split Lake** and the season was set for **June 22** to **August 8**. A quota of **25,000 lbs** would apply and not more than **25 licenses** would be issued, with preference to bonafide residents. Nets would be limited to **500 yds** of **12"** mesh per license and there would be a **\$10** license fee. No fish

less than 18 lbs round weight or 10 lbs dressed weight could be retained under authority of the license.

After announcement of the season, requests were received immediately for licenses. However, none were issued until meetings were held with fishermen in both Wabowden and Thicket Portage. At the Wabowden meeting in June, 1953, 12 licences were issued, all to residents of Cross Lake. This was more than the province had expected to grant, but was rationalized as follows: the applicants all had equal merit; it would allow two fishermen per canoe; and it would discourage poaching by the unsuccessful candidates. The dealer at Wabowden had promised not to issue any nets until the season opened to eliminate tethering of sturgeon prior to opening day.

At the beginning of the 1953 season fishermen got 50 cents per lb for sturgeon and \$1.50 per lb for caviar. The price of sturgeon had risen to 80 cents per lb by July. Forty-seven lbs of caviar were shipped to The Pas in June and 170 lbs during the first week of August. Records also indicate 400 lbs of sturgeon heads were shipped to Booth Fisheries in Winnipeg. The fishermen took 27,000 lbs of dressed sturgeon, 2000 lbs over the quota, for a total value of \$19,405. Bert Kooyman collected sturgeon data for the province throughout the 1953 fishery.

J. Heard summarized the 1953 season as "a fairly profitable venture", but suggested that the fishing area be extended downstream to Gull Rapids the following year. He also recommended that the season be moved forward to June 10 to avoid "the green slime problem in the Nelson River".

Following these recommendations, the government extended the fishing area (to Gull Rapids) and the season (June 10 to August 8) in 1954. The prohibition of small sturgeon was clarified to include fish less than 10 lbs dressed "with head, entrails, collar bone, and fins removed". Once again, the quota was exceeded in 1954, with over

30,000 lbs of sturgeon harvested. MacTavish collected sturgeon data for the province during the 1954 season.

Robert Pronteau Sr. fished in the commercial fishery with his father in 1953 at Landing River. In 1954, they decided that there were too many fishermen at the Landing River so they moved to Cauchon Falls and fished near the mouth of the Clearwater River. The Pronteous would usually go out just before season started, travelling down Landing Lake and River to access the Nelson. Robert remembered that there was a nice beach and a big point extending out from the south shore near the mouth of the Landing River at the time. They had a 19 ft canoe and 9 hp engine and would follow the Nelson River shoreline and bays, "where the water would be going in the opposite direction". They stayed in a tent both years that they fished, and generally set about 8 nets within one kilometre of where they camped, checking them every three hours. Because of the fast water, they used 50 yds nets and set them in backwaters. Keystone Fisheries supplied the nets, but they made their own corks and weights from sticks and stones. One end of each net was always attached to shore and a big rock was tied on the other end. Each sturgeon captured was tethered to shore. In 1953, Barney Baldwinson brought a plane into the Landing River mouth and bought sturgeon for \$1.10 per lb. He would also take the eggs, but most of the fishermen threw them away. Robert also remembered selling his fish to Ben Larson on one occasion in 1953. In 1954, the Pronteous took their fish to Arnot, where other fishermen had put up ice during the winter. The fish were sold to J. Bodner at Keystone Fisheries in The Pas. They delivered fish to Arnot twice during the season, camping there overnight each time. The limit for the river was usually filled within a week or two, with each fisherman taking as many fish as he could catch until the quota was filled. Robert recalled catching 17 fish in one net at the mouth of the Landing River in 1953. The following year, they took 1000 lbs by themselves in six days, and caught a 92 lb dressed sturgeon at the Hunting River. On occasion they would catch a big jackfish or sunfish (drum) in their nets. Some of the sturgeon were saved for domestic canning and some were just thrown in the pot and boiled on the spot. The Pronteous usually didn't socialize much with other

fishermen, only occasionally meeting someone on the river. Robert could only remember taking his family out once to fish during the 1950s.

Albert Dorian fished with his dad and brothers in 1953, when he was 15 years old. He got his own license in 1955, when he was 17, and fished until 1958. He remembered Thicket Portage fishermen fishing from the outlet of Sipiwesk Lake to the Clearwater River. Albert camped with his family at the Landing River in a tent. There were four other groups there at the time, two of which were composed of Mercredis. Albert used an 18 ft canoe and 5 hp motor and set nets within 3 or 4 miles of the Landing River mouth, between Devils Brook (Wetiko River) and the Clearwater River. "You could set nets wherever you wanted to, but you generally set them in the same place year after year". They would clean their nets every second or third day by hanging them to dry and then pounding them on a rock. Albert remembered catching an 84 lb dressed sturgeon two miles below Landing River during the 1950s. In 1953, Albert dragged the fish back to Thicket Portage via the Landing River portage, but remembered a plane coming to buy the fish in 1954. They would fish until the quota was filled and then return to town, and then did not go out again for the rest of the year.

Philip Guiboche was born in 1913 in Camperville and moved to Thicket Portage, where he currently resides, in 1948. Philip wanted a sturgeon license in 1953 but couldn't get it because there were only 10 licenses for Thicket Portage fishermen that year. He eventually got a license in 1954 and fished until 1957. Philip stayed at Clearwater Falls in a tent with his son Wilbert. Fred Evans had told Philip where to set his nets at the mouth of the Clearwater River. Fred had fished the area in previous years, dragging his catch back to Thicket Portage over the Landing River portage. The season opened on June 10 during this era, but they always went out a few days early. Philip and Wilbert travelled down the Landing River using a 19 ft canoe and a 10 hp motor. Baldwinson supplied their nets and they made floats out of dry wood, and weights out of rocks. They set eight, fifty yard nets, angled with the current. The sets were close to camp and were checked a few times each day. The catch was tied up for

one week before being butchered and taken to the Landing River. Barney Baldwinson brought a plane into the Landing River for the first time in 1954 and bought sturgeon for \$1 per lb. They also saved the eggs for Baldwinson who would pick them up himself. Philip remembered delivering 50 fish to the Landing River in 1954, and 32 in a subsequent year. Ole Olson also fished from 1953 to 1959 out of Ole's Bay across from the Clearwater River. He told Philip that he used to take his fish in only every two weeks. "He would tie the sturgeon up, set a 4.25" net, catch jackfish and lake whitefish, cut them up, and feed them to the sturgeon". Philip would keep the small sturgeon and bring them back to town, where he would put them in the ice house or can them. They rarely gave any sturgeon away at the time because everybody had some. Philip remembered Ben Larson, Johnny Johnson, and the Craits fishing above Devils Brook (Wetiko River) during the 1950s.

Lawrence Pronteau, who passed away in 1976, moved north from Camperville, Manitoba, in 1946 and fished commercially for sturgeon from 1953 to 1960. Lawrence had five sons: Harry (born in 1930), Robert Sr., Joe, and Louis and Marcel who were twins (born in 1950). Harry and Louis, who still reside in Thicket Portage, accompanied their father and mother during the commercial fishery in the early 1950s. Although Louis was too young to go out fishing at the time, Harry was in his twenties and fished with his dad every year that the season was open. They fished around Mile 235 or 236 near Arnot. Harry remembered an old packing station in the vicinity of where they took their fish to be shipped (presumably the old Armstrong Independent Company Plant). They would travel to Arnot by going down the Landing River to the Nelson, and then motoring down the Nelson. They used an 18 ft canoe with a 3 hp engine and it took 4 to 5 hours to make the trip. They set approximately 12, 100 yd nets between the Manitou Bridge and the Clearwater River. All the sets were off of the shore and sticks and rocks were used for floats and weights. The sticks snapped onto the nets and they would leave them in the same place at the end of the fishing season so they could be used the following year. Each net was checked twice per day and captured sturgeon were tied to shore. The nets would be moved if they didn't catch any fish. The

catch was packed in ice that had been put up during the winter and picked up once per week. Harry remembered, "We got \$1 per lb. We also sold some caviar, but it was hard to come by". Harry recalled that good caviar could only be taken from fish that were at least one year away from spawning. Eggs were never kept unless they fulfilled this criteria. On one occasion they went to all the trouble of collecting and screening some eggs and they went bad while in transit to The Pas. Harry remembered only men camping at Arnot, whereas families would be camped at the mouth of the Landing River.

John Mercredi fished with his dad in the 1950s at the mouth of the Landing River. They fished out of an 18 ft canoe with a 5 hp engine. They set their nets between Devils Brook (Wetiko River) and Clearwater, and usually left them in the same spots for the entire season. Occasionally they would move them in an attempt to find cleaner spots. The fishermen agreed among themselves where they would fish. "The catch was tethered to shore, but you had to be careful of how long you tied them up or they would die". Occasionally his father would can sturgeon out on the river if they were kept too long. When they gutted the sturgeon they would throw the guts in the bush and the bears would clean them up. John said this was not without consequences as they would then have to chase the bears away. Everyone came to the Landing River to butcher their fish at the time. **Barney Baldwinson** would buy them and ship them out by plane. The plane would come whenever there were enough fish on hand to warrant a shipment, and land on the point at the mouth of the river. When the catch declined they would pack fish over the Landing River portage to Thicket Portage and sell to Baldwinson there. Baldwinson repacked the fish in the "ice house" in Thicket Portage and then shipped the fish to The Pas by train. **Olof Hardy (nee Baldwinson)**, Barney's daughter, spent the summers working in the ice house and remembered the train arriving early in the morning.

Hilding Larson was born in the early 1950s and is a life-long resident of Thicket Portage. Hilding recalled that his father Ben started commercial sturgeon fishing in the 1930s, and continued to take part in the fishery from 1953 to 1960. **Gordon Clemons**

recalled that he fished with Ben Larson at the mouth of the Landing River in 1954 and 1955. They would go out before the season started with a canoe and small outboard engine and fish Larson's nets right off the point at the mouth of the river. "There were so many sturgeon there at the time that you would catch one as soon as you set your net". He recalled that Larson used to make lots of caviar and canned a lot of sturgeon. They would haul their catch to Thicket Portage via the Landing River portage in the morning and sell to Barney Baldwinson. In subsequent years, Gordon fished at the mouth of the Landing River with other people before the commercial season opened.

On June 22, 1955, Bello Ross, chief of the Cross Lake Band, requested that the sturgeon quota for the Nelson River be increased. J.F. Heard, Inspector of Northern Fisheries, denied the request based on the following: 10,247 lbs had already been taken that year, a good percentage of which was taken by Cross Lakers (the chief had listed 13 Cross Lakers that were fishing); fishing was slowing down; and, the fishery was still being conducted on an experimental basis. A trapline report from Split Lake notes that high water levels during 1955 would likely restrict the catch to lower than expected. The report also noted that fishermen were reporting a lower grade of sturgeon in the Fox River compared to Nelson River. The Nelson River fishery eventually harvested 24,400 lbs in 1955, just short of the quota.

Leif Sunde, a biologist with the DMNR, started collecting data on sturgeon in 1955 at Wabowden, Thicket Portage, and Ilford. He also collected data from fish at the "Freezer" near Mud Lake, Cross Portage, Landing River, and Gull Lake. He concluded after the 1955 season that the regulations as they existed were adequate for the short term.

Coincidentally, data collected during the 1953 and 1954 fisheries had just been analyzed by B. Kooyman of the DMNR. In a 1955 report, Kooyman hypothesized the following: "Past exploitation of these resources has so depleted or unbalanced the sturgeon populations that if further exploitation under existing regulations is permitted

then in a year or two the fisheries will collapse and the time required for their subsequent recovery will be greatly lengthened". He followed this by recommending "that we put the hypothesis to the test by **allowing the fisheries to continue under present regulations**" (emphasis added).

In 1956, the Nelson River sturgeon fishing area was extended downstream to Kettle Rapids. Fish were being bought by Duke Lindal at Ilford, Barney Baldwinson at Thicket Portage, J. Stephenson at Wabowden, and Lawrence Pronteau at Mile 237. As the 25,000 lb quota filled, difficulties arose in contacting the fishermen to inform them to cease fishing. On July 4 and 6, Baldwinson enquired about the quota by telegram with DMNR in The Pas. On July 9, a reply was sent to Baldwinson indicating that the quota had been filled. On July 10, J. Stephenson sent a telegram to The Pas to indicate that it was not feasible to contact his three fishermen that were fishing 30 miles from the station (at the Freezer?), but reasoned that they were getting hardly any fish at the time anyway. Baldwinson shipped the last sturgeon on July 13. As a result of these communication problems the harvest was 27,600 lbs, 2,600 lbs over the quota. The quota was exceeded again in 1957 when 26,100 lbs were taken.

Alex Brightnose held a commercial fishing license from 1956-1958. John J. Moose had told him to fish at Mile 244 so he went there in 1956 and stayed with the CNR section foreman in the bunkhouse. He fished for Barney Baldwinson, who took money off his pay for gas, oil and nets, and fished alone because nobody wanted to help him. He had an 18 ft canoe and 5 hp motor which he transported by train both ways. He generally fished two miles either side of Mile 244, never going as far as Kelsey, "because there were too many people there". He started in June and stayed for one month. "The first week was good, but after two weeks you would only catch one at a time". He made his own floats and weights and attached them to the net every four feet. Permit numbers had to be displayed on the nets. He tied all his nets to shore and used paddles to set with the current. Sometimes he would put the nets in back eddies and recalled catching most of his sturgeon in a small bay. Baldwinson would come to

Mile 244 and pick up the fish. Alex didn't keep any eggs, but kept small sturgeon to eat. Occasionally he would meet other fishermen and make tea for them, but he generally stayed by himself. "The conservation officers at the time told us to stay away from each other". They had meetings in Thicket before the season started where they would set out where they were fishing. He caught 51 sturgeon in his first year and 40 the next. He also recalled catching the odd jackfish in his sturgeon nets. He quit fishing after 1958 because it was too hard to work alone.

Carl Dram was born in Cross Lake in 1930 and is a current resident of Wabowden. Carl fished for sturgeon from Whitemud Falls to Duck Lake during the 1956 and 1957 commercial seasons. In 1956 he fished with Alec Ross of Cross Lake, travelling across Cross Lake and down the river in a 19 ft canoe with a 8 hp engine. They stayed in a tent and moved around with their nets. They fished 20, 50 yd, 12" mesh nets which they purchased from Leckies in Winnipeg. Sticks and stones acted as floats and weights. They set nets in back eddies and moved them when they didn't catch fish. There were lots other fishermen from Cross Lake fishing in the same area at the time. The preferred area to set was around the rapids, but they respected other net sets and stayed away from them. "Every fisherman would try to beat the others to the quota and some would have half their limit tied up before the season even opened." When they had enough fish, they would make arrangements with a scale fisherman at Duck Lake to have a plane come in. The plane would land at Duck Lake and take the fish to Wabowden where Jack Stephenson was buying sturgeon for a dollar per lb. Carl caught some sturgeon with eggs, but just threw them out. He recalled an occasion when he was cleaning his fish in the water by the plane. "A guy from Cross Lake saw me and told his dad, who was quite cross at me for cleaning my fish in the water prior to the end of the fishery. I ignored him and finished cleaning the fish". Carl and Alec caught 1,900 lbs the first year from 10 June to the first week of July, but pulled out after that because it was not worth the trouble. The following year (1957) they caught 2,300 lbs in the same area. The sturgeon they caught averaged 25-30 lbs, but he remembers one that weighted 90 lbs round and 60 lbs dressed. Carl recalled another sturgeon taken by some

other fishermen near Duck Lake in 1955 that dressed out at 104 lbs. Carl quit sturgeon fishing in 1958 because he started scale fishing on Kiskittogisu Lake. He tried some sturgeon nets for a few days that year but caught nothing.

Hilding Larson started helping his dad during the 1957 or 1958 commercial fishing season. They would take their whole family out, travelling down Landing Lake in a canoe with a 2.5 hp engine. They would pack their gear across Cross Portage, and camped in a tent on an island in Sipiwesk Lake across from the portage. The family would head out prior to the season to get ready and Hilding and his dad would set their nets at 12 midnight on the day the season opened. They fished 10, 100 yd nets, all in Sipiwesk Lake close to their camp. Few other fishermen fished near them. "You got a good spot and fished it every year". Barney Baldwinson bought both the fish and caviar off of them. At the end of the season they would bring one or two sturgeon back to town for eating, and his dad would also can quite a few. Hilding recalled the Icelanders who used to participate in the commercial fishery: "They used to drink homemade beer, eat Ritz crackers and caviar, and pretend they were millionaires". Fishermen would often go back to Thicket Portage for groceries during the commercial fishery. Tommy Singleton, who started commercial fishing for sturgeon in 1954, drowned in 1959 while coming across Landing Lake on his way to pick up groceries in Thicket.

During the late 1950s, **Fred Cordell** shipped freight on the Nelson River from Arnot to a location 12 miles upstream. He recalled, "You could go through Shell Rapids, just upstream of the Manitou Bridge, with a good canoe man". There were nets set all along that stretch of the river, particularly in June during the commercial fishery. "All of the fishermen in the area were from Thicket Portage and most were native". They shipped their fish from Arnot. Fred, who was a trapper himself said, "Trappers only took five or six sturgeon per year which didn't hurt the fishery".

F. Lindal, from Ilford, made a request to DMNR to fish the lower Nelson and Angling rivers in 1958. J.F. Heard saw no reason not to grant him his wish and subsequently the sturgeon fishing area was extended down to the Weir River in 1958. The season continued to be open from June 10 to August 8, but the quota was extended to 50,000 lbs and 50 licenses. According to a Split Lake trapline report, low water added to the catch potential that year.

On June 27, 1958, Ray Campbell, Fisheries Officer, checked five canoes on Landing Lake coming into Thicket Portage from the Nelson River. One bag of nine sturgeon were off to the side and not being loaded on to Barney Baldwinson's truck. Six of the sturgeon in the bag were under the 10 lb limit. The fish were in the possession of a non-treaty Indian and were seized. A second bag, belonging to another fishermen, also contained undersized sturgeon that were seized. The Fisheries Officer report states that Barney Baldwinson was present and "gave both men a good tongue lashing". Baldwinson alleged that he had seen men bring in sturgeon for families, but never in that quantity.

Unmarked nets were a problem in 1958 as Ray Campbell seized 14 during the season. J.F. Heard wrote Baldwinson suggesting that he or someone else plead guilty to the offence in the Pas, pay a \$10 fine and the nets would be returned. Baldwinson replied that no one he knew of would claim ownership and consequently the nets were never returned.

By July 14, the green slime in the Nelson River had become so bad that Stephenson, Lindal, and Baldwinson requested a fall season. Only 16,600 lbs had been harvested up to the date they had suspended their operations. However, the extended season was denied until the following year. Consequently, 1958 was the first year in five that the fishery failed to reach the previous quota of 25,000 lbs.



Photo 1. Typical boat used for commercial sturgeon fishing on the Nelson River during the 1940s and 1950s. This one is bringing in a good catch of sturgeon.



Photo 2. Barney Baldwinson in his truck that he used to haul sturgeon from Landing Lake dock (where the plane docked) to the "ice house" in Thicket Portage (circa 1956-1960).



Photo 3. Tommy Singleton of Thicket Portage with a sturgeon tethered through the gills. The photo was taken near Cross Portage during the 1950s.



Photo 4. "Sturgeon Calling" or "Nah Mo, Kataipet" on the Nelson River, approximately seven kilometres downstream of the Landing River, as it was prior to construction of Kelsey G.S. This site has since been inundated and is now often referred to as "The Gap".

In 1959, Baldwinson obtained dealers and packers licenses for himself and sturgeon licenses for Baptiste Dorian, Gilbert Dorian, Ovide Mercredi, Cyril Mercredi, and George Ross (all from Thicket Portage). Total cost was \$110 (\$50 + \$10 + 5x\$10). B. Wavey of Split Lake also shipped sturgeon from Mile 314 that year. High water during spring brought sturgeon fishing to a stop at Split Lake and likely curtailed operations elsewhere. The 1959 fishery wound down with a harvest of just 9,500 lbs.

Lief Sunde supplemented his 1955 commercial fishery data by collecting additional data on the commercial sturgeon catch in 1956 and 1959. In 1959, Sunde took two days to travel from The Pas to Thicket Portage by train, and then six or seven days to travel the 100 miles by canoe from Thicket Portage to the south end of Sipiwesk Lake and return. He stated that the catch at the Freezer was greatly reduced in 1959 due to lack of nets and gas and the small number of fishermen operating.

After the 1959 season, Lief Sunde concluded from his data that the fishery was failing, but recommended that it continue for one more year. He suggested a quota of 20 to 25 thousand pounds for the whole river, and a fall season. He also suggested that the minimum size be increased to the equivalent of 20 lbs round, but that the minimum size criteria be changed to a length measurement.

In December, 1959, J.R. Dymond, a consultant and sturgeon specialist from Ontario, enquired to S. Sigurdson, Director of Fisheries, about Manitoba's quotas. Dymond stated that he had failed to find any evidence that closing a sturgeon fishery for anything less than 20 years would produce a significant yield. He knew of Manitoba's opening after only six years, and wanted to know the results. Sunde provided a reply for Sigurdson, and concluded that the same held true for Manitoba production - no significant yield was realized after such a short closure.

Sunde noted in a memo to Sigurdson in January, 1960, that some of the sturgeon production from the north may have gone unreported in the past. There was hearsay

evidence that many sturgeon at one time were killed only for caviar. Sunde also had apparently changed his opinion, by this time stating that "a continuation of the fishery after 1959 would not be economically profitable and a further reduction of adult sturgeon at this time may seriously influence the abundance of legal sized sturgeon twenty years from now". However, "if the fishery was given a period of three to five years to recover, it might be possible to produce a sustained yield of 10,000-15,000 lbs per year in the future".

By March 1960, Sunde was clearly opposed to the commercial fishery continuing. In another memo to Sigurdson he stated that "yield had decreased for the past three years and that all indications were that a continuation of the fishery would yield smaller returns. To continue the fishery in 1960 would only prolong the recovery of the fishery and it would not likely be profitable". He recommended that the fishery be discontinued for at least 5 years.

While the Nelson River sturgeon fishery was failing for the fifth time, Manitoba Hydro was completing the Kelsey Generating Station at Kelsey Rapids. Completion of the station in 1960 effectively isolated Split Lake from the upper Nelson River.

Despite Sunde's recommendations, the 1960 season went ahead as in the past, but just 3,470 lbs of the 50,000 lb quota was produced. There were 49 licensed fishermen (Appendix 5) who were receiving \$1.35 per pound. With just under 7% of the total quota taken, the season was subsequently closed in 1961. In his thesis, published in 1961, Sunde concluded that the failure of the Nelson River sturgeon fishery was due to overexploitation and the capture of immature fish.

It did not take long for requests to start coming into the Fisheries Branch to reopen the season. A report by the Wabowden CO in May, 1964, stated, "many inquiries have been received regarding an open season on sturgeon".

Harry Pronteau fished domestically for sturgeon during the closure. He would go, mostly in the fall or anytime during the summer, to the Landing River and would set a couple of nets as far upstream as Cross Portage. He cleaned his catch both in town and at the Landing River portage. Most of the catch was brought back to the community to can. He remembered crews on the CNR line fishing the river during the 1960s. They would finish work around 17:00, check their nets, and then take their catch home. He remembered section men from Ilford fishing as well. **John Mercredi** went out once with Harry to Mile 238 during this period and caught a couple of sturgeon. That was the only time John recalled being out on the river since Kelsey was built.

Many letters were received by the DMNR during the late 1960s requesting re-opening of the commercial sturgeon season (from Booth Fisheries, Cross Lake Council, Split Lake, Thicket Portage, etc). Split Lakers were complaining that they were catching lots of sturgeon in their 5.25" mesh nets and believed that the population could support a fishery. The DMNR denied all requests indicating that they were committed to a ten year closure at the time.

Louis Pronteau worked in the sawmill at Arnot during the mid-1960s and would set nets close by. He fished out of a canoe with a 5 hp engine, using 8 ft deep, 100 yd, 12" mesh nets. He remembered other men at Arnot also fishing during the 1960s. They would tie up their catch until they went home. Some sturgeon remained tethered for up to two weeks. Louis started travelling down the Nelson River in 1966-67 to go to Split Lake to visit his wife's relatives. They would usually go twice a month, setting a net on the way down and picking it up on the way back.

In 1968, E.B. Johanson, CO in The Pas, wrote to W.C. McLean, Regional Director, suggesting that a decision on sturgeon fishing on the Nelson would have to be made in the next few years. He suggested that the value of the fish may be more realized in a sport fishery and he proposed to conduct studies to identify the best areas.

It seems that this did not get support from the head office as no further progress was reported on this initiative.

Walter Skulmoski, a current resident of Wabowden who was born in Cormorant in 1940, came north with two treaty Indians from The Pas to scale fish on the Nelson River at Arnot in 1968. They set nets in bays by the Hunting River and caught about ten sturgeon in one 5.25" mesh net. Walter recalled that they didn't have a clue of what sturgeon were at that time. Earl Browner, a trapper who camped at the Hunting River, told them what they were and how to cook them. Walter and his crew fished from June to October that year. Most of the sturgeon were captured in the spring, as they learned how to avoid them later in the season.

4.1.5 1970 to 1995

In 1969, the Province began to advise people that the Nelson River commercial sturgeon fishery would re-open in 1970.

Ian Dickson, Provincial Fisheries Biologist, presented his views of the sturgeon situation in the Nelson River in a memo to the Director of Fisheries, K.H. Doan, on June 17, 1969. Dickson hypothesized that sturgeon "stockpile" over time and therefore you could employ one of two management strategies: a) a rapid harvest of the stockpiled population over the short term; or b) an annual low sustainable harvest. Dickson recommended opening the fishery in 1970 so that the impact of the ten year closure could be determined and to "complement the provinces' centennial year." He suggested that since Nelson River sturgeon annual recruitment was 10,000 lbs annually (based on Sunde's work), 100,000 lbs could now be harvested at a rate of 35,000 lbs over three years. After a five year closure the fishery may evolve into a 20,000 lb annual harvest. He recommended that: 1) a commercial fishing season be granted for 1970; 2) data be collected on the fishery to determine whether it should continue; 3) the fishery open on June 15 according to Sunde's recommendation; 4) a quota of 40 lbs per square mile be

established; 5) mesh size be limited to 13"; and, 6) legal size be determined by length rather than weight.

Through the first six months of 1969, input was sought from throughout the DMNR to develop sturgeon fishing regulations for 1970. The regulations that resulted were as follows: 1000 yds of 13" mesh net with a license fee \$10. Live sturgeon must be greater than 42" round and 25" dressed (Appendix 6). The areas opened were Playgreen and Cross Lakes (quota 5000 lbs), Whitemud Falls to Kelsey Dam (quota 7000 lbs), Kelsey Dam to Kettle Rapids (quota 3000 lbs) and Kettle Rapids to longitude 93° 00' (quota 2000 lbs). The season was from June 15 to September 30 and preference was to be given to local fishermen. B. Stephanson (Supervisor of Commercial Fisheries) sent a memorandum to W.C. McLean (Northern Regional Director) in The Pas stating that fishermen should be told that the fishery would be based on a 3 year open period that is to be followed by 7 year closure. The minimum size was not in the official regulations sent to Ottawa, but was put as a condition on each license.

The regulations were discussed with the fishermen at a meeting in Thicket Portage in April, 1970. Approximately a dozen people were in attendance, primarily trappers from Thicket Portage. Harold Guiboche was the only one in attendance who was holding a commercial fishing license for the coming season, and as such was the only one eligible for the fishery under the proposed regulations. As would be expected, most of those in attendance opposed the regulations. Baptiste Crait acted as leader of the Thicket Portage group in opposition. Quoted in a CO's report of the meeting, he stated that the scale fishermen were "juvenile" compared to most of the people in attendance and it was those in attendance who had held the sturgeon licenses when the fishery closed in 1960. Consequently, Baptiste wanted licenses to be issued to "old timers" and not to established fishermen. The fishermen were also opposed to the proposed mesh size, stating that it would be almost impossible to catch sturgeon in it. Their preference was a 10" mesh size. The group resented people in offices elsewhere telling them what size of fish to take. They believed the size of fish should be dependant on what was caught in the mesh

that they proposed. They also thought a 12,000 lb limit in three areas was ridiculous and believed the quota should be in excess of the 50,000 lbs quota that they had in the 1950s. The fishermen concluded the meeting by declaring that they would be contacting their MLA.

The fishermen subsequently contacted MLA, R. McBryde, who in turn contacted the Director of the Northern Region in April, requesting that: 1) men who fished the last two years of fishery 10 years prior be allowed licenses; 2) the limit be raised to make the fishery worthwhile; 3) mesh size be 12" as it was before; and 4) they meet with the fishermen "to clear up a remark that the Department was concerned with the fish and not the people". Mr. McBryde emphasized that he was "interested in conservation measures" but that he was "hopeful" that some or all of the limitations mentioned could be eased. The commercial sturgeon season had not as yet re-opened and it was already becoming a political issue.

W.C. McLean, the Regional Director, provided the Minister of Mines and Natural Resources a response to McBryde's concerns. He defended the proposed regulations, justifying them by illustrating the decreasing harvests from 1957 to 1960. He stated in a memorandum, "The word sturgeon to an old fisherman is like the word gold to a prospector. Everyone wants a piece of the action, but there is not enough to even accommodate the active fishermen". He reiterated that priority should be given to men who are in the business of commercial fishing. Keleher, Chief of Fisheries Operations, issued a press release on May 12 giving the position of the Department and justifying the regulations as proposed.

It was not only the Thicket Portage fishermen who were opposed to the proposed regulations. Alex Jonasson, of Wabowden, claims he fought for a number of years to have the sturgeon fishery opened and, like the Thicket Portage fishermen, wanted a bigger quota and smaller mesh size than was proposed. He said the season was intended

to subsidize the scale fishery so the resulting regulations should have made it a feasible operation.

At the time the Province was issuing their press release, the Thicket Portage fishermen were enlisting the Manitoba Metis Federation (MMF) as an ally for their cause. On May 9, Don Settee, Secretary Treasurer of the MMF, released a press statement that claimed the Department of Mines and Natural Resources were being too restrictive in the sturgeon fishing regulations (Figure 10). "The reasons Mr. Green (Minister of Natural Resources) gives (for the regulations) are based on statistics and expert biological advice. To this the people say... "You've said what you had to say and we've said what we've had to say. And we don't agree. So lets make a deal. Let us fish up to 50,000 lbs and if we have a hard time making the limit, then we know there are no fish there and sturgeon fishing can be closed for another 10 years." The province refused to respond to the request.

During the latter part of May, fishermen from Thicket Portage continued to lobby the DMNR for sturgeon fishing licenses. All were turned down based on the fact that they were not current commercial fisherman. Conservation officer Paylor of Wabowden replied to the fishermen that given the regulations, the fishery "...will hardly be an economical venture unless done in conjunction with scale fishing..."

Only three operators were eventually licensed to fish between Whitemud Falls and Kelsey during the 1970 season. Alex Jonasson, who had scale fished on the Nelson River since 1948 got one license, Harry Chartrand got another, and Walter Skulmoski got the other. Walter had moved to Wabowden just one year earlier, and got his license based on the scale fishing license he had obtained the previous year.

A CO monthly report from Wabowden in July indicated that the three sturgeon fishermen were the only operation left on Sipiwesk Lake in 1970. The scale fishery on the lake had been closed during the spring due to high mercury levels. The sturgeon

Metis Leader Refutes Fish Exploitation Charge

Don Settee, secretary-treasurer of the Manitoba Metis Federation, has objected to accusations by Natural Resources Minister Sidney Green that northern residents are trying to "exploit a resource as they see fit."

In a press statement Thursday Mr. Settee said the resource is sturgeon, and the mines and natural resources department is being too restrictive in its sturgeon fishing regulations.

Mr. Settee explained that Andrew Kirkness, a field worker for the Metis federation, had been corresponding with Mr. Green on behalf of his people about the set limit on the fish catch being too low to make fishing worthwhile.

The limit had been set at approximately 12,000 pounds along the Nelson River. "That's approximately two pounds a mile," Mr. Settee said.

Other restrictions such as the number of licences to be issued are also not agreeable to northern residents, he said.

Said Mr. Settee:

"And I don't blame them for feeling the way they do feel. They're angry and who wouldn't be. Time and again within the last five weeks they've made presentations to government, to the premier, the minister of mines and natural resources and other MLA's, and each time the natural resources minister has refused to listen to requests to make the sturgeon fishing regulations more agreeable to the people affected.

"The reasons Mr. Green gives are based on statistics and expert biological advice. To this the people say, almost word for word, 'You've said what you had to say and we've said what we've had to say. And we don't agree. So let's make a deal. Let us fish up to a limit of 50,000 pounds and if we have a hard time making the limit, then we know there are no fish there and sturgeon fishing can be closed for another ten years.'"

Figure 10. Newspaper clipping from the May 9, 1970 issue of the Winnipeg Free Press describing remarks by Don Settee (Secretary Treasurer of the Manitoba Metis Federation) regarding the proposed Nelson River commercial sturgeon fishing regulations for 1970.

fishery remained open because sturgeon did not display the degree of contamination found in other fish. Ted Spence fished with Skulmoski, while Jonasson worked alone. According to the CO report, the sturgeon fishing operation started in earnest in June with both groups averaging one sturgeon per net consistently from approximately 15 nets. However, the catch slumped badly in July and August, before picking up again in September. Jonasson and Skulmoski joined forces (nets) into one boat for a short period of time during early September and, since there was still a long way to go to reach the quota (at that point less than 2000 lbs of the 7000 lb quota had been taken), they requested, and were granted, an extension of the season to October 20. The DMNR justification for extending the season was that it would allow more money into the community following closure of the Sipiwesk scale fishery. However, a steep drop in the catch occurred during the third week of September, the partnership between Skulmoski and Jonasson dissolved, and the fishery was abandoned.

All fish captured during the season were taken to Sipiwesk Landing and trucked to Wabowden. Total harvest from Sipiwesk Lake to Kelsey was 1,823 lbs, well short of the 7000 lbs quota. Officer Paylor reported that the operators had trouble obtaining 13" nets and didn't buy many because of the cost. Jonasson fished 13 nets and Skulmoski fished 3, instead of the 20 nets each were permitted. Paylor blamed misdirected or lack of effort (i.e., the limited experience of Skulmoski and Jonasson in sturgeon fishing) as the reason for the small harvest. It was suggested by Paylor that if they had better organization earlier, they would have caught much more.

Alec Jonasson fished alone during that first season. He recalled an occasion when he was lifting a net with 18 or 19 sturgeon in it when a conservation officer came along. "He told me to get a helper before I killed myself!".

Domestic fishing continued with resumption of the commercial fishery. **Arthur Brightnose** remembered being around the mouth of the Landing River during spring in the early 1970s and seeing the mouth full of sturgeon. He recalled the river being about

20 ft wide at the time. **Rusty Cordell** and **Albert Dick** were near the Hydro Bridge at **Witchai Lake Falls** during the spring of 1970 and met a number of **Split Lake** residents fishing for sturgeon. **Albert** even managed to trade some bologna for sturgeon at the time.

After the 1970 commercial season was complete, COs in **Wabowden**, **Thompson**, and **Gillam** were requested to send in summaries of how successful the sturgeon season was in their areas. Officers **Rod** (**Thompson**), **Paylor** (**Wabowden**), and **Molberg** (**Gillam**) all concluded that the lack of production was generally a result of lack of effort. They suggested that residents of **Thicket Portage**, **Pikwitonei**, **Gillam**, and the **Fox Lake Band** be given consideration for licenses for the next season. **Paylor** recommended changing the season to **June 1** to coincide with the scale fishery and make enforcement easier.

In 1971, the upper **Nelson River** between **Whitemud Falls** and **Kelsey** was further subdivided into areas for purposes of commercial sturgeon fishing regulations (Figure 11). Prior to the opening of the 1971 season, the residents of **Thicket Portage** were advised of the fishery and with the exception of one enquiry from **Baptiste Crait** there was no other interest. Thus, **Jonasson** and **Skulmoski** once again conducted most of the commercial sturgeon fishing in 1971 between **Whitemud Falls** and **Kelsey**. **Gary McCalom** and **Peter Halcrow** also held licenses (helpers) and fished on **Sipiwesk Lake**. The season opened on **June 15** with **Walter Skulmoski** and **Alex Jonasson** commencing fishing near **Duck Rapids** in close proximity to where the river enters **Sipiwesk Lake**. Unlike the previous year, both fishermen were already equipped from the previous year and commenced fishing on opening day. **Skulmoski** concentrated on sturgeon, while **Jonasson** fished for sturgeon and scale fish at the same time. However, the scale fish catch was lower than anticipated so **Jonasson** eventually quit that fishery and concentrated on sturgeon. This also was short lived as **Co-op Fisheries of The Pas** asked him to return to **Wabowden** as a fish buying agent. **Jonasson** moved his nets for a time without success and then withdrew from the fishery.

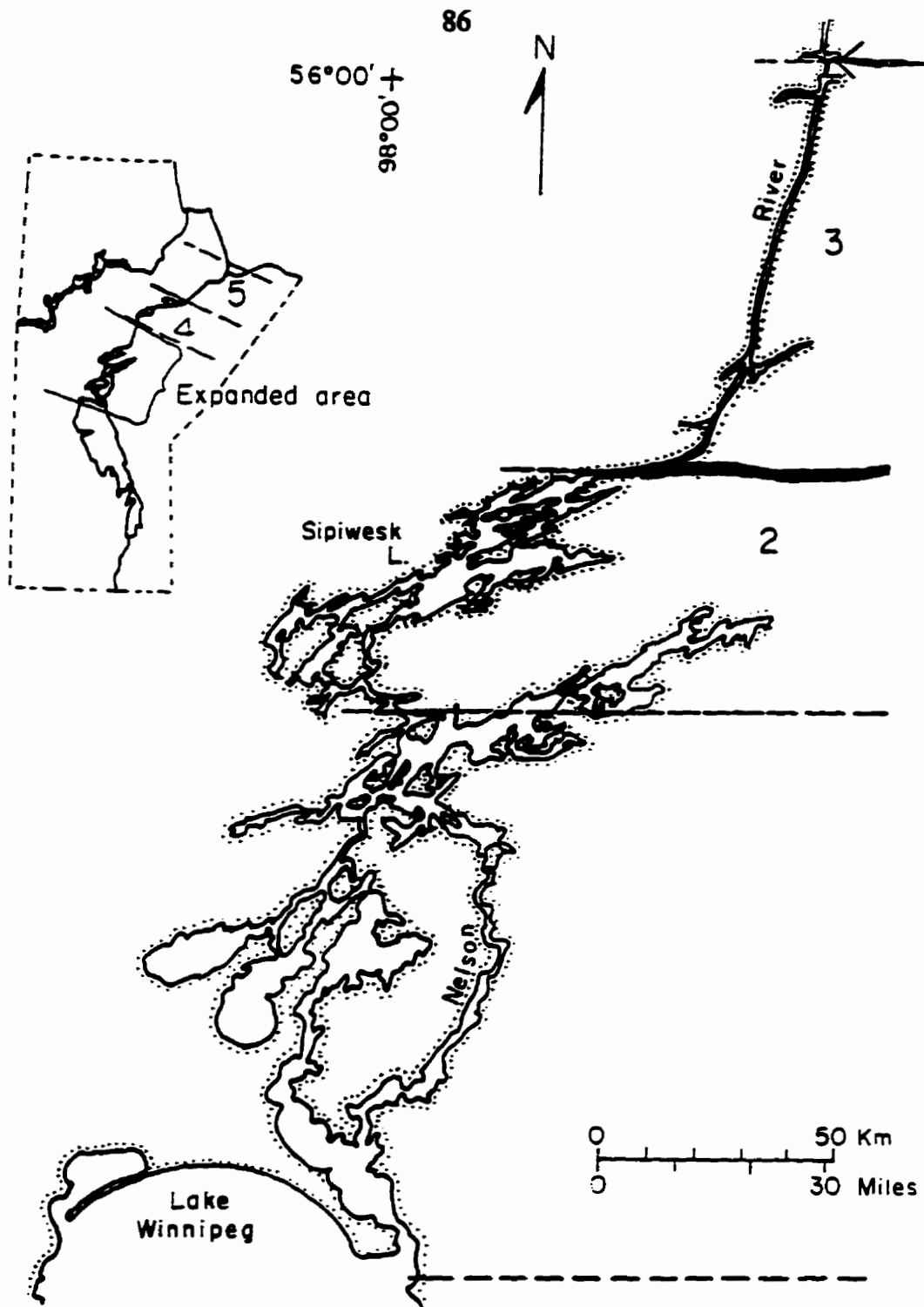


Figure 11. Management zones for the Nelson River commercial sturgeon fishery, 1971-1991 (from Patalas 1988). Whitemud Falls to Range 1E (Cross Portage) was considered Area 2 and had a 4000 lbs quota. Range 1E to Kelsey was considered Area 3 and had a 3000 lbs quota. The other areas remained as they were in 1970.

Skulmoski had most of the best known sturgeon fishing spots and took most of the 4000 lb limit on Sipiwesk Lake. After fishing dropped off by Duck Rapids he moved to known sets in the vicinity of the old Keystone Fish sheds, where he took the remaining portion of the limit. After this, Skulmoski moved to the northern Area 3 and fished near Devils Brook tower. Alex Jonasson, Peter Halcrow, Harry Chartrand, Clifford Lamerande, and Henry Colombe were the other license holders in Area 3. Harry Chartrand, who was a scale fisherman in the area, entered into a partnership with Alex Jonasson (to obtain gear) and fished in the area with Skulmoski. Fishing was inconsistent and all of them quit fishing in mid-October with a total production from both areas 2 and 3 of 5,414 lb. Dave Thurston, the CO from Wabowden, concluded that the fishery went well, but recommended that a scientific study be conducted to verify the population.

There were some problems with undersized mesh during the 1971 season. Nets shipped from a supplier were actually 12" mesh rather than the 13" mesh requested. At least one of the fishermen continued to fish these nets even after being instructed by COs to remove them from the water. Consequently, all of the illegal nets were seized.

Alex Jonasson had licenses to fish both Sipiwesk Lake, and the Nelson River down to Kelsey between 1970 and 1972. He fished the area up river from Cauchon turn-off, and all over the lake. His nets were set up to 45 miles apart and he covered 80 or 90 miles a day to check them. He fished 38 or 40, 100 yd nets, out of 22 ft yawl powered by a 150 hp engine.

Alex Jonasson always fished by himself during the commercial sturgeon fishery. Occasionally, he would enter into partnerships where other fishermen would fish his equipment while he fished elsewhere. When Jonasson fished Sipiwesk Lake he camped at Fiddle Bay. He had a large boat parked at his camp that had a kitchen, ice making machine, cooler, and water pump. Alex had certain spots that he considered to be the best, but claimed that fishing was good all along the Nelson River back then. "The catch was steady and it got better every year. Sturgeon were jumping all over the place". He

recalled that people generally respected other net sets, setting at least 100 yds away. "If you set any closer they called it corking". When he caught sturgeon, he would throw them in the bottom of his boat and keep them wet. To keep them alive his motto was, "Clean water and a clean boat". "You could keep them out of the water for hours". Jonasson took all the fish he captured back to his camp where he tethered them to shore through the top of the gill or by the tail. He recalled catching sturgeon that were cut by lines both at the gill and on the tail. When sufficient numbers were tethered he would arrange to ship them out to Wabowden. In the early years, he hauled the fish to town by boat. By the mid-1970s shipments were made by plane. Initially the sturgeon were shipped alive, but when one knocked the window out the plane, he started tying the heads to the tails. He found this also didn't work very well because it would come apart, so he finally decided to butcher them on the deck of his boat. All were sold to the Freshwater Fish Marketing Corporation (FFMC) in Wabowden. Alex didn't socialize much when he was fishing and would only see the men that were working for him when he was out on the lake. He remembered the commercial sturgeon fishery as a good way to start the fishing season. "It was a fast buck". In the latter years they got \$6 per lb after the final payment. He generally caught 2000 lbs in 6-8 days and made about \$7000. Gas costs were 50% of the total and nets were an additional cost as well. However, after expenses, they were still "left with a pretty good sum of money for less than two weeks work". Occasionally he would keep some sturgeon for himself, but would put it on the quota. He did not recall ever catching a sturgeon while scale fishing.

There were nine licensed fishermen for the 1972 season including: Jonasson, Skulmoski, Randy Crait, Alfred Crait, Jack Campbell, Raymond Campbell, Baptiste Crait, Harry Chartrand, and Albert McKay. A total of 5,000 lbs of sturgeon were harvested in Area 2 by July 20, and 8,104 lbs from the entire river by the end of the season. This exceeded the quota by 1,104 lbs, which was blamed on misplaced records. The majority of the limit was taken where the Nelson River flows into Sipiwesk Lake. Jonasson and Skulmoski once again dominated the fishery taking 4,719 lbs and 2,690 lbs, respectively. B. Crait harvested 574 lbs from Area 3. The average earning per

fisherman was \$1,324. Jonasson's fish were flown to the packing shed on Setting Lake, while Skulmoski's fish were taken by boat to Sipiwesk Landing where they were loaded and trucked to Wabowden.

Problems arose during the 1972 season interpreting the minimum size restriction. Alex Jonasson recalled that some fish that didn't meet the 42 inch limit when round, would meet the 25" limit after they were dressed. This resulted in the returning of several sturgeon seized by COs!!!

During the early 1970's Walter Skulmoski hired Alfred Crait, who had fished for sturgeon in the 1950s. At the time, the scale fishery started on June 1, so they would be out two weeks before the sturgeon season opened. Walter remembered catching "the odd one", tying it up and keeping it until opening day, but said, "We didn't bother with this after the early years because we caught our limit so quick anyway". In ensuing years they would start at 19:00 hours the day before the season opened. Skulmoski and Crait camped at the Hunting River and Walter eventually built a cabin there, which he used for sturgeon fishing until 1979. They fished the area between Clearwater River and Arnot, checking their nets twice per day. Alfred knew the sets from the 1950s. They primarily fished 100 yd nets, but cut some in half. Nets were set in back eddies, off points, and in bays. They would fish for three or four days and then butcher the catch all at once. Alfred insisted that the fish not be dressed where they caught them. Alfred also would not use his engine in the Landing River because he believed it would scare the fish. During the first season Skulmoski took his fish to Arnot, but began hauling the fish to Mud Lake and then to Wabowden the next season. He would generally come into Wabowden three times a week with scale fish and would bring his sturgeon at the same time. Walter and Alfred fished as a partnership right through to 1988.

The 1973 season got under way on June 15 and by the end of the month seven fishermen, using 50 nets and five boats, had taken 3,293 lb of the 4000 lbs quota in Area 2. All the fish were trucked from Sipiwesk Lake landing to Wabowden where Alex

Jonasson was the receiving agent. Misplaced catch records resulted in the fishery being closed before the quota was reached. When the error was detected, fishermen decided it was not worth their effort to go back out. Fishing in Area 3 ceased in July with a total harvest of 2,626 lbs by five licenses, five boats and fifty nets. Skulmoski took 1,201 lbs and B. Crait 1,425. These fish were shipped by boat to Thicket Portage and then by train to Wabowden. Some fish were flown into Wabowden by Alex Jonasson and Cross Lake Air Service. The FFMC wrote to Coop Fisheries in the Pas during the season indicating that they were receiving borderline illegal sturgeon (below minimum size).

Domestic fishing for sturgeon continued during the early 1970s. Arthur Brightnose remembers setting a net below the rapids at mile 349 during the time the Thompson/Gillam highway was being built. They caught 25 sturgeon the first morning and then caught 15 the next day.

