BIOSPHERE RESERVE NOMINATION FORM

[January 2013]

INTRODUCTION

Biosphere reserves are areas of terrestrial and coastal/marine ecosystems, or a combination thereof, which are internationally recognized within the framework of UNESCO's Programme on Man and the Biosphere (MAB) They are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere reserves are designated by the International Coordinating Council of the MAB Programme at the request of the State concerned. Individual biosphere reserves remain under the sovereign jurisdiction of the State where they are situated. Collectively, all biosphere reserves form a World Network in which participation by States is voluntary.

The World Network is governed by the Statutory Framework adopted by the UNESCO General Conference in 1995 which presents the definition, objectives, criteria and the designation procedure for biosphere reserves. The actions recommended for the implementation of biosphere reserves are set out in the "Seville Strategy" and were further developed in the Madrid Action Plan (2008-2013). These documents should be used as basic references for the completion of this nomination form.

The information presented on this nomination form will be used in a number of ways by UNESCO:

(a) for examination of the site by the International Advisory Committee for Biosphere Reserves and by the Bureau of the MAB International Coordinating Council;

(b) for use in a world-wide accessible information system, notably the UNESCO-MABnet and publications, facilitating communications and interaction amongst persons interested in biosphere reserves throughout the world.

The nomination form consists of three parts:
Part one is a summary indicating how the nominated area responds to the functions and criteria for biosphere reserves set out in the Statutory Framework, and presents the signatures of endorsements for the nomination from the authorities concerned. Part two is more descriptive and detailed, referring to the human, physical and biological characteristics as well as to the institutional aspects. Part three consists of two annexes: the first annex will be used to update the Directory of Biosphere Reserves on the MABnet, once the site has been approved as a biosphere reserve. The second annex will be used to provide promotional and communication materials of the biosphere reserve. Tables, illustrations and maps as appropriate throughout the nomination form are welcomed.

The form should be completed in English, French or Spanish. Two copies should be sent to the Secretariat, as follows:

1. The original hard copy, with the original signatures, letters of endorsement, zonation map and supporting documents. This should be sent to the Secretariat through the Official UNESCO channels, i.e. via the National Commission for UNESCO and/or the Permanent Delegation to UNESCO;
2. An electronic version (on diskette, CD, etc.) of the nomination forms and of maps (especially the zonation map). This can be sent directly to the MAB Secretariat:

UNESCO
Division of Ecological and Earth Sciences
1, rue Miollis
F-75352 Paris Cedex 15, France
Tel: +33 (0)1 45 68 41 51
Fax: +33 (0)1 45 68 58 04
Email: mab@unesco.org
http://www.unesco.org/mab

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PART I: SUMMARY

1. PROPOSED NAME OF THE BIOSPHERE RESERVE:

[It is advisable to use a locally accepted geographic, descriptive or symbolic name which allows people to identify themselves with the site concerned (e.g. Rio Platano Biosphere Reserve, Bookmark Biosphere Reserve). Except in unusual circumstances, biosphere reserves should not be named after existing national parks or similar administrative areas.]

Great Bear Lake Biosphere Reserve

2. NAME OF THE COUNTRY:

CANADA

3. FULFILLMENT OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES:

[Article 3 of the Statutory Framework presents the three functions of conservation, development and logistic support. Explain in general terms how the area fulfills these functions.]

3.1 "Conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation".

(Stress the importance of the site for conservation of biological and cultural diversity at the regional or global scales).

The proposed Great Bear Lake Biosphere Reserve includes Great Bear Lake (GBL) and that portion of its watershed lying within the Sahtu Settlement Region, in the central Northwest Territories of Canada. The Great Bear Lake watershed (GBLW) encompasses some 144,069 km² in total, of which about 90,267 km² lies within the Sahtu. (The balance lies largely within the Tlîchô Settlement Area (44,525 km²) with smaller portions lying within Nunavut (2,876 km²) and Deh Cho (6,401 km²). GBL lies entirely within the Sahtu and has a surface area of about 31,328 km². The total area of the proposed Great Bear Lake Biosphere Reserve is therefore about 121,595 km². In this document "GBLW" refers to that portion of the watershed within the Sahtu, although in many cases the comments could apply to the entire watershed.

The largest lake lying entirely within Canada, the eighth-largest lake in the world and fourth largest in North America, GBL is located in the central Northwest Territories. It lies between 65 and 67 degrees north latitude and between 118 and 123 degrees west longitude, and is bisected by the Arctic Circle. GBL is 31,328 km^2 in surface area and has a volume of about 2,292 km^3. Despite its size, GBL has a relatively small watershed, comprising a total area of about 144,069 km^2. The entire region is essentially undeveloped. The only community on GBL is the small Dene community of Déline (population about 600, the majority of whom are Sahtugot'ine Dene, the "Bear Lake People"), located near the mouth of the Great Bear River which flows out GBL into the Mackenzie River. There is a history of mining in the eastern part of GBL but those mines are long-since abandoned. There are no current industrial developments in the proposed biosphere reserve.

GBL and the GBLW are the homeland of the Sahtugot'ine, and part of an intact wilderness central to the psyche of all Northerners and many Canadians. It is the foundation of Sahtugot'ine cosmology, history and traditional law, of the transmission of the culture from the elders to the younger generation, and of Déline's renewable resource economy. As the Sahtugot'ine culture is intricately tied to the health of the lake, its watershed and the animals that inhabit the watershed, the maintenance of the ecological integrity of GBL and its watershed is of primary concern to the

people of Déline. The land “contains” the people of Déline; they are part of it, and they define themselves largely by their relationship with it. They are willing to use and share the land with others (and they have traditionally welcomed others to their territory) but only on condition that the land and the community are kept healthy (that ecological and cultural integrity are maintained) and that Déline plays a fundamental role in GBLW management.

The GBLW includes a diverse range of landforms, climate and biological communities, including three of the 15 ecozones and nine of the 194 ecoregions present in Canada. It spans two major physiographic regions: the Precambrian Shield to the north and south-east, and the Mackenzie Lowlands to the south and west. Soils in the two zones vary accordingly, with the Precambrian Shield being characterized by sparse soils and rocky outcrops, and the Mackenzie Lowlands by more substantial soils over thick glacial till. The diverse ecoregions of the GBLW provide habitat for a wide range of terrestrial plant and animal species.

GBL and the GBLW are in the northern continental climatic regime, the main features of which are long, cold winters, short cool summers, large annual ranges in temperature, and little precipitation. GBL is close to the tree line, with the forests to the south and west thinning and giving way to the north to tundra, with trees only in sheltered areas

GBL’s low productivity, low inflows of nutrients from surrounding areas and simple food web suggest a vulnerability to disturbance activities and a potentially slow recovery. The GBL food web is relatively simple with benthic (bottom dwelling) invertebrates as an important food source for fish species.

Despite historical mining impacts on its eastern shores, GBL is probably the last very large lake in the world to exist in a relatively pristine state. GBL exhibits peculiar characteristics including: low water temperatures, even in summer (thus little stratification and the ability to turn over easily); high oxygen values; remarkable transparency/scarce plankton and bottom fauna; extremely low biological productivity; relatively few fish species/simple food webs; and high vulnerability to commercial fishery overexploitation, all of which make the lake and its watershed of special management concern.

GBL has the world’s largest mass of cold fresh water, and is the 19th deepest lake in the world (maximum depth 446 m). The lake has a relatively small drainage basin in relation to its area, a low water replacement rate, and a relatively long water residence time (124 years). GBL has very little stratification or variation in temperature, surface to bottom, and the lake is thus able to “turn over” or mix waters relatively easily.

GBL has very clear, transparent waters (maximum recorded Secchi depth 30 m). Its productivity is very low, with standing crops of phytoplankton and zooplankton (microscopic plants and animals) being among the lowest found in freshwater systems and mainland lakes in North America. The food web of GBL is a relatively simple one, with benthic (bottom dwelling) invertebrates being an important food source for fish species. The lake’s low productivity, low inflows of nutrients from surrounding areas, and simple food web suggest a vulnerability to disturbance activities and potentially slow recovery times, were impacts to occur.

GBL is also the last of the Great Lakes to contain a wide diversity of lake trout morphotypes. Morphological and genetic diversity allow populations to better adapt to environmental changes over the long term. This diversity has been extinguished or greatly reduced in the other Great Lakes due to over-harvesting and the introduction of non-native species. GBL thus provides one of

the only remaining models of how lake trout populations naturally function in a large lake ecosystem.

The diverse ecoregions of the GBLW provide habitat for a wide range of terrestrial plant and animal species. Habitat and wildlife include:

- three important herds of barren-ground caribou: Bathurst herd, Bluenose-West and the Bluenose-East herds. The GBLW is fall and wintering habitat for both the Bluenose East and West herds, including an Important Wildlife Area for the Bluenose-East herd (an Important Wildlife Area is a Government of the Northwest Territories key habitat designation. Details can be found in "Important Wildlife Areas in the Western Northwest Territories", Wilson, JA and Haas, CA. 2012. ENR, GNWT). The Bluenose-East herd is of particular value to the SSA and in particular to the community of Déline;
- muskox habitat and three Important Wildlife Areas for muskox;
- eskers and habitat for denning wolves, wolverines, arctic fox, red fox and bears, particularly grizzly bears;
- general moose habitat and an Important Wildlife Area for moose;
- boreal woodland caribou habitat;
- furbearer habitat and several Important Wildlife Areas for marten;
- general waterfowl habitat, important breeding duck habitat, and important habitat for waterfowl and shorebirds including breeding and nesting habitats.

In addition to species-specific Important Wildlife Areas there are three Important Wildlife Areas within the GBLW identified as "Unique Areas Important to Multiple Species".

May-be at risk plants, International Biological Programme sites and karst features are also documented in the GBLW.

In summary, the GBLW is a unique, special and vulnerable place. The watershed is a largely intact and pristine ecosystem that stands at the confluence of three of Canada's 15 ecozones. The unpolluted nature of its waters, its healthy fisheries and the presence of grizzly bear and barren ground caribou in healthy numbers throughout the watershed describe an ecosystem with a high degree of ecological integrity. But the effects of over-harvesting of large trout have been seen in the past in parts of GBL; the effects of over-harvesting of muskox almost drove that species to extinction; boreal woodland caribou is now listed as a threatened species under SARA; barren-ground caribou herds have declined recently, some dramatically; and in some local areas, the effects of poor mining practices scarred the land and polluted local waters. Diligence is required if the ecological integrity of the GBLW is to be maintained.

3.2 "Development - foster economic and human development which is socio-culturally and ecologically sustainable".

(Indicate current activities and the potential of the proposed biosphere reserve in fulfilling the objective of fostering sustainable economic and socio-cultural development, including by securing flows of ecosystem services from the biosphere reserve).

Currently, activities within the GBLW are largely limited to sustainable harvesting (fish, caribou, moose), outfitting (musk-ox hunting and fishing), tourism (including guided to trips to Sahyoue-Edacho National Historic Park), contaminated sites remediation, and mineral exploration.

A variety of wildlife is harvested including waterfowl, moose, fish, barren-ground and boreal woodland caribou, and furbearers. GBL's subsistence fishery is very important to the community of Déline. Although a variety of fish are caught, lake trout is the most heavily-harvested. Lake cisco and whitefish also form a significant component of the subsistence fishery. GBL's trophy-size lake

trout population is worth special mention, given the importance of this fishery to the lake and the local economy. Trophy grayling are also economically important.

Special Harvesting Areas for fish, moose, waterfowl and birds are also found in the GBLW and GBL, pursuant to the *Sahtu Dene and Metis Comprehensive Land Claim Agreement*, 1993). Musk-ox remain under quota in the GBLW, however, and in the past several years Déline has held 15 tags for sports hunting and 3 for other purposes.

The GBLW has potential oil and gas deposits and known mineralization, including coal, diamonds, uranium and iron/copper/gold mineralization. Radium and silver were produced at the now-abandoned and remediated Port Radium mine in the early to mid 20th century. There is hydroelectric potential in some rivers, notably the Great Bear River, but the economics are not favourable at present.

A 2002 NWT Tourist Exit Survey gathered a wide array of information on visitors to the territory. Very little of the information is specific to the Sahtu region, but an estimate of the number of visits to the region was made. The figures indicate that tourism is not yet a large industry. A total of 766 visitors – almost half of whom were on business – suggests that fewer than 445 tourists came to the Sahtu region. If the 59 individuals who were identified as visiting friends and relatives were excluded (since in many cases they stay with their hosts and do not spend in the way of general tourists), the total falls well below 400 visitors in 2002.

When the business visitors and those visiting friends/relatives are removed from the numbers, it becomes clear that visitors from the USA are the largest visitor segment – 236 visitors compared to 100 visitors from other areas of Canada. No information on the length of stay in the territory or the region was given in the report. Party size varies by origin, with the visitors coming from outside North America averaging just over three persons per party and USA visitors coming in parties of just over 2 people. Visitors from outside North America are also the biggest spenders, spending almost $2,600 on average in the territory. Average party spending in the territory is $1,425. The estimated total spending in the territory by these visitors to the Sahtu region is about $550,000 in 2002, some of which would have been spent on the tourism services available in the Sahtu region.

Clearly there is ample room for growth with respect to tourism in the GBL watershed. Creation of a biosphere reserve would draw ecotourists to the region, just as protected areas do elsewhere.

3.3 "Logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development".
(Please indicate current or planned activities).

Déline is the only community on GBL. It is small, remote and isolated, accessible year-round by air, in winter by a limited-season winter road and during the short summer by boat via the Great Bear River. There is one hotel and two small grocery stores, both offering a variety of household goods, clothing and food, at prices reflecting Déline's distance from southern suppliers and the difficulty of re-supply. Déline has a local FM radio station that broadcasts CBC network programs and adds several hours per day of local programming in Slavey. Local and long-distance telephone and high-speed internet services are available.

Déline has one school, which offers K-12 grade level education. There are limited facilities within the school to assist researchers.

There are a number of government offices in the community, including federal agencies (including Parks Canada), GNWT agencies (including Environment and Natural Resources), the Déline Band Office, Sahtu Secretariat Inc, Déline Land Corporation and Déline Renewable Resources Council, all of which are able to support or facilitate research and monitoring, education programs and other initiatives to varying degrees. Déline has also initiated the development of the Déline Knowledge Centre to focus and facilitate programs related to maintaining its culture and ties to the land.

There are a number of local outfitters in Déline. Trips to Saoyú-ʔehdacho National Historic Site, fishing on Great Slave Lake and the Great Bear River and sports hunting in the GBLW can be arranged, as well as custom trips intended for specific purposes such as research and monitoring and environmental education. Finally, Déline has several heavy equipment operators able to provide a variety of support services.

4. CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE:

[Article 4 of the Statutory Framework presents 7 general criteria for an area to be qualified for designation as a biosphere reserve which are given in order below.]

4.1 "Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions".

(The term "major biogeographic region" is not strictly defined but it would be useful to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

The GBLW occupies about 144,069 km², or 13% of the land area of the Northwest Territories, and provides drainage to Great Bear Lake at a ratio of approximately five times land area to one of water surface. Three of Canada's 15 ecozones are represented in the watershed: the Taiga Plains in the western half of the watershed, the Taiga Shield to the southeast, including the Camsell River drainage area, and the Southern Arctic ecozone that forms the northeastern rim of the lake. Within these ecozones, the lands can be further classified to 9 ecoregions and a total of 22 ecodistricts, or Land Resource Units. Each of these smaller areas has a distinct combination of landforms, permafrost, soils, climate and biological communities that give them a unique character. The residents of Déline are well aware of the unique nature of these areas, which forms part of their traditional knowledge of the lake. For example, Saoyú-ʔehdacho, Edaiila, Whitefish River and the Johnny Hoe River system are culturally significant areas and are in different ecodistricts under the land classification scheme.

As noted earlier, GBL is probably the last very large lake in the world to exist in a relatively pristine state.

4.2 "Be of significance for biological diversity conservation".

(This should refer not only to the numbers of endemic or rare species, but may also refer to species on the IUCN Red List or CITES appendices, at the local, regional or global levels, and also to species of global importance, rare habitat types or habitats with unique land use practices (for example traditional grazing or artisanal fishing) favouring the conservation of biological diversity).

See Annex for a detailed list of plans, birds, mammals and fish occurring in the proposed Great Bear Lake biosphere reserve.

Eight species occurring, or potentially occurring, in the area have been ascribed, or are currently being assessed for special conservation status by Canada's *Species At Risk Act* (SARA), including the Eskimo Curlew, boreal woodland caribou, Fourhorn Sculpin, Short-eared Owl, Rusty Blackbird, Peregrine Falcon, grizzly bear, and wolverine. Presently, only the Eskimo Curlew, boreal woodland

caribou, and Short-eared Owl are protected under SARA. The Fourhorn Sculpin, Rusty Blackbird, grizzly bear, and wolverine have been assessed under COSEWIC and are awaiting review from SARA.

The Short-eared Owl is listed by SARA as Special Concern; the Rusty Blackbird and Peregrine Falcon (anatum/tundrius) has been assessed by COSEWIC as Special Concern. All three species have been documented as breeding within the GBLW. The fourth bird, Eskimo Curlew, is a hypothetical species whose historic breeding range occurs within the GBLW (RWED 2000); this species is listed by SARA as Endangered.

No fish species within the study area is protected under the federal SARA. The Fourhorn Sculpin is listed by SARA as Special Concern and the territorial government recognizes the Fourhorn Sculpin as Sensitive.

Grizzly bear and wolverine are ubiquitous in the GBLW. Both are considered Special Concern by COSEWIC. Given recent precipitous declines in many barren-ground caribou herds, COSEWIC has assessed the barren-ground caribou as Special Concern. The boreal caribou population found in the GBLW is listed under SARA as Threatened.

Ten animal species that occupy the GBLW have been ranked by ENR as Sensitive under the NWT general status program. They are: Lesser Scaup, Least Sandpiper, Semipalmated Sandpiper, Blackpoll Warbler, White-winged Scoter, American Tree Sparrow, Lesser Yellowlegs, Harris's Sparrow, Arctic Grayling, and barren-ground caribou. Species listed as Sensitive are presently not at risk of extinction or extirpation but special attention or protection to prevent them from becoming at risk may be required.

Table 1 lists plants observed on or near Edaįįla whose may be at risk or is sensitive, according to the GNWT ("Phase ll Ecological Assessment Edaįįla Candidate Protected Area Northwest Territories". March 2009. EBA Engineering Consultants Ltd.). Edaįįla contains ecosystems representative of much of the GBLW.

Table 1 Plants observed on or near Edaįįla

Common Name	Scientific Name	NWT General Status Ranking
Plants Collected within the Study Area During the 2008 Field Program		
Mackenzie Sedge	*Carex mackenziei*	May Be At Risk
Circumpolar Sedge	*Carex adelostoma*	Sensitive
Thread-leaved Sedge	*Carex filifolia*	Sensitive
Red-tip Lousewort	*Pedicularis flammea*	Sensitive
Plants Collected within or Adjacent to the Study Area outside the 2008 Program		
Mingan Moonwort	*Botrychium minganense*	May Be At Risk
Northern Mudwort	*Limosella aquatica*	May Be At Risk
Alternate-flower Water Milfoil	*Myriophyllum alterniflorum*	May Be At Risk
Circumpolar Sedge	*Carex adelostoma*	Sensitive
Plants Collected on Adjacent Peninsulas, 2000 – 2002		
Alternate-flower Water Milfoil	*Myriophyllum alterniflorum*	May Be At Risk
Drummond Rockcress	*Arabis drummondii*	Sensitive
Lesser Black-scaled Sedge	*Carex atrosquama*	Sensitive

Thread-leaved Sedge	*Carex filifolia*	Sensitive
Livid Sedge	*Carex livida*	Sensitive
Boreal Whitlow-grass	*Draba borealis*	Sensitive
Alpine Willowherb	*Epilobium anagallidifolium*	Sensitive
Bog Stitchwort	*Minuartia stricta*	Sensitive
Smooth White Violet	*Viola macloskeyi*	Sensitive

4.3 "Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale".

(Describe in general terms the potential of the area to serve as a site of excellence for promoting the sustainable development of its region (or "eco-region")).

The GBLW is a vast and largely untouched wilderness region of northern Canada. It spans three ecoregions, includes what is arguably the last pristine northern "great lake" on the planet, is sparsely inhabited with no industrial development occurring at present, and is under the careful stewardship of the Sahtugot'ine.

This stewardship is framed by the Sahtu Dene and Metis Comprehensive Land Claim Agreement, the Sahtu Land Use Plan and the Great Bear Lake Watershed Management Plan. These documents were developed in close consultation with the Sahtugot'ine and in the case of the Great Bear Lake Watershed Management Plan and the aspects of the Sahtu Land Use Plan affecting the GBLW and GBL, lead by the Sahtugot'ine.

The Sahtugot'ine are part of the land, and they define themselves largely by their relationship with it. They are willing to use and share the land with others (and they have traditionally welcomed others to their territory) but only on condition that the land and the community are kept healthy (that ecological and cultural integrity are maintained) and that Déline plays a fundamental role in GBLW management.

The Sahtu Land Use Plan establishes the GBLW as a "special management zone". Development within much of the GBLW is permitted, subject to stringent perms and conditions. Some areas within the GBLW (e.g., Saoyú-ʔehdacho) are permanently off-limits to development and others (e.g., Edaɂɻla) are off-limits subject to measures set out in the Sahtu Land Use Plan. Development within GBL itself is largely prohibited. This approach allows for core protected areas, buffer areas and areas where very careful development can proceed as long as that development does not impair the ecological integrity of the GBLW. It provides an ideal opportunity to explore and demonstrate approaches to sustainable development – from mining and oil and gas development to sustainable harvesting and tourism - on a regional scale.

4.4 "Have an appropriate size to serve the three functions of biosphere reserves"

(This refers more particularly to (a) the surface area required to meet the long term conservation objectives of the core area(s) and the buffer zone(s) and (b) the availability of areas suitable for working with local communities in testing and demonstrating sustainable uses of natural resources).

The GBLW encompasses some 150,000 km²; GBL itself has a surface area of 31,328km². These are large areas by any standards. Given the limited development that has taken place, the measures that are in place to control future developments and the insistence by the community of Déline that any development not impair the ecological integrity of the GBLW and GBL, it would be difficult to argue that the total surface area of the proposed biosphere reserve is anything but adequate to meet the long term objectives of the core areas (e.g., Saoyú-ʔehdacho and Edaɂɻla, encompassing 5500 km² and 8775 km² respectively and where industrial development is not

permitted, and GBL itself) and buffer zones (much of the balance of the GBLW where carefully controlled development may be permitted). The entirety of the GBLW and GBL would be available for testing and demonstrating sustainable uses of natural resources including tourism, sustainable harvesting of wildlife and fish, timber harvesting for building and fuel and other activities consistent with the zoning designations set out in the Sahtu Land Use Plan and the objectives of the Great Bear Lake Watershed Management Plan.

4.5 Through appropriate zonation:
"(a) a legally constituted core area or areas devoted to long term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives".
(Describe the core area(s) briefly, indicating their legal status, their size, the main conservation objectives).

1. Core Areas
The core areas within the proposed Great Bear Lake biosphere reserve are the Conservations Zones established pursuant to the Sahtu Land Use Plan and Saoyú-ʔehdacho National Historic Site.

Saoyú-ʔehdacho was permanently protected in 2009 as a National Historic Site pursuant to the Canada National Parks Act. It is comprised of two peninsulas on the west side of GBL, in total some 5500 km² in area. Aboriginal harvesting, tourism and traditional activities are permitted but industrial development (e.g., mining and oil and gas exploration or development, forestry, quarrying, hydroelectric development and so on) is not. The subsurface rights are withdrawn under the Territorial Lands Act (P.C. 2009-1588). Surface lands are owned by the Déline Land Corporation (approximately 20%) and Parks Canada (approximately 80%). A Cooperative Management Board has been established to oversee implementation of the Cooperative Management Agreement signed in April 2009 by Parks Canada and Déline for the protection and management of Saoyú-ʔehdacho National Historic Site. Two co-chairs and four other members have been appointed to the Cooperative Management Board by Parks Canada, the Déline Renewable Resources Council, and the Déline Land Corporation.

Some elements of Déline and Parks Canada's shared vision for Saoyú-ʔehdacho National Historic Site include: cooperative management, with a central role for Déline in day-to-day site management; respect for Sahtugot'ine harvesting rights; a central focus around on-the-land cultural learning and healing programs, with elders playing a central role in passing Sahtugot'ine culture on to youth; and, maintenance of commemorative integrity and opportunities for Canadians to learn about the site and about Sahtugot'ine culture.

