

## SOAPSTONE RECONNAISSANCE SURVEY IN THE OKAK AREA, NORTHERN LABRADOR

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### ABSTRACT

*Initial investigations of soapstone prospects in the Okak area have indicated that there are several types of occurrences, and a high degree of variability within most prospects. Inuit carvers are interested in several of the stones that were sampled, and there is good potential to discover quarry sites that would allow commercial extraction of soapstone.*

### INTRODUCTION

A preliminary evaluation of soapstone occurrences in the Okak area, northern Labrador, was carried out in 1992. Soapstone in this area has been previously investigated by archaeologists trying to identify the sources of raw materials used by prehistoric populations (Nagel, 1984). Soapstone was used by Dorset paleo-eskimo inhabitants for making lamps, cookware, and ornaments. The present market in northern Canada for soapstone is for carving. Inuit carving represents a large part of the local economy in many Arctic communities. In Cape Dorset, Baffin Island, which has approximately the same population size as Nain, Labrador, the sculpture and graphic art produced each year is worth over \$4 million (Brundege and Fisher, 1990). At present, only one 'beach deposit' is used as a commercial supply of carving stone in Labrador. This soapstone is bought and distributed by the Labrador Inuit Development Corporation.

In 1990, two Inuit carvers from Nain received funding under the province's Prospectors Assistance Program, to explore for new soapstone prospects along the northern Labrador coast. They located a number of occurrences north of Nain, and took samples where possible. One of the most promising areas was around the Okak Islands. The aim of this present survey is to investigate these known occurrences, estimate their potential reserves, and obtain an understanding of their geological setting. In addition, it was important to have some initial discussions with carvers to learn about the types of carving stone in which they are most interested. In subsequent years, the survey will encompass most of the Labrador coast north of Cape Harrison, to identify new deposits. If large deposits are located, there may be potential for quarrying stone to supply local demand, and for export. There is often a shortage of 'soapstone sculpture block', particularly in the larger size range, i.e., 30 cm on a side (Gerow *et al.*, 1991) and there is already some soapstone being imported to the Arctic from 'the south'.

### PRESENT SURVEY

The Okak Islands are located about 100 km north of Nain (Figure 1). The 1992 reconnaissance survey included the coastal areas around the Okak Islands, and the northern shores of Mugford Bay (Figure 2). The area is underlain by Archean quartzofeldspathic gneiss and migmatite of the Nain Province, which are intruded by numerous diabase dykes that have a wide range of ages (Ryan, 1990).

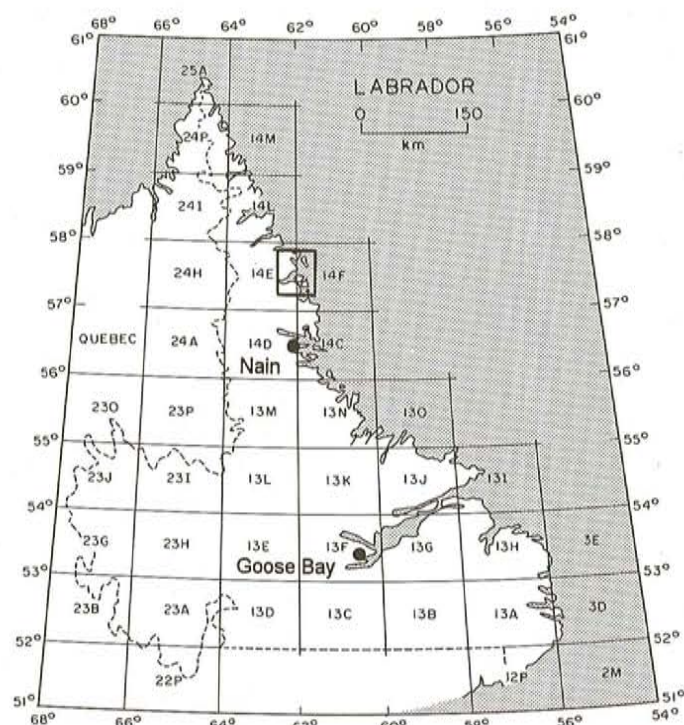


Figure 1. Index map of the study area.

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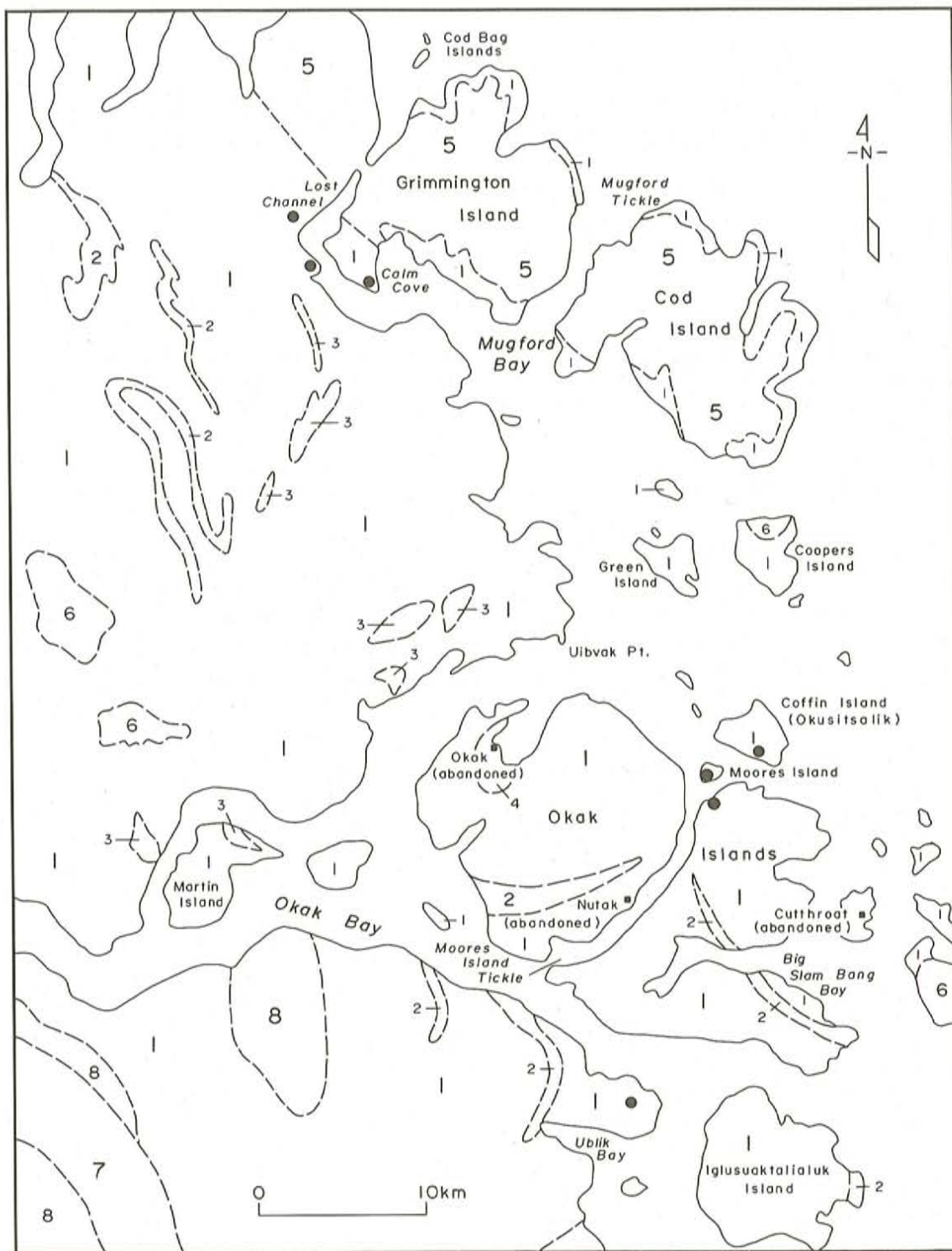


Figure 2. Geology map of the study area.

The soapstone occurrences in the area vary from small lenses or pods, to fairly extensive bands (up to 10 m wide). The degree of hydrothermal alteration is varied both within and between separate prospects. Some of the 'soapstone' occurrences would not be geologically classified as soapstone,

as they lack a soft, greasy feel, and have a very low talc content. They are, however, still of interest to the more experienced carvers, especially those working with power tools.

**LEGEND** (for Figure 2)

## ANOROGENIC PLUTONIC ROCKS

## MIDDLE PROTEROZOIC

## NAIN PLUTONIC SUITE

- 8 *Granitic members*
- 7 *Anorthositic members*

## LATE TO POSTTECTONIC PLUTONIC ROCKS

## EARLY PROTEROZOIC

- 6 *Granite and granodiorite*

## VARIABLY DEFORMED SUPRACRUSTAL ROCKS

## EARLY PROTEROZOIC

- 5 MUGFORD GROUP: *volcanic rocks, mafic sills, and minor sedimentary rocks*

## GNEISSIC ROCKS OF THE NAIN PROVINCE

## ARCHEAN

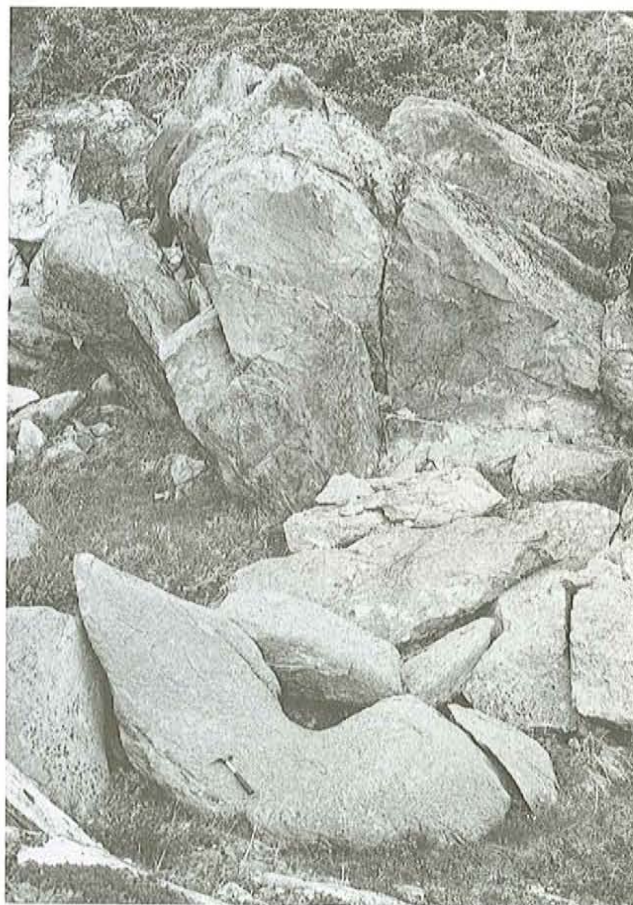
- 4 *Anorthosite*
- 3 *Mafic gneiss*
- 2 *Metasedimentary gneiss*
- 1 *Quartzofeldspathic gneiss*

**SOAPSTONE PROSPECTS****COFFIN ISLAND**

A large soapstone prospect was investigated on the south side of Coffin Island (Figure 2). An 8- to 10-m-wide band of soapstone strikes 170°, parallel to the local gneissic foliation, and gradually narrows to the west. The soapstone weathers recessively, forming an irregular gully cutting obliquely across the hillside. There are loose, fractured blocks up to several metres in diameter at several locals along this gully (Plate 1). The stone weathers to a distinctive brownish-grey and is dark grey-green on fresh surfaces. Fractures are commonly coated with micaceous layers, or brown-weathering, talc-rich layers (up to 2 cm in width). Disseminated and patchy mica constitutes 1 to 5 percent of the rock, but does not negate its potential as a carving stone. The degree of hardness varies within this band of soapstone, however, much of it is quite hard and may require power tools to carve. Hay (1990) reports additional soapstone occurrences on Coffin Island, ranging from 'soft green stone having a talc-like texture, to a dark green, hard stone with serpentine-like grain'.

**MOORES ISLAND TICKLE**

There are soapstone occurrences at the north end of Moores Island Tickle, 3 km southwest of the Coffin Island



**Plate 1.** *Blocks of soapstone on Coffin Island.*

prospect. The largest prospect is on the northwest corner of eastern Okak Island, and is best exposed at low tide. Greenish-grey to blackish-grey, brown-weathering soapstone occurs in a lens measuring 30 m by 15 m in size. There are 1 m<sup>3</sup> to 2 m<sup>3</sup> blocks of soapstone broken away from the main outcrop (Plate 2), many with dark brown-weathering inclusions and thin magnetite stringers. A small percentage of the soapstone is quite soft, (easily scratched with a penny), but most of it is hard, (requires a good pocket-knife to create a deep scratch). At the borders of the lens, there are small zones of talc-carbonate schist, and the soapstone is highly cleaved (Plate 3). This cleavage is less visible in the centre of the lens, but the soapstone readily breaks parallel to it, making it difficult to extract large samples. The cleavage and lens itself, strike nearly north-south, crosscutting the regional foliation.

Drillholes in the outcrop, and the remains of an old camp nearby, suggest that an attempt was made to quarry the soapstone, but it does not appear as though a substantial amount of stone was extracted. There are smaller outcrops of soapstone due south of the main lens, varying from very hard to very soft, but with little quarry potential.

The showings on Moores Island are located directly along strike from the main lens on eastern Okak Island. The showings consist of narrow zones of sheared soapstone on



**Plate 2.** *Outcrop and loose blocks of soapstone on northwest corner of eastern Okak Island (Moores Island in background).*



**Plate 3.** *Strongly cleaved soapstone at Moores Island Tickle prospect.*

the south side of the island, and sporadic subcrop that occur right across the island. There is very little potential for quarrying carving stone on Moores Island.

The soapstone at the Moores Island Tickle prospects may have been emplaced along a ductile fault, thus accounting for the cleaved nature of the stone, and limiting its potential use as a carving stone. This is the only locality visited in the survey area, in which the soapstone occurs in such a geological setting.

### UBLIK PENINSULA

Several soapstone prospects have been reported from the highlands on the Ubluk Peninsula, which is 2 to 3 km south of eastern Okak Island. During a quick reconnaissance of the area, two small pods of reddish brown-weathering soapstone were sampled. The pods are a maximum of 12 m in diameter, quite fractured and would be difficult to quarry. The stone is greenish-black on a fresh surface, slightly micaceous, and fine grained. It is very hard, has a good 'ring' when struck

with a hammer, and would only be suitable for carving with diamond tools.

### MUGFORD BAY

There are several soapstone prospects in the northwestern part of Mugford Bay that were located by Gilbert Hay, and which were examined during this survey. Two pods of medium-hard, blue-grey soapstone, which are up to 10 m in diameter, are situated at the southwest end of Lost Channel. The larger outcrop is pitted, where 1-cm mica-rich patches have weathered out, and the smaller pod is cut by numerous micaceous veins. The stone is slightly to moderately micaceous throughout, but this was not of great concern to some of the carvers. Gilbert Hay referred to this stone as 'some of the nicest he had ever laid eyes on'.

Larger prospects exist in this region of Mugford Bay, and range considerably in hardness, texture, and colour. Two kilometres southeast of Lost Channel, on the south side of Mugford Bay, there is a boulder terrace approximately 50 m above sea level. The terrace is 135 m long and approximately 30 m wide, and consists of angular boulders 10 cm to 3 m in diameter (Plate 4). There is a small exposure of soapstone in the 4- to 8-m-high rock face bordering the terrace, and this may be the source of the boulders. The soapstone varies from a medium-grained, yellow-green, very soft soapstone to a medium-hard, fine-grained, green-grey soapstone having discontinuous magnetite stringers up to 5 mm wide. Although there are considerable variations in the colour and texture of the stone within a small area, the surrounding area should be prospected in greater detail to evaluate the possibility of more consistent stone and potential quarry sites.



**Plate 4.** *Soapstone boulders on terrace, 50 m above sea level, in Mugford Bay.*

Additional outcrops of soapstone are present on the northern shoreline of Mugford Bay, directly west of Calm Cove. There are three outcrops on the shoreline, which may have originally been one continuous unit. Sharp contacts exist between this unit and the gneissic country rock, and primary layering is well preserved. The outcrops are 6 to 8 m high and quite fractured, thus it would be difficult to quarry large

blocks. Again, the hardness, colour and mica content varies considerably and over short distances, but there is potential for quarrying medium-hard, dark-grey soapstone in sizes ranging from 10 cm<sup>3</sup> to 1 m<sup>3</sup>.

### SUMMARY

An evaluation of soapstone prospects as potential sources of carving stone, has been initiated on the northern Labrador coast. A reconnaissance survey in the Okak area in 1992 indicates that soapstone is found in various sized pods, fairly continuous bands that parallel the local gneissic foliation, and less commonly along fault zones. The stone is highly variable in colour, hardness, and texture, and often has a very low talc content. Local carvers in Nain have indicated that stone from some of the prospects is well suited for carving. The 1993 survey will attempt to locate larger prospects that may be suitable for small-scale quarrying. Exploration over the next few years may locate sufficient reserves to support larger operations that could provide soapstone for export to Inuit carvers in other regions of the Arctic.

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