

draft for discussion

**Regional Cumulative Effects
Study for Drybones Bay and Wool Bay**

prepared for:

**Mackenzie Valley Environmental Impact
Review Board**

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1. Introduction

Diamondiferous kimberlite has been found in the Drybones Bay and Wool Bay areas, resulting in increased exploration activities. Land Use Permits are required for much of this exploration work, which has resulted in a number of Preliminary Screening referrals of these proposed development's¹ from the Mackenzie Valley Land and Water Board (MVLWB) to the Mackenzie Valley Environmental Impact Review Board (MVEIRB or Review Board) for environmental assessment (EA). These referrals were made based on concerns about potential cumulative effects to the area.

The MVEIRB, in the absence of planning instruments for the Drybones Bay and Wool Bay areas, must consider *“the impact of the development on the environment, including the impact of malfunctions or accidents that may occur in connection with the development and any cumulative impact that is likely to result from the development in combination with other developments”* (Mackenzie Valley Resource Management Act, s.117 (2) (a)). The Review Board must recognize potential land use conflicts that may change magnitude and significance of an impact and provide recommendations to minimize cumulative effects.

The Drybones Bay and Wool Bay areas are recognized as being of vital importance to Aboriginal and non-Aboriginal residents in and around Yellowknife. The referral concerns have highlighted the need for decision-making tools suited to the identification, evaluation and mitigation of potential cumulative effects, particularly in the absence of land use plans for these areas, and to help the MVEIRB to make decisions about potential cumulative effects that provides an understanding of:

- social, cultural and environmental sensitivities in the Drybones Bay and Wool Bay areas;
- level of uncertainty associated with sensitive and/or highly-valued areas;
- current and foreseeable development; and
- an evaluation of the area for potentially significant impacts due to cumulative effects.

1.1 Purpose

The purpose of this project is to develop a decision-making tool to help the MVEIRB make decisions about the contribution the referred development's have to potential cumulative effects, and for the Board to make effective recommendations concerning development in the Drybones Bay and Wool Bay areas.

¹ **Development** means any undertaking, or any part of an undertaking, that is carried out on land or water (s.111 MVRMA)

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1.2 Approach

This report forms a “*State-of-the-Environment*” report that outlines existing biophysical, cultural, heritage and archaeological resources found in the study area. It indicates the level of confidence and the level of detail associated with each of these components. This information provides a baseline knowledge framework or context of the study area, which the Review Board will then be able to use to complete its EA and any cumulative effects assessment required of the referred developments. A cumulative effects decision-making tool has been developed that will enable the Review Board to consider potential effects of multiple developments in areas where little baseline information is available.

1.3 Environmental Assessment Process

The federal government implemented the *Mackenzie Valley Resource Management Act* (MVRMA) to allow northerners to participate in the decision-making processes for EA and natural-resource management. The legislation establishes co-management boards for:

- land use planning;
- issuing land use permits and water licenses; and,
- environmental impact assessment.

The Environmental Impact Assessment process described in the MVRMA has three stages: preliminary screening, environmental assessment and environmental impact review. In preliminary screening, the regulatory authority, such as a Land and Water Board, decides whether or not there *might* be public concern or adverse environmental impacts because of a development. If the regulatory authority identifies that there might be public concern or significant adverse impact, the development is referred to environmental assessment. In environmental assessment, the Review Board reviews a development description to evaluate the significance of public concern or adverse environmental impact. This analysis is even more rigorous for environmental impact review.

Not all developments go through all three stages. Developments associated with greater public concern or potentially significant environmental impacts are most likely to advance to the next stage for more thorough consideration. Regulatory activities cease while a development is in environmental assessment and environmental impact review.

The Drybones/Wool Bay developments (Consolidated Goldwin Ventures, North American General Resources Corporation, New Shoshoni Ventures and Snowfield Development Corporation) have been referred to environmental assessment due to public concern about potential cumulative effects. The Review Board determined there was a need to examine these developments on a sub-regional scale. This approach would allow the Review Board to properly evaluate the public concern (i.e., the reasons for referral), and other matters it is required to consider in an environmental assessment, about this area. The

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shared access, proximity and the similarity of the developments prompted the joint assessment of these developments to evaluate potential cumulative effects and to identify effective mitigation measures.

1.4 Study Area

A two-tiered study area was developed for this project, consisting of a Regional Study Area and Local Study Areas.

1.4.1 Regional Study Area

The Regional Study Area extends from the community of Dettah in Yellowknife Bay south and east along the shoreline of Great Slave Lake to Matonabee Point. The areal extent includes approximately 5 km offshore to 10 km inland, an area of approximately 1650 km² (636.9 sq. mi.) (Figure 1).

The purpose for defining a Regional Study Area was to establish geographical boundaries for completing the literature search. The findings of the literature search provide a greater understanding of the historical use of the Regional Study Area, and provide the context for determining the importance of the Local Study Areas.

1.4.2 Local Study Areas

The Local Study Areas consist of two 10 km diameter circles each centred on Wool Bay and Drybones Bay (Figure 1)

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INSERT FIGURE 1 HERE: PICTURE OF WOOL BAY AND DRYBONES BAY

2. Milestones and Deliverables

The Terms of Reference (Appendix A) for this project required several tasks to be completed:

- Literature review and gap analysis
- Site visit
- Gather traditional land use information²
- Interviews with industry associations and developers
- Interviews with government departments³
- Design impact decision tool and draft report
- Refine impact decision tools and report
- Public Hearing.

The literature review gathered several types of information about the study area:

- historical information that provided a context for how culturally important these areas were, and an indication of traditional land use patterns;
- biophysical information; and,
- past and current industrial developments in the Regional Study Area.

The gap analysis identified where information was sparse or missing. Through further research, interviews and the site visit, additional information was gathered to begin to fill the identified gaps.

A “*State-of-the-Environment*” type report was prepared, with associated data confidence levels, that outlined the historical and current land uses, and existing biophysical, cultural, heritage and archaeological resources found in the Regional Study Area. The information provided a baseline knowledge framework or context of the Regional and Local Study Areas, which the Review Board may use to complete its EA. A cumulative effects decision-making tool was developed to enable the Review Board to consider potential cumulative effects of these developments.

² Reports provided by the Yellowknives and the Metis. No time for obtaining information from the Dene mapping project at the time of this draft

³ Limited to 5 by the terms of the contract: Federal departments included Environment Canada, Fisheries and Oceans, .. Territorial departments included Renewable, Wildlife and Economic Development

3. Methodology

The various methodologies followed to complete the assigned tasks are described below.

3.1 Literature Review and Gap Analysis

3.1.1 Approach

The initial research effort was computer-based using Internet access to public databases, such as the Arctic Science and Technology Information System (ASTIS). This approach generated potential source materials and locations using selected key words. Several subject areas were searched for information relevant to the Regional Study Area:

- historical use;
- biological resources;
- physical resources;
- cultural use; and,
- commercial use.

The source materials were compiled in a list, followed by library access and review of selected documents for relevance.

3.1.2 Key Words Applied

The following key words were used in the databases searched:

- drybones bay;
- wool bay;
- yellowknife bay/back bay;
- dettah (also checked spelling of “detah”);
- fort providence (also checked “old fort providence”);
- yellowknives;
- dogrib;
- akaitcho;
- dene;
- bathurst caribou; and,
- Great Slave Lake.

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For some general key words (e.g., dene), and where a large number of responses were found (e.g., Great Slave Lake), only a select number of records were examined.

3.1.3 Sources

Three primary databases were accessed using the key words. These primary sources, which are free for public use, are listed below.

3.1.3.1 ASTIS

The Arctic Science and Technology Information System (ASTIS) database contains over 51,000 records describing publications and research projects about northern Canada. ASTIS is maintained by the Arctic Institute of North America at the University of Calgary, and is part of the Canadian Polar Information Network.

The ASTIS database also provided listings of articles published in journals and other reports. The web site is: <http://www.aina.ucalgary.ca/astis/>.

3.1.3.2 University of Calgary

The holdings for the libraries on campus at the University of Calgary were accessed through the “catalogue” key. The web site is: <http://www.ucalgary.ca/library/>.

3.1.3.3 University of Alberta

The holdings for the libraries on campus at the University of Alberta were linked to the Gate catalogue through the NEOS system. NEOS is a central Alberta library consortium of approximately 20 libraries that have collaborated to create and maintain a shared on-line catalogue. The web site is: <http://dra.library.ualberta.ca/>.

3.1.4 Gap Analysis

The literature search results provided a framework context of the cultural, heritage and biophysical resources of the Regional Study Area. A gap analysis of the results provided an indication where information would have to be gathered from other sources and through the other means described herein.

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3.2 Site Visit

3.2.1 Yellowknives Dene First Nation Field Trip

The Yellowknives Dene First Nation (YKDFN) were collecting information on archaeological and heritage resources of the Drybones Bay and Wool Bay areas over a 9 to 11 day period. This study was being conducted as a separate project, and was not related to this cumulative effects project. The research by the YKDFN field team (Table 1) was restricted to the shoreline between approximately Matonabbee Point and Wool Bay. It was recognized that this information would be useful to the MVEIRB for completing its EA. The YKDFN provided a copy of their draft report, titled "*A Preliminary Report on the Cultural and Historical Resources of the Drybones and Wool Bay Areas, August 18, 2003*" to Gartner Lee and gave permission to use the information in a generalized manner. The information collected still requires registration with the federal government and the receipt of "Borden numbers" for identified archaeological sites.

As part of the Terms of Reference for this project, the consultant was required to visit the study area during the time the YKDFN were conducting their field study. One member of the Gartner Lee project team, Gordon Stewart, joined the YKDFN field team on July 20 – 22, 2003 as an observer.

Table 1 - Yellowknives Dene First Nation Field Study Team

Team Member	Role
Eddie Sikyea	Elder
Mike Francois	Elder
Modeste Sangris	Elder
Helen Tobie	Elder
Alfred Baillargeon	Elder
Theresa Sangris	Elder
Laurence Goulet	Guide/Reporting (Trip Report)
Morris Martin	Guide
Adeline Mackenzie	Cook
Margaret Martin	Cooks Helper
Callum Thomson	Archaeologist
Randy Freeman	Historical Geographer (Resource Report)

Cumulative Effects: Drybones Bay and Wool Bay >**3.2.2 Information Gathering**

The archaeological, cultural and heritage importance of the Regional and Local Study Areas was obtained by the consultant through discussions with the elders, other YKDFN field team members, and through visual observations of past and current land uses in these areas. The relative importance of the Regional and Local Study Areas for each of the components considered (e.g., biophysical, cultural, heritage and archaeological) was then indicated and hand-drawn onto 1:50,000 scale topographic maps (NTS 85 J/8 – Yellowknife Bay and 85 I/4 – Matonabee Point). This information was recorded as polygons on the maps.

General observations about the biophysical attributes of these areas, and the biological productivity of aquatic and terrestrial habitats were also made and noted in a similar polygon fashion.

3.3 Gathering Traditional Land Use Information**3.3.1 Information Gathering⁴**

Traditional land use information was gathered in three different ways:

- information recorded in existing literature, and identified in the literature search;
- information gathered directly during the site visit from YKDFN elders; and,
- information obtained through direct requests made to the various Aboriginal groups that are known to use these areas.

Information gathered and obtained through each of these methods was recorded. It should be noted that owing to the sensitivities surrounding the gathering and use of traditional land use information and traditional knowledge, the client was the first point of contact in making requests, and acted as liaison, to the various aboriginal groups.

3.3.2 Information Recording

Traditional land use information is recorded in written text when it was gathered in that form, and displayed on the Cultural/Heritage Resources map, represented by shaded polygons of various sizes (see Figure 3.3.2). This general depiction method was used to illustrate information considered proprietary, sensitive, or that required special representation (i.e., archaeological information).

⁴ Note. One potentially major source of information not considered due to time constraints was the Dene Mapping Project where information on trails, etc. was recorded for initial land claim discussions.

3.4 Interviews with Industry Associations and Developers

3.4.1 Information Gathering

Interviews with the developers (Snowfield Development, Consolidated Goldwin Ventures, New Shoshoni Ventures, and North American General Resources Corporation) primarily focused on getting a better understanding of their proposed drilling programs, getting better, more accurate descriptions of drill locations and numbers of drill sites, as well as information on other activities (e.g., cut line locations).

Questions probed the following areas:

- gridline location and spacing;
- drill numbers and locations;
- waste disposal including drill waste water and cuttings;
- past activities;
- anticipated activities for this years planned program;
- storage of equipment and access to drill locations;
- type of access to the project sites;
- existence of tent camps; and,
- drilling program methodology and anticipated footprints.

Information requests were also made to Industry Associations and other, non-mining, industry operators that may have information about, or currently do utilize, these areas.

Questions probed the following areas:

- intensity and location of past activities in these areas;
- intensity and location of current and known planned activities in these areas; and,
- seasonal and spatial extent of past, present, and known planned activities.

3.4.2 Information Recording

Information received in response to these interviews was recorded on maps as applicable, as well as in written form. The mapped information was recorded on the Land Use Activities map **Appendix X**, and represented by points and polygons representing foot print size and zones of effects influence.

3.5 Interviews with Government Departments

3.5.1 Information Gathering

Interviews with government department representatives (Department of Indian Affairs and Northern Development; Resources, Wildlife and Economic Development; Environment Canada; Fisheries and Oceans; Natural Resources Canada) focused on gathering information about the biological resources of the Drybones Bay and Wool Bay areas, estimated levels of utilization of these resources in these areas, and an indication of the sensitivities of these resources.

Questions probed the following areas:

- types and relative abundance of biological resources of the Drybones Bay and Wool Bay areas;
- an indication of any species and habitats at risk, or that are endangered;
- an indication of the level of utilization/harvesting of biological resources;
- sensitive and critical habitats in the areas; and,
- species sensitivities to external development pressures.

Some government departments retain information on the physical attributes of the Regional and Local Study Areas, and on the extent of past and current land and mineral leases. As well, some departments have research information related to fate and effects of contaminants and zones of impact resulting from certain physical activities.

Questions probed the following areas:

- extent and location of past land and mineral leases;
- level and types of physical activities carried out in these areas;
- fate and effects information on typical development activities; and,
- estimated footprint, duration and intensity of physical activities.

3.5.2 Information Recording

Information received in response to these interviews was recorded on maps as applicable, as well as in written form. The mapped information on physical activities was recorded on the Land Use Activities map, and represented by points and polygons representing foot print size and zones of effects influence. Biological resource information was also recorded, where applicable, on the Biophysical Resources map, and represented by shaded polygons of various sizes.

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3.6 Design Impact Decision Tool

The impact decision tool for considering cumulative effects in the Wool Bay and Drybones Bay areas focussed on the reasons for referral, namely, cumulative social and cultural impacts. This does not mean that potential cumulative effects unrelated to the social and cultural environment do not need considering, only that they were not part of the preparation of the decision making framework. It can be noted, however, that many of the biological aspects normally considered for cumulative effects are also picked up for social and cultural effects.

In preparing the cumulative effects decision-making framework for the social and cultural environment⁵, the following points were taken into account:

- the Convention for Biological Diversity⁶ (CBD) and the proposed Convention for Cultural Diversity⁷. It has been noted at the recent Conference of Parties (COP VI) for the CBD that cultural diversity is closely linked to biological diversity and will only be sustained where the biological diversity on which the culture relies is maintained. UNESCO has also recognized cultural diversity in a recent universal declaration. UNESCO maintains that cultural diversity and biodiversity are “interdependent prerequisites for sustainable development⁸”; and
- the MVRMA and the claims⁹ on which it is based provide essential guidance on the meaning of the social and cultural environment in the definitions for harvesting¹⁰ and heritage resources¹¹.

3.6.1 Visual Tools

Three baseline and one results “*State-of-the-Environment*” type maps were prepared:

1. **Biophysical Resources** – indicating habitat, resource harvesting areas, existing biological resources.

⁵ “*impact on the environment*” means any effect on land, water, air or any other component of the environment, as well as on wildlife harvesting, and includes any effect on the social and cultural environment or on heritage resources (MVRMA s.111).

⁶ <http://www.biodiv.org/doc/legal/cbd-en.pdf>

⁷ The pros and cons of this convention can be noted by doing a Google search on “convention on cultural diversity”. This report does not advocate or dispute the proposed convention.

⁸ www.iisd.ca/linkages/2002/wssd/enbots/asc/enbots1008e.txt

⁹ Gwich’in Comprehensive Land Claim Agreement and the Sahtu Dene and Metis Comprehensive Land Claim Agreement.

¹⁰ “*harvesting*” in relation to wildlife, within the context of the MVRMA, means hunting, trapping or fishing activities carried on in conformity with a land claim agreement or, in respect of persons and places not subject to a land claim agreement, carried on pursuant to aboriginal or treaty rights (MVRMA s.2).

¹¹ “*heritage resources*,” within the context of the MVRMA, means archaeological or historic sites, burial sites, artifacts and other objects of historical, cultural or religious significance, and historical or cultural records (MVRMA s.2).

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2. **Cultural/Heritage Resources** – indicating cultural, heritage and archaeological sites/use of the areas.
3. **Land Use Activities** – indicating past, present and proposed (that are in the regulatory process) exploration and development activities, and land uses (e.g., physical activities and structures).
4. **Results** – indicates areas of overlap between Maps 1, 2 and 3.

For the first two maps (Maps 1 & 2 Appendix X) map resources represented by shaded polygons of various sizes. The shading relates to the level of confidence in the information (e.g., visual observation vs. documented/corroborated information), while the size of the polygon relates to the density or home range of the identified resource. The third map (Map 3 Appendix X) represents land use activities by points or polygons related to footprint size for past activities, and zones of influence for present and proposed activities.

A “results” map (Map 4 Appendix X) was produced that represents the areas of overlap between baseline Map 3 and baseline Maps 1 and 2. Map 4 indicates, through the use of shaded polygons of various sizes, sensitive/vulnerable areas within the study area. The shading relates to the uncertainty associated with the level of sensitivity/vulnerability, while the size of the polygon relates to the actual zone of impact (of the resource).

3.6.2 Impact Decision Making Process

The impact decision making process developed for the MVEIRB to use consists of several visual aids or tools in the form of maps, and recommendations on how to consider potential cumulative impacts to the archaeological, cultural and heritage resources of the local study area caused by the referred developments. The maps identify the biophysical resources, cultural and heritage resources and land use activities and form the basis of the “*State-of-the-Environment*” description of the local study area.

The impact decision-making process involves considering the individual and combined (i.e., cumulative) stated and identified effects of the proposed developments on the archaeological, cultural and heritage resources. An analysis is then completed of the potential effects and results recorded.

3.7 Refining Impact Decision Tool

This step involves receiving comments on the draft products and revising the documents and products, as appropriate. This step is intended to allow the Review Board to fully understand the information that has been gathered and the decision-making tool that has been developed for its use. Refining and revising the draft products will be limited to providing clarification of the information provided and where necessary, facilitating a clearer understanding of the decision-making tool.

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If additional information that was previously unavailable to the contractor was to be provided by the Review Board at this point, then the contractor may choose to revisit, refine and review its conclusions based on this additional information.

3.8 Public Hearing

A Public Hearing related to the environmental assessment of the Land Use Permit applications that were referred to the Review Board for assessment has been scheduled. The dates for this Public Hearing are October 9 and 10, 2003 in Yellowknife. A Pre-Hearing Conference is scheduled for September 23, 2003, also in Yellowknife. This report will be available on the Public Registry for the EA prior to these hearings. The consultant will also be present at these hearings to answer any questions regarding this report.

4. Regional Cumulative Effects

4.1 The Setting: Land and Water Use

4.1.1 Historical

The first written records of human land and water use in the Wool Bay and Drybones Bay areas were made by the first visiting Europeans. The first European to travel in the vicinity of the Regional Study Area was Samuel Hearne (1771-1772) who recorded Great Slave Lake as "Athapuscow Lake". On his journey from Fort Prince of Wales (later Fort Churchill) on Hudson's Bay to the Coppermine River, he encountered several "Copper Indians" (Yellowknife) and a few "Dog-ribbed Indians" on October 23, 1771 (Hearne, 1970:207). A Chipewyan Indian named Matonabee guided Hearne during these travels.

Hearne wrote of Great Slave Lake being "*stored with great quantities of very fine fish*" (Hearne, 1970:248) and described fish species common to this lake as "*...pike, trout, perch, barble, tittameg, and methy; the last two names given by the natives to two species of fish which are found only in this country.*" (Hearne, 1970:249). He added "*[t]he trout in this lake are of largest size I ever saw: some that were caught by my companions could not, I think, be less than thirty-five or forty pounds weight.*" (Hearne, 1970:249).

Hearne described buffalo, moose and beaver "*being very plentiful; and we could discover, in many parts through which we passed, the tracks of martin, foxes, quiquehatches [wolf], and other animals of the furr find; so that they were be no means scarce...*" (Hearne, 1970:250).

After Hearne, Peter Pond and later Alexander Mackenzie visited Great Slave Lake; the latter crossed Yellowknife Bay on June 23, 1789 (Mackenzie, 1970:172). Mackenzie traveled along the north shoreline

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of Great Slave Lake, eventually following the river later bearing his name to the Arctic Ocean. In the general vicinity of the Study Area, he wrote “... we landed ... a 3 lodges of Redknife Indians <so called from their copper knives> [who] informed us that there were many more lodges of their Friends not far off ...” (Mackenzie, 1970:172).

The surveyor David Thompson makes two references to Great Slave Lake in his Narrative 1784-1812 (Thompson, 1962:57 and 134), while nothing appears extant in his journal regarding the Study Area.

In the 1790s, the North West Company founded Fort Providence (herein referred to as “Old Fort Providence”) near Wool Bay. This Fort was a meat-provisioning post “erected for the convenience of Copper [Yellowknife] and Dog-Rib Indians” (Franklin, 1824:325).

The British Officer John Franklin and his party traveled through the Study Area on his first northern expedition (1819-1822). He visited Old Fort Providence, traveled through Yellowknife Bay and ascended the Yellowknife River. The Copper Indian Kescarrah served as Franklin’s guide. About the Study Area he wrote, in part:

...[the Yellowknife and Dogrib Indians], who generally bring such a quantity of rein-deer meat that the residents are enabled, out of their superabundance, to send annually some provisions to [another post to the south]. They also occasionally procure moose and buffalo meat, but these animals are not numerous on this side of the lake. Few furs are collected. Les poissons inconnu, trout, pike, carp and white fish are very plentiful, and on these the residents principally subsist. Their great supply of fish is procured through the latter part of September and the beginning of October, but there are a few taken daily in the nets during the winter. The surrounding country consists almost entirely of coarse grained granite, frequently enclosing large masses of reddish feldspar (Franklin, 1824:325-326).

The surgeon-naturalist John Richardson traveling with Franklin wrote of being “at a fishing house, situated at the embouchure of the Yellow knife river” on December 10, 1821 (Richardson, 1984:177). He also wrote on December 14, 1821 of being at Old Fort Providence “when Akaicho [Akaitcho, the Yellowknife leader] with his whole band came to the Fort in the afternoon.” (Richardson, 1984:178). He recorded Akaitcho’s conference with Captain Franklin.

Franklin’s midshipman Robert Hood wrote “[t]he people subsist on reindeer [caribou] and moose deer, which are brought by the Copper and Dogrib Indians” (Hood, 1994:135). He added the fish “common to every part of the lake are Poisson Inconnu, trouts, pikes, carps and whitefish” (Hood, 1994:136). Hood went on to describe this area as “[t]he whole north border and the islands of granite rocks, with no other soil than the roots of moss. The trees are stunted pines, poplars and birches, with rose and red currant bushes” (Hood, 1994:136).

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Franklin's midshipman George Back recorded leaving Old Fort Providence on August 2, 1820, enroute north through Yellowknife Bay. He also wrote of visiting Old Fort Providence in the winter (March 1821) and described this place "of all others the most solitary and annoying. Inconveniently situated at the base of a rock which scantily supplies sufficient earth for the vegetation of a few shrubs – and overlooked by high hills on each side whose sterility was such as scarcely to provide sufficient fuel for the fort." (Back, 1994:115).

Old Fort Providence closed in 1823 following the consolidation of the North West Company and the Hudson's Bay Company (Gillespie, 1981:286).

4.1.2 Adventurers-Travelers Accounts

The naturalist Frank Russell travelled from Fort Rae through Yellowknife Bay, to ascend the Yellowknife River, in the period of 1892-1894. He collected specimens on Dogrib material culture under the auspices of the University of Iowa. His account does not present any notable observations of the Regional Study Area (Russell, 1898).

Other early travellers' (e.g., Pike, 1914) accounts, who visited Great Slave Lake, were examined; however, the accounts reviewed were not relevant for the Regional Study Area.

4.1.3 Present Day

Both Wool Bay and Drybones Bay lie within traditional Yellowknives territory (Figure 4.1), other Akaitcho Treaty 8 and the North Slave Metis Alliance traditional use areas. This region extends from the north arm of Great Slave Lake northeasterly towards the NWT boundary with Nunavut. Since first contact, INSERT TEXT RE CHANGES IN THE LAST 300 YEARS. SEE WKSS SUMMARY OF CHANGES. USE GNWT INFORMATION ON ABORIGINAL LANGUAGES STILL SPOKEN AS AN INDICATOR OF CULTURAL HEALTH. QUESTION: ONCE THE LANGUAGE IS GONE WHAT ELSE PROVIDES INFORMATION ON A CULTURE? ALSO USE MATERIAL FROM BERGER AND SMITH

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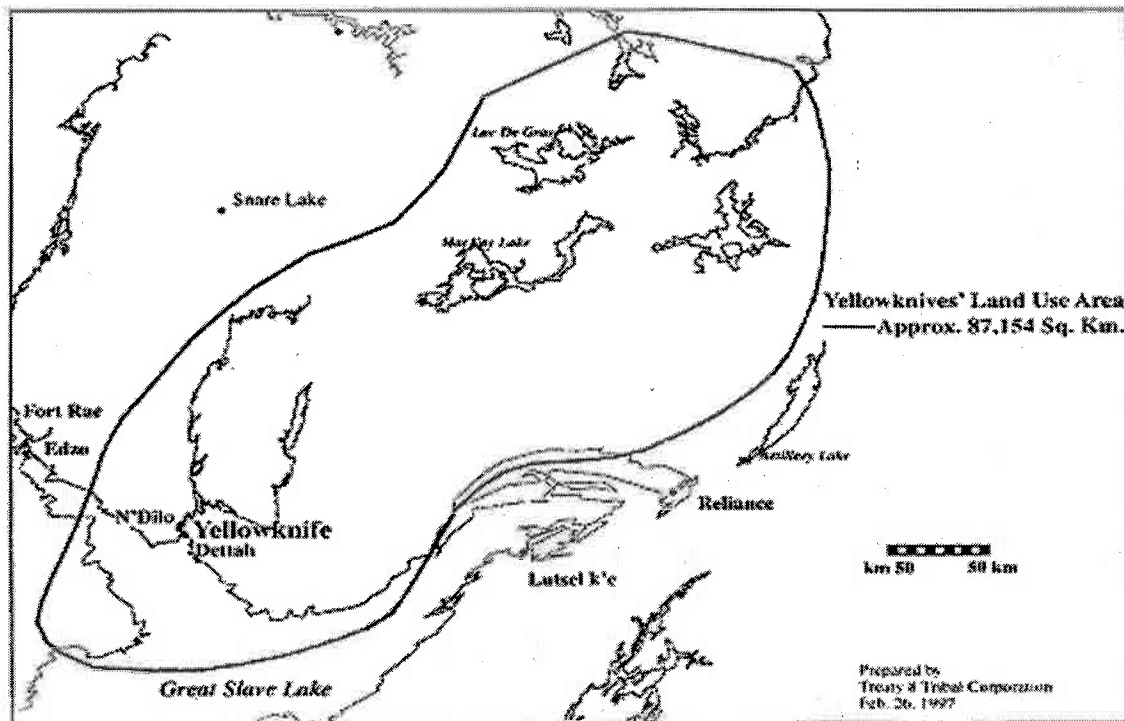


Figure 3. Yellowknives Land Use Area (www.ykdene.com).

4.1.4 Heritage Resources: Archaeology

Prior to the summer of 2003, only six archaeological sites have received Borden numbers¹² for the Wool Bay and Drybones Bay areas. These were:

- 1 grave site,
- 1 cemetery,
- Michael Drybones cabin,
- Old Fort Resolution,
- a single foiled projectile point; and
- the remains of a cabin (Prince of Wales Northern Heritage Centre [insert reference](#)).

¹² The Borden Number is the code provided as a unique locational identifier for archaeological sites. The number is issued by Artefacts Canada in the Department of Heritage Canada.

Cumulative Effects: Drybones Bay and Wool Bay >

In July 2003, the Yellowknives Dene undertook a two-week survey for archaeological and historical resources along the shore of Great Slave Lake and adjoining islands. Sixty-four pre- and post-contact artifacts were located (Table 2). Included among the findings were tent rings, cabins, and cemeteries/ grave sites.

Table 2. Summary of Archaeological Features Identified in A Preliminary Report on the Cultural and Historical Resources of the Drybones and Wool Bay Areas (Draft, August 18, 2003) prepared by Land and Environment, Yellowknives Dene First Nation

General Location	No. of Sites	Resource Site Descriptions
Jackfish Cove	3	<ul style="list-style-type: none"> • 1 cabin site • 1 grave site • 1 tent site
Moose Bay	3	<ul style="list-style-type: none"> • 1 sunken boat site • 1 tent ring site • 1 commercial fishing camp site
Drybones Bay	35	<ul style="list-style-type: none"> • 7 cabin sites (3 old, 4 modern) • 4 camp sites (2 old, 2 modern) • 1 cairn site • 1 possible canoe manufacturing site (canoe weights?) • 2 cemetery sites • 1 clay chimney site / mission site? • 1 commercial fishing camp? • 1 cross site? • 1 drill site • 1 hide-drying/stretching site • 1 quarry site • 1 quarry and shelter site • 1 quarry and work stations • 6 tent sites (some with other boulder features) • 1 tent site and survey marker • 3 tent and quarry site (some with other boulder features) • 1 canoe building site and tent site • 1 boulder alignment site (possibly toboggan or support for hunting blinds)
Burnt Island	5	<ul style="list-style-type: none"> • 4 tent sites • 1 Exploration camp (east of Burnt Island)
Cabin Islands	5	<ul style="list-style-type: none"> • 1 modern cabin site • 1 cemetery site • 1 boulder feature site (possibly tent outline or moose hide-stretching circles)

Cumulative Effects: Drybones Bay and Wool Bay>

General Location	No. of Sites	Resource Site Descriptions
		<ul style="list-style-type: none"> • 1 village site (several cabins) • 1 isolated find: white quartz scraper
North of Matonabee Point	3	<ul style="list-style-type: none"> • 1 cabin site (3 cabins) • 1 cabin and tent site (1 cabin, 3 tent outlines) • 1 tent site
Old Fort Providence	3	<ul style="list-style-type: none"> • 1 grave site • 2 canoe building sites? (one is possibly tent site)
Wool Bay	11	<ul style="list-style-type: none"> • 1 tool-making site • 1 canoe building site • 1 prospector's cairn and work areas • 1 mission site • 1 cemetery site • 6 tent sites
Total	68 sites¹³	

4.2 The Setting: Land, Water and Climate

4.2.1 Geology

The bedrock of the Study Area constitutes part of a stable cratonic core known as the Canadian Shield (Wolfe, 1998:5). Great Slave Lake straddles the boundary of the Canadian Shield and the Interior Platform (Hoffman *et al.*, 1972:1).

The Study Area is located within the Slave Structural Province. The Slave Province consists of weakly north-trending synclinal belts of Archean supracrustal rocks in the Yellowknife Supergroup (Hoffman *et al.*, 1972:1) - Archean rocks underlie about 60 percent of the Slave Province (McGlynn *et al.*, 1972:1). The oldest supracrustal rocks in this Province are Archean basic (i.e., sedimentary rocks known as granitic batholiths) containing pyroclastics, greywacke and shale (McGlynn *et al.*, 1972:1). These rocks are about 2.5 to 2.7 billion years old (Wolfe, 1998:8). The Study Area is shown on one map as Archean supracrustal batholiths (Hoffman *et al.*, 1972: see fig. 1).

Volcanic rocks occur as discontinuous belts along the margin of the Archean complexes (McGlynn *et al.*, 1972:1). Along Yellowknife Bay volcanic rocks consisting of massive basalts and metamorphosed sedimentary rocks called greenstones occur (Wolfe, 1998:8).

¹³ 10 of the 68 sites are contemporary sites and the remaining 54 sites are new archaeological sites, in addition to the 4 known and previously recorded archaeological sites.

Cumulative Effects: Drybones Bay and Wool Bay >

Within the Study Area (i.e., vicinity of Akaitcho Bay), the general geology is shown as Burwash Formation (greywacke, slate) on north and east side, while Plutonic Intrusives are located on the east side (McGlynn *et al.*, 1972:see Fig. 4). Horseshoe Island (i.e., south of Akaitcho Bay) is in the Duck Formation (intermediate volcanics), while further south towards Wool Bay there are Plutonic Intrusives. The Akaitcho Fault and Hay Fault are located in this region (McGlynn *et al.*, 1972: see fig. 4). Glaciation has stripped overburden from the uniformly resistant Archean granite (Hoffman *et al.*, 1972:3).

4.2.2 Soils

No specific information was located on this subject for the Regional Study Area. It is known that the ecoregion is dominated by Dystric Brunisols with Turbic Cryosols on permanently frozen sites and Organic Cryosols in poorly drained, peat-filled depressions (www.ec.gc.ca).

4.2.3 Permafrost

The Regional Study Area's physiographic region is located in the Interior Plains (Brown, 1970:Fig. 3). In the NWT, the Interior Plains have widespread discontinuous permafrost. In this discontinuous zone, frozen and unfrozen (known as taliks) layers occur together and, in the southern fringe of this zone, permafrost is found in scattered pockets or islands ranging in size (Brown, 1970:8-9). In Yellowknife the thickness of permafrost is 200-300 ft. [60-90 m.] (Brown, 1970:10). Permafrost occurrence in the Study Area (i.e., the Yellowknife area) is highly variable depending on the ground conditions (Wolfe, 1998:15).

4.2.4 Hydrology

Great Slave Lake is ice covered during five to six months of each year (Sirois *et al.*, 1995:9-10). At the end of May, most large bays are clear of ice, and large leads have developed offshore. Most of Great Slave Lake remains ice covered until June (Sirois *et al.*, 1995:10). Ice commonly reappears in shallow bays by mid-October, and the large bays are usually ice-bound by early November (Sirois *et al.*, 1995:19; also see Figure 3 for ice breakup patterns in 1991-1992).

Great Slave Lake is largely oligotrophic (e.g., low inorganic nutrients), and the large inflow of mineral-laden water from Slave River accounts for 80-90% of the flows into this lake. This inflow has an important moderating effect on the lake's oligotrophy (Sirois *et al.*, 1995:10). Fluctuations in water levels do not usually exceed 50 cm annually, especially since the construction of the Bennett Dam in British Columbia (Sirois *et al.*, 1995:10).

Cumulative Effects: Drybones Bay and Wool Bay >

4.2.5 Climate

The Study Area is affected by a continental subarctic climate (Wolfe, 1998:8). This climate is dominated by Arctic air masses in winter and spring. The mean annual air temperature is -5.2°C (Wolfe, 1998:8). Precipitation averages about 270 mm, with more than half falling as rain (Wolfe, 1998:8).

4.3 The Setting: Plants, Wildlife and Fish

4.3.1 Terrestrial Ecozone

The Study Area is located in the Tazin Lake Upland Ecoregion (Figure 4) within the Western Taiga Shield. The Tazin Lake Upland Ecoregion is described below.

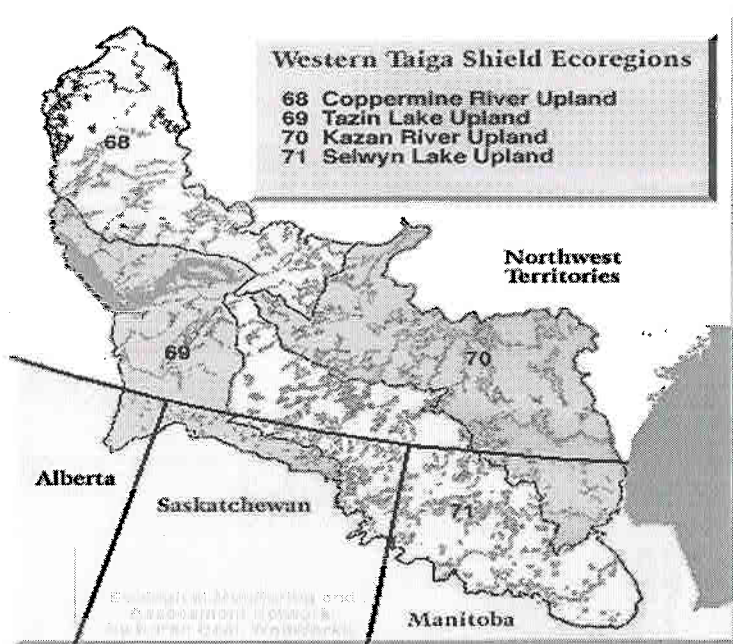


Figure 4. Ecoregions of the Western Taiga Shield ecozone

Tazin Lake Upland

This ecoregion stretches north from Lake Athabasca to beyond the east arm of Great Slave Lake. It is marked by cool summers and very cold winters, and has a subhumid, high boreal ecoclimate. The mean annual temperature is approximately -5°C . The mean summer temperature is 11°C and the mean winter temperature is -21.5°C . The mean annual precipitation ranges 200-375 mm. Yellowknife, on the north shore of Great Slave Lake, has the lowest mean annual temperature of all Canadian cities (-5°C) and the


Cumulative Effects: Drybones Bay and Wool Bay >

lowest average nighttime winter temperature (-30°C). Vegetation in the ecoregion is characterized by medium to tall, closed stands of trembling aspen and balsam poplar with white spruce, balsam fir, and black spruce occurring in late successional stages. Poorly drained fens and bogs are covered with low, open stands of tamarack and black spruce and have localized permafrost. North of the East Arm Hills, and in the southern one-third of the ecoregion, ridged to hummocky crystalline bedrock forms broad, steeply sloping terrain. The East Arm Hills, formed of down-faulted and folded, differentially eroded sediments and gabbro sills, dip southerly, forming broad cuestas as much as 275 m above Great Slave Lake, the surface of which is about 150 m ASL in elevation. The intervening valleys are flooded by arms of Great Slave and other lakes. Upland elevations are dominated by bedrock exposures with discontinuous veneers of sandy till, whereas the lowlands are covered by level to gently undulating organic deposits. The ecoregion contains numerous small lakes, often linked by fast-flowing streams that eventually drain into Great Slave Lake. Strongly glaciated rock outcrops are common, and Dystric Brunisols are the dominant soils. Significant inclusions are Turbic Cryosols on permanently frozen sites and Organic Cryosols in poorly drained, peat-filled depressions. Permafrost is extensive and discontinuous with low ice content and sparse ice wedges throughout most of the ecoregion, with the exception of the west side between Lake Athabasca and Great Slave Lake towards the Slave River. Wildlife includes moose, black bear, woodland caribou, wolf, beaver, muskrat, snowshoe hare, and spruce grouse. Land uses include limited local sawlog forestry, outdoor recreation, wildlife trapping and hunting, and fishing. Major communities include Yellowknife, Uranium City, Reliance, Rae, Edzo, and Fort Chipewyan. The population of the ecoregion is approximately 18,100. (Source:<http://www.ec.gc.ca/>)

4.3.2 Vegetation

Terrestrial plants

No literature sources were located in the ASTIS or other databases searched on vegetation studies specific to the Regional Study Area. Plant species found in the ecoregion that the Regional Study Area is in include Black Spruce (*Picea mariana*), Jack Pine (*Pinus banksiana*), Tamarack (*Larix laricina*), Creeping Juniper (*Juniperus horizontalis*), Sedges (*Cyperaceae*) and Green Alder (*Alnus crispa*) (Milburn, 2002; Porsild *et al.*, 1980:3).

The Forestry Division of the Department of Resources, Wildlife and Economic Development, GNWT has satellite imagery related to land classification and vegetation cover for the Northwest Territories. The portion of this data that includes coverage of the Regional Study Area is attached in .

The littoral zone of Yellowknife-Back Bay has submerged macrophytes distributed discontinuously and at variable densities (Jackson *et al.*, 1996:117). Emergent plants, such as *Equistem* species and sedges, are

Cumulative Effects: Drybones Bay and Wool Bay >

common at the shoreline, but sometimes extend extensively into the littoral zone (Jackson *et al.*,1996:117).

4.3.3 Fauna: Mammals

Caribou

The Bathurst Caribou herd have a large annual range, which includes the Regional Study Area for this project. The typical winter distribution (November to March) of the Bathurst Caribou herd is south of the tree line and includes the Study Area, while the typical summer distribution (June to mid-August) is mostly in Nunavut where calving takes place (Hall, 1989:110) (Figure 5).

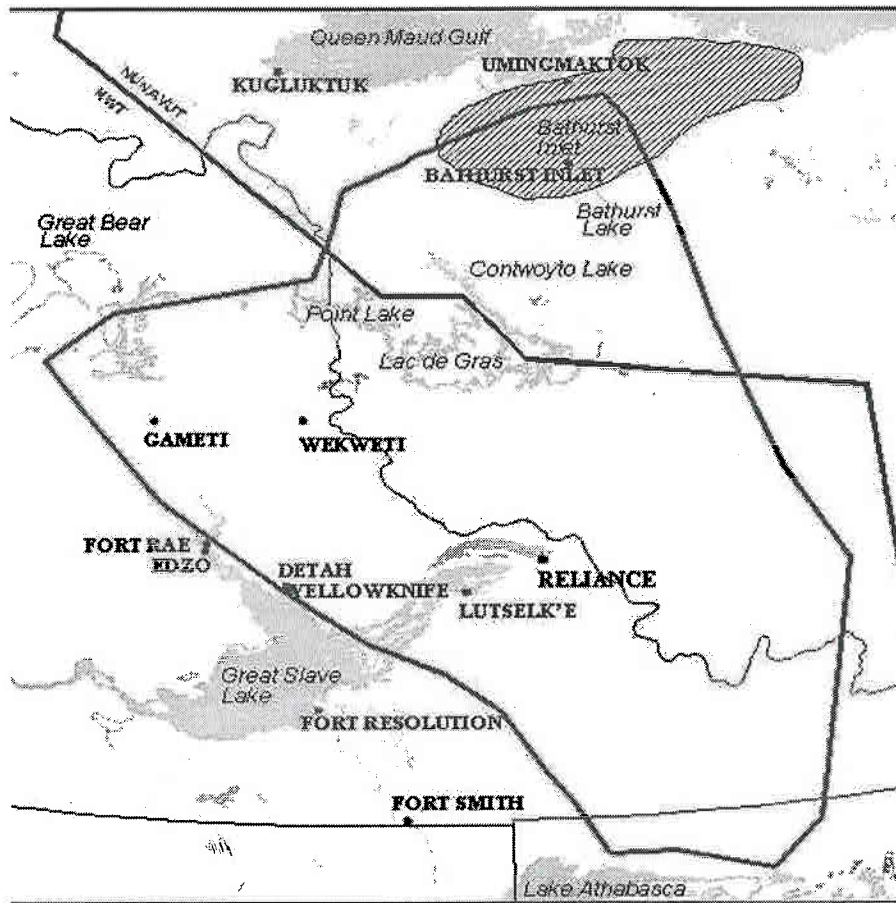


Figure 5 Red outlined area shows the annual range of the Bathurst caribou herd based on satellite collar data April 1996-December 2000. Red hatched area: historical calving area 1966-1996 (<http://www.nwtwildlife.rwed.gov.nt.ca/>).

Cumulative Effects: Drybones Bay and Wool Bay >

In 1990, herd size was estimated at 352,000 caribou aged one year and older (Case et al, 1996).

Moose

Little specific literature related to the presence of moose in the Regional Study Area is available. However, anecdotal local knowledge on the presence of moose has been collected by the North Slave Metis Alliance (Appendix B). Also, the YKDFN study team investigating archaeological sites in the Regional Study Area indicated that there was good moose hunting all along the north shore of Great Slave Lake. During the field trip to the Regional Study Area, moose sign was very abundant all along the shoreline and the islands that were visited. No population data is available though density estimates for Northwest Territories are 3-17 individuals per 100 km². In all of the NWT, the total moose population is estimated to be 20,000. Moose are at the northern limits of their range in the NWT (<http://www.nwtwildlife.rwed.gov.nt.ca/NWTwildlife/moose/wildlifesketch/status.htm>).

Furbearers

No literature sources were located in the ASTIS or other databases searched on furbearers specific to the Regional Study Area. On a broader Ecoregion level,

4.3.4 Fauna: Birds

For the Yellowknife area (i.e., 75 km radius), one regional checklist includes 184 species (Bromley *et al.*). Within 50 km of Great Slave Lake, there are 237 confirmed species (Sirois, 1994:29).

Nesting colonial waterbirds are abundant along the east shore of Great Slave Lake's North Arm. Three reasons are ascribed for this abundance: (i) the presence of countless small, poorly vegetated or unvegetated islands; (ii) the occurrence of vast wetlands and shallows (between islands and inshore) teeming with invertebrates and small fish; and (iii) turbid and shallow waters that are ice-free relatively early in the spring (particularly attractive to Common Terns and Ring-billed Gulls) (Sirois *et al.*, 1995:26).

West of the Study Area are the East Mirage Islands that are rated amongst the twenty largest nesting sites on Great Slave Lake (Sirois *et al.*, 1995:28). East Mirage Island (#1) had 154 nests in 1989, while East Mirage Island (#2) had 95 nests in 1987 (Sirois *et al.*, 1995:28). The following waterbirds have been reported in the Study Area:

- Parasitic Jaegers (confirmed nesters and probable nester sites);
- Bonapartes' Gulls (confirmed nesters and probable nester sites);
- Mew Gulls (confirmed nesters and probable nester sites);
- Ring-bill Gulls (confirmed nesters and probable nester sites);
- Herring Gulls (confirmed nesters and probable nester sites);

Cumulative Effects: Drybones Bay and Wool Bay >

- Caspian Terns (confirmed nesters and probable nester sites);
- Common Terns (confirmed nesters sites);
- Arctic Terns (confirmed nesters sites); and,
- Black Terns (fledged young-of-year) (Sirois *et al.*, 1995:Fig. 5-8, 10-12, 14, 31).

Seven species of colonial waterbirds that occur on Great Slave Lake are at, or near, the northern limits of the Nearctic breeding ranges and, as such, provide an excellent opportunity to monitor climate warming trends. These waterbirds that occupy high trophic levels and bioaccumulate contaminants, are potentially important bioindicators of contamination (Sirois *et al.*, 1995:29).

4.3.5 Fish

Great Slave Lake is located in the Arctic drainage basin, which is home to approximately 55 species of fish (Scott *et al.*, 1973). Commercial fishing began on Great Slave Lake in 1945. Almost the entire lake has been open to commercial fishing at some point in the history of the fishery; however certain areas have been closed to protect subsistence and sport fisheries. The commercial portion of Great Slave Lake is divided into six (6) administrative areas for management purposes (Figure X). The Drybones Bay and Wool Bay areas fall into Area IV.

This report documents production values, and age, weight, and length composition based on fish plant sampling carried out for three years: 1999/00, 2000/01 and 2001/02. The report considered the following commercial fish species¹⁴: lake whitefish (*Coregonus clupeaformis*), lake trout (*Salvelinus namaycush*), inconnu (*Stenodus leucichthys nelma*), northern pike (*Esox lucius*), walleye (*Stizostedion vitreum vitreum*), burbot (*Lota lota*) and longnose sucker (*Catostomus catostomus*). The first five (5) species listed are considered commercially important and are listed in decreasing order of importance.

The commercial quotas¹⁵ for Area IV during the 1975/76 to 2001/02 seasons were 622,727 for 1975-76, 409,091 for 1976-80, and 409,100 for 1980-2002. The total production of commercial fish species in Area IV for the years 1999/00, 2000/01, 2001/02 were 353,846, 399,862, and 313,633, respectively. The production values in Area IV are the highest of the six administrative areas for 1999/00 and 2000/01 and the second highest for 2001/02. Note that the production values do not include an estimate of the deteriorated whitefish discarded on the lake, but the values do include whitefish culls at the fish plant.

¹⁴ There are at least 25 fish species in Great Slave Lake.

¹⁵ Quotas based on whitefish only and other species caught are considered by-catch

Cumulative Effects: Drybones Bay and Wool Bay >

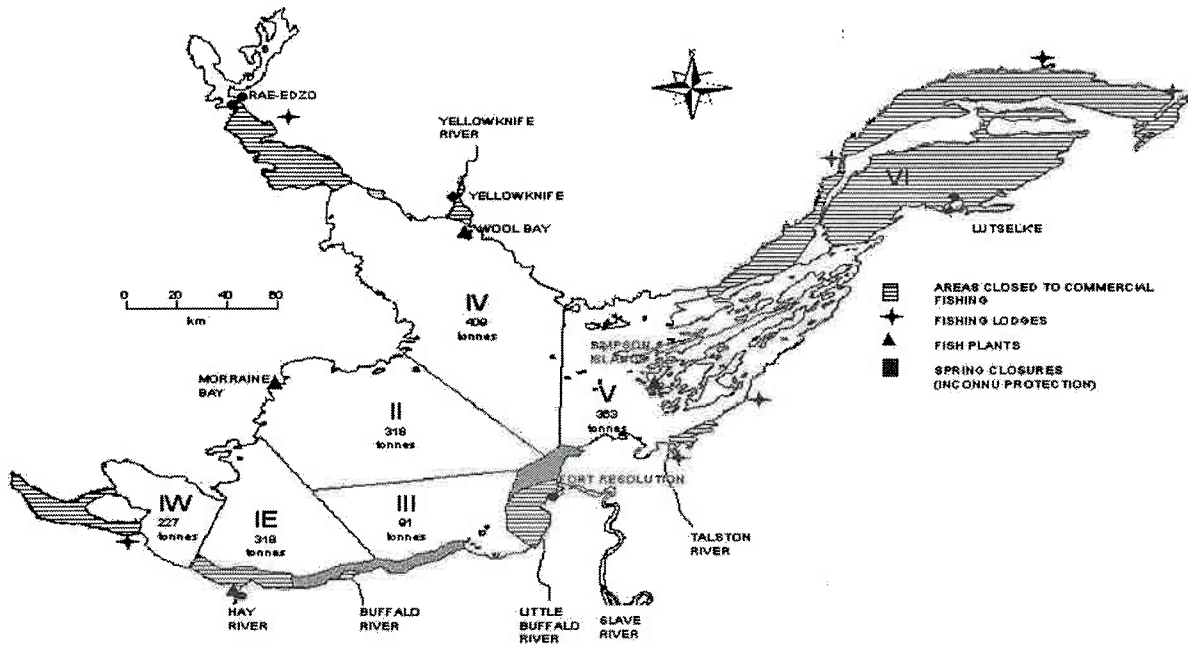


Figure xxx. Map of Great Slave Lake showing the administrative areas and quotas for the commercial gillnet fishery, areas closed to commercial fishing and the location of communities, fish plants and sports fishing lodges. Map was prepared for a meeting of the Great Slave Lake Advisory Committee, October, 2002. (DFO, unpublished).

4.4 Review of the Developers’ Environmental Assessment Reports

4.4.1 Proposed Project-Specific Mitigation

A review of the proponent environmental assessment reports was undertaken to determine/ confirm if any of the effects of those projects have the potential to contribute to cumulative effects in the Drybones Bay and Wool Bay Local Study Areas. Where additional mitigation can be proposed to avoid cumulative impacts they will be provided.

4.4.1.1 Consolidated Goldwin Ventures (MV2003C0003)

Cumulative Effects: Drybones Bay and Wool Bay >

Consolidated Goldwin Ventures Inc. (CGV) is proposing a three site preliminary exploration drill program for the winter of 2003/2004, anticipated to be carried out over a three week period between February and April, 2004. The drill program will involve drilling up to two holes at each of the three proposed drill sites.

Two of the sites are located within the Drybones Bay Local Study Area, between 500 and 1500 metres from shore. Drilling will be through the ice, in water greater than 15 metres in depth. Drill-hole depths will range between 200 and 250 metres.

The third drill site is located on land, approximately 500 metres north of Hearne Channel. This site is located outside of the Local and Regional Study Areas, and is not considered in this project.

Table X: Summary of identified impacts and proposed mitigation measures.

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
Winter access road, allowing increased access by other users.	An ice road will be constructed from Yellowknife to the Drybones Bay area (and to Hearne Channel area) and would be used by CGV for the duration of its drilling program. The ice road will be constructed in accordance with existing NWT guidelines for the construction, maintenance and closure of winter roads.	One ice road would be used by all four developers for access to the Drybones Bay and Wool Bay areas.
Camp – size, location, duration, waste disposal	No camp will be required to support the planned drilling program.	Possible to share Dave Smith permitted camp located on the east side of Drybones Bay.
Drilling – waste disposal, water use, disturbance of archaeological, cultural, or historical sites.	Two drill sites located offshore, requiring on-ice drilling. Large diameter casing installed from water surface to lake bottom to prevent loss of drilling fluids and drill cuttings to the water column. Approximately 25,000 litres required to drill each hole; water to be re-circulated for drilling to reduce amount used. Drilling is short-term, winter based and offshore, and therefore does not affect archaeological, cultural or historical sites. Used water and drill cuttings will be contained and returned to Yellowknife for disposal in an approved manner.	N/A
Waste management	The primary wastes generated by the drilling program include drill cuttings, drilling fluids, general garbage (empty fuel drums, food containers and drill mud	N/A

Cumulative Effects: Drybones Bay and Wool Bay>

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
	constituent bags). All wastes, including water and drill cuttings, will be contained and removed to Yellowknife for recycling or disposal in an approved manner.	

Table X: Summary of developer identified issues and proposed resolution measures.

Issue	Resolution
Culturally vital: many residents grew up and spent summers in the area and continue to actively use area.	Issue as stated indicates predominantly a summer concern and usage; most of program conducted in winter would be confined to an area on ice, offshore of any area that would have had normal human activity: therefore, spatially, program area does not conflict with referenced area of concern, timing of program does not conflict with any summer activities in the area, and the program duration is so short that any winter activities would not be compromised.
Spiritually Significant areas	Spatially, the program areas are small and would not conflict with referenced areas of concern; no archaeological sites were identified by Prince of Wales North Heritage Centre within 1 km of the work areas; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be will be respected.
Numerous grave sites along Drybones Bay	Spatially, the program areas are small and would not conflict with referenced area of concern; no archaeological sites were identified by Prince of Wales North Heritage Centre within 1 km of the work areas; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be will be respected.
Actively used for hunting	Program would be conducted in winter.. Program duration is short and no effects on wildlife or hunting are anticipated.
Actively used for fishing	Program would be conducted in winter and confined to limited areas on ice, well offshore.. Program duration is short. Cuttings will be contained and transported to Yellowknife landfill site Fish harvesting by local business is 45km away from site and is not active during winter months.
Actively used for trapping	Program would be conducted in winter. Program duration is short and no effects on wildlife or trapping are anticipated.
Actively used for berry picking	Program would be conducted in winter.. Program duration is short and no effects on vegetation are anticipated. Program not conducted during berry picking time.
Site of Bald eagles (raptors))	Program would be conducted in winter when eagles and most other birds are not present. Program duration is short and no effects on birds are anticipated,
Actively used for camping and campground areas	Issue as stated indicates predominantly a summer concern and usage; Program would be conducted in winter.
Actively used for goose hunting	Program would be conducted in winter when geese and most other birds are not present.

Cumulative Effects: Drybones Bay and Wool Bay>

Issue	Resolution
	Program duration is short and no effects on birds are anticipated Summer goose hunting will not be affected.
Actively used for duck hunting	Program would be conducted in winter when ducks and most other birds are not present. Program duration is short and no effects on birds are anticipated Summer duck hunting will not be affected.
Ecologically unique because they are the largest bays on the shoreline and provide a unique microclimate and unique ecosystem.	Program would be conducted in winter.. Program duration is short and no effects on wildlife, vegetation or ecologically unique areas are anticipated.
Unique habitat makes it excellent for wildlife	Program would be conducted in winter.. Program duration is short and no effects on wildlife, vegetation or ecologically unique wildlife habitats are anticipated.
Sheltered bays are regularly used during lake travel (impact current use and activity patterns)	Ice road built by and for exploration companies and their program, traffic use would be minimal, 3-4 trips per day; no spatial overlapping conflict; for the short duration of program drill rig and traffic could potentially be a benefit to other users caught in bad weather conditions.
Good places for picking medicinal plants	Program would be conducted in winter. No land would be disturbed so could not disturb any medicinal plant growth and program not conducted during medicinal plant harvesting time. No spatial overlapping conflict seen.
Main boat moorage on Windy days	Program would be conducted in winter so there would not be any boating conflict;. No overlapping conflict occurs.
Significant impact on Treaty rights and alienation of current access to the land	Issue being addressed by government
Forest Resource impact-all trees getting knocked down	Travel and work area would be conducted in a workman like way so to minimize the cutting of trees,
Sound effects of wildlife	Duration of program would be short to minimize any impact, not immediate site of wildlife, most wildlife hibernating during program.
Improved Access	Winter road would be open only during program. Without constant plowing ice road covers over in a couple of days of windy conditions. Ice road would be completely gone when ice melts. Therefore, there is no improved access except for this short duration and is not a normal route for others. Most would have same access with skidoo anytime regardless of program an ice road.

Cumulative Effects: Drybones Bay and Wool Bay >

4.4.1.2 New Shoshoni Ventures (MV2003C0016)

New Shoshoni Ventures Inc. (NSV) is proposing a three site exploration drill program for the winter of 2003/2004, anticipated to be carried out over an eight to ten week period between February and April, 2004. The drill program will involve drilling up to ten (10) holes at the three proposed drill sites.

The three drill sites are located within the Drybones Bay Local Study Area, approximately 500 metres west of an identified and registered archaeological grave site. Drilling will be through the ice in water greater than 15 metres depth, and land based locations. Drill-hole depths will range between 200 and 400 metres.

Table X: Summary of identified impacts and proposed mitigation measures:

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
Winter access road, allowing increased access by other users.	An ice road will be constructed from Yellowknife to the Drybones Bay area and would be used by NSV for the duration of its drilling program. The ice road will be constructed in accordance with existing NWT guidelines for the construction, maintenance and closure of winter roads.	One ice road would be used by all four developers for access to the Drybones Bay and Wool Bay areas.
Camp – size, location, duration, waste disposal	A camp will be required to support the planned drilling program, and is located on the east side of the small bay where drilling will take place in Drybones Bay. This camp has been previously established and permitted.	N/A
Drilling – waste disposal, water use, disturbance of archaeological, cultural, or historical sites.	For offshore, on-ice drilling sites: Large diameter casing installed from water surface to lake bottom to prevent loss of drilling fluids and drill cuttings to the water column. Approximately 25,000 litres required to drill each hole; water to be re-circulated for drilling to reduce amount used. On-shore drilling will also collect drill cuttings and drill fluids. Used water and drill cuttings will be contained and disposal in an approved manner on land. Total amount of drill cuttings generated are 2.5 to 5.0 cubic	N/A

Cumulative Effects: Drybones Bay and Wool Bay >

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
	metres.	
Waste management	The primary wastes generated by the drilling program include drill cuttings, drilling fluids, general garbage (empty fuel drums, food containers and drill mud constituent bags). All wastes will be contained and removed to Yellowknife for recycling or disposal in an approved manner. Drill fluids and drill cuttings will be disposed of on land in an approved manner.	N/A

Table X: Summary of developer identified issues and proposed resolution measures:

Issue	Resolution
Culturally vital: many residents grew up and spent summers in the area and continue to actively use area.	Issue as stated indicates predominantly a summer concern and usage; program conducted in winter would mostly be confined to an area offshore of any area that would have had normal human activity: therefore, spatially, program area does not conflict with referenced area of concern, timing of program does not conflict with any summer activities in the area, and the program duration is so short that any winter activities would not be compromised. New Shoshoni will monitor work area to ensure that all sites will be will be respected. Company will be using First Nation advisors to ensure no interference.
Spiritually Significant	Spatially the program areas are small and would not conflict with referenced areas of concern; the archaeological sites identified by YKDFN and the Prince of Wales North Heritage Centre within 1 km of the will be respected and local community sources will be consulted to provide any information to ensure that all sites will be will be respected. Company will be using First Nation advisors to ensure no interference.
Numerous grave sites along Drybones Bay	Spatially the program areas are small and would not conflict with referenced areas of concern; the archaeological sites identified by YKDFN and the Prince of Wales North Heritage Centre within 1 km of the will be respected and local community sources will be consulted to provide any information to ensure that all sites will be will be respected. Company will be using First Nation advisors to ensure no interference
Actively used for hunting	Program will be conducted in winter. Program duration is short and no effects on wildlife or hunting are anticipated.
Actively used for fishing	Program will be conducted in winter and confined to limited areas on the ice. Program duration is short and cuttings will be contained and deposited on shore Fish harvesting by local business is 45km away from site and is not active during winter months.
Actively used for trapping	Program will be conducted in winter. Program duration is short and no effects on wildlife or hunting are anticipated.

Cumulative Effects: Drybones Bay and Wool Bay>

Issue	Resolution
Actively used for berry picking	Program will be conducted in winter. Program duration is short and no effects on vegetation are anticipated. Program not conducted during berry picking time.
Site of Bald eagles (raptors)	Program would be conducted in winter when eagles and most other birds are not present. Program duration is short and no effects on birds are anticipated
Actively used for camping and campground areas	Issue as stated indicates predominantly a summer concern and usage; Program would be conducted in winter
Actively used for goose hunting	Program would be conducted in winter when geese and most other birds are not present. Program duration is short and no effects on geese or other birds are anticipated
Actively used for duck hunting	Program would be conducted in winter when ducks and most other birds are not present. Program duration is short and no effects on ducks or other birds are anticipated
Ecologically unique because they are the largest bays on the shoreline and provide a unique microclimate and unique ecosystem.	Program would be conducted in winter.. Program duration is short and no effects on wildlife, vegetation or ecologically unique areas are anticipated.
Unique habitat makes it excellent for wildlife	Program would be conducted in winter.. Program duration is short and no effects on wildlife, vegetation or ecologically unique areas are anticipated.
Sheltered bays are regularly used during lake travel (impact current use and activity patterns)	Ice road built by and for exploration companies and their program, traffic use would be minimal, 3-4 trips per day,, no spatial overlapping conflict; for the short duration of program drill rig and traffic could potentially be a benefit to other users caught in bad weather conditions.
Good places for picking medicinal plants (not sure this pertains to Wool Bay)	Program would be conducted in winter. No land would be disturbed so could not disturb any medicinal plant growth and program not conducted during medicinal plant harvesting time. No spatial overlapping conflict seen.
Main boat moorage on Windy days	Program would be conducted in winter so there would not be any boating conflict. No overlapping conflict occurs.
Significant impact on Treaty rights and alienation of current access to the land	Issue being addressed by government
Forest Resource impact-all trees getting knocked down	Travel and work area would be conducted in a workman like way so to minimize the cutting of trees,
Sound effects of wildlife	Duration of program would be short to minimize any impact, not immediate site of wildlife, most wildlife hibernating during program.
Improved Access	Winter road would be open only during program. Without constant plowing ice road covers over in a couple of days of windy conditions. Ice road would be completely gone when ice melts. Therefore, there is no improved access except for this short duration and is not a normal route for others. Most would have same access with skidoo anytime regardless of program an ice road.

Cumulative Effects: Drybones Bay and Wool Bay >

4.4.1.3 North American General Resources Corporation (MV2003C0008)

North American General Resources Corporation (NAGRC) is proposing a 2 to 3 hole, one site exploration drill program for the winter of 2003/2004, anticipated to be carried out over a 10 day period between late January and April, 2004. The drill site is located within the Wool Bay Local Study Area, on an unnamed island approximately 250 metres south and east of Wool Bay proper. Drilling will be through the ice in water, offshore of the unnamed island. Drill-hole depths will be approximately 150 metres in depth.

Table xx. Summary of identified impacts and proposed mitigation

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
Winter access road, allowing increased access by other users.	An ice road will be constructed from Yellowknife to the Drybones Bay area and would be used by NAGRC to access their Wool Bay property, by a 300 – 400 metre access spur, for the duration of its drilling program. The ice road will be constructed in accordance with existing NWT guidelines for the construction, maintenance and closure of winter roads.	One ice road would be used by all four developers for access to the Drybones Bay and Wool Bay areas. A 300 to 400 metre access spur will be required to access the NAGRC site.
Camp – size, location, duration, waste disposal	No camp will be required to support the planned drilling program. Crews will travel daily to the site from Yellowknife.	N/A
Drilling – waste disposal, water use, disturbance of archaeological, cultural, or historical sites.	For offshore, on-ice drilling a Poly-drill system will be used to collect water and drill cuttings and prevent loss of drilling fluids and drill cuttings to the water column. A total of approximately 3,000 gallons of water is required to drill all three holes; water to be re-circulated for drilling to reduce amount used. Drill water to be replaced every 1.5 days. Used drill water to be disposed of on land, at least 30 metres from shore. Drill cuttings will be contained, removed to Yellowknife and disposal in an approved manner. Daily amount of drill cuttings generated are between 0.2 and 0.5 cubic metres.	N/A
Waste management	The primary wastes generated by the drilling program include drill cuttings, drilling fluids, general garbage (empty fuel drums, food containers and drill mud	N/A

Cumulative Effects: Drybones Bay and Wool Bay >

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
	constituent bags). All wastes, including drill cuttings, will be contained and removed to Yellowknife for recycling or disposal in an approved manner. Drill fluids will be disposed of on land in an approved manner.	

Table xx. Summary of developer identified issues and proposed resolution measures:

Issue	Resolution
Culturally vital: many residents grew up and spent summers in the area and continue to actively use area.	Issue as stated indicates predominantly a summer concern and usage; program conducted in winter would be confined to an area of 200m x 200m exclusively on ice and 250m offshore and would not have had normal human activity; therefore, spatially, program area does not conflict with referenced area of concern, timing of program does not conflict with any summer activities in the area, and the program duration is so short that any winter recreation activities would not be compromised. No remnant impact to area affecting continued use.
Spiritually Significant (uncertain if concern pertains to Wool Bay or Drybones Bay)	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and would not have had normal human activity. Access to work area would be along ice road. Therefore, spatially, program area is small and would not conflict with referenced area of concern; no archaeological sites were identified by Prince of Wales North Heritage Center within 1 km of the work area but 1 site lies about 3km from the work area; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be respected and avoided. No remnant impact to area.
Numerous grave sites at the bay and along shoreline (uncertain if this pertains to Drybones Bay only)	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and would not have had normal human activity. Access to work area would be along ice road. Therefore, spatially, program area is small and would not conflict with referenced area of concern; no archaeological sites were identified by Prince of Wales North Heritage Center within 1 km of the work area but 1 site lies about 3km from the work area; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be respected and avoided. No remnant impact to area.
Actively used for hunting	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore in an exposed area that would not provide any significant habitat for wildlife. Furthermore, program duration is short to minimize any negligible impact on hunting. No remnant impact to area or future hunting.
Actively used for fishing	Program would be conducted in winter and confined to an area of 200m x 200m

Cumulative Effects: Drybones Bay and Wool Bay>

Issue	Resolution
	exclusively on ice. Temporary localized noise disturbance in area. Drill cuttings will be removed to minimize impact and used water would be pumped on shore. Program would not have any significant impact beyond negligible temporary and local disturbance to fish. Fish harvesting by local business is 5km away from site and is not active during winter months. No remnant impact to area or future fishing.
Historical village at Wool Bay	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and would not have had normal human activity. Access to work area would be along ice road. Therefore, spatially, program area is small and would not conflict with referenced area of concern; no archaeological sites were identified by Prince of Wales North Heritage Center within 1 km of the work area but 1 site lies about 3km from the work area; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be respected and avoided.
Actively used for trapping	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore in an exposed area that would not provide any significant habitat for wildlife. No trapping occurs on the lake ice. No remnant impact to area or future trapping.
Actively used for berry picking	Program conducted in winter would be confined to an area of 200m x 200m exclusively on ice and 250m offshore. Therefore, spatially, the program area does not conflict with berry harvesting; timing of program does not conflict with any summer berry harvesting activities in the region. No remnant impact to area or future berry picking.
Site of Bald eagles (raptors) (not sure if this pertains to Wool Bay)	Program area is 250m offshore of Great Slave Lake, centered on whale-back shaped and treed island, site visit by author in July 2002 and April 2003 did not identify nesting area on island or shoreline. Duration of program and not conducted during spring/summer nesting period. Bald eagles not present at time of program due to migration south. No remnant impact to area or eagles.
Actively used for camping and campground areas	Issue as stated indicates predominantly a summer concern and usage; program conducted in winter would be confined to an area of 200m x 200m on ice and 250m offshore that would not draw normal camping activity. Therefore, spatially, program area does not conflict with referenced area of concern, timing of program does not conflict with any summer activities in the area, and the program duration is so short that any negligible winter camping activities would not be compromised. No remnant impact to area or future camping activities.
Actively used for goose hunting	Program conducted in winter and exclusively on ice so no perceivable conflict with geese that are absent from the area at this time of year. Nearest marshland that could provide spring/summer habitat is at least 800m northeast of work area on the other side of a projecting peninsula of land. No remnant impact that would affect future summer goose hunting.

Cumulative Effects: Drybones Bay and Wool Bay >

Issue	Resolution
Actively used for duck hunting	Program conducted in winter and exclusively on ice so no perceivable conflict with ducks that are absent from the area at this time of year. Nearest marshland that could provide spring/summer habitat is at least 800m northeast of work area on the other side of a projecting peninsula of land. No remnant impact that would affect future summer duck hunting.
Ecologically unique because they are the largest bays on the shoreline and provide a unique microclimate and unique ecosystem.	Program not in Wool Bay proper; Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and does not provide any significant habitat for wildlife. Program conducted in winter, of short duration and on ice so no perceivable conflict. No remnant impact to area.
Unique habitat makes it excellent for wildlife	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and does not provide any significant habitat for wildlife. Program conducted in winter, of short duration and on ice so no perceivable conflict. No remnant impact to area for future wildlife use.
Sheltered bays are regularly used during lake travel (impact current use and activity patterns)	Ice road built by and for exploration companies and their program, traffic use would be minimal, 3-4 trips per day; Wool Bay proper is not the location of the program, no spatial overlapping conflict; for the short duration of program drill rig and traffic could potentially be a benefit to other users caught in bad weather conditions. Access route would not conflict with skidoo usage.
Good places for picking medicinal plants (not sure this pertains to Wool Bay)	Program conducted in winter would be confined to an area of 200m x 200m exclusively on ice and 250m offshore. Therefore, spatially, program area does not conflict with medicinal plant harvesting; timing of program does not conflict with any summer medicinal plant harvesting activities in the region. No remnant impact to area or future medicinal plant habitat or harvesting. No spatial overlapping conflict seen.
Main boat moorage on Windy days	Program would be conducted in winter so there would not be any boating conflict; program not in Wool Bay proper. No overlapping conflict occurs.
Wool Bay birth place of many current residents of Dettah and Ndilo	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and would not have had normal human activity. Access to work area would be along ice road. Therefore, spatially, program area is small and would not conflict with referenced area of concern; no archaeological sites were identified by Prince of Wales North Heritage Center within 1 km of the work area but 1 site lies within 3km of the work area; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be respected and avoided.
Significant impact on Treaty rights and alienation of current access to the land	Not an environmental Impact issue.
Forest Resource impact-all trees getting knocked down	Travel and work area would be conducted exclusively on lake ice in an area of 200m x 200m. No cutting of trees needed, no trees impacted.

Cumulative Effects: Drybones Bay and Wool Bay >

Issue	Resolution
Sound effects on fish and wildlife for year round sound.	Duration of program would be short to minimize any negligible impact, site does not provide good habitat for wildlife, most wildlife hibernating, migrated or in land during program. Depth of water in area is 1-6 m. The depths of ice development may be right to bottom thus not providing winter fish habitat. Any impact on fish and wildlife would be negligible.
Improved Access	Winter road would be open only during program. Without constant ploughing ice road covers over in a couple of days of windy conditions. Ice road would naturally disappear when ice melts. Therefore, there is no improved access except for this short duration and is not a normal route for others. Most would have same access with skidoo anytime regardless of program and ice road.

4.4.1.4 Snowfield Development Corp. (MV2003C0023)

Snowfield Development Corp. (Snowfield) is proposing a five claim exploration program beginning in the winter of 2003/2004. The program will include airborne geophysical surveys, ground geophysical surveys, ground geochemical till sampling, the drilling of up to an estimated 100 drill holes, and bulk sampling of kimberlite by either trenching or drilling. These activities are anticipated to be carried out over the next 5-years and will involve summer and winter programs. Drilling will primarily occur between October and April, while gridline cutting, geochemical till sampling and geophysical surveys will be undertaken during the summer months.

Three of the claims (Mud Lake Group, Hurcomb, and Red claims) are located inland and to the east and southeast of Drybones Bay, the remaining two claims (Fate and GTEN 16 claims) are located approximately 15 km northeast and about 20 km east-north-east of Drybones Bay. Most of the drilling is planned to be completed in the winter of 2003/04 for the Mud Lake, Hurcomb, Red and Fate claims, with the GTEN16 claim being drilled during the summer and fall of 2004.

Table X: Summary of identified impacts and proposed mitigation measures:

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
Winter access road, allowing increased access by other users.	An ice road will be constructed from Yellowknife to the Drybones Bay area and would be used by Snowfield for the duration of its winter exploration programs. The ice road will be constructed in accordance with existing NWT guidelines for the construction, maintenance and closure of winter roads. Summer access will be by helicopter and/or fixed wing aircraft.	One ice road would be used by all four developers for access to the Drybones Bay and Wool Bay areas.

Cumulative Effects: Drybones Bay and Wool Bay >

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
Camp – size, location, duration, waste disposal	A semi-permanent camp and equipment storage/staging area is proposed/located approximately 4 KM south of Drybones Bay and 75 metres back from the shore of Great Slave Lake. This camp facility has been previously established and permitted. The camp will accommodate up to 20 people.	N/A
Drilling – waste disposal, water use, disturbance of archaeological, cultural, or historical sites.	Drilling is all land based, using from 1 to 30 sites and drilling between 1 to 20 drill holes per site (depending on the claim) to depths up to 200 metres. Up to 25,000 litres of water will be used per drill hole. Drilling fluid and drill cuttings will be collected and disposed of in approved land based sumps.	N/A
Waste management	The primary wastes generated by the drilling program include drill cuttings, drilling fluids, general garbage (empty fuel drums, food containers and drill mud constituent bags). All wastes, except drill fluids and cuttings, will be contained and removed to Yellowknife for recycling or disposal in an approved manner. Drill fluids and drill cuttings will be disposed of on land in an approved manner.	N/A
Gridline cutting	Gridline cutting will occur on the Mud Lake, Hurcomb, Red and GTEN 16 claims. Gridline widths will be minimal, to allow portable drill rig access. Removal of large diameter trees will be avoided. This work completed without the need for a Land Use Permit.	N/A
Geochemical till sampling	Soil/till sampling will occur in grid areas. Overburden will be removed and stored for later rollback. Most of this work completed without the need for a Land Use Permit.	N/A
Kimberlite bulk sampling	One bulk kimberlite sample will be taken from a previously identified kimberlite on the Mud Lake claim. The trenching method of bulk sample will be used. Overburden will be removed and stored for later rollback.	N/A

Cumulative Effects: Drybones Bay and Wool Bay >

Table X: Summary of developer identified issues and proposed resolution measures:

Issue	Resolution
Culturally vital: many residents grew up and spent summers in the area and continue to actively use area.	Issue as stated indicates predominantly a summer concern and usage; Snowfield's consultant (see below) indicates only 3 areas of significance in vicinity of claims but not on them. Company will continue using First Nation advisors to ensure no areas disturbed
Spiritually Significant	No archaeological sites were identified by Prince of Wales North Heritage Centre; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be respected. Company will continue using First Nation advisors to ensure no areas disturbed
Numerous grave sites at the bay and along shoreline	Company will ensure access to work area would ensure that all sites will be respected.
Actively used for hunting	Company will continue using First Nation advisors to ensure no interference.
Actively used for fishing	Company will continue using First Nation advisors to ensure no interference
Actively used for trapping	Company will continue using First Nation advisors to ensure no interference.
Actively used for berry picking	Company will continue using First Nation advisors to ensure no interference
Site of Bald eagles (raptors)	During the summer component of the exploration program Snowfield will monitor and minimize any noise or conflict, during nesting period.
Actively used for camping and campground areas	Issue as stated indicates predominantly a summer concern and usage; Company will continue using First Nation advisors to ensure no interference
Actively used for goose hunting	Company will continue using First Nation advisors to ensure no interference
Actively used for duck hunting	Company will continue using First Nation advisors to ensure no interference No remnant impact that would affect summer duck hunting.
Ecologically unique because they are the largest bays on the shoreline and provide a unique microclimate and unique ecosystem.	Program not in Bay areas proper; Company will continue using First Nation advisors to ensure no interference
Unique habitat makes it excellent for wildlife	Program not in Bay areas proper; Company will continue using First Nation advisors to ensure no interference
Sheltered bays are regularly used during lake travel (impact current use and activity patterns)	Program not in Bay areas proper; Company will continue using First Nation advisors to ensure no interference
Good places for picking medicinal	No land would be disturbed so could not disturb any medicinal plant growth. Company will

Issue	Resolution
Actively used for camping and campground areas	Issue as stated indicates predominantly a summer concern and usage; program conducted in winter would be confined to an area of 200m x 200m on ice and 250m offshore that would not draw normal camping activity. Therefore, spatially, program area does not conflict with referenced area of concern, timing of program does not conflict with any summer activities in the area, and the program duration is so short that any negligible winter camping activities would not be compromised. No remnant impact to area or future camping activities.
Actively used for goose hunting	Program conducted in winter and exclusively on ice so no perceivable conflict with geese that are absent from the area at this time of year. Nearest marshland that could provide spring/summer habitat is at least 800m northeast of work area on the other side of a projecting peninsula of land. No remnant impact that would affect future summer goose hunting.
Actively used for duck hunting	Program conducted in winter and exclusively on ice so no perceivable conflict with ducks that are absent from the area at this time of year. Nearest marshland that could provide spring/summer habitat is at least 800m northeast of work area on the other side of a projecting peninsula of land. No remnant impact that would affect future summer duck hunting.
Ecologically unique because they are the largest bays on the shoreline and provide a unique microclimate and unique ecosystem.	Program not in Wool Bay proper; Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and does not provide any significant habitat for wildlife. Program conducted in winter, of short duration and on ice so no perceivable conflict. No remnant impact to area.
Unique habitat makes it excellent for wildlife	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and does not provide any significant habitat for wildlife. Program conducted in winter, of short duration and on ice so no perceivable conflict. No remnant impact to area for future wildlife use.
Sheltered bays are regularly used during lake travel (impact current use and activity patterns)	Ice road built by and for exploration companies and their program, traffic use would be minimal, 3-4 trips per day; Wool Bay proper is not the location of the program, no spatial overlapping conflict; for the short duration of program drill rig and traffic could potentially be a benefit to other users caught in bad weather conditions. Access route would not conflict with skidoo usage.
Good places for picking medicinal plants (not sure this pertains to Wool Bay)	Program conducted in winter would be confined to an area of 200m x 200m exclusively on ice and 250m offshore. Therefore, spatially, program area does not conflict with medicinal plant harvesting; timing of program does not conflict with any summer medicinal plant harvesting activities in the region. No remnant impact to area or future medicinal plant habitat or harvesting. No spatial overlapping conflict seen.
Main boat moorage on Windy days	Program would be conducted in winter so there would not be any boating conflict; program not in Wool Bay proper. No overlapping conflict occurs.
Wool Bay birth place of many current residents of Dettah and Ndilo	Program would be conducted in winter and confined to an area of 200m x 200m exclusively on ice and 250m offshore and would not have had normal human activity. Access to work area would be along ice road. Therefore, spatially, program area is small and would not conflict with referenced area of concern; no archaeological sites were

Issue	Resolution
	identified by Prince of Wales North Heritage Center within 1 km of the work area but 1 site lies within 3km of the work area; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be respected and avoided.
Significant impact on Treaty rights and alienation of current access to the land	Not an environmental Impact issue.
Forest Resource impact-all trees getting knocked down	Travel and work area would be conducted exclusively on lake ice in an area of 200m x 200m. No cutting of trees needed, no trees impacted.
Sound effects on fish and wildlife for year round sound.	Duration of program would be short to minimize any negligible impact, site does not provide good habitat for wildlife, most wildlife hibernating, migrated or in land during program. Depth of water in area is 1-6 m. The depths of ice development may be right to bottom thus not providing winter fish habitat. Any impact on fish and wildlife would be negligible.
Improved Access	Winter road would be open only during program. Without constant ploughing ice road covers over in a couple of days of windy conditions. Ice road would naturally disappear when ice melts. Therefore, there is no improved access except for this short duration and is not a normal route for others. Most would have same access with skidoo anytime regardless of program and ice road.

4.4.1.4 Snowfield Development Corp. (MV2003C0023)

Snowfield Development Corp. (Snowfield) is proposing a five claim exploration program beginning in the winter of 2003/2004. The program will include airborne geophysical surveys, ground geophysical surveys, ground geochemical till sampling, the drilling of up to an estimated 100 drill holes, and bulk sampling of kimberlite by either trenching or drilling. These activities are anticipated to be carried out over the next 5-years and will involve summer and winter programs. Drilling will primarily occur between October and April, while gridline cutting, geochemical till sampling and geophysical surveys will be undertaken during the summer months.

Three of the claims (Mud Lake Group, Hurcomb, and Red claims) are located inland and to the east and southeast of Drybones Bay, the remaining two claims (Fate and GTEN 16 claims) are located approximately 15 km northeast and about 20 km east-north-east of Drybones Bay. Most of the drilling is planned to be completed in the winter of 2003/04 for the Mud Lake, Hurcomb, Red and Fate claims, with the GTEN16 claim being drilled during the summer and fall of 2004.

Table X: Summary of identified impacts and proposed mitigation measures:

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
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Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
Winter access road, allowing increased access by other users.	An ice road will be constructed from Yellowknife to the Drybones Bay area and would be used by Snowfield for the duration of its winter exploration programs. The ice road will be constructed in accordance with existing NWT guidelines for the construction, maintenance and closure of winter roads. Summer access will be by helicopter and/or fixed wing aircraft.	One ice road would be used by all four developers for access to the Drybones Bay and Wool Bay areas.
Camp – size, location, duration, waste disposal	A semi-permanent camp and equipment storage/staging area is proposed/located approximately 4 KM south of Drybones Bay and 75 metres back from the shore of Great Slave Lake. This camp facility has been previously established and permitted. The camp will accommodate up to 20 people.	N/A
Drilling – waste disposal, water use, disturbance of archaeological, cultural, or historical sites.	Drilling is all land based, using from 1 to 30 sites and drilling between 1 to 20 drill holes per site (depending on the claim) to depths up to 200 metres. Up to 25,000 litres of water will be used per drill hole. Drilling fluid and drill cuttings will be collected and disposed of in approved land based sumps.	N/A
Waste management	The primary wastes generated by the drilling program include drill cuttings, drilling fluids, general garbage (empty fuel drums, food containers and drill mud constituent bags). All wastes, except drill fluids and cuttings, will be contained and removed to Yellowknife for recycling or disposal in an approved manner. Drill fluids and drill cuttings will be disposed of on land in an approved manner.	N/A
Gridline cutting	Gridline cutting will occur on the Mud Lake, Hurcomb, Red and GTEN 16 claims. Gridline widths will be minimal, to allow portable drill rig access. Removal of large diameter trees will be avoided. This work completed without the need for a Land Use Permit.	N/A
Geochemical till sampling	Soil/till sampling will occur in grid areas. Overburden will be removed and stored for later rollback. Most of this work completed without the need for a Land Use Permit.	N/A
Kimberlite bulk sampling	One bulk kimberlite sample will be taken from a previously identified kimberlite on the Mud Lake claim. The trenching method of bulk sample will be used. Overburden will be removed and stored for later	N/A

Identified Impact(s)	Proposed Mitigation	Possible or Proposed Combined Mitigation with other Developers
	rollback.	

Table X: Summary of developer identified issues and proposed resolution measures:

Issue	Resolution
Culturally vital: many residents grew up and spent summers in the area and continue to actively use area.	Issue as stated indicates predominantly a summer concern and usage; Snowfield's consultant (see below) indicates only 3 areas of significance in vicinity of claims but not on them. Company will continue using First Nation advisors to ensure no areas disturbed
Spiritually Significant	No archaeological sites were identified by Prince of Wales North Heritage Centre; local community sources have not provided any information as yet but should information be provided we will ensure that all sites will be respected. Company will continue using First Nation advisors to ensure no areas disturbed
Numerous grave sites at the bay and along shoreline	Company will ensure access to work area would ensure that all sites will be respected.
Actively used for hunting	Company will continue using First Nation advisors to ensure no interference.
Actively used for fishing	Company will continue using First Nation advisors to ensure no interference
Actively used for trapping	Company will continue using First Nation advisors to ensure no interference.
Actively used for berry picking	Company will continue using First Nation advisors to ensure no interference
Site of Bald eagles (raptors)	During the summer component of the exploration program Snowfield will monitor and minimize any noise or conflict, during nesting period.
Actively used for camping and campground areas	Issue as stated indicates predominantly a summer concern and usage; Company will continue using First Nation advisors to ensure no interference
Actively used for goose hunting	Company will continue using First Nation advisors to ensure no interference
Actively used for duck hunting	Company will continue using First Nation advisors to ensure no interference No remnant impact that would affect summer duck hunting.
Ecologically unique because they are the largest bays on the shoreline and provide a unique microclimate and unique ecosystem.	Program not in Bay areas proper; Company will continue using First Nation advisors to ensure no interference
Unique habitat makes it excellent for wildlife	Program not in Bay areas proper; Company will continue using First Nation advisors to ensure no interference

Issue	Resolution
Sheltered bays are regularly used during lake travel (impact current use and activity patterns)	Program not in Bay areas proper; Company will continue using First Nation advisors to ensure no interference
Good places for picking medicinal plants	No land would be disturbed so could not disturb any medicinal plant growth. Company will continue using First Nation advisors to ensure no interference
Main boat moorage on Windy days	Program not in Bay areas proper;
Significant impact on Treaty rights and alienation of current access to the land	Not an environmental Impact issue.
Forest Resource impact-all trees getting knocked down	Travel and work area would be conducted in a workman like way so to minimize the cutting of trees,
Sound effects of wildlife	During the exploration program Snowfield will minimize any noise or conflict on wildlife.

4.4.2 Proposed Mitigation for All Projects in Combination

Review options for regionally-based, multi-party mitigation measures. Propose those appropriate in this circumstance.

4.5 Analysis and discussion

- This section will be completed when all the information needed has been received. It will include a discussion of cumulative impacts prior to considering the proposed project and post considering the proposed project.
- Challenge in the analysis and discussion will be distinguishing between impacts to the biological and heritage resources and the indirect impacts to social and cultural components of society. These proposed activities could also be reviewed in light of indirect changes to traditional territory and traditional activities. For example, in the case of the Yellowknives, their traditional territory also includes Giant Mine, Colomac, BHP, Diavik, Snap Lake, the winter road etc. Changes have taken place to the traditional lands already. Depending on how those changes are weighted into the evaluation, the significance determination could change.

5. Recommendation: Proposed Mitigation for All Projects in Combination

Insert here a review of regionally-based, multi-party mitigation measures and propose those that are appropriate in this circumstance.

Need to factor in the legal framework for the options.

Need to distinguish between the effects of the proposed projects and the analysis that should be done against possible future developments.

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