Edaɟɟla is protected pursuant to the Sahtu Land Use Plan as a conservation zone. Surface and subsurface rights are withdrawn. Bulk water removal, mining exploration and development, oil and gas exploration and development, hydropower development, forestry and quarrying are prohibited. Edaɟɟla encompasses an area of about 8775 km². Edaɟɟla provides important habitat for a number of wildlife species but the primary reason for its conservation status is to protect the Bluenose-East barren-ground caribou herd. The herd regularly aggregates on and close to the zone from mid-July to mid-October. Edaɟɟla is an extremely important cultural and ecological area for the people of Délîne. Residents throughout the NWT and the western parts of Nunavut depend economically, socially and culturally on Bluenose-East and Bluenose-West caribou herds.

Edaɟɟla is a spiritual place with many stories. It is part of the Sahtugot'ine cosmology, history, values and law. It is considered a place of very strong medicine power. Caribou Point Heritage Area and Fort Confidence Heritage Area are both located in the zone as are archaeological and burial sites. It contains many traditional trails, camping sites, cabins and gathering places. Edaɟɟla

contains productive wildlife habitat and is important in the life cycles of a wide range of species including: barren-ground caribou (the Bluenose-East and West herds), boreal woodland caribou, moose, grizzly bears, black bears, muskoxen, fox, beavers, marten, mink, muskrats, lynx, wolverines, arctic hares, ground hogs and wolves. It is important for waterfowl, migratory birds and fish species, including lake trout, herring, pike, grayling, whitefish and "jumbo" whitefish. Important Wildlife Areas for furbearers and barren-ground caribou are located in the zone.

Du K'ets'Edi (the Sentinel Islands) is protected pursuant to the Sahtu Land Use Plan as a conservation zone where bulk water removal, mining exploration and development, oil and gas exploration and development, hydropower development, forestry and quarrying are prohibited. The total surface areas is about 251 km². The Sahtugot'ine consider many Du K'ets'Edi to have mythical significance and to have been formed when mythical beings turned into islands when crossing GBL. Du K'ets'Edi have many stories associated with them. Some islands are sacred and best left alone. Others require special acts of respect when passing them. Some are considered still to have supernatural powers. The islands are protected for different reasons.

The islands were used primarily for safety purposes when traveling on GBL (storms, docking and temporary use year round, particularly during the open water season). The conservation status of the Du K'ets'Edi SMZ islands is primarily to protect the water quality of GBL and to protect the spiritual and heritage values.

Turatlın Tué (Tunago Lake) is protected pursuant to the Sahtu Land Use Plan as a conservation zone where bulk water removal, mining exploration and development, oil and gas exploration and development, hydropower development, forestry and quarrying are prohibited. Total surface area is 119 km². A 500m buffer is applied around the lake. The primary intent is to protect fish, water quality, riparian habitat/shorelines, archaeological and burial sites while maintaining access for recreational and subsistence uses. Traditional trails, cabins and outpost camps are present.

Tunago Lake and area provides important habitat for the Bluenose-West barren-ground caribou herd, particularly during the fall rut through to late winter. Wildlife and habitat includes: wetlands, muskox habitat, fish such as trout and whitefish, waterfowl and bird habitat, important breeding duck habitat, barren-ground and boreal woodland caribou habitat. The area consistently supports high densities of marten known for their high quality fur and includes an Important Wildlife Area for furbearers. Hunting, fishing and trapping take place all year. Medicinal plants are harvested. Harvested species include: waterfowl and birds, fish, barren-ground caribou, moose-hunting in summer.

Luchaniline (Whitefish River) is protected pursuant to the Sahtu Land Use Plan as a conservation zone where bulk water removal, mining exploration and development, oil and gas exploration and development, hydropower development, forestry and quarrying are prohibited. Total surface area is 1443 km². A 10km buffer is applied to the river. Its boundaries include all of Whitefish River and the downstream reaches of the River's watershed.

Luchaniline is widely recognized as a critical whitefish spawning area. According to the elders of Déline it is productive wildlife habitat that is important to the life cycles of a wide range of species including: beaver, muskrat, mink, marten, otter, black and grizzly bear, moose, boreal woodland caribou, barren-ground caribou, whitefish, jackfish, loche, grayling, sucker and geese, waterfowl and other migratory bird species. Luchaniline is important rut, fall migration, wintering and spring migration habitat for the Bluenose-West herd and the Bluenose-East herd also uses the area for fall and wintering habitat. Important Wildlife Areas for muskox and furbearers, important breeding duck habitat, eskers, wetlands and waterfowl and migratory bird habitat are also found in the zone.

Special Harvesting Areas were established pursuant to the Sahtu Dene and Metis Comprehensive Land Claim Agreement. It is part of Déline's community drinking water source catchment.

Culturally, it is a place for spiritual renewal and is associated with many stories. The Sahtugot'ine have used Luchaniline for centuries. It preserves much physical heritage and continues to be used for educational trips involving Déline elders and school-aged children in the spring and summer, and for the teaching of the Sahtugot'ine legends, history, values, law and land based skills. It contains many archaeological and burial sites. Elders assert that wildlife using Luchaniline need to be treated with respect and not be unnecessarily disturbed. There are extensive traditional trails, cabins, camping sites, river crossings, and log timber harvest sites.

Tehkaıcho Dé (Johnny Hoe River) is protected pursuant to the Sahtu Land Use Plan as a conservation zone where bulk water removal, mining exploration and development, oil and gas exploration and development, hydropower development, forestry and quarrying are prohibited. Total surface area is 4141 km². According to the elders of Déline, Tehkaicho Dé is productive wildlife habitat that is important to the life cycles of a wide range of species including: beaver, muskrat, caribou, moose, black bear, whitefish, broad whitefish, geese, waterfowl and other migratory bird species. Habitat of interest includes: extensive furbearer habitat, Important Wildlife Areas for furbearers and moose, important breeding duck habitats, eskers, wetlands, waterfowl and migratory bird habitat. The Bluenose-East barren-ground caribou migrate through this area and have fall and winter habitat within the zone. Boreal woodland caribou also occur. Tehkaicho Dé is widely recognized as a critical whitefish spawning area. Whitefish are found throughout the length of the river. Harvested species include: waterfowl, moose, fish, barren-ground caribou, berries and plants. A Special Harvesting Area for fish was established pursuant to the Sahtu Dene and Metis Comprehensive Land Claim Agreement.

Elders believe Tehkaicho Dé to be one of the most important places around GBL that was used by their ancestors and one of the most important for their ancestors' survival. Culturally, it is a place for spiritual renewal and is associated with many stories. Tehkaicho Dé is considered by elders to be a very powerful area. It preserves much physical heritage and continues to be used for educational trips involving Déline elders and school-aged children in the spring and summer, and for the teaching of the Sahtugot'ine legends, history, values, law and land based skills. There are many archaeological and burial sites, extensive traditional trails such as the historic portage across the neck of Saoyú, hundreds of camping sites, cabins, recreational/gathering places and log timber harvest sites.

"(b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place".
(Describe briefly the buffer zones(s), their legal status, their size, and the activities which are ongoing and planned there).

Aside from Saoyú-ʔehdacho National Historic Site and the Conservation Zones described above, the entire GBLW within the Sahtu Settlement Area is a Special Management Zone pursuant to the Sahtu Land Use Plan. The Sahtu Land Use Plan includes 16 "conformity requirements" that apply to the GBLW SMZ, setting out conditions for development. Bulk water removal is prohibited. Of primary concern to the community of Déline are the protection of their cultural integrity and the protection of the Great Bear Lake and its watershed's ecological integrity as the former is intricately linked with the latter.

As one example, conformity requirement #15 requires regulators ensure that:

(a) Applicants proposing land use activities in the Great Bear Lake Watershed engage Déline Community organizations in order to understand the cultural and environmental values set out in the Water Heart- the Great Bear Lake Watershed Plan;
(b) Any land use activities permitted in the watershed are consistent with the maintenance of the area as a self-sustaining ecosystems; and
(c) Any land use activity requiring a land use permit or water licence includes a site specific monitoring program consistent with CR # 11.

Economic development potential in the SMZ includes the possibility of oil and gas development, a higher probability of mineral development (there are known deposits of coal, diamonds, gold and uranium), and the potential for hydroelectric development, although there are none of these developments underway in the GBLW at present. Limited mineral exploration, tourism, sports fishing, environmental research and monitoring programs, subsistence harvesting and logging for fuel and cabins are the only current activities. Contaminated site remediation is currently on hold pending resolution of some overarching issues.

The Sahtugot'ine have used Neregah (the North Shore of Great Bear Lake) for centuries. Neregah was established as a separate management zone from the GBLW because the Deline community is primarily concerned with the preservation of its heritage values such as heritage areas, cultural sites, archaeological sites and artifacts. The community insists that greater patrolling is needed to protect heritage features including archaeological and burial sites, traditional trails, landmarks, cabins, camping sites, cultural sites and gathering places.

According to the elders of Déline, Neregah is productive habitat and important to the life cycles of a range of wildlife species.142 Species include: barren-ground and boreal woodland caribou, moose, grizzly bear, muskox, fox species, beaver, marten, mink, muskrat, lynx, wolverine, arctic hare, wolf, waterfowl and fish, including lake trout, herring and whitefish. Wildlife habitat includes: general muskox habitat including two Important Wildlife Areas for furbearers and muskox, wetlands, waterfowl habitat, important breeding duck habitat146 and barren-ground and boreal woodland caribou habitat. Both the Bluenose East and West barren-ground caribou herds inhabit the area.
Neregah is important for hunting, fishing, trapping of the species listed above and for plant and berry gathering. It includes natural harbours which allow safe moorage of boats and includes several productive fisheries. It is also used for summer hunting of ungulates. A Special Harvesting Area for fish is found in the zone. A rare or potentially at risk plant species, Arabis caldera is documented.

"(c) an outer transition area where sustainable resource management practices are promoted and developed".
(The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. Describe briefly the transition area(s), the types of questions to be addressed there in the near and the longer terms. The Madrid Action Plan states that the outer boundary should be defined through stakeholder consultation).

The GBLW outside the Sahtu Settlement Region is subject to the development rules applicable in Nunavut (to the northeast) and in Wek'èezhìi to the south. In Nunavut, the Nunavut Final Agreement provides the context for conservation and development. There are no conservation areas in this portion of the watershed and development is subject to the normal regulatory process in Nunavut.

In Wek'èezhìi, the Tłı̨cho land use plan identifies a traditional land use zone and a land exclusion zone in that portion of the Great Bear Lake watershed. Within the traditional use zone (Gowhadõ Yek'e t'ii k'e), the following land uses are considered:
a) Camp or cabin;
b) Non-exploitive scientific research;
c) Transportation corridor;
d) Eco/cultural tourism;
e) Hydro power generation; and
f) Utility corridor.

Within the land exclusion zone (Wexehlaxodiale) the following land uses are considered:
a) Camp or cabin;
b) Non-exploitive scientific research; and
c) Transportation corridor

Outside these zones, development is subject to the normal regulatory process.

(d) Please provide some additional information about the interaction between the three areas.

Resource management boards were established pursuant to the Nunavut, Sahtu and Tlîchô land claims agreements as the primary instruments for land use planning, land and water management, wildlife management and environmental reviews. These boards include:

- Sahtu Land and Water Board, Sahtu Renewable Resource Board, Sahtu Land Use Planning Board and for Déline, the Déline Renewable Resource Council;
- Nunavut Water Board, Nunavut Planning Commission, Nunavut Impact Review Board and Nunavut Wildlife Management Board;
- Wek'Weezhii Land and Water Board, Tlîchô Lands Department (responsible for land sue plan development, implementation and updating), Wek'Weezhii Renewable Resources Board
- Mackenzie Valley Land and Water Board, Mackenzie Valley Environmental Impact Review Board.

In addition, the federal and territorial governments retain certain responsibilities. The boards and agencies have transboundary responsibilities written into their respective mandates and cooperate accordingly. In some cases, specific transboundary agreements have been reached to describe in detail how the boards and agencies will interact where projects or other issues (e.g., caribou management) have transboundary implications.

From the cultural perspective, there has always been and there continues to be close personal relationships and cultural ties among the Tlîchô, Sahtugot'ine and Nunavummiut. Many have family in all three regions and mobility among the three regions is free and open.

4.6 "Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve".

4.6.1 Describe arrangements in place or foreseen.
(Describe involvement of public and/or private stakeholders in support of the activities of the biosphere reserve in core, buffer and transition areas (such as agreements, protocols, letters of intent, protected area(s) plans)).

As noted earlier, the framework for managing activities in the proposed biosphere reserve is prescribed by the Sahtu Dene and Metis Comprehensive Land Claim Agreement, the *Mackenzie Valley Resource Management Act*, the Sahtu Land Use Plan and the Great Bear Lake Watershed management plan. The regulatory and resource management responsibilities of the responsible agencies and boards are set out in the first three documents; the vision and aspirations of the Sahtugot'ine of Déline are set out in the last document. All are interlinked, all are related. Industry proponents must follow the laws of the land and the laws of the Sahtugot'ine.

4.6.2 Have any cultural and social impact assessments been conducted, or similar tools and guidelines been used?

(e.g. Convention on Biological Diversity (CBD)'s Akwé: Kon guidelines; Free, Prior, and Informed Consent guidelines, Biocultural Community Protocols, etc.). *(UNESCO's Programme on Man and the Biosphere (MAB) encourages biosphere reserves to consider and respect indigenous and customary rights through programmes or tools, in accordance with the United Nations Declaration on the Rights of Indigenous Peoples* (*http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf when relevant and appropriate)).*

There have been numerous reports written regarding the social, cultural, economic and environmental values of the proposed biosphere reserve, particularly pursuant to the NWT Protected Areas Strategy. Among them are the following:

Saoyú-ʔehdacho

- 2006 - Saoyú-ʔehdacho | Socio-Economic Background Information and Preliminary Assessment (toc pdf |full text pdf)
- 2006 - Saoyú-ʔehdacho | Renewable Resource Assessment (summary pdf | full text pdf)
- 2005 - Saoyú-ʔehdacho | Reconnaissance of Flora and Fauna (summary pdf | full text pdf)
- 2005 - Saoyú-ʔehdacho | Non-Renewable Resource Assessment Phase 2 (summary pdf | full text link)
- 2004 - Saoyú-ʔehdacho | Cultural Values Report
- 2004 - Saoyú-ʔehdacho | Commemorative Integrity Statement (summary pdf | full text pdf)
- 2002 - Saoyú-ʔehdacho | Non-Renewable Resource Assessment Phase 1 (link)
- 1996 - Grizzly Bear Mountain & Scented Grass Hills | Historic Sites and Monuments Board Agency Paper: Narrative and Landscape (pdf)
- 2007 - Saoyú-ʔehdacho | Working Group Final Report (pdf)

Edaįįla

- 2009 - Edaįįla | Ecological Assessment Phase 2 (summary pdf) (full text pdf)
- 2007 - Edaįįla | Cultural Assessment Phase 1 (summary pdf | full text pdf)
- 2007 - Edaįįla | Non-Renewable Resource Assessment Phase 1 (link)
- 2006 - Edaįįla | Ecological and Renewable Resource Assessment Phase 1 (summary pdf | full text pdf)

Johnny Hoe River

- 2006 - Johnny Hoe River | Ecological and Renewable Resources Assessment Phase 1

Great Bear Lake Watershed

- Great Bear Lake State of Knowledge of the Terrestrial Environment. Northern Environmental Consulting. 2004
- Important Wildlife Areas in the Northwest Territories. JM Wilson and CA Haas. ENR-GNWT. 2012. Manuscript Report No. 221
- Great Bear Lake Working Group (2005) ''The water heart'': a management plan for Great Bear Lake and its watershed. May 31, 2005 with caveat of February 7, 2006; directed by

the Great Bear Lake Working Group and facilitated and drafted by Tom Nesbitt, Déline, Northwest Territories

Great Bear Lake

- Past, present and future of fishery management on one of the world's last remaining pristine great lakes: Great Bear Lake, Northwest Territories, Canada. Muir, A.M, Leonard, D.M, Krueger, C.C. Rev Fish Biol Fisheries. 2012.
- State of the aquatic knowledge of Great Bear Lake watershed. Report prepared for Water Resources Division, INAC, Yellowknife.. MacDonald, D.D., D.A. Levy, A. Czarnecki, G. Low and N. Richea. 2003. 151 pp.
- The Great Bear Lake: its place in history. Lionel Johnson. Journal of the Arctic Institute of North America, vol 8, no 4, 1975

NWT

- NWT State of the Environment. Department of Environment and Natural Resources, Government of Northwest Territories, Yellowknife. NT.

4.7 Mechanisms for implementation:

Does the proposed biosphere reserve have:
"(a) mechanisms to manage human use and activities in the buffer zone or zones"?
If yes, describe. If not, describe what is planned.

The Sahtu Land Use Plan puts in place a legally-binding zoning regime consisting of a Special Management Zones and Conservations Zones, as well as a series of Conformity Requirements for activities within the respective zones. This sets the context for development and conservation in the GBLW. Project-specific activities, if in conformance with the land use plan, are then reviewed for their environmental and socio-economic implications and if acceptable, subject to specific land and water licencing conditions set by the Sahtu land and Water Board. This applies to activities in the Special Management Zone as well as the Conservation Zones although most activities that could cause environmental harm are prohibited in the latter.

As noted earlier, Conformity Requirement #15 requires regulators to ensure that
(a) Applicants proposing land use activities in the Great Bear Lake Watershed engage Déline community organizations in order to understand the cultural and environmental values set out in the Water Heart- the Great Bear Lake Watershed Management Plan;
(b) Any land use activities permitted in the watershed are consistent with the maintenance of the area as a self-sustaining ecosystems; and
(c) Any land use activity requiring a land use permit or water licence includes a site specific monitoring program consistent with CR # 11.

"(b) a management policy or plan for the area as a biosphere reserve"?
If yes, describe. If not, state how such a plan or policy will be developed, and the timeframe. (If the proposed area coincides with one or more existing protected natural area(s), describe how the management plan of the proposed biosphere reserve will be complementary to the management plan of the protected area(s)).

There is no biosphere reserve management policy or plan in place for the area as yet although the Great Bear Lake watershed management plan and the Sahtu Land Use Plan collectively provide the foundation and context respectively for such a policy and plan. Further development of a biosphere management plan will be lead by the Déline Renewable Resources Council and will

include resource management boards and federal, territorial and Sahtu government agencies, industry representatives and other affected parties as appropriate.

"(c) a designated authority or mechanism to implement this policy or plan"?

The Déline Renewable Resources Council will have primary responsibility for implementing the Great Bear Lake Biosphere Reserve plan.

"(d) programmes for research, monitoring, education and training"?
If yes, describe. If not, describe what is planned.

The Great Bear Lake watershed management plan describes a program for research, monitoring, education and training. It will form the basis for a biosphere reserve program and will be amended as appropriate through the cooperative approach set out in (b), above.

The following summaries are taken from the Great Bear Lake watershed management plan:

"CULTURE AND EDUCATION AREA POLICIES
Elders' Story*: In Sahtugot'ine tradition, grandparents often played a central role in the upbringing and education of their grandchildren. Many years ago, when the time was right, one such grandfather took up the teaching of his grandson. His words "made a path" or "life-long road" for his grandson, which would allow his grandson to "see his gray hair at the end of his road". He taught his grandson of the universal law of the connectedness of all things, of respect for all things, and of the challenges that he would face along his particular road.*

His grandfather also tied moose hide bracelets around the wrists and ankles of his grandson and instructed his grandson not to disturb the bracelets, to leave them on until they disintegrated and fell off naturally, and to inform him as they fell off. And he instructed his grandson to pay close attention to his dreams.

Thereafter, the grandson began dreaming of the moose. He developed a "mystical tie" to the moose, a tie that was to endure and develop for the rest of his life. After some time, his left ankle bracelet fell off. Later his right wrist bracelet fell off and later again his right ankle and his left wrist bracelets each fell off in turn. When he informed his grandfather that the final bracelet had fallen off, of the order of their falling off and of his dreams, his grandfather was assured of the unity of his person and his relationship with the land. He declared his grandson sufficiently mature that he was now an adult and could establish his own household and home. The appropriate government authorities should make every reasonable effort to support initiatives on the part of Déline to maintain and strengthen the land-based culture and its transmission from the elders to the younger generations.

Culture and education priorities are as follows:

- *Facilitate land-based activities for community members, particularly where the elders can pass on Sahtugot'ine culture to the younger generations.*
- *Assist elders and local/regional educators in defining clear teaching roles for the elders in the schools, and in the developing and incorporating culturally-appropriate teaching materials in the school curriculum. Support the inclusion of materials on the GBLW in the curriculum, incorporating both Sahtugot'ine traditional knowledge and scientific knowledge about the watershed in the curriculum.*

- *Support the community's efforts to develop its capacity in the fields of ecological and cultural research, monitoring and management.*
- *Support community efforts to promote and communicate Sahtugot'ine culture, to develop greater mutual respect between Sahtugot'ine and people of other cultures, and (more specifically) to develop and maintain a GBLW website.*

RESEARCH AND MONITORING

Elders' Teachings*: Research and monitoring are as fundamental a part of Sahtugot'ine culture as they are of Euro-Canadian cultures, notwithstanding the differences in these cultural traditions. Many middle-aged and elder Sahtugot'ine tell a similar story. When they were younger, their elders gradually passed on to them the accumulated knowledge of the Sahtugot'ine. They also instructed them to observe, take note and be aware of every aspect of their surroundings: of the particular features of any place; of the constantly changing relationships among weather, snow, ice, currents, plants and animals; of the cycles and features of plants and the seasons; and of the particular movements and behaviour of mammals, fish and birds, etc. These instructions and the sometimes-puzzling stories of their elders would often cause younger people to wonder why they were being so instructed and what the stories might mean. But they recount that, later in life, when they sometimes found themselves outside the normal realm of their experience and in real danger, the teachings of their elders and the years of observation, now second nature, allowed them to respond with understanding and skill, and to survive. Some also recount how their elders instilled in them the certainty that no matter what the problem, it can be solved. There is an answer, but the answer can only be found by persistence, hard work and careful observation.*

RESEARCH AND MONITORING POLICIES

An ongoing (long-term) research and monitoring program must be established in the GBLW:

- *the proponents of authorized activities shall be required to carry out site-specific research and monitoring.*
- *Government resource management departments and Déline authorities shall collaborate in updating, implementing and reporting on the more general and ongoing research and monitoring program — the Research and Monitoring Plan for GBL and its Watershed — in the Special Management Zone and Conservation Zones.*

Together with the required research and monitoring programs, the more general research and monitoring program shall, within 10 years following the approval of this Management Plan, provide an information base that is adequate for decision makers to maintain the ecological and cultural integrity of the GBLW. It shall include research and monitoring re cumulative effects. Research and management authorities in the GBLW (including Déline authorities) should be resourced so that they are able, in full partnership, to carry out this more general research and monitoring program.

The primary purposes of the research and monitoring program shall be the maintenance of the ecological and cultural integrity of the watershed, and the development of the research and monitoring capacity of Déline, so that Déline can again play a leading, stewardship role in the management of the GBLW. In public funding of research and monitoring in the GBLW, priority must be given to research and monitoring that can demonstrate a clear link to these purposes, and the coordination of proposed research or monitoring with other research and monitoring projects in the GBLW. All new and ongoing research and monitoring projects in the GBLW should consider the projects identified in the Research and Monitoring Plan for GBL and its Watershed as well as in the Report of the Sahtu Heritage Places and Sites Joint Working Group.

Research and monitoring must be designed and carried out using both scientific and traditional knowledge.

Guidelines on the collection and use of traditional knowledge shall be incorporated into the Research and Monitoring Plan for GBL.

Prior to undertaking research and monitoring in the GBLW, researchers and monitors shall consult the appropriate Déline organization(s) and the SRRB. The Déline First Nation Government, when established, shall identify the Déline organizations that are appropriate to different sorts of research and monitoring in the GBLW and that should be consulted, and it shall annually publish this information in plain language on its website as well as on the website of the SRRB."

5. ENDORSEMENTS:

(If a large number of Authorities are involved, please enclose the additional endorsement letters as a separate Annex).

5.1 Signed by the authority/authorities in charge of the management of the core area(s):

Full name and title: _____

Date: _____

Address, email, phone number: _____

Full name and title: _____

Date: _____

Address, email, phone number: _____

5.2 Signed by the authority/authorities in charge of the management of the buffer zone(s):

Full name and title: _____

Date: _____

Address, email, phone number: _____

Full name and title: _____

Date: _____

Address, email, phone number: _____

5.3 Signed as appropriate by the National (or State or Provincial) administration responsible for the management of the core area(s) and the buffer zone(s):

Full name and title: _____

Date: _____

Address, email, phone number: _____

Full name and title: _____

Date: _____

Address, email, phone number: _____

Full name and title: _____

Date: _____

Address, email, phone number: _____

5.4 Signed by the authority/authorities, elected local government recognized authority or spokesperson representative of the communities located in the transition area(s).

Full name and title: _____

Date: _____

Address, email, phone number: _____

Full name and title: _____

Date: _____

Address, email, phone number: _____

Full name and title: _____

Date: _____

Address, email, phone number: _____

5.5 Signed on behalf of the MAB National Committee or focal point:

Full name and title: _____

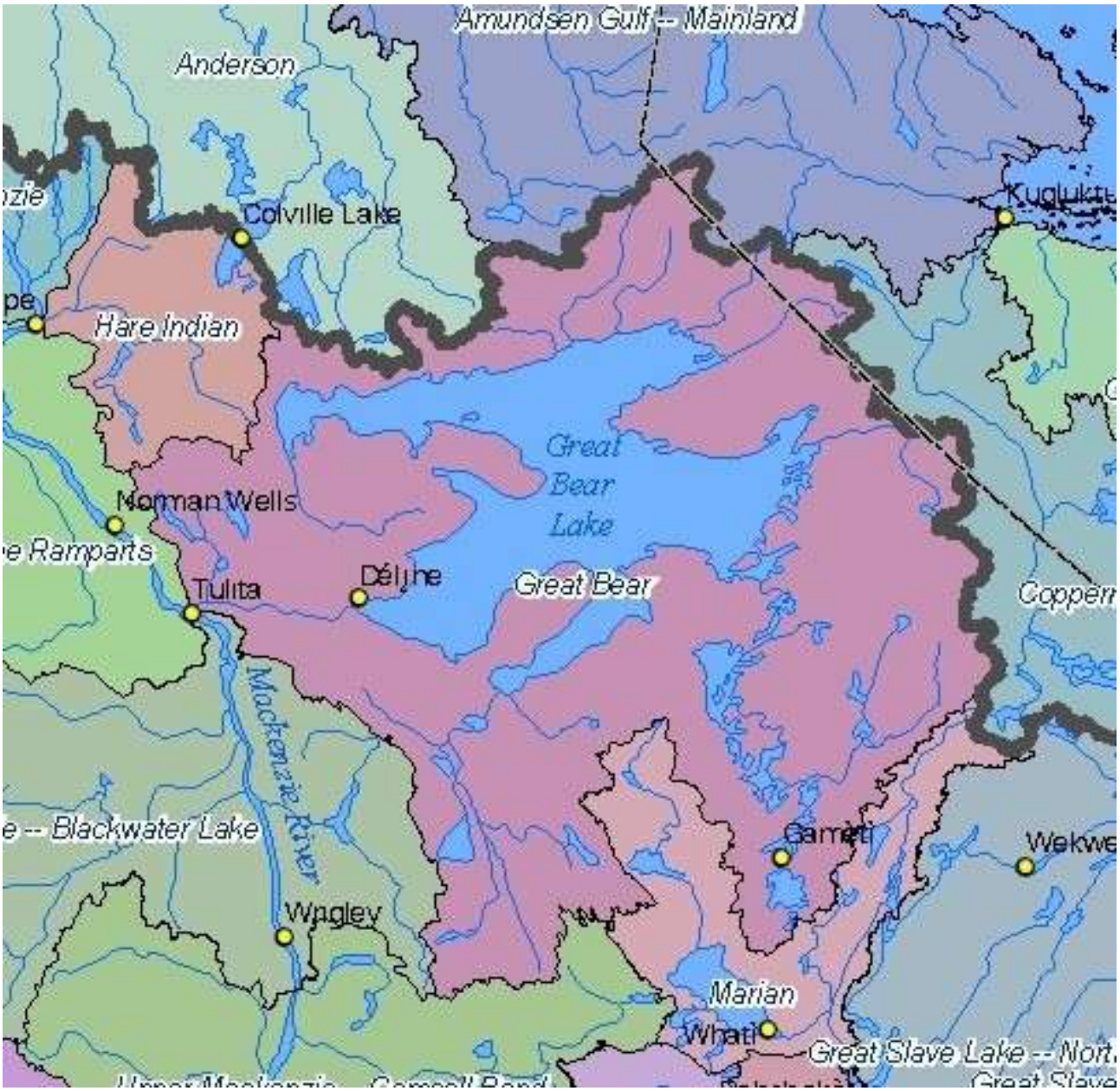
Date: _____

Address, email, phone number: _____

PART II: DESCRIPTION

6. LOCATION (COORDINATES AND MAP(S)):

Figure 1 Map of the Great Bear Lake Watershed (purple zone)



6.1 Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84):

Cardinal points:	**Latitude**	**Longitude**
Most central point:	66º00 N	120º 35 W
Northernmost point:	67º15 N	119º 45 W
Southernmost point:	64º 04 N	121º 19 W
Westernmost point:	65º 29 N	125º 06 W
Easternmost point:	66º 36 N	116º 24 W

6.2 Provide a map(s) on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must be attached to the electronic copy of the form.

If possible, also provide a link to access this map on the internet (e.g. Google map, website…).

******SLUP maps, etc********

7. AREA (see map):

Total: 121,595 km²

The proposed Great Bear Lake Biosphere Reserve includes Great Bear Lake (GBL) and that portion of its watershed lying within the Sahtu Settlement Region, in the central Northwest Territories. The Great Bear Lake watershed (GBLW) encompasses some 144,069 km^2 in total, of which about 90,267 km² lies within the Sahtu. (The balance lies largely within the Tlîchô Settlement Area (44,525 km²) with smaller portions lying within Nunavut (2,876 km²) and Deh Cho (6,401 km²). GBL lies entirely within the Sahtu and has a surface area of about 31,328 km². The total area of the proposed Great Bear Lake Biosphere Reserve is therefore about 121,595 km².

	Terrestrial	Marine (if applicable)	Total
7.1 Area of Core Area(s): (Sahoyúé-?Ehdacho National Historic Park and Conservation Zones	***20, 129 km²***	***N/A***	***20, 129 km²***
7.2 Area of Buffer Zone(s): (Special Management Zone)	***69,823 km²***	***31,328 km²***	***101,251 km²***
7.3 Area of Transition Area(s): (GBLW outside Sahtu)	***48,749 km²***	***N/A***	***48,749 km²***
TOTAL:	***136,701 km²***	***31,328 km²***	***178,029 km²***

*******confirm numbers*********

7.4 Brief rationale of this zonation in terms of the respective functions of the biosphere reserve. If a different type of zonation also exists indicate how it can coexist with the requirements of the biosphere reserve zonation.
(e.g., if national criteria exist for the definition of the area or zones, please provide brief information about these).

From the Great Bear Lake watershed management plan:

"The elders of Déline see the GBLW as one organism. They see the many rivers, steams and creeks that flow into and out of GBL as fulfilling the same functions as the veins, capillaries and arteries in the bodies of all creatures. Water unites and flows through and among all creatures. It plays an essential role both in the larger ecosystem and in the smaller ecosystems that comprise each creature. And the maintenance of water quality in the GBLW is as essential as the maintenance of the quality of the blood of any person or other creature.

The elders assert that the health of people and the land are directly connected — and that people are not in reality separate from the land and other creatures. Our "minds", "souls" and "hearts" are directly tied to the health of the land. The use that we make of the land and other creatures — and

the respect with which we treat them — will have a direct bearing on the health not only of ourselves but also of all aspects of the land. If we do not support the land, give it strength and treat it with utmost respect, the heart of Sahtu will not survive.

The GBLW is a special place for the people of Déline. Their ancestors have been part of and have cared for this place for countless generations. The elders assert that we in turn have a responsibility to treat this watershed with respect — to keep it alive. They want to protect it so that it can be used by the present generation and by future generations."

The Great Bear Lake watershed management plan called for the establishment of a Special Management Zone in the GBLW so that the above objectives could be met The Special Management Zone includes all of the GBLW with the exception of Conservation Zones and Protected Areas.

With respect to Conservation Zones and Protected Areas, the Great Bear Lake watershed management plan includes the following:

"Déline's elders have passed down a system of values, beliefs and codes of conduct to the present generation. Central to this worldview are several "prophecies" about the future. These prophecies are based on the visions of key elders in Déline's past, including Aya, Medzo, André and Bayha. Déline's current elders take these prophecies very seriously.

The nature of these prophecies needs to be understood: they set out not what must happen but what may happen in the future, if our society does not change its relationship with the natural world, just as the predictions of various coalitions of scientists now warn of future environmental degradation and the potential weakening of the globe's life support systems.

The Déline prophecies liken to world to a single living organism. They foresee — prior to the prophets ever having visited other parts of the world and prior to modern-day media accounts of environmental degradation — a growing assault on the natural world and the gradual encroachment of this assault on the Sahtu region. They foresee the degradation of the Great Lakes and southern Canadian water bodies, the gradual elimination of forests, the reduction or elimination of wildlife species and the spread of roads (likened to scars on the organism) through much of North America.

The elders relate the prophecies to their belief in a "universal law": to the connectedness of all things, the need to treat other beings with the utmost respect and the need for all three levels of government to work together. The gradual degradation of the GBLW can only be prevented if Sahtugot'ine and non-Sahtugot'ine alike to act with "one mind" to protect the integrity of the land.

All of the GBLW is important to the Sahtugot'ine. There are also, however, certain special places within the watershed on which wildlife and the Sahtugot'ine are particularly dependent. The elders use a special phrase for these places. They say that they are "sore benegodi": so real, of such fundamental value, so beautiful or so splendid that they are embedded in the mind; they cannot be dismissed; they are part of the Sahtugot'ine.

The Management Plan provides for the establishment of several Neh Katzila K'ets'Edi within the GBLW. Neh Katzila K'ets'Edi is a Slavey term, meaning "lands set aside: we're protecting them".

Neh Katzila K'ets'Edi are particularly important places within the watershed that need a higher level of protection than that provided by the Special Management Zone. In English, they are termed

"Conservation Zones" and "Protected Areas". The GBL Working Group recommends that the following Conservation Zones and Protected Areas be established in the GBLW:
i. Luchaniline (Whitefish River) Conservation Zone
ii. Tehkaicho Dé (Johnny Hoe River) Conservation Zone
iii. Du K'ets' Edi (Sentinel Islands) Conservation Zone
iv. Edaiila, including T'echo cho deh t'a tlaaa (Caribou Point, including Fort Confidence) Conservation Zone and Protected Area; and
v. Sahyoue and Edacho (Grizzly Bear Mountain and Scented Grass Hills) Protected Area"

Conservation zones within the proposed biosphere reserve are protected pursuant to the Sahtu Land Use Plan. Surface and subsurface rights are withdrawn. Bulk water removal, mining exploration and development, oil and gas exploration and development, hydropower development, forestry and quarrying are prohibited. Similar protection applies to Saoyú-ʔehdacho National Historic Site. Sahtugot'ine traditional activities, tourism, research and monitoring and other similar activities are permitted. The level of protection is equivalent to that of IUCN Category ll.

Aside from Saoyú-ʔehdacho National Historic Site and the Conservation Zones, the entire GBLW within the Sahtu Settlement Area is a Special Management Zone pursuant to the Sahtu Land Use Plan. The Sahtu Land Use Plan includes 16 "conformity requirements" that apply to the GBLW SMZ, setting out conditions for development. Bulk water removal is prohibited.

As one example, conformity requirement #15 requires regulators ensure that:
(a) Applicants proposing land use activities in the Great Bear Lake Watershed engage Déline Community organizations in order to understand the cultural and environmental values set out in the Water Heart- the Great Bear Lake Watershed Plan;
(b) Any land use activities permitted in the watershed are consistent with the maintenance of the area as a self-sustaining ecosystems; and
(c) Any land use activity requiring a land use permit or water licence includes a site specific monitoring program consistent with CR # 11.

The GBLW outside the Sahtu Settlement Region is subject to the development rules applicable in Nunavut (to the northeast) and in the Tlîchô Settlement area to the south. In Nunavut, the Nunavut Final Agreement provides the context for conservation and development. There are no conservation areas in this portion of the watershed and development is subject to the normal regulatory process in Nunavut.

In Wek'èezhìi, the Tłı̨cho land use plan identifies a traditional land use zone and a land exclusion zone in that portion of the Great Bear Lake watershed. Within the traditional use zone (Gowhadõ Yek'e t'ii k'e), the following land uses are considered:
a) Camp or cabin;
b) Non-exploitive scientific research;
c) Transportation corridor;
d) Eco/cultural tourism;
e) Hydro power generation; and
f) Utility corridor.

Within the land exclusion zone (Wexehlaxodiale) the following land uses are considered:
a) Camp or cabin;
b) Non-exploitive scientific research; and
c) Transportation corridor

Outside these zones, development is subject to the normal regulatory process.

8. BIOGEOGRAPHICAL REGION:

[Indicate the generally accepted name of the biogeographical region in which the proposed biosphere reserve is located.] (The term "major biogeographic region" is not strictly defined but you may wish to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

The proposed Great Bear Lake Biosphere Reserve lies primarily in Canada's Boreal Forest with the northeastern segment in tundra. The Udvardy classification system would place most of the region in 1.4.3: Canadian Taiga in the Nearctic Realm, with the northeastern segment in 1.14.9: Canadian Tundra.

9. LAND USE:

9.1 Historical:

(If known, give a brief summary of past/historical land use(s), resource uses and landscape dynamics of each zone of the proposed biosphere reserve).

As cited earlier in this report, the Great Bear Lake watershed management plan notes that, "The GBLW is the foundation of Sahtugot'ine cosmology, history and traditional law, of the transmission of the culture from elders to the younger generation, and of Déline's renewable resource economy. The land "contains" the people of Déline; they are part of it, and they define themselves largely by their relationship with it. For these reasons, the watershed, the land, the home of the people of Déline must be kept healthy. The special management of the watershed is one way to ensure this."

The following summary is broken into two categories: an overview of the historical land uses of the proposed Great Bear Lake biosphere reserve, and more detailed summaries of the historical uses of the conservation zones.

Overview

The following has been extracted from "The Great Bear Lake: its place in history" by Lionel Johnson, published in the Journal of the Arctic Institute of North America, vol 8, no 4, 1975.

The mode of life of the early inhabitants probably differed little from that of the native peoples at the time of the penetration of the area by Europeans at the end of the eighteenth century. The nature of the economy was determined essentially by the location of Great Bear Lake on the boundary between boreal forest and tundra, and in the path of migrating caribou. The meat this animal provided was augmented by that of moose, snowshoe hare from the woodlands, muskox and arctic hare from the Barren Grounds. Fish, though usually available, was not a preferred diet. General dependence on the caribou obliged its hunters to lead a migratory life.

Early travellers recognized that the area surrounding Great Bear Lake was inhabited by a number of distinct groups from various tribes, but it was Emile Petitot, the pioneer missionary, who first recognized that the people surrounding the lake had a distinct identity. The local inhabitants, having become to some extent dissociated from their parent tribes, naturally tended to form a new grouping of lake-centred people to which Osgood applied the term Satudene, derived from words in Chipewyan meaning "bear water people".

The tribes of the Satudene - the Hare, Mountain, Dogrib and Copper Indians - spoke dialects of the Athapascan family of languages which probably differed little one from another, and could therefore

be understood over wide areas. The various bands of the Hare Indians occupied, and hunted in, areas to the north of Great Bear Lake; the Mountain, or Slave, the area around Great Bear River; the Dogrib the area between Great Bear Lake and Great Slave Lake; and the Copper in the vicinity of the Dease and McTavish Arms. Eskimo hunters regularly made trips to the north shore of the lake, but they and the Indians deemed it prudent to avoid mutual contacts.

Little formal organization existed within the respective groups of the Satudene; individuals would establish leading positions on the basis of personality, or prowess in hunting. Families would join together for hunting and fishing, separate, and then form again, as occasion demanded. The generally nomadic habit of the Satudene precluded the establishment of permanent dwellings. Conical skin tents were used for lodges, while open-sided shelters of spruce boughs often sufficed on the trail. In winter, the tents were banked up with snow, both inside and outside, to make them warmer, while within each a fire burned permanently, the smoke from which was allowed to escape through a hole in the top.

The obtaining of food was an ever-present concern of the adult population, for supplies varied greatly both from season to season and from year to year. The most favoured locations for the establishment of camps were those from which both good fishing and caribou hunting were possible. Known examples are: the head of Great Bear River, called Telini ("from where the river starts"); the fishing grounds of Hornby Bay, Cloud Bay, Deerpass Bay and, particularly, the southern part of McVicar Arm; and Tritatui ("among the small lakes"), the region drained by the Whitefish River between Keith and Smith Arms. Fish were available at most times of the year although, according to Franklin, catches declined in the fall after the formation of ice, and reached their lowest level in January. The preferred species was whitefish, which is to be found in the sandy bays and is particularly abundant in the fall at the southern end of McVicar Arm. Walleye or pickerel is confined to the region at the mouth of the Johnny Hoe River. Lake herring is particularly abundant in the spring and constitutes a dietary mainstay.

Fishing methods used by the Satudene were quite varied, ranging from the use of hook and line to the building of stone weirs. Hook and line were used principally in the spring for the catching of lake trout and the hooks were sometimes made of beaver rib fastened to wood. Fish weirs, which can be used only on streams with a relatively small flow, were made of brush or stones. However, in the region of Great Bear Lake it is only the grayling or bluefish which moves regularly along rivers. Fishing in winter was done through holes cut in the ice of lakes and rivers soon after its formation in the fall and kept open through the winter as its depth increased. After the making of the hole, fish were attracted to it by the working up and down of a jig - a small bone or stone fish. As an alternative, hooks were used but even among tribes who had been taught the use of metal, stone objects continued to be employed as fish hooks.

Fishing nets were made of the knotted bast fibres of spruce or willow, or even babiche (plaited rawhide from caribou or moose) with the aid of netting needles. The nets were of the gillnet type, fitted with wooden floats and with stones attached for sinkers; they were set by cutting a series of holes in the ice and threading a line from hole to hole under it by means of a wooden pole. When the net had been set, only the end holes were kept open."

Marc Stevenson ("Compilation and Review of Existing Cultural Research and Documentation Relating to Edaiila (Caribou Point), Great Bear Lake, NWT: Final Report. March 2007) picks up the story.

"The first known European establishment on Great Bear Lake was that constructed in 1799 by the North-West Fur Company four miles from the entrance to the Bear River. For the next 15 years the

Sahtugot'ine incorporated Bear Lake Castle, as it was then known, into their economy and ways of life. With the decline of the North West Company soon after, Bear Lake Castle was closed in 1815.

For his second expedition to the Arctic Ocean, Sir John Franklin rebuilt Bear Lake Castle in 1825, and for the next two years, Franklin and his men used the fort as base of operations for their explorations. Franklin's expedition left Great Bear Lake in February 1827. Not until Peter Dease and George Simpson, exploring the Arctic Coast for the HBC, built Fort Confidence at the mouth of the Dease River in 1837, did Europeans return to Great Bear Lake. According to Morris, during periods of European activity at the western end of Great Bear Lake, most Sahtugot'ine abandoned their more easterly hunting regions and did not return in large numbers until Fort Confidence was built in 1837. While Dogrib and Hare frequently visited Fort Confidence during those years that Dease and Simpson used it as a base for exploration (1837-39), Yellowknife trading parties were noticeably absent. According to Simpson, the Dogrib and Hare Indians, who had long suffered at the hands of the Yellowknives, fell upon their persecutors in 1823 killing 34 people, "the terror of this act of retribution is undoubtedly the cause why we were never visited by no Copper Indians (Yellowknives) during our long residence at Fort Confidence."

After a ten year absence, the Sahtugot'ine once again played host to European visitors when John Bell was sent to Fort Confidence in 1848 to build suitable winter quarters for the Richardson and Rae expedition who were sent searching for survivors of Franklin's long over due third expedition to the Arctic. As part of the Franklin search effort, Fort Franklin was also temporarily reoccupied in 1849, where a fishery was established to supply Fort Confidence. Again, Dogribs and Hares became frequent visitors to Fort Confidence, but this was short-lived after Rae abandoned the fort in 1851.

Europeans returned once again to Great Bear Lake in 1864, when the HBC and the missionary, Father Emile Petitot, erected buildings at Fort Franklin. Over the next 14 years, first from Fort Franklin and then from Fort Norman at the confluence of the Bear and Mackenzie Rivers, Petitot returned to the Great Bear Lake region for eight winters. Here, he traveled extensively, mapped the area with considerable accuracy and described the character and life of the Sahtugot'ine from his own unique perspective.

Except for the occasional missionary, the Sahtugot'ine, who, according to Petitot, were now composed primarily of Hares (Eta-tcho-Gottine), Dogribs (Tse-Ottine) and Slaves (K kr a-lon-Gottine), were not to be visited until the early 1900s when a new influx of traders, scientists and white trappers arrived.

By 1920, a small settlement, composed of 18 log houses with stone chimneys, had formed at Fort Franklin. Between dividing their time living in town and living on the land hunting, trapping and fishing, the Sahtugot'ine attempted to negotiate the best of what both ways of life had to offer. In 1928, Cornelius Osgood (1931) conducted the first real ethnography of the Sahtugot'ine.

With the discovery of pitchblend, sliver and other minerals in the vicinity of Port Radium on south shore of McTavish Arm in the 1920s, Great Bear Lake and Great Bear River assumed even greater importance as a commercial transportation route servicing the Mackenzie Valley. It was not until after the establishment of a permanent Roman Catholic Mission, federal day school and Hudson's Bay Company post in 1949-50 that many Sahtugot'ine settled permanently in Déline where they returned seasonally to their traditional hunting, trapping, and fishing grounds. Mining was conducted at Port Radium from 1932 to 1960, and then again from 1964 to 1980. More

recently, Great Bear Lake and its watershed have attracted the interests of mineral prospectors and sports fishing tour operators."

Special Management Zones

Great Bear Lake Watershed
"The GBLW is the foundation of Sahtugot'ine cosmology, history and traditional law, of the transmission of the culture from elders to the younger generation, and of Déline's renewable resource economy. The land "contains" the people of Déline; they are part of it, and they define themselves largely by their relationship with it. For these reasons, the watershed, the land, the home of the people of Déline must be kept healthy. The special management of the watershed is one way to ensure this." (Great Bear Lake Watershed Management Plan)

Of primary concern to the community of Déline are the protection of their cultural integrity and the protection of the Great Bear Lake and its Watershed's ecological integrity as the former is intricately linked with the latter.

Neregah (Northshore)
The Sahtugot'ine have used Neregah for centuries. Neregah was established as a separate zone from the GBLW because Déline is primarily concerned with the preservation of its heritage values such as heritage areas, cultural sites, archaeological sites and artifacts. The community insists that greater patrolling is needed to protect heritage features

Du K'ets'edı SMZ (Sentinel Islands SMZ)
The Du K'ets'edı ("the islands taking care of themselves") SMZ refers to all Sentinel Islands in the GBLW that are part of the Settlement Lands held by the District of Déline.

The Sahtugot'ine consider many Du K'ets'Edi to have mythical significance and to have been formed when mythical beings turned into islands when crossing GBL. Du K'ets'Edi have many stories associated with them. Some islands are sacred and best left alone. Others require special acts of respect when passing them. Some are considered still to have supernatural powers. Du K'ets'Edi are used as traditional knowledge education places. Some of the Sahtugot'ine creation stories are told in these locations

The islands were used primarily for safety purposes when traveling on GBL (storms, docking and temporary use year round, particularly during the open water season). The Special Management of the Du K'ets'Edi SMZ islands is primarily to protect the water quality of GBL while allowing for economic development.

Conservation Zones
Luchaniline (Whitefish River) Conservation Zone
Luchaniline is widely recognized as a critical whitefish spawning area.185 According to the elders of Déline it is productive wildlife habitat that is important to the life cycles of a wide range of species. Culturally, it is a place for spiritual renewal and is associated with many stories. The Sahtugot'ine have used Luchaniline for centuries. It preserves much physical heritage and continues to be used for educational trips involving Déline elders and school-aged children in the spring and summer, and for the teaching of the Sahtugot'ine legends, history, values, law and land based skills.

Tehkaicho Dé (Johnny Hoe River) Conservation Zone

According to the elders of Déline, Tehkaicho Dé is productive wildlife habitat that is important to the life cycles of a wide range of species. It is a critical whitefish spawning area. The zone lies along the Bluenose East herd migration path. Elders believe Tehkaicho Dé to be one of the most important places around GBL that was used by their ancestors and one of the most important for their ancestors' survival. Culturally, it is a place for spiritual renewal and is associated with many stories. Tehkaicho Dé is considered by elders to be a very powerful area. It preserves much physical heritage and continues to be used for educational trips involving Déline elders and school-aged children in the spring and summer, and for the teaching of the Sahtugot'ine legends, history, values, law and land based skills.

Du K'ets' Edi (Sentinel Islands) Conservation Zone
The Du K'ets'edı ("the islands taking care of themselves") CZ refers to all Sentinel Islands in the GBLW that are on Crown land.

The Sahtugot'ine consider many Du K'ets'Edi to have mythical significance and to have been formed when mythical beings turned into islands when crossing GBL. Du K'ets'Edi have many stories associated with them. The islands are protected for different reasons. Some islands are sacred and best left alone. Others require special acts of respect when passing them. Some are considered still to have supernatural powers.

The islands were used primarily for safety purposes when traveling on GBL (storms, docking and temporary use year round, particularly during the open water season). Du K'ets'Edi are used as traditional knowledge education places. Some of the Sahtugot'ine creation stories are told in these locations.

The conservation status of the Du K'ets'Edi islands is primarily to protect the water quality of GBL and to protect the spiritual and heritage values.

Edaįįla, including T'echo cho deh t'a tlaaa (Caribou Point, including Fort Confidence) Conservation Zone
Edaįįla provides important habitat for a number of wildlife species but the primary reason for its conservation status is to protect the Bluenose-East barren-ground caribou herd. The herd regularly aggregates on and close to the zone from mid-July to mid-October. Edaįįla is an extremely important cultural and ecological area for the people of Déline. Residents throughout the NWT and the western parts of Nunavut depend economically, socially and culturally on Bluenose-East and Bluenose-West caribou herds.

Edaįįla is a spiritual place with many stories. It is part of the Sahtugot'ine cosmology, history, values and law. It is considered a place of very strong medicine power.

Turatlın Tué (Tunago Lake) Conservation Zone
The community of Colville Lake requested that a 500 m conservation buffer be applied to a number of fish lakes in the K'asho Got'ine District. The primary intent is to protect fish, water quality, riparian habitat/shorelines, archaeological and burial sites while maintaining access for recreational and subsistence uses.

Tunago Lake and area provides important habitat for the Bluenose-West barren-ground caribou herd, particularly during the fall rut through to late winter.

Sahoyúé-?ehdacho (Grizzly Bear Mountain and Scented Grass Hills) Protected Area

The Sahtugot'ine consider their land to be sacred. Sahoyúé-?ehdacho National Historic Site is especially important in Sahtugot'ine culture and traditional knowledge since the area features so prominently in their oral history. Through oral history and continued traditional use of these two peninsulas, Sahoyúé-?ehdacho vividly represent the relationship between the people and the land. Sahoyúé-?ehdacho contain much of the heritage of the Sahtugot'ine. However, it is more than just a representation of heritage and the bond between the people and the land. It is through Sahoyúé-?ehdacho that the people define who they are and can pass on the knowledge and tradition to the next generation. The teaching, healing and spiritual aspects of Sahoyúé-?ehdacho are recognized as integral parts of the Sahtugot'ine culture.

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As a National Historic Site the significance of Sahoyúé-?ehdacho has been recognized as being of national stature. The cultural values of Sahoyúé-?ehdacho are expressed through the inter-relationship between landscape, oral histories, graves and cultural resources, such as trails and cabins and help explain and contribute to an understanding of the origin, spiritual values, lifestyle and landuse of the Sahtugot'ine. While Sahoyúé-?ehdacho is of the most direct significance to the Sahtugot'ine, its importance also extends to people living in the entire Sahtu Settlement Area. The significance of Sahoyúé-?ehdacho, however, extends beyond the people for whom it has the most direct cultural and traditional importance to encompass the broader Canadian society.

9.2 Who are the main users of the biosphere reserve? (for each zone, and main resources used). If applicable, describe the level of involvement of indigenous people taking into account the "United Nations Declaration on the Rights of Indigenous Peoples". (http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf).

The main users of the proposed Great Bear Lake biosphere reserve are the Sahtugot'ine and Tlîchô people. Their main activities involve resource harvesting, trapping, fishing and other traditional uses of the land. Secondary users include tourism operators, mineral exploration and development interests, oil and gas exploration and development interests

Tlîchô and Sahtu rights and responsibilities are recognized in their respective comprehensive land claim agreements and are protected pursuant to the Canadian Constitution. Among other things, the agreements establish comprehensive resource stewardship frameworks which include co-management boards. Among these boards are land and water boards (whose mandates include instituting land and water use policies and issue land use permits and water use licences), renewable resource boards (which determine wildlife harvest quotas and responsible wildlife stewardship policies and programs), renewable resource councils (in the Sahtu), land use planning boards (which develop and implement regional land use plans) and a territory-wide environmental impact review board. Tlîchô and Sahtu representatives have representation on the renewable resource boards and the regional land and water boards equal to that of the governments of Canada and the Northwest Territories. In the Sahtu, community-based renewable resource councils (including the Déline Renewable Resource Council) fall under the umbrella of the Sahtu Renewable Resource Board and are composed entirely of residents. The Sahtu Land Use Planning Board is responsible for developing and implementing a land use plan for the entire Sahtu. In the Tlîchô, land use planning is limited to Tlîchô-owned lands and the planning is entirely within the Tlîchô government's mandate.

The Déline Land Corporation is responsible for managing settlement lands, both surface and sub-surface, in the Déline District, which includes much of the Sahtu portion of the GBL watershed. The Corporation is involved in any decisions concerning land use in the claim area: members completed an impact benefit agreement with Parks Canada concerning Tuktut Nogait National Park and negotiated and looks after special areas including Sahoyúé-?ehdacho National Historic Site. A small portion of the Sahtu portion of the GBL watershed falls within the K'asho Got'ine Land

Corporation's mandate which has a mandate similar to that of the Déline Land Corporation. Finally, the Déline Band Council and the Colville Lake Band Council have mandates related to the governance of the Sahtu portion of the watershed.

As noted in earlier sections, resource use of the entire GBL watershed is primarily traditional use-based including hunting, fishing, trapping, berry picking, limited logging primarily for fuel wood and cabin construction, and other cultural activities. There is very limited tourism (including sports fishing and big-game outfitting), some scientific research and monitoring, some mineral exploration, some contaminated sites clean-up activity. There are no active mines, hydro developments or oil and gas developments in the proposed biosphere reserve. Such activities are prohibited in conservation zones and protected areas and carefully constrained in special management areas. Activities in the buffer zone are subject to the land use planning, environmental assessment and regulatory provisions f the respective land claims.

9.3 What are the rules (including customary or traditional) of land use in and access to each zone of the biosphere reserve?

Conservation zones within the proposed Biosphere Reserve are protected pursuant to the Sahtu Land Use Plan. Surface and subsurface rights are withdrawn. Bulk water removal, mining exploration and development, oil and gas exploration and development, hydropower development, forestry and quarrying are prohibited. Similar protection applies to Saoyú-ʔehdacho National Historic Site. Sahtugot'ine traditional activities, tourism, research and monitoring and other similar activities are permitted. The level of protection is equivalent to that of IUCN Category ll.

There are exceptions, however. Some areas are more important, more sacred than others. Du K'ets'Edi (the Sentinel Islands) is one example. Some islands are sacred and best left alone. Others require special acts of respect when passing them. Some are considered still to have supernatural powers. The islands are protected for different reasons. The Great Bear Lake watershed management plan specifies that:

"Participants and others shall use Du K'ets'Edi for temporary purposes only, including stopping and camping for safety reasons, research and monitoring (including the installation of research and monitoring equipment) and youth educational camps. Emergency shelters and youth educational shelters shall be authorized for temporary purposes only. The appropriate authorities, including the SRRB, the DRRC, the GNWT and the SL&WB (and the DLC, in the case of settlement lands) shall not authorize any commercial renewable or non-renewable resource development activities on Du K'ets'Edi."

Aside from Saoyú-ʔehdacho National Historic Site and the Conservation Zones, the entire GBLW within the Sahtu Settlement Area is a Special Management Zone pursuant to the Sahtu Land Use Plan. The Sahtu Land Use Plan includes 16 "conformity requirements" that apply to the GBLW SMZ, setting out conditions for access and development. Bulk water removal is prohibited

As one example, conformity requirement #15 requires regulators ensure that:
(a) Applicants proposing land use activities in the Great Bear Lake Watershed engage Déline community organizations in order to understand the cultural and environmental values set out in the Water Heart- the Great Bear Lake Watershed Plan;
(b) Any land use activities permitted in the watershed are consistent with the maintenance of the area as a self-sustaining ecosystems; and
(c) Any land use activity requiring a land use permit or water licence includes a site specific monitoring program consistent with CR # 11.

The GBLW outside the Sahtu Settlement Region is subject to the development rules applicable in Nunavut (to the northeast) and in the Tlîchô region to the south. In Nunavut, the Nunavut Final Agreement provides the context for conservation and development. There are no conservation areas in this portion of the watershed and development is subject to the normal regulatory process in Nunavut.

In Wek'èezhìi, the Tłı̨cho land use plan identifies a traditional land use zone and a land exclusion zone in that portion of the Great Bear Lake watershed. Within the traditional use zone (Gowhadõ Yek'e t'ii k'e), the following land uses are considered:
a) Camp or cabin;
b) Non-exploitive scientific research;
c) Transportation corridor;
d) Eco/cultural tourism;
e) Hydro power generation; and
f) Utility corridor.

Within the land exclusion zone (Wexehlaxodiale) the following land uses are considered:
a) Camp or cabin;
b) Non-exploitive scientific research; and
c) Transportation corridor

Outside these zones, development is subject to the normal regulatory process.

9.4 Describe women's and men's different levels of access to and control over resources.
(Do men and women use the same resources differently (e.g., for subsistence, market, religious/ritual purposes), or use different resources?).

Traditional uses of the proposed biosphere reserve are subject to cultural norms of the respective communities. Industrial activities (where present) involve both men and women and are subject to the usual Canadian society norms. Tourism involves both men and women but is predominantly led by men.

10. HUMAN POPULATION OF PROPOSED BIOSPHERE RESERVE:

[Approximate number of people living within the proposed biosphere reserve]

	Permanently	Seasonally
10.1 Core Area(s)	0	10
10.2 Buffer Zone(s) (Déline)	600	650
10.3 Transition Area(s) (Gameti; outside proposed biosphere reserve)	300	350
Total:	**900**	**1010**

10.4 Brief description of local communities living within or near the proposed biosphere reserve.
(Indicate ethnic origin and composition, minorities etc., main economic activities (e.g. pastoralism, tourism) and the location of their main areas of concentration, with reference to the map (section 6.2)).

Déline

Déline is located on the north shore of Keith Arm on GBL at 65'10'N latitude and 123'25'W longitude. The community is 544 km northwest of Yellowknife. It has a population of about 565 (NWT Bureau of Statistics, 2010), over 90% of whom are Sahtugot'ine Dene. Languages spoken include North Slavey and English. The community is accessible by air from Norman Wells and Yellowknife year-round and by winter road to Tulita and the Mackenzie Highway network.

Déline officially changed its name from Fort Franklin in 1993. Fort Franklin was named for Sir John Franklin who used the area as his base for exploration in the 1820s. During that time the Hudson Bay Company re-opened its store to supply Franklin's expeditions. It wasn't until the 1920s when pitchblende was discovered at Port Radium and oil at Norman Wells that the settlement began to take shape. Great Bear Lake and Great Bear River became important trade routes. In the 1940s-1950s the Roman Catholic Mission, Federal Day School and Hudson Bay Company post marked a flurry of construction and the development of a semi-permanent settlement.

Now a year-round settlement, Déline is committed to preserving the traditional lifestyle. The economy is based on hunting, trapping and fishing. Tourism, oil and gas services, local services and arts and crafts provide a wage economy.

Gameti

Gameti is located 177 air km north-west of Yellowknife, at 64'09'N latitude and 177'20'W longitude. Gameti is in the Tlichô portion of the GBLW and is an important link in the chain of lakes which connects Great Slave Lake to GBL. It has a population of about 295 (NWT Bureau of Statistics, 2010), primarily Tlichô Dene. Languages spoken include Tlîchô and English. The community is accessible by air from Yellowknife year round and is connected by an ice road to the city in the winter.

The shore of Gameti was once used by the Tlîchô as a hunting camp and it wasn't until the 1970s that it became a more permanent settlement with the construction of a community hall, school, store, homes and an airstrip. Today the economy is based on domestic fishing, hunting and trapping. Mineral exploration and potential development also provides employment. The traditional name of the settlement, Games Lake (pronounced Gah-May), was named for the elder who first camped there.

Norman Wells

Norman Wells is located at 65'17'N and 126'50'W longitude, 80 km northwest of Tulita and 684 km northwest of Yellowknife. The community is located at the north bank of the Mackenzie River and views the entire width of the Mackenzie Valley from the Franklin to Richardson Mountains. It has a population of about 800 (NWT Bureau of Statistics, 2010). Languages spoken include North Slavey and English

The community is accessible by air from Yellowknife and Inuvik year round and bulk supplies and food are barged in during the summer months. A winter road links the community to Wrigley and the Mackenzie Highway network.

The famous explorer Mackenzie found the first traces of oil during his travels down the Mackenzie River and in 1911 traces of an oil bearing formation were found. By 1937 Imperial Oil Ltd. was well established in oil exploration and two years later a refinery capable of producing aviation fuel was constructed. The Canol Project, including a pipeline between Norman Wells and Whitehorse, was designed to supply fuel for the American war effort in the Pacific between 1942 and 1944.

Today oil drilling and exploration (fracking) continues to be the backbone of the Norman Wells economy. A well-developed service industry also provides services to residents and visitors to the region.

Tulita
Tulita is located at 64'54'N latitude and 125'34'W longitude and is 523 air km southeast of Inuvik and 624 km northwest of Yellowknife. The community is situated on the east bank of the Great Bear River where it meets the Mackenzie River. It has a population of about 566 (NWT Bureau of Statistics, 2010). Languages spoken include North Slavey and English.

The community is accessible by air from Norman Wells year round and bulk supplies and food are barged in during the summer months. Tulita is connected to the Mackenzie Highway system by an ice road in the winter.

The Northwest Company set up a trading post at the junction of the Mackenzie and Great Bear Rivers in 1810, a point Sir John Franklin had used as a starting point for his expeditions. The site changed several times but the community of Tulita is located on this very site today.

Today's economy is based on hunting, fishing and trapping with oil exploration and tourism also being significant features. The sale of local arts and crafts is also key, along with other local business.

Colville Lake
Colville Lake is located at 67'02'N latitude and 126'07'W longitude. The community is 745 air km northwest of Yellowknife. It has a population of about 147 (NWT Bureau of Statistics). Languages spoken include North Slavey and English.

The community is accessible by air from Norman Wells year round and by winter road to Fort Good Hope and the Mackenzie Highway network. .

Colville Lake is one of the most traditional communities in the Northwest Territories. Located within the traditional homeland of the K'asho Got'ine, organization of the community did not begin until 1962 when the Roman Catholic Mission was created. The community's economy is based in large part on oil and gas exploration, game hunting, fishing and trapping, with tourism playing a secondary role.

10.5 Name(s) of the major settlement(s) within and near the proposed biosphere reserve with reference to the map (section 6.2):

Déline
Gameti
Colville Lake
Norman Wells
Tulita

10.6 Cultural significance:
(Briefly describe the proposed biosphere reserve's importance in terms of past and current cultural values (religious, historical, political, social, ethnological) and others, if possible with distinction between material and intangible heritage (c.f. UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage 1972 and UNESCO Convention for the Safeguard of the Intangible Cultural Heritage 2003 (http://portal.unesco.org/en/ev.php-

URL_ID=13055&URL_DO=DO_TOPIC&URL_SECTION=201.html and http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201.html)).

In terms of past and current cultural values associated with the proposed biosphere reserve, one could not improve on the following, extracted from the Great Bear Lake watershed management plan:

"THE WATER HEART: WHY THIS MANAGEMENT PLAN IS NECESSARY
The elders of Déline have passed down a story through many generations. In times past, their spiritual teachers were often "mystically tied" to different parts of the environment: some to the caribou, some the wolf, some the northern lights and some the willow. Kayé Daoyé was one such person. He lived all around GBL or "Sahtu" in the Slavey language, but made his home primarily in Edaiila (the Caribou Point area), on the northeast shores of the Lake. Kayé Daoyé was mystically tied to the loche. One day, after setting four hooks, he found one of them missing. This disturbed him — in those days hooks were rare and very valuable — and that night he traveled in his dreams with the loche in search of the fish that had taken his hook. As he traveled through the centre of GBL, he became aware of a great power in the lake — the heart of the lake or the "water heart". Contemplating this heart, he became aware that it is connected to all beings — the land, the sky, plants, other creatures, people — and that it helps sustain the entire watershed of GBL.

The elders of Déline stress that the interconnectedness of all things includes all people — Dene and non-Dene alike. From this "universal law" of the interconnectedness of things flows the responsibility of people to care for the world in which we live. The water heart sustains the watershed of GBL, and we in turn have a responsibility to sustain it. We do this by treating it and other beings with the utmost respect.

Déline's elders also remind us that, in times past, laws have often been imposed upon the Dene, with little or no consultation, by the federal and territorial governments. Their exclusion from decision-making has created an unhealthy relationship between the Dene and other Canadians, as represented by the Crown. The elders want to change that relationship. They see the cooperative development of the GBL Management Plan — and its incorporation into the Sahtu Land Use Plan — as an opportunity for all three natural levels of government — Déline, the Northwest Territories and Canada — to work together in the development of one law for the good of all.

The elders see the development of the GBL Management Plan and the Sahtu Land Use Plan as complementary to the settlement of the Sahtu Dene and Metis Comprehensive Land Claim Agreement (the "SLCA") in 1993 and to the current negotiation of the Déline Self Government Agreement ("DSGA"). Indeed, they assert that the SLCA and the resource management regime it envisages is currently incomplete — that this regime will only be complete with the approval of the Sahtu Land Use Plan — and that significant developments in the watershed should not be allowed to proceed until the Land Use Plan is approved. They see the Sahtu Land Use Plan and the "law" it would create as being based on the consensus of all three levels of government, and on their common aspirations for this unique part of the world. They see the Management Plan/Sahtu Land Use Plan as an opportunity to bring Dene traditional laws and values into the system of laws by which we govern ourselves."

Déline has worked closely with the Sahtu Land Use Planning Board to ensure that its values and its vision for the GBLW are entrenched in the Sahtu Land Use Plan. The Conservation Zones and the Special Management Area are a direct result of that engagement. The creation of Sahoyúé-?Ehdacho National Historic Park was possible only because of the vision and tenacity of the Déline, particularly its elders.

The effects of over-harvesting of large trout have been seen in the past in parts of GBL; the effects of over-harvesting of muskox almost drove that species to extinction; boreal woodland caribou is now listed as a threatened species under SARA; barren-ground caribou herds have declined recently, some dramatically; and in some local areas, the effects of poor mining practices scarred the land and polluted local waters. Diligence is required if the ecological integrity of the GBLW is to be maintained.

10.7 Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the biosphere reserve.
(Refer, for instance, to the UNESCO Atlas of Endangered languages (http://www.unesco.org/culture/languages-atlas/index.php)).

- English (spoken and written)
- French (spoken and written)
- North Slavey (or *Sahtúot'ı̨nę Yatı̨*) (spoken and written). There are three dialects spoken in the proposed biosphere reserve:
    - K'áshogot'ıne (Hare, spoken by the *Gahwié gotinè* - "Rabbitskin People" or *K'áshogot'ıne* - "Great Hare People", referring to their dependence on the varying hare for food and clothing, also called *Peaux de Lievre* or *Locheaux*)
    - Sahtúgot'ıne (Bear Lake, spoken by the *Sahtu Dene* or *Sahtú gotine* - "Bear Lake People", also known as *Gens du Lac d'Ours*)
    - Shıhgot'ıne (Mountain, spoken by the *Shıhgot'ıne*, *Shuhtaot'ine* or *Shotah Dene* -"Mountain People" or *Mountain Indians*, also called *Nahagot'ine*, *Nahaa* or *Nahane Dene* - "People of the west", so called because they lived in the mountains west of the other Slavey groups, between the Mackenzie Mountains and the Mackenzie River, from the Redstone River to the Mountain River)
- Tlichô (or Tłı̨chǫ Yatìì**)** (spoken and written)

11. BIOPHYSICAL CHARACTERISTICS:

11.1 General description of site characteristics and topography of area:
(Briefly describe the major topographic features (wetlands, marshes, mountain ranges, dunes etc.) which most typically characterize the landscape of the area).

The following descriptions have been taken from the report "Great Bear Lake Terrestrial Review" Version 2.0 15 March 2004, by Colin Macdonald, Northern Environmental Consulting. Maps follow.

Southern Arctic Ecozone
This ecozone extends across northern Canada, with over 80% of its land area west of Hudson Bay. One section of the ecozone (Dease Arm Plain) makes up the north shore of GBL and provides habitat for major species like the Bluenose-East and -West caribou herds and muskox. The terrain consists largely of broadly rolling uplands and lowlands and is underlain for the most part by Precambrian granitic bedrock. Cryosols are the dominant soils, and are underlain by continuous permafrost with active (thaw) layers that are usually moist or wet throughout the summer. This ecozone represents a major area of vegetative transition between the taiga forest to the south and the treeless arctic tundra to the north. Typical shrubs include dwarf birch, willow, and heath species; these are commonly mixed with various herbs and lichens. It is also a major breeding and nesting ground for a variety of migratory birds. Representative species include the yellow-billed, arctic, and red-throated loon, whistling swan, snow goose, long-tailed duck, gyrfalcon, willow and rock ptarmigan, northern phalarope, parasitic jaeger, snowy owl, hoary redpoll, and snow bunting.

Ecoregion #35 - Dease Arm Plain

The Dease Arm Plain covers the upland from just east of the Mackenzie Delta to Dease Arm of GBL. Tall shrub tundra, usually consisting of dwarf birch and willow, is the most common vegetative cover. The southern boundary of the ecoregion meets the GBL Plain of the Taiga Plains ecozone which forms the northern shore of Smith and Dease arms of GBL. Dominant plant species in the Dease Arm Plain consist of stunted stands of black spruce and tamarack with secondary quantities of white spruce and ground cover of dwarf birch, willow, cottongrass, lichen, and moss. The rolling landscape is generally below about 300 m above sea level elevation and is covered by glacial drift and outwash. A wide range of cryosolic soils, as well as eutric and dystric brunisolic soils, have formed on hummocky to undulating, loamy glacial till. Characteristic mammals include caribou, moose, black and grizzly bear, lynx, red and arctic fox, and snowshoe hare. Representative birds include sparrow, songbirds, spruce grouse, osprey, and waterfowl.

Taiga Plains Ecozone

The ecoregions of this ecozone make up the majority of western portions of the GBL watershed. Overall, the ecozone extends from the Beaufort Sea southward to northern Alberta and includes the Mackenzie River Basin. This ecozone is the northern extension of the flat Interior Plains and has relatively low relief. The broad lowlands and plateaus contain major rivers that can show elevational differences of several hundred meters. The ecozone is underlain by horizontal sedimentary rock (limestone, shale and sandstone). Low-lying wetlands cover 25–50% of the zone. A large portion of the area is underlain by permafrost which acts to perch the surface water table and promote a regional overland seepage system. The predominant tree species is black spruce. Shrubs include dwarf birch, Labrador tea, and willow. Upland and foothill areas and southerly locales are characterized by white and black spruce, lodgepole pine, tamarack, white birch, trembling aspen, and balsam poplar. White spruce and balsam poplar grow to sizes comparable to the largest in the boreal forests to the south. Mammal species include moose, woodland caribou, wood bison, wolf, black bear, marten, lynx, and arctic ground squirrel. Common bird species include the common redpoll, gray jay, common raven, redthroated loon, northern shrike, sharp-tailed grouse, and fox sparrow. The Mackenzie Valley forms one of North America's most travelled migratory corridors for waterfowl (ducks, geese, and swans) breeding along the Arctic coast.

Ecoregion #52 - Great Bear Lake Plain

The southern portion of this ecoregion makes up the majority of the shoreline of GBL and includes Saoyú-ʔehdacho. The ecoregion is classified as having a high subarctic ecoclimate. The northern limits of tree growth are reached along its northern boundary. The predominant plants are black spruce and tamarack with secondary quantities of white spruce and a ground cover of dwarf birch, willow, shrubs, cottongrass, lichen, and moss. Poorly drained sites usually support tussocks of sedge, cottongrass, and sphagnum moss. Low shrub tundra, consisting of dwarf birch and willow, is also common. As elevations gradually increase southward, entrenched river channels lie some 60–150 m below the surrounding surface. Soils consist of turbic cryosols with static and organic cryosols developed on organic deposits with deep permafrost. Wildlife includes caribou, moose, black bear, wolf, red fox, snowshoe hare, and beaver. Common birds include spruce grouse, raven, osprey, and waterfowl.

Ecoregion #55 Norman Range

This ecoregion extends from Fort Good Hope on the east side of the Mackenzie River to Willowlake River south of GBL. Vegetation is dominated by open stands of black spruce with an understory of dwarf birch, Labrador tea, lichen, and moss. Drier and warmer sites tend to have more white spruce, paper birch, and some aspen. The Norman Range forms a series of north-south trending, linear, relatively low ridges, largely of resistant Palaeozoic carbonates, and

reaching elevations of about 1040 m asl. The surface of the ecoregion is covered with steeply sloping to undulating glacial drift, colluvium, and organic deposits in the form of polygonal peat plateaus. Turbic and organic cryosols, as well as eutric brunisols, are the dominant soils. In the area northeast of Fort Good Hope, ice wedges and pingo ice are more abundant. Characteristic wildlife includes caribou, moose, grizzly and black bear, wolf, coyote, beaver, snowshoe hare, muskrat, and red fox. Common birds include spruce grouse, raven, and osprey.

Ecoregion #57 - Grandin Plains

This ecoregion occurs between the Dease and McTavish arms at the northeast corner of GBL and includes Edaįįla, a culturally significant area to the people of Déline. The latitudinal limits of tree growth are reached along its eastern boundary which runs along the eastern edge of the Sahtu Settlement Area. The predominant vegetation consists of open, stunted stands of black spruce and tamarack with white spruce, and a ground cover of dwarf birch, willow, cottongrass, lichen, and moss. Wetlands cover approximately 25% of the ecoregion, and are characteristically peat plateau bogs, and ribbed and horizontal fens. Characteristic wildlife includes moose, black bear, beaver, fox, wolf, snowshoe hare, raven, and spruce grouse.

Ecoregion #59 - Keller Lake Plain

This ecoregion encompasses the culturally significant area of the Johnny Hoe River and lakes Taché and Grandin south of the McVicar Arm of GBL. The predominant vegetation consists of open stands of black spruce with an understory of dwarf birch, Labrador tea, lichen, and moss. Drier and warmer sites tend to have more white spruce, paper birch, and some aspen. The ecoregion is composed of Cretaceous shale, its surface is generally below 310 m asl and is covered by undulating, peat-covered glacial drift and outwash deposits. Turbic and organic cryosols, developed on organic and loamy morainal deposits, are the dominant soils in the ecoregion. Wetlands cover over 25% of this ecoregion, which also includes the southeastern portion of Great Bear Plain. Characteristic wildlife includes caribou, moose, black bear, wolf, red fox, coyote, beaver, snowshoe hare, muskrat, spruce grouse, raven, and waterfowl.

Taiga Shield Ecozone

This ecozone lies on either side of Hudson Bay and below the southern Arctic ecozone. The segment to the west of Hudson Bay extends from the southeastern edge of GBL south to northern Manitoba. The section of the ecozone that lies within the GBL drainage area makes up the ecoregion termed the Coppermine River Upland. This ecoregion falls outside the Sahtu Settlement Area and is in the traditional lands of the Tlichô but provides much of the drainage for the Camsell River, the major inlet to GBL. Many of the abandoned mines (e.g., Terra mine) in the Great Bear Lake watershed are also in the Coppermine River upland.

The Taiga Shield ecozone is largely defined by two very large biophysical features, the Taiga Forest and the Canadian Shield. The world's oldest rocks are found on the Taiga Shield north of Great Slave Lake. Most of this ecozone consists of broadly rolling terrain composed of a mosaic of uplands and associated wetlands. It is dominated by Precambrian bedrock outcrops and discontinuous hummocky and ridged morainal deposits.

Ecoregion #68 - Coppermine River Upland

This ecoregion extends from the McTavish Arm of GBL to Howard Lake in the central District of Mackenzie in the Canadian Shield. Many of the abandoned mines in the GBLW are situated in these uplands. The ecoregion is part of the tundra and boreal forest transition, where the latitudinal limits of tree growth are reached. The predominant vegetation consists of open stands of black spruce and tamarack with secondary quantities of white spruce and a ground cover of dwarf birch, willow, ericaceous shrubs, cottongrass, lichen, and moss. Poorly drained sites usually support

tussocks of sedge, cottongrass, and sphagnum moss. Low shrub tundra, consisting of dwarf birch and willow, is also common. Bare rock outcrops are common, and dystric brunisols with some turbic, static, and organic cryosols are the dominant soils in the ecoregion. The soils have formed on discontinuous veneers and blankets of hummocky to rolling, sandy morainal, fluvioglacial, and organic deposits. Characteristic wildlife includes caribou, moose, grizzly and black bear, snowshoe hare, fox, wolf, beaver, muskrat, osprey, raven, spruce grouse, and waterfowl.

						Bear Lake Drainage Area		
Ecozone Name	**Ecoprovince**	**Ecoregion Number**	**Ecoregion Name**	**Ecodistricts in GBL Watershed**	**Contribution to GBL Drainage Area**	**Approximate Area of Ecoregion in Drainage Area (ha)**	**Percent Land in Ecoregion**	**Elevation**
Southern Arctic	Amundsen Lowlands	35	Dease Arm Plain	148, 149	Major	1.64×10^6	84.0	375 (229 - 672)
		36	Coronation Hills	151	Minor	Not estimated	85.2	436 (39 – 814)
Taiga Plains	Great Bear Lowlands	52	Great Bear Lake Plain	202, 203, 204, 205, 206, 207	Major	6.62×10^6	51.6	250 (112 – 542)
		54	Colville Hills	215	Minor	Not estimated	69.6	302 (161 – 700)
		55	Norman Range	217, 218, 219	Major	3.71×10^6	88.0	307 (102 – 929)
		57	Grandin Plains	223, 224	Major	9.76×10^6	70.6	286 (185 – 544)
		58	Franklin Hills	225	Minor	Not estimated	97.3	448 (3 – 1512)
		59	Keller Lake Plain	227, 228, 229	Major	2.69×10^6	80.5	344 (187 – 701)
		60	Great Slave Lake Plain	231	Major	6.16×10^5	92.3	319 (152 – 609)
Taiga Shield	Western Taiga Shield	68	Coppermine River Upland	255, 257	Major	6.33×10^6	59.3	326 (153 – 636)

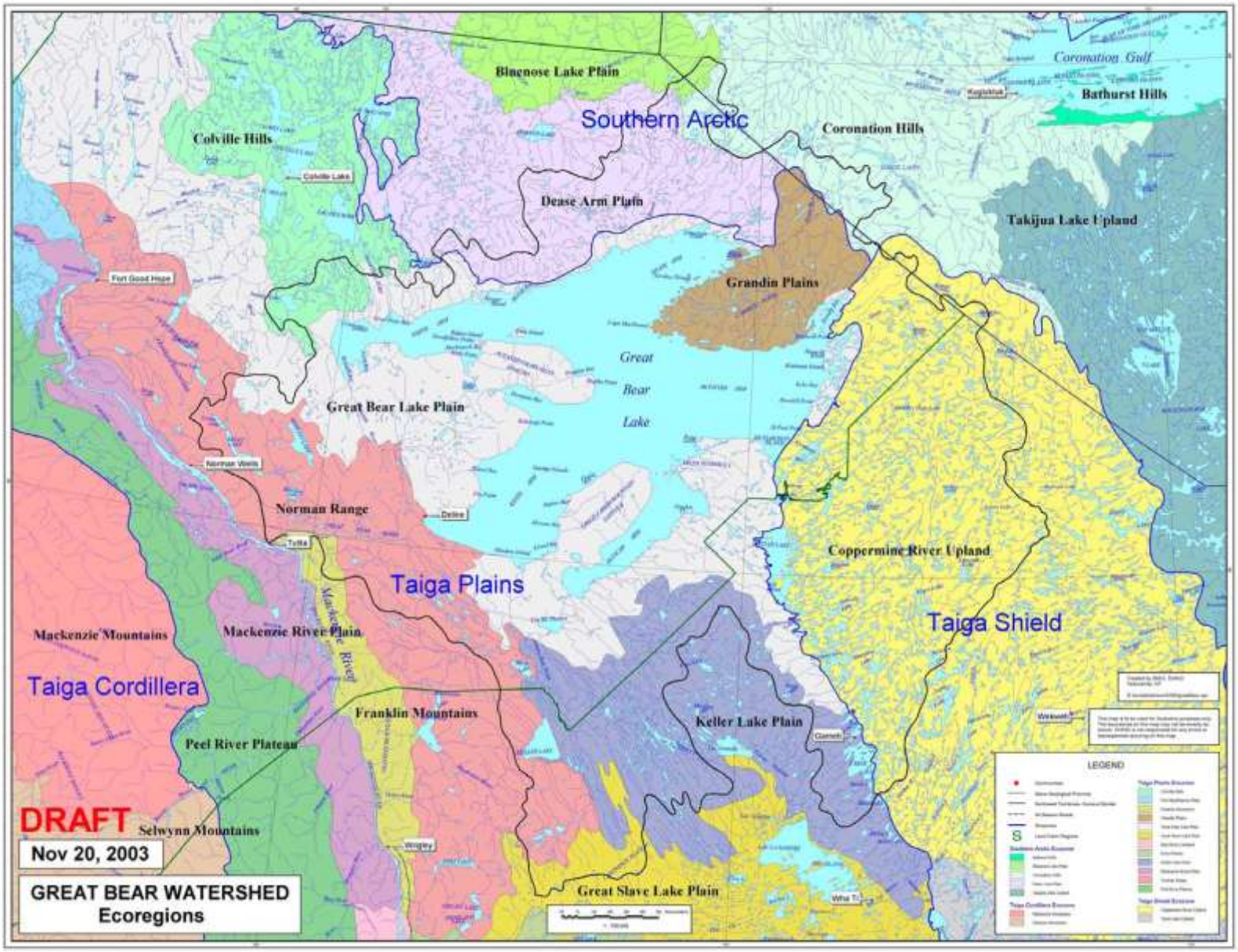


Figure 1: Map of Great Bear Lake watershed showing ecozones and ecoregions.

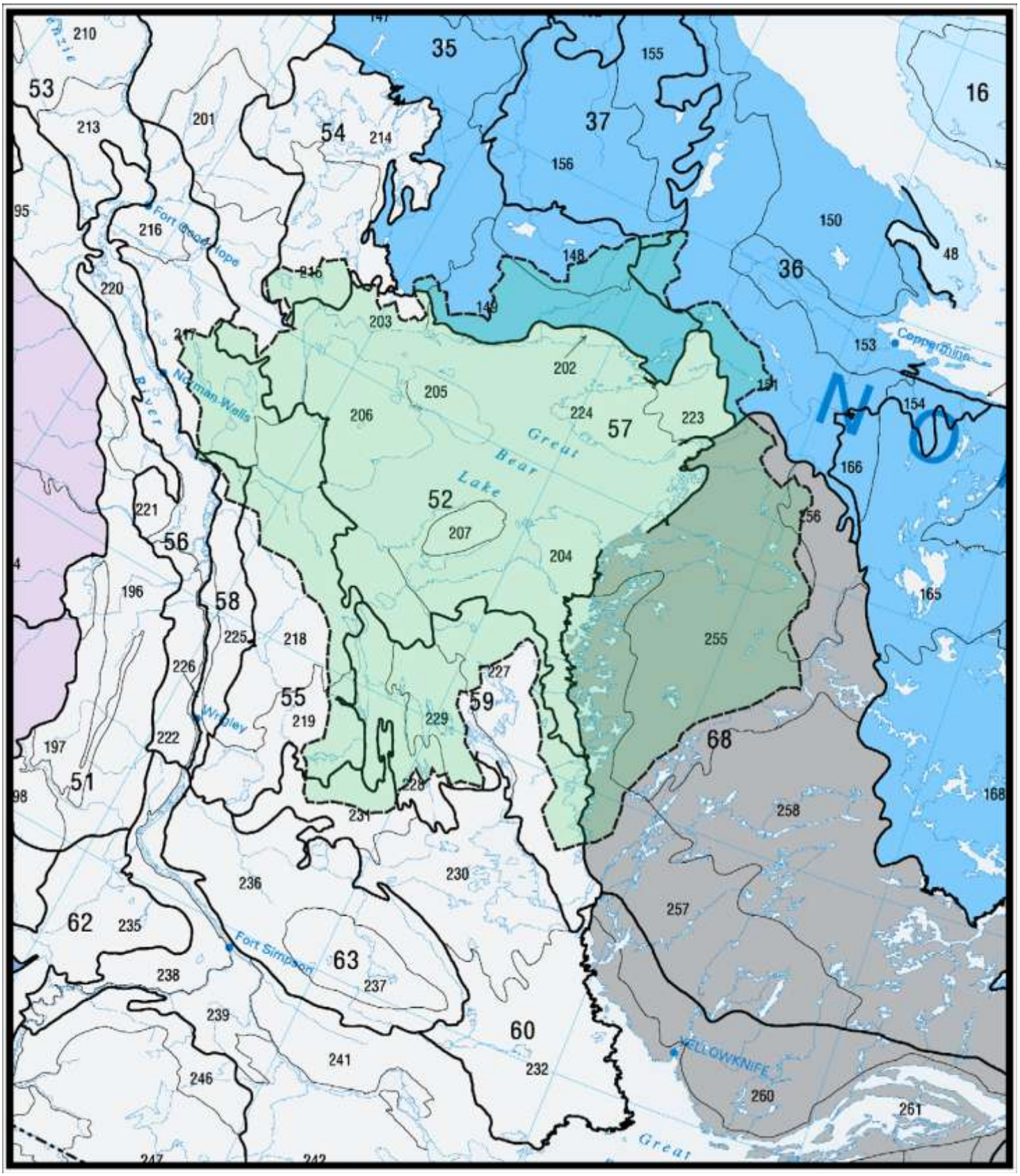


Figure 2: Map of the Great Bear Lake watershed (approximate; shaded green) with the placement of ecodistricts.

11.2 Altitudinal range:

11.2.1 Highest elevation above sea level: **747** metres

11.2.2 Lowest elevation above sea level: **186** metres

11.2.3 For Great Bear Lake: maximum depth: **446** metres.

11.3 Climate:
(Briefly describe the climate of the area, you may wish to use the regional climate classification by Köppen as suggested by WMO (http://www.wmo.int/pages/themes/climate/understanding_climate.php)).

Köppen category Dfc: cool continental climate/subarctic climate

11.3.1 Average temperature of the warmest month: **+10 to +15°C**

11.3.2 Average temperature of the coldest month: **-25 to -30°C**

11.3.3 Mean annual precipitation: **277 mm**, recorded at an elevation of **186** metres

11.3.4 Is there a meteorological station in or near the proposed biosphere reserve? If so, what is its name and location and how long has it been operating?

There is a weather station in Déline which has been operating continuously since…… A weather station operated at Port Radium from ….to….. , at Sawmill Bay from ….to…., at Plummer's Lodge from ….to….

11.4 Geology, geomorphology, soils:
(Briefly describe important formations and conditions, including bedrock geology, sedimentary deposits, and important soil types).

All ecoregions in the Great Bear Lake watershed contain permafrost and ground ice, although the type and extent varies. The southern ecoregions and the Great Bear Lake watershed contain mostly discontinuous permafrost (>90%) with varying levels of ground ice (10-20%). Continuous permafrost and medium and high (>20%) levels of ground ice are present in the Great Bear Lake Plain and the Norman Range areas. The area-weighted average for the watershed (Figure 3) indicates that discontinuous permafrost extends over 50-90% of a large portion of the land with smaller areas of continuous permafrost and 10-20% ground ice.

The ecological framework designates surface material into five major categories, including ice and snow, urban areas, organic soils, rock and mineral soils. Three of the major classes are represented in the Great Bear Lake watershed. Mineral soils (defined as predominantly mineral particles with <30% organic matter) dominate across the watershed, with an area-weighted average of 65.6% of the land. Organic soils (contains >30% organic matter by weight) comprise 29% of the total, while rocks make up about 5%.

Surface material composition varies considerably between ecoregions. Surface materials in the Dease Arm Plain and Grandin Plains are predominantly mineral soils (>80%) with few organic soils

(<20%). In contrast, surface materials in the southern region have lower proportions of mineral soils (50-55%) and higher levels of organic soil (40-45%). The highest proportion of rock as surface material is found in the Coppermine River upland at 18%.

The percent land ranges from a low of 52 % for the lands immediately surrounding the lake to over 92% in the Great Slave Lake Plain. Over the watershed, approximately 67% of the area is land and 33% water.

The elevation of the ecoregions within the watershed is relatively uniform, although some areas show greater extreme values. The mean elevation (uncorrected for the size contribution of the individual ecodistricts) for the drainage basin is 316 m a.s.l. (above sea level), with a minimum mean of 102 m a.s.l. in the Norman Range and a maximum mean of 229 m a.s.l. in the Dease Arm Plain. The major ecoregions that form the majority of the basin for the watershed have mean elevations of about of 250 m (Great Bear Lake Plain) to 375 a.s.l. in the Dease Arm Plain. The elevation difference (the difference between minimum and maximum elevation) remains relatively consistent throughout the watershed at 400 to 500 m a.s.l.

11.5 Bioclimatic zone:

(Indicate the bioclimatic region in which the proposed biosphere reserve is located, refer to the table below and tick the appropriate box for each area of the biosphere reserve).

The proposed biosphere reserve is located in a cold, arid climate zone.

Areas	Average annual rainfall/mm	Aridity index		Core area(s)	Buffer zone(s)	Transition area(s)
		Penman	(UNEP index)			
Hyper-arid	P<100	<0.05	<0.05			
Arid	100-400	0.05-0.28	0.05-0.20	X	X	X
Semi-arid	400-600	0.28-0.43	0.21-0.50			
Dry Sub-humid	600-800	0.43-0.60	0.51-0.65			
Moist Sub-humid	800-1200	0.60-0.90	>0.65			
Per-humid	P>1200	>0.90				

Table 1: Aridity index resulting from the use of P/ETP
*Mean annual precipitation (**P**)/mean annual potential evapotranspiration (**ETP**)*

11.6 Biological characteristics:

List main habitat types (e.g. tropical evergreen forest, savannah woodland, alpine tundra, coral reef, kelp beds) and land cover types (e.g. residential areas, agricultural land, pastoral land, cultivated areas, rangeland).

Land cover in the proposed biosphere reserve ranges from tundra and sparsely vegetated/barren land (primarily in Grandin Plain) to a mixed forest of conifers and broadleaf in the Norman Range. The most dominant type of land cover is transitional forest. The land-area weighted proportions for the watershed showed that the transitional forest was the dominant cover type (72%), followed by tundra (13.5%) and coniferous forest (11.5%). The sparsely vegetated/barren area, which is found only in the lands surrounding the Dease Arm, accounts for about 1% of the total watershed.

For each type, indicate:
- REGIONAL if the habitat or land cover type is widely distributed within the biogeographical region within which the proposed biosphere reserve is located, to assess the habitat's or land cover type's representativeness;

- LOCAL if the habitat or land cover type is of limited distribution within the proposed biosphere reserve, to assess the habitat's or land cover type's uniqueness.

For each habitat or land cover type, list characteristic species and describe important natural processes (e.g. tides, sedimentation, glacial retreat, natural fire) or human impacts (e.g. grazing, selective cutting, agricultural practices) affecting the system. As appropriate, refer to the vegetation or land cover map provided as supporting documentation.

See ecoregion and ecodistrict descriptions in section 11.1, above.

12. ECOSYSTEM SERVICES:

12.1 If possible, identify the ecosystem services provided by each ecosystem of the biosphere reserve and the beneficiaries of these services.

(Please refer to the Millennium Ecosystem Assessment Framework and The Economics of Ecosystems and Biodiversity (TEEB) Framework (http://millenniumassessment.org/en/Framework.html and http://www.teebweb.org/publications/teeb-study-reports/foundations/)).

It is impractical to break down ecosystem services by ecosystem in the proposed Great Bear Lake biosphere reserve. A more general approach follows.

The GBL watershed sustains resources that allow the Sahtugot'ine people to maintain their traditional lifestyles and to underpin much of Déline's economy. The subsistence value of Déline's resource harvesting (largely caribou and fish) is estimated at over $800,000 per year.

Harvest statistics gathered by the SRRB indicate that Sahtu hunters and trappers commonly harvest approximately 20 large and small mammal species and 30 bird species. Of these, barren ground caribou are clearly the most economically important to the community of Déline. Between 2000 and 2003, for example, Déline hunters harvested between approximately 1200 and 1600 barren ground caribou annually, while in 1999 only approximately 30 boreal woodland caribou and 15 moose were taken. Musk-ox, the other large mammal, is used largely for sports hunting purposes.

In terms of the weight and economic value of the harvest, the Bluenose-East caribou herd is clearly the most important harvest resource of the Sahtu settlement area. Using a $20/kg meat replacement value, ENR estimated the herd's meat replacement value alone, were hunters to buy comparable meat in their local stores, to be worth $800 per animal. This estimate obviously does not include the cultural value of the herd and its harvest, or the herd's potential value to the big game hunting industry in the Sahtu. In recent years, declining Bluenose East caribou numbers

have resulted in reduced subsistence harvest and the elimination of the resident (non-aboriginal) hunter and outfitter take but more recent indications are that the herd is recovering.

Notwithstanding the apparent abundance of trophy-size fish, the very slow growth rate of these fish and the low primary productivity of GBL mean that their harvest mortalities must be kept at a low to moderate level. Subsistence fishing has important value for the Déline with an estimated annual value of $66,000.

In Déline alone, trapping (largely marten) has an average value of just under $40,000 annually. Renewable resource harvests that are more difficult to quantify include wood harvesting (estimated value of $50,000), sport hunting by non-Aboriginals (rough estimated value of $250,000) and the use of renewable resources in arts and crafts (estimated to between $40,000 and $100,000).

Renewable energy in the form of hydroelectricity has been considered as having potential. However, the lack of major markets for the hydro power and the cost of development have reduced the feasibility of such developments.

The GBL watershed provides water for domestic and industrial uses in Déline and elsewhere around the lake. Sewage from Déline is treated through a natural wetland, obviating the need for multi-million dollar investments in sewage treatment facilities.

12.2 Specify whether indicators of ecosystem services are used to evaluate the three functions (conservation, development and logistic) of biosphere reserves. If yes, which ones and give details.

No.

12.3 Describe biodiversity involved in the provision of ecosystems services in the biosphere reserve (e.g. species or groups of species involved).

See 12.1

12.4 Specify whether any ecosystem services assessment has been done for the proposed biosphere reserve. If yes, is this assessment used to develop the management plan?

High-level qualitative ecosystem services assessments were done for the Great Bear Lake watershed management plan and in the development of the Sahtu Land Use Plan.

13. MAIN OBJECTIVES FOR THE BIOSPHERE RESERVE'S DESIGNATION:

13.1 Describe the main objectives of the proposed biosphere reserve, integrating the three functions (conservation, development and logistic), presented below (sections 14 to 16), including components of biological and cultural diversity. Please specify the indirect pressures and/or organizational issues.

The main objectives of the proposed Great Bear Lake biosphere reserve are: to maintain the ecosystem integrity of the watershed and Great Bear Lake and by doing so to enable the maintenance of Sahtugot'ine cultural integrity; to enable responsible economic development within

the context of sound environmental stewardship; to provide a vehicle for implementing the Great Bear Lake watershed management plan; and to ensure that the environmental and cultural values of the Great Bear Lake watershed remain unimpaired for the benefit of all Canadians.

13.2 Describe the sustainable development objectives of the biosphere reserve.
(If appropriate, please refer to Agenda 21, Rio+20 and SDG post 2015).

Biosphere reserve designation would provide international recognition and "oversight" that would support the objectives set out above and the vision of the Sahtugot'ine. The Sahtugot'ine support responsible economic development, development that would benefit the residents of the region without harming the ecological values they hold so important, that are so central to their cultural and spiritual well-being.

13.3 Indicate the main stakeholders involved in the management of the biosphere reserve.

Déline Band Council
Déline Renewable Resources Council
Déline Land Corporation
Sahtu Renewable Resources Board
Sahtu Secretariat Inc.
Sahtu Land Use Planning Board
Sahtu Land and Water Board
Government of the Northwest Territories
Parks Canada, Fisheries and Oceans Canada, Canadian Wildlife Service
ENGOs
Industry

13.4 What consultation procedure was used for designing the biosphere reserve?

Preliminary discussions were held with Déline representatives to determine the level of interest in the establishment of a biosphere reserve. There is support in principle for proceeding with the initiative, subject to ongoing consultation and clarification regarding operational implications. This work is underway.

13.5 How will stakeholder involvement in implementing and managing the biosphere reserve be fostered?
The project will be led by the Déline Renewable Resources Council with support from other Déline organizations notably the Déline Band Council and Déline Lands Corporation. It will be advised by a council of Déline elders. Other Sahtu agencies including Sahtu Secretariat Inc, Sahtu Land and Water Board, and Sahtu Land Use Planning Board, will be directly involved in developing and implementing the biosphere reserve management plan as they were in developing and advocating for the Great Bear Lake Watershed management plan. Other government agencies, ENGOs and industry will be expected to provide political, financial and technical support.

All these parties share common interests in the Great Bear Lake watershed. The project will create and foster a common vision and a common commitment to achieving that vision, based on the Great Bear Lake Watershed management plan and set in the context of the Sahtu Land Use Plan.
13.6 What are the expected main sources of resources (financial, material and human) to implement the objectives of the biosphere reserve and projects within it?

(Please provide formal commitments and engagements.)

Projected:
Déline Band Council: political support
Déline Renewable Resources Council: human resources, infrastructure support; technical support; limited financial support
Déline Land Corporation: human resources, infrastructure support; technical support; limited financial support
Sahtu Renewable Resources Council: human resources, infrastructure support; technical support; limited financial support
Sahtu Secretariat Inc.: political support
Sahtu Land Use Planning Board: technical support
Sahtu Land and Water Board: technical support
Government of the Northwest Territories: financial support; technical support; infrastructure support
Parks Canada, Fisheries and Oceans Canada, Canadian Wildlife Service: financial support; technical support; infrastructure support
ENGOs: political support; financial support; technical support
Industry: political support; financial support; technical support; infrastructure support

14. CONSERVATION FUNCTION:

14.1. At the level of landscapes and ecosystems (including soils, water and climate):

14.1.1 Describe and give the location of ecosystems and/or land cover types of the biosphere reserve.

See 11.1.

14.1.2 Describe the state and trends of the ecosystems and/or land cover types described above and the natural and human drivers of the trends.

The following is drawn from: NWT State of the Environment – Highlights 2011. Department of Environment and Natural Resources, Government of Northwest Territories, Yellowknife. NT. 56 pp

Driving Forces
The effects of climate change are happening faster in the Arctic than elsewhere. The largest increase in average temperature in Canada is in the Mackenzie Valley. In some years or decades, large natural fluctuations in weather will enhance the effects of climate change and may cause rapid and unpredictable changes in the environment.

The effects of climate change, especially those due to warmer winters and heavier snowfalls, are being observed on many aspects of the NWT's environment. These include rising sea levels and storm surges; melting sea ice and permafrost; changing thermokarst; changing distribution of some species; and longer fire seasons.

While the human population of the NWT is not increasing at a rapid rate, the use of fossil fuels for energy is increasing. The proportion of NWT people living in large and medium-sized communities is still increasing.

The NWT economy is less diverse than 10 years ago, and is mainly based on nonrenewable resource development.

Use of Aboriginal languages continues to decline throughout the NWT. These languages are important for the preservation and transfer of Aboriginal traditional knowledge to future generations.

Pressures
During the past few years, human activities have declined throughout the NWT. The type and level of these activities change as the world economy changes.

Seismic lines and wildland fires are the main sources of landscape change in the NWT.

State
Some migratory bird species once common, such as the redknot, common nighthawk, rusty blackbird, olive-sided flycatcher, Canada warbler, horned grebe, and the barn swallow are now in sharp decline and at risk. Barren-ground caribou herds in the NWT were in decline during the past 10 years. Herd numbers are now stabilizing, but some remain very low. Large changes in caribou numbers are also occurring elsewhere in North America and may be due to natural fluctuations related to climate.

Winter water flows are increasing in rivers in the NWT.

Some indirect effects of a warmer climate are being observed or suspected. Earlier springs may be partly responsible for changes in the timing of insect emergence, leading to declines in some bird populations that rely on insects to feed their young. Climate change also contributes to increased levels of mercury in predatory fish as longer summer seasons allow for changes in the bioaccumulation of mercury in fish.

Stewardship
The use of environmental resources in the NWT is changing. Hunting and fishing remain important but are declining. Trapping has declined. Participation in tourism activities related to the environment is low and variable.

The use of country food by NWT residents living in large and medium sized communities is low.

More environmental stewardship programs, such as the NWT Species at Risk Stewardship Program, are being developed.

14.1.3 What kind of protection regimes (including customary and traditional) exist for the core area(s) and the buffer zone(s)?

See 4.5.

14.1.4 Which indicators or data are used to assess the efficiency of the actions/strategy used?

The indicators which will be used to assess the efficiency of the actions/strategy used will be drawn from the GNWT's State of the Environment Reporting program. Relevant key indicators include:

Pressures

Demography – trends in demography in NWT ecozones; trends in the use of Aboriginal languages in NWT ecozones
Economy – trends in GDP; trends in oil-gas and mineral production by ecozone
Energy use – trends in total energy development; trends in greenhouse gas emissions
Human activities – trends in air traffic, road traffic and land uses requiring a permit
Landscape changes – road density and other linear features; seismic line density; area of commercial forest harvest
Contaminants – trends in cadmium and mercury in caribou kidneys; trends in environmental remediation of contaminated sites; trends ins spills of hazardous materials; status of mercury in fish

State
Water – trends in winter flow in GBL watershed rivers; trends in Great Bear Lake levels
Air – criteria air contaminants indicator
Permafrost – ground temperature in permafrost zones; trends in active layer thickness; trends in thermokarst
Vegetation – land cover type by ecozone; position of treeline; annual area burned and number of fires; trends in alien plant species; status of species harmful to forests in the GBL watershed
Wildlife

Wildlife population fluctuations: trends in willow ptarmigan and grouse in tundra-taiga ecosystems; trends in small mammals and hares in ecosystems
Caribou: trends in barren-ground caribou population size in tundra-taiga ecosystems
Changes in wildlife distribution: trends in range expansion of mammals; trends in number of introduced and alien mammals, fish and birds
Wildlife health: trends in winter tick in moose
Birds: trends in migratory bird populations
Fish: state of lake trout

Species at Risk – species at risk index; trends in GBL watershed populations of species at risk in Canada; status of peregrine falcon; status of woodland caribou
Genetic resources – status of endemic and rare species in the GBL watershed

Stewardship
Use of Renewable Resources – trend in volume of commercial timber harvest; trends in hunting and fishing; country food use in ecozones; trends in trapping; trend in ecotourism; trend in visitation to the biosphere reserve
Environmental awareness – environmental education experiences for youth; participation in environmental programs
Protected areas and land use planning – trends in protected areas and land use plans

14.2 At the level of species and ecosystem diversity:

14.2.1 Identify main groups of species or species of particular interest for the conservation objectives, especially those that are endemic to this biosphere reserve, and provide a brief description of the communities in which they occur.

Mammals
Grizzly: widespread
Wolverine: widespread
Boreal caribou: widespread

Barren-ground caribou: widespread

Birds
Eskimo Curlew: possible; likely extinct
Olive-sided flycatcher: widespread
Red knot: widespread
Peregrine falcon (tundra-type): northern region
Canada warbler: widespread
Common Nighthawk: widespread
Rusty Blackbird: widespread
Peregrine falcon (forest-type): widespread
Short-eared owl: widespread
Yellow rail: occasional
Horned grebe: widespread

Fish
Shortjaw cisco: widespread

14.2.2 What are the pressures on key species? In other words: what are the threats (example unsustainable management of forest), their immediate causes (drivers of change like forest change or habitat change), their underlying causes (example overgrazing, fire, pollution), and the main driving forces (example: economic, political, social, external, etc.) and the area(s) concerned?

See 14.1.4

14.2.3 What kind of measures and indicators are currently used, or planned to be used to assess both species groups and the pressures on them? Who undertakes this work, or will do so in the future?

See 14.1.4 for indicators.

NWT State of the Environment reporting: GNWT/ENR
NWT Cumulative Impact Monitoring Program and Audit: GNWT/ENR
State of the Aquatic Environment reporting: Mackenzie River Basin Board

14.2.4 What actions are currently undertaken to reduce these pressures?

The NWT Species at Risk Act requires the implementation of a recovery program for species at risk.

14.2.5 What actions do you intend to take to reduce these pressures?

Key steps will include the implementation of monitoring and research programs and taking appropriate adaptive management actions including regulatory measures as necessary.

14.3. At the level of genetic diversity:

14.3.1 Indicate species or varieties that are of importance (e.g. for conservation, medicine, food production, agrobiodiversity, cultural practices etc).

The most common country foods consumed by Sahtugot'ine include: caribou, moose, ducks, geese, hare, grouse, ptarmigan, lake trout, whitefish, blueberries, cranberries, blackberries, and cloudberries. None are currently at risk in the proposed biosphere reserve**.** Medicinal plants include cloudberries, common yarrow, fireweed, common plantain, rat root, crowberry, Labrador tea, cranberry, prickly wild rose, soapberry, black spruce, jack pine, tamarack and, balsam poplar. None are presently at risk.

14.3.2 What ecological, economic or social pressures or changes may threaten these species or varieties?

If not carefully controlled, industrial developments such as mining, oil and gas development, hydroelectric development and forestry could threaten important species. Climate change is altering ecosystems and may threaten some species in the proposed biosphere reserve.

14.3.3 What indicators, at the level of the species, are used, or will be used, to assess the evolution of population status and associated use?

See 14.1.4

14.3.4 What measures will be used to conserve genetic diversity and practices associated with their conservation?

Key steps will include the implementation of monitoring and research programs and taking appropriate adaptive management actions including regulatory measures as necessary.

15. DEVELOPMENT FUNCTION:

15.1. Potential for fostering economic and human development which is socio-culturally and ecologically sustainable:

15.1.1 Describe how and why the area has potential to serve as a site of excellence/model region for promoting sustainable development.

GBL and the GBLW are the homeland of the Sahtugot'ine, and part of an intact wilderness central to the psyche of all Northerners and many Canadians. It is the foundation of Sahtugot'ine cosmology, history and traditional law, of the transmission of the culture from the elders to the younger generation, and of Déline's renewable resource economy. As the Sahtugot'ine culture is intricately tied to the health of the lake, its watershed and the animals that inhabit the watershed, the maintenance of the ecological integrity of GBL and its watershed is of primary concern to the people of Déline. The land "contains" the people of Déline; they are part of it, and they define themselves largely by their relationship with it. They are willing to use and share the land with others (and they have traditionally welcomed others to their territory) but only on condition that the land and the community are kept healthy (that ecological and cultural integrity are maintained) and that Déline plays a fundamental role in GBLW management.

The ecological and cultural values of the proposed Great Bear Lake biosphere reserve have been articulated throughout this document. The entire area is a relatively undisturbed wilderness, enormous in extent and the homeland of the Sahtugot'ine. At the same time, it has significant mineral potential which, if developed carefully, could provide important economic benefits to Déline, and to residents of the Sahtu, the NWT and Canada.

Because of the importance of Great Bear Lake and its watershed to the Sahtugot'ine, and recognizing the need to take steps to ensure that if development occurred it did so in the context of sound environmental stewardship, Déline established a working group to develop a management plan. The working group consisted of many Déline elders and representatives of the Déline First Nation, the Déline Land Corporation, the Déline Renewable Resources Council, the Déline Self-Government team, the Déline Uranium Team, the federal Departments of the Environment, Fisheries and Oceans and Indian Affairs and Northern Development, the territorial Department of Environment and Natural Resources, the Sahtu Land Use Planning Board, the Sahtu Renewable Resources Board, the Mackenzie Valley Environmental Impact Review Board, and the Canadian Parks and Wilderness Society - NWT Chapter. The Sahtu Land & Water Board was an observer of the management planning process. The plan which resulted from this collaborative effort (*"The Water Heart": A Management Plan for Great Bear Lake and its Watershed*. Directed by the Great Bear Lake Working Group and facilitated and drafted by Tom Nesbitt (May 31, 2005, with Caveat of February 7, 2006) was then recommended to the Sahtu Land Use Planning Board, for incorporation into the Sahtu Land Use Plan.

The Sahtu Land Use Planning Board has completed its work and the Sahtu Land Use Plan (has been) approved by the respective levels of governments. It is a legally binding document that describes the context for development and conservation throughout the Sahtu. In the case of the Great Bear Lake watershed, the Plan draws heavily on the Great Bear Lake management plan and sets out protected areas, conservation zones and special management zones which, along with the respective conformity requirements, set the context for sustainable development.

The collaborative process used to develop the Great Bear Lake management plan, the role of Aboriginal peoples in developing the plan and in stewarding resources in the region, the content of the plan itself, the watershed values both ecological and cultural, and the incorporation of the management plan into the Sahtu Land Use Plan present what is arguably an unparalleled opportunity for promoting sustainable development in northern Canada. It would be the first – and only – international biosphere reserve in northern Canada.

15.1.2 How do you assess changes and successes (which objectives and by which indicator)?

See 14.1.4, the Sahtu Land Use Plan and the Great Bear Lake Watershed Management Plan for a list of performance indicators. Others will be developed as needed.

15.2. If tourism is a major activity:

Tourism is an important activity in the proposed biosphere reserve but is significant only on a local scale. Estimates vary but over a year, visitors coming to see the area outside Déline likely number no more than 100. Relatively few visitors come to the region now and most of those are there primarily for business purposes rather than purely as tourists.

15.2.1 Describe the type(s) of tourism and the touristic facilities available. Summarize the main touristic attractions in the proposed biosphere reserve and their location(s).

Déline Community Infrastructure	
Transportation Infrastructure	
All weather road	No
Winter road	Yes
Marine re-supply	No
Airport	Yes
Electricity Infrastructure	
Type of supply	diesel
Supplier	NTPC
Health Infrastructure	
Hospital	No
Health centre	Yes
Health station	No
Judicial infrastructure	
No. police officers	3
Municipal Infrastructure	
Fire Hall	1
Tourism Infrastructure	
Lodges/outfitters	15
Accommodations	1 hotel
Campgrounds	1
Restaurants	1
Visitor centre	0

North American trends show that ecotourism, adventure tourism, aboriginal culture tourism, educational tourism, and wildlife viewing are growth markets whereas hunting and fishing are not. The North American general touring and adventure travel markets are many times larger than sports fishing and hunting markets combined, and attracting more general touring and adventure travelers may be the key to any significant future growth for the tourism industry in the proposed biosphere reserve. Tourism that involves aboriginal cultural experiences is another growth sector in the tourism industry.

Several places in the study area have been identified as having outdoor recreation potential for archaeological/historical interest, camping, beach activities, and geological interest, including the Great Bear River for canoeing or jet boating, Déline for its cultural features, the Conservation Zones and Sahoyúé-ʔehdacho National Historic Site, and general adventure ecotourism opportunities throughout the proposed biosphere reserve. However, the cost of getting to Déline and beyond, limited infrastructure and other factors will continue to limit tourism for some time.

Attracting visitors requires more than just establishing a protected area. For example, in 2003, 1018 people visited Nahanni National Park Reserve, while only 6 visited Tuktut Nogait National Park. In the western Arctic, regional business travellers are the mainstay of the travel industry because seasonal tourism alone would not be sufficient to support the hotels and other facilities. The number of people who come to Déline now for ecotourism is not known but likely very small,

and certainly fewer than 100 annually. Geographical remoteness and limited capacity within Déline to support the industry present an ongoing challenge to the tourism industry in the study area.

5.2.2 How many visitors come to the proposed biosphere reserve each year? (Distinguish between single-day visitors and overnight guests, visitors only visiting the proposed biosphere reserve or only passing on the way to another place). Is there an upward or downward trend, or a particular target?

Sport fishing attracts the majority of tourists to the GBLW. In 2005, approximately 540 sport fishing licences were issued for Great Bear Lake. Sahtugot'ine do not require sport fishing licences and only about 40 residents of Déline are not Sahtugot'ine, so the licences were issued primarily for visitors. That said, the vast majority of these visitors would be in Déline primarily for business purposes and tourist-type activities are an add-on.

Estimates vary but over a year, visitors coming with the primary purpose of seeing the area outside Déline likely number no more than 100. The trend at present is stable or very slightly increasing with the creation of Sahoyúé-ʔehdacho National Historic Site.

15.2.3 How are tourism activities currently managed?

Tourism activities are currently managed on an ad hoc basis. Tourists requiring support can contact outfitters in Déline including Grey Goose Lodge and Great Bear Lake Outfitters Ltd. These enterprises are owned by the Déline Land Corporation and offer fishing or big game hunting packages and other ecotourism activities in the Great Bear Lake watershed. Plummer's Lodges, based in Manitoba and co-owned by Déline interests, has several lodges on Great Bear Lake from which it bases its sport fishing operations. Other support services (e.g. air transportation, fuel companies, service companies, etc.) all have either a direct or indirect interest in the tourism activities in the area and provide services in response to demand.

15.2.4 Indicate possible positive and/or negative impacts of tourism at present or foreseen and how they will be assessed (linked to section 14)?

Developments which could negatively affect the ecosystems or cultural resources of the proposed biosphere reserve would not only cause direct harm to those resources but reduce tourism opportunities in the future. Planning for tourism activities should consider that there are some places in the watershed, notably in Saoyú - ʔehdacho and the conservation zones, which should not be visited because they are sacred. Areas of significant biological importance will also require special management to ensure that their ecological integrity is not compromised by tourism activities.

15.2.5 How will these impacts be managed, and by whom?

Successful tourism development requires a strong management plan. The plan will be developed by the Déline Land Corporation in conjunction with the Déline Renewable Resources Council, the Déline Band Council, key tourism operators and other affected parties, notably parks Canada. It will be based on plans already developed for Saoyú - ʔehdacho.

15.3. Agricultural (including grazing) and other activities (including traditional and customary):

15.3.1 Describe the type of agricultural (including grazing) and other activities, area concerned and people involved (including men and women).

As noted earlier, there is no agricultural industry in the proposed biosphere reserve. Some Déline residents have developed small vegetable gardens but that would represent the limit of agricultural practices to date.

Fishing, hunting, trapping, berry picking, logging and other traditional practices are carried out by Sahtugot'ine in accordance with their culture.

15.3.2 Indicate the possible positive and/or negative impacts of these activities on biosphere reserve objectives (section 14).

These activities will have no negative effect on biosphere reserve objectives. On the contrary, they will reinforce and enhance them.

15.3.3 Which indicators are, or will be used to assess the state and its trends?

See 14.1.4

15.3.4 What actions are currently undertaken, and which measures will be applied to strengthen positive impacts or reduce negative impacts on the biosphere reserve objectives?

The Great Bear Lake watershed management plan and the Sahtu Land Use Plan set the context for activities in the biosphere reserve. The biosphere reserve management committee will work closely with all affected parties and regulatory agencies to ensure that reserve objectives are met, continually improved and amended where required.

15.4 Other types of activities positively or negatively contributing to local sustainable development, including impact/influence of the biosphere reserve outside its boundaries.

15.4.1 Describe the type of activities, area concerned and people involved (including men and women).

There is little activity of significance underway in the proposed biosphere reserve other than the traditional practices of the Sahtugot'ine described earlier, limited tourism, and limited mineral exploration.

15.4.2 Indicate the possible positive and/or negative impacts of these activities on biosphere reserve objectives (section 14). Have some results already been achieved?

None of these activities is at present having a significant negative effect on the area. The remediation of contaminated sites including abandoned mines and former military sites is nearing completion and has had a net positive effect on the environment. It has addressed long-standing concerns of the Sahtugot'ine and provided positive benefits in the form of employment.

15.4.3 What indicators are, or will be used to assess the state and its trends?

See 14.1.4

15.4.4 What actions are currently undertaken, and which measures will be applied to strengthen positive impacts or reducing negative ones on the biosphere reserve objectives?

See 15.3.4.

15.5 Benefits of economic activities to local people:

15.5.1 For the activities described above, what income or benefits do local communities (including men and women) derive directly from the site proposed as a biosphere reserve and how?

Estimates of the economic benefit for some of the activities described above are listed in the table below. The cultural value of the same activities is inestimable.

Resource	Activity	Estimated Annual Value
Wildlife (mammals and birds)	Subsistence hunting	$1,143,000
	trapping	$40,000
	Guided big-game hunts	>$250,000
Fish	Subsistence fishing	$66,000
	Guided sports fishing	?
Trees	Fuel wood	$114,000
Plants	Berry picking, medicinal plant harvest, food plant harvest	?
Wild Landscape	ecotourism	?
Arts& Crafts	Materials, clothing, bead work, carving	$75,000
Contaminated sites	Site remediation	Approx $5.8M*

*total estimated cost of remediating Port Radium, Sawmill Bay and SilverBear Mine in 2007-2008. Only a small portion of this would have gone to Déline, but it's clear that the contribution to the Déline economy is relatively significant regardless.

For large mammal meat (caribou, moose and muskoxen) a value of $20/kg was used. For upland birds, waterfowl and fish, meat replacement values were estimated by pricing poultry and fish at Northern Fancy Meats in Yellowknife, and multiplying by 173% based on the food price index for Déline as compared to Yellowknife. This method gave a value of $10.15/kg for upland birds and waterfowl, and $6.88/kg for fish.

A very rough estimate for the yearly meat replacement values for Déline are $1,076,394 for barren-ground caribou, $37,856 for moose, and $17,934 for woodland caribou. Birds appear to be much less important with estimated meat replacement values of $8,536 for waterfowl and $2,031 for upland birds. The total estimated meat replacement value for the Déline harvest is $1,143,033.

While there are clearly economic benefits accruing from outfitting and guiding for sports fishing, big-game hunting and ecotourism, those benefits have not been quantified. However, it is likely that the gross benefit to Déline is less than $150,000 annually, based on a maximum of 100 visitors spending an average of $1500 apiece.

The establishment of the Conservation Zones has the potential to attract ecotourists. More tourists could lead to growth in other areas such as sport hunting and fishing, the sale of arts, crafts and traditional foods, and increased duration of stays in the community and the region.

The potential for future growth depends on factors such as outside market forces, accessibility of the resource, human resources, and infrastructure as much as it does on the resource itself, however. The capacity in Déline to support increased tourism is limited and would need to grow apace.

15.5.2 What indicators are used to measure such income or other benefits?

See 14.1.4

15.6 Spiritual and cultural values and customary practices:
(Provide an overview of values and practices, including cultural diversity).

To be provided by Déline

15.6.1 Describe any cultural and spiritual values and customary practices including languages, rituals, and traditional livelihoods. Are any of these endangered or declining?

To be provided by Déline; language in decline

15.6.2 Indicate activities aimed at identifying, safeguarding, promoting and/or revitalising such values and practices.

To be provided by Déline.

Chapter 6 of the Great Bear Lake watershed management plan sets out the following vision and recommended actions:

"This Management Plan supports the following, 10 to 15 year vision for Déline:
a. Déline's land-based traditional culture remains strong and vibrant. Déline's relationship with the land remains strong.
b. The elders are respected. They continue to be consulted by community leaders and others. They play a central role in interpreting traditional Sahtugot'ine law and in the transmission of all aspects of Sahtugot'ine culture to the younger generations.
c. The elders have a recognized role to play in the schools as well as on the land: they are as natural a part of the schools as are the other teachers.
d. The three levels of government — the Government of Canada, the Government of the Northwest Territories and the Déline First Nation Government — work cooperatively together.
e. People in other parts of Canada and the world are given the opportunity to learn about Sahtugot'ine culture.
f. The culture and education project leads to greater mutual understanding and greater mutual respect among people of different culture

Sahtugot'ine culture has traditionally defined itself largely in terms of in its relationship with the land and the Creator. To the elders of Déline, we are not separate from the land. Rather, we are part of "the land", in the deepest sense of that term.

Sahtugot'ine culture is a land-based, oral culture. It was traditionally passed on orally and through activities on the land — through careful observation of and learning from the land, and through the oral codification of this learning in various spiritual and ethical concepts, traditional law, codes of behaviour, stories, and an intimate knowledge of the natural environment and the behaviour of other creatures. This "traditional knowledge" has been developed and refined over long periods of time, and it has been passed on through many generations. The elders are the primary custodians

and teachers in this oral culture, and it is ideally learned on the land. Thus many stories are associated with particular places on the land. They are told at those places (and by those places) and it is often for the listener to sort out what they mean. Sahtugot'ine traditional ecological knowledge is based on generations of careful observation of the used environment and its seasonal and yearly variations: knowledge of local micro-climates, ice and snow, river currents, plant communities, and animal movements and behaviour, etc. Through this body of knowledge, the Sahtugot'ine survived in a very harsh environment.

It should thus be plain, as suggested in Chapters 4 and 5, that the land in Sahtugot'ine culture fulfills many of the functions of libraries, schools, universities and spiritual places in most western cultures. It is the place where much of Sahtugot'ine culture is learned. It is the sustainer of all life. It is sacred. And human beings in turn have responsibilities towards it. Moreover, given the dominant role that the human species now plays in the natural environment, the elders say that we are even the more responsible for maintaining its ecological integrity.

The negotiation of the Déline Self-Government AIP and the future establishment of a Déline First Nation Government have been noted earlier in this Management Plan. The establishment of the Déline First Nation Government should contribute substantially to the maintenance of the cultural integrity of the GBLW.

The following goals, objectives and policies are important to the maintenance of the cultural integrity of the GBLW.

6.3 GOALS AND OBJECTIVES

a. Support initiatives on the part of Déline to maintain and strengthen the land-based cultural traditions and their transmission from the elders to the younger generations:
i. Document the cultural heritage of the GBLW, including important places and trails, burial sites, archaeological sites, and undocumented stories associated with particular places and meanings.
ii. Encourage the transmission of this heritage from the elders to the younger generations; develop regular and meaningful opportunities for the elders to work on the land with younger people; work with the schools to ensure that this part of the younger generations' education is incorporated into the school curriculum.
iii. Promote and communicate this heritage within Déline and between Déline and the wider world.
iv. Protect archaeological sites and artifacts from human disturbance, destruction or degradation, and where appropriate, from natural disturbance, destruction or degradation.
b. Protect places of particular importance to Sahtugot'ine cultural integrity.
c. Document traditional ecological knowledge and protocols of the Sahtugot'ine and integrate this knowledge into all aspects of land and resource management, including research and monitoring.
d. Support and complement the larger system of land and resource management that will be established through the combined effect of the SLCA, the MVRMA, the Déline Self-Government Agreement, this Management Plan and the Sahtu Land Use Plan.

6.4 POLICIES

a. The appropriate government authorities should make every reasonable effort to support initiatives on the part of Déline to maintain and strengthen the land-based culture and its transmission from the elders to the younger generations. Operational management and research and monitoring priorities are addressed in Chapters 3, 7 and 8 of this Management Plan, and the protection of the land (in the widest sense) is addressed in Chapters 4 and 5.

Culture and education priorities are as follows:

i Facilitate land-based activities for community members, particularly where the elders can pass on Sahtugot'ine culture to the younger generations.
ii. Assist elders and local/regional educators in defining clear teaching roles for the elders in the schools, and in the developing and incorporating culturally-appropriate teaching materials in the school curriculum. Support the inclusion of materials on the GBLW in the curriculum, incorporating both Sahtugot'ine traditional knowledge and scientific knowledge about the watershed in the curriculum.
iii. Support the community's efforts to develop its capacity in the fields of ecological and cultural research, monitoring and management.
iv. Support community efforts to promote and communicate Sahtugot'ine culture, to develop greater mutual respect between Sahtugot'ine and people of other cultures, and (more specifically) to develop and maintain a GBLW website."

15.6.3 How should cultural values be integrated in the development process: elements of identity, traditional knowledge, social organizations, etc.?

To be provided by Déline. See also 15.6.2

15.6.4 Specify whether any indicators are used to evaluate these activities. If yes, which ones and give details.
(Examples of indicators: presence and number of formal and non-formal education programmes that transmit these values and practices, number of revitalisation programmes in place, number of speakers of an endangered or minority language).

See 14.1.4

16. LOGISTIC SUPPORT FUNCTION:

16.1 Research and monitoring:

16.1.1 Describe existing and planned research programmes and projects as well as monitoring activities and the area(s) in which they are (will be) undertaken in order to address specific questions related to biosphere reserve management and for the implementation of the management plan (please refer to variables in Annex I).

List current research and monitoring programs

The Great Bear Lake watershed management plan sets out a framework for research and monitoring:

"7.1 VISION
Within 10 to 15 years, the research and monitoring program in the GBLW should have the following characteristics:
a. The research and monitoring program provides an information base that is adequate for the maintenance of the ecological and cultural integrity of the GBLW.
b. Site specific research and monitoring are carried out by the proponents of authorized activities, while a more general and ongoing research and monitoring program, funded by government and other organizations, is carried out by a range of parties, including government departments and agencies, regional management boards (particularly the SRRB), universities and Déline authorities/individuals.

c. All research and monitoring projects in the GBLW are carefully coordinated to ensure the most efficient use of time and resources.
d. Cumulative effects are researched and monitored.
e. Conservation Zones within the GBLW are used as control sites for larger research and monitoring initiatives. The ecological and cultural integrity of the Conservation Zones themselves is also researched and monitored.
f. Research and monitoring activities are designed and carried out using both traditional and scientific knowledge.
g. Déline organizations and individuals play an increasing and ultimately central role in ecological and cultural research and monitoring in the GBLW.

7.2 CONTEXT
In 2003/04, various authorities collaborated in the preparation of aquatic and terrestrial state of knowledge reports and a traditional ecological knowledge report. All three reports have identified knowledge gaps and ecological stressors, and the need for a research and monitoring plan in the GBLW. The results of the planned research and monitoring program will be used to characterize the current state of the environment, provide the means to better understand the functioning and structure of the GBLW ecosystems, and determine if ecological conditions have changed due to climatic variation and/or human/industrial activities. The research and monitoring program should also contribute to better understanding and decision-making in the watershed, and it should help coordinate monitoring and reporting.

Much of the GBLW exists in a relatively pristine state. In the course of preparing this Management Plan, however, several organizations and agencies have raised concerns regarding past, present and potential future stressors on the entire GBLW ecosystem. MacDonald (2004) has identified several potential stressors including:
a. contamination associated with historical mining operations in the vicinity of Port Radium and on the Camsell River drainage;
b. contamination associated with other historical waste sites in the watershed;
c. liquid and solid wastes associated with Déline and Gameti;
d. fisheries exploitation;
e. long range transport and accumulation of atmospheric pollutants;
f. climate change and its potential effects; and (although the "cause" lies, as with climate change, outside of the GBLW)
g. potential hydroelectric development on the Great Bear River.

The evaluation of the effects of these and other stressors on the GBLW (including current mineral exploration and development) will require a monitoring system capable of detecting subtle changes in the structure and function of the entire GBLW ecosystem. No such monitoring program currently exists in the entire GBLW.

At present, research and monitoring projects in the GBLW are funded largely on a yearly basis. Funding varies from year to year. Further, government agencies, regional management boards and Déline organizations all currently face human resources limitations in implementing research and monitoring in the GBLW. Human resources limitations at the local level are particularly important, given the basic principle of this Management Plan that Déline organizations and individuals must play a leading, stewardship role in operational management of the GBLW, including research and monitoring.

The GBL Working Group expects that funding and/or human resources limitations will persist in the early years following approval of this Management Plan. It expects that these limitations will

gradually be overcome. It expects that as secured sources of funding are gradually developed, Déline organizations and individuals, regional management boards and government agencies will gradually strengthen their research and monitoring capability in the GBLW. Ultimately, by year 10 of the Management Plan, the research and monitoring program should be able to supply sufficiently reliable information that decision-makers can make decisions appropriate to the ecological and cultural integrity of the GBLW. At present, information is lacking on several fronts, including environmental quality, wildlife populations and critical habitats. To address these gaps, the GBL Working Group's Technical Working Group designed and compiled potential research and monitoring projects into the Research and Monitoring Plan for Great Bear Lake and its Watershed. These projects are intended to provide important baseline information on GBLW ecosystems, and to address the concerns identified to date by Déline residents, resource managers and scientific researchers.

The Research and Monitoring Plan for GBL and its Watershed will need to be amended and adapted as more is learned about the entire GBLW, and as experience in research and monitoring in the watershed grows. Research and monitoring in the watershed are in their infancy. This edition of the GBL Management Plan can only lay the foundation for the work that will follow.

Two further assumptions run throughout the research and monitoring program:
1. The member organizations of the GBL Working Group will make all reasonable efforts to ensure the development of a core capacity, in Déline, to carry on the work of the Technical Working Group and its community coordinator, through the Déline Knowledge Centre or other appropriate institutions.
2. Training and education should be built into all the projects of this Management Plan, including research and monitoring. If Déline organizations and individuals are to play a leading, stewardship role in the operational management of the GBLW, Déline residents will need varying degrees of education and training in research and monitoring.

7.3 GOALS AND OBJECTIVES

a. Within 5 to 10 years, initiate research that will establish a sound foundation for a basic aquatic and terrestrial research and monitoring program in the GBLW, focused on the maintenance of the ecological and cultural integrity of the watershed. Wherever feasible and relevant, design the research and monitoring program to include control sites in Conservation Zones and monitor the ecological and cultural integrity of Conservation Zones as well as the GBLW as a whole. Within 10 or more years, adapt, refine, strengthen and broaden this research and monitoring program.

Current objectives include the following:
i. collect and analyze information to establish current (baseline) environmental conditions of the GBLW;
ii. acquire a better understanding of climate change and the effects of long-range transport of atmospheric pollutants on the GBLW;
iii. better understand ecosystem functioning through scientific and traditional ecological research;
iv. document culturally significant sites in the GBLW and in Conservation Zones (including places, trails, grave sites, archaeological sites, etc.); and
v. document elders' place names and stories and the oral histories associated with the sites identified under iv above.
b. Déline organizations and individuals play an increasing and ultimately central role, wherever possible, in GBLW research and monitoring:
i. Within 5 to 10 years, measurably increase the role that Déline plays in GBLW research and monitoring.

ii. Within 10 years or more, Déline residents and organizations are fully involved in GBLW research and monitoring.
iii. Incorporate training for Déline residents in GBLW research and monitoring projects.
iv. Involve Déline elders as research collaborators and trainers.
v. Link Déline schools, school kids, teachers and elders to the research and monitoring program wherever opportunity allows.
vi. Use the research and monitoring program to aid in the transmission of Sahtugot'ine culture from the elders to the younger generations — both in the schools and on the land.

7.4 POLICIES
a. An ongoing (long-term) research and monitoring program must be established in the GBLW:
i As set out in 4.5.3(a)(i) and 5.5.3(a)(i) above, the proponents of authorized activities shall be required to carry out site-specific research and monitoring.
ii Government resource management departments and Déline authorities shall collaborate in updating, implementing and reporting on the more general and ongoing research and monitoring program — the Research and Monitoring Plan for GBL and its Watershed — in the Special Management Zone and Conservation Zones. Together with the research and monitoring under 7.4(a)(i) above, the more general research and monitoring program shall, within 10 years following the approval of this Management Plan, provide an information base that is adequate for decision makers to maintain the ecological and cultural integrity of the GBLW. It shall include research and monitoring re: cumulative effects. Research and management authorities in the GBLW (including Déline authorities) should be resourced so that they are able, in full partnership, to carry out this more general research and monitoring program.

b. The primary purposes of the research and monitoring program shall be the maintenance of the ecological and cultural integrity of the watershed, and the development of the research and monitoring capacity of Déline, so that Déline can again play a leading, stewardship role in the management of the GBLW. In public funding of research and monitoring in the GBLW, priority must be given to research and monitoring that can demonstrate a clear link to these purposes, and the coordination of proposed research or monitoring with other research and monitoring projects in the GBLW. All new and ongoing research and monitoring projects in the GBLW should consider the projects identified in the Research and Monitoring Plan for GBL and its Watershed as well as in the Report of the Sahtu Heritage Places and Sites Joint Working Group.

c. Research and monitoring must be designed and carried out using both scientific and traditional knowledge.

d. Guidelines on the collection and use of traditional knowledge shall be incorporated into the Research and Monitoring Plan for GBL.

e. Prior to undertaking research and monitoring in the GBLW, researchers and monitors shall consult the appropriate Déline organization(s) and the SRRB. The Déline First Nation Government, when established, shall identify the Déline organizations that are appropriate to different sorts of research and monitoring in the GBLW and that should be consulted, and it shall annually publish this information in plain language on its website as well as on the website of the SRRB."

16.1.2 Summarize past research and monitoring activities related to biosphere reserve management (please refer to variables in Annex I)

Summarize past research: to do

16.1.3 Indicate what research infrastructure is available in the proposed biosphere reserve, and what role the biosphere reserve will play in supporting such infrastructure.

Déline Community Infrastructure	
Transportation Infrastructure	
All weather road	No
Winter road	Yes
Marine re-supply	No
Airport	Yes
Electricity Infrastructure	
Type of supply	diesel
Supplier	NTPC
Health Infrastructure	
Hospital	No
Health centre	Yes
Health station	No
Judicial infrastructure	
No. police officers	3
Municipal Infrastructure	
Fire Hall	1
Tourism Infrastructure	
Lodges/outfitters	15
Accommodations	1 hotel
Campgrounds	1
Restaurants	1
Visitor centre	0

There is very limited capacity within the proposed biosphere reserve to support research programs and that capacity resides largely in Déline, the only community on GBL. It is small, remote and isolated, accessible year-round by air, in winter by a limited-season winter road and during the short summer by boat via the Great Bear River. There is one hotel and two small grocery stores, both offering a variety of household goods, clothing and food, at prices reflecting Déline's distance from southern suppliers and the difficulty of re-supply (food is nearly twice as expensive as it is in Yellowknife, for example). Déline has a local FM radio station that broadcasts CBC network programs and adds several hours per day of local programming in Slavey. Local and long-distance telephone and high-speed internet services are available.

Déline has one school, which offers K-12 grade level education. There are limited facilities within the school to assist researchers.

There are a number of government offices in the community, including federal agencies (including Parks Canada), GNWT agencies (including Environment and Natural Resources), the Déline Band Office, Sahtu Secretariat Inc, Déline Land Corporation and Déline Renewable Resources Council, all of which are able to support or facilitate research and monitoring, education programs and other initiatives to varying degrees. Déline has also initiated the development of the Déline Knowledge Centre to focus and facilitate programs related to maintaining its culture and ties to the land.

The Department of Fisheries and Oceans has a small research vessel located in Déline, capable of supporting research projects on the lake for extended periods of time.

There are a number of local outfitters in Déline. Trips to Saoyú-ʔehdacho National Historic Site, fishing on Great Slave Lake and the Great Bear River and sports hunting in the GBLW can be arranged, as well as custom trips intended for specific purposes such as research and monitoring and environmental education. Finally, Déline has several heavy equipment operators able to provide a variety of support services.

16.2 Education for sustainable development and public awareness:

16.2.1 Describe existing and planned activities, indicating the target group(s) and numbers of people involved (as "teachers" and "students") and the area concerned.

See 15.6.2

16.2.2 What facilities and financial resources are (or will be) available for these activities?

TBD

16.3 Contribution to the World Network of Biosphere Reserves:

16.3.1 How will the proposed biosphere reserve contribute to the World Network of Biosphere Reserves, its Regional and Thematic Networks?

The proposed Great Bear Lake biosphere reserve would be the first in northern Canada, among the largest in the world and the only one encompassing the Taiga Plains, Taiga Shield and Southern Arctic ecozones. It would include the largest lake lying entirely within Canada, the eighth-largest lake in the world and fourth largest in North America – and likely the last great arctic lake in a pristine state. The watershed provides habitat for many species of boreal and arctic vegetation, birds, mammals and fish, some of which are sensitive, at risk or endangered. The proposed biosphere reserve is the homeland of the Sahtugot'ine, the people of the lake, and would be managed by them, in cooperation with a range of agencies and organizations. It has a framework of legal protection, a history of cooperative stewardship and a watershed management plan on which to base a biosphere reserve management program. It meets all the objectives of UNESCO's World Network of Biosphere Reserves in a way that no others do.

16.3.2 What are the expected benefits of international cooperation for the biosphere reserve?

International recognition of the Great Bear Lake biosphere reserve would help to ensure that the area is managed according to the principles of sustainable development and would assist the Sahtugot'ine in achieving their vision for Great Bear Lake: that its waters remain clean and bountiful forever. International recognition of the management regime would support the aspirations of aboriginal peoples everywhere, their goal of being masters in their own land, of their own land and of their destinies. The Great Bear Lake biosphere reserve would become a showcase for success that would serve as a model and inspiration for others in the NWT, in Canada and across the globe.

16.4 Internal and external communication channels and media used by the biosphere reserve:

16.4.1 Is (will) there (be) a biosphere reserve website? If yes, what is its URL?

There will be a biosphere reserve website. URL TBD. DRRC?

16.4.2 Is (will) there (be) an electronic newsletter? If yes, how often will it be published?

There will be an electronic newsletter. Publication frequency TBD.

16.4.3 Does (will) the biosphere reserve belong to a social network (Facebook, Twitter, etc.)?

The biosphere reserve will belong to a social network ,TBD. Link with school.

17. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT AND COORDINATION:

[Describe the following characteristics in the prospective that the site is being designated.]

17.1 Management and coordination structure:

17.1.1 What is the legal status of the biosphere reserve?

The Sahtu Land Use Plan sets the context for sustainable development in the Sahtu, including the portion of the Great Bear Lake watershed that lies within the Sahtu. Once approved by governments it is a legally binding document. Conservation zones, protected areas and special management zones and the rules regarding activities within those zones are set through the Land Use Plan and in turn are legally binding. The Land Use Plan is to be reviewed every five years and in the interim amendments and variances can be made but only through an extensive consultation process.

17.1.2 What is the legal status of the core area(s) and the buffer zone(s)?

See above.

17.1.3 Which administrative authorities have competence for each zone of the biosphere reserve (core area(s), buffer zone(s), transition area(s))?

The Government of the Northwest Territories is the land owner of much of the surface and subsurface of the proposed biosphere reserve, including the bed of Great Bear Lake and other waterbodies. Sahtu-owned lands (surface and sub-surface) make up much of the balance and are administered by the Déline Land Corporation. The balance is federal land, including some contaminated sites and most of Saoyú-ʔehdacho National Historic Site.

The Sahtu Land Use Plan sets out the zoning matrix for the proposed biosphere reserve including Conservation Zones and Special Management Zones.

If developments are proposed for a given area within the proposed biosphere reserve, The Sahtu Land Use Planning Board must determine conformity with the Plan. If the proposed development conforms or an exception to the Plan is made, the proposal is screened by the Sahtu Land and Water Board, reviewed for its environmental effects (by the Mackenzie Valley Environmental Impact Review Board) if required, and if acceptable, subject to regulatory terms and conditions set

by the Sahtu Land and Water Board. Inspections are conducted by federal and territorial land use, water use, and fisheries inspectors.
Agencies with a mandate relevant to the creation and management of the Great Bear lake biosphere reserve include:

- In the Sahtu, the Déline Renewable Resources Council, Déline Band Council, Déline Land Corporation, Sahtu Renewable Resources Board, Sahtu Land and Water Board, and Sahtu Secretariat Inc.

- In the NWT, the Mackenzie Valley Land and Water Board, the Mackenzie Valley Environmental Impact Review Board, and the GNWT Department of Environment and Natural Resources.

- At the federal level, the departments of Aboriginal Affairs and Northern Development Canada, Fisheries and Oceans Canada and Environment Canada.

17.1.4. Clarify the respective competence of each of these authorities. Make a distinction between each zone if necessary and mention any decentralized authority.

The **Déline Dene Band Council** manages the affairs of the Community of Déline, as well as the Charter Community of Déline. The Council delivers and supports a wide range of programs that, among others, includes the following: Déline Economic Development; Justice Committee Program; Basic Awareness Program; Language Enhancement Program; Community Coordinator; and, Youth Program. The Déline leadership sees its mandate as: promoting long-term social, economic, and political interests of the community; delivering a broad range of local organization services, consistent with available resources, and building the community capacity to grow.

The **Déline Land Corporation** is one of the governing bodies set up to administer the Sahtu claim for the community of Déline. The Corporation administers the income from the Sahtu Trust, and serves as negotiator for implementation of Self Government. The Corporation also is involved in any decisions concerning land use in the claim area: members completed an impact benefit agreement with Parks Canada, concerning Tuktut Nogait National Park which are in traditional land use areas, and negotiated and look after special areas including Sahoyúé-?ehdacho National Historic Site. Recent activities include research into feasibility of the Bear River Hydro Development.

Ail the settlement lands are owned by the district land corporations in the three districts of Déline, Tulita and K'asho Got'ine. In the Tulita district, the settlement lands are owned jointly by the Tulita Land Corporation, the Fort Norman Metis Land Corporation and the Ernie McDonald Land Corporation, In the K'asho Got'ine District, the land is owned jointly by the Yamoga Land Corporation (Fort Good Hope Band), the Fort Good Hope Metis Local No. 54 Land Corporation and the Ayoni Ken Land Corporation (Colville Lake). The Déline Land Corporation owns all the land in the Déline district.

The **Déline Renewable Resource Council** falls under the umbrella of the Sahtu Renewable Resources Board. Its mandate is to encourage and promote local involvement in conservation, harvesting studies and wildlife management and to advise the Sahtu Renewable Resources Board. It is composed entirely of Déline residents.

The **Sahtu Renewable Resources Board** is the main instrument of wildlife management in the Sahtu. The Board has the power to establish policies and propose regulations on wildlife

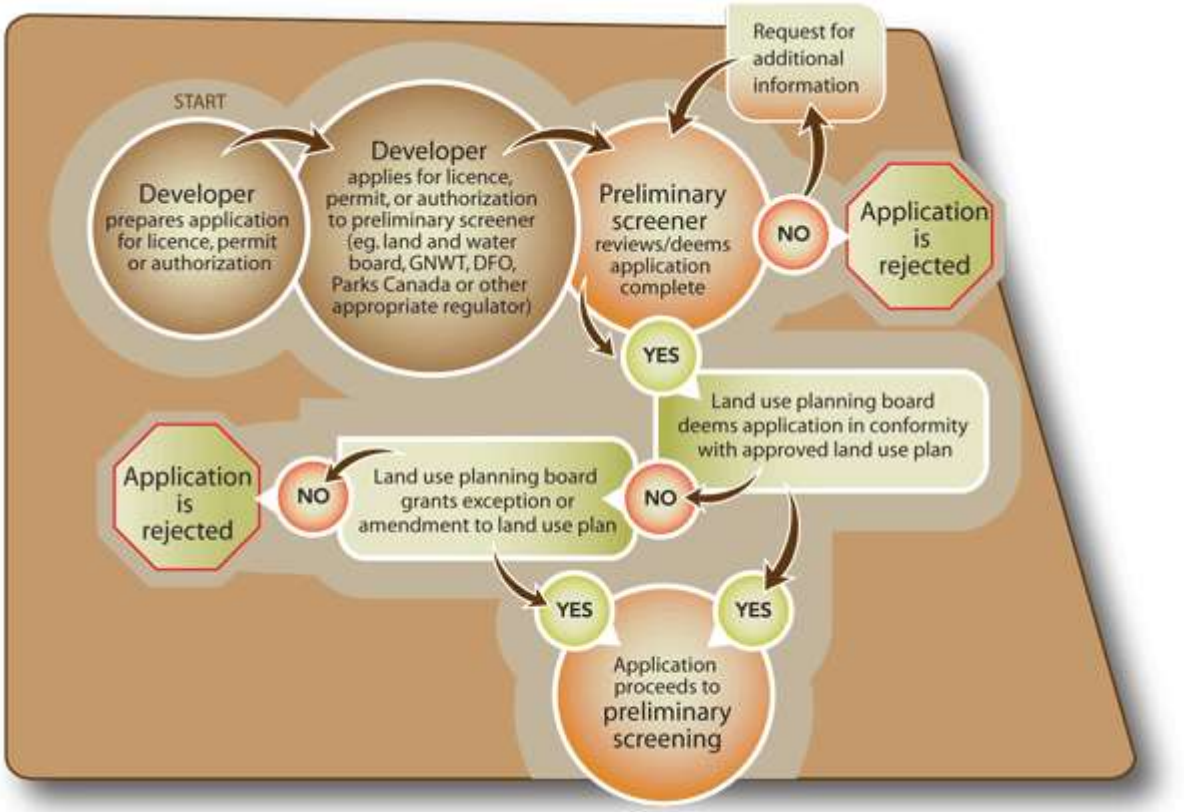
harvesting, including commercial fishing. It has an independent research capacity and is responsible for conducting a harvest study. Renewable resources councils, established in each Sahtu Dene and Metis community are responsible for advising the Board with respect to harvesting by the Sahtu Dene and Metis, and other matters of local concern within the jurisdiction of the Board. It is composed of seven members, three appointed by SSI, two by Canada, one by the GNWT and a chairperson, resident in the Sahtu, chosen by the other members.

The **Sahtu Land Use Planning Board** was created pursuant to the Sahtu Dene and Metis Comprehensive Land Claim Agreement (SDMCLA) and the Mackenzie Valley Resource Management Act (MVRMA). Its mandate is to develop and implement a land use plan for the Sahtu Settlement Area. Once adopted by SSI, the GNWT and Canada, the Plan becomes legally binding on all parties. It is composed of five members, two chosen by SSI, one by Canada, one by the GNWT and a chairperson, resident in the Sahtu, chosen by the other members

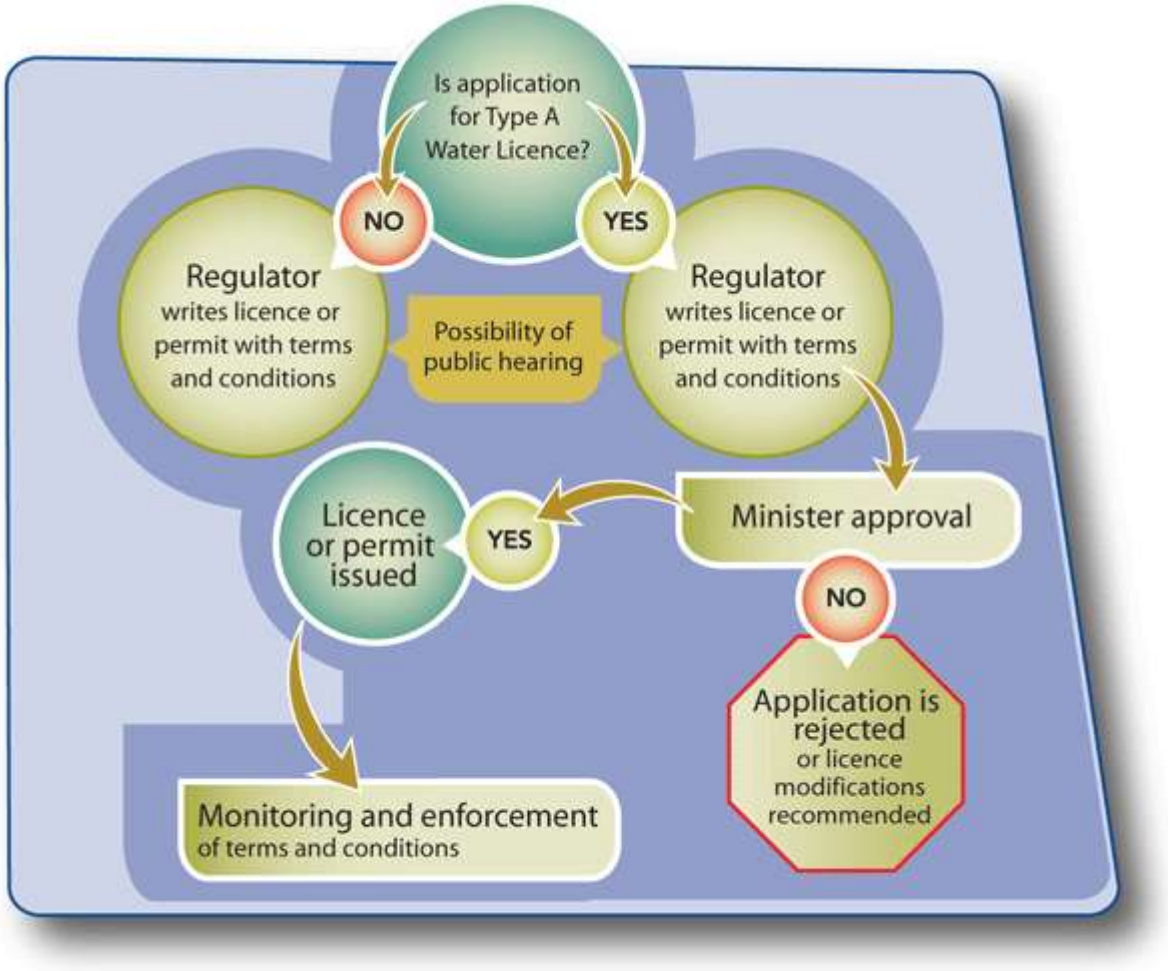
The **Sahtu Secretariat Incorporated** was formed by the seven Sahtu land corporations (four band land corporations and three Metis land corporations) on June 23, 1994, when the Sahtu Dene and Metis Land Claim Settlement Act was enacted. The mandate of the Sahtu Secretariat Incorporated is to implement the Agreement and to deal with issues that concern the Sahtu Dene and Metis.

The **Mackenzie Valley Environmental Impact Review Board** is the main instrument for the conduct of environmental impact assessment and review in the Mackenzie Valley. The Review Board consists of nine members, all appointed by the Minister of Aboriginal Affairs and Northern Development Canada. The chairperson is typically appointed after being nominated by the other Review Board members. The other eight Board members are appointed in equal numbers from nominations submitted by the federal and territorial governments and from aboriginal land claimant organizations. As a result, the Review Board is a co-management board, comprised of an equal number of aboriginal land claimant nominees and government nominees.

All proposed developments in the Mackenzie Valley go through a preliminary screening, and only a small number of them must go through an environmental assessment. The MVEIRB conducts these assessments which are a more thorough study to decide if the development is likely to have significant adverse impacts on the environment, or likely to cause public concern. If the assessment shows this to be so, the Review Board recommends to the federal Minister for Aboriginal Affairs and Northern Development one of the following: a) the project can proceed to regulatory permitting and licensing as is; b) the project can proceed to regulatory permitting and licensing provided some mitigative measures recommended by the Review Board as a result of the assessment are in place; or c) the project should be rejected. Alternatively, the Review Board or the federal and responsible ministers may order an environmental impact review for a much more detailed review by an independent panel.



The **Sahtu Land and Water Board** is one of the four Land and Water Boards that were established by the *Mackenzie Valley Resource Management Act* (MVRMA). These boards provide for an integrated and coordinated system of land and water management in the Mackenzie Valley. Under the Act, the Sahtu Land and Water Board regulates the use of land and water by issuing, amending, renewing, and suspending land use permits and water licences on all crown, Sahtu, and private lands. The *Mackenzie Valley Land Use Regulations* and the *Northwest Territories Waters Act* and Regulations are administered by the Board. The five member Board includes two members nominated by the Sahtu Secretariat Incorporated, one member nominated by the Government of the Northwest Territories, and one member nominated by the federal government. All members of the Board, including the Chair, are appointed by the Federal Minister.



The **Mackenzie Valley Land and Water Board** is responsible for conducting preliminary screenings and for regulating the use of land and water in the Deh Cho and South Slave regions of the NWT, as well as development that may have impacts on more than one settlement region. Its authority extends to all Crown and private lands and water in the Mackenzie Valley. In the Sahtu, Gwich'in and Wek'èezhìi, regional land and water boards have been established. The MVLWB monitors and ensures consistent application of the MVRMA between all regional land and water boards in the Mackenzie Valley.

Parks Canada, an agency reporting to the Minister of Environment Canada, is mandated to protect and present nationally significant examples of Canada's natural and cultural heritage and to foster public understanding, appreciation and enjoyment in ways that ensure their ecological and commemorative integrity for present and future generations. Parks Canada identifies and establishes National Marine Conservation Areas (NMCA), National Historic Sites and National Parks. Parks Canada, in cooperation with Déline Land Corporation, administers Saoyú-ʔehdacho National Historic Site.

Aboriginal Affairs and Northern Development Canada has responsibility for meeting the federal government's constitutional, treaty, political and legal responsibilities to First Nations, Inuit and Northerners. It is the lead federal department for the Yukon, NWT and Nunavut and has a direct role in the political and economic development of the territories, and significant responsibilities for resource, land and environmental management. In the North, the territorial governments generally provide the majority of programs and services to all Northerners, including Aboriginal people.

AANDC negotiates and implements comprehensive and specific claims and self-government agreements on behalf of the Government of Canada; oversees implementation of claim settlements; supports services on reserve such as education, economic development, housing, community infrastructure and social support to Status Indians on reserves; administers the land management component of the *Indian Act*; and executes other regulatory duties under the *Indian Act*.

Through its programs, AANDC supports Aboriginal peoples in the Sahtu in developing sustainable communities, and in achieving their economic, political, cultural and social aspirations. This includes overseeing the implementation of the land claim settlement and promoting economic development. INAC also has the role of facilitating change and bringing together the partners and interests needed to encourage strong northern governments, economies, communities and peoples.

Fisheries and Oceans Canada has the lead federal role in managing Canada's fisheries and safeguarding its waters. The Department:

- supports strong economic growth in marine and fisheries sectors by supporting exports and advancing safe maritime trade;
- supports innovation through research in expanding sectors such as aquaculture and biotechnology; and
- contributes to a clean and healthy environment and sustainable aquatic ecosystems through habitat protection, oceans management, and ecosystems research.

The Department's work is guided by five key pieces of legislation: the *Oceans Act,* the *Fisheries Act;* the *Species at Risk Act;* the *Coastal Fisheries Protection Act;* and the *Canada Shipping Act*, 2001 (Transport Canada-led).

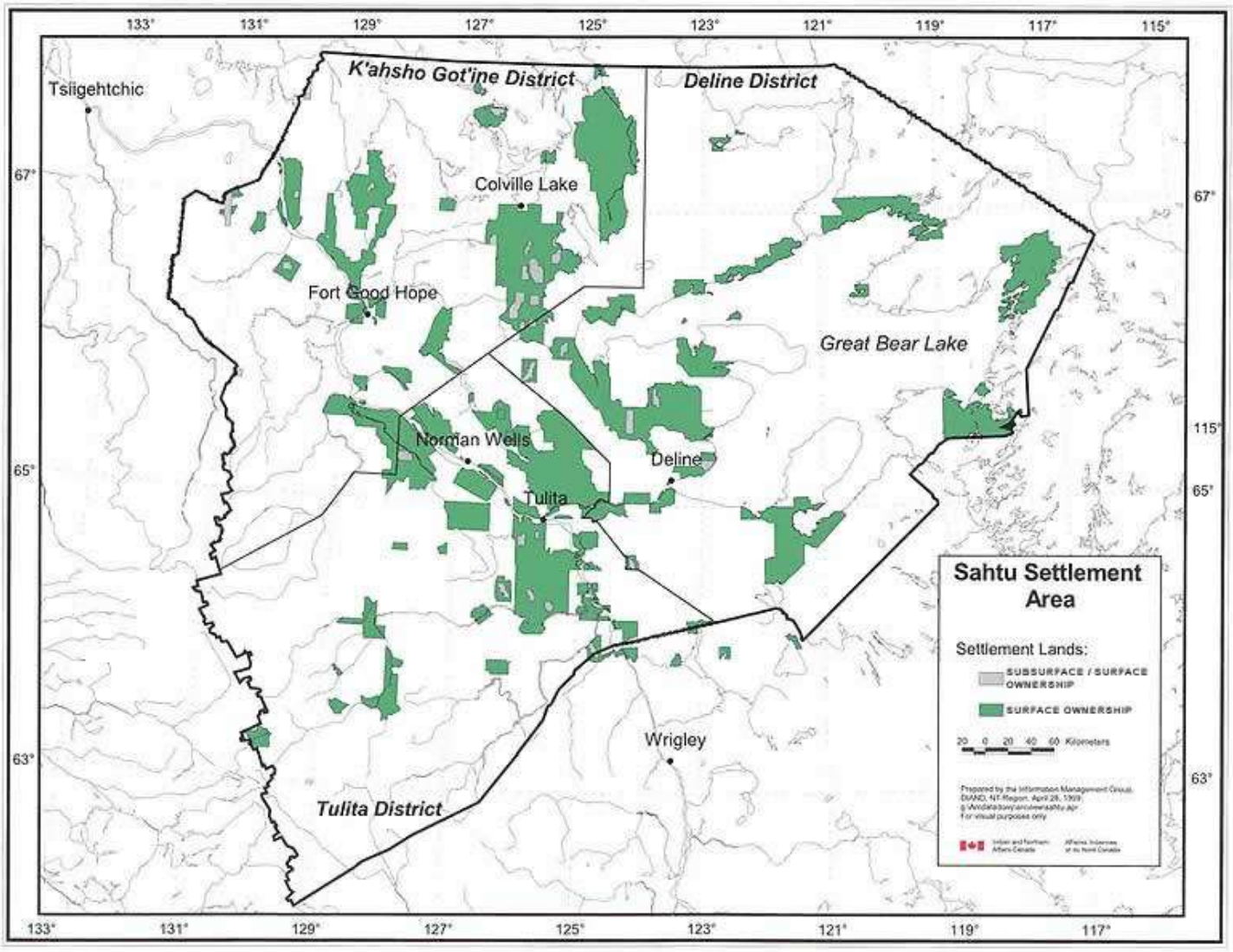
Environment Canada's mandate is to

- preserve and enhance the quality of the natural environment, including water, air, soil, flora and fauna;
- conserve Canada's renewable resources;
- conserve and protect Canada's water resources;
- forecast daily weather conditions and warnings, and provide detailed meteorological information to all of Canada;
- enforce rules relating to boundary waters; and
- coordinate environmental policies and programs for the federal government.

The GNWT's **Department of Environment and Natural Resources** promotes and supports the sustainable use and development of natural resources to protect, conserve and enhance the Northwest Territories environment for the social and economic benefit of all residents. This responsibility is shared with Aboriginal, federal, territorial, and municipal governments, boards and agencies and every resident of the Northwest Territories.

ENR works to protect and enhance environmental quality in the Northwest Territories through a number of programs, services and activities including: biodiversity; protected areas; ecosystem classification; water strategy; management of hazardous substances; waste reduction and recovery (recycling); climate change; air quality; energy awareness; energy alternatives; energy efficiency; and, environment assessment and monitoring.

17.1.5 Indicate the main land tenure (ownership) for each zone.



Great Bear Lake Watershed Special Management Zone: 0.5% Sahtu subsurface ownership; 7.8% Sahtu surface ownership

Neregah Special Management Zone: 0.0% Sahtu subsurface ownership; 38.6% Sahtu surface ownership

Du K'ets'edı SMZ (Sentinel Islands SMZ): 0.0% Sahtu subsurface ownership; 99.7% Sahtu surface ownership

Du K'ets'edı CZ (Sentinel Islands CZ): 0.0% Sahtu subsurface ownership; 0.0 % Sahtu surface ownership

Edaįįla (Caribou Point): 0.0% Sahtu subsurface ownership; 13.5% Sahtu surface ownership

Turatlın Tué (Tunago Lake): 0.3% Sahtu subsurface ownership; 99.7% Sahtu surface ownership

Saoyú-ʔehdacho National Historic Site: 0.0% Sahtu subsurface ownership; 20% Sahtu surface ownership.

17.1.6 Is there a single manager/coordinator of the biosphere reserve or are several people in charge of managing it? If one manager/coordinator, who designates and employs him/her (national authorities, environmental administrative agency, local authorities)?

The Déline Renewable Resources Council will lead the stewardship of the biosphere reserve. A multi-party steering committee will be established to coordinates members' respective activities in the biosphere reserve, ensure that the biosphere management plan is meeting its objectives and adapt the management plan to changing circumstances as necessary.

17.1.7 Are there consultative advisory or decision-making bodies (e.g., scientific council, general assembly of inhabitants of the reserve) for each zone or for the whole biosphere reserve?

- If yes, describe their composition, role and competence, and the frequency of their meetings.

The Great Bear Lake Biosphere Reserve Steering Committee will include the following organizations:
Déline Renewable Resources Council
Déline Band Council
Déline Land Corporation
Sahtu Renewable Resources Board
Sahtu Land and Water Board
Sahtu Land Use Planning Board
Mackenzie Valley Environmental Impact Review Board
Environment and Natural Resources, GNWT
Environment Canada (Canadian Wildlife Service)
Fisheries and Oceans Canada
Parks Canada

17.1.8 Has a coordination structure been established specifically for the biosphere reserve?

- If yes, describe in detail its functioning, composition and the relative proportion of each group in this structure, its role and competence.

- Is this coordination structure autonomous or is it under the authority of local or central government, or of the manager/coordinator of the biosphere reserve?

See 17.1.7

17.1.9 How is the management/coordination adapted to the local situation?

The steering committee is composed of organizations with mandates directly related to the biosphere reserve and with the ability to carry out all key functions related to biosphere stewardship.

17.1.10 Is there a procedure for evaluating and monitoring the effectiveness of the management?

Periodic audits will be conducted in conjunction with the MVRMA Part VI audit.

17.2 Conflicts within the biosphere reserve:

17.2.1 Describe any important conflicts regarding the access or the use of natural resources in the area considered (and precise period if accurate). If the biosphere reserve has contributed to preventing or resolving some of these conflicts, explain what has been resolved or prevented, and how this was achieved for each zone.

None to date; note that the Sahtu Land Use Planning Board has the responsibility to ensure that proposed developments are consistent with the Sahtu Land Use Plan.

17.2.2 If there are any conflicts in competence among the different administrative authorities in the management of the biosphere reserve, describe these.

None identified to date.

17.2.3 Explain the means used to resolve these conflicts, and their effectiveness.

The Great Bear Lake Biosphere Reserve Steering Committee terms of reference will describe a dispute resolution mechanism.

17.3 Representation, participation and consultation of local communities:

17.3.1 At what stages in the existence of a biosphere reserve have local people been involved: design of the biosphere reserve, drawing up of the management/cooperation plan, implementation of the plan, day to day management of the biosphere reserve? Give some specific examples.

Sahtugot'ine will be involved in every step of the design of the biosphere reserve, drawing up of the management/cooperation plan, implementation of the plan and day to day management of the biosphere reserve.

17.3.2 Describe how the local people (including women and indigenous communities) have been, and/or are represented in the planning and management of the biosphere reserve (e.g., assembly of representatives, consultative groups).

See 17.1.7 above.

17.3.3 Describe the specific situation of young people in the proposed biosphere reserve (e.g., potential impacts of the biosphere reserve on youth, consideration of their interests and needs, incentives to encourage them to participate actively in the governance system of the biosphere reserve).

See Chapter 6 ("Culture and Education") of the Great Bear Lake Management Plan, summarized in 15.6.2.

17.3.4 What form does this representation take (e.g., companies, associations, environmental associations, trade unions)?

Déline youth will be intimately involved in the Great Bear Lake biosphere reserve through the school, though the education and training programs established for the biosphere reserve, and through the representation of Déline organizations on the Steering Committee.

17.3.5 Are there procedures for integrating the representative body of local communities (e.g., financial, election of representatives, traditional authorities)?

See 17.1.7.

17.3.6 How long-lived are consultation mechanisms (permanent assembly, consultation on specific projects)? Make a complete description of this consultation. What are the roles of involved stakeholders compared to the role of the biosphere reserve?

See 17.1.7. Consultation mechanisms are permanent and part of the fabric of Déline and the Sahtugot'ine.

17.3.7 What consultation mechanisms have been used, and who has been involved? Are they for specific purposes or long-term? What impacts have they had on decision-making processes (decisional, consultative or merely to inform the population)?

TBD, once the Steering Committee is formed.

17.3.8 Do women participate in community organizations and decision-making processes? Are their interests and needs given equal consideration? What incentives or programmes are in place to encourage their representation and participation (e.g.: was(were) a "gender impact assessment(s)" carried out)?

To be provided by Déline.

17.4. The management/cooperation plan/policy:

17.4.1 Is there a management/cooperation plan/policy for the biosphere reserve as a whole?

The Sahtu Land Use Plan and the Great Bear Lake watershed management plan set the context and foundation for the biosphere reserve management plan.

17.4.2 Which actors are involved in preparing the management/cooperation plan? How are they involved?

See 17.1.7

17.4.3 Do local authorities formally adopt the management/cooperation plan? Are local authorities making reference to it in other policies and/or plans? If so, please provide details.

Local authorities will formally adopt the management plan and will use it to guide their actions including the development of related policies and plans.

17.4.4 What is the duration of the management/cooperation plan? How often is it revised or renegotiated?

The duration of the management plan is indeterminate. It will be reviewed every five years.

17.4.5 Describe the contents of the management/cooperation plan. Does it consist of detailed measures or detailed guidelines? Give some examples of measures or guidelines advocated by the plan? (Enclose a copy).

See Great Bear Lake watershed management plan and Sahtu Land Use Plan

17.4.6 Indicate how this management/cooperation addresses the objectives of the proposed biosphere reserve (as described in section 13.1).

To be completed…….

17.4.7 Is the plan binding? Is it based on a consensus?

The Sahtu Land Use Plan is legally binding and incorporates many of the key themes set out in the Great Bear Lake watershed management plan.

17.4.8 Which authorities are in charge of the implementation of the plan, especially in the buffer zone(s) and the transition area(s)? Please provide evidence of the role of these authorities.

The Great Bear Lake Biosphere Reserve Steering Committee will be in charge of plan implementation. Other authorities will be involved to the extent of their jurisdiction and interest.

17.4.9 Which factors impede or help its implementation (e.g.: reluctance of local people, conflicts between different levels of decision-making).

Capacity is the single greatest limiting factor, particularly the human and financial resources necessary to undertake the required research, monitoring, education, enhanced tourism and evaluation programs required to make the biosphere reserve a complete success. There is limited infrastructure in Déline and even less capacity to take on new challenges. Resources will need to be found to fully implement the management plan.

Conflicts between different levels of decision-making may emerge from time to time but these can be resolved with good will. The good will and the full support of the Sahtugot'ine will be there. The issue will be acquiring the capacity necessary to attain all the objectives of the management plan.

17.4.10 Is the biosphere reserve integrated in regional/national strategies? Vice versa, how are the local/municipal plans integrated in the planning of the biosphere reserve?

The biosphere reserve management plan is based on the Great Bear Lake Watershed management plan and fits in the context of the Sahtu Land Use Plan. The Conservation Zones

and Special Management Areas were identified by the Sahtugot'ine and protected through their efforts. Saoyú-ʔehdacho National Historic Site was specifically protected through the NWT Protected Areas Strategy, again as a result of the efforts of the Sahtugot'ine. The initiative to establish a biosphere reserve is likewise driven by the Sahtugot'ine. It is very much part of the regional Sahtu strategy to establish a sound environmental stewardship context within which responsible economic development can proceed. Local and municipal plans are fully integrated in the biosphere reserve and vice versa – they are one and the same.

Territorial and federal support for the Great Bear Lake biosphere reserve proposal is essential. (etc.)

17.4.11 Indicate the main source of the funding and the estimated yearly budget.

Funding for the biosphere reserve will be provided by a range of organizations: local, territorial, federal, non-government (including industry). The estimated yearly budget is about $750K including core administrative costs for a small office, meetings of the Steering Committee, research and monitoring programs, education programs and so on.

17.5 Conclusions:

17.5.1 In your opinion, what will ensure that both the functioning of the biosphere reserve and the structures in place will be satisfactory? Explain why and how, especially regarding the fulfillment of the three functions of biosphere reