SOCIO-ECONOMIC OVERVIEW of the EASTPORT PENINSULA, BONAVISTA BAY, NEWFOUNDLAND

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LIST OF ABBREVIATIONS

AOI	Area of Interest
BHF	Burnside Heritage Foundation
CCG	Canadian Coast guard
CCRI	Community-based Coastal Resource Inventory
CNOPB	Canada-Newfoundland Offshore Petroleum Board
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFA	Department of Fisheries and Aquaculture
DFO	Department of Fisheries and Oceans
DFRA	Department of Forest Resources and Argifoods
EPLPC	Eastport Peninsula Lobster Protection Committee
FBM	Foot Board Meter
HA	Harbour Authority
IM	Integrated Management
KEDC	Kittiwake Economic Development Corporation
MBC	Migratory Bird Convention
MEQ	Marine Environmental Quality
MPA	Marine Protected Area
MUN	Memorial University of Newfoundland
NAFO	Northwest Atlantic Fisheries Organization
REDB	Regional Economic Development Board
SCH	Small Craft Harbour
TAC	Total Allowable Catch
TCH	Trans Canada Highway
TNNP	Terra Nova National Park

1.0 INTRODUCTION

1.1 Purpose

In 1997, Canada adopted the Oceans Act making the Minister of Fisheries and Oceans (DFO) the lead federal authority on all oceans related issues. This act enables the development of a comprehensive Oceans Management Strategy, which is based on three main principles: sustainable development, integrated management, and the precautionary approach. This strategy is supported by three tools, which are Integrated Management (IM), Marine Environmental Quality (MEQ), and Marine Protected Areas (MPA).

As its title suggests, this paper is a socio-economic overview of the Eastport Peninsula area of Bonavista Bay. It has been compiled and developed to fulfil a requirement within the MPA proposal program. The objective of the MPA program is to conserve and protect areas and resources of special concern. Section 35 of the Oceans Act promotes the establishment of MPAs for the conservation and protection of marine resources, species and habitats; endangered or threatened species and habitats; and areas of high biodiversity or biological productivity. Stakeholders such as coastal communities, environmental organizations, or any other individual or group can approach DFO to propose that an area be considered under the MPA program. Following a preliminary review, DFO may identify the proposed site as an Area of Interest (AOI).

After a particular area is identified as an AOI, DFO has certain responsibilities to investigate its merit as an MPA in more detail. For a site to be designated as an MPA, it must undergo a critical evaluation process to ensure it meets the criteria of the Oceans Act, and the Department must demonstrate how the area will be managed as an MPA.

The Eastport Peninsula was officially identified as an AOI in October 2000. A year earlier, the Eastport Peninsula Lobster Protection Committee (EPLPC) had approached Fisheries and Oceans Canada on establishing an MPA in the Eastport area. The EPLPC feel that establishing an MPA would support their current efforts and aid in implementing further conservation initiatives. There is scientific evidence that suggests that protecting two areas of habitat has sustained and perhaps enhanced the local lobster fishery.

One step in the evaluation of this AOI is an assessment of the socio-economic characteristics of the Eastport Peninsula and its immediate surrounding area. A socio-economic overview such as this, is an important component in the development of MPAs in the Newfoundland region. It provides the

baseline information that will help recognize gaps and help identify future research. It is intended that this overview be updated periodically as new or more detailed information becomes available.

This socio-economic overview is written in compliance with the MPA program and Regional Framework for the establishment of MPAs. This overview can be used in conjunction with the report, *A Biophysical Overview of Eastport, Bonavista Bay* (LGL, 2001) and other reports of the Eastport region to assess its merits as an MPA candidate site.

1.2 Background of Eastport Peninsula AOI Development

(Source: *Eastport Peninsula MPA Proposal, 2000*)

The waters around the Eastport Peninsula in Bonavista Bay offer some of Newfoundland's finest lobster habitat and the local fishery involves approximately 50 harvesters from the seven area communities. In 1994, these fisherpersons recognized that a serious decline in their lobster stocks had occurred over the preceding decade, and that it had accelerated by increased fishing effort directed toward the local lobster resource as a result of groundfish closures. Traditionally, lobster harvesting was a secondary fishery in this area; fisherpersons harvested lobsters for only the first few weeks of the season before changing over to pursue groundfish. With the collapse of the local groundfish stocks due to overfishing, a moratorium on commercial cod fishing off the Northeast coast of Newfoundland was announced in 1992. Since the moratorium, lobstering has become a more important source of income for many individuals.

In 1995, the Eastport Peninsula Lobster Protection Committee, consisting of local lobster fisherpersons, was established as a sub-committee of the local Fisheries Food and Allied Workers Fisherman's Committee, to implement conservation management practices that would protect the lobster resource in their fishing area. The committee was fully supported by the vast majority of local fisherpersons and this support continues today. In 1995, the Committee held meetings to inform culpable individuals of the potentially negative consequences of using illegal pots, excessive effort, and the retention of egg-bearing or under-sized lobster. During the second year, 1996, the practice of v-notching egg-bearing females was initiated. In 1997, the Committee realized that more conservation measures were necessary, so they applied to the Department of Fisheries and Oceans to restrict lobster fishing in the Eastport area to traditional users and to protect two areas of lobster habitat from lobster harvesting (Round Island and Duck Islands – Figure 1.1). Recent landings in the vicinity of the Eastport Peninsula indicate that early lobster conservation measures (i.e. refraining from the use of illegal pots, excessive effort, and the retention of egg-bearing or undersized lobster) have been successful. In addition, lobster populations within the closed areas have been monitored since 1997 and stakeholders are pleased with the initial results.

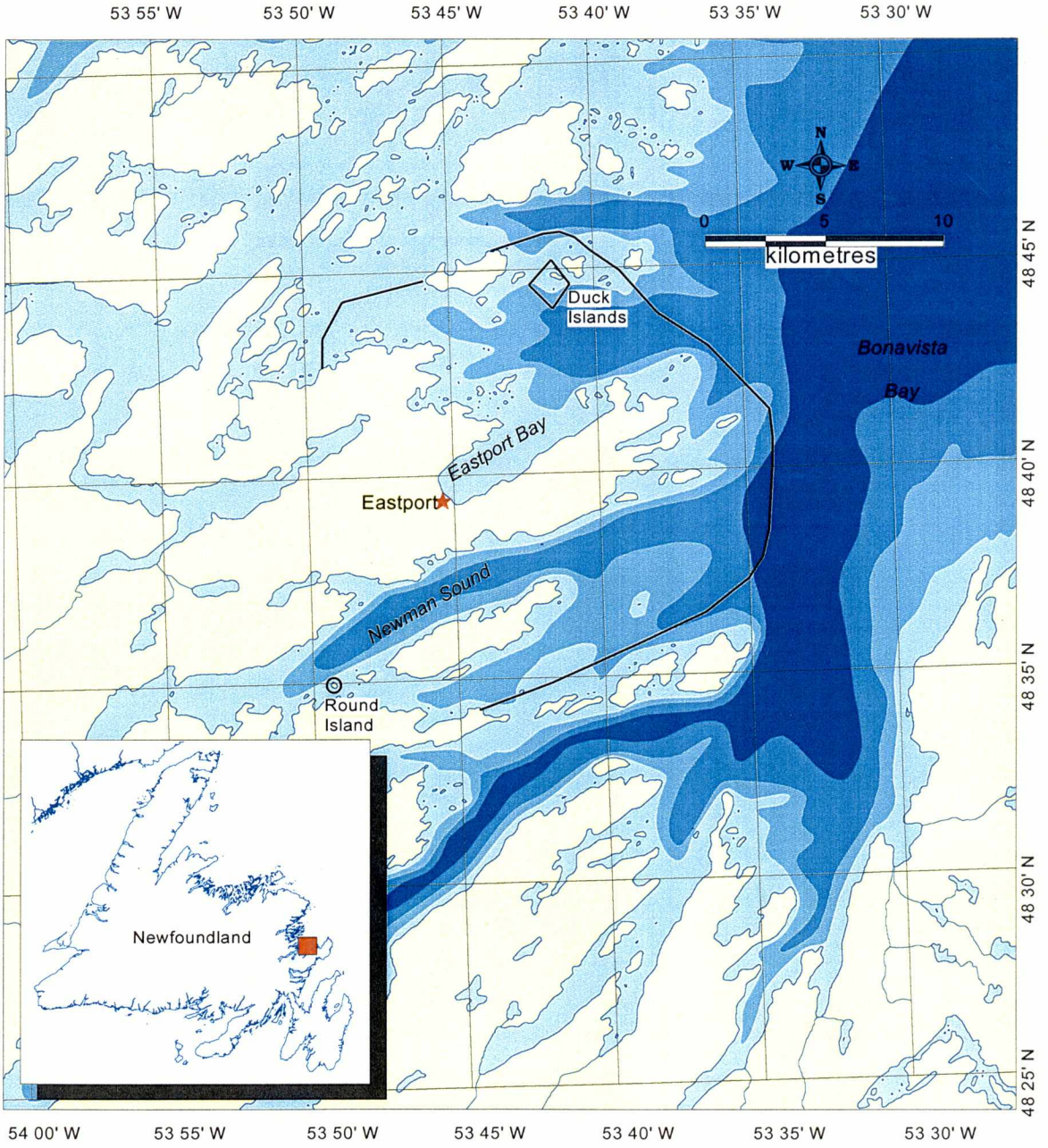

Figure 1.1 – Area of Interest – Round Island and Duck Islands

After the submittal and subsequent review of their proposal, the EPLPC have been successful in attaining AOI status for their area. They are presently following the steps and working with DFO through a series of consultations and meetings with a long-term view to eventually attain an MPA designation for the two closed areas.

1.3 Information Sources

This socio-economic report identifies historical, present and potential resources in and about the Eastport Peninsula. It discusses the various human resource uses, activities and developments and also provides a brief overview of management conflict issues. Discussion of the areas regional, historical and human use is based mainly on secondary research, utilizing a variety of sources from paper publications to online (internet) resources from a number of different entities. These include a number of Canadian federal and provincial government departments (and associated agencies), a regional economic development board, and relevant municipalities. Much of the information found on the supplied maps and figures has come from the Coastal Community Resource Inventory (CCRI) that has been prepared and is accessible through a DFO geographic information systems department.

Secondary research has been supplemented with interviews and personal communications with informed individuals within the various government departments, agencies, municipalities and other applicable bodies.

In an effort to derive a more focused view of the immediate study area, an artificial physical boundary has been developed. Outlined in red, this boundary can be viewed in Figure 1.2. Unless otherwise specified, this is the general boundary utilized when referring to the "Eastport Peninsula" throughout the remainder of this report. On occasion, for better emphasis and more concrete examples, other nearby bordering areas are drawn upon, including such areas as Terra Nova National Park, and the service community of Glovertown.

1.4 Report Structure

This report is broken down into a total of six sections. As per the above discussion, section one has provided a general introduction to the socio-economic overview and orients the reader with the happenings to date with regards to the MPA proposal. The following section, section two, outlines the 'Regional Context' of the Eastport Peninsula including such things as its geographic location, the included communities, highways, harbours, ferry routes and communications. Following this is

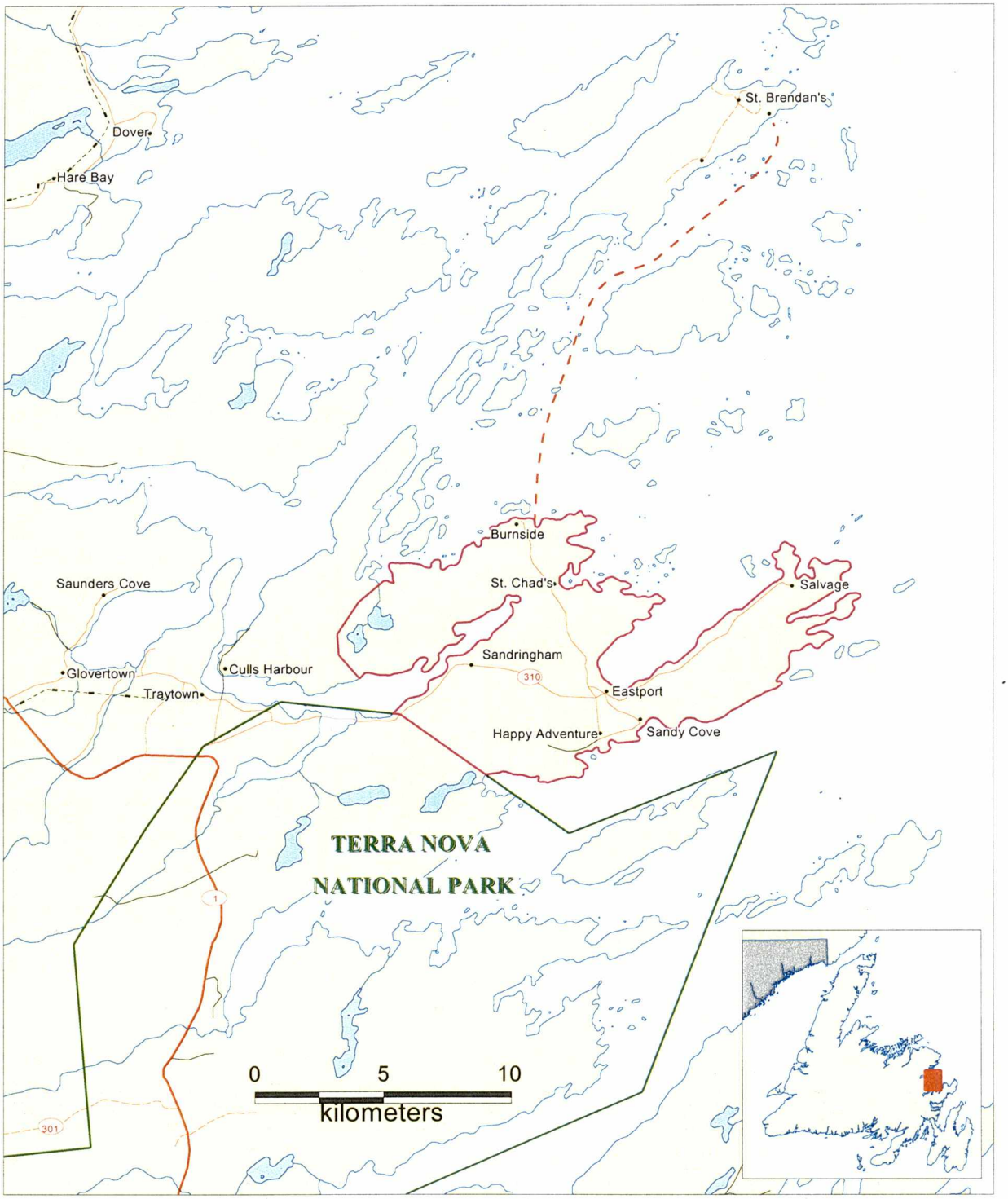

Figure 1.2 – Eastport Peninsula Socioeconomic Study Boundary (Red Outline)

section three, which gives an overview of the 'Historical Context' of the seven area communities from inception to present day. Included are intermixed discussions of the areas' economic histories, settlement histories, and community demographics.

Section four, entitled 'Human Use and Development,' makes up the body of this report and as the title suggests, it describes the human use and development of the Eastport Peninsula's various resources. The eleven sub-sections include fisheries, aquaculture, marine flora, marine mammals, seabirds, tourism (and recreation), forestry, agriculture, mining (and mineral processing), oil and gas, and manufacturing. Each of these industry-related sub-sections is explored within the context of '*Past and Current Use*,' '*Potential Use*,' and '*Management and Planning.*'

Section five explains management issues or potential issues from a socio-economic perspective. A detailed discussion of pollution is presented along with a discussion of potential user conflicts (with particular relevance to the growing aquaculture industry). Finally, section six provides a brief summary.

2.0 REGIONAL CONTEXT

The Eastport Peninsula, surrounded by numerous islands, is a relatively small piece of land jutting out from the mouth of central Bonavista Bay, on the northeast coast of the province of Newfoundland and Labrador. As noted by Glaciologist Arthur Dyke "The (Eastport) Peninsula missed being an island by just a stroke of glacial luck. Instead, it owes its twelve thousand year old beaches, its rich deposits of sandy, loamy soil, its reaches, hills, sounds, coves and harbours to their erratic path" (Hynes, 1999).

For the purposes of this socio-economic overview, the area of reference to be considered will be the core settled part of the peninsula, east of the Terra Nova National Park boundary (as depicted in Figure 1.2). The geographical coordinates of the study area have the latitudinal boundary 48 43` N to approximately 48 37` N and a longitudinal boundary of 53 52` W to 53 37` W. The entire Eastport Peninsula covers an area of approximately 655 square kilometres and the study area has a primary boundary of some 120 kilometres and an area of about 105 km^2. The Peninsula bounds with steep cliffs, sheltered harbours, and relatively low-lying lands. In the east the highest point within the above coordinates reaches some 150 metres or so above sea level. The northeast portion of the Peninsula, north of St. Chad's, dips to a mere 15 metres above sea level.

Scattered throughout one of the oldest-settled stretches of coast in the province are seven core communities – the towns of Salvage, Eastport, Happy Adventure and Sandy Cove as well as the governing bodies of Burnside, St. Chad's and Sandringham. St. Brendan's, on Cottel Island to the north, can not be considered, even technically, to be part of the peninsula. However, since Burnside is the terminus for the ferry to St. Brendan's, this connection has made it family. Sandringham is the most westerly settlement. Eastport, service centre for the area, is just a couple kilometres to the east. It is the hub of the region and noted for its fine beaches. St. Chad's is about three kilometres north of Eastport, and Burnside lies another two kilometres beyond that. Just to the south of Eastport is Sandy Cove with another excellent beach. Happy Adventure, with its upper and lower coves, is a short distance west of Sandy Cove. Salvage, seven kilometres to the northeast of Eastport, is the oldest settlement in the region and one of the oldest in the province (Hynes, 1999).

The five largest communities have a collective population in of 1371. Because of their small size, the populations of the other two, Burnside and St. Chad's, are calculated collectively within Census Division 7, Sub-Division 'D' which had a 2001 population of 224 (Statistics Canada, 2002). However, according to 1996 population statistics for these two individual communities they amounted to 70 in St. Chad's and 59 in Burnside (Statistics Canada, 1996) bringing an estimate of

the study area's population to about 1500 people. In recent years, out migration has become a major concern for most of the communities in this area.

The Eastport Peninsula communities are connected to the Trans Canada Highway by Route 310, which stretches from Glovertown (the district service centre) to Salvage. East of the Terra Nova boundary, highway 310 covers a distance of 20.7 kilometres to Salvage. Branch roads and community streets account for another 23.6 kilometres of paved roadway bringing the total road infrastructure on the Eastport Peninsula to 44.3 kilometres. It has been in excess of 20 years since Route 310 has undergone any major upgrading and the most recent upgrading done on roads in the immediate area was with Route 310-32 to Burnside, paved in 1992. (G. Groves, *pers.comm.*). A road network map and a distance table for Route 310 are provided in Appendix 1.

Since 1988, DFO has been successful in encouraging the creation of independent Harbour Authorities (HA) which have been given responsibility for managing certain Small Craft Harbours (SCH) fishing harbour facilities. The towns of Happy Adventure and Salvage each have a formal SCH managed by the HA of Happy Adventure and the HA of Salvage respectively. With regard to marine transportation, there is one provincial ferry service route on the Eastport Peninsula operating between the peninsula community of Burnside and the island community of St. Brendan's. Depending on the time of year, an auto/passenger vessel (currently the M/V Greenbay Transport), departs from either location three to five times daily for the one hour journey (DWST, 2002).

The seven mentioned communities are also connected with telephone service (NNX–677), and while there are no immediate plans for high-speed digital (i.e. DSL) internet service in the area, local dial-up internet service via Sympatico™ is readily available. Cable television service is available in the communities via Regional Cable Systems Limited. Print media takes the form of the weekly Robinson Blackmore newspaper 'The Beacon,' of Gander. With a circulation of 6,896 copies per issue, it is the primary printed news source in the area (Robinson Blackmore, n.d.).

On February 10, 1995, the Government of Canada and the Government of Newfoundland and Labrador announced a new approach to regional economic development. For the purposes of economic planning and reporting, the province of Newfoundland and Labrador was divided into 20 economic zones, each of which operates a zonal board in the corresponding region. The Eastport Peninsula is within the economic Zone 14 – commonly known as the Kittiwake zone (Figure 2.1). Headquartered in Gander, the Regional Economic Development Board (REDB) pertaining to this zone is the Kittiwake Economic Development Corporation (KEDC). Further division leads to seven sub zones within Zone 14, of which the Eastport Peninsula, from Glovertown east, makes up Sub Zone 1. (KEDC, 1997).

Figure 2.1 – Kittiwake Economic Development Corporation (Zone 14)

From an economic standpoint the Eastport Peninsula has relied heavily on fishing for generations. In recent times, while still vitally important, fishing has seemed to take a step back opening the door for what has been described as a well-established and progressive tourism industry. The area has a lengthy history, and an overview of it's past is detailed in the next section.

3.0 HISTORICAL CONTEXT

(Sources: *ENL (1991-98), Decks Awash (1985), and Hynes (1999).*)

Like much of North America, Newfoundland was settled by the economic failures of Europe. English and Irish descendants slowly spread along the coast of the island, eventually reaching the Bonavista Peninsula, and from there the Eastport Peninsula. First settled was the Salvage area and from there the peninsula's population blossomed throughout the nineteenth and twentieth centuries.

(Note: Population profiles for area communities can be found in Appendix 2.)

3.1 Salvage

Salvage is one of Newfoundland's oldest and most picturesque communities. It actually exists of a number of smaller communities, some of which remain in existence, while others did not survive the end of the Labrador fishery. Apart from Barrow Harbour, which remained a distinct community until its eventual demise, there were settlements at Bishop's Harbour, Broom Cove, Broom Close, Black Harbour, Salvage Bay Road and Sailor's Island – all former communities in the direct vicinity of current-day Salvage.

Due to its lucrative fishing grounds, beyond the bare headlands and islands of the northeastern portion of the Eastport Peninsula, Salvage became one of the earliest harbours to be employed by the migratory fishermen from England. The oldest existing community on the peninsula, Salvage was first populated in 1676 when six English masters and their families located there and established the first summer population of sixty-six people. Apart from the fishers, English hunters also inhabited the area in the 1600s around the site of the current day fish plant. One source estimated that Salvage was permanently settled around 1702. However, the papers of Captain James Cook, who surveyed the coast between 1762 and 1767 suggest it was settled prior to 1660.

By the early 1800s, a few families had taken up residence at Salvage. Most of these original families came to Salvage after being brought to Newfoundland as fishing servants by merchants at Bonavista. By 1836, the thirty-family population had reached 181. By 1845, Salvage's population had grown another 65% to 298, becoming the largest settlement between Bonavista and Greenspond and an important coastal community. By the 1860s, most of the available land in the Salvage area had been claimed and built upon and residents and newcomers began looking outside the immediate area for settlement opportunities.

One of the original public buildings in the area still standing today is St. Stephen's Anglican Church. Constructed in 1865 it was, at that time, the parish centre for central Bonavista Bay. In 1869 the Church of England (Anglican Church) claimed 453 in its congregation. About half of the 155 children were in school and eighty-three families continued to fish and farm. Ten sealing vessels, sixty-four boats, 192 nets and seines, fifty-eight seal nets and seventy-three men active in the Labrador fishery reveal the economic importance of the fishery at that time. Similarly, farming activity also showed vast importance and was also a very important economic driver in the early days of Salvage. By 1874, further increases in these activities were evident and the Labrador fishery, as an example, employed over 100 people from Salvage. (Hynes, 1999).

The local population peaked at 591 in 1891 and this coincided with the best years of the Labrador fishery. However, as the Labrador fishery declined and eventually collapsed in the early twentieth century, the population of Salvage fell to 390. Two lobster factories employed thirty-six residents, but both farming and fishing as a whole, were less productive.

Declining more, but somewhat stabilizing around 250 residents in the mid-1940s, Salvage did not see another significant increase in population until amalgamation helped the population reach 270 in 1961. By that time, the fishery, including a newly opened fish processing plant operated by P. Janes & Sons (see section 4.1), employed only about half of the working population, the other half split between lumber, construction and various service industries. Tourism also started to come online during this period with the new Terra Nova National Park (TNNP) within close proximity and a new network of roadways connecting the peninsula with the Trans Canada Highway (TCH - officially opened in 1965). By the late 1960s, a small museum was opened, preserving many artifacts from the community's heyday and a tourism lure for the community (see section 4.6). According to the 2001 census, there is a population of 203 in the town of Salvage.

3.2 Eastport

Founded in the mid-1860s, Eastport remains the principal town on the Eastport Peninsula. It was first known as Salvage Bay, then New Salvage and Brighton, before being named Eastport in 1935. Its open harbour and relative distance from proven fishing grounds resulted in the area being overlooked in favour of more suitable sites early on. However, as land ran short in near-by Salvage, people there began moving to the Eastport area, attracted by the hundreds of hectares of level terrain. There they found good agricultural land with rich red sandy loam soil and fine timber to be used for boat building.

By 1869, a local farm was touted as one of the best farms in Newfoundland. A year later, twelve other pioneer families held 'land grants for agricultural purposes.' Farming continued to grow and by 1874 the areas population had reached seventy-two. Despite the success of farming, the Labrador fishery remained the mainstay of local industry. As might be expected, where a good supply of suitable timber was easily available, the boat builders among them soon made that the third industry. While some fishers sailed to Labrador, the majority continued to fish out of Salvage, securing berths with vessels from that port.

By 1880, there was a school established in the community and ten years later Holy Cross Church of England was built. By 1891, the population was at 111, of whom twenty-two were fishing and three were farming. The population doubled to 223 by 1911. The school now had forty-seven students, and fishing, farming, and lumbering all contributed significantly to the local economy. Seven vessels with forty-five men went to Labrador and there were three local lobster factories.

With a 1935 resident population of 345 people in eighty-four families, farming and fishing continued to be important activities. The herring, salmon, caplin and cod fisheries contributed to the incomes of half the population, but farming continued to be important. By 1949, agriculture stood as the community's number one industry with over 400 hectares cleared.

A community council was formed in 1955 and incorporation took place in 1959. The population remained around 440 for twenty years. By 1976, the community had 567 residents, just five of whom were directly involved in fishing, with ten in farming and five in lumbering, two sawmills being in operation at the time. Far more people were involved in trade and service industries, transportation and construction, and public administration. One of Eastport's main industries in recent years has been tourism. This was due in part to its proximity to TNNP, and in part to the popularity of the beaches and festivals. Today, many residents work in one of the peninsulas two fish plants. Farming is conducted on a reduced scale, but with a large portion of the land in production. (Hynes, 1999). According to the 2001 census, there is a population of 509 in the town of Eastport.

3.3 Happy Adventure

Happy Adventure is located near the impressive lumber stands of the central Bonavista Bay region which cover a large part of the Eastport Peninsula and both shores of sheltered Newman Sound. Until the opening of TNNP in 1957, Happy Adventure, which is situated far from the prime fishing locations near the headlands of the peninsula, was a fishing and lumbering community dependent mainly on local employment. Since the building of TNNP, access to the forest resources has been

limited and residents have sought their livelihood in the inshore fishery, and outside the community in construction work, trades, services (tourism) and sawmilling (ENL, 1991).

Fishermen from early settlements around Bonavista Bay visited Happy Adventure in season from time to time, but the first was reportedly a fisherman from an English vessel in the late 1700s. The first permanent settlers arrived from Bonavista in the 1860s and probably landed there because of the excellent timber supplies and farmland. By 1869, the settlement already had fifty-one residents and had grown to 146 by 1891.

By the late nineteenth century, most men were engaged in the Labrador lobster and cod fisheries and the local lobster factory employed twenty-one people. By 1911, the population had dwindled to 75 people whose livelihoods mainly revolved around fishing and lumbering. In 1915 a gasoline-operated sawmill at Salton's Brook began operation and it was in use until approximately 1945 cutting railway ties, boat plank and lumber for local markets. Many Happy Adventure workers also found employment in the 1930-40s in pulpwood operations which transformed the settlement into a virtual "ghost town" as loggers and their families moved "up the bay" in the fall to be near timber stands until the spring. By 1952, only one sawmill was reported to be operating in Happy Adventure at a time when pulpwood contracts for the large mills in Newfoundland seasonally employed the majority of workers. The population of Happy Adventure at that time was around 400.

By the 1960s, a large part of the workforce was employed outside the community as construction workers, and in the community, supplying business and administration services on the Eastport Peninsula. The community formed a council in 1960, when the population was 415 and employment was split between service industries, labouring and fishing. Two sawmills were operating in 1978, mainly supplying local building needs. Now a major employer, the Happy Adventure Sea Products plant opened in 1979 (see section 4.1). In recent years, the population has more or less stabilized at around 250 residents. According to the 2001 census, there is a population of 245 in the town of Happy Adventure.

3.4 Sandy Cove

The current community of Sandy Cove, about a kilometre east of Happy Adventure, is perched atop a high bank above the beach for which the community is named. It has been argued that the first to occupy Sandy Cove were probably Maritime Archaic people, as birch coffins and stone tools have been found buried by the rivermouth. Seasonal settlers came as early as the 1850s, likely from near-by Barrow Harbour, which had an excellent harbour but offered little space for fishing rooms and farming. (Decks Awash, 1985). The availability of area timber in the 1850s was also an

attraction for residents of Salvage and surrounding areas. The first population count of the area, in 1857, resulted in a resident population of 32 people. By the beginning of the twentieth century, the population had surpassed 80 individuals.

By the late 1800s, residents began trading at the two nearby communities of Happy Adventure and Eastport, both of which grew considerably larger than Sandy Cove with its poor harbour. Around the same time period, the Labrador fishery arose in the central Bonavista Bay region. The second generation at Sandy cove largely abandoned the practice of moving back to their former homes for the inshore fishery. Instead, another migratory fishery developed, to the Labrador. While some individuals gained income from inshore fishing locally (mainly salmon and lobster), the majority of fishing effort was concentrated on the Labrador. However, ties with Salvage were gradually reduced and local residents became involved with logging and shipbuilding.

By the 1930s, Sandy Cove had 160 residents and busy salmon, herring, capelin and cod fisheries. Farming was also productive with twenty-seven hectares of land in production. Some slack left by the dying Labrador fishery was taken up by the sawmills in Newman Sound and by pulpwood operations cutting in central Newfoundland. Still by the 1950s, several families had left the community and many of the remaining men were employed elsewhere for much of the year. The town was incorporated in 1956 and a year later, the establishment of TNNP provided some local employment as roads in the area were upgraded and service industries for tourists developed at Eastport. Since that time, tourist cabins and summer homes have been built at Sandy Cove, which otherwise has become largely a dormitory and retirement community.

The population has not changed much in the past seventy years, but there was a slight increase to 187 people reported in the 1981 census, likely representing the popularity of Sandy Cove as a home for people working elsewhere. Sandy Cove was one of the few communities to be unaffected by the cod moratorium of 1992, its thriving fishery having disappeared long ago. The sawmills too, had gone. However, today there exists a sense of strong community pride in Sandy Cove, evident by the town winning the Provincial Tidy Town Award in 1998 and again in 2000 (*Beacon*, 2000). This spirit has been key to many of the town's development successes. According to the 2001 census, there is a population of 152 in the town of Sandy Cove.

3.5 Burnside

Burnside got its present day name in 1921 as a result of a devastating forest fire that destroyed the three previous settlements of Squid Tickle, Hollett's Tickle and Hollett's Cove. Residents of these three settlements (originally winter camps) came from Salvage as early as 1871 to take advantage of cropland and forests. However for the most part, they were still employed on fishing vessels out of

Salvage, with the inshore and Labrador fisheries as well as the seal hunt providing the economic stimulus for the area.

Throughout the late 1800s, as permanent residents started settling in the Burnside area, community services began to develop. A one-room school-chapel was built to share between the communities in 1898 and the first post-office was operating by 1908. St. Alban's church was also constructed in 1938, 26 years after the fire.

The provincial government's resettlement program affected Burnside (as well as neighbouring St. Chad's) when twenty-one families moved in from the Flat Islands between 1956 and 1958. These families did not stay long however – many moved on within just a few years. By the 1970s, the fishery had practically disappeared and at that time only the lobster fishery was of any importance. As was the case in the 1920s, people started to move away from the area in the 1950s and 1970s to seek other employment. Burnside reached its peak in population in 1961, with 213 residents in all. Thirty years later, a mere sixty-eight residents remained.

In the 1990s, archaeological research in the area led to the formation of the Burnside Heritage Foundation Incorporated. The resultant museum attracts thousands of visitors each year. Every June right after the arrival of the stearins (terns), the children come back for the summer; a tradition since the earliest families moved away. Now, each year the population swells with the influx of summer people, and while few live in Burnside year round, it is home to hundreds (Hynes, 1999).

3.6 St. Chad's

St. Chad's was originally referred to as Damnable Harbour from its beginnings in the early 1800s. The unusual name probably had its origin in the intricacies of its shallow harbour, which made it difficult to find the entrance, or raise the wind to sail out. The community was renamed St. Chad's in the late 1890s.

Most residents had come to the St. Chad's area from Salvage, first to cut firewood, and then timber for the fishing industry's schooners, wharves, and stages. The community did not appear on the census until 1901 when it had a population of thirty-three. Ten years later, the population stood at fifty-one and lobster fishing, sheep and poultry farming, and cutting railway ties all provided a living for the resident families. However, as in neighbouring Burnside, the Labrador fishery was the mainstay of the residents' livelihood. St. Chad's was too far from headland grounds to have a viable inshore fishery.

By 1945, with a population of ninety-seven, fishing was the only listed occupation in St. Chad's. Nearing the end of the Labrador fishery most men found work in construction at Gander and in the new Terra Nova National Park. St. Chad's continued to grow as more people resettled from Salvage and Flat Islands, chiefly because of the forest industry. However, in 1957 the establishment of TNNP eliminated this important source of employment as it had done in other settlements. In 1991 the population was seventy-seven. Although some continue to fish out of St. Chad's in longliners, the community's population has generally been in decline and those remaining constitute a high proportion of retired and older citizens.

3.7 Sandringham

The newest community on the Eastport Peninsula is also the most westerly. Founded in 1939 as part of a government land settlement movement to establish farm communities, Sandringham had a 1945 population of 132 and a reputation at that time as one of the most productive agricultural communities in Newfoundland. The government's program was to "settle unemployed people on the land," to counteract the effects of the Great Depression. The majority of original settlers came from nearby peninsula communities, as well as from Flat Islands to live in what the Commission Government touted as a model farming community. In the early years, farming was indeed the major activity of the residents, but gradually, as other higher paying jobs became available, the amount of land under cultivation dropped rapidly.

Following the Second World War, many people began working outside the community to supplement their incomes and eventually commuted to jobs elsewhere (such as in TNNP post - 1957). The town was incorporated in 1968 and three years later, with a population of 233, the majority of people were engaged in construction and transportation, with farming taking a far more distant importance. By 1976, the community's 298 residents were making little use of the forty-six hectares of land that had been cleared. In 1981, most jobs were in various sectors of industry, largely outside the community and farming and fishing made only limited contributions to the economy. The present day population continues to stay below 300, and the area continues to be popular with cottagers and retirees. According to the 2001 census, there is a population of 262 in Sandringham.

4.0 HUMAN USE AND DEVELOPMENT

This primary section of the report is intended to provide the reader with an in depth view of the industrial development and historical use of the land and water surrounding the Eastport Peninsula and its seven core communities, named earlier in section 2.0. On occasion, reference will be made to communities outside the direct study area (but still within the frame of context of the Eastport Peninsula) in an effort to fully develop local examples of industry and the like, but without deviating too far from the regional boundaries.

The section will first discuss marine resources – specifically the fishery, aquaculture, marine flora, marine mammals, and seabirds. It will then take a detailed look at area tourism (and recreation), forestry, agriculture, mining and mineral processing, oil and gas, and manufacturing. For the purpose of consistency, each section has been developed into three sub-sections: *Past and Current Use*, *Potential Use*, and *Management and Planning*. Lastly, the section also includes a series of maps, which have been produced or adapted, for the most part, from the Bonavista Bay CCRI, as well as a number of appended tables and other related information.

4.1 Fisheries

Newfoundland and Labrador's economic well being has relied on fishing for generations, generating growth and development of sustainable coastal communities. In fact, until recent times, the prosperity of the province had been wholly dependent upon its well-established fishing industry. So, in 1992, when the commercial cod fishery was closed due to rapidly depleting fish stocks, a major blow was dealt to many coastal communities in what has ended up being one of the most dramatic events to date in Newfoundland and Labrador. In the ten years since its closure, the industry has been restructured extensively resulting in fewer jobs but a more realistically sized workforce. In 1991, monthly employment in the provincial fishery averaged approximately 21,000 people dipping to around 12,000 people just four years later. Recently, employment in the industry has rebounded somewhat to average approximately 15,000 people (Statistics Canada Labour Force Survey, 2001). Overall, fisheries performance has improved in recent years mainly due to diversification from groundfish to shellfish resources (DF-ES, 2001).

Past and Current Use

Historically, the value of fishery returns largely determined the prosperity of the Eastport Peninsula, other than in the towns of Eastport and Sandringham, which were primarily farming communities.

At one point, forty schooners from Salvage were engaged in this business. So widespread were the effects of the industry that at the end of each season, the price of fish was the economic barometer (Hynes, 1999). Of particular importance on the Eastport Peninsula since the early twentieth century, was the lobster fishery. The communities of Salvage, Burnside, Happy Adventure, and Sandy Cove all had lobster canning factories at some time in their histories. Pressure on the lobster stock increased immeasurably after the 1992 cod moratorium. In the latter part of 1996, fisherpersons, after recognising this imminent problem, took the necessary measures and formed the Eastport Peninsula Lobster Protection Committee (EPLPC). General agreements were made regarding lobster size limits and in 1997 the DFO was asked to close two prime lobster breeding grounds as a guarantee for the future, and it did so. Lobster stocks increased almost immediately, as did the number of fisherpersons supporting the EPLPC measures. Currently, as discussed in section 1.2, the EPLPC is seeking approval for the establishment of an MPA around Duck Islands and Round Island (see Figure 1.1). Further information, appendix 3 consists of the current brochure in use by DFO to promote the MPA proposal in Eastport.

Detailed fish landings data (weight and dollar value) over the past ten years for the communities of the Eastport Peninsula are assembled in appendix 4. According to DFO figures for the 2001 season (the most recent statistics on record), the most financially valuable fisheries on the Eastport Peninsula that year are comprised as follows:

Table 4.1 Eastport Peninsula Landings Values (2001)

Species	2001 Landed Dollar Value	2001 Portion of Landed Value
Crab	$ 2,494,484	75.8 %
Cod	$ 211,775	6.4 %
Capelin	$ 198,290	6.0 %
Herring	$ 114,647	3.5 %
Shrimp	$ 97,589	3.0 %
Turbot	$ 92,918	2.8 %
Lobster*	$ 48,067	1.5 %
Other	$ 34,631	1.0 %
Total	**$ 3,292,401**	**100 %**

* The 2001 landings for lobster are derived from purchase slip information only. The data entry of these slips has not been completed (A. Russell, *pers. comm.*)

The following table breaks down the landing values by the top six valued species on the Eastport Peninsula during each of the periods 1992-1996 and 1997-2001. The total column gives the ten-

year picture (1992-2001). Each relevant species is calculated as a percent of the respective five-year annual totals and is given the appropriate value ranking (1 being the species of most value).

In the 1992-1996 period (the early stages of the cod moratorium), the peninsula's fishery was worth about $5.15 million. In the following five-year period (1997-2001), its value essentially tripled. During this period, fish stocks have shown signs of slight improvement, but the most important reason for the tremendous increase in value can perhaps be attributed largely to diversification of the fishery on the Eastport Peninsula.

Table 4.2 Eastport Peninsula Landings & Percentages (1992-2001)

Species	1992 - 1996			1997 - 2001			10 Year Total (1992 - 2001)		
	Value	%	Rank	Value	%	Rank	Value	%	Rank
Capelin	$577,843	11.2	3	$1,696,727	10.9	2	$2,274,570	11.0	2
Cod (Atlantic)	$95,872	1.9	6	$822,162	5.3	3	$918,034	4.4	4
Crab	$2,708,942	52.6	1	$10,441,429	67.2	1	$13,150,371	63.6	1
Herring	$459,093	8.9	4	$236,800	1.5	8	$695,893	3.4	6
Lobster	$948,157	18.4	2	$809,492	5.2	4	$1,757,649	8.5	3
Lumpfish	$164,788	3.2	5	$20,849	0.1	11	$185,637	0.9	9
Sea Urchin	$0	0.0	n/a	$296,043	1.9	6	$296,043	1.4	8
Shrimp	$0	0.0	n/a	$766,960	4.9	5	$766,960	3.7	5
All Other ...	$193,471	3.8	n/a	$440,933	2.9	n/a	$634,404	3.1	n/a
Total	**$5,148,166**	**100**		**$15,531,395**	**100**		**$20,679,561**	**100**	

Four species (Crab, Capelin, Lobster, and Cod) stand out as being the 'core' species fished on the Eastport Peninsula. Crab is by far the lifeblood of the peninsula's fishery. Over the past ten years it has collectively accounted for 63.6% of the total value of the fishery. Even more dramatic, the figure for 2001, weighing in at 75.8%. The crab fishery has steadily increased its dominance post-1992 as well as in its relative importance to other species, as a shift away from cod and toward crab began in 1992 with the onset of the moratorium.

Over the years, capelin has continued to account for about 11% of the overall dollar value of the Eastport area fishery. In the 1992-1996 period however, lobster (18.4%) was significantly more important than capelin (11.2%). But by the next five year period (primarily as a result of the 1996 actions of the EPLPC), capelin had twice as much value as lobster. Rounding things off is the Atlantic cod species. During the moratorium years, it was ranked number six in value but has shown positive increases in the 1997-2001 period, becoming third in relative importance in that time frame. In the ten-year horizon, Cod has attained a 4.4% share of value within the Eastport Peninsula fishing industry.

The fifth largest species to date, shrimp, is a success story in and of itself. With shrimp landings non-existent on the peninsula until 1998, in four short years the species has grown to attain nearly a 5% share of value in the 1997-2001 period. Also worthy of note is the harvesting of sea urchins – a significant portion of value in recent years given that they were not harvested by Eastport area fisherpersons until 1997. Those fisheries in relative decline include herring and lumpfish, whose values have decreased in recent years from their stable showing in the earlier part of the decade.

There are two fish plants located directly on the Eastport Peninsula – a core fish plant in Salvage and a non-core plant in Happy Adventure (see Figure 4.1 for Infrastructure Map). Both of these towns have Small Craft Harbours with the appropriate equipment for handling the raw product as delivered by fisherpersons.

The plant in Salvage is owned and operated by P. Janes & Sons Limited (of Hant's Harbour). A devastating blow was dealt to the community of Salvage in June 2001 when an accidental fire completely destroyed the plant, workplace of over 100 people from the peninsula at that time (*Beacon*, 2001). Nevertheless, the plant is currently being rebuilt and is on schedule to be completed by the spring of 2002, in time for the upcoming fishing season (G. Parsons, *pers. comm.*). The Salvage plant processes a number of different species' including capelin, crab, eel, all species of groundfish, herring, lobster, mackerel, Atlantic salmon, squid, and lumpfish roe. The plant in Happy Adventure is a community-based plant operating under the name Happy Adventure Sea Products (1991) Limited. The plant seasonally employees approximately 45 people and processes crab, mackerel, herring, Atlantic salmon, squid, lumpfish roe, and all species of groundfish (G. Parsons, *pers. comm.*).

Also worthy of note, are the two fish plants in nearby Glovertown. Terra Vista Limited, seasonal employer of 173 individuals and processing all species (except shrimp); and High Seafoods Limited, a smaller plant employing 30 people and processing whelk, halibut, Atlantic salmon, sea urchins, eel, smelt, capelin, scallop, and herring (G. Parsons, *pers. comm.*).

Potential Use

The recreational fishery on the Eastport Peninsula is founded on Atlantic salmon, brook trout, cod, and smelt and continues to be carried on (in-season) by local residents. The commercial fishery on and around the Eastport Peninsula has been developed fairly extensively over the past number of years. A number of lucrative new species' have taken a prominent role in the area, including rock and toad crab, whelk, sea urchins, and cod-grow out (G. Parsons, *pers. comm.*).

There appears to be tremendous potential in a number of the resident species, given the landings figures as discussed above, but proper and prudent management is necessary in order to ensure that

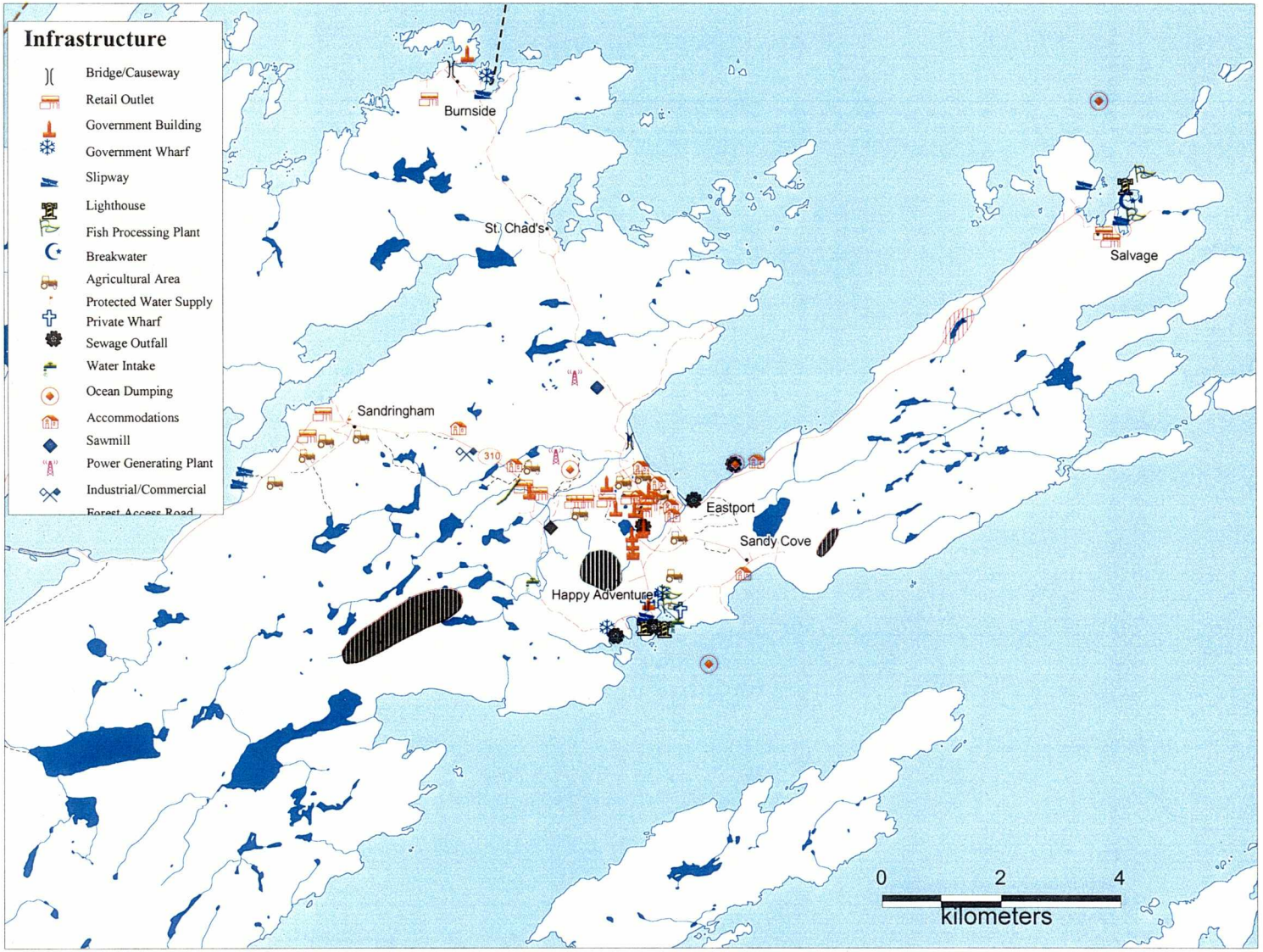

Figure 4.1 – Eastport Peninsula Infrastructure Map

over-fishing does not occur and end up costing the people of the Eastport Peninsula in the long run. The EPLPC have proudly championed the conservation protocol when it comes to the lobster stock management and this is a very positive step in ensuring a durable lobster fishery. Implementation of an MPA within the Eastport AOI will likely serve to protect lobster reproduction as well as other crustaceans such as sea urchins and crab.

Since the collapse of the cod stocks and the resultant closure of that fishery, various departments in government have begun to look at alternative ideas in developing long-term employment for local communities. The development of new, or the enhancement of under-utilized fisheries, has been one area where government has been trying to diversify the future fishery of the province. In the fall of 1999, the provincial and federal governments announced a $10 million fisheries diversification program as part of the $81 million Economic Development Component of the Fisheries Adjustment and Restructuring Initiative. The program has been successful in the development of new international markets, plant upgrading (leading to improved quality), exploratory fisheries, new product development (utilising fish by-products for example), and various other test marketing initiatives. To date, there are no known derivatives of this program which have been implemented directly in the Eastport area.

Management and Planning

DFO is responsible for managing marine resources in Newfoundland and Labrador. Guided primarily by stock status reports, DFO manages the fishery and consults regularly with various other stakeholders such as the provincial Department of Fisheries and Aquaculture (DFA), the Fisheries Association of Newfoundland and Labrador (FANL), the Fish, Food and Allied Workers Union (FFAW), and other local groups (particularly relevant here is the EPLPC). By utilizing collected data and via consultations with the above-mentioned entities, DFO designs management objectives and sets quotas and total allowable catch (TAC) guidelines as well as licences and trap limits for Northwest Atlantic Fisheries Organization (NAFO) areas surrounding Newfoundland and Labrador. The Eastport Peninsula finds itself within the 3L NAFO area (more specifically, unit 3La – Bonavista Bay, as shown in Figure 4.2).

The enforcement of fisheries regulations is primarily done by at-sea monitoring and dockside checks, however aerial surveillance is also used to monitor fishing activity offshore. The Canada Coast Guard (CCG) also responds to emergency calls and has various other duties it performs on behalf of DFO.

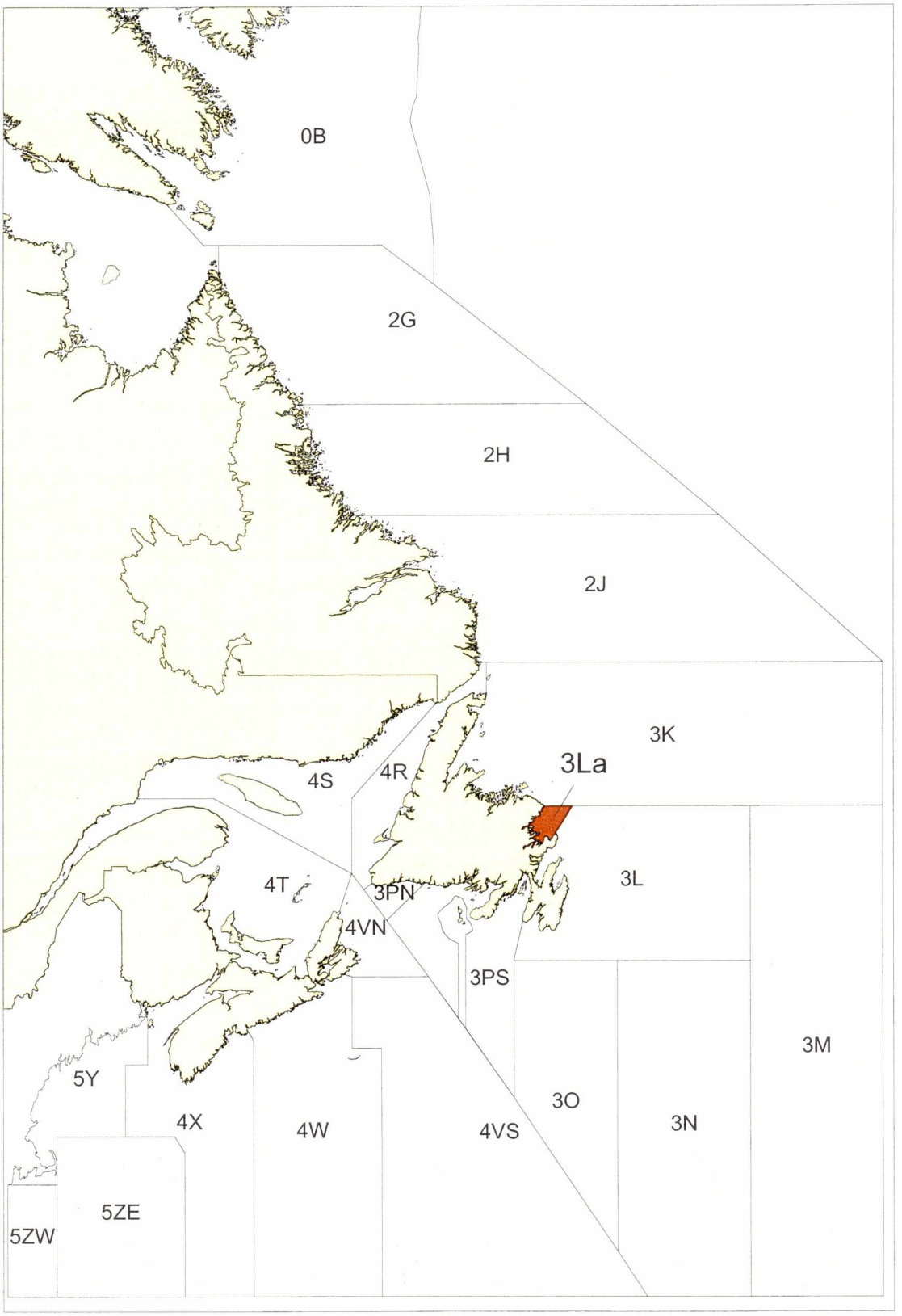

Figure 4.2 – NAFO Stock Areas Map (3La highlighted)

4.2 Aquaculture

Aquaculture, the cultivation of aquatic life, is an established practice in many parts of the world. In Canada, aquaculture was first used to enhance natural stocks, however, it is now a large-scale commercial industry across the country providing direct and indirect economic benefits to many local and regional economies. Aquaculture production in 1995 accounted for 7% of total fish production in Canada (DFO, 2002).

By necessity, aquaculture is relatively new in Newfoundland. Prior to the cod moratorium of 1992, it was not practised extensively, but since that time there has been significant growth in the industry within the province, currently employing about 500 people. As shown in the table below, Newfoundland production figures show steady increases in recent years, with the exception of year 2000 figures where there was a decline from the tremendously successful year in 1999. The 2001 figures have yet to be published but are expected to set a new record at 5,375 tonnes of product with an *export* value of $24 million (DF-ES, 2001).

Table 4.3 Newfoundland and Labrador Aquaculture Statistics (1996-2000)

	1996	**1997**	**1998**	**1999**	**2000**	**Total**
Weight (tonnes)	1,450	1,750	2,727	4,187	2,563	**12,677**
% of Cdn. Mkt. (t)	2.00	2.14	2.98	3.70	2.07	**2.58**
Value (dollars)	5,485,000	5,011,000	10,941,000	17,744,000	13,156,000	**52,337,000**
% of Cdn. Mkt. ($)	1.54	1.30	2.55	3.18	2.15	**2.14**

(Source: DFO, 2002)

The four main species being produced through aquaculture in Newfoundland and Labrador are: Steelhead Trout (1999 export value – $11.4 million); Atlantic Salmon (1999 export value – $2.4 million); Blue Mussels (1999 export value – $3.8 million); and Atlantic Cod (1999 export value – $335,000) (DFA, 2002).

Past and Current Use

Bonavista Bay has a number of established aquaculture operations, producing four main species': Rainbow Trout, Atlantic Cod, Sea Urchins, and Blue Mussels. Figure 4.3 shows the various aquaculture sites within the Bay. Cod aquaculture is the most prominent type of aquaculture operation in the Bay. The Eastport Peninsula itself currently has three aquaculture operations (see

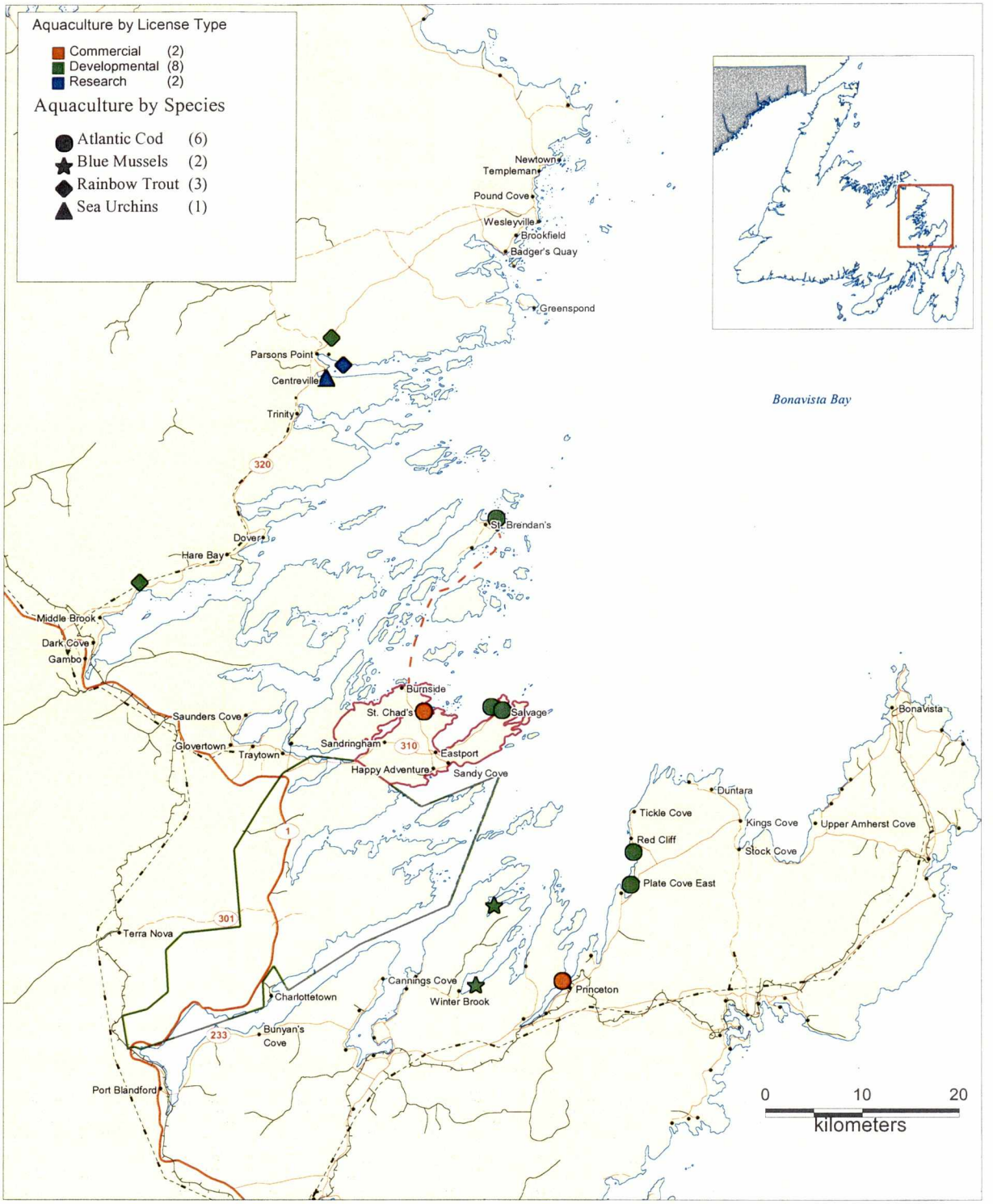

Figure 4.3 – Aquaculture Sites within Bonavista Bay

appendix 5 for detailed list) all producing Atlantic cod (DFA, 2002b). Two of these operations are developmental license sites and the other is a commercial operation. Developmental licenses are for use by prospective commercial aquaculturists to access the biological and environmental aspects of a proposed site prior to entering full scale commercial operation. Commercial licenses are for use by aquaculturists who harvest and market aquaculture products (DFA, 1999). All three of these sites receive their supply of fish from traditional cod-traps in the Bonavista Bay region. The fish for cod-trap operations are derived from the aquaculture operators personal DFO-issued cod license or they purchase the fish from a DFO-licensed cod-trap fisherperson (B. Tompkins, *pers. comm.*).

The majority of cod grow-out producers in Bonavista Bay have jobs/careers outside of their aquaculture operations. Historically, cod aquaculture operators have been fishermen who supplement their income with aquaculture. The annual production figures of these aquaculturists is confidential, but overall, the Eastport area production figures are relatively low simply due to the fact that all three of the sites in the region have only been involved in the industry within the last one to two years (B. Tompkins, pers. comm.).

Potential Use

The Department of Fisheries and Aquaculture is projecting future continued growth for the province's aquaculture sector. It was projected that by 2002, total aquaculture production will increase in value to $22.8 million. With infusion of private capital into the salmonid sector, production values could reach $41.9 million. Mussel culture however, is expected to lead future expansion (BCI, 2000).

According to DFA statistics, cod grow-out accounts for almost all of the production for Atlantic Cod. The future of the cod aquaculture industry for the province is geared towards the development of the cod "egg to plate" aquaculture. In order for aquaculture growers to produce a top quality product that fetches top price, "egg to plate" is the way of the future (B. Tompkins, *pers. comm.*).

Management and Planning

The provincial Department of Fisheries and Aquaculture and the federal Department of Fisheries and Oceans oversee aquaculture development in the province of Newfoundland and Labrador. The provincial *Aquaculture Act* and associated regulations provide for a licensing and enforcement regime based on developmental and commercial aquaculture. The legislation confers property rights to a lessee in an area of sea bottom and water column. It provides for: the health of the animals; protection of the environment; the setting of aquaculture equipment; access or egress by the public around, or through aquaculture sites; and resolution of conflicts between resource users. Applicants for new licenses must submit an application and business proposal. At present, cod-

grow out licenses are granted only to cod trap harvesters (CRS, 2001). A further discussion of the potential hazards of aquaculture can be found in section 5.2.

Canada has sole responsibility for fish health, and responsibility to develop and maintain a national registry of imported fish stocks. Both Canada and the province share responsibility for applied research and development, Canada in areas such as fish health, disease identification, prevention and control. Newfoundland and Labrador has research responsibilities in areas such as surveys of potential aquaculture sites, species for cultivation, genetic selection, engineering design, and evaluation of new and improved cultivation systems, stock selection, growth characteristics, and technology development and transfer (CRS, 2001).

4.3 Marine Flora

Past and Current Use

The present commercial use of seaweed amount to between 3.5 and 4 million tonnes per year worldwide. The estimated value of finished product is in the order of U.S. $3.5 billion. Seaweed has been harvested for thousands of years primarily because it is easy to harvest as shore "wash-up" or "wrack." (FRC, 2002). Seaweed has been harvested for generations in this manner within Newfoundland and Labrador for use as feed for animals and/or fertilizers. This old-fashioned but practical method of seaweed harvesting is still in practice today, including on the Eastport Peninsula, although it is somewhat difficult to ascertain the extent of such use as there is no recording of such information outside of personal records and recollections.

Potential Use

Seaweed is a valuable and renewable natural resource, which, if developed and managed properly, has the potential to be worth many millions of dollars to the province's economy. It is a source of raw material for fertilizers, soil conditioners, food (both human and animal), production of phyco-colloids, and is used in the pharmaceutical and cosmetics industries. While markets are being explored, there does exist tremendous potential in the Asian markets of Japan and China where people are well known for their dietary use of seaweed, both fresh and cooked. Sea vegetables make up by weight, about ten percent of the average diet in Japan (FRC, 2002).

In the ecosystem of the Eastport Peninsula primary production by plants (phytoplankton and seaweeds) nurtured by nutrients and sunlight under suitable conditions of temperature, salinity, currents, substrates and so forth, form the base of the system (LGL Limited, 2001).

With the increased demand for seaweed and seaweed products for the food and pharmaceutical industries there has been a lot of interest in recent years in developing this under-utilized resource. The Newfoundland seaweed harvesting industry has created employment for harvesters and processors that were displaced by the 1992 cod moratorium. Commercial seaweed harvesting (largely home-grown businesses) and processing operations have been established at Isle aux Morts and Ramea on the southwest coast of Newfoundland and at Lamaline on the southern Burin Peninsula (L. Barnett, *pers. comm.*). As a recent fishery, the seaweed industry has the potential to produce long term employment opportunities in rural Newfoundland. Harvesting efforts to date have mostly concentrated on the rockweeds and to a lesser degree on kelps. Seaweeds are harvested by hand, sun-dried and ground into powdered form for use as fertilizers and food additives (LGL Limited, 2001).

Rockweed is known to occur along the entire shoreline of the Eastport area where suitable conditions exist. The other major species of seaweed that are likely to occur include: a.) Eel Grass – which has been used historically for stuffing mattresses and packing material although it no longer has direct commercial use; b.) Irish Moss – a red seaweed, it is used in various food products and thickeners; c.) Kelp – which are brown seaweeds and have a wide variety of commercial applications from food additives and supplements to fertilizers and other uses, and; d.) Rockweed, which is a common brown seaweed and has commercial use in food additives, thickeners, supplements, fertilizers and animal feed. Rockweed is also used to produce alginate, which is used in making many products including speciality papers, dyes, welding rod coatings and others and its gelling properties are useful in air fresheners and explosives (LGL Limited, 2001).

There may also be uses for plankton, which include the fungi and phytoplankton (algae) plants, as well as benthos, which include plants that live on the seabed. Aggregations of phytoplankton are often used extensively by feeding fish, seabirds, seals, whales and other predators (LGL Limited, 2001).

Management and Planning

Seaweed harvesting comes under federal regulation. DFO uses the Fisheries Act (Sections 44-48 – Marine Plants) as the management tool to guide marine flora harvesting. DFO is also responsible for issuing and renewing the annual license agreements, mandatory for commercial harvesters. Annual licensing is generally seen as prohibitive for both industry growth and resource management and it has been suggested that harvesting licenses be issued as custodial licenses, whereby a harvester would be given exclusive harvesting rights to an area and be responsible for managing the area accordingly. It has also been suggested that a licensing time frame of three to four years is preferable with an assessment after each annual term (SPC, 1998).

To date, marine flora biomass assessments supported by both levels of government and local groups have been completed for several Newfoundland bays and coastlines. As well, there has been some interest from groups outside the province who see a potential in developing the seaweed industry in Newfoundland (FRC, 2002).

4.4 Marine Mammals

Past and Current Use

Marine mammals have been harvested for food and/or wears for generations. In more recent times, tourism has become the more dominant use for some marine mammals, particularly whales and seabirds. Less of a tourist attraction, but still today an important fishery in Newfoundland and Labrador is the seal hunt. Traditionally, seals have been harvested and used for their meat, pelts and the very rich oil they contain. Years ago some subsistence hunting was carried out on the Eastport Peninsula, but the commercial seal hunt was of little concern. Few, if any, ships from the region took part after it had become a principal industry, though many men joined those from overseas. Still, under the right conditions of wind and tides, seals sometimes put in an appearance. Few people from the peninsula took part in the hunt, but nevertheless the seal hunt had an impact on local life, as it did elsewhere in the province (Hynes, 1999).

Fifteen species of marine mammals are known or expected to occur at least sporadically around the Eastport Peninsula, including eleven species of whales and dolphins and four species of seals. It is recognized that various species of baleen whales, toothed whales and true seals occur in the area. Some of these species have been classified threatened under COSEWIC criteria, meaning that it is not a good idea to harvest these species as a commercial industry (LGL, 2001).

Potential Use

Bonavista Bay (including the Eastport area) holds considerable potential for the further development of its whale watching industry. Boat tours already exist out of nearby TNNP and Eastport itself is recognised as a community that attracts many tourists due in large part to the proximity of the Park.

Management and Planning

DFO takes responsibility for administering marine mammal resources 'harvesting' in the province under the Marine Mammals Regulations. There currently does not exist a governing body responsible for marine mammal 'watching' regulations. Tour boat operators have a generalized

agreement to look out for the animal's best interest by keeping a fair distance, thereby allowing their businesses to flourish without causing undue stress to the animals in question. Marine Mammal Watching Regulations are currently being developed by DFO, in conjunction with Memorial University of Newfoundland (MUN). Tour boat licenses are regulated by the Government of Newfoundland, Department of Tourism, Culture and Recreation.

4.5 Seabirds

Past and Current Use

Much the same scenario as with marine mammals, seabirds in the Eastport area may be used for both harvesting and/or tourism. Tourism appears to hold much potential regarding seabirds in the area, due to the relative proximity of TNNP and the large protected population of birds within the Park boundaries. Bird hunting (largely for sea ducks) does happen on a regular basis on the Eastport Peninsula, particularly on the islands and peninsulas to the north of the Eastport area, further from the TNNP boundary to the south, where all hunting is restricted (K. Tucker, *pers. comm.*). As seen in Figure 4.4, the Eastport area has a number of different bird species spread throughout the region.

A total of twenty species of marine birds regularly breed in eastern and southern Newfoundland. The large number of seabirds that are found in the Eastport study area is due to the high biological productivity caused by the mixing of the cold Labrador Current with warmer waters of the more southern origin. The large amounts of zooplankton and capelin there provide the food base for these seabirds. Newfoundland seabird colonies are generally occupied from April to September. On the Eastport Peninsula there are four nesting colonies for terns, three seabird colonies, one gull colony and one bald eagle colony (LGL, 2001). Bay and estuary species such as common loons are also present in inland lakes in the area.

In a 1986 study conducted by Memorial University, a seabird colony on Copper Island (within TNNP, in Bonavista Bay – 9.5 kilometres south of Sandy Cove) was described and documented as can be seen in appendix 6 (Cairns, et al, 1989).

Potential Use

Avifuana (bird) colonies provide tremendous tourist attractions throughout the province as a whole. Tourism related activities such as seabird watching offer definite opportunities for eco-tourism on the Eastport Peninsula specifically.

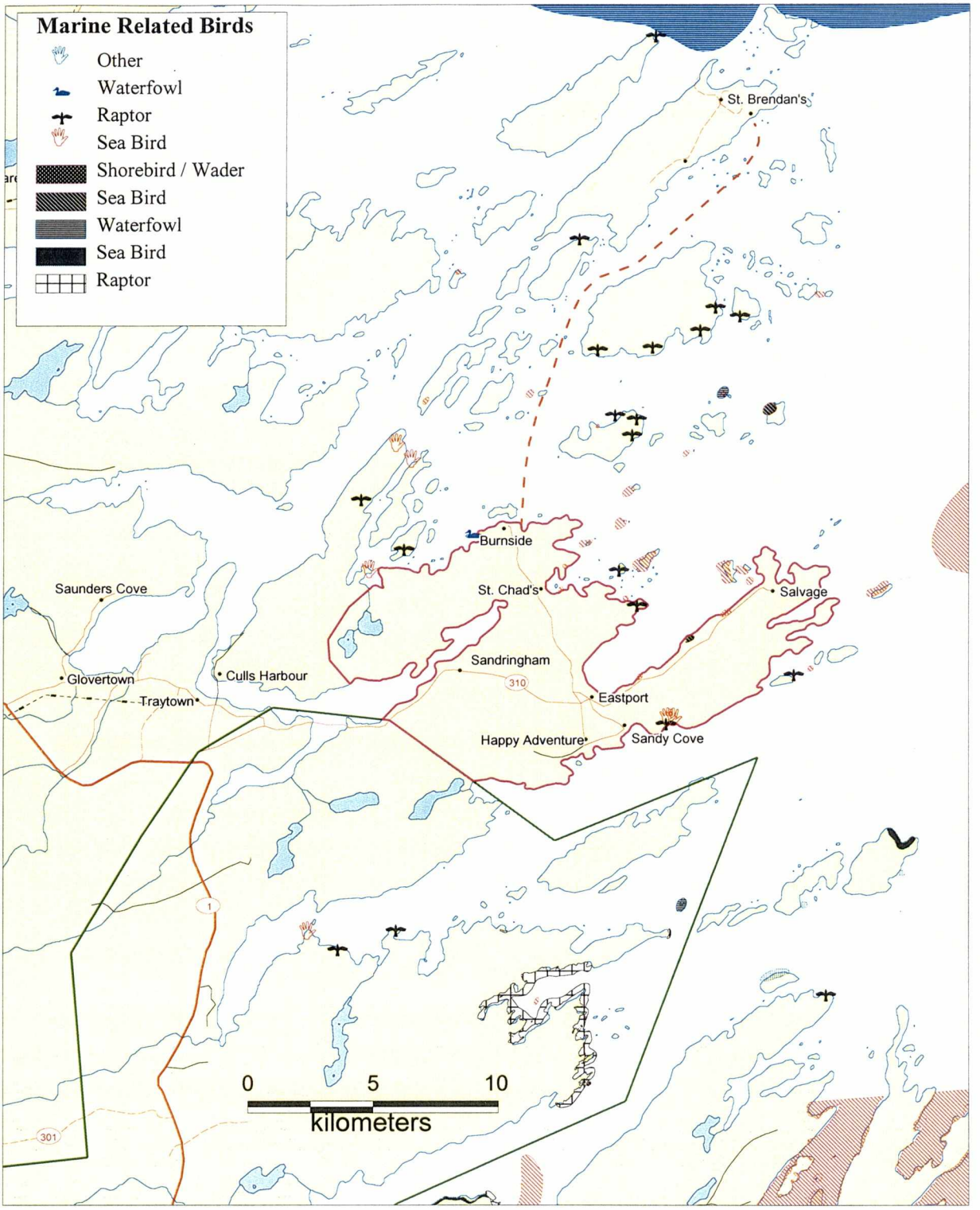

Figure 4.4 – Migratory Birds in the Eastport Peninsula Area

Management and Planning

The Migratory Bird Convention (MBC - 1916) was implemented to prohibit the indiscriminate taking of migratory birds, their nests and eggs throughout North America. The Convention states that only game birds (geese, ducks and snipes for example) can be harvested and only by the bearer of a Migratory Game Bird Hunting Permit. In accordance with the MBC, murres (often referred to in Newfoundland as turrs) are defined as non-game birds but have been traditionally hunted in Newfoundland for years. A year after the province joined confederation, an exception was granted to the MBC to allow murre hunting in Newfoundland. Currently, the Canadian Wildlife Service is seeking an amendment to the MBC in order to establish the murre as a game bird in Newfoundland.

Seabird management is delegated to both federal government departments (Environment Canada, and its Canadian Wildlife Service branch) and provincial government departments (Department of Forest Resources and Agrifoods – Wildlife Branch, and Department of the Environment).

4.6 Tourism and Recreation

Tourism is an established and fundamental part of the economy of Newfoundland and Labrador. The province has experienced a 37 percent increase in non-resident visitation during the years 1996-2000 and preliminary statistics for 2001 suggest a similar trend. The industry has made a significant impact on the economy with direct and indirect tourism-related employment numbering approximately 25,000 people. In accordance with the most current data available, year 2000 non-resident tourism revenues were $287 million, while 1999 resident revenues were approximately $332 million (MPPO, 2002).

A number of milestones have been reached in the past few years, furthering the initiative the government has taken on to progressively market and expand this relatively new but growing industry. 1997 saw the Cabot celebrations marking the 500th anniversary of John Cabot's landing at Bonavista; 1999 marked the 50th anniversary of the province joining confederation; 2000's Viking celebrations at L'Anse aux Meadows were tremendously successful and; 2001 capped it off with the Marconi celebrations. Each of these celebrations have meet with tremendous success, showcasing the world class tourism product that the province with its vast history has to offer.

Along with the province-wide celebrations of recent years, various parts of the province have traditionally offered up their own brand of celebrations – most worthy of note here was the widely successful Eastport Peninsula 2000 Homecoming Celebrations which took place from July 27 to August 6, 2000. A chance to reunite peninsula descendants from near and far, back to the place where they have taken their roots. While returning to or visiting the peninsula, these former

residents and tourists alike have undoubtedly found a top-notch tourism package right in their own backyard.

Past and Current Use

The tourism industry covers a wide spectrum of usage activities such as parks, beaches and other natural areas, heritage and historic attractions, cultural places and events, trails (used for hiking, skiing, etc..), fishing and hunting activities, and tourism-related infrastructure and services. The paragraphs to follow will attempt to provide a depiction of the tourism offering on the Eastport Peninsula while utilizing a variety of sources including the Department of Tourism, Culture and Recreation, the Kittiwake Economic Development Corporation, the Kittiwake Coast Tourism Association, the Road to the Beaches Tourism Association, Parks Canada, and the Department of Canadian Heritage.

The Eastport Peninsula is unique in that it is completely cut off from the rest of the province by a northeastern boundary of Terra Nova National Park (TNNP). To access the peninsula by road, one must traverse at least four to five kilometres of park roadway via highway 310 before exiting the park just west of Sandringham. It is not surprising then that there has been a strong correlation between TNNP tourism and the resulting spin-off tourism evident on the Eastport Peninsula (especially from within the metro St. John's market). While somewhat dated, in 1986, Peter Barnard and Associates completed a tourism development strategy entitled "*Enhancing Tourism in the Terra Nova Park Boundary Area and Bonavista Peninsula*" which indicated that the correlation was strong at that time and there is anecdotal evidence that suggests this continues today. (T. Fudge, *pers. comm.*). Although it is TNNP that draws many of the areas yearly visitors, it is often the adjacent communities that keep them there (KEDC, 1999).

There are a number of parks and beaches on the Eastport Peninsula. The largest parks are the Eastport Peninsula "Shriners" Sunshine Park with a total of 136 camping sites and Malady Head Campground (part of TNNP) with 99 sites. Further out, on the TCH, is the former Square Pond Provincial Park with 96 sites, now privately operated. There are also a number of day-use parks including Crooked Tree Park in Sandy Cove and Wild Cove Municipal Park in Salvage. The Eastport Peninsula has become somewhat famous for its numerous white sand beaches as well. Within the town of Eastport there are three – Northwest, Seal Cove, and Southwest Beaches all dominate the shoreline around the foot of Eastport Bay. Also, Sandy Cove Beach, in neighbouring Sandy Cove, is a remarkable beach nestled below steep cliffs atop which the community is settled. Figure 4.5 displays a detailed depiction of tourism, cultural, and recreation activities/entities on the EastportPeninsula.

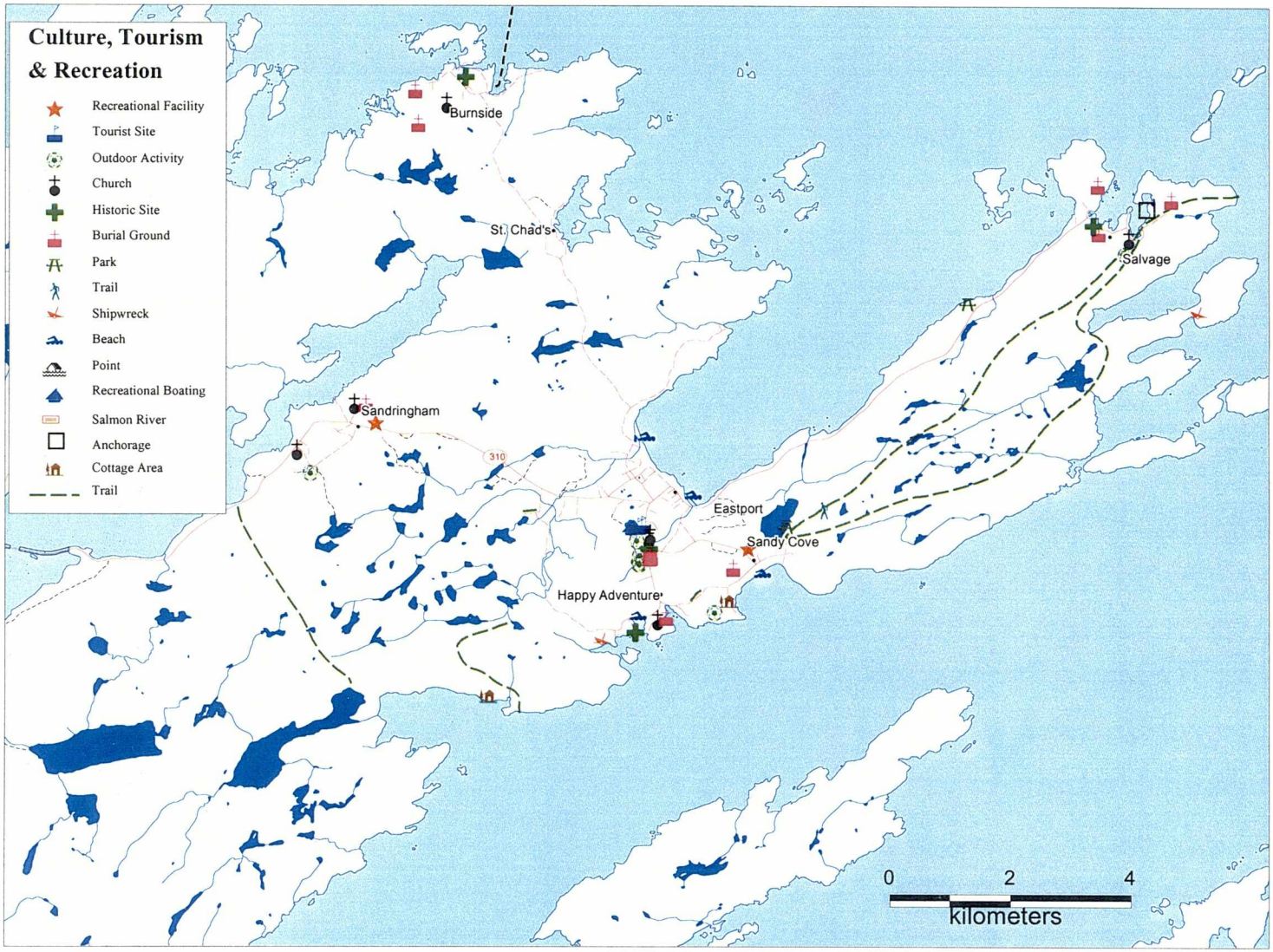

Figure 4.5 – Eastport Peninsula Tourism, Culture and Recreation Map

Other natural attractions are also present around the Eastport Peninsula, but are more related to Terra Nova National Park. Of particular interest there is the Pissing Mare Waterfalls, swimming activities at Sandy Pond (TNNP), and the TNNP Ocean Watch Tours at Salton's Brook specializing in interpretative tours with bald eagles, whales, icebergs, plankton and human history. Within the adventure tourism sector, TNNP also offers guided kayaking tours in and around Newman Sound.

The current day Eastport Peninsula has a vivid history reaching back to its beginnings in and around Salvage in the late 1600s (see section 3.1). In recent years however, evidence on the peninsula has been found indicating the presence of Maritime Archaic, Paleo-Eskimo, and Beothuk peoples who appear to have lived on the islands and peninsulas north of Burnside more than 5,000 years ago. Modern day excavations began in the area in 1965 and today the Alexander Bay corridor, Bloody Reach, is touted as one of the best archaeological finds in Newfoundland and Labrador. In 1989 the Burnside Heritage Project (to become the Burnside Heritage Foundation Inc. {BHF}) started its first archaeological field season and has continued every year to present day charting human settlement patterns and resource use in the area. Consisting of three major sites, Bloody Reach, The Quarry, and The Beaches, the BHF have been developing and upgrading the infrastructure in and around the Burnside-based area from 1994 to present day. Figure 4.6 is a map of the BHF area, north of Burnside. As of the year 2000, there is a seasonal (June-October) museum/interpretation centre, field laboratory and boat tour all operating in the area (BHF, 2000). There is currently a proposal, prepared by the local tourism association, for the construction and development of a new visitors centre at Burnside (D. Churchill, *pers. comm.*). The public interpretation aspect of this discovery has had many positive economic effects on the Eastport area. The attraction has recorded visitor increases from 400 in 1994 to over 2,500 just three years later. Since 1989 one hundred and sixteen adults and thirty-four students have been employed through the Foundation (Hynes, 1999).

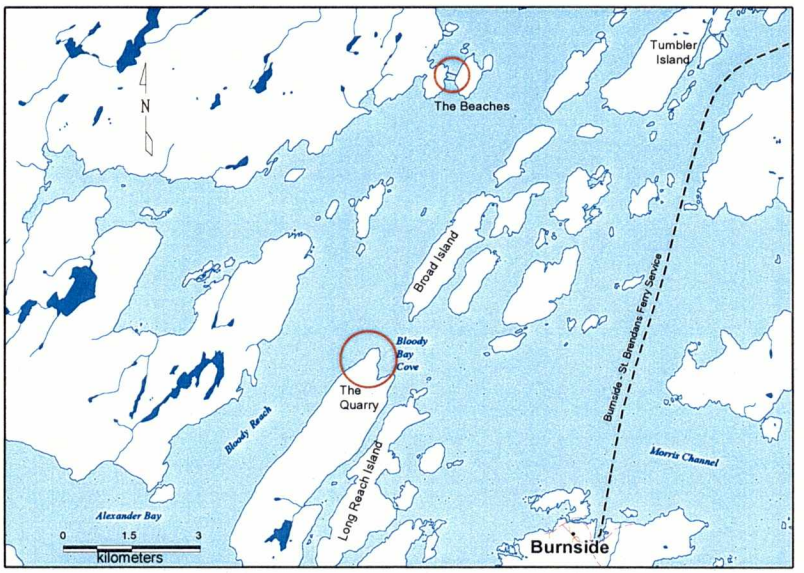

Figure 4.6 Burnside Heritage Foundation Archaeological Area Map

Coupled with the major discovery at Burnside, one other key cultural attraction also exists on the Eastport Peninsula in the form of a museum in historic Salvage. The Salvage Fisherman's Museum (opened in 1960), depicts the domestic life of Salvage (one of Newfoundland's oldest settlements) from the late 19th century to present. The museum building, dating from 1860, is the oldest dwelling in the area (DTCR, 2002b). Undoubtedly there are many fine examples of heritage properties similar to this museum on the Eastport Peninsula, and the Road to the Beaches Tourism Association has recently started a project to identify and document historic homes and buildings in the area (D. Churchill, *pers. comm.*).

Festivals and events do not have a large presence on the Eastport Peninsula. However, in 1969, the Memorial University Newfoundland Extension Service organized the "Eastport Festival" and it ran for ten years. In more recent times, a spin-off of this event (shortened from a two-week to a three day time period), now called "SummerFest," brings together peninsula residents and tourists alike to enjoy local entertainment and festivities each summer. Also worthy of note is the annual MusicFest at Glovertown, also a weekend event.

Trail networks exist throughout the area, both in the form of marked/developed trail systems to old roads and footpaths used for many years. The trails are for the most part, used by local residents for recreation and subsistence and doubling as snowmobile networks in the winter. There has been some recent trail development in and around Salvage, and most notably, a nine-kilometre hiking trail connecting Salvage with its distant neighbour, Sandy Cove (see Figure 4.5). The trail, which has it termination points at Crooked Tree Park (Sandy Cove) and The Fisherman's Museum (Salvage), was the result of an extensive restoration project, undertaken in 1997, by the Eastport Peninsula Heritage Foundation. Their goal was to link the former settlement of Barrow Harbour with its historic neighbours once more (KEDC, n.d.). A developed and popular trail network of three and a half kilometres also exists in Glovertown's Ken Diamond Memorial Park. There are a number of other non-developed trails present at various areas around the peninsula and numerous snowmobile trails are evident in the winter months. Nearby, TNNP has a highly developed trail network consisting of some fourteen trails covering over fifty kilometres of distance in a variety of time-lengths, from hours to days (TNNP, n.d.).

The Eastport area is also known for its commercial/non-natural attractions. Included are the Eastport Family Funland (Eastport - watercraft rentals, mini-golf, children's story book land, petting farm, etc..), Splash and Putt Resort (Glovertown – waterslide, mini-golf, go-carts, bumper-boats/cars, etc..), and Sandy Pond Concessions (TNNP – canoe/boat rentals, surf bikes, kayaks, etc..).

There are a growing number of outfitters in Newfoundland and Labrador (both big game and fishing). However, there is no direct presence of any outfitters on the Eastport Peninsula. Private

residents however, frequently participate in hunting and angling on a recreational level in properly designated management areas both near to and far from the peninsula. Moose and black bear hunting take place on the Eastport Peninsula (part of Management Zone 28 – see Figure 4.7) but there is no Caribou hunting directly in the area, although it does occur in other areas of Zone 28 (W. Budden, *pers. comm.*). The nearest scheduled salmon river to the area is Terra Nova River, to the west of TNNP. It is a licensed river, however there is no immediate tourism-related development in the river's area (D. Churchill, *pers. comm.*).

A range of infrastructure and services, essential to sustain and grow the Eastport Peninsula tourism industry, complement the tourism-related activities addressed to this point. A listing of seasonal and/or year-round accommodations (hotels/motels, efficiency units, and B&B's), food and beverage establishments, and other related services are detailed in appendix 7. As well, local residents (mainly for the use of the communities) have established recreational infrastructure and services, although much of this development has been centered around the larger centres of Glovertown and Eastport.

Potential Use

There is a deep history of tourism on the Eastport Peninsula, especially in the Eastport and Traytown areas. Because of the shared boarder with TNNP, there is huge potential to entice even more people to the area (D. Churchill, *pers. comm.*). Indeed, the mere presence of the National Park broadens the potential markets for tourism operators, as well as increasing the clientele for many other local industries (KEDC, 1999). Data provided by TNNP indicates 252,276 person-visits to the park between January and December 2000, an increase of 3 percent over the same time period of 1999 (DTCR, 2001).

There are a couple specific examples of high potential areas currently under investigation. One is an abandoned pulp mill site on the Terra Nova River, near Glovertown, that has a long history of usage in the once prominent, area forestry industry. With the recent completion of a development proposal, it is currently being considered as to its tourism-related potential. On the same river there is also a recent discovery of a potential Beothuk presence, again with further possible potential for tourism development. To further accommodate these and other high potential projects, the local tourism association has had several development strategy sessions with an outside facilitator to establish a new common vision for the area's development, with a professionally completed tourism strategy as the next step (T. Fudge, *pers. comm.*). Indeed, there is a master plan proposal now developed for the whole "Road to the Beaches" area (D. Churchill, *pers. comm.*).

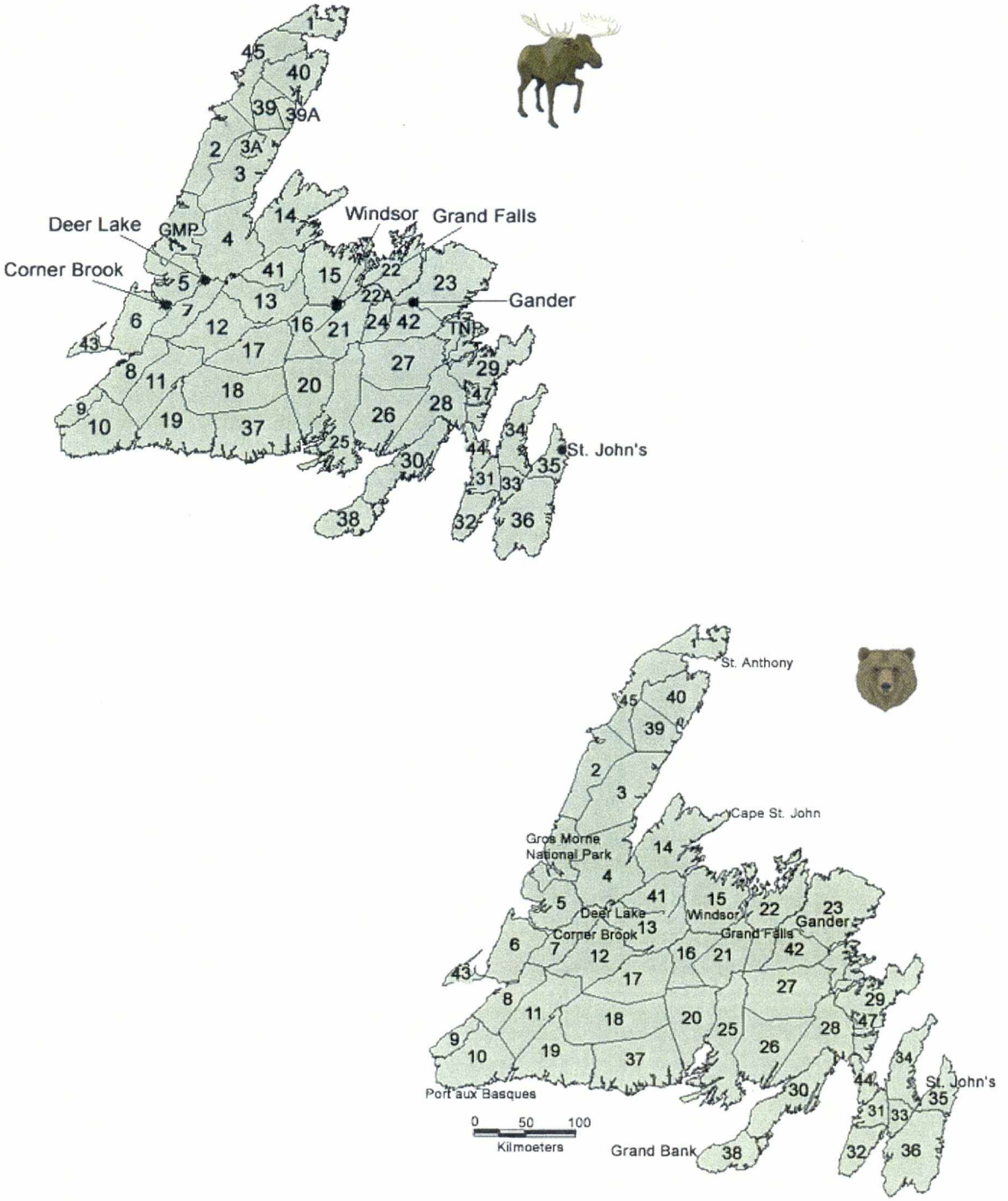

Figure 4.7 – Hunting Management Zones Map (Moose and Black Bear)
(Source: DFRA, 2002)

Management and Planning

There are a number of bodies responsible for tourism development, promotion, and regulation. The Department of Tourism, Culture and Recreation is the chief branch of the provincial government responsible for sector activities in Newfoundland and Labrador. Other provincial and federal government departments have direct and/or indirect responsibilities for managing this sector as well (for example: the provincial Departments of Industry, Trade and Rural Development, and Government Services and Land; and the federal Departments of Canadian Heritage, Fisheries and Oceans, and Environment).

Other bodies, outside of government, have major interests and responsibility in the tourism industry in the province. They include: Kittiwake Economic Development Corporation, Kittiwake Coast Tourism Association (and it's local division "Road to the Beaches Tourism Association"), area development associations and municipalities, and private individuals active in the industry (such as B&B owners, museum curators, and the like.).

4.7 Forestry

For the first four hundred years after the discovery of Newfoundland, the forest was used almost exclusively as a support for the fishery. Wood was essential for fuel, boat building, and the construction of stages and flakes used for splitting, salting and drying codfish (DFRA, 2002).

Past and Current Use

Before the establishment of TNNP in 1957, the most significant and longest-lasting commercial forestry enterprises in the Eastport area were the sawmills. Mills in the area were historically kept quite busy producing boat planking, railway ties, and lumber for local consumption and for shipment around the island. Apart from the work provided by the mills, individuals also cut logs independently. Interesting to note is that large quantities of area timber were cut to serve as 'wharf sticks' in the construction of the harbour at St. John's. By the late 1940s, many sawmills had closed due partly to the fact that much of the accessible timber had been harvested. The last full-scale commercial sawmill operation on the Peninsula operated until the mid-1970s. By the time the industry expired (at least on a commercial basis), twenty kilometres of access road had been constructed and an average of 3000 logs were cut and sawed each winter and the resulting lumber product was sold locally (Hynes, 1999).

Today, there is very little forestry activity on Eastport Peninsula. There is no pulpwood cutting activity and as a result no current logging roads on the peninsula. There have been 134 domestic

cutting permits issued to date for the Eastport area. These domestic cutters would harvest approximately 2000 m^3 solid in a typical year (D. Mercer, *pers. comm.*).

There are two small commercial logging permits issued for a total volume of 113 m^3 of softwood and 271 m^3 of hardwood. These operators harvest mainly firewood with some residual sawlog, with less than 10,000 FBM yearly being cut. There are six sawmills currently licensed on the peninsula. Five of these mills saw logs cut on domestic permits and have no commercial cutting permits or purchasing licences. One mill, operated by Jamestown Lumber, purchased hardwoods outside the peninsula area. The mill first started operations in 1998 and in 1998-99 sawed 1,481,720 FBM of hardwood. In the year 2000 this dropped off to 1,200 FBM and in 2001 the mill did not operate. The other five sawmills had a combined production of 41, 665 FBM in the 2000 fiscal year (D. Mercer, *pers. comm.*).

The Eastport Peninsula is within Forest Management District 5 (Figure 4.8). While the Eastport area was only a minor factor, District 5 was itself responsible for approximately 4.6 million FBM of production in 1998-99 from a total of 110 area mills (DFRA, 2002b). The peninsula falls entirely within the North Shore Eco-region of the province and is dominated by coniferous forests comprised mainly of Black Spruce and Balsam Fir. The timber in the area is 100% crown-owned, as is the majority of land in the province. Districts 4, 5, and 6 have a common annual work schedule and five-year strategic plan. The current strategic plan was introduced in 2001 and will expire in 2005. (Note: Various attempts were made to obtain copies of these plans/schedules but to date, they have not been delivered from the DFRA District 5 office in Gambo.)

Potential Use

As will be further discussed in section 4.11, there has been value-added manufacturing performed with forestry-based (wood) products at a local woodwork manufacturing plant in Eastport. Because of the history in this area and relatively good access to nearby timber stands (beyond the Park), there may be further potential in the Eastport area for forestry-related manufactured goods. Industry in the province already produces value-added goods (often known as secondary wood manufacturing) with a range of marketable outputs such as hardwood flooring, kitchen cabinets/doors, mouldings, log homes, furniture, siding, specialized millwork, and edge-glued panels (DFRA, 2002b).

The forest can also be used for all types of recreation and certainly has a potential tourism lure. Such uses could include all terrain vehicle use, hiking/walking, hunting and fishing, establishment of commercial outfitters, and other domestic harvesting usage.

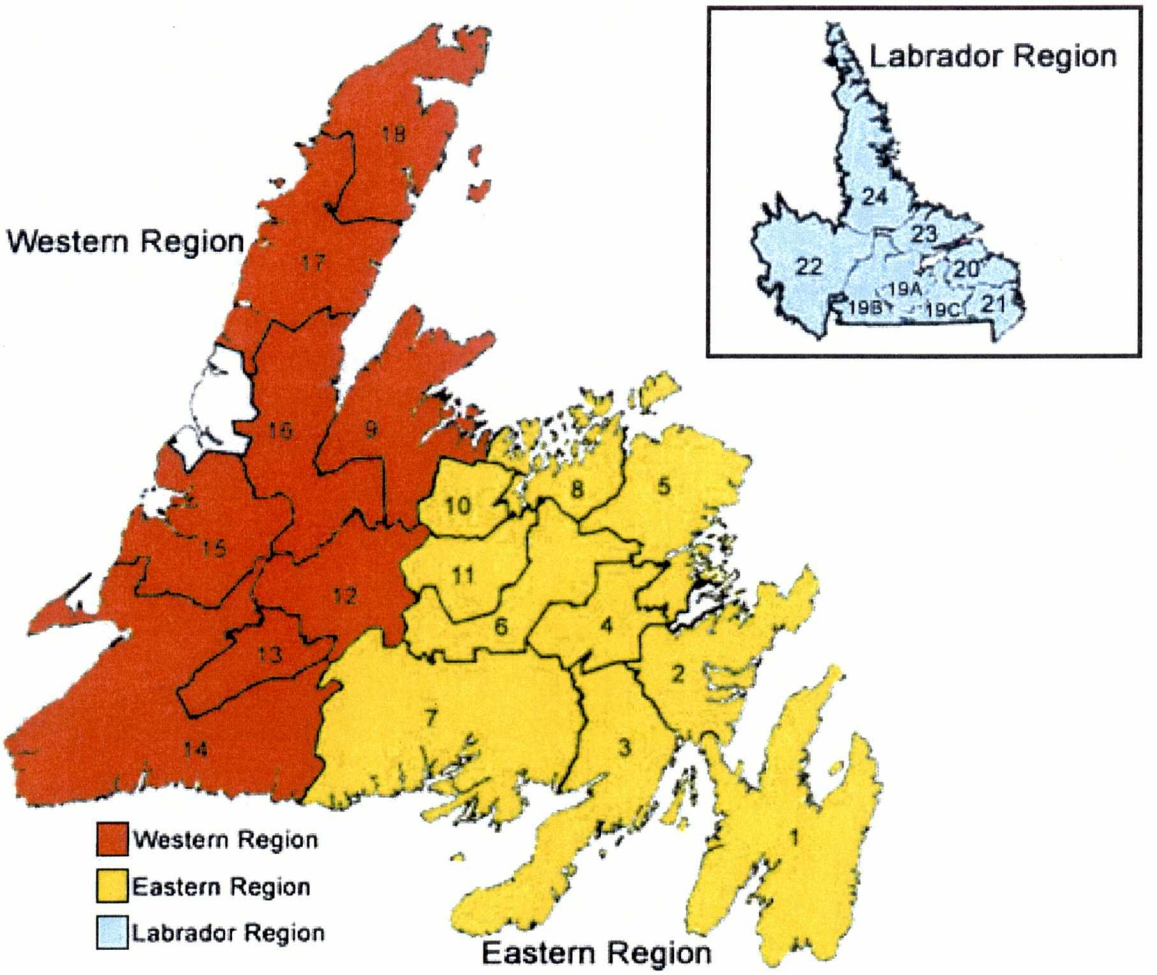

Figure 4.8 – Provincial Forest Management Areas Map

(Source: DFRA, 2002)

Management and Planning

The responsibility of enforcing Newfoundland and Labrador's forestry regulations lies within the provincial Department of Forest Resources and Agrifoods (DFRA). Successful forestry management includes adequate enforcement and protection programs. To carry out the enforcement of the legislation and regulations, the DFRA has approximately 140 Conservation Officers located at various offices throughout the province.

The Eastport Peninsula, as mentioned, is located in Forestry Management District 5. Each of the twenty-four provincial forestry districts are guided by: a *District Management Plan Report* (which outlines the overall management strategy for the district); a *Five-year Operating Plan* (which illustrates where various forestry-related developments will occur); and an *Annual Work Schedule* (detailing activities for the year at hand). In 1990 a new Forestry Act was proclaimed which changed the management focus from timber management to managing the forest for timber while being consistent with other resource management objectives, sound environmental practices and the principle of sustainable development. To accomplish this mandate, planning teams have been established in forest management districts across the Province. These teams are comprised of forest industry representatives, government resource managers, non-government organizations and the general public. These teams work with the district managers to determine the forest values in the district and prepare a forest management plan for the district (DFRA, 2002b).

Besides the DFRA, a number of other agencies, such as the provincial Environment and Government Services and Lands departments, have direct or indirect responsibilities. The Kittiwake Economic Development Corporation, local environmental and economic groups, and other related stakeholders, such as the Newfoundland Lumber Producers Association, also share a vested interest in the development of the District 5 forest resources.

4.8 Agriculture

Generally, agriculture in Newfoundland is secondary to other industries and nearly all production has been for domestic consumption. The climate is not well suited to farming. For the most part, the growing season is too short to permit grains to ripen. The soil is shallow, stony and infertile. Where there is any depth of soil, the natural drainage is poor. Agriculture is not extensive for other reasons as well, namely the fact that for more than four hundred years, Newfoundlanders have been primarily fishermen, by necessity and instinct, and farming while practised in a subsistence manner, was not well founded as an industry. Nevertheless, there are some 742 farms in Newfoundland and Labrador with a total capital value of $184,157.00, according to the 1996 Statistics Canada, Census of Agriculture.

Past and Current Use

Traditionally, farming was viewed with great importance on the Eastport Peninsula. When people in Salvage ran short of arable land near their settlement, the move to Eastport and surrounding areas began. By the end of 1869 forty-five people from Salvage, who wanted to take advantage of level, fertile land, and plentiful timber, had settled in Eastport and within a year, several substantial farms were in operation. Shortly after the beginning of the twentieth century, a downturn in the fishery had much to do with the population turning to agriculture. Later, the First World War (coupled with the decline in the Labrador fishery), placed such a demand on farming that it once again became the area's most important industry. (Hynes, 1999).

The Commission of Government established a new division of service in 1937 (The Department of Rural Reconstruction) and with the passing of the *Cooperative Societies Act* in the summer of 1939, the government embarked upon a land settlement program. A new town materialised; Sandringham extended the area and the population of the Eastport Peninsula's farming community considerably. The government made land readily available for anyone who wished to lease it for the purposes of agriculture. The variety of crops and the amount grown under the new program was astonishing. Agriculture had become the chief industry in the southwest area, with almost 400 hectares under cultivation. (Hynes, 1999).

Various types of agriculture were tried, approaching the 1970s, one of which was the cultivation of greenhouse tomatoes. With five farmers in Sandringham and others in Eastport involved, they helped the area produce the greatest agricultural yield in the province for a number of years. However, shortly after this period, tourism had become the chief economic rival of farming and as a profession, farming eventually became a thing of the past on the Eastport Peninsula. (Hynes, 1999).

Today, there is very little presence of commercial farming on the Eastport Peninsula. There is small-scale vegetable (root crop) farming operations in the communities of St. Chad's (Carpasia Farms Ltd.), Eastport, and Sandringham. There is also a commercial greenhouse operation in Eastport. There are a number of horse, beef and sheep owners in these communities as well. On route to Salvage (in the abandoned settlement of Dark Cove), there are the remains of a hog farming operation formerly called Eastport Farms Ltd., which raised young pigs for sale throughout the province. This farm was in operation from the 1970s through to the early part of the 1990s. (B. Rowsell, *pers. comm.*) Remnants of this once prosperous livestock operation can still be seen today.

Potential Use

One of the agrifood areas, which contain a great deal of potential for the region, is the harvesting, value-added production, and marketing of berries. Within the Kittiwake Economic Development Region (Zone 14), the annual berry harvest has averaged 750,000 pounds with an economic value before processing of $200,000. Combining the substantial productive capabilities with value-added activities, such as the making of jam, jellies, juices and sauces, will result in significant economic development opportunities throughout the zone. In addition to berries, opportunities may exist throughout the zone in: Christmas trees, hogs, sheep, emus and ostriches, and animal feed processing (KEDC, 1997).

Management and Planning

The mission statement of the Agrifoods Branch of the provincial Department of Forest Resources and Agrifoods is to contribute to economic and rural development throughout Newfoundland and Labrador by promoting the continued development, expansion and diversification of competitive and sustainable primary and value-added agrifood businesses. This department is the main body responsible for all aspects of agriculture planning in the province, including areas such as land management, marketing and awareness, and financing.

Agricultural development and regulation in the central Bonavista Bay (Eastport) region is also influenced by a number of other government agencies and private sector representatives including, for example, Department of Government Services and Lands (Lands Branch), the Kittiwake Economic Development Corporation, local commercial and domestic farmers, and other related bodies such as the Newfoundland and Labrador Federation of Agriculture.

4.9 Mining and Mineral Processing

Newfoundland and Labrador's mining sector in 2001, while still very strong, was expected to drop in value from the highs established a year earlier. The total value of the province's mineral shipments was forecasted to be worth approximately $813 million in 2001. (DME, 2002a).

The province's mineral industry produces a dozen mineral commodities that contribute significantly to the provincial economy. Many of these commodities are critical elements in construction, and others are used on a daily basis and are sold on the national and international markets. Metals, principally iron ore products and gold shipments, were forecasted to value $776 million in 2001. Shipments of industrial minerals, or non-metals, were forecasted to be worth approximately $37 million. Also worthy or note was the fact that dimension stone (i.e. slate, marble, granite, limestone,

anorthosite, and sandstone) was forecasted to increase in value in 2001. Direct employment in the mining sector was estimated at approximately 2,560 individuals for 2001 (DME, 2002a).

Past and Current Use

There are no mining operations on or in relative proximity to the Eastport Peninsula. There has not been any major exploration in the area in the past and there does not, at this point, seem to be any significant interest in the area within the foreseeable future. However, this is not to say that prospects of mineral finds on the Eastport Peninsula should be dismissed. Ore and/or mineral deposits can never be disproved with one hundred percent accuracy until proper exploration and assessment are carried out in an area (F. Kirby, *pers. comm.*).

In 1952, there was a mineral occurrence examined, sampled and later documented by J.H. McKillop of the Newfoundland Geological Survey in the 'Fair and False Bay' area, approximately four kilometres west of Burnside (see appendix 8 for Dept. of Mines & Energy – Mineral Occurrence Database System {MODS} Report). The major commodity showing was that of graphite. Other than this find, there have been no others reported on the Eastport Peninsula to date.

The only other mining related activity applicable on the peninsula and worthy of note here would be that of quarry permits and resulting operations. In and around the town of Eastport there are four active quarry permits. These permits are in the names of: a) Department of Works, Services & Transportation; b) Stanley and Walter Tulk; c) Walter Tulk and; d) G & R Contracting Limited. They are all located off of highway 310, approximately 1-2 kilometres west of Eastport and within the town limits (F. Kirby, *pers. comm.*).

Potential Use

According to the Department of Mines & Energy, criteria for an acceptable prospect include fairly good grades, consistency, and quantity. Although mining may be limited within economic development Zone 14 (and presently non-existent on the Eastport Peninsula), for the time being, larger projects which are being undertaken within the province could have an impact on the local economy. Contracts associated with large projects such as Voisey's Bay and the construction of a smelter in Argentia could be filled by companies within the zone 14 region, including the Eastport Peninsula (KEDC, 1997).

Opportunities stemming from mining activity should not be limited to just those involved with the extraction of resources from the earth. Ample opportunities exist to provide some secondary processing of minerals mined from all over the province. Creating awareness of these opportunities for local companies, as well as attracting foreign investment to take advantage of the close

proximity to valuable mineral resources, and to a transportation network consisting of air and sea-lift capabilities (within zone 14) should be given higher priority (KEDC, 1997).

Management and Planning

The Department of Mines & Energy is responsible for the management and development of the province's mineral and energy resources. The department has the major responsibility for mineral exploration, mining and quarrying activities within the province. Other federal/provincial government bodies and agencies also share in various direct or indirect responsibilities in mineral resources such as Natural Resources Canada, the Department of Government Services and Lands, and the Newfoundland and Labrador Chamber of Mineral Resources. On a regional basis, interest lies within the mining industry, the KEDC and local development corporations, municipalities and other interested stakeholders including various environmental groups.

4.10 Oil and Gas

Past and Current Use

As a province, Newfoundland and Labrador has seen significant growth in its oil and gas industry over the past two decades. Since the first significant activities in the 1960's, the industry has been, and continues to be, carefully managed and developed and today it is one of the fastest growing industries within the province. There are four main areas of current offshore oil interest in the province: a) Grand Banks/Flemish Pass (with current exploration, significant discovery, and production licenses granted); b) Newfoundland South Whale Basin (with current exploration licenses granted); c) Newfoundland West Coast (with current exploration licenses granted) and; d) Labrador Coast (with current significant discovery licenses granted) see Figure 4.9.

The Eastport Peninsula or Bonavista Bay area does not come within any of these areas or even remotely close to either of them. In fact, the peninsula itself and the offshore area beyond the Bonavista Bay vicinity is not a primary area for petroleum exploration. The geology of the area simply does not allow for development or exploration and as a result, there has been no interest to date in this area by oil exploration companies (D. Hicks, *pers. comm.*). Also noteworthy, is the fact that there are no hydro developments (small scale or other) on or near the Eastport Peninsula.

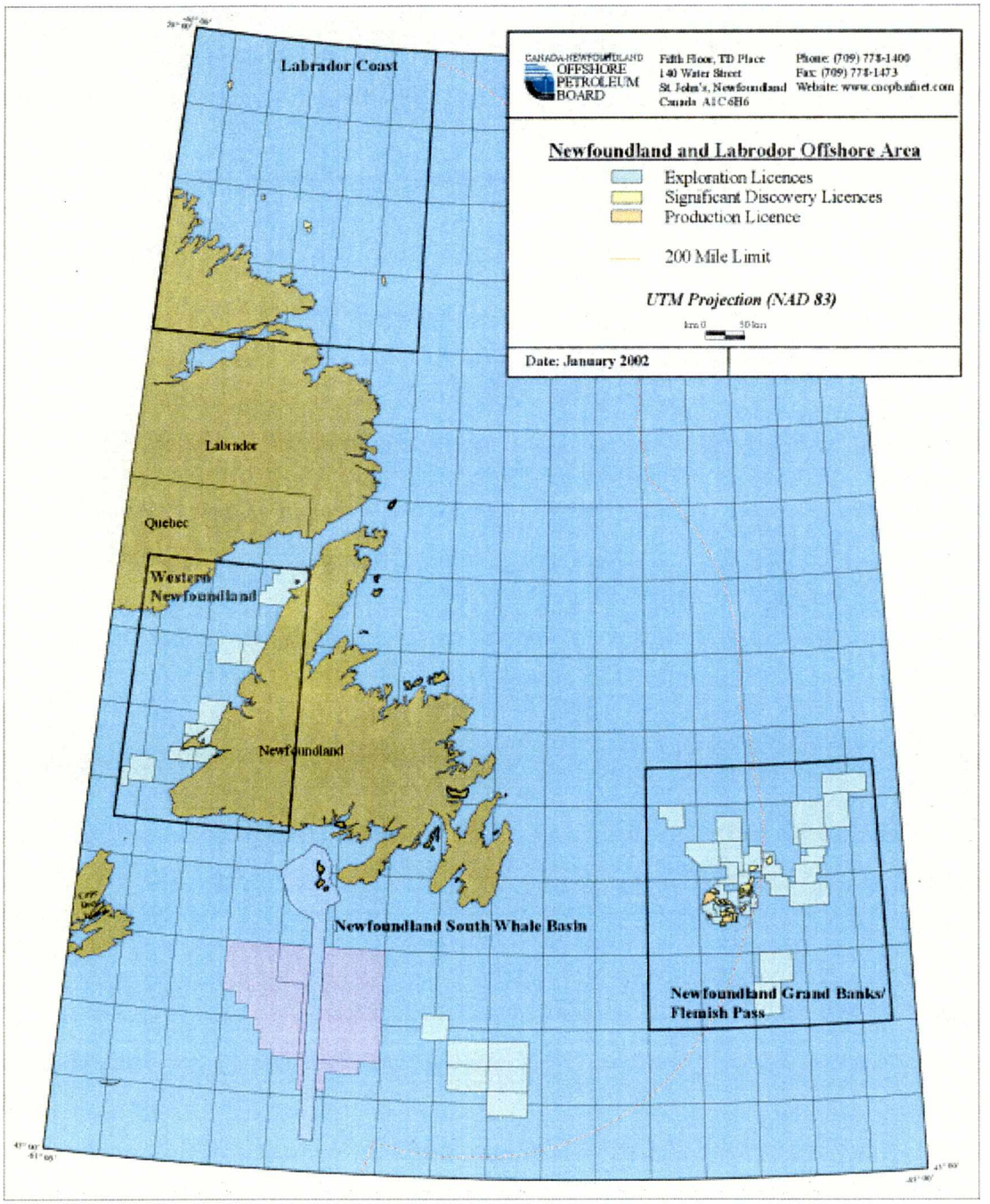

Figure 4.9 – Offshore Petroleum Map (Newfoundland & Labrador)
(Source: CNOPB, 2002)

Potential Use

It is impossible to predict whether or not there will ever be any oil exploration, or resulting discoveries, within the vicinity of Bonavista Bay. However, as discussed previously, there is no foreseeable potential in oil and gas on the Eastport Peninsula.

Management and Planning

The Canada-Newfoundland Offshore Petroleum Board (C-NOPB) manages the petroleum resources in the Newfoundland and Labrador offshore area on behalf of the Government of Canada and the Government of Newfoundland and Labrador (CNOPB, 2002).

4.11 Manufacturing

According to the Newfoundland Statistics Agency's December 2000 figures, Newfoundland and Labrador had a total of 823 manufacturing firms, 38 of which were located in central Newfoundland. By count, the majority of the aforementioned firms are small to medium manufacturing enterprises, however as expected, the largest in the province operate within fish products and pulp and paper industries. In all, year 2000 manufacturing accounted for 6.6% of the province's overall gross domestic product (Newfoundland Statistics Agency, 2001).

Past and Current Use

At present, the core manufacturing element on the Eastport Peninsula revolves directly around fish production and processing. As addressed in detail in section 4.1, fish processing plants are located in Happy Adventure and Salvage. Outside of fish products and processing, there are currently no major manufacturing operations located directly on the Eastport Peninsula (D. Vardy, *pers. comm.*).

There was one significant manufacturing business however, that did operate up until a few years ago in the town of Eastport, producing value-added wood products. In November 1991, construction was started on the site for a wooden furniture manufacturing operation initially called Heritage Woodworks. This operation was closed down in 1995 and the building and property remained vacant for a couple of years. It was purchased and reopened in February 1997 as Heritage Manufacturing, and the new owners began producing wood-based products such as mouldings and baseboards. This operation lasted for a few years, and has recently closed. Over this time, local employment at these manufacturing operations averaged close to 30 people (C. Lane, *pers. comm.*). The closure of Heritage Woodworks did not put an end to furniture manufacturing in Eastport.

There is currently a small-scale local furniture/craft manufacturer (The Village Craftsman) located in the town (D. Williams, *pers. comm.*).

While not a direct part of the Eastport Peninsula, Glovertown does employ a number of individuals from the area and because of the significance of manufacturing operations in that town, a few of the larger players are addressed here. With a population of 2,163 (Census, 2001), Glovertown has built an established local fabrication industry with a couple or main players. Fab-Tech Industries Inc. manufacture aluminium boats and a variety of other steel and stainless steel processing equipment in their 9000 square foot facility (www.fab-tech.ca). Another major manufacturer in the area, Glovertown Marine Limited, is in the shipbuilding business, building and repairing a range of steel vessels up to 130 feet. Other manufacturing industries operating in the Glovertown area include High Sea Foods Limited, Terra Vista Limited (Fishery products), Glovertown Literacy Creations Incorporated (Textbooks/Cookbooks/Manuals) Terra Nova Industries Limited (Asphalt/Concrete aggregates & road gravels), and Crossroads Contracting Limited (Road construction materials/ Blending sand), in nearby Traytown (F. Holloway, *pers. comm.*).

Potential Use

Canadian Manufacturers and Exporters, Newfoundland and Labrador Division, sites a number of reasons for the further development of small scale manufacturing in the province. Among them are the facts that small scale manufacturing: a) is a propulsive and growing sector of the global economy; b) offers year round stable employment with good salaries; c) provides an opportunity to diversify the province's economic base; d) is viable in rural areas; e) builds on an existing industry base in the province and; f) has modest capital financing requirements.

Presently, there are no local groups focused on attracting manufacturing operations to the Eastport Peninsula (D. Vardy, *pers. comm.*). Specific to the peninsula, manufacturing is not seen as being of great importance to the local economy as it is far outweighed by other industries such as tourism and fishing. There is some potential however, given the existence of the former Heritage Manufacturing structure in Eastport, a relatively new building, well suited to house a manufacturing or similar venture. It is located on a main throughway and is easily accessible from the TCH. As well, there is an available workforce in the immediate area, many perhaps recently trained in the wood production business and fabrication industries specifically.

Management and Planning

Developmental responsibility and/or interest in Eastport Peninsula manufacturing opportunities include a number of direct or indirect parties. They include, but are not limited to, the provincial Department of Industry, Trade and Rural Development, the Kittiwake Economic Development

Corporation, local municipalities, current local manufacturers as well as other agencies such as Canadian Manufacturers and Exporters and the Canada/Newfoundland Business Services Centre. Other regulatory bodies and agencies may also come into play depending on the specific type of manufacturing in question.

5.0 MANAGEMENT ISSUES

As the title suggests, this section of the report provides an overview of the management issues related to the Eastport Peninsula Area of Interest. Issues addressed concern onshore and nearshore discharges of domestic sewage and industrial effluent (Section 5.1), marine use conflicts, including those between different fisheries, between fisheries and aquaculture, and between aquaculture and other marine uses (Section 5.2), and concerns about onshore use conflicts (Section 5.3).

5.1 Pollution

Despite its small population base, the Eastport Peninsula has the potential to be influenced by any number of contaminants that could have a negative impact on the local environment. Bonavista Bay (in which the Eastport Peninsula is contained) has a number aquaculture sites for blue mussels and Atlantic cod, thirteen fish processing facilities, three municipal waste incinerators, nine fish waste disposal sites and one abandoned landfill site that is of high environmental concern. There is also one site with a high level of environmental concern with respect to high molecular weight PAHs (Petroleum Aromatic Hydrocarbons) and one with high concern for PCBs (Polychlorinated Biphenyl's), neither of which is on the Eastport Peninsula.

Ocean dumping, which occurs in the area, can have a variety of negative impacts on the environmental quality of the marine environment depending on the nature of the material and the dumpsite. These impacts may include the obstruction of navigation, smothering of fish and fish habitat, altering shoreline erosion patterns, re-suspension of fine sediments, leaching of toxic contaminants, and fouling of beaches and coastal waters. Municipal waste incinerators, particularly the inefficient tepee burners are considered to be a very significant source of dioxins and furans in Newfoundland. The household hazardous wastes that are dumped into landfills can leach in lakes, rivers and ocean, and pollute the groundwater that feeds wells and water supply areas.

Approximately half of the town of Eastport is hooked up to a municipal sewage system with secondary treatment (aeration) and a sewage outfall to the marine environment. There are a total of sixteen sewage outfalls in the surrounding Bonavista Bay region, as displayed in Figure 5.1. Sewage contamination is recognised to be one of the most significant threats to coastal environments worldwide. Human waste contains high levels of nutrients, including ammonia, which can be toxic to fish, and are linked to harmful algal blooms. Sewage also contributes significant concentrations of suspended solids and increases biological oxygen demand, which can cause harm to aquatic ecosystems. Other harmful ingredients include pathogenic micro-organisms,

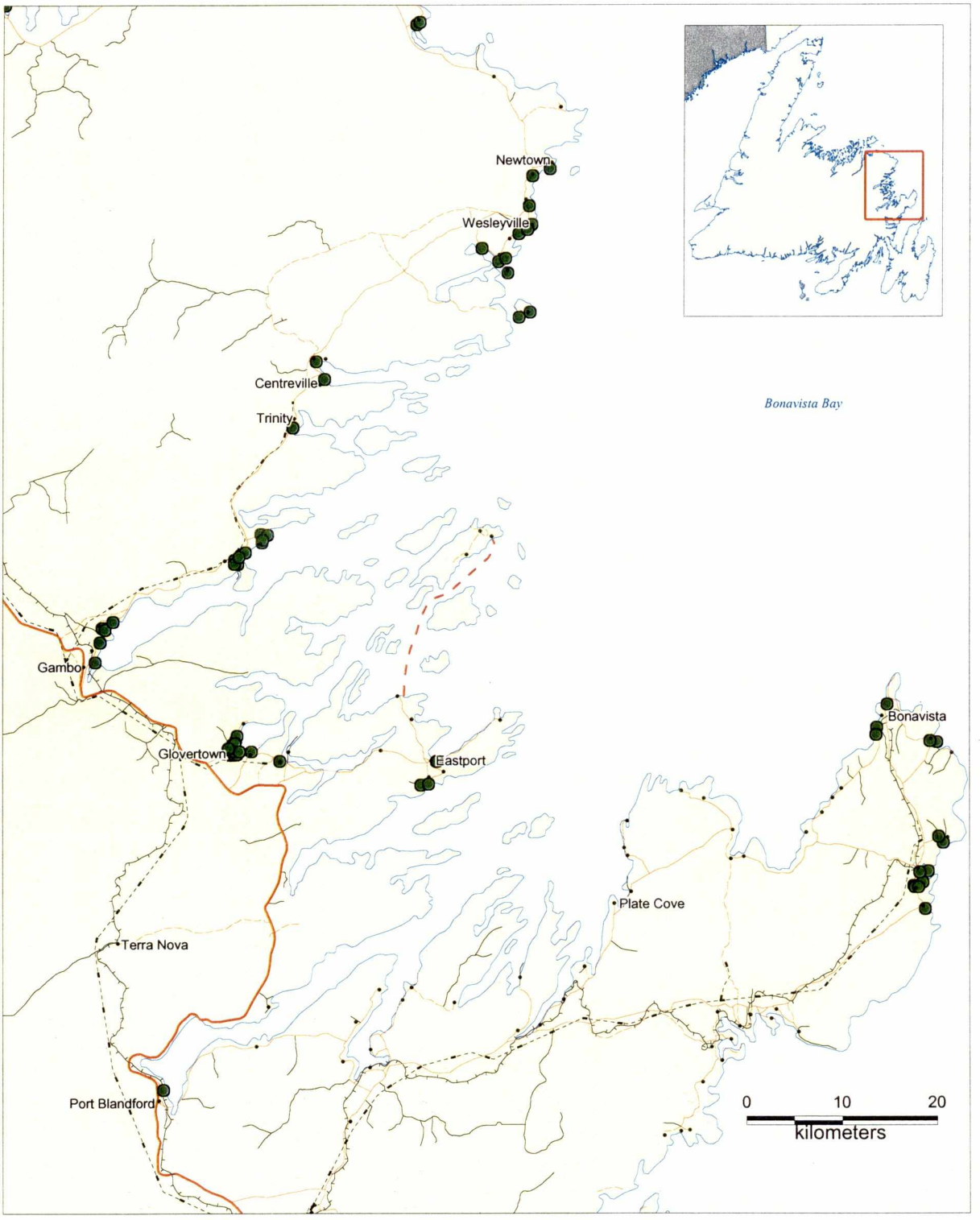

Figure 5.1 – Bonavista Bay Sewage Outfalls

various debris such as toilet paper, plastic containers, condoms, tampons, rags, and over 200 chemicals that are dumped into sewers by households, businesses, and industries. Natural hormones, commonly used drugs such as birth control pills, antibiotics and pain killers and food ingredients such as caffeine can be reach significant concentrations in sewage effluent. Contamination, as discussed, is an issue related to shellfish areas. In the Eastport area, concerns over aesthetic value near sewage outfall sites have not been addressed in detail. Figure 5.2 depicts the area shellfish closures.

The potential effect of commonly used products such as cleaners, bleach, drain cleaners, shampoos, deodorants and pharmaceuticals on the marine environment around Eastport may be increased due to the presence of personal care homes, residential dwellings, a school, a church, a post office, an abundance of bed and breakfasts, housekeeping units, cabins, eating establishments and nearby fish plants. Species like lobster may feed on faecal material, accumulating high concentrations of pathogenic bacteria, chemicals and other contaminants in their bodies, particularly in the hepatopancreas (tomalley, "green stuff") which is considered a delicacy by many consumers. This is a particular concern to the Eastport region since the establishment of the EPLPC aimed at helping sustainability and enhancement of the local lobster population. Another key issue of sewage relates to contamination of shellfish and swimming beaches, which are important to the aesthetic quality and tourism industry on the peninsula. Pathogens ingested directly (for example during swimming) can cause many serious diseases such as hepatitis as well as diarrhoea, skin and ear infections.

The environmental concern associated with fish processors has not been assessed closely. The concerns stem from effluent that gets piped directly into the ocean from processing facilities, barge dumping of fish offal at sea, and the high water consumption involved in the processing procedure. Although it is accepted that some degradation of marine environmental quality is often associated with certain aquaculture operations, there is a general lack of knowledge regarding the overall effects. Blue mussel farms are the most common type of aquaculture operation in Newfoundland, and are generally considered to have minimal negative impacts, however this has not been adequately assessed. There is also little concrete information on the impacts of cod grow-out farms (three of which are present on the Eastport Peninsula). They are normally considered to be of low environmental concern however, as they are generally in operation for only 6 months of each year, allowing time for the site to recover.

The potential for the input of polluting substances via construction and fabrication around Eastport are possible. As a major tourist attraction on the Kittiwake Coast, the town is home to a number of bed and breakfasts, housekeeping units, cabins, an R.V. park, a theme park and 5 restaurants and/or take outs. Establishments that serve the pubic, particularly those in the tourism industry, frequently undergo renovations to improve the quality of facilities. Although there is no fabrication industry on

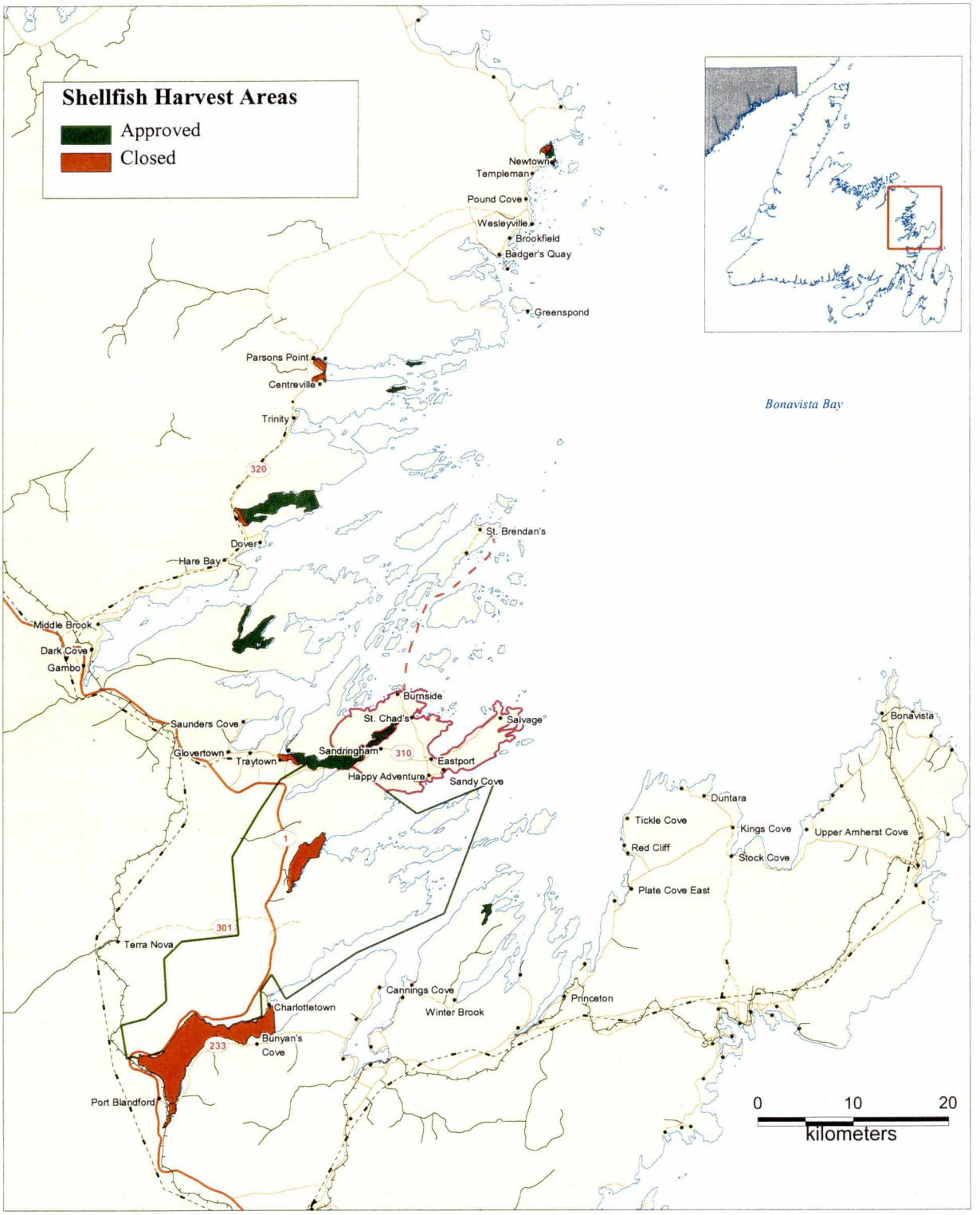

Figure 5.2 – Eastport Peninsula Shellfish Harvest Areas

the Eastport Peninsula there are a variety of industries present in nearby Glovertown, as discussed in section 4.11.

The potential also exists for inputs of oil and gas into the marine environment of the Eastport Peninsula. The town has a gas station, an auto repair shop and a service centre/welding shop. In addition, there are boat tours and docking activity within Terra Nova National Park, which is located in close proximity to Eastport.

The management of environmental quality falls under the jurisdiction of many federal and provincial government departments. In the case of aquaculture facilities, the provincial *Aquaculture Act* outlines guidelines for strict compliance. As well, DFO and Environment Canada jointly administer the *Canadian Shellfish Sanitation Program* with supplementary assistance from the Department of National Health and Welfare. Other government agencies are responsible for legal requirements concerning land use activities (e.g. road construction, agricultural practices and forest harvesting) near water body areas. In the event of new project proposals, which may affect the overall environmental quality of the Eastport Peninsula Area of Interest, mechanisms such as acts, regulations and guidelines have been established by both the provincial and federal departments of Environment to address the relevant concerns.

5.2 Marine Use Conflicts

Open space competition and navigational conflicts resulting from possible collisions are important issues in marine water bodies. Surrounding the Eastport Peninsula, a number of vessels utilise the waters of Bonavista Bay. Fishing vessels, recreational pleasure crafts, ferry services (Burnside-St. Brendan's) and tour boats from TNNP make up the bulk of the marine traffic. In Canadian waters the use of VHF radio is a major means of communication for vessel operators and the CCG. Designated channels provide weather conditions, indicate marine hazards and allow vessels to converse with one another or contact CCG to avoid collisions or minor mishaps. The *Navigable Waters Protection Act* guides the use of vessel navigation in coastal waters surrounding the Eastport Peninsula.

Pollution concerns resulting from minor, major or chronic oil spills are also important issues in marine water bodies. A number of acts, regulations and guidelines, including the *Canadian Shipping Act*, and the *Navigable Waters Protection Act*, apply to oil and gas related activities in Canadian waters. However, due to the relative absence of oil and gas activity in Bonavista Bay, the potential for oil-related industrial activity (and possible resulting oil spills) is minimal.

Aquaculture operations can also present a significant navigational hazard to vessel users. Aquaculture operations are required to meet regulations stipulated in the *Aquaculture Act* and comply with the *Navigable Waters Protection Act*. However, the potential exists for other users (e.g. recreational boaters and fishers) who lack knowledge of navigational rules concerning aquaculture to damage, not only aquaculture gear, but also their own vessels. Many people involved in recreational boating feel that the mandatory buoys of an aquaculture site essentially restrict where they can go. The mere presence of the associated buoys can also be unsightly to the individuals living in close proximity to them.

In regards to the aquaculture industry, there are a few concerns that have the potential to cause conflict. Environmentally there is a concern of nutrient loading into the ecosystem. Not all the food given to a fish will be consumed and there is also a great deal of waste products that come from the fish in cages. Without insufficient flushing, the sediment accumulation will be to the detriment of natural occurring fish stocks. There is also a concern of escapees. People worry that the escape of genetically altered fish into the wild will have negative effects on natural populations. Concern also exists as to disease being a factor within aquaculture farms and the rate at which it can spread once introduced. Finally, some believe aquaculture will continue to take away from the traditional livelihood of fisherpersons. Because of any of the above-mentioned reasons it is possible conflicts with regular fisherpersons and aquaculturalists could result (P. Sargent, *pers. comm.*). To date there has been no apparent major conflicts relating to the Eastport Peninsula cod grow-out sites. Should conflicts arise, they are resolved using discussion, compromise and by following the provincial Sharing Coastal Resources management plan (B. Tompkins, *pers. comm.*).

5.3 Onshore Use Conflicts

Specific onshore resource use conflicts (e.g. forestry, agriculture, and mining) have not been identified through published or unpublished sources.

As indicated above, the management of environmental quality falls under the jurisdiction of many federal and provincial government departments and a number of acts, regulations and guidelines exist to appropriately address use and user conflicts.

6.0 SUMMARY & RECOMMENDATIONS

Following the social and economic challenges that resulted from the collapse of the groundfish sector, many difficult lessons have been learned about the importance of conservation and sustainable utilization. This socio-economic report will serve as an appropriate tool for the stakeholders of the Eastport Peninsula Area of Interest in their vision of creating an MPA. This overview is designed to give the reader a good impression of the socio-economic issues that present themselves in the Eastport area. It is intended that as new information becomes available, updating of this document from its current state should occur.

This overview details the social, cultural, economic and historic elements of the human activity that occurs on the Eastport Peninsula. Given this information, stakeholders can identify management and planning issues and determine how the establishment of an MPA would be affected given this human presence. Assessing the effects of establishing an MPA in the Eastport Peninsula Area of Interest is beyond the scope of this paper and any such assessment would need to take into account other area overviews (such as the MEQ and Biophysical Overview).

It is recommended that a further section be amended to this overview comprising of a detailed review of fishery stock statuses by species for the Bonavista Bay region. Various information from such works as the Biophysical Overview, prepared by LGL Limited, could be utilized further to this end. It is important to convey the most accurate picture of the fishing industry as possible, as it is one of the main drivers of employment on the Eastport Peninsula and of particular importance as to the overall evaluation of the MPA project.

7.0 BIBLIOGRAPHY

7.1 *Personal Communications:*

Barnett, L — Fish Harvesters Resource Centre. St. John's, Newfoundland.

Budden, W — Conservation Officer, Department of Forest Resources and Agrifoods, Government of Newfoundland and Labrador. Gambo, Newfoundland.

Churchill, D — Chairman, Road to the Beaches Tourism Association, (Director - Kittiwake Coast Tourism Association). Glovertown, Newfoundland.

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Lane, C — Town Office, Eastport Town Council. Eastport, Newfoundland.

Mercer, D — Conservation Officer, Department of Forest Resources and Agrifoods, Government of Newfoundland and Labrador. Gambo, Newfoundland.

Parsons, G — Development Officer, Department of Fisheries and Aquaculture, Government of Newfoundland and Labrador. New-Wes-Valley, Newfoundland.

Rowsell, B — Agricultural Representative, Department of Forest Resources and Agrifoods, Government of Newfoundland and Labrador. Gander, Newfoundland.

Russell, A — Statistical Analyst. Department of Fisheries and Oceans. Policy and Economics Branch – Statistics Division. Government of Canada. St. John's, Newfoundland.

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Williams, D Community Development Officer, Kittiwake Economic Development Corporation. Gander, Newfoundland.

7.2 *Works Cited:*

BCI (Burke Consulting Inc.). (2000). Strategic Plan – Newfoundland and Labrador Aquaculture. Prepared for the Government of Newfoundland and Labrador in collaboration with Resource Development Associates.

Beacon, The. (2000). "Sandy Cove receives top award." (November 13, 2000.)

Beacon, The. (2001). "Fire guts Salvage fish plant." (June 25, 2001.)

BHF, (Burnside Heritage Foundation). (2000). Informational Pamphlet.

Cairns, D.K., Montevecchi, W.A., and Threlfell, W. (1989). Researchers Guide to Newfoundland Seabird Colonies. ISSN 0702-0007.

Canadian Manufacturers and Exporters, Newfoundland and Labrador Division (n.d.), [Online Resource] *http://www.alliancenf.ca*.

Census of Newfoundland (1857-1945).

CNOPB (Canada-Newfoundland Offshore Petroleum Board). (2002). [Online Resource] *http://cnopb.nfnet.com/main.htm*.

CRS (Community Resource Services Limited). (2001). Socio-Economic Overview of Placentia Bay, Newfoundland. Prepared for the Department of Fisheries and Oceans in cooperation with Jacques Whitford Environmental Limited.

Decks Awash (Periodical), Centre for Newfoundland Studies: Memorial University of Newfoundland. Volume 14, No. 5 (September – October 1985, illus.)

DFA, (Department of Fisheries and Aquaculture). (1999). Aquaculture Licensing Policy and Planning Manual. Government of Newfoundland and Labrador.

DFA, (Department of Fisheries and Aquaculture). (2002a). [Online Resource] *http://www.gov.nf.ca/fishaq/Aqua/Products.htm*

DFA, (Department of Fisheries and Aquaculture). (2002b). Newfoundland and Labrador Aquaculture Geographic Information System. [Online Resource] *http://aquagis.com* St. John's, NF: Department of Fisheries and Aquaculture, Government of Newfoundland and Labrador.

DF-ES, (Department of Finance – Economics and Statistics Branch). (2001). The Economic Review – November 2001. St. John's, Newfoundland.

DFRA, (Department of Forest Resources and Agrifoods). (2002). [Online Resources]
a)*http://www.gov.nf.ca/forest/wildlife/default.htm,*
b)*http://www.gov.nf.ca/forest/forest/forestry.htm,*
c)*http://www.gov.nf.ca/agric/default.htm.*

DFRA, (Department of Forest Resources and Agrifoods). (2000). 1998-1999 Lumber Production Report – Information Report No. 28. Forest Engineering and Industry Services. Government of Newfoundland and Labrador.

DFO (Department of Fisheries and Oceans). (2002). [Online Resource] *http://www.dfo-mpo.gc.ca/communic/statistics/aquacult/Aqua_E.htm*

DFO (Department of Fisheries and Oceans). (2002). Marine Protected Areas/ Area of Interest (facsimile sheet) – can be viewed in Appendix XX.

DME, Department of Mines and Energy (2002a). [Online Resource] *http://www.gov.nf.ca/mines&en/.*

DME, Department of Mines and Energy (2002b). [Online Resource] Mineral Occurrence Data System (MODS) *http://gis.geoserv.gov.nf.ca/modsasp/NTS.idc.*

DTCR (Department of Tourism, Culture and Recreation) (2001). 1999/2000 Travel/Tourism Indicators for Newfoundland and Labrador. St. John's, NF: DTCR, Strategic Planning and Policy Division, Government of Newfoundland and Labrador.

DTCR (Department of Tourism, Culture and Recreation) (2002a). [Online Resource] *http://www.gov.nf.ca/tourism.*

DTCR (Department of Tourism, Culture and Recreation) (2002b). 2002 Travel Guide. St. John's, NF: Department of Tourism, Culture and Recreation, Government of Newfoundland and Labrador.

DTCR (Department of Tourism, Culture and Recreation) (n.d.). Hunting & Fishing Guide. St. John's, NF: Department of Tourism, Culture and Recreation, Government of Newfoundland and Labrador.

DTCR (Department of Tourism, Culture and Recreation) (n.d.). Heritage Guide. St. John's, NF: Department of Tourism, Culture and Recreation, Government of Newfoundland and Labrador.

DWST (Department of Works, Services and Transportaion) (2002.). [Online Resource] *www.gov.nf.ca/wst*.

Eastport Peninsula MPA Proposal, An area of interest for establishment of a Marine Protected Area. (Proposal submitted to DFO by EPLPC). (2000).

ENL (The Encyclopedia of Newfoundland and Labrador). (1991-98). (Volumes 1-5) St. John's, NF: Newfoundland Book Publishers Ltd. and Harry Cuff Publications Ltd. (1981-1994) (Community References: Burnside, Eastport, Happy Adventure, Salvage, Sandringham, Sandy Cove (Bonavista Bay), St. Brendans and St. Chad's.)

Evening Telegram, The. (1995). "Archeologists mining site for tourism potential." (June 23, 1995.)

Fab-Tech Industries Inc. (n.d.), [Online Resource] *www.fab-tech.ca*.

FRC, Fish Harvesters Resource Centre. (n.d.), [Online Resource] *http://www.frc.nf.ca/price_report/other.htm*.

Hynes, D. B. (1999) The Eastport Peninsula: A People of the Sea and the Soil Celebrations 2000. Gander, NF: Eastport Peninsula Celebrations 2000 Inc.

KEDC (Kittiwake Economic Development Corporation). (1999). The Kittiwake Region Economic Development Zone 14 Profile. Gander, Newfoundland.

KEDC (Kittiwake Economic Development Corporation). (1997). Zone 14 5-year Strategic Economic Plan. Gander, Newfoundland.

KEDC (Kittiwake Economic Development Corporation). (19__). Phase I Marine Development Strategy. Gander, Newfoundland

Kittiwake Coast Tourism Association (n.d.), [Online Resource] *http://www.kittiwakecoast.com*.

LGL Limited (Environmental Research Associates – November 2001), A Biophysical Overview of Eastport, Bonavista Bay. St. John's, NF: LGL Report SA684.

MPPO (Marketing Plan and Partnership Opportunities) 2002 – A marketing directory of Newfoundland and Labrador Tourism and how you can participate. Department of Tourism, Culture and Recreation. St. John's, Newfoundland.

Newfoundland Statistics Agency, Department of Finance, Government of Newfoundland and Labrador. [Online Resource] *http://www.nfstats.gov.nf.ca*.

Road to the Beaches Tourism Association (n.d.), [Online Resource] *http://www.roadtothebeaches.com*.

Robinson Blackmore (n.d.). [Online Resource] *http://www.rb.nf.ca*.

SPC (Seafood Processing Consultants). (1998). Market Study and Commercialisation Plan for the Newfoundland Seafood Industry. A Report Prepared for the Canada/Newfoundland Cooperation Agreement for Fishing Industry Development.

Statistics Canada. Census of Canada, 1951, 1961, 1971, 1981, 1991, 1996, and 2001.

Statistics Canada (2001). Labour Force Survey [Online Resource] *http://www.statcan.ca*.

Statistics Canada (1996). Census of Agriculture, 1996.

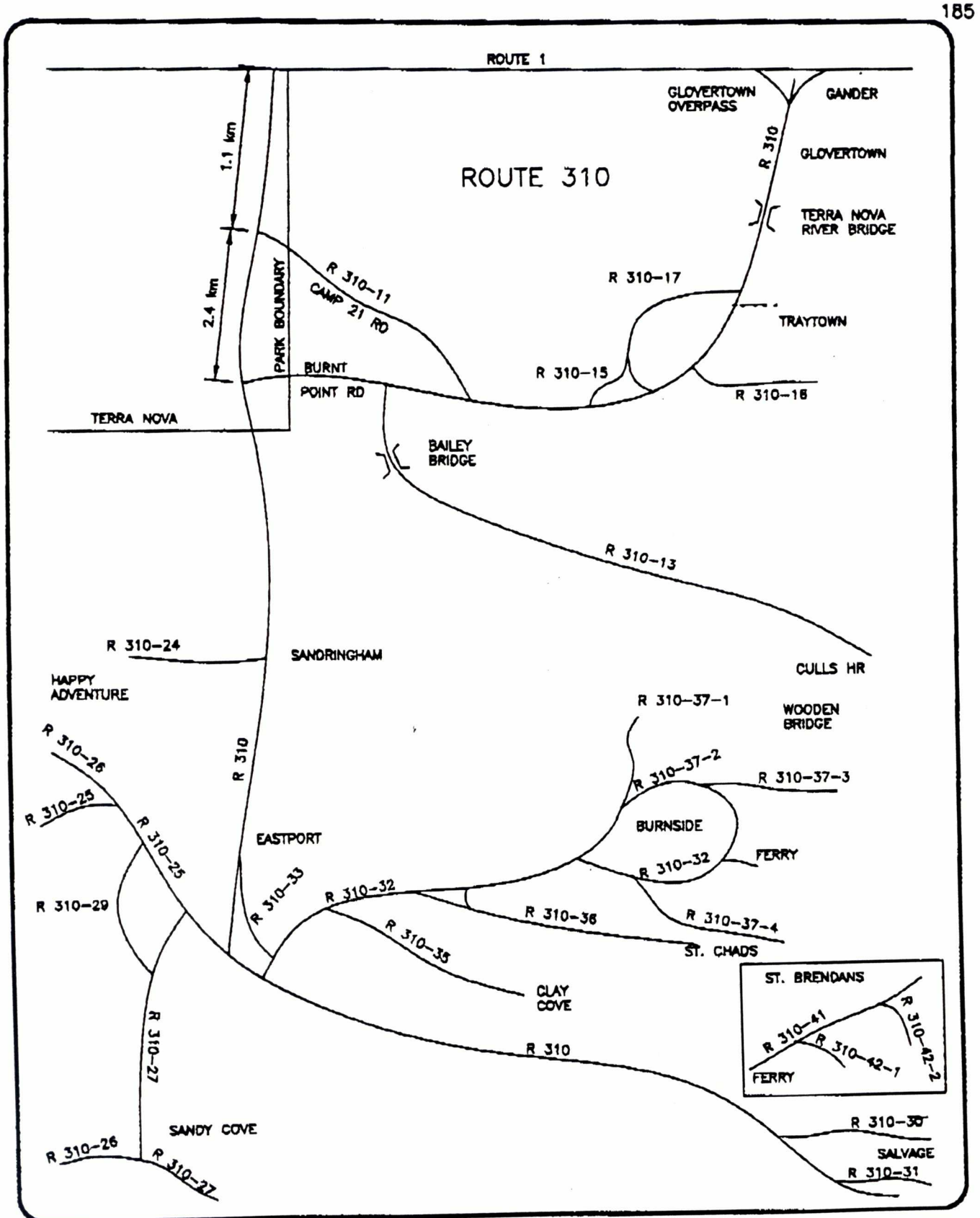
Sunday Digest. (1998). "The Shroud of Salvage – A trip to the Eastport area turns up fascinating facts about our past." July 26, 1998.

Sunday Express. (1990). "Burnside hopes ancient quarry will provide a potent tourist lure." September 7, 1990.

TNNP, (Terra Nova National Park). (n.d.), [Online Resource] *http://parkscanada.pch.gc.ca/parks/newfoundland/*.

Town of Eastport, (n.d.). [Online Resource] *http://www3.nf.sympatico.ca/town.eastport/*.

Appendix 1



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
DEPARTMENT OF WORKS, SERVICES AND TRANSPORTATION
EASTERN REGION

ROUTE 310

DRAWN BY:	DATE: APRIL, 2000	SCALE: N.T.S.

ROUTE 310
GLOVERTOWN – SALVAGE

DESCRIPTION	KILOMETRES
Intersection Routes 1 and 310 Entrance (West)	0.00
Intersection Routes 310 and 1 Exit (East)	0.60
Glovertown Overpass	0.70
Intersection Routes 310 and 310 Exit (West)	0.90
Intersection Routes 310 and 310 Entrance (East)	1.10
Glovertown Boundary	1.20
Tucker's Birch View Manor Motel	1.40
Glovertown Town Hall	3.60
Glovertown Post Office	3.60
Intersection Route 310 and Glovertown South Road	3.70
Irving Service Station	3.70
Rest–A–While Motel	3.80
R.C.M.P. Detachment	4.00
Ackerman's Motel	4.10
Ultramar Service Station	4.20
Terra Nova River Bridge	6.20
Esso Service Station	7.40
Glovertown Boundary	7.70
Traytown Boundary	7.70
Traytown Government Wharf	9.30
Cozy Cabin Resort	9.80
Intersection Route 310–11 to Traytown	10.10
LeDrew's Housekeeping Units	10.20
Intersection Route 310–13 to Cullis Hr.	10.30
Traytown Tourist Cabins	10.80
Traytown Boundary	11.50
Terra Nova Park Boundary	12.20
Intersection Routes 310 and Access to T.C.H.	12.90
Through Terra Nova National Park	
Terra Park Boundary	17.60
Sandringham Boundary	20.20
Irving Gas Bar	20.90
Intersection Route 310–24 Post Office Road	22.50
Sandringham Boundary	23.00
Eastport Boundary	23.30
Beothuck Village Trailor Park	23.30
Eastport Efficiency Units and Trailor Park	24.60
Dept. Works, Services & Trans. Depot	25.40

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
DEPARTMENT OF WORKS,
SERVICES AND TRANSPORTATION
EASTERN REGION

GLOVERTOWN – SALVAGE
ROUTE 310

DRAWN BY: | DATE: APRIL, 2000 | SCALE: N.T.S.

ROUTE 310
GLOVERTOWN – SALVAGE (Cont'd)

DESCRIPTION	KILOMETRES
CBC Service Station	25.90
Ultramar Service Station	26.10
Intersection Routes 310 and 310–33	26.50
Intersection Route 310–25 to Happy Adventure	27.30
Intersection Route 310–32 to Burnside	27.40
Eastport Boundary	28.60
Seaview Cottages	29.80
Salvage Boundary	35.80
Intersection Routes 310 and 310–30	36.50
Intersection Routes 310 and 310–31	37.70
Salvage Community Stage	38.10
End Route 310	38.30

Note: From Intersection T.C.H. at Terra Nova Park West Boundary to Intersection Route 310 (3.5km). See Map Page 185.

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
DEPARTMENT OF WORKS, SERVICES AND TRANSPORTATION
EASTERN REGION

GLOVERTOWN – SALVAGE (Cont'd)
ROUTE 310

DRAWN BY: | DATE: APRIL 2000 | SCALE: N.T.S.

Appendix 2

Community Population Profiles

Characteristics	Newfoundland
2001 Population	512,930
1996 Population	551,792
Population Change (1996-2001)	-7.0
Total Private Dwellings	227,570
Population Density (per square kilometre)	1.4
Land Area (square kilometres)	370,501.69

All Communities within Census Division 7

Characteristics	Salvage
2001 Population	203
1996 Population	240
Population Change (1996-2001)	-15.4
Total Private Dwellings	100
Population Density (per square kilometre)	12.8
Land Area (square kilometres)	15.86

Characteristics	Eastport
2001 Population	509
1996 Population	557
Population Change (1996-2001)	-8.6
Total Private Dwellings	299
Population Density (per square kilometre)	27.3
Land Area (square kilometres)	18.64

Characteristics	Happy Adventure
2001 Population	245
1996 Population	285
Population Change (1996-2001)	-14.0
Total Private Dwellings	143
Population Density (per square kilometre)	25.5
Land Area (square kilometres)	9.62

Characteristics	Sandy Cove
2001 Population	152
1996 Population	160
Population Change (1996-2001)	-5.0
Total Private Dwellings	83
Population Density (per square kilometre)	16.9
Land Area (square kilometres)	9.01

Characteristics	Sandringham
2001 Population	262
1996 Population	291
Population Change (1996-2001)	-10.0
Total Private Dwellings	109
Population Density (per square kilometre)	27.3
Land Area (square kilometres)	9.60

Characteristics	Subdivision 'D'
2001 Population	224
1996 Population	232
Population Change (1996-2001)	-3.4
Total Private Dwellings	735
Population Density (per square kilometre)	0.1
Land Area (square kilometres)	2,478.95

(Note: Burnside & St. Chad's included in the above but data from the individual communities not yet published from with the available 2001 numbers. See below for 1991 - 96 population statistics.)

Characteristics	Burnside
1996 Population	59
1991 Population	68
Population Change (1991-96)	-13.2

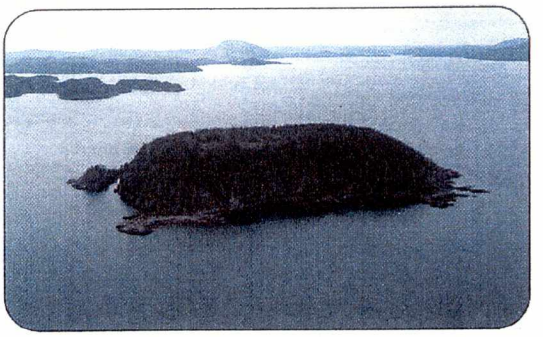
Characteristics	St. Chad's
1996 Population	70
1991 Population	77
Population Change (1991-96)	-9.1

Appendix 3

Marine Protected Areas

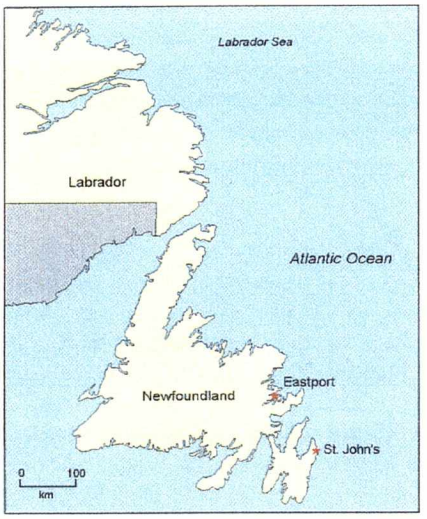
Area of Interest

EASTPORT



The Eastport Peninsula, one of the most picturesque areas of Bonavista Bay, is located approximately three hours drive from St. John's, Newfoundland. The rugged coastline is interrupted by a number of headlands, coves, and beaches. Numerous islands found in the area provide habitat for a variety of marine wildlife. The rich, productive waters surrounding the Eastport Peninsula are host to a wide range of groundfish, pelagic fish, shellfish, marine mammals, and aquatic plants. Since early settlement the people of the Eastport Peninsula have relied on the fishery for their economic subsistence.

In 1995, to address declining catches, the Eastport Peninsula lobster fish harvesters formed the Eastport Peninsula Lobster Protection Committee (EPLPC). The aim of the Committee was to implement an overall lobster conservation strategy for the Eastport Peninsula. Committee members provided information and data required for the management of the resource and implemented various measures to address conservation and sustainability. Based on the initial success of various initiatives, the EPLPC developed an agreement with Fisheries and Oceans Canada in 1997 to limit local fisheries and close two areas of prime lobster habitat to lobster harvesting. One benefit of these initiatives has been the ability of fish harvesters, government, community youth, academics, and scientists to work together and share information and knowledge for better management of the lobster fishery.



In 1999, the EPLPC approached Fisheries and Oceans Canada on establishing a Marine Protected Area (MPA) under the *Oceans Act* in the Eastport area. The EPLPC feel that establishing a MPA would support their current work and aid in implementing further conservation initiatives. There is scientific evidence that suggests that protecting the two areas of habitat has sustained and perhaps enhanced the local lobster fishery.

In October 2000 this site was officially announced as an Area of Interest (AOI) in the Marine Protected Area Program. Fisheries and Oceans Canada is committed to working with the sponsors and stakeholders in the ongoing development and further evaluation of this site as a potential MPA. Finally, the Eastport project will provide Fisheries and Oceans Canada with an opportunity to test various aspects of the MPA Program such as mechanisms for working with coastal communities in the conservation and protection of commercial and non-commercial fisheries resources and their habitats.

For further information please contact:

Fisheries and Oceans Canada, Oceans Programs Division, Newfoundland Region
P.O. Box 5667, St. John's, NF A1C 5X1 www.dfo-mpo.gc.ca/oceanscanada

Fisheries and Oceans Canada Pêches et Océans Canada

Canada

Appendix 4

Fishery Landings for the Eastport Peninsula, 1992-2001. [Top number is landed mass (kg), bottom number is landed value ($).]

Species	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Totals
Capelin	427,191	836,447	1,384	1,769	964,618	81,068	2,425,309	2,297,928	2,787,305	1,232,103	**11,055,122**
	$98,723	$353,312	$398	$508	$124,902	$23,072	$576,392	$379,562	$519,411	$198,290	**$2,274,570**
Catfish	0	14	0	0	55	120	0	49	1,265	1,102	**2,605**
	$0	$3	$0	$0	$24	$26	$0	$13	$559	$469	**$1,094**
Chimaera	0	0	0	0	0	531	0	0	0	0	**531**
	$0	$0	$0	$0	$0	$195	$0	$0	$0	$0	**$195**
Cod (Atlantic)	39,497	59,714	19,968	9,321	9,500	12,286	66,980	180,994	172,214	156,324	**726,798**
	$23,389	$36,880	$14,086	$11,739	$9,778	$11,633	$104,706	$250,061	$243,987	$211,775	**$918,034**
Crab	61,381	191,277	257,001	201,066	300,521	415,163	488,138	862,416	715,028	646,566	**4,138,557**
	$47,396	$260,882	$748,172	$919,255	$733,237	$813,776	$973,592	$2,927,682	$3,231,895	$2,494,484	**$13,150,371**
Eel	0	0	7	22	0	0	0	0	0	0	**29**
	$0	$0	$32	$127	$0	$0	$0	$0	$0	$0	**$159**
Flounder	10,330	25,970	7,005	19,464	10,319	5	4,425	138	0	3,209	**80,865**
	$3,228	$7,743	$3,063	$8,878	$4,586	$3	$2,669	$83	$0	$1,929	**$32,182**
Grenadier	0	0	0	0	294	3,242	0	1	5,172	3,179	**11,888**
	$0	$0	$0	$0	$406	$1,191	$0	$1	$1,805	$1,114	**$4,517**
Greysole	0	0	0	0	0	0	0	12	249	256	**517**
	$0	$0	$0	$0	$0	$0	$0	$8	$214	$224	**$446**
Haddock	0	0	0	17	0	0	0	0	0	0	**17**
	$0	$0	$0	$23	$0	$0	$0	$0	$0	$0	**$23**
Halibut	0	0	0	0	45	0	0	103	27	132	**307**
	$0	$0	$0	$0	$291	$0	$0	$523	$146	$781	**$1,741**
Herring	602,010	1,029,213	1,246,137	455,534	285,025	245,458	174,136	174,302	170,446	742,916	**5,125,177**
	$61,250	$120,204	$139,347	$75,176	$63,116	$41,873	$26,828	$26,899	$26,553	$114,647	**$695,893**
Lobster	26,961	17,432	23,992	23,118	22,311	15,982	20,973	18,160	15,085	3,952	**187,966**
	$180,910	$124,994	$195,990	$231,018	$215,245	$177,282	$209,610	$193,995	$180,538	$48,067	**$1,757,649**
Lumpfish	18,161	9,143	3,946	1,541	4,923	6,760	542	0	0	0	**45,016**
	$53,852	$46,733	$21,456	$10,218	$32,529	$19,653	$1,196	$0	$0	$0	**$185,637**
Mackrel	9,796	14,301	2	157	31	0	0	0	69	0	**24,356**
	$1,989	$3,397	$1	$32	$8	$0	$0	$0	$26	$0	**$5,453**
Monkfish	0	0	0	0	1,849	0	0	48	0	0	**1,897**
	$0	$0	$0	$0	$3,398	$0	$0	$80	$0	$0	**$3,478**

Fishery Landings for the Eastport Peninsula, 1992-2001 (Continued)

Species	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Totals
Mussel	0	0	45	238	0	0	0	0	0	0	**283**
	$0	$0	$40	$210	$0	$0	$0	$0	$0	$0	**$250**
Plaice	2,985	5,157	1,229	2,982	940	55	6	22	3,512	2,709	**19,597**
	$1,556	$3,032	$672	$2,033	$504	$44	$5	$18	$2,938	$2,214	**$13,016**
Redfish	0	0	0	0	0	0	0	0	337	153	**490**
	$0	$0	$0	$0	$0	$0	$0	$0	$193	$95	**$288**
Rock Cod	0	0	0	514	0	0	0	0	0	0	**514**
	$0	$0	$0	$250	$0	$0	$0	$0	$0	$0	**$250**
Salmon	0	0	0	0	0	0	0	0	0	0	**0**
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$0**
Scallop	0	0	124	148	0	0	0	0	0	0	**272**
	$0	$0	$231	$140	$0	$0	$0	$0	$0	$0	**$371**
Sea Urchin	0	41	0	0	0	499	82,916	72,094	28,048	16,605	**200,203**
	$0	$0	$0	$0	$0	$605	$106,359	$113,120	$48,395	$27,564	**$296,043**
Seal	427	10	46	1,290	6,648	2,247	7,603	0	8,377	103	**26,751**
	$1,219	$105	$494	$681	$6,790	$7,303	$21,572	$0	$15,955	$241	**$54,360**
Shrimp	0	0	0	0	0	0	25,090	166,727	317,888	80,483	**590,188**
	$0	$0	$0	$0	$0	$0	$27,655	$235,243	$406,473	$97,589	**$766,960**
Skate	0	8,085	2,071	13,259	53,310	709	483	6,867	85	0	**84,869**
	$0	$673	$258	$3,841	$17,544	$212	$139	$2,003	$18	$0	**$24,688**
Squid	3,256	3,480	2,052	140	46,886	345,156	7,903	0	1,121	0	**409,994**
	$968	$1,180	$857	$289	$55,627	$86,315	$3,687	$0	$389	$0	**$149,312**
Trout	5	36	0	19	0	0	0	0	0	0	**60**
	$7	$56	$0	$40	$0	$0	$0	$0	$0	$0	**$103**
Turbot	0	79	0	0	29,276	5,793	0	21	186,591	115,905	**337,665**
	$0	$70	$0	$0	$56,828	$7,580	$0	$27	$184,645	$92,918	**$342,068**
Whelk	91	0	0	0	11	399	126	0	21	0	**648**
	$40	$0	$0	$0	$7	$265	$84	$0	$14	$0	**$410**
Total	**1,202,091**	**2,200,399**	**1,565,009**	**730,599**	**1,736,562**	**1,135,473**	**3,304,630**	**3,779,882**	**4,412,840**	**3,005,697**	**23,073,182**
	$474,527	**$959,264**	**$1,125,097**	**$1,264,458**	**$1,324,820**	**$1,191,028**	**$2,054,494**	**$4,129,318**	**$4,864,154**	**$3,292,401**	**$20,679,561**

Appendix 5

Eastport Peninsula Aquaculture Sites:

Site ID:	613
APPNUM:	820
Company:	Donald & Albert Ralph
Location:	St. Chad's / Iox Cove
Species:	Atlantic Cod
Operation:	Cage Culture
License:	Commercial
Address:	Box 9, Site 10, Eastport, NF, A0G 1Z0
Region:	3
District:	39
Zone:	14
NAFO:	3La

Site ID:	632
APPNUM:	796
Company:	Craig Penney
Location:	Sailor's Harbour (Salvage)
Species:	Atlantic Cod
Operation:	Cod Trap Growout
License:	Developmental
Address:	General Delivery, Salvage, NF, A0G 3X0
Region:	3
District:	39
Zone:	14
NAFO:	3La

Site ID:	685
APPNUM:	895
Company:	Michael William Balsom
Location:	Sailor's Harbour (Salvage)
Species:	Atlantic Cod
Operation:	Cod Trap Growout
License:	Developmental
Address:	General Delivery, Sandringham, NF, A0G 3Y0
Region:	3
District:	39
Zone:	14
NAFO:	3La

Appendix 6

Copper Island, TNNP – Bonavista Bay

Location: Bonavista Bay 3, NAFO 3La, 48°34.5'N, 53°42.8'W
Topography: steep sided, high crowned
Dimensions: 250 x 120 m
Vegetation: coniferous woods fringed with narrow meadow
Protection Status: part of Terra Nova National Park
Embarcation Point: Sandy Cove – 9.5 km from Copper Island
Comments: female Common Eider with young have been seen in the area

Species	**Breeding population (pairs)**	**Suitability**		**Sensitivity**	
		Observational study	*Manipulative study*	*Observational study*	*Manipulative study*
Leach's Storm-Petrel	10	Poor	Poor	Medium	Medium
Common Eider	Probably breeds				
Oldsquaw	Possibly breeds				
Herring Gull	250	Good	Good	Low	Low
Great Black-backed Gull	10	Poor	Poor	Low	Low

Source:
Cairns, D.K., Montevecchi, W.A., and Threlfell, W. (1989). Researchers Guide to Newfoundland Seabird Colonies, pg 8. ISSN 0702-0007.

Appendix 7

Eastport Peninsula
Tourism-Related Infrastructure

Accommodations:

Eastport:

- Almost Home Bed and Breakfast
- Eastport Efficiency Units
- Eastport Peninsula Sunshine Park Cabins
- Sandy Cove Beach Housekeeping Cabins
- Sandy Sea Beachside Resort
- Seaview Cottages
- Stay-n-Play Cottages
- The Doctor's Inn Bed and Breakfast
- White Sails Inn and Cabins

Glovertown:

- Bayshore Bed and Breakfast Inn
- Penny Brook Cottage
- The Lilac Inn Bed and Breakfast

Traytown:

- Janes' Tourist Home
- Ledrews Housekeeping Units
- Pinetree Lodge and Cabins
- Splash and Putt Cabins/Nova Chalets and Conference Centre

Food and Beverage Establishments:

Eastport:

- Little Denier Restaurant
- Beaches Café

Salvage:

- Broom Close Restaurant

Glovertown:

- Tickleview Restaurant
- Whimsicals

Traytown:

- Pinetree Lodge Restaurant

TCH:

- Mary Browns

Craft Shops & Other:

- Pinsent's Art Studio – Eastport
- The Village Craftsman – Eastport
- Heritage Arts Centre – Eastport
- The Bosun's Whistle – Happy Adventure
- Salvage Museum Craft Shop – Salvage
- Burnside Arch. Gift Shop – Burnside
- Hunt's Crafts – Glovertown
- Whimsicals – Glovertown

Appendix 8

Mineral Occurrence Database System Report

National Mineral Inventory Number: 002C/12/Gf 001
Record ID Number: 1981

DEPOSIT SUMMARY

Deposit Name: Fair & False Bay
Alternate Name:
Major Commodity: Graphite
Secondary Commodities:
Status: Showing
Complexity: Singular Body
DDH:
Trench: No
Adit: No
Shaft: No
Workings:

Deposit Type: Undivided metamorphic industrial minerals of value

LOCATION

Region: Newfoundland
UTM Zone: 22
Latitude: 48.7021530448431
Easting: 290230
Elevation (m): 300
NTS Area: 02C/12
Longitude: 53.8510608186875
Northing: 5398050
Location Uncertainty (m): 100
Object Located: Outcrop: rept NFLD/160.

ACCESSIBILITY

The occurrence lies about 2,000 feet (600 m) southwest of the most westerly point on Fair and False Bay. Access is by boat and then foot inland.

PHYSIOGRAPHIC SETTING

The occurrence lies near a depression in the side of a hill (30 m).

MINERALOGICAL COMPOSITION

Ore Minerals: Graphite
Gangue Minerals: Pyrite
Alteration Minerals:
Alteration Type:
Age of Mineralization: Unknown

DESCRIPTION OF DEPOSIT

A graphite zone occurs in cherty, grey-green shale and quartzite of the Connecting Point Group, Hadrynian in age. The rock is broken and mylonitized over a width of approximately 4 feet (1.2 m). Overburden obscures the zone, which is interpreted to be a fault (McKillop, 1960). Ground water in the depression where the exposure occurs makes sampling difficult.

METAL/MINERAL CONTENT

Grade across the four-foot (1.2 m) width (which contains abundant impurity) was assayed at 11% carbon (McKillop, 1952).

NATURE OF MINERALIZATION AND GENESIS

Graphite mineralization is streaked and in places not enough to be removed by hand. The graphite is mainly amorphous but in some places tends to be flaky. The mineralization is interlaminated with the shale which in places is pyritic.

REGIONAL GEOLOGY AND TECTONIC SETTING

Geological Province: Appalachian
Tectonic Zone: Dunnage
Stratigraphic Unit: Connecting Point Group
Geological Age: Neoproterozoic
Rock Type(s): Shale/quartzite.

The Avalon Zone is the easternmost tectonostratigraphic element of the Appalachian Orogen exposed in Newfoundland. In general, the geology consists of a sequence of Late Proterozoic volcanic and associated sedimentary rocks overlain by both marine and continental sedimentary rocks of late Proterozoic age. The Precambrian sequence is overlain by shallow water to terrestrial sedimentary rocks of lower to mid-Paleozoic age. The entire sequence has been intruded by plutonic rocks ranging in

age from Late Proterozoic to Carboniferous.

The Connecting Point Group represents a vast accumulation of "greenish-gray slaty shales and siltstones, both in part siliceous and graywacke beds, reaching a thickness of 7,300 m" (Jenness, 1963). General lithological similarities have been used to correlate them with the Conception Group (cf. King et al., 1974).

HISTORY OF EXPLORATION AND DEVELOPMENT

The occurrence was examined and sampled by J.H. McKillop of Newfoundland Geological Survey in 1952.

LOCATION REFERENCE

McKillop, J H
1960: Graphite occurrences of Newfoundland and Labrador. Unpublished report [GSB# NFLD/0160]

MAIN REFERENCES

Christie, A M
1950: Geology of Bonavista map-area, Newfoundland. Geological Survey of Canada, Paper, No. 50-07 [GSB# 002C/0007]

Jenness, S E
1963: Terra Nova And Bonavista Map Areas, Newfoundland. Geological Survey of Canada, Memoir, No. 00327, 184 pages. [GSB# NFLD/0219]

King, A F, Bruckner, W D, Anderson, M M, and Fletcher, T P
1974: Late Precambrian and Cambrian sedimentary sequences of eastern Newfoundland. Geological Association of Canada-Mineralogical Association of Canada, Field Trip Manual, No. B-6, 73 pages. [GSB# 001N/0219]

King, A F
1980: The birth of the Caledonides: Late Precambrian rocks of the Avalon Peninsula, Newfoundland, and their correlatives in the Appalachian-Orogen. In Proceedings of the Caledonides in the USA. Compiled by D. R. Wones, Virginia Polytechnic Institute, Department of Geological Science, Memoirs, No. 2, pages 3-8. [GSB# NFLD/1406]

McKillop, J H
1952: Graphite prospect, Fair and False Bay, Bonavista Bay, Newfoundland. Unpublished report [GSB# 002C/12/0008]