After the 1973 season, COs in the north recommended that Skulmoski and Jonasson be restricted to Sipiwesk Lake to avoid conflicts with Thicket Portage people. They suggested that each individual fishing both areas could have two licenses granted for Sipiwesk Lake. This would allow a greater proportion of the quota in Area 3 to go to residents of Thicket Portage, who had traditionally fished this section of the river. J.C. Dean, CO in Wabowden, discussed this with Skulmoski and he agreed that he would split four licenses with Jonasson in Area 2 for the following year. As it turned out, Skulmoski continued to fish both areas 2 and 3 for the next seventeen years.

S. J. Williamson (Regional Supervisor) concurred with the recommendations of the northern COs and wrote E.R. Elke (CO) to suggest that licenses be granted to Thicket Portage fishermen. However, Elke was instructed to avoid "drawing lines around particular settlements and implying that everything inside the line is theirs forever more".

At a meeting in Thicket Portage during the spring of 1974, S.E. Campbell (Trapper Education Officer) was confronted by local residents over the Nelson River sturgeon fishery. Campbell reported that they were concerned as to why Wabowden got a 4000 lbs quota for Sipiwesk Lake, while Thicket Portage only got a 3000 lbs quota for the river. The group was also puzzled as to why there was only a 7000 lbs quota for all of areas 2 and 3, when sturgeon were more plentiful than in 1959 when the quota was 50,000 lbs. The Thicket group wanted a 15,000 lbs quota, with a limited number of licenses restricted to 2000 lbs each. The group also had complaints about the actions of some of the current fishermen. They claimed that some were starting to fish prior to June 15 and were tying fish up along the shore. The group alleged that one particular fisherman had caught approximately 1,400 lbs of sturgeon before the season even started, cutting down on the amount of the quota available for others. The fishermen were also upset that fishermen from outside the area could hire locals from Thicket Portage to work for them so they could fish Area 3. This allowed a fisherman to fish the Wabowden limit in Sipiwesk Lake until it was full, and then move on to fish the Thicket Portage limit. It was alleged that following the 1973 season, one fisherman had over 2000 lbs of sturgeon, primarily small and over the limit, on ice in his shed situated off the Nelson River. The group believed these fish were transported by boat to Sipiwesk Landing, trucked to Wabowden, and then to Winnipeg. There was also concern over illegal fishing during the spawning season by Thicket Portage and Thompson residents. Apparently, Thompson people would come by train to Thicket Portage and hire locally for individuals to take them fishing. The fish caught would go to Thompson by train. S.E. Campbell concurred with the locals, and suggested that the Fire Ranger in Thicket Portage, who was a local resident, was intercepting radio conversations by COs and sending warnings to the sturgeon poachers when the COs were making their patrols.

Subsequent to the Thicket Portage meeting, the DMNR did not waver with respect to the commercial regulations, but concluded that there was a large enforcement problem in the Nelson River area. Consequently, patrols increased during the spring of

1974. On May 31, a fisherman was charged for fishing for sturgeon with an illegal net (10" mesh) before the season opened and was subsequently fined \$50 in Wabowden.

On August 2, 1974, Alex Jonasson captured a 124 lb, 74 inch sturgeon in Sipiwesk Lake. This was the largest sturgeon captured since the fishery was reopened in 1970.

The total catch from Area 2 in 1974 was 1,271 lbs: 1,242 lbs of which were fish over 12 lbs and 29 lbs of which were fish from 8-12 lbs. All the fish were hauled to Sipiwesk Landing and then transported by truck to Wabowden. Thirty five nets were fished out of three boats. It was considered a good operation by the COs in Wabowden. A total of 1,860 lbs were harvested in Area 3: 1,050 lbs by Skulmoski, 580 lbs by B.Crait, and 183 lbs by B. Larson. The fish were either flown to Wabowden or transported by boat to Thicket Portage and then to Wabowden by train. Walter Skulmoski used a 20 ft fibreglass yawl with 165 hp inboard/outboard.

During the 1974 and 1975 sturgeon fishing seasons, **Hilding Larson** and his dad stayed in a tent at the mouth of the Landing River. They were unable to use Ben Larson's Sipiwesk Lake sets from the 1950s because they could only fish to the 19th baseline. Alternatively they fished between Sipiwesk Lake and Devils Brook (Wetiko River). Hilding recalled that the sets that his dad had used in this area prior to Kelsey were "no good any more since all the sand bars and back eddies had disappeared". Their catch was sold to Jonasson's boat.

Carl Dram was granted an experimental license in May, 1975, to fish for sturgeon for one season on Kiskittogisu Lake (Figure 12). He was required to provide catch, sex, size data and removal of first two vertebrae and both pectoral fins.

The 1975 commercial season saw a number of violations of the fishing regulations. On June 23, a patrol landed at the mouth of Landing River and found

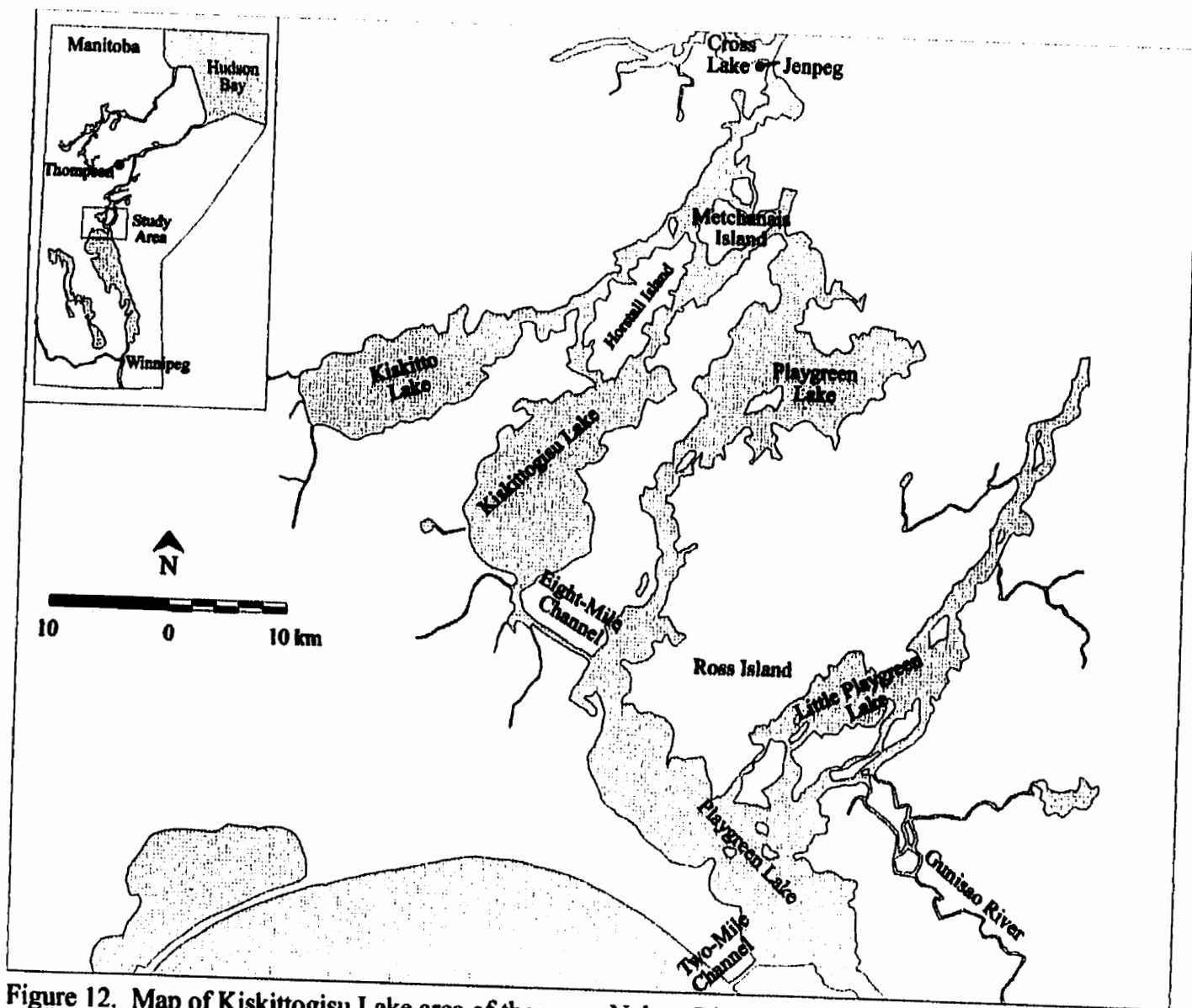


Figure 12. Map of Kiskittogisu Lake area of the upper Nelson River.

approximately 20 sturgeon tethered to shore. Five were less than 42 inches in length; four were released and one was seized. Later in the spring, small sturgeon found in the Cooperative Fisheries Packing Station at Wabowden also were seized. Charges were laid in both cases. Additionally, two twelve inch sturgeon nets were seized from an unknown owner on Sipiwesk Lake. There also was evidence of small sturgeon being bootlegged in Thicket Portage to the train crew and of fishermen fishing outside of the season. The fine at the time for possessing the illegal sized sturgeon was \$50 and the fine for selling them was \$30.

The 1975 commercial fishery in Area 2 commenced on June 27 and continued until October 13. Twenty nets were fished by four licensed fishermen in four boats, and yielded just 532 lbs. The poor harvest was blamed on lack of effort because fishermen were too busy with scale fishing operations. In Area 3, fishing commenced on June 15 and terminated on July 14. Most sturgeon were caught at the mouth of the Landing River. The quota was exceeded by 367 lbs due to a mix up in the fish bills. Skulmoski took 1,555 lbs, B. Crait took 848 lbs, and F. Bailey took 964 lbs. The other license holders, Steven Monias, Alfred Crait and Ben Larson, did not sell any fish to the Coop.

After the season, Baptiste Crait complained to DMNR regarding how the quotas were allocated. Jonasson and Skulmoski had hired F. Bailey and A. Crait (both from Thicket Portage), respectively, to fish for them in Area 3 during the 1975 season. Between them they took over 2,000 lbs of the 3,000 lb quota, while Baptiste Crait only took 800 lbs. At the same time, Jonasson and Skulmoski were harvesting their 4,000 lb quota on Sipiwesk Lake. Representatives from DMNR met with Baptiste in August to discuss his complaints, but the problem was not resolved.

Through the mid 1970s Thicket Portage residents continued to fish for sturgeon for domestic purposes whenever they got a chance. Percy Laubman remembered setting two nets at the mouth of the Hunting River during the fall of 1975 while he was out

moose hunting. He captured 17 sturgeon on that occasion but has seen few sturgeon since. Percy would generally fish for sturgeon whenever he was moose hunting, taking only what he needed for personal use.

In 1976, DMNR began to collect data to determine the status of the Nelson River sturgeon stock. The Department requested that all fishermen wanting sturgeon licenses would have to keep data on their catch. Additionally, a tagging program was initiated during the spring. A field crew tagged thirty-three sturgeon from June 2-16 in an area from 7 to 23 miles below Sipiwesk Lake.

Jonasson, Skulmoski and Chartrand once again had priority for the 1976 fishery in Area 2 and production was split as follows: Jonasson 38 lbs, Skulmoski 755 lbs, Chartrand 154 lbs. Skulmoski fished from the mouth of the lake down the S-channel to the Sipiwesk Forestry tower, which was approximately a 12 square mile area. The COs reported that although six licenses were issued, no more than three fishermen were fishing at one time. Effort was classified as poor to fair. Fish were flown out by Skulmoski. Conservation officers patrolling at Duck Rapids gave a verbal warning to a fisherman to remove two sturgeon nets in August and a tethered sturgeon was released. The COs reported that the fisherman, who was unlicensed, "was obviously bringing sturgeon back to town". The COs also documented an incident where at least eight sturgeon spoiled due to inadequate transportation.

There were four licenses in Area 3 in 1976. Conservation officers reported a steady catch and the quota was reached by the end of June. Fish were transported to Wabowden by Cross Lake Air, Skulmoski, and by boat, but spoilage occurred in several instances. Toward the end of June, the regular aircraft was not available, so Fred Bailey had to take his sturgeon in by boat, and Baptiste Crait had to make a trip to Thicket to get Cross Lake Air to come in to pick up his fish. At the time, Baptiste already had two dead sturgeon. Skulmoski hauled his own fish. Two 12" nets were found along the shoreline prior to season and were seized. The owners were never

found. One charge was laid for possession of a small sturgeon. The COs reported that a fair number of sturgeon were being taken by sawmill employees at Arnot. One sturgeon net and several 5.25" mesh nets were seen drying at the mill site. There were rumours that one sturgeon caught there had exceeded eighty pounds.

Carl Dram was again granted an experimental license in 1976 for Kiskittogisu Lake. He scale fished one end of the lake and would fish sturgeon nets in the deep water at the opposite end of the lake. He fished for approximately 10 days, lifting every second day. The reported harvest was four fish weighing 148 lbs. Carl claimed he kept quite a few fish for himself that were not reported in the harvest.

In February of 1977, a charge for undersized sturgeon (laid during the 1976 season) was dismissed because the case was considered too trivial by the judge in Thompson. The province (Attorney Generals Department) decided against an appeal in the case, not because they thought it was too trivial, but because they decided they could not prove which waterbody the fish were taken from. The Attorney Generals Department maintained that should a similar ruling occur again, where they could prove where the fish came from, they would appeal to a higher court. In response to this case, CO R.J. Emsland wrote to the Enforcement Officer in The Pas and to the Crown Attorney in Thompson recommending changes to the regulations. He suggested that the minimum size limit should apply to all waters attached to the Nelson River and it should be illegal to "possess" small sturgeon in all instances and not just under the authority of a commercial fishing license.

The DMNR sent memos to Chartrand and Jonasson in April informing them that the Sipiwesk Lake area harvest had fallen below the 4,000 lbs limit for the past two years and it was believed to be because of lack of effort. If production and effort did not increase in 1977 additional fishermen from Thicket would be licensed to help harvest.

In May, DMNR sent memos to FFMC and Manitoba fish buying agents indicating that there was a concern that small sturgeon were being bought in previous years. For 1977, all deliveries of fish were to be documented in the name of individual license holders. Additionally, FFMC removed the 6-8 pound price, thereby deterring the purchase of small fish.

From May 11-25, 1977, DMNR conducted the second year of the sturgeon tagging program on the Nelson River. The commercial fishery in Area 2 did not commence until June 30 and ran through the summer to September 22. Total catch for the area was 2,914 lbs. Skulmoski produced most of the sturgeon, as Jonasson was working in Lynn Lake at the time and did not fish. Skulmoski carried the fish out with his own aircraft. A CO report from Wabowden after the season stated that Thicket Portage fishermen had been told they could fish the area but nothing got off the ground. A few problems were encountered with small sturgeon being retained, and two illegal nets were confiscated.

The Area 3 fishery began promptly on June 15 with three boats and 15 nets. Camps were located at the mouth of the Nelson River, Landing River, and Hunting Bay. Half the quota was taken by A. Crait and L. Colombe from Wabowden, who were working for Skulmoski. Larson and Baptiste Crait fished until July 2, pulling out with 491 lbs still to be taken on the 3,000 lb quota. The fishermen realized \$1.59 per lb from the fishery. There were two prosecutions for undersized sturgeon nets resulting in \$50 fines. Conservation officers reported that a treaty Indian fishing for subsistence at Arnot during the first week and a half of June was consistently catching about two sturgeon a day. Zach Flett, who was working at Arnot at the time, remembers his brother catching an extremely large sturgeon near the mill. It was "the length of a 17 ft canoe and was caught in a 10" mesh net. He remembers many smaller sturgeon captured near Arnot as well. Zach recalled that the Arnot sawmill opened in the 1960s and operated for approximately 15 years.

Walter Skulmoski fished out of a 16 or 20 ft fibreglass boat with a 30-40 hp engine during this era. "They didn't care how many nets you used. I would put in 60 or 70. I had 100 nets. The COs told me to get in and out as soon as possible." He recalled reaching the Area 3 quota in six days once, but says it usually took about ten. "Basically you had to have the limit by June 30 or you would not catch any more." Each sturgeon he caught was clubbed on the head prior to taking it out of the net. Once in the boat they covered them with burlap bags and kept them wet. They would tie up all the sturgeon in one place out of the current (e.g., a bay). The fish would be spaced at five foot intervals on one long rope. At first, he tied the fish up by the tail, but the tail would break off. So in the latter years he put a rope through the top of the gill. When they had enough for a plane load he would fly the fish out with his own Cessna 185.

Carl Dram's experimental sturgeon fishery on Kiskittogisu Lake failed once again in 1977 as a commercial venture, but he did get "enough for an occasional meal".

Louis Pronteau remembered setting a net upstream of the Landing River in 1977 on his way to Split Lake to visit his wife's relatives. When they returned they found that the net line had broken, so they dragged for it. They eventually found the net, which had been in the water for about 3 days, with 17 sturgeon in it. Sometimes they would catch up to 22 sturgeon in a net. Since they didn't need that much meat, they would take the smaller ones and let the bigger ones go. Occasionally they would bring some of the sturgeon back to town and give it away.

The Nelson River sturgeon tagging program continued during the spring of 1978 with the tagging crew from the Pas marking 145 sturgeon at the mouth of Landing River in early June. Shortly thereafter, several of the fish were taken during the commercial fishery in Sipiwesk Lake.

The 1978 harvest from Area 2 was 4,209 lbs. Harry Chartrand was one of five license holders for the area, but produced no fish. Twenty nets were fished out of four

boats. Simpson Ross of Wabowden worked for Skulmoski and started fishing in June. Abel Hall and Chris Parker of Wabowden started in late June. Jonasson was in Lynn Lake and did not fish. Simpson Ross produced most the fish which were flown out by Skulmoski's Cessna 185 to Wabowden. Most of the fishing success occurred early in July and the limit was taken by the middle of the month.

The Area 3 limit was also taken by July. A total of 3,285 lbs were harvested, 285 lbs over the quota. The operation commenced in early June with A. Crait of Wabowden once again fishing for Skulmoski. According to the CO report Baptiste Crait fished "half heartedly" during the latter part of June. A. Crait produced the majority of fish and several tags from the Landing River tagging program. Ben Larson was ill and, subsequently, his license went unused. Fish were carried to Wabowden via Cross Lake Air and Skulmoski's 185. The fishermen were paid \$1.71 per lb.

Carl Dram was again issued a license to fish experimentally on Kiskittogisu in 1978. Only one net was set in the channel at the north end of the lake and no fish were taken. From 1978 to 1991, when he sold his Kiskittogisu license to the Norway House Fishermans Co-op, Carl did not see another sturgeon in the lake.

During the 1979 season, CO R.S. Brown received a report that Indians from Cross Lake had taken 22 sturgeon at Duck Rapids. He was instructed by his superiors in Thompson that he should advise the group to remove their nets as they did not as yet have treaty rights to allow them to fish. The following day CO Brown went to Duck Rapids, found a group of nine Cross Lake residents and requested that they remove their nets. The group was "quite cooperative", and subsequently complied with the request.

Four licenses were issued for Area 2 in 1979. Harry Chartrand took most of the quota, Jonasson took a small amount and Skulmoski and Fred Bailey did not fish. A total of 1,444 lbs was taken by the end of the season. In Area 3, 3,282 lbs were taken by July, 282 lbs over the limit. Only two of five licensed fishermen were active

(Baptiste Crait and Alfred Crait) using two boats and 12 nets. Fishermen received \$1.81 per pound for sturgeon in 1979, but paid 15 cents per pound for freight.

In June of 1980, D.B. Emes, Regional Supervisor in Thompson, sent a memo to COs at Norway House advising them that all people fishing domestically for sturgeon must have a general fishing permit as per Manitoba Fishery Regulation Sec. 48. There was no fee but the conditions of the permit were 500 yds of 13" mesh and the nets must be marked with the permit number and the license holder must report production on a monthly basis. The COs were advised that if they encountered someone fishing on Sipiwesk without a permit to issue a warning that a second offense would bring a charge.

Ben Larson passed away prior to the 1980 commercial sturgeon season. His license was re-issued to his son Hilding under the condition that he show production. Hilding Larson fished with Ivan Hall for the 1980 season, and then with Harold Halgeson until the fishery closed. In the 1980s, Hilding and his partner stayed in a log cabin at Cross Portage, but in the last three years of the fishery they moved down river in a tent. They would set approximately 20 nets between Devils Brook (Wetiko River) and Sipiwesk Lake mouth and fish until the quota was filled. If they were lucky they could be done in 10 days. However, toward the end of the fishery, they "rarely reached the quota as it got tougher to catch sturgeon as each year went by". Throughout his time fishing, Hilding only fished once during fall. Hilding maintained that a big sturgeon would go through his nets every year. On one occasion around 1980, he captured 16 sturgeon in one 100 yd net set three miles downstream of Sipiwesk Lake. Eleven met the size limit, and he threw the five small ones back. They would bring their fish to Cross Portage when they had captured approximately 35, and dress them there. They would then phone for a plane (usually a Beaver), occasionally paying for the charter alone, but often splitting it with another fisherman. During the last few years they ferried sturgeon over the portage with a snowmobile to save the cost of a plane. Hilding recalled that the COs kept track of the catch and would let them know when they reached the quota.

Four licensed fishermen and one hired hand fished Area 2 in 1980. By early July the harvest was 3,629 lbs. Jonasson captured a sturgeon weighing 162 lbs round during the fishery. The Area 3 fishery commenced on June 15 and was closed after just 10 days, 544 lbs over the 3000 lbs limit. Over production was blamed on tethered sturgeon being held until Skulmoski's plane was available. Hilding Larson produced 1,000 lbs of the total harvest.

On June 20, 1980, R.S. Brown, the CO from Wabowden, noted that 16 sturgeon accepted at the FFMC packing plant at Wabowden weighed between 10 and 12 lbs. Despite objections of the plant manager he proceeded to measure the fish and found that 5 of 72 sturgeon in the plant were undersized. There was also some question of missing sturgeon from shipments that may have been removed from the plant because they were too small.

In 1980, Walter Skulmoski moved his camp from the Hunting River to Bulger Bay and started fishing Sipiwesk Lake for scale fish. He still retained two sturgeon licenses at this point, one on the lake and one on the river. He would fish the river first and take 1000 lbs, and then fish the lake where he would share the 4000 lb limit with Jonasson. Hilding Larson and Baptiste Crait also fished the river at this time. Walter remembered catching his limit every year. The lake quota always took a little longer to fill than the river quota. "It took about two weeks to fill the quota on the lake or until about July 5". He transported his fish out of Bulger Bay with his own plane and sold them to FFMC in Wabowden. Occasionally he would give the odd sturgeon away, usually the undersized ones, but claimed that he threw lots of small ones back. He built cabins at Bulger Bay, including a log cabin, fish holding shed, and ice house where he would put up ice in the winter. Walter would send two men to the Hunting River to fish for sturgeon, and when they were finished they would come back and go scale fishing for him. Walter remembers catching a 118 lb round sturgeon in Sipiwesk Lake below Duck Falls during the late 1970s. He was paid \$300 for it round!! The buyer mounted it, and it currently hangs in the Sasagui Rapids Lodge on Highway 391. Walter recalled

that they were getting \$6 per pound for sturgeon with the final payment by the end of the fishery, which meant they could make up to \$12,000 during the season. He considered it a good boost to start the season!! Walter recalled that the biggest job while fishing the Nelson River was removing the weeds and sticks on a daily basis. He would usually pull his nets once per week and clean them in diluted Javex. This didn't take the algae or weeds off, but turned the nets white anyway. Walter claimed that he would often get big knots in his nets which he maintained were caused by large sturgeon that had escaped. "There were no rules of where to set your nets, it was a gentlemen's agreement between fishermen".

Albert Dick started fishing for sturgeon for food around 1980. He would set 5.25" mesh net in front of his camp near the Clearwater River and check it every morning while he was there (usually a week). If he caught a couple of sturgeon he would pull his nets. The sturgeon usually weighed between 12 and 30 lbs.

In July of 1980, DMNR sent letters to commercial sturgeon fishermen stating that:

- a license may be cancelled for one year of non production;
- there would be no cancellation of licenses for convictions under the fisheries regulations; and
- each fisherman could now be issued either a commercial operator or fisherman license. Operator licenses cost \$10 extra and each operator could hire no more than one man. The operator was not required to lift nets, but had to be involved in the fishery in some other way (i.e., delivering fish, setting up, etc.).

With the advent of the metric system in Canada, harvest records were recorded in kilograms for the first time in 1981. The total harvest from Area 2 that year was 1,998 kg, 98 kg over the quota. The area was fished by Skulmoski, Chartrand, Jonasson and three hired men. Skulmoski, A. Crait, B. Crait and three hired men fished in Area

3, taking 1,401 kg. All fish from Area 3 were shipped by rail by the individual fishermen.

Conservation officers once again discovered small sturgeon being delivered to the FFMC plant in Wabowden. Don Cook, Regional Fisheries Manager in Thompson, wrote to head office in Winnipeg requesting that Sec 44 (a) of the fisheries regulations be changed to read "no person shall have in his possession" (i.e., omit under the authority of a commercial fishing license). Cook believed that this would make the plant manager responsible for accepting small sturgeon. He also requested that FFMC no longer advertise a price for small sturgeon.

Sturgeon fishing regulations in 1982 set the season as June 15 to October 31. No more than 1000 yds of 331 mm (13") mesh net could be used and the quotas were 1,900 and 1,400 kg for areas 2 and 3, respectively. Domestic fishing permits prohibited Cross Lake domestic fishermen from fishing in, or downstream of, Sipiwesk Lake.

On June 22, 1982, R.S. Brown (CO, Wabowden) wrote to Don Emes (Regional Superintendent Thompson) to indicate that there were still two problems with the sturgeon fishery: 1) production of small sturgeon, and; 2) control of the limits on the two fisheries. The FFMC did not measure sturgeon, but paid based on weight, and were therefore buying lots of undersized sturgeon. To June 22, with less than half of the quota taken, 28 sturgeon under 12 lbs had already been shipped. Brown suggested that sturgeon be measured before being shipped. With regard to the quota, Brown stated that each fishermen attempted to harvest as much of the quota as possible before the other fishermen could. They also tied fish up until a suitable number were captured to be butchered. These practices led to over production in 1980 and 1981. Brown suggested individual quotas as a means of alleviating the problem.

Don Cook sent a memo to Emes on July 12 requesting that COs arrange to measure all sturgeon at FFMC in Wabowden before shipment to Winnipeg. He stated

that he would look into the feasibility of individual quotas, but was sceptical that it would be acceptable to the fishermen.

Skulmoski, Chartrand, Jonasson and three hired men fished Area 2 in 1982 taking 1,720 kg. One fisherman was charged with unlawfully catching and retaining sturgeon that were less than the minimum sized dressed measurement. Area 3 was fished by Larson, Skulmoski, A. Crait and B. Crait, plus one hired man. They took 1,171 kg of the 1,400 kg quota. Delivery of fish was by CNR and aircraft.

The following spring (1983) Doug Maxwell (CO in Wabowden) wrote to Don Cook to inform him that he had talked to the fishermen and they had all agreed that individual quotas were the way to properly manage the fishery. Maxwell suggested setting up a meeting with the fishermen to discuss the matter.

In 1983, the total harvest from Area 3 was 2,271 kg, 371 kg over the quota. The excess was blamed on tethered sturgeon being kept on the lake. Three licensed fishermen plus two hired men participated in the fishery. In Area 2, the quota was exceeded by over 800 kg with approximately 740 kg brought in after the season was declared closed. There were four licensed fishermen and four hired men. Delivery of the fish was by aircraft.

Abel Hall participated in the commercial fishery in 1983 when Alex Jonasson lent him his license. He hired a helper and fished the mouth of the river to the "Fiddle". They stayed in a tent at the Freezer, and fished mostly below Duck Falls. Abel recalled that the fishing was fairly good, occasionally taking about seven in the morning and eight in the evening. "It was a race to get the most fish. The limit was reached in just 15 days. You could set nets anywhere at that time because the fishermen respected each others sets. But if you wanted to catch sturgeon, you had to know where the good sets were. These were generally in back eddies or dead water." Abel believed sturgeon were abundant in these areas because they were feeding there. Abel fished out of a yawl with

two 25 hp engines. They took their catch to Sipiwesk Landing and then trucked it to FFMC in Wabowden. It took about 1.5 hours to make the trip.

Harry Chartrand passed away after the 1983 season leaving one of the licenses for Area 2 vacant. Gabe Chartrand, Harry's brother, who had helped him in two of the previous three seasons, inherited all of Harry's fishing gear and applied to Fisheries Branch to take over the license. The feeling in the Department at the time was that there should be no reallocation of sturgeon licenses and that it was time to negate the commercial aspect totally on the Nelson River. Don Cook, Regional Fisheries Manager in Thompson, referred the issue to Worth Hayden and Lori Thompson in Winnipeg, raising the issue of increasing domestic fishing pressure and the need to reduce the harvest. Cook outlined three alternatives: not to issue the license and reduce the quota accordingly; not to issue the license and leave the quota the same; or issue the license to Gabe Chartrand. On February 29, a letter was sent to Gabe Chartrand from the Winnipeg office denying him Harry's license because of increased fishing pressure in the area by Cross Lake fishermen. Further reasoning was that Sipiwesk Lake was in the Cross Lake resource area as defined in the Northern Flood Agreement (NFA) and domestic fishing is given priority over commercial fishing. The quota in Area 2 was going to be reduced by 400 lbs - Harry Chartrand's average catch over the last three years he fished.

Gabe Chartrand wrote back to Cook on March 3, 1984, requesting that he try again to grant him his brother's quota. Chartrand reasoned that it would not hurt the other fishermen and that he already had the equipment. The Chairman of Manitoba Metis Federation in Wabowden, Henry Garrick, sent a letter to Cook on March 15, indicating their disapproval of the license denial.

In response to this lobbying, the Director of Fisheries, Worth Hayden, wrote a memo to D.F. Stewart, Assistant Deputy Minister, regarding the Chartrand license problem. He outlined the options and results which would occur with each, and then

stated, "I feel the situation requires a political decision rather than a management one. This would serve to clarify how the NFA influences our management of these fisheries." The Minister eventually decided to grant a quota to Chartrand and decrease the overall commercial quota by 10%. No explanation could be found for the change in policy.

As the license reallocation issue arose, the province was also negotiating with the existing license holders for individual quotas. The quotas in Areas 2 and 3 had been exceeded in three of the previous five years. Late deliveries of tethered fish were the primary reason for the over harvest and individual quotas were seen as the solution. The department proposed raising the quota in Area 3 to 4000 lbs if the four fishermen would accept individual quotas of 1000 lbs. After initially rejecting the offer, the fishermen accepted the proposal and agreed that individual quotas would be based on the average harvest of each fishermen over the previous three years. It was agreed that any yearly shortcomings would be added to the next years quota. Fishermen in Area 2 also agreed to individual quotas based on the same formula. The quotas for Area 2 were allocated as follows: Chartrand 162 kg, Skulmoski 657 kg, Jonasson 891 kg. Individual quotas of 455 kg were allocated to the four fishermen in Area 3: Larson, B. Crait, A. Crait, and Skulmoski.

During the 1984 season, Skulmoski took 630.5 kg, Jonasson 810 kg, and Chartrand 164.5 kg from Sipiwesk Lake. Individual quotas seemed to work as anticipated as this was the first time in a few years that the total quota was not exceeded. In Area 3, production fell 428 kg short of the quota. The poor catch was blamed on sturgeon moving out of the area after spawning earlier in the season than normal. Larson took 414 kg, A. Crait 457.5 kg, Skulmoski 387 kg, and Baptiste Crait 132 kg.

John Crait, who was born in Thicket Portage in 1948 and still resides there, fished with Baptiste Crait during the 1984 commercial fishery. They travelled across Cross Portage with an old Skidoo, and camped on the island by Devils Brook (Wetiko River). They fished the area upstream to Sipiwesk Lake out of a 16 ft aluminum boat

with a 50 hp engine, setting approximately 12, 13" mesh, 6 ft deep, 50-100 yd nets. Baptiste was still using sticks for floats just as he did during the 1950s. All the sets were off shore, the two best being off the island in the narrows just downstream of Cross Portage. Fishing was best for the first five days after the June 15 opening. If they didn't catch anything in a net within two days they moved it. John recalled five sturgeon as the most captured in one set and 60 lbs as the heaviest sturgeon captured. Small sturgeon were kept, boiled, and eaten at their camp. Captured sturgeon were tied to shore near where they were caught and kept for up to a week or until they captured approximately 60 fish. At that point, someone was sent to town to phone for a plane, the cost of which was split with Hilding Larson. When the catch slowed down later in the season, they packed the sturgeon over the portage and put them on the train themselves. Ice that remained in the bay all summer by Whitewater at Devils Brook was used to bring the fish into Thicket Portage. John claimed you can still see the ruts from the horse and wagon that was used on Cross Portage in the 1940s. Although they generally stayed to themselves they occasionally visited with Skulmoski's boys who were walleye fishing on Sipiwesk Lake. They also saw Hilding Larson and some Cross Lake residents who were fishing domestically. They stayed on the river for about two weeks or until the limit was caught. On the last day of fishing, they washed all their fish in the water, and dumped the guts in the middle of the lake. All their catch was sent to FFMC in Wabowden.

In 1985, there were three licensed fishermen and two hired hands operating in Area 2. Skulmoski took 709.5 kg, Armstrong/Jonasson 998 kg, and Chartrand 180 kg from Sipiwesk Lake. Skulmoski and Chartrand worked together, with Chartrand doing the fishing with Skulmoski's equipment, and Skulmoski flying the fish out. Jonasson fished by himself and Armstrong flew the fish to Wabowden. Four licensed fishermen and four hired hands fished in Area 3. A. Crait took 483.5 kg, B. Crait 349 kg, Larson 340 kg, and Skulmoski 516.5 kg. Alfred Crait let Skulmoski fish his license and Baptiste Crait turned his license over to his son Johnny. Skulmoski, who had replaced his Cessna with a Beaver by this time, flew the fish out. Hilding Larson remembers a 150

lb sturgeon captured during the commercial fishery, three miles downstream of Sipiwesk Lake.

Baptiste Crait died during the summer of 1985. His death was summarized in a COs report as "A sad day for Nelson River history". A decision was made at the MDNR office in Thompson that the license would be reissued rather than redistributing the quota of 1000 lbs.

Six applications were received for Baptiste's license. On March 20, a meeting was held with the Thicket Portage Fishermens Association to develop criteria to decide who would get the license. The successful candidate would be selected based on the following: he must be 18 years old; he should be a resident of Thicket Portage; he should be a relative; he should already depend on fishing; he should be fully equipped; and he should have had some prior involvement. A decision analysis was conducted on how each applicant met the criteria and it was subsequently recommended that Johnny Crait, Baptiste's son be given the license (as per Baptiste's wishes). He won the license over Harry Pronteau, Louis Pronteau, Doug Crait (Baptiste's nephew), and Alex Jonasson.

Three licensed fishermen and four hired men fished Area 2 in 1986. Skulmoski took 601 kg, Jonasson 807 kg, and Chartrand 164 kg from Sipiwesk Lake. Skulmoski and Chartrand fished together. In Area 3, Skulmoski took 537 kg and Larson 394.5 kg. Records indicate there were three hired men, two fishing Skulmoski's license and one helping Larson. Method of delivery was by aircraft. High water made traditional sturgeon sets ineffective, clogging nets with floating debris and prolonging the season.

Johnny Crait worked on a CNR gang during the spring of 1986 and consequently produced no fish. After the season he was warned by the MDNR that he would lose the license if he did not produce in 1987. Shortly thereafter he indicated to the Department that he had no intention of fishing in the coming year. Around the same time, Alfred Crait relinquished his license conditional to it being reissued to his sons Douglas or John

Crait of Thicket Portage. By March 9, the province had decided to grant Johnny Crait's license (Baptiste's old license) to Harry Pronteau, and Alfred's license to his son John Crait. John Crait and Douglas Crait were to work out an agreement between themselves as both were sons of Alfie and entitled to his quota. Both licenses were awarded on a probationary production condition.

Area 2 was fished by three licensed fishermen and five hired hands in 1987. Skulmoski took 649 kg, Jonasson 732.5 kg, and Chartrand 57 kg. Area 3 was fished by four licensed fishermen and two hired men. Douglas Crait eventually worked out an agreement with his brother and fished with him during the 1987 season. The Craits took 189 kg, Skulmoski 451 kg, Larson 192 kg, and Pronteau 252 kg. The total harvest for Area 3 was 732 kg under the quota.

Harry Pronteau fished with his wife and family at Arnot for the 1987, 1988, and 1989 commercial sturgeon seasons. They camped in a tent and his boys helped him fish. They used Skidoos for transporting equipment and fish across Cross Portage, but also used the train to travel to Arnot. Harry recalled, "We would usually go out and set nets a couple of days before the season opened and tether the catch to shore. This would give us a head start on the other fishermen. The first week of the season was always the best fishing". On one occasion he caught seven in one night, but the average was generally two to three. Harry recalled a 138 lb sturgeon captured near Arnot between 1987 and 1989.

In 1988, three licensed fishermen and five hired men fished Area 2. Skulmoski took 610.5 kg, Jonasson 1138.5 kg (his quota was increased by 150 kg because it was not filled in 1987), and Chartrand 299.5 kg. In Area 3, the MDNR made its first conscientious effort to patrol the Landing River during spring. One warning was issued for nets set too close to the river and 290 kg of sturgeon were seized (for reasons unknown). According to the COs there was evidence of large numbers of sturgeon poached in August and early September. Four licensed fishermen and four hired men

participated in the commercial fishery. After fishing with Alfred Crait for 18 years, **Walter Skulmoski** had to hire additional helpers for the 1988 fishery. **John Crait** fished with **Frankie Dorian**. The fishery concluded with **H. Larson** taking 427 kg, **J. Crait** 324 kg, **Skulmoski** 507.5 kg and **Harry Pronteau** 210 kg. Harry delivered his fish to the **Odei River**.

Two licensed fishermen and four hired men fished Area 2 in 1989. **Skulmoski** took 917.5 kg and **Jonasson** 907 kg, for a total harvest that was 114.5 kg over the quota. Two COs were stationed at the **Landing River** mouth from May 26 until June 8. They reported 70-80 sturgeon in the lower **Landing River** on June 1 and none by June 8. Two illegal sturgeon were seized from fishermen during the patrol. Four licensed fishermen and five hired men fished the Area 3 quota. The harvest was split as follows: **Larson** - 377.5 kg, **Crait** - 138 kg, **Pronteau** -441.5 kg, and **Skulmoski** - 506.5 kg. Once again **Skulmoski** didn't fish, but his license went over the quota by 52.5 kg. His quota was to be adjusted down accordingly for 1990. In total, 1,453 kg of the 1,861 kg quota was taken. Fish were delivered by air and rail.

Robert Pronteau Sr. fished with **John Crait** in 1989 and 1990. Robert only fished for a couple of weeks during spring, returning to a job at **INCO** each year. They fished near the **Wetiko River**, camping on the first island upstream. Robert recalled, "Occasionally we fished before the season opened, tying a can to the net which would rattle when a fish was captured". Robert usually travelled down the **Landing River** to access the **Nelson**, but during the two years he spent fishing with John they used **Cross Portage**. Robert recalled that the fishing spots they used in 1989 and 1990 were different than the ones fishermen used prior to the building of **Kelsey**. All of the points they used to set off of were gone. The water was also slower, but they still only set 50 yd nets. They took their catch to **Cross Portage** where all the fishermen dressed their fish after the season. A single **Otter** would come and take fish out of both the **Landing River** and **Cross Portage**.



Photo 5. Robert Pronteau Sr. with a 28 kg sturgeon that he and John Crait captured just downstream of Devils Brook (Wetiko River) in 1989.



Photo 6. Harry Pronteau with a sturgeon he captured just above the Manitou Bridge in June, 1988.



Photo 7. Robert Pronteau Sr. and Joe Sinclair cleaning the sturgeon catch at Cross Portage, 1989.



Photo 8. John Pronteau at Cross Portage cleaning the catch of John Crait and Robert Pronteau Sr., 1989.



Photo 9. Donald Pronteau and two visitors holding a sturgeon captured by Harry Pronteau approximately 16 km above the Manitou Bridge in 1988.

Gabe Chartrand died after the 1989 sturgeon season. Prior to his death Skulmoski had bought him out and assumed his quota. Thus, the two surviving operators in Area 2, Skulmoski and Jonasson each had a 891 kg quota for the 1990 season. Sturgeon fishing for both operators was slow that season. Jonasson continued fishing for sturgeon into August even after the Wabowden FFMC plant closed. Skulmoski hired two men to do his fishing. Both operators were well short of their quotas, which had usually not been a problem to obtain in the past. Skulmoski produced 766.5 kg and Jonasson 618.5 kg. Both fishermen asked for their unused quota to be carried over until 1991 as conditions in the 1984 agreement had stated. The CO in Wabowden was adamant in a report to his superiors that the sturgeon quotas not be carried over. He reported an increase in domestic fishing for sturgeon in both areas 2 and 3 in 1990 and expressed concern for the health of the sturgeon population, given that the recent court decision (R vs. Sparrow) now "made the domestic harvest uncontrollable".

In Area 3, four commercial operators and three hired men had the following production in 1990: Skulmoski - 348 kg, Larson - 168 kg, Pronteau - 0, and Crait - 0. Harry Pronteau fished with his brother Louis between Cross Portage and the Landing River. He had moved from Arnot because the fishing was better at the Landing River and the cost was lower because they could portage to the site. He caught some sturgeon, but sold them locally. The total catch for Area 3 was well short of the quota and none of the individual quotas (454 kg) were reached. The COs concluded that the sturgeon population was now on a drastic decline with the increase in domestic fishing.

On the September long weekend, provincial COs seized 36 sturgeon weighing approximately 450 kg from a domestic fishing party of two. The seizure was made at Sipiwesk Landing. It was reported that on that same day another boat of domestic fishermen landed up the lake with an even larger number of fish. By January 1991, the province had realized the impact that the domestic fishery was now having, and had begun to consider the reallocation of the commercial sturgeon harvest to the domestic fishery.

A patrol covering the Nelson River after ice out in 1991 observed 35-50 sturgeon in the mouth of the Landing River on June 1. No sturgeon were seen after June 6. The COs on patrol indicated an extremely high level of domestic fishing for sturgeon that year. The estimated harvest was 372 fish weighing 4,361 kg. The fish averaged 20-30 lbs, with one topping 70 lbs. Two fishermen alone harvested 88 sturgeon weighing 1,113 lbs. As a result of the size of the domestic harvest in 1991, a memo from Worth Hayden was sent out on June 12 to Larson, Crait, Pronteau, Skulmoski and Jonasson, informing them that their quotas would be decreased by 50% in the coming season. Hayden justified the decision as a measure to offset the increase in the domestic harvest as a result of the Supreme Court of Canada decision R. vs. Sparrow.

The 1991 season saw three fishermen and two hired men harvest 485 kg of sturgeon from Sipiwesk Lake. Skulmoski fished for seven days and caught his quota, while Alex Jonasson sold only 33.5 kg of sturgeon. Speculation was that Jonasson had lost interest or was frustrated by the domestic harvest.

Abel Hall went out to set a net for his own use near Duck Falls around 1991. He caught a couple, brought them back to town, cut them up into meal size pieces, and froze them. Rusty Cordell also started fishing the Nelson River for sturgeon around this time. Rusty said that he only fished in June because it was too dirty at other times of the year. He and an acquaintance fished the area around Edna Creek and the Armstrong River. They took about 30 fish between the two of them from 1992 to 1995.

At a meeting of the Wildlife Advisory Planning Board in Thompson, on March 5, 1992, E.J. Scott of Cross Lake presented information regarding sturgeon in the Nelson River and sought wisdom of elders on what to do about the situation before the sturgeon disappeared. Shortly thereafter a memo was sent from Ken Cordell (Manitoba Department of Northern Affairs) to the communities of Cross Lake, Wabowden, Thicket Portage and Pikwitonei requesting two delegates from each council attend a meeting on

March 27 regarding sturgeon. On March 23, Don Macdonald assured E. Scott that Manitoba was in the process of terminating the commercial sturgeon fishery.

The objective of the March 27, 1992, meeting was to discuss preservation of the Nelson River sturgeon population. Opening statements focused on how the government had done a poor job of managing the fishery and how hydro development had destroyed the fishery. "It was time for the user of the resource to start giving direction to the government in order to salvage the stock". The meeting focused on the protection of spawning sturgeon at the Landing River. Attending were representatives from Cross Lake, Norway House, Wabowden, Thicket Portage, Pikwitonei, and Split Lake. It was decided that the sturgeon problem was not an NFA issue, but one for all native people who use sturgeon. All in attendance agreed that:

- it was a process driven by users, not government;
- concerns about giving up their rights were confirmed by the Sparrow decision;
- if nothing is done there will be no sturgeon left to worry about;
- both Treaty and Metis people had an interest in the resource; and,
- there was a desire for biological information and possible mitigation.

Subsequent to this meeting the Nelson River Sturgeon Co-management Board was formed on April 29, 1992. An initial objective of the board was to discourage fishing in the Nelson River during the sturgeon spawning season. However, the board chose not to take the regulatory route to manage the domestic fishery, but would rely on voluntary compliance.

In March 1992, DNA and MDNR sought authority from cabinet to buy out the commercial sturgeon fishery. Approval to proceed was granted promptly and negotiations with fishermen were initiated by the end of March. On April 29, Don Macdonald wrote Sherman Fraser of Sport and Commercial Fisheries to inform him that he should initiate closure of the Nelson River commercial sturgeon fishery. By the end

of May a final settlement had been accepted by the fishermen. A total of \$156,293 was paid out to five fishermen as follows: Skulmoski \$64,000., Jonasson \$43,000., Pronteau \$17,800., Larson \$16,700., and Crait \$14,500. The cost was shared between Manitoba Hydro and the Province. The buy out was subject to repayment of fishermen's loans. The Nelson River commercial sturgeon fishery had now been closed for a fifth time. A list of the total annual commercial sturgeon harvest from the Nelson River from 1907 to 1991 is provided in Appendix 7. Total annual catch by management area from 1970 to 1991 is provided in Appendix 8.

The Landing River was manned by NRSCB personnel and COs from May 20 to June 21 1992. It was estimated that there were 137 sturgeon in the Landing River on June 12 and 13. Compliance of fishermen with the NRSCB initiative to not fish at the mouth of the Landing River was limited as domestic fishing was still occurring right in the mouth of the river during the spawning season. An estimated 278 sturgeon were taken weighing approximately 3,105 kg. Even the support staff monitoring the domestic sturgeon harvest for the NRSCB took 14 sturgeon weighing over 280 lbs!!!! John Crait, who tagged fish for the NRSCB from 1992 to 1995, recalled one boat taking home 130 sturgeon.

At a March, 1993, NRSCB meeting, the board concluded that they needed a higher profile in the communities and that peer pressure was necessary to persuade people to comply with the board recommendations. Despite the efforts of the NRSCB to encourage conservation, over 308 sturgeon weighing 7,700 lbs were observed harvested in 1993. It was obvious many fishermen continued to ignore the Board's recommendations. In 1994, the observed domestic harvest was 209 sturgeon, weighing 4,150 lbs. The observed harvest in 1995 was 120 sturgeon weighing 2,750 lbs. Board personnel believed that many more fish were harvested after completion of their surveys.

4.2 LOCAL/TRADITIONAL KNOWLEDGE OF UPPER NELSON RIVER LAKE STURGEON

"I really didn't learn that much from older people. It is there for you to see and you learn on your own". This statement by Joe Monias explains how much of the cultural knowledge of aboriginal peoples is passed on through generations. Younger people were not necessarily taught the traditional ways, but learned them by observing the old people carrying out their day to day activities. The great respect held for elders in aboriginal societies facilitates this transfer of information.

The following is a summary of general information on lake sturgeon provided by the long-time lake sturgeon fishermen of Wabowden, Thicket Portage, and Pikwitonei. The information has been delineated into the following sections: distribution, biology, cultural use, changes since Kelsey, and thoughts concerning the current population status and management practices.

4.2.1 Distribution

Historical sturgeon catches were reported from many of the same areas where they are still caught today. Zach Flett set nets at the mouth of the Clearwater River for years prior to Kelsey and remembered catching plenty of sturgeon there. Louis Pronteau recalled that sturgeon used to be numerous and large around the Arnot area. George Brightnose claimed that in his younger days they did not catch sturgeon between Landing River and Arnot like they do today. He stated, "Most of the fish in those days were around Sipiwesk Lake and below Kelsey Rapids. Since Kelsey was completed, people now catch them all along the river". Walter Skulmoski, who has fished the river since 1969, insisted that fishing for sturgeon has always been better in the river than in Sipiwesk Lake. He claimed that, "There is never anything in the lake at the start of the season". Carl Dram recalled a huge sturgeon that jumped by the narrows at

Kiskitto Lake and a 97 lb round sturgeon that he caught in Kiskittogisu Lake in 1973. In the latter years, however, he saw few sturgeon in these areas.

Many of the fishermen remember sturgeon being abundant below Kelsey, both in the Nelson River mainstem and in tributaries. **Zach Flett** recalled seeing sturgeon jumping in the Burntwood River at the first set of falls below Thompson. **Percy Laubman** also remembered catching sturgeon in the Burntwood River and "where the Burntwood and Odei rivers enter Split Lake". In 1939 or 1940, **Arthur Brightnose** caught 75 sturgeon in three nets in the first set of rapids on the Burntwood River, one of which was 60 lbs. He also recalled catching sturgeon in the Odei River in the 1930s at the first set of rapids and "on this side (south side) of the steel bridge." Arthur also remembered catching 50 sturgeon in three nets set in the lower Grass River, but is not sure what year that it occurred. He claimed that at one time, "Sturgeon were so plentiful in the Grass River you could catch them with your hands". **George Brightnose** also remembered the mouth of the Grass River as a good fishing spot, but claimed that sturgeon never went up the Grass River because they couldn't get past Witchai Lake Falls. **Zach Flett** remembered sturgeon jumping at Witchai Lake Falls, but claimed there are no sturgeon there now. According to **Arthur Brightnose**, Gull Lake below Split Lake had lots of sturgeon in years past.

Sturgeon are rapidly disappearing from waters where they were historically distributed. However, in a few recent cases, sturgeon have been found in areas where they never were found in the past. According to **Fred Cordell**, sturgeon used to be found up to Cauchon Falls but never in Cauchon Lakes. **John Mercredi** explained that back in the 1950s sturgeon couldn't get above Clearwater (Cauchon) Falls and would hang around the mouth of the Clearwater River. **Alex Jonasson**, who scale fished the Clearwater River to Bear Head Lake, caught three sturgeon in whitefish nets in June in Cauchon Lakes. This occurred some years ago, but was in the post-Kelsey period. Similarly, **Arthur Brightnose** recounted that there never were any sturgeon in Landing

Lake because they couldn't get past the waterfall at the mouth of the Landing River. **Robert Pronteau Sr.** explained that when Kelsey was built the water level at the mouth of the river rose, so that now there is only a set of rapids at the mouth of the river through which sturgeon can easily pass. A single sturgeon has since been captured at Lucky Bay on Landing Lake.

4.2.2 Biology

Most fishermen suggested that sturgeon had distinct habitat preferences that varied depending on the time of the year. During spring, most fishermen claimed that they were found at the mouths of tributaries and in shallow water, but toward the end of June sturgeon would move into deeper water. **Walter Skulmoski** and **Hilding Larson** both said that sturgeon went to **Sipiwesk Lake** and deeper water during July. **Arthur Brightnose** claimed that sturgeon moved to the river bottom in response to the moss that starts coming down the river in early summer. **George Brightnose** said that when the water gets warm the sturgeon go to deep holes. **Joe Monias** stated that most sturgeon were found in deep water. **Arthur Brightnose** believed that sturgeon are relatively sedentary for much of the year. "Sturgeon are wise, they don't travel all the time. They often stay in one place". **Carl Dram** said that sturgeon were found in distinctly different areas than whitefish. He claimed, "I only caught 7 or 8 sturgeon in the 25 years I fished for whitefish". **Rusty Cordell** said that some people set nets during winter at Devils Brook (Wetiko River) suggesting that sturgeon overwintered in that location.

There were differing opinions as to where most sturgeon would get caught in a gill net. Some recalled that most sturgeon were captured in the middle of the net close to shore, while others remembered catching most in the top of their nets. However, the majority of fishermen recalled most sturgeon were captured close to shore, especially in June. **Phil Guiboche**, **Albert Dorian**, and **Robert Pronteau Sr.** all said that they never set nets in clear water, always in murky water.

Most of the fishermen interviewed recalled seeing sturgeon on occasion jumping out of the water or breaching the surface. **John Mercredi, Alex Brightnose, and Harry Pronteau**, each said that they would often see sturgeon jump in the middle of the river channel on a calm evening. **Hilding Larson** recalled seeing sturgeon jumping in the fast water in the middle of the river, but claimed he has hardly seen any in the last few years.

According to **Alex Brightnose**, little was known about spawning back in the 1940s and 1950s. However, most of the fishermen interviewed had some opinion of where Nelson River sturgeon spawned. Two locations mentioned most frequently were the Clearwater and Landing rivers.

Zach Flett and Philip Guiboche both claimed sturgeon used to spawn at Clearwater Falls, approximately 1/4 mile upstream from the Nelson River. Philip recalled that they never caught sturgeon below the falls because it was only three feet deep - too shallow for sturgeon. **John Mercredi** claimed that back in the 1950s you could see sturgeon congregating below Cauchon Falls during spring.

Joe Colombe and Percy Laubman both recounted that sturgeon spawned at the Landing River prior to construction of Kelsey G.S. Percy said, "There were always lots of fish there in the spring". The Landing River was the only spawning location that **Robert Pronteau Sr.** knew of. **Walter Skulmoski** recalled sturgeon being "thick" at the Landing River. "They didn't care if you were there. You could reach down and touch them". **Alex Jonasson** recounted that there were 4 ft falls at the Landing River before Kelsey G.S. was completed. "Sturgeon can now move upstream to better spawning grounds in the numerous rapids from Landing Lake to the Nelson River". However, he worries that there are no fish left to spawn now. "It may be 15-20 years before the remaining sturgeon will spawn".

Fishermen named a number of other areas that they believed sturgeon used for spawning. **Zach Flett** identified **Kelsey Rapids** and **Manitou Rapids** on the Nelson River, and **Witchai Falls** on the Grass River as spawning areas prior to Kelsey. **John Mercredi** and **Harry Pronteau** both claimed that sturgeon spawned in the Nelson River just downstream, or at the mouth, of **Devils Brook (Wetiko River)**. Sturgeon were plentiful there in the spring, and Harry had captured fish there that had eggs running out of them. Harry also claimed that sturgeon spawned between **Landing River** and **Devils Brook**. He believed these areas were all used before Kelsey, and are still used to the present day. He explained that the bays that exist along the river now used to be creeks, and that these used to be spawning areas. Fish are still encountered in these areas during spring. **Walter Skulmoski** stated that sturgeon spawn in the **S-Channel** on **Sipiwesk Lake**, at **Red Rock Rapids** near **Bear Island**, and across from the **Landing River** in **Big Bay**. He maintained that sturgeon spawn wherever there is lots of current, off points, and up creeks. **Abel Hall** also claimed sturgeon spawned in the **S-channel**, but knew of no other locations. **Carl Dram** said that **Bladder Falls** and **Hill Rapids** were spawning areas. He captured 15 sturgeon in one day in a bay near **Bladder Falls**. He also related that sturgeon spawn at the base of falls and rapids all along the Nelson River. **Joe Colombe** claimed that sturgeon spawned at **Duck Lake Falls** at the end of May or early in June. Sturgeon would be captured going to and from the falls over a 3 to 4 day period. After spawning was complete, only 2 or 3 fish would be captured at a time. **Joe Monias** claimed sturgeon would come to the "Freezer" to spawn back in the 1930s. Joe also stated that sturgeon would spawn all down the river. **John Mercredi** claimed that the water is too high now, and that there are not many spawning grounds left. Figures 13 and 14 illustrate the locations of the most commonly referred to historical spawning areas.

Very few sturgeon captured by any of the fishermen contained eggs. **George Brightnose** said that some of the fish he caught over the years would have eggs but not very many. **Louis Pronteau** and **John Mercredi** caught few sturgeon with eggs, while

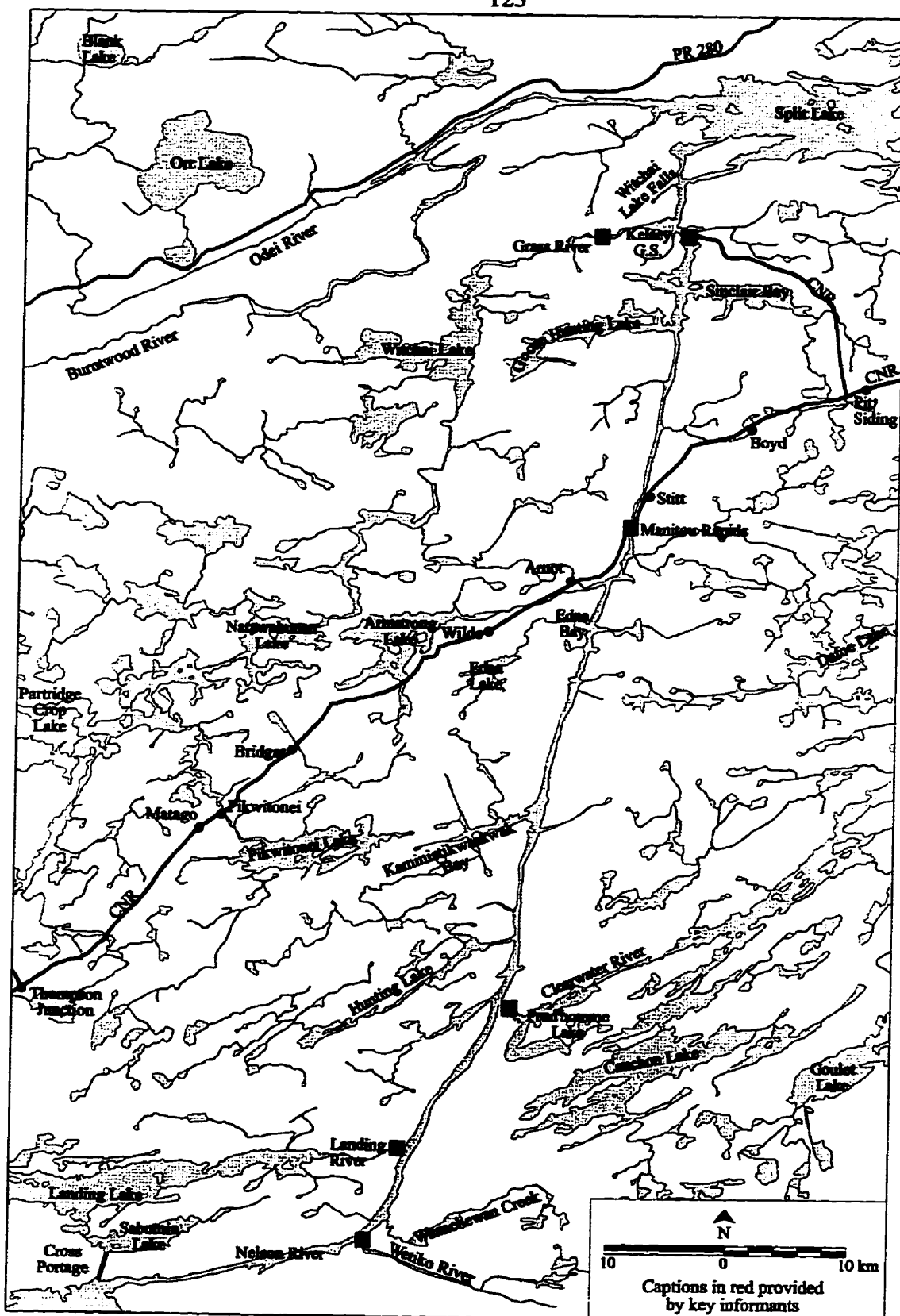


Figure 13. Historical lake sturgeon spawning locations on the Nelson River identified by at least two key informants.

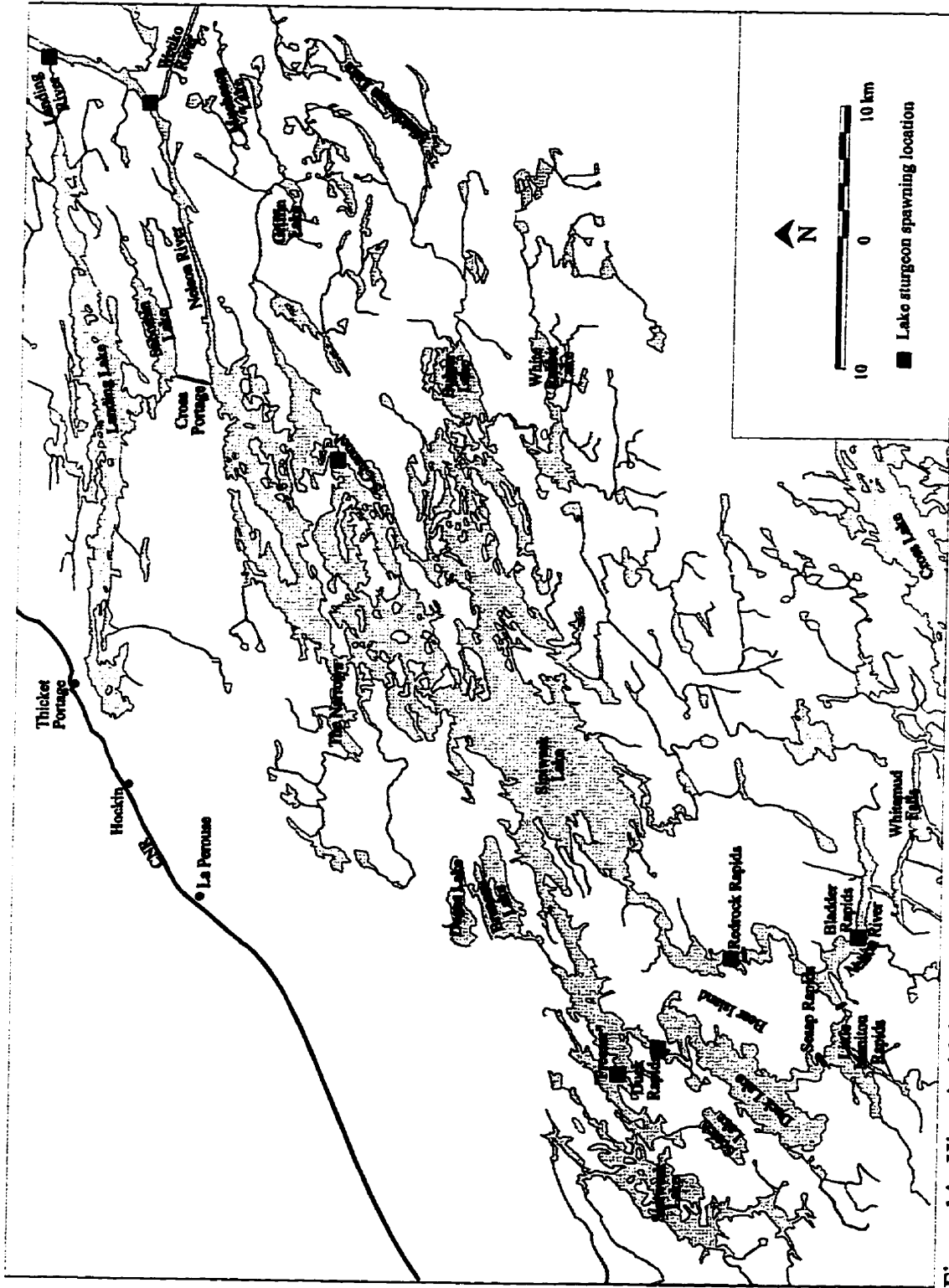


Figure 14. Historical lake sturgeon spawning locations in the vicinity of Sipiwek Lake identified by at least two key informants.

Robert Pronteau Sr. never caught a fish with eggs running out of it. **Hilding Larson** claimed that three or four fish out of 50 sturgeon captured would have eggs. **Abel Hall** said that if you were lucky, three out of ten fish would have eggs.

Walter Skulmoski said that sturgeon go to spawning grounds when the buds on the trees start to come out. "Sturgeon won't fight when they are spawning", he stated, "they are very passive". **Rusty Cordell** believes that sturgeon will avoid historical spawning areas "if people continue to fool around on them". **Arthur Brightnose** believes that sturgeon look after their eggs and larvae.

During the 1970s a local fishermen told **J. Sigurdson**, a provincial fisheries biologist, that when sturgeon spawn, the end of their snout becomes rubbed down and bloody, and that sex can be differentiated by snout proportions. The fisherman maintained that males have longer, narrower snouts. **J. Sigurdson** collected data during the 1970s that did not support this hypothesis.

Almost every fisherman interviewed had a story of how tough or hardy sturgeon were. **Albert Dick** told of a net set in winter during the early 1990s in Oles Bay that was lost and left in the water until spring. **Albert** found the net in June with two sturgeon in it that were still alive! **Arthur Brightnose** remembered a similar story from the time that he worked with **Ole Olson** in the 1940s. He lost a net and then found it three weeks later with two sturgeon in it that were still alive.

If sturgeon were not eaten immediately after being captured they were generally tied up until needed for eating or shipment to the packer. **Robert Pronteau Sr.** said that fish tied through the gills would sometimes escape. He recalled catching one once that had the gill cover ripped off. The fish had healed, but it appeared as though it could not eat. All the fishermen interviewed claimed that very few sturgeon died when they were tied up. Some would last up to two weeks. **Arthur Brightnose** stated, "They're just

like dogs, and will dig in the sand. They lived a long time!" **Robert Pronteau Sr.** remembered tubbing sturgeon at camp at Cross Portage and they would still be alive when they got to the other side of the portage. **Alex Jonasson** claimed that sturgeon are able to remain out of the water for hours. He kept them alive by pouring water over top of them. **Walter Skulmoski** recalled an occasion when a sturgeon knocked the window out of his plane when he was transporting a load into Wabowden. Old people told **Harry Pronteau** not to stand near sturgeon in the boat. He recalled not heeding this advice once. "I bent down near a sturgeon and almost got knocked out". **John Crait** passed on a story of Cross Lake residents who caught a sturgeon with no eyes during the summer of 1995.

Every fishermen had his own story of the largest sturgeon he had seen or heard of taken from the upper Nelson River. **Gordon Clemons** remembered seeing a 90 lb dressed sturgeon, without the head, brought back to Thicket Portage. **Abel Hall** saw fish up to 50 lbs, but recalled that most were between 25 and 30 lbs. **Joe Monias** remembered catching a 95 lb sturgeon near Duck Falls. **George Brightnose** remembered **Bud Johnson** catching a 104 lb sturgeon below Kelsey during the early 1940s. **John Mercredi** recalled a 95 lbs dressed sturgeon taken near the Landing River in the 1940s. **Carl Dram** remembered two large sturgeon taken from Duck Lake in the mid 1950s. One that he caught was 90 lbs round and 60 lbs dressed, while the other, taken by some other fishermen, dressed out at 104 lbs. **Alex Jonasson** captured a sturgeon weighing 162 lbs round during the 1980 fishery. **Hilding Larson** remembered a 150 lb sturgeon captured during the commercial fishery, three miles downstream of Sipiwesk Lake in 1985. **Harry Pronteau** recalled seeing a 138 lb sturgeon captured near Arnot between 1987 and 1989. **Percy Laubman** remembered catching an 80 lb sturgeon above Arnot and the Keystone Narrows during the latter part of June in 1987. **Louis Pronteau** claimed that the largest sturgeon he ever saw come out of the Nelson River was about 12 ft long and dragged over the back of a half ton truck. "They had to shoot it with a

rifle to kill it. The head alone weighed 68 lbs". Louis claimed there are still lots of big sturgeon in the Nelson because they often leave big holes in their nets.

The size of the sturgeon that have come out of the Nelson River suggests that there have also been some relatively old fish harvested by the fishery. During the 1950s, L. Sunde (DMNR) referred to the 1890 year class as contributing to the fishery. More recently, Bob Sopuck (1981) referred to one of the sturgeon he captured during his MDNR experimental fishery during the late 1970s as being 75 lbs and 70 years old. It was part of the 1907 year class! Recent re-examination of Sunde's ageing structures have shown that some of the fish he collected were over 100 years old (D. Macdonald, MDNR, Thompson, pers. comm.).

Joe Monias maintained that big sturgeon are stupid. "They hardly move around at all. It is like they are asleep. The sturgeon that weigh between 30 and 40 lbs will tear up the nets. They were wicked". Joe remembered sturgeon captured from the Nelson River that were 10 or 12 feet long.

Although everyone interviewed had a story about big sturgeon, virtually no one knew anything about small sturgeon. Not one of the fishermen interviewed had seen a sturgeon smaller than 12" in length. John Mercredi said he had caught lots of sturgeon around 20" long, but hardly ever got any that were smaller. He suggested that the young ones follow the older fish around. John Crait captured a 4 lb, 26 inch sturgeon when he was working for the NRSCB in the early 1990s. The smallest sturgeon seen by Arthur Brightnose, Walter Skulmoski, Phil Guiboche, and Harry Pronteau were no smaller than 12" in length. Rusty Cordell recounted that Zach Flett set a whitefish net at the mouth of Armstrong Creek, near the sawmill, and caught lots of small sturgeon. Percy Laubman remembered young sturgeon jumping in the falls below the Landing River. Even Lief Sunde, who studied sturgeon for the Provincial Government in the 1950s, was not able to determine where to find small sturgeon. In a 1964 reply to K.H.

Doan, who had requested information on sturgeon 3-4" in length, he stated that he had never seen sturgeon that size and that the smallest he had seen was 10-12" in length.

Albert Dorian described two rows of fat in the gut of female sturgeon. Despite the obvious differences on the inside, none of the fishermen interviewed for this study said that they could tell the difference between male and female sturgeon from the outside.

There were numerous reports of varying skin and flesh colours of sturgeon. A memo from J.F. Heard in the 1940s regarding sturgeon in the Nelson River discusses two distinct species that are found in northern waters - grey and black sturgeon. He reported that, "The grey are of excellent quality while the black are of little commercial value. The grey variety are found in the large rivers such as the Nelson." **Carl Dram** claimed that Fox River sturgeon are black on the outside. **Fred Cordell** also said that there are light and dark sturgeon, and that the light sturgeon come from the Pikwitonei stretch of the river. **Joe Monias** said he caught black sturgeon at Bladder Rapids. He claimed that the black sturgeon go up creeks and that sturgeon that didn't go up creeks were white. **Louis Pronteau** claimed that sturgeon will turn black if they are tied up in shallow water. "The sun burns them". Some fishermen said colour varied with size. While **Joe Colombe** claimed that all the small fish were black, **Percy Laubman** claimed that the smaller fish were lighter in colour.

According to **Joe Colombe**, "Sturgeon were different from jacks in that you couldn't tell what they were eating". Almost all those who did relate information on sturgeon diet described clams and crayfish ("crabs") as food items. A number of fishermen listed those items exclusively. **Abel Hall** said that if you found crayfish in your net it was a good place to fish for sturgeon. **Albert Dick** reported that bugs and grey worms were also found in sturgeon stomachs. **Hilding Larson** stated that fish were

found in the guts on occasion. Some fishermen described (whitish) mud or sand in the gut.

It was unanimous among the fishermen that spring is the best time of year to catch lake sturgeon. There are, however, many differences of opinion as to when during spring and what signs are indicative of good sturgeon fishing. **Zach Flett** learned from his grandfathers that the best time to fish for sturgeon was when the leaves on the poplars reach their full size. **Arthur Brightnose** also said that the fishing improved when the poplar leaves became big. Diverging slightly from the above, **Percy Laubman** and **Robert Pronteau Sr.** both said that the best time to catch sturgeon was when the leaves were just coming out. **Alex Brightnose** stated that when the leaves emerge, the water become dirty and sturgeon can be observed jumping all along the river.

Most fishermen agreed that commercial fishing was best during the first week of the season and before the water got too dirty at the end of June. **Joe Colombe** explained that, because of the dirty water, not many fish were captured after July 15. **Percy Laubman** remembered the catch declining after June 20. **Arthur Brightnose** also remembered that fishing in July was not very good even before hydro development because there was too much algae. According to **Robert Pronteau Sr.**, fishing was not very good during the summer because sturgeon headed for deeper water at that time of the year.

George Brightnose described July as a poor time to catch fish because of the green slime in the river. He recalled that the fishing improved again around August 25 when the river began to clear up. **Arthur Brightnose** also remembered the water in the Nelson clearing up in the fall. **Percy Laubman** fished in both spring and fall, but preferred to fish in September. He said, "My nets stayed cleaner and I could moose hunt at the same time".

One of the more universal beliefs of the fishermen was that sturgeon were particularly sensitive to anything put in the water. This belief seemed to have been passed on from prior generations as almost all fishermen related that they had learned it from old people. **Robert Pronteau Sr.** said that the old people would not let them wash plates or their catch in the river until the fishery was over. Similarly, **Fred Evans**, a long-time resident of the Thicket Portage area, told **Phil Guiboche** in the 1940s not to clean his fish in the water. Instead, **Phil** said they would wash them in a tub and then discard the water in the bush. **Harry Pronteau** also said that the old people told him not to clean sturgeon in the water near where he was fishing. **Carl Dram** was told by older Indians not to wash his nets in Javex, as they feared the smell would scare the fish away. **Arthur Brightnose** remembered that even before hydroelectric development there were many times when they would not get sturgeon and that this would occur almost certainly if they washed the dead sturgeon in the water. **Percy Laubman** stated that sturgeon are "very touchy. You couldn't throw anything in the water". They would leave the entrails in the bush. **Joe Colombe** claimed that if you did put any of the guts in the water you would not catch sturgeon. It is interesting to note that the oldest of the fishermen interviewed, **Joe Monias**, considered the traditional rule of never washing fish in the water, a "FAIRY TALE", stating, "Where else are you going to clean them?" He claimed that by not cleaning sturgeon in the water you are showing them respect. Thus, this rule may have evolved as more of a spiritual practice than a practical one.

A number of fishermen told of the sturgeon's sensitivity to sound. **Rusty Cordell** recalled two "old guys" from Norway House who said that the helicopters and planes at the mouth of the Landing River were too noisy for the fish and were having an effect on the sturgeon. **Hilding Larson** claimed that a bang of thunder can kill sturgeon. "Sturgeon would get restless before a storm. When a storm rolls in you have to move the fish to deeper water." **Arthur Brightnose** also claimed that lightning caused sturgeon to go to deeper water. **Alex Jonasson** maintained that sturgeon also respond to water temperature. "They get stronger in warmer water. They are quiet in June and

September, but fight like crazy in July. You can feel them kicking as soon as you pick up the net".

Arthur Brightnose believes that squeezing sturgeon to get the eggs may hurt them. He claimed that if you rub their bellies on a screen the eggs will come out. **Rusty Cordell** does not believe in tagging or touching fish and returning them to the water. He said, "Fish don't talk but they communicate. Some find out about getting caught and tell the others." Rusty maintained that sturgeon are a very smart fish, and that suckers are "stupid".

4.2.3 CULTURAL USE OF STURGEON

According to **Alex Jonasson** sturgeon were not always prized as a food fish by aboriginal peoples in the north. He claimed that at one time Indians would not eat sturgeon, feeding it to their dogs instead.

It quickly became apparent during the interviews that this had not been the case during the 1900s. The majority of the fishermen said that they ate sturgeon when they were out fishing or they brought it back to town to eat. **Fred Cordell** recalled, "You couldn't get sturgeon all year, just when the fishermen came back to town. It was just like having turkey at Christmas!!".

George Brightnose told a story that illustrates the preference for sturgeon over other fish. One day George and another fishermen were in need of some fish for supper so they lifted another fisherman's whitefish net so they could steal some fish. They took three whitefish out of the net, but as they pulled the net further, came across a small sturgeon. They quickly put the whitefish back and kept the sturgeon for their supper.

Although most fishermen ate sturgeon, some said that it was not the type of fish that you wanted to eat too often. **Hilding Larson** said sturgeon are so rich that if you

only eat it once or twice a year that is enough. **Arthur Brightnose** said that sturgeon are too rich to eat too often; he might keep five at a time. He also claimed that sturgeon are too rich to feed to dogs. He recalled an individual from Fox River that fed sturgeon to his dogs and they all died. However, Arthur also recounted that if they caught too many sturgeon at one time during summer they would bury them in a hole, cover it with moss, and use the sturgeon at a later time as dog food.

How sturgeon was prepared for the table varied between fishermen. Most fishermen boiled it, some smoked it, and some canned it. **Arthur Brightnose** would take the grease from inside the fish and fry the flesh in it. He would also boil sturgeon and put it in a sealer with grease. **Robert Pronteau Sr.** recalled having canned sturgeon all winter.

Sturgeon did not always taste the same or have the same type of meat. **Louis Pronteau** claimed that the big ones are fatter and richer, but the small ones are better eating. **Percy Laubman** said that the bigger sturgeon have harder meat than the young sturgeon. According to **Gordon Clemons** "the small fish were food fish". **Arthur Brightnose** claimed that sturgeon from the Fox River "taste like mud" and that sturgeon from the Nelson taste different now. **George Brightnose** said that if sturgeon are tied up too long they did not taste the same because they fought too much. **Carl Dram** claimed that Nelson River sturgeon had whiter meat than other sturgeon and that Saskatchewan River sturgeon have yellow meat. **Gordon Clemons** claimed that the colour of sturgeon flesh from the Nelson River has changed over the years from white/pink to grey.

The flesh was not the only food item valued from the sturgeon. Many of the fishermen also ate the eggs. **Arthur Brightnose** mixed them with salt, cooked them, and put them in sealers. He claimed that they are very rich. **George Brightnose** threw the eggs away most of the time. However, on occasion he would rub them through a screen, take the fat out, put salt in, and cook them. He claimed they were an aphrodisiac!! The

small ones were good eating. **Hilding Larson** related the secrets of making good caviar: "The eggs must come from a fish one year before it spawns. If you get the fish two years before spawning there is too much fat. If you get the fish in the year that it is spawning there is too much blood". **Joe Monias** would sell the eggs. Some were different colours - "the black ones were good and the brown ones were no good".

George Brightnose recalled that they not only threw potatoes and onions in the pot with the sturgeon flesh, they also threw in the head!! **Joe Colombe** remembered cutting the heads off of sturgeon to eat and selling the rest of the fish. A number of fishermen stated that they ate the head by boiling it. **Abel Hall** would smoke the heads. **Hilding Larson** recalled that the heads had "lots of meat".

Louis Pronteau said that they would eat some of the guts of the sturgeon including the liver. **Harry Pronteau**, on the other hand, never ate the guts claiming that not even ravens would eat sturgeon guts even though they will eat almost anything else. **Gordon Clemons** recalled cooking the "white stuff from the gut (like a gizzard)" on an open fire. **Joe Colombe** said they also ate the spinal cord and used the eggs in bannock. **John Mercredi** ate the "gizzards" (stomach?) and the esophagus. The esophagus was 10" long and they cooked it on a stick over an open fire. **Joe Monias** also ate part of the gut, and claimed "it was like an apple". **Abel Hall** also cooked the "gizzards". "We didn't throw away much", he claimed.

George Brightnose said that the grease from sturgeon was very good. It was melted down and rubbed on moose hides to soften them. **Gordon Clemons** remembered making lard out of the fat. Sturgeon grease was used for bannock, frying fish, and they would give a teaspoon to the kids when they had a cold. **Joe Colombe** said they used grease from the stomach area of sturgeon for patching canoes. **Abel Hall** recalled boiling the fat from the gut and making oil which was used for making bannock.

4.2.4 Changes Since Construction of Kelsey G.S.

Kelsey Generating Station was constructed by Manitoba Hydro at Kelsey Falls during the late 1950s to supply electricity to the INCO smelter at Thompson. With its completion in 1960 the face of the Nelson River changed dramatically in the eyes of the residents of Pikwitonei, Thicket Portage, and Wabowden who used that portion of the river from Kelsey Falls to Sipiwesk Lake.

John Mercredi has only gone back to the Nelson River twice since the 1950s and said it was a "pitiful sight". "There is hardly anywhere to dock your boat now". Robert Pronteau Sr. remembered a lot of logs in the years following construction of Kelsey.

Zach Flett, George Brightnose and Fred Cordell each recalled numerous sand bars and grassy shorelines along the Nelson River prior to Kelsey G.S.. Harry Pronteau remembered numerous sandy bays and at least two sets of rapids just above Kelsey that could be run without getting out of the boat.

The effect of Kelsey was felt as far upstream as Sipiwesk Lake. Arthur Brightnose recalled that the river and Sipiwesk Lake were much shallower before Kelsey. Water in Sipiwesk was only one foot deep in many places. Arthur had a camp at Sinclair Bay, just upstream of Kelsey Falls, during the 1950s and claimed that the water went up 80 feet there after the dam was completed.

Some fishermen believe fishing downstream of the dam declined after construction. George Brightnose stated that most fishermen moved upstream of the dam after 1960. Although he has not ventured back to the river much since the dam was completed, he did go back "now and again" during the 1960s and 1970s and fished close

to Arnot. George stated, "Since the dam was built you can now catch sturgeon all along the river, whereas before they were concentrated in Sipiwesk Lake and at Kelsey Falls".

The confluence of the Nelson and Landing rivers has changed dramatically since Kelsey. Robert Pronteau Sr. and Albert Dorian remembered a long point extending from the south shore of the Landing River mouth. Robert also remembered a nice beach there. Robert recalled that the water went up 15 ft at the Landing River mouth after Kelsey and that Landing River falls virtually disappeared. Albert and Harry Pronteau remembered that the water in the Nelson River was also swifter before Kelsey. Robert Pronteau Sr. recalled that they followed the shore and used backwaters to set their nets in before Kelsey. They would also follow the bays "where the water would be travelling in opposite directions". Albert recalled the area just downstream of the Landing River being called "sturgeon yelling". John Mercredi said that this area of swift water was called: "NAH MO, KATAIPET" or "sturgeon calling". Albert remembers that water in this location circled like a vortex.

Joe Monias remembered that "The Freezer Area" was called KAPASTA-CHE-WAN-NEK and the river was called SE-PEEK. He used to fish near Bladder Rapids.

Joe Colombe claimed that there were lots of fish before the water went up. Joe Monias remembered that there were certain places where you could catch sturgeon back then. If you set in the current the nets would get dirty and you would lose the nets. They generally set off of points, in the backwaters. Robert Pronteau Sr. recalled that the fishing spots used after 1960 were different than the ones used prior to the building of Kelsey. All of the points they used to set off of were gone. The water was also slower, but they still only set 50 yd nets in the 1980s.

Percy Laubman claimed, "Dams have made it bad for sturgeon. They are not getting food and don't have the same habitat. Sturgeon don't care about the depth of the

water, but the crayfish that they eat do!!" **Harry Pronteau** believes that **Kelsey G.S.** stops migrations. He claimed, "When they open the gates dead sturgeon are lying all over the place". He feels they should build fish ladders for all species. "They need to pass sturgeon in the spring". **Zach Flett** also believes **Kelsey G.S.** is holding sturgeon back now.

4.2.5 Stock Status and Current Management

Almost everyone that was interviewed believed that stocks are not as abundant today as they were historically. Fishermen gave a number of reasons as to why the fishery has failed.

Fred Cordell stated, "The Icelandic fishermen who fished the river previous to the 1950s were vigorous, and hit the fish very hard. The Indians also took what they wanted and if they caught lots, took it home and gave it away. Times have changed though. Indians used to stay in their own areas because there was enough game and they didn't have to go any further. Split Lake fishermen never used to fish at the Landing River like they do now."

Fred Cordell and **Robert Pronteau Sr.** both concluded that commercial fishing was a major reason for the decline of the sturgeon stock in the Nelson River. Fred noted that the catches got smaller and smaller, but little was done. Fred was glad to see the closure of the commercial fishery because it was hurting the domestic catches. According to Fred, "Manitoba Hydro put the finishing touches on the fishery by building the dams. Prior to the high water and partitioning of the river sturgeon had a much better chance. Now they don't have any chance". **Percy Laubman** also blames hydroelectric development for the decline of sturgeon. He said that before Hydro development you would get sturgeon anywhere you set your nets, but now it is much more difficult. **Robert Pronteau Sr.** said that now that the water is much deeper all the net sets are on the bottom, well below the surface of the water. He claimed that

sturgeon used to be caught primarily in sets where you could see the floats. **Hilding Larson's** dad also told him the fishing was better when the water was lower.

Fred Cordell maintained that now that stocks are depleted there is still too much fishing. He claimed that domestic fishermen are using the river more now that access to the river is easier. He also stated that some fishermen are taking much more than they need for themselves and take the fish to Thompson to sell. Fred said, "Even considering all the factors currently working against sturgeon, the species still has a lot of latitude to survive if the harvest was not so large".

George Brightnose claimed that the current domestic fishermen are "making hogs of themselves". He heard of one group taking 57 sturgeon in two nights recently, and feels that kind of harvest is excessive. George claimed the domestic fishermen are selling their catch and compared it to bootlegging. **Carl Dram** said domestic fishermen never used to take as many fish, but now they take them and sell them.

Alex Jonasson blames the increased pressure on the Supreme Court of Canada decision R. vs. Sparrow. "Prior to Sparrow they were only allowed 100 lbs per family, but recently MDNR seized a boat load at the plant with 900 lbs. Norway House, Granville, The Pas, and Thompson are all still taking sturgeon. They can go out and use any size mesh they want". Alex recalled recently seeing three individuals with 56 sturgeon and 3 moose at Sipiwesk Landing during the "heat of the summer". **Gordon Clemons** claimed that the current management is crazy. "People taking 60 or 70 fish isn't fair. They should allow only so many per family".

Rusty Cordell claimed that the biggest killer of sturgeon is the 8" mesh and believes anyone who uses nets that small should be prosecuted. "One or two 10" nets are plenty for domestic fishermen". **Percy Laubman** related that the problem today is "more fishermen, better equipment, and more nets". He also believes that the lack of

restriction on a mesh size is going to kill the sturgeon population. "They let them fish anything now!! They used to have to stick to 12 and 13" mesh during the commercial fishery. Why don't they do that now?"

Fred Cordell said that publicizing the spawning areas hurt the population. He feels that you must override native rights, because "you just can't keep taking sturgeon out of the river forever. They have to have more patrols. It will take time". **Percy Laubman** thinks the season should be open, but that they should close the spawning area. **Percy** claimed that historically, the local people would only take what they needed from the mouth of the Landing River during the spring and nothing more.

Many of the fishermen interviewed continue to fish for sturgeon. **Harry Pronteau** went out in 1994, but did not catch anything. **Hilding Larson** retains a domestic license and can take 5 sturgeon (NRSCB Rule). He tries to get out each spring. **Albert Dorion** also fished in 1994 and 1995. **Louis Pronteau** continues to fish the same spot close to Cross Portage each year. Although some of his nets are 12" and 13" mesh, he also uses a number smaller mesh sizes now. His total catch in 1994 was five sturgeon, as allowed by the domestic permit. He caught a couple of tagged sturgeon and received hats for turning in the tags. **Louis** claims that it is difficult to go out on the Nelson River and he would not care if the fishery was totally closed. However, he says he will continue to fish for sturgeon as long as a season is open and claimed he was going to go out in the fall of 1995.

A number of the fishermen had opinions on the NRSCB field programs. **Harry Pronteau** and **Hilding Larson** both thought that the tagging program was a worthwhile endeavour. However, **Hilding** was against cutting sturgeon fins off for ageing. **Hilding** said he had caught sturgeon that were still bleeding a year later. **Alex Jonasson** had a contrasting opinion. He believed that the NRSCB is wasting their time tagging sturgeon and doing experimental fisheries. "It is crazy cutting fish to get eggs for enhancement

work. You can milk fish to get the spawn". Alex did not believe that the incisions made for collecting eggs would heal.

John Mercredi is glad that they are at least trying to manage the fishery now. **Walter Skulmoski** said they should have done the type of management they are doing now a long time ago. **Hilding Larson** and **Albert Dick** both believe that the commercial fishery should be closed for 10 years, and that the current management initiative is worthwhile. **George Brightnose** thinks it was a good thing that NRSCB decided to stop the fishing at the Landing River. **Louis Pronteau** said he likes what the NRSCB is doing and the domestic limit of five that they have set. **Harry Pronteau** stated that there are still too many fish being harvested. He does not think there should be any commercial fishery for at least 10-20 years. Harry suggested that they should show people how to can sturgeon and then they would not have to take as many. **Albert Dorian** stated the whole fishery should be closed, but disputes whether you can close the treaty Indians.

Some of the fishermen are confident that the lake sturgeon can take care of themselves. **Arthur Brightnose** believes that there are still plenty of sturgeon and that "it is impossible to wipe them out completely". Other fishermen show much more concern for the fate of sturgeon. **Alex Jonasson** claimed, "The sturgeon needs protection and should be classified like the eagle". Finally, there are still others who show little or no concern for the fate of lake sturgeon. One fisherman summed up this attitude by stating, "There are no more dinosaurs! Similarly, sturgeon could disappear and we would all still be here".

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

This study collected historical and local/traditional knowledge on lake sturgeon in the upper Nelson River from long-time residents of Pikwitonei, Wabowden, and Thicket Portage. The study was undertaken because of a growing concern by northern residents for decreasing numbers of sturgeon in the Nelson River. It is hoped that the information presented can be used to foster interest in lake sturgeon conservation and encourage compliance with Nelson River Sturgeon Co-management Board management strategies.

The historical review of the fishery demonstrated that lake sturgeon were an important commercial resource for aboriginal communities on the upper Nelson River as far back as the early 1800s. Isinglass purchases by the Hudson's Bay Company suggest that harvests from the north end of Lake Winnipeg and upper Nelson River may have been as high as 40,000 kg dressed weight annually between 1832 and 1891. A commercial fishery was established on the upper Nelson River during the early 1900s, but transportation difficulties hindered its development. The fishery was closed for the first time in 1911 because of concern over the depleted Lake Winnipeg stock.

Completion of the Hudson Bay Railway to Kettle Rapids in 1917 facilitated movement of freight south and prompted re-opening of the fishery. This time the lake sturgeon stock was heavily exploited as over 800,000 lbs were harvested in just nine years. This exceeded the total commercial catch from the area for the next 65 years! Many of the operators at the time were of Icelandic and Norwegian decent who hired local aboriginal people as helpers. Some of the older key informants interviewed, and the fathers of others, were taught how to fish for sturgeon by these early pioneers. Ice houses and processing plants were built in conjunction with this "boom period" in the fishery. By 1927, harvests had decreased sharply, and it became clear that the upper

Nelson River sturgeon fishery was on the verge of collapsing. The sturgeon fishery throughout Manitoba was closed in 1934.

The Nelson River sturgeon fishery was opened on two occasions during the next 26 years (1937-1946 and 1953-1960), but never achieved the harvests of the 1920s. In each case, the fishery was closed due to decreasing harvests. By the 1960s, it was clear that the fishery had been so depleted in the past that it would require much more than a ten year period to recover. However, pressure from fishermen finally coerced the responsible authorities into reopening the fishery in 1970 with a much reduced quota. The fishery operated for 22 years until increased domestic harvests prompted a buy out of the fishermen and closure of the commercial fishery in 1992.

The historical information presented here indicates that the upper Nelson River sturgeon stock was in trouble as early as 1927 and never recovered to the levels that existed before that time. During each subsequent opening of the fishery it became more apparent that the stock was not recovering. Quotas were progressively decreased, but were primarily viewed as production targets rather than as conservation measures. This was clearly evident in 1925 and 1958 when quotas were increased after a number of years of good harvests. The result was the same in both cases - an abrupt decrease in harvest and closure of the fishery within three to five years.

Domestic fishing for sturgeon continued throughout the openings and closings of the commercial fishery. The information collected here suggests that, historically, domestic harvests in the three study communities were relatively low as the focus was on the commercial fishery. Lack of freezer facilities and difficult access to the Nelson River precluded large domestic harvests.

During the early 1990s, conservation officers reported a drastic increase in domestic fishing effort. The increase was generally a result of two factors. Firstly, the development of larger, more manageable, outboard engines during the past two decades,

and construction of the Sipiwesk Landing Road, greatly improved access to the Nelson River. This made it much easier for residents of more distant communities, such as Norway House and Cross Lake, to access the Sipiwesk Lake to Kelsey reach of the river. Secondly, the R. vs. Sparrow Supreme Court of Canada decision clarified aboriginal harvesting rights and made it much more difficult for regulatory authorities to control the domestic harvest. The NRSCB is currently attempting to manage the domestic harvest which has continued to 1996.

The three study communities originated as stops along the newly constructed Hudson Bay Railway in the early 1900s. Many of the current residents are descendants of European fathers, who came north for work during development of the railway, and aboriginal mothers from the Split Lake and Cross Lake First Nations. Since hunting and fishing in most families was historically the domain of males, the resource harvesting practices and experiences passed on to a large proportion of the males in the study communities were based on only one or two generations of experience. Thus, knowledge of sturgeon within the communities was generally based on first hand observations or on observations of parents. This is in contrast to many northern aboriginal communities, where local knowledge of resources is often based on multi-generational gathering of information. Despite the relatively short time span within which the community knowledge base has been generated, the oral information gathered still provides useful insights into: historical and current distribution and spawning areas; behavioural and morphological characteristics; cultural uses and importance of sturgeon in traditional lifestyles; and changes to the Nelson River and the fishery since hydroelectric development. The oral information also clarified and bound together much of the historical information gathered from literature and government files.

5.2 CONCLUSION

The domestic and commercial lake sturgeon fisheries on the upper Nelson River predate the existence of the three study communities. However, both fisheries have played an important role in the communities since their formation, and residents continue to utilize the resource despite closure of the commercial fishery. The local/traditional knowledge of the fishery has been developed over a relatively short time span compared to some other northern aboriginal communities. Nevertheless, key informants held a wealth of undocumented knowledge of the fishery and its importance to the communities. This information was useful in tying together written, historical information and in providing insights into the decline of the fishery, and should be valuable in promoting the importance of the upper Nelson River lake sturgeon stock to future generations.

The decline of the upper Nelson River lake sturgeon population is a long-term lesson that should not be disregarded by resource managers. For seventy years authorities have been aware that the Nelson River sturgeon population is not an unlimited resource. How much further can this resource be impacted by habitat alterations and exploitation before the population is extirpated? This is the dilemma faced by the NRSCB who are striving to ensure the sustainability of the resource for future generations.

5.3 RECOMMENDATIONS

- 1) **Local/traditional knowledge of Nelson River lake sturgeon should be collected from the remaining Nelson River Sturgeon Co-management Board communities of Norway House, Cross Lake, and Split Lake as soon as possible to ensure that it is not irretrievably lost through the death of elders.**
- 2) **Public education programs on the status of lake sturgeon in the upper Nelson River and history of the fishery in the communities should be expanded. Promotion of lake sturgeon conservation should focus on the unique life history characteristics of the species and the fact that the declining trend of the stock does not appear to have been reversed. The long time span required before results of a conservation program will be realized should be emphasized.**
- 3) **Historical reviews of fisheries should include local/traditional knowledge whenever practicable to assist in collating and verifying written information.**

REFERENCES

- AMERICAN FISHERIES SOCIETY. 1993. Fishing lines. Vol. 7, No. 1.
- ANDERSON, E.R. 1984. Artificial propagation of lake sturgeon (*Acipenser fulvescens* Rafinesque), under hatchery conditions in Michigan. Mich. Dept. Nat. Res. Fish. Res. Rep. 1898: 32 p.
- ANDERSON, E.R. 1986. Sturgeon: king of freshwater fish. Minn. Volun. 49(288): 58-62.
- ANDERSON, J. 1956. The vanishing sturgeon. Ohio Cons. Bull. 20: 13,32
- BAJKOV, A.D. 1933. Report on fisheries investigations, sturgeon - Pigeon River. Man. Dept. Mines Nat. Res. MS Rep. 15 p.
- BAJKOV, A.D. and F. NEAVE. 1930. The sturgeon and sturgeon industry of Lake Winnipeg. Canadian Fisheries Manual. p. 43-47.
- BAKER, J.P. 1981. Yield per Recruitment of Inland Stocks of Lake Sturgeon (*Acipenser fulvescens*) in Michigan. Mich. Academ. 14: 415-425.
- BANURI, T. and F. APFELL-MARGLIN. 1993. A systems-of-knowledge analysis of deforestation, participation and management. In: T. Banuri and F.A. Marglin eds., Who Will Save the Forests? Knowledge Power and Environmental Destruction. The United Nations University.
- BARDACH, J.E., J.H. RYTHER and W.O. McCLARNEY. 1972. Culture of sturgeon. p. 520-528. In: Aquaculture, the farming and husbandry of freshwater and marine organisms. John Wiley and Sons Inc., New York, NY.
- BERKES, F. 1983. Quantifying the harvest of native subsistence fisheries. In: Wein, R.W., R.R. Riewe, and L.R. Methven, eds. Resources and dynamics of the boreal zone. Ottawa: Association of Canadian Universities for Northern Studies. 346-363.
- BERKES, F. 1990. Native subsistence fisheries: a synthesis of harvest studies in Canada. Arctic. Vol. 43(1): 35-42.
- BERKES, F. 1993. Traditional ecological knowledge in perspective. In: Concepts and Cases. Ed. J.T. Inglis, International Program on Traditional Knowledge and International Development Research Centre.

- BERKES, F. 1994. Co-management: bridging the two solitudes. *Northern Perspectives*. Summer/Fall 22(2-3): 18-20.
- BERKES, F., P. GEORGE, R. PRESTON, and J. TURNER. 1993. The Cree view of land and resources: indigenous ecological knowledge. McMaster University, Hamilton, Ont. TASSO Report, Second Series, No. 8. 68 pp.
- BEYETTE, 1992. Winnipeg River sturgeon. 1983-1992. Man. Dept. Nat. Res. Fish. Br.
- BICKLE, I. 1995. Turmoil and triumph: the controversial railway to Hudson Bay. Detselig Enterprises Ltd. Calgary, AB, Canada. 224 p.
- BIELAWSKI, E. 1992. Inuit indigenous knowledge and science in the Arctic. *Northern Perspectives*. Summer 1992, Vol. 20(1): 5-8.
- BISHOP, F.G. 1990. The 1989 harvest of lake sturgeon. Alberta Energy Nat. Res., Fish Wildl. Div. MS Rep. 18 p.
- BROUSSEAU, C.S. 1987. The lake sturgeon (*Acipenser fulvescens*) in Ontario. p. 2-9. In: C.H. Olver [ed.] Proceedings of a workshop on the lake sturgeon (*Acipenser fulvescens*). Ont. Fish. Tech. Rep. Ser. No. 23. 99 p.
- BROUSSEAU, C.S. and G.A. GOODCHILD. 1989. Fisheries and yields in the Moose River Basin, Ontario, Canada. p. 145-158. In: D.P. Douglas (ed.) International Large River Symposium (LARS), Honey Harbour, Ontario, Sept. 14-21, 1986. Can Spec. Publ. Fish. Aquat. Sci. 106.
- CAMPBELL, R.R. 1990. Rare and endangered fishes and marine mammals of Canada: COSEWIC fish and marine mammal subcommittee status reports: VI. *Can. Field Nat.* 104(1): 1-6.
- CHOU DHURY, A. and T.A. DICK. 1991. Parasites of lake sturgeon, *Acipenser fulvescens* (Chondrostei: Acipenseridae), with special reference to the coelenterate parasite, *Polypodium hydriforme*, in Acipenseriform fishes: an annotated bibliography. *Can. Tech. Rep. Fish. Aquat. Sci.* 1772: iv + 15p.
- CZESKLEBA, D.G., S. AVELALLEMANT and T.F. THUEMLER. 1985. Artificial spawning and rearing of lake sturgeon, *Acipenser fulvescens*, in Wild Rose State Fish Hatchery, Wisconsin, 1982-1983. p. 79-85. In: North American Sturgeons: Biology and Aquaculture Potential, *Envir. Biol. Fish.* 14 (1).

- DEACON, J.E., G. KOBETICH, J.D. WILLIAMS, AND S. CONTRERAS. 1979. Fishes of North America; endangered, threatened or of special concern. *Fisheries (Bethesda)* 4: 29-45.
- DOMINION OF CANADA. 1873. *Canadian Sessional Papers. Department of Marine and Fisheries. Annual Report. Fisheries Report. Appendix T. Report on the Fisheries of Manitoba.* p. 193-195.
- DOMINION OF CANADA. 1918. *Canadian Sessional Papers. Department of Naval Services. Annual Report. Appendix 6. Manitoba. Report on the Fisheries of District No. 1.* p. 200.
- DOMINION OF CANADA. 1925. *Canadian Sessional Papers. Fifty-eighth Annual Report of the Fisheries Branch, Department of Marine and Fisheries. For the Year 1924-25.* p. 45.
- DOMINION OF CANADA. 1926. *Canadian Sessional Papers. Fifty-ninth Annual Report of the Fisheries Branch, Department of Marine and Fisheries. For the Year 1925-26.* p. 42.
- DOMINION OF CANADA. 1927. *Canadian Sessional Papers. Sixtieth Annual Report of the Fisheries Branch, Department of Marine and Fisheries. For the Year 1926-27.* p. 47.
- DOMINION OF CANADA. 1928. *Canadian Sessional Papers. Sixty-first Annual Report of the Fisheries Branch, Department of Marine and Fisheries. For the Year 1927-28.* p. 60.
- DOMINION OF CANADA. 1930. *Canadian Sessional Papers. Sixty-third Annual Report of the Fisheries Branch, Department of Marine and Fisheries. For the Year 1929-30.* p. 42.
- DOROSHOV, S.I. 1985. Biology and culture of sturgeon *Acipenseriformes*. p. 251-274. In: J.F. Muir and R.J. Roberts (ed.) *Recent Advances in Aquaculture*. Croom Helm, London, West View Press, Boulder, Colorado.
- EVERMANN, B.W. and H.B. LATIMER. 1911. The fishes of the Lake of the Woods and connecting waters. *Proc. U.S. Natl. Mus.* 39: 121-136.
- FREEMAN, M.M.R. 1992a. The nature and utility of traditional ecological knowledge. *Northern Perspectives*. Summer 1992. Vol. 20(1):9-12.

- FREEMAN, M.M.R. 1992b. Graphs and gaffs: a cautionary tale in the common-property resources debate. p. 92-109, in: F. Berkes ed., *Common Property Resources. Ecology and Community Based Sustainable Development*. Belhaven Press. London. 1992. 302 p.
- GADGIL, M, F. BERKES, and C. FOLKE. 1993. Indigenous knowledge for biodiversity conservation. *Ambio* 22(2-3): 151-156.
- GRAHAM, K. 1981. Status of the white sturgeon in the Kootenai River, Montana. Dept. Fish. Wildl. Rep., Kalispell, Montana.
- HARKNESS, W.J.K. 1980. Report on the sturgeon situation in Manitoba. Man. Dept. Nat. Res. MS Rep. No. 80-3. 18 p.
- HARKNESS, W.J.K. and J.R. DYMOND. 1961. The lake sturgeon: the history of its fishery and problems of conservation. Ont. Dept. Lands Forests, Fish Wildl. Br. 121 p.
- HAUGEN, G.N. 1969. Life history, habitat and distribution of the lake sturgeon (*Acipenser fulvescens*) in the South Saskatchewan River, Alberta. Fish Wildl. Div., Dept. Lands Forests. 27 p.
- HOBSON, G. 1992. Traditional knowledge is science. *Northern Perspectives*. Summer 1992, Vol. 20(1): 2.
- HOLZKAM, T., V.P. LYTWYN, and L.G. WAISBERG. 1988. Rainy river sturgeon: an Ojibway resource in the fur trade economy. *The Canadian Geographer*. Vol. 32, No. 3: 194-205.
- HOLZKAM, T. and M. McCARTHY. 1988. Potential fishery for lake sturgeon (*Acipenser fulvescens*) as indicated by the returns of the Hudson's Bay Company Lac la Pluie District. *Can. J. Fish. Aquat. Sci.*, Vol. 4: 921-923.
- HORNE, B. and R.F. BAKER. 1993. A fisheries survey of the Limestone Forebay. 1992. Year IV. A report prepared for Manitoba Hydro by North/South Consultants Inc. 50 p.
- HOUSTON, J.J. 1987. Status of the lake sturgeon, *Acipenser fulvescens*, in Canada. *Can. Field Nat.* 10(2): 171-185.
- HOWARD, A. and F. WIDDOWSON. 1996. Traditional knowledge threatens environmental assessment. *Policy Options*, November, 1996: 34-36.

- JOHNSON, J.E. 1987. Protected fishes of the United States and Canada. American Fisheries Society. 42 p.
- JOHNSON, M. 1992. Research on traditional environmental knowledge: its development and its role. In: Lore. Capturing Traditional Environmental Knowledge. Johnson, M. ed. Dene Cultural Institute and International Development Research Centre.
- KEMPINGER, J.J. 1988. Spawning and early life history of lake sturgeon in the Lake Winnebago system, Wisconsin. Am. Fish. Soc. Symp. 5: 110-112.
- KOOYMAN, B. 1955. An analysis of data collected in 1953 and 1954 from the sturgeon fisheries on the Nelson and Churchill Rivers. Man. Dept. Nat. Res., Fish Br., MS Rep. 8 p.
- LORD, J. 1984. The kids ate caviar. The story of Manitoba's mighty sturgeon....then and now. Nature Canada. 13: 19-22.
- MacDONELL, D.S. 1993. Lower Nelson River tributary studies: Weir, Roblin, and Kaskwasotasin rivers and Broten Creek. A report prepared for Manitoba Hydro by North/South Consultants Inc. 123 p.
- MacDONELL, D.S. 1994. Lower Nelson River lake sturgeon spawning study - Weir River - 1994. A report prepared for Manitoba Hydro by North/South Consultants Inc. 32 p.
- MAGNIN, E. 1966. Croissance de l'esturgeon *Acipenser fulvescens* Raf. vivant dans le bassin hydrographique de la riviere Nottaway, tributaire de la baie James. Trav. Peche. Que. 11: 193-204.
- MANITOBA DEPARTMENT OF NATURAL RESOURCES. 1991. Manitoba fisheries strategy. Man. Fish. Br. 29 p.
- MANITOBA DEPARTMENT OF NATURAL RESOURCES. 1992. Nelson River sturgeon management plan. 2nd Draft. 7 p.
- MANITOBA DEPARTMENT OF NATURAL RESOURCES. 1994. Sturgeon management discussion paper. Man. Fish. Br. 25 p.
- MOSINDY, T. 1987. The lake sturgeon (*Acipenser fulvescens*) fishery of Lake of the Woods, Ontario. In: Proceedings of a workshop on the lake sturgeon (*Acipenser fulvescens*). Ont. Fish. Tech. Rep. Ser. 23: 48-56.

- PARKS, N.B. 1978. The Pacific northwest commercial fishery for sturgeon. *Marit. Fish. Rev.* 40: 17-20.
- PATALAS, J.W. 1988. The effects of commercial fishing on lake sturgeon (*Acipenser fulvescens*) populations in the Sipiwesk Lake area of the Nelson River, Manitoba, 1987-1988. *Man. Dept. Nat. Res., Fish. Br., MS Rep. No. 88-14*: 38 p.
- PRIEGEL, G.R. and T.L. WIRTH. 1971. The lake sturgeon: its life history, ecology and management. *Wisc. Dept. Nat. Res. Pub. 240-70*: 19 p.
- PRIEGEL, G.R. and T.L. WIRTH. 1975. Lake sturgeon harvest, growth, and recruitment in Lake Winnebago, Wisconsin. *Wisc. Dept. Nat. Res., Tech. Bull. No. 83*: 25 p.
- ROMER, A.S. and T.S. PARSONS. 1977. The vertebrate body. W.B. Saunders Co. Philadelphia. 624 pp.
- SCOTT, W.B. and E.J. CROSSMAN. 1979. Freshwater fishes of Canada. *Fish. Res. Bd. Can. Bull.* 184.
- SHIVLEY, J.D. and N. KMIECIK. 1989. Inland fisheries enhancement activities within the ceded territory of Wisconsin during 1988. Great Lakes Indian, Fish and Wildlife Commission. Odanah, WI. *Admin. Rep. 89-1*: 16 p.
- SKAPTASON. 1926. The fish resources of Manitoba. Industrial Development Board of Manitoba. Winnipeg. 43 p.
- SOPUCK, R.D. 1981. The sturgeon in northern Manitoba. *Man. Dept. Nat. Res., Conservation Comment*, July, 1981. Winnipeg, Manitoba. 6 p.
- SOPUCK, R.D. 1987. A study of the lake sturgeon (*Acipenser fulvescens*) in the Sipiwesk Lake area of the Nelson River, Manitoba, 1976-1978. *Man. Dept. Nat. Res., MS. Rep. No. 87-02*: 59 p.
- SUNDE, L.A. 1959. The sturgeon fishery in Manitoba with recommendations for management (Analysis of Nelson River data 1953-1956). *Man. Dept. Nat. Res., Fish. Br., MS Rep.* 23 p.
- SUNDE, L.A. 1961. Growth and reproduction of the lake sturgeon (*Acipenser fulvescens* Rafinesque) of the Nelson River in Manitoba. *M.Sc. Thesis., U.B.C.* 93p.

- SWANSON, G., K.R. KANSAS, R.A. REMNANT. 1988. A report on the fisheries resources of the Lower Nelson River and the impacts of hydroelectric development, 1987 data. Man. Dept. Nat. Res., Fish. Br., MS Rep. 88-13: 295 p.
- THUEMLER, T.F. 1985. The lake sturgeon, *Acipenser fulvescens*, in the Menominee River, Wisconsin-Michigan. In: North American Sturgeons: Biology and Aquaculture Potential; 1985. *Envir. Biol. Fish.* 14(1): 73-78 p.
- THUEMLER, T.F. 1988. Movements of young lake sturgeons stocked in the Menominee River, Wisconsin. *Am. Fish. Soc. Symp.* 5: 104-109.
- TOUGH, F. 1987. Native people and the regional economy of northern Manitoba: 1870-1930s. Ph.D Thesis. York University.
- USHER, P.J. 1987. Indigenous management systems and the conservation of wildlife in the Canadian north. *Alternatives* 14(1): 3-9.
- USHER, P.J. and G. WENZEL. 1987. Native harvest surveys and statistics: a critique of their construction and use. *Arctic* 40: 145-160.
- VOTINOV, N.P. and V.P. KAS'YANOV. 1978. The ecology and reproductive efficiency of the siberian sturgeon, *Acipenser baeri*, in the Ob as affected by hydraulic engineering works. *J. Ichthyol.* 18: 20-28.
- WALDRAM, J.B. 1986. Traditional knowledge systems: the recognition of indigenous history and science. *Saskatchewan Indian Federated College Journal* 2(2): 115-124.
- WALLACE, R.G. 1991. Species recovery plan for lake sturgeon in the Lower Saskatchewan River (Cumberland Lake area). *Sask. Parks Renew. Res. Fish. Br., Fish. Tech. Rep.* 91-3: 51 p.
- WAVEY, R. 1993. International workshop on indigenous knowledge and community-based resource management: Keynote Address. In: J.T. Inglis ed., *Concepts and Cases, International Program on Traditional Ecological Knowledge*. IDRC, Ottawa.
- WEBSTERS NINTH NEW COLLEGIATE DICTIONARY. 1987. Thomas Allen and Son Limited. Markham, Ontario. 1563 p.

APPENDICES

Appendix 1. Letter of consent presented to each of the informants prior to being interviewed.

**UPPER NELSON RIVER
LAKE STURGEON TRADITIONAL KNOWLEDGE STUDY**

The purpose of this study is to document traditional knowledge of lake sturgeon held by residents of Pikwitonei, Thicket Portage, and Wabowden. The information collected will be included in a report that will be used to foster interest in lake sturgeon in these communities, and ultimately to promote compliance with management strategies. The study is being conducted by a researcher from Natural Resources Institute, University of Manitoba, for the Nelson River Sturgeon Co-management Board.

The interview will consist of questions regarding your knowledge of Nelson River lake sturgeon and the history of the Nelson River lake sturgeon fishery. The interview will last as long as you have information to provide and are willing to answer questions. It is entirely up to you whether you wish to participate in this study and you may terminate the interview or withdraw from the study at any time. An honorarium will be provided for participating in the study.

The Nelson River Sturgeon Co-management Board considers your knowledge of Nelson River lake sturgeon to be very important. The information provided by you will increase knowledge of Nelson River lake sturgeon and help to conserve the stock for future generations.

Please feel free to ask any questions you may have about the study. The Study Advisor/Contact is as follows:

Dr. Fikret Berkes
Natural Resources Institute
University of Manitoba
430 Dysart Road
Winnipeg, Manitoba
204-474-8373

Before we begin, you are asked to sign your name below to indicate that you are willing to participate in the study.

CONSENT: I have had the study explained to me and agree to be interviewed. I understand that the interview is entirely voluntary, and that I can refuse to answer questions or stop the interview at any time.

Signature of participant

Thankyou.

Appendix 2. Interview guide used to facilitate discussion during interviews.

**UPPER NELSON RIVER LAKE STURGEON
TRADITIONAL KNOWLEDGE INTERVIEW GUIDE**

Date of interview:

Name:

Interview #:

Date of Birth:

Place of Birth:

1. BACKGROUND

- When did you start to fish for sturgeon? Where did you live at the time? Who did you fish with? Where did you fish?
- Did you fish commercially and for subsistence?
- How did you fish for sturgeon? What type of a boat did you use? Where did you get your boat and nets?
- Locate camps on the map where sturgeon fishing was based.
- What type of shelter did you stay in?
- What route did you take to get to the sturgeon fishing areas?
- How often did you fish in each location?
- Did you ever travel elsewhere to fish for sturgeon?
- How long did you stay out sturgeon fishing?
- Where did you catch the most sturgeon and at what time of the year?
- When did the best fishing occur?
- How many sturgeon were caught?
- How big were the sturgeon?
- Did you ever catch small sturgeon?
- What did you do with the catch?
- How did you cook or eat the sturgeon? What parts? Were any discarded?

Commercial Fishery

- Who bought the commercial fish?
- How often did they pick up fish?
- How did you keep the fish until they were picked up?
- With what did they pick up the catch?
- Did you collect and sell isinglass? eggs?
- Were any commercial fish discarded?
- Do you remember what you got paid?
- Were any sturgeon sold, traded or given to members in the community?

Appendix 2. (cont.)

- Did fishermen socialize when they were fishing or did they stay to themselves?
- What other activities went on while fishing for sturgeon?

2. MANAGEMENT

- Was access to fishing locations restricted in any way?
- Were there any rules for sturgeon fishing? e.g. Were there restrictions on: How many fish one could take? What size or type of fish one could harvest? What type of gear could be used? What time of year fishing could occur?
- Were there any rules just between fishermen?
- Were there any rules of thumb for when to or when not to catch sturgeon?
- How many fishermen fished in the places where you fished?
- Were there any conflicts between fishermen?
- Were there any restrictions to access? How were they policed?
- How many sturgeon did you take each year? Others? How did one judge how many sturgeon to take? Did this change over time?
- Do you remember the catch fluctuating from year to year? How much?
- Have you ever captured a tagged sturgeon? What do you think of tagging fish?
- Did you ever catch other species while fishing for sturgeon?
- Is sturgeon management possible?

3. HISTORICAL

- Where did there used to be sturgeon in your life time where there are none now? Before your lifetime?
- Do you know of anyone who fished for sturgeon before you were born? Who were they? When, where, and how did they fish?
- Can you show respect or disrespect to sturgeon?
- Do you know of any rituals regarding sturgeon? Offerings?
- Do you know of any stories regarding sturgeon?
-

4. NATURAL HISTORY

- What do sturgeon eat?
- Where do the young sturgeon go?
- Do you ever catch mature sturgeon? Where? When?
- When do sturgeon spawn? Mark locations on map.

Appendix 2. (cont.)

- **Where do sturgeon spawn now? Have you ever seen them jumping? Where? When?**
- **Can you determine the sex of a sturgeon without cutting it open?**

5. CURRENT PRACTICES

- **Do you still fish? If not, when did you stop? Why?**
- **Who do you fish with now?**
- **What type of boat do you use?**
- **Where do you catch sturgeon now? How do you get there? Do you always fish in the same locations? How deep? How fast is the water? Where do you camp. How long do you stay out?**
- **Where do you camp? What do you stay in?**
- **How big are the fish?**
- **How many do you catch?**
- **When do you fish for them? When is fishing best?**

- **What do you do with the sturgeon you catch now? Who uses it? How often is it eaten? How is it cooked? What parts are eaten? Are any sturgeon discarded?**
- **What other activities do you do when you are fishing for sturgeon?**

- **Do you catch small sturgeon?**
- **Do you ever catch other species while fishing for sturgeon?**

- **How do you decide how many sturgeon to catch?**
- **How has hydroelectric development impacted sturgeon? Exploitation? Pollution? Commercial fishery closures?**
- **What will happen to sturgeon in the Nelson River?**
- **What should be done?**
- **Will you ever give up sturgeon fishing? Why? What will you do instead?**

Appendix 3. Profiles of individuals interviewed for the study.

ALBERT DICK

Interview conducted: July 6, 1995
Born: Pikwitonei, date unknown
Currently resides: Pikwitonei

Albert has worked all over Manitoba, but returned to Pikwitonei in 1980. Since then he has been running a trapline out of his log cabin at Dafoe Lake. Since 1993, Albert has worked as a field technician with Harry York for the NRSCB.

ZACH FLETT

Interview conducted: July 6, 1995
Born: Split Lake, 1926
Currently resides: Pikwitonei

Zach is a 69 year old member of the Split Lake Indian Band who has lived in Pikwitonei for 35 years. He moved to Pikwitonei so he could run his trapline at Cauchon Lake, where he currently has a five year old cabin. He always fished when he was out trapping, but never went out on the river specifically for sturgeon.

ARTHUR BRIGHTNOSE

Interview conducted: July 6, 1995
Born: Split Lake, around 1912
Currently resides: Pikwitonei

Arthur, who says he is 82 years old grew up on the Nelson River. He lived and cut wood in The Pas for three years from about 1928 to 1930. He then trapped near Blackwater upstream of the steel bridge on the Odei River before getting married sometime in the late 1930s. He worked 21 years on the railway (1941-1962) and then moved to Quinn Construction in 1962. He fought forest fires, worked at Kelsey, was a boat man to Gillam Island, worked for Comstock building powerlines, worked at the sawmill, and retired as a trapper. He claims he is too old to go out on the river alone now, but he still goes with friends when he can.

FRED CORDELL

Interview conducted: July 7, 1995
 Born: 1925
 Currently resides: Pikwitonei

Fred worked on the Nelson River from 1957 to 1959 shipping freight from Arnot to 12 miles up river. He hauled the cargo with a 35 hp motor and boat with a cabin which went about eight miles per hour.

RUSTY CORDELL

Interview conducted: July 7, 1995
 Born: unknown
 Currently resides: Pikwitonei

Rusty's mother was from Split Lake and his father was from England. He has lived in Pikwitonei and trapped all his life. He fished commercially for scale fish in 1971-72, but only fished for sturgeon for subsistence. Rusty traps at Mile 226 on the CNR line near Armstrong.

PERCY LAUBMAN

Interview conducted: July 7, 1995
 Born: Manitou Rapids, Nelson River, 1928
 Currently resides: Pikwitonei

Percy's father was from the United States and his mother was a Split Lake Band member from York Factory. Percy fished commercially for sturgeon on the Nelson River from 1942 to 1946. Percy continued to fish sturgeon for subsistence until a couple of years ago when he quit because of asthma.

GEORGE BRIGHTNOSE

Interview conducted: July 8, 1995
 Born: Pikwitonei in 1926
 Currently resides: Pikwitonei

George is Arthur's brother. Their father was accidentally killed when George was young and he was subsequently raised by Fred Evans. George fished sturgeon commercially in the 1940s and 1950s.

ROBERT PRONTEAU SR.

Interview conducted: July 8, 1995

Born: Camperville, Manitoba on March 22, 1934

Currently resides: Thicket Portage

Robert moved to Thicket Portage in 1946 with his parents. He fished with his dad in the commercial fishery in 1952-53 and then again with Johnny Crait during the late 1980s and early 1990s. Robert fished for sturgeon only as a commercial venture, rarely for food. He doesn't fish for sturgeon any more.

HILDING LARSON

Interview conducted: July 8, 1995

Born: Thicket Portage in early 1950s

Currently resides: Thicket Portage

Hilding's dad moved to Canada from Sweden in 1928 and moved to Thicket Portage in 1931. His mother was from Saskatchewan. His parents primarily trapped and fished. Hilding started fishing with his dad in 1957 or 1958 and continued with him in the 1970s. Hilding took over his dad's license in 1980 and continued to fish for sturgeon until the commercial fishery closed. He says he will continue to fish sturgeon for subsistence use as long as he can.

ALBERT DORIAN

Interview conducted: July 9, 1995

Born: Thicket Portage in 1938

Currently resides: Thicket Portage

Albert's dad arrived in Thicket Portage in 1930 and fished commercially for sturgeon until 1958. Albert fished with his dad throughout this time but has fished little since 1958. He fished sturgeon in 1994 and 1995 for subsistence.

PHILIP GUIBOCHE

Interview conducted: July 9, 1995

Born: Camperville in 1913

Currently resides: Thicket Portage

Philip moved to Thicket Portage in 1948. He fished commercially with his son Wilbert from 1954-1957, camping at Clearwater Falls.

LOUIS PRONTEAU

Interview conducted: July 9, 1995
 Born: Thicket Portage in 1950
 Currently resides: Thicket Portage

Louis' dad was Lawrence Pronteau. Both his mother and father came from Camperville to Thicket Portage in 1946. Louis went out with his dad during the commercial fishery in the 1950s but he was too young to fish at the time. He has fished sturgeon for subsistence from the 1960s to the present. He has travelled the Nelson often to go to Split Lake to visit his wife's relatives. He is not a treaty Indian but his wife is.

HARRY PRONTEAU

Interview conducted: July 9, 1995
 Born: Camperville, September 8, 1930
 Currently resides: Thicket Portage

Harry is the current mayor of Thicket Portage. Louis is his brother and Lawrence was his father. Harry is not a treaty Indian but his mother is. Before coming to Thicket Portage his mother and father fished out of Cormorant. In 1944 they moved to Pikwitonei to fish and then to Thicket Portage two years later. Harry participated in the commercial fishery with his dad in the 1950s, fished for subsistence in the 1960s and 1970s and then got his own commercial sturgeon license in the 1980s. He fished until the season was closed.

GORDON CLEMONS

Interview conducted: July 9, 1995
 Born: Port Nelson in 1931
 Currently resides: Thicket Portage

Gordon's father was from Selkirk and his mother was from Split Lake. His father was a fur trader and worked for the CNR. Gordon is a treaty Indian. He worked with the CNR at Mile 238 in 1947-48 and then moved to Thicket Portage in 1952. Gordon fished commercially with Ben Larson in the 1950s before leaving Thicket Portage for a time in 1959. Gordon's father-in-law was Cyril Mercredi, a sturgeon fisherman on the Nelson River from the 1930s to the 1950s.

JOHN MERCREDI

Interview conducted: July 9, 1995

Born: Thicket Portage, November 19, 1933

Currently resides: Thicket Portage

John is Cyril Mercredi's son and Gordon Clemons' brother-in-law. Cyril Mercredi was from Grand Rapids and his wife was from Cross Lake. John is a treaty Indian. He fished for sturgeon commercially with his dad during the 1940s and 1950s.

JOHN CRAIT

Interview conducted: July 10, 1995

Born: Thicket Portage, August 12, 1948

Currently resides: Thicket Portage

John is the son of Alfred Crait. His dad was from Norway House and his mother was from Cross Lake. He is a treaty Indian. He fished commercially with his dad in the 1950s and fished with Baptiste Crait his uncle in 1984. He got his own license in 1985. John participated in the commercial sturgeon fishery until it was closed. John worked for the NRSCB as a field technician from 1992-95.

ALEX BRIGHTNOSE (WASTESICOOT)

Interview conducted: July 10, 1995

Born: Cross Portage, July 12, 1924

Currently resides: Thicket Portage

Alex's dad was from York Factory and his mother was from Norway House. He is a treaty Indian. His dad died when he was young and he was raised by man named Fred Evans. He fished sturgeon commercially for Barney Baldwinson in the 1940s and for himself in the 1950s.

WALTER SKULMOSKI

Interview conducted: July 11, 1995

Born: Cormorant, Manitoba in 1940

Currently resides: Wabowden

Walter's dad was from Poland and was a fish buyer in Cormorant. His mother was from Pine River. Walter came to Arnot to scale fish in 1968. He moved to Wabowden in 1969 and got a commercial sturgeon license in 1970. Walter participated in the commercial fishery until its closure.

CARL DRAM

Interview conducted: July 12, 1995
 Born: Cross Lake in 1930
 Currently resides: Wabowden

Carl's dad was from Yugoslavia and his mother was a metis from Cross Lake. Carl fished sturgeon in 1956 and 1957 from Whitemud Falls to Duck Lake. He started scale fishing on Kiskittogisu Lake in 1958 and fished it until 1991. He fished sturgeon experimentally in Kiskittogisu during the mid-1970s.

ALEX JONASSON

Interview conducted: July 12, 1995
 Born: Riverton in 1927
 Currently resides: Wabowden

Alex's mother was from Hecla Island and his father was from Selkirk. His dad was a commercial sturgeon fisherman on Lake Winnipeg. Alex went north to work in 1946 and moved north in 1947. He scale fished on the Nelson in 1948 and got a commercial license for sturgeon in 1970. Alex participated in the commercial sturgeon fishery until it was closed.

JOE COLOMBE

Interview conducted: July 12, 1995
 Born: Cross Lake in October, 1923
 Currently resides: Wabowden

Joe's dad was Henry Colombe. He is a treaty Indian. He first went out on the Nelson River when he was twenty years old around 1940. He fished for sturgeon with his dad in the Duck Lake and Landing River areas.

JOE MONIAS

Interview conducted: July 12, 1995
 Born: around Cross Lake on November 19, 1909
 Currently resides: Wabowden

Joe is a treaty Indian and moved to Wabowden full time in 1930. He participated in the commercial sturgeon fishery during the 1930s and 1940s. He also has some recollections of the 1920s. Joe quit fishing before the Kelsey Dam was built. He only remembers one seven year closure while he was fishing (probably 1947-1952).

ABEL HALL

Interview conducted: July 12, 1995

Born: Thicket Portage on October 30, 1929

Abel's parents were from Split Lake. He lived in Thicket Portage until he was about 16 years old and then moved to Wabowden where he married and settled down. He participated in the commercial sturgeon fishery in the 1940s and again for a brief time in the early 1980s. Unfortunately, Abel past away on March 9, 1996.

OLOF HARDY (nee BALDWINSON)

Interview conducted: August 17, 1996

Born: Thicket Portage in 1936

Currently resides: Selkirk, MB.

Olof is the daughter of Barney Baldwinson who was a sturgeon fisherman and fish buyer on the Nelson River during the 1940s and 1950s. Barney was born in Gladstone, Manitoba, in 1903 and came to Thicket Portage around 1932. Olof spent many of her summers camping with her father while he fished, and she also spent time packing sturgeon in the "ice house" in Thicket Portage.

LAFOY CLEMENS

Interview conducted: September 20, 1996

Born: Bird, Mile 352 Hudson Bay Railway in 1930s

Currently resides: Thompson, MB.

Lafoy lived in York Factory until moving to Pikwitonei when he was seven years old. He is the son of Luke Clemens who was a trader in the area. Their family lived on the Grass River and Lafoy would occasionally accompany his father on trading expeditions on the Nelson River in the early 1940s. In the 1950s he travelled on the Nelson River between Arnot and the Clearwater River.

Appendix 4. Isinglass (in pounds) purchased in the Norway House district by the Hudson's Bay Company, 1832-1892 (data compiled by V. Petch, Northern Lights Heritage Services).

Year	lbs	Year	lbs	Year	lbs
1832	144	1852	374	1872	404
1833	205	1853	376	1873	510
1834	319	1854	327	1874	582
1835	164	1855	308	1875	258
1836	148	1856	197	1876	401
1837	209	1857	395	1877	344
1838	339	1858	158	1878	559
1839	315	1859	391	1879	405
1840	315	1860	418	1880	314
1841	380.5	1861	365	1881	309
1842	468	1862	264	1882	225
1843	408	1863	369	1883	222
1844	403	1864	367	1884	268
1845	392	1865	162	1885	153
1846	222	1866	169	1886	203
1847	449	1867	267	1887	112
1848	466	1868	392	1888	246
1849	181	1869	346	1889	102
1850	289	1870	520	1890	220
1851	461	1871	?	1891	240

Total = 18519.5 lbs of isinglass over 60 years

Average = 314 lbs per year

Appendix 5. Fishermen possessing licenses for the commercial sturgeon fishery on the Nelson River, 1953-1960 (from MDNR files).

1953 Summer

Baptiste Dorian
 Gilbert Dorian
 Solomon Dorian
 John James Moose
 O.A. Olson
 B. Baldwinson
 George Ross
 Philip Evans
 Alfred Crait
 Joe Mercredi
 Baptiste Crait
 Duke Lindal
 John Kirkness
 Thomas Kirkness
 Bill Wavey
 Moody Nepatabow
 W. Christainson
 Amide Mercredi
 John Johnson
 Harold McLeod
 Ruben McKay
 Silas Scott
 Abraham Beardy
 Lawrence Halcrow
 John Frog
 Raymond Scott
 Ed McKay
 Ed Thomas
 Robert Ross
 Alex Lee Ross
 Joachim McKay
 Lawrence Pronteau
 Ben Larson

1954 Spring, Summer and Fall

Joshua Spence
 W. Christainson
 Duke Lindal

1954 (cont.)

Moody Nepatabow
 Thomas Kirkness
 John Kirkness
 Bill Wavey
 Andrew Beardy
 Philip Guiboche
 John James Moose
 B. Baldwinson
 George Ross
 Alfred Crait
 Joe Mercredi
 Baptiste Crait
 Wilbert Guiboche
 Ovide Mercredi
 John Johnson
 Ben Larson
 Lawrence Pronteau
 Tom Singleton
 Baptiste Dorian
 Gilbert Dorian
 Solomon Dorian
 Abraham Beardy
 John Frog
 Ray Scott
 Robert M. Ross
 John R. McKay
 Alex Leo Ross
 Joachim McKay
 H. Chastelaine
 Ed Thomas
 Adolph Scott
 Harold McLeod
 Philip Evans
 O.A. Olson
 Joe James Halcrow
 Edward Laliberte

1955 Summer

Ben Larson
 W. Christainson
 Charles Spence
 John Johnson
 O. A. Olson
 Duke Lindal
 John Kirkness
 Moody Mepataboo
 Thomas Kirkness
 Andrew Beardy
 Bill Wavey
 Arthur Flett
 Tom Singleton
 Alex Leo Ross
 H. Chastellaine
 John Frog
 Jonas McKay
 Jerimiah Ross
 Edward Thomas
 John J. Halcrow
 Raymond Scott
 Daniel Ross
 John R. McKay
 Herman McKay
 Abraham Beardy
 Sandy Beardy
 Joachim McKay
 B. Baldwinson
 Joe Mercredi
 Baptiste Crait
 George Ross
 Gilbert Dorian
 Lawrence Pronteau
 Alfred Crait
 Solomon Dorian
 Philip Guiboche
 John J. Moose
 Ovide Mercredi
 George Brightnose
 Albert Dorian
 Jonas Dorian
 Robert Pronteau

1955 (cont.)

Philip Brightnose
 Wilbert Guiboche
 Wilbert Guiboche
 Harold McLeod
 Dulphus Scott

1956 Summer

Ben Larson
 John Johnson
 Bill Wavey
 Andrew Beardy
 Robert Wavey
 Thomas Kirkness
 Edward Thomas
 Joachim McKay
 John R. McKay
 Charlie M. Ross
 Abraham Beardy
 Sandy Beardy
 Raymond Scott
 Jerimiach Ross
 Daniel Ross
 Dulphus Scott
 C.R. North
 Alex Leo Ross
 Oliver Sinclair
 Harold McLeod
 Horace Halcrow
 Carl Dram
 B. Baldwinson
 J. Mercredi
 Ovide Mercredi
 Baptiste Crait
 George Ross
 Gilbert Dorian
 Lawrence Pronteau
 Fred Bailey
 O. Freeman
 Solomon Dorian
 Philip Guiboche
 Tom Singleton

1956 (cont.)

John J. Moose
 Albert Dorian
 B. Dorian
 Harold Guiboche
 Alex Brightnose
 O.A. Olson
 Joe Pronteau
 Bill Nabess
 Walter Skulmoski
 Pat Constant
 Isaac Constant
 Clarence Hanson
 Gabriel Ducharme
 Dennis Fenner
 John Pronteau
 Zebres Genaille
 Victor Ducharme
 Simon Nabess

1957 Summer

W. Christainson
 G. Wuskey
 Sandy Kirkness
 John Kirkness
 Arthur Flett
 Moody Nepataboo
 Bill Wavey
 Robert Wavey
 Andrew Beardy
 Cyril Anderson
 Joachim McKay
 Victor McKay
 Abraham Beardy
 Thomas Scott
 Adolphus Scott
 Sandy Beardy
 Tom Singleton
 Olie Freeman
 Edward Thomas
 John R. McKay
 Charles M. Ross

1957 (cont.)

Raymond Scott
 Jeremiah Ross
 Daniel Ross
 C.R. North
 Alex Leo Ross
 Oliver Sinclair
 Harold McLeod
 Horace Halcrow
 Carl Dram
 Charles Osborne
 Silas Ross
 John W. Garrick
 Ben Larson
 John Johnson
 Harry Pronteau
 Robert Pronteau
 Joe Pronteau
 Lawrence Pronteau
 Alex Brightnose
 Thompson Scott
 O.A. Olson
 B. Baldwinson
 George Ross
 Alex Crait
 Baptiste Crait
 Fred Bailey
 Solomon Dorion
 Gilbert Dorion
 Baptiste Dorion
 Jonas Dorion
 Joe Mercredi
 Ovide Mercredi
 Philip Guiboche
 Harold Guiboche
 Mickey Bergthorson
 Dallios Ouskoa
 Philip Evans
 Alfred Crait

1958 Summer

Joe Beardy
 W. Christainson
 A. Flett
 O. A. Olson
 Wilbert Guiboche
 John Kirkness
 Sandy Kirkness
 Jud Wavey
 Bill Wavey
 Moody Nepataboo
 Dallias Ouskoa
 Duke Lindal
 Joseph Blacksmith
 Charlie Osborne
 Joachim McKay
 Victor McKay
 Harold McLeod
 Thompson Scott
 Adolphus Scott
 Edward Thomas
 Silas Ross
 C.R. North
 Alex Leo Ross
 Jeremiah Ross
 Henry Blacksmith
 Tom Singleton
 Baptiste Dorion
 Gilbert Dorion
 Jonas Dorion
 Albert Dorion
 Ovide Mercredi
 Olie Freeman
 Geroge Ross
 Alexander Brightnose
 John James Moose
 Barney Baldwinson
 Baptiste Crait
 Fred Bailey
 Joe Mercredi
 Lawrence Pronteau
 Ben Larson
 Philip Brightnose

1958 (cont.)

Mickey Bergthorson
 Stan Helgason
 Jack Bland
 John Attley
 Raymond Scott
 William Blacksmith
 Johnny Mercredi
 Alex Crait
 Tom Keiper
 Alex Ross

1959 Summer

Baptiste Crait
 Alfred Crait
 Ben Larson
 Tom Singleton
 O.J. Freeman
 Baptiste Dorion
 Gilbert Dorion
 Ovide Mercredi
 Cyril Mercredi
 George Ross
 Jack Bland
 Alfred Muskego
 Joshua Spence
 Albert Spence
 Joe Ouskan
 Joachim McKay
 Victor McKay
 Jonus McKay
 Edward Thomas
 Jeremiah Ross
 Tom Keeper
 Moody McKay
 Herbert Blacksmith
 Edward McKay
 Tobil Kirkness
 Solomon Dorion
 Mike Madonick
 Billy Wavey
 Steini Helgason

1959 (cont.)

Gilbert Chief
Andrew Beardy
Moody Nepataboo
Valli Brandson
Duke Lindal
Lawrence Pronteau
Arthur Brightnose
Lafoy Clemens
Marcel Mercredi
O.A. Olson
Joe McKay

1960 Summer-Fall

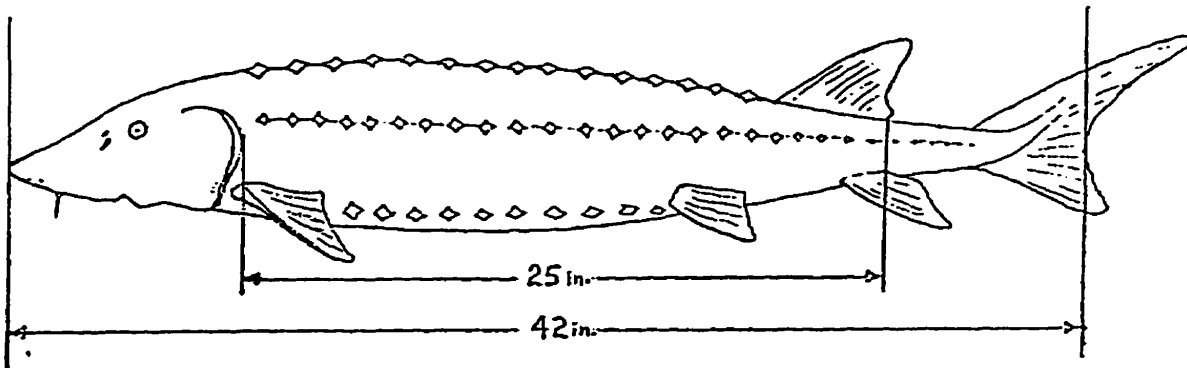
L.E. Lintick
W.S. Lawrenchuk
Bev Hall
Thomas Sandberg
R. Bland
L.W. Chornovy
Steve Helgason
Joe Cook
Baptiste Crait
Baptiste Dorion
Gilbert Dorion
Ovide Mercredi
George Ross
Joe Ouskan
George Wuskey
Jack Bland
Ben Larson
Lawrence Pronteau
Bill Wavey
Abraham Wavey
Philip Brightnose
Raymond Moneas
Andy McKay
John Angus Blacksmith
Joachim McKay
Hubert Blacksmith
Edward Thomas
Jeremiah Ross

1960 (cont.)

Alfred Settee Sr.
Harold McLeod
Victor McKay
Silas Ross
Daniel Ross
Edward McKay
Moody McKay
Jonas McKay
Judas Scott
William Blacksmith
Jerome North
Solomon Dorion
Cyril Mercredi
Alfred Crait
Lawrence Pronteau
Andrew Beardy
John George Beardy
Moody Nepataboo
Elias Nepataboo
Tobul Kirkness
John Kirkness
Henry Blacksmith

Appendix 6. Diagram distributed by MDNR Fisheries Branch to illustrate how to determine the minimum legal size of sturgeon, 1970-1991.

PART III, Section 44(a) of the Manitoba Fisheries Regulations states that "no person fishing under the authority of a Commercial Fishing Licence or a Commercial Operators Licence shall have in his possession, sell, trade or barter any sturgeon taken from water described in a notice referred to in Section 18 that are less than 42 inches when measured in a straight line from the tip of the snout to the fork of the caudal fin or, if in a headless dressed state, that are less than 25 inches in length when measured in a straight line from the insertion of the posterior ray of the dorsal fin forward toward but not including the posterior edge of the cleithrum."



Dorsal row 9-17

Lateral row 29-42

Ventral row 7-12

plates prominent, sharp, adjacent plates touching in very young, separate and more rounded or inconspicuous in larger individuals

Appendix 7. Commercial lake sturgeon harvest from the Nelson River, 1907-1995 (1907-1978 data from Sopuck 1987, 1979-1995 data compiled from MDNR files).

Year	Harvest (Kg)	Year	Harvest (Kg)	Year	Harvest (Kg)	Year	Harvest (Kg)
1907	3182	1930	-	1953	12273	1976	1930
1908	3636	1931	-	1954	14045	1977	3423
1909	11682	1932	-	1955	11091	1978	4465
1910	4091	1933	-	1956	12545	1979	3542
1911	Closed	1934	Closed	1957	11864	1980	5033
1912	Closed	1935	Closed	1958	7545	1981	4368
1913	Closed	1936	Closed	1959	4318	1982	3591
1914	Closed	1937	6818	1960	1577	1983	4543
1915	Closed	1938	13636	1961	Closed	1984	2996
1916	-	1939	11818	1962	Closed	1985	3856
1917	68182	1940	12000	1963	Closed	1986	2666
1918	30909	1941	11818	1964	Closed	1987	2728
1919	-	1942	7000	1965	Closed	1988	4509
1920	-	1943	4818	1966	Closed	1989	3976
1921	16636	1944	4182	1967	Closed	1990	2340
1922	28318	1945	6091	1968	Closed	1991	485
1923	56500	1946	2636	1969	Closed	1992	Closed
1924	66727	1947	Closed	1970	1129	1993	Closed
1925	44455	1948	Closed	1971	3312	1994	Closed
1926	34955	1949	Closed	1972	3799	1995	Closed
1927	21909	1950	Closed	1973	3080		
1928	227	1951	Closed	1974	1643		
1929	2000	1952	Closed	1975	1772		

Appendix 8. Nelson River commercial lake sturgeon harvest (in kilograms) by management area, 1970-1991 (compiled from MDNR files).

Year	Total Harvest	Area 1 Cross/Playgreen Lakes	Area 2 Whitemud Falls to Cross Portage	Area 3 Cross Portage to Kelsey G.S.	Area 4 Kelsey G.S. to Kettle G.S.	Area 5 Downstream of Kettle G.S.
1970	1129	190	829	-	110	-
1971	3312	118	2461	-	165	568
1972	3799	-	3684	-	-	115
1973	3080	-	1497	1193	390	-
1974	1643	-	578	845	220	-
1975	1772	-	242	1530	-	-
1976	1930	31	431	1468	-	-
1977	3423	11	1325	1140	947	-
1978	4465	275	1913	1493	784	-
1979	3542	700	656	1492	467	227
1980	5033	906	1651	1651	825	-
1981	4368	314	1998	1401	155	500
1982	3591	-	1720	1171	-	700
1983	4543	51	2271	2221	-	-
1984	2996	-	1605	1391	-	-
1985	3856	279	1888	1689	-	-
1986	2666	162	1572	932	-	-
1987	2728	211	1438	1079	-	-
1988	4509	992	2048	1469	-	-
1989	3976	688	1824	1464	-	-
1990	2340	439	1385	516	-	-
1991	485	-	485	-	-	-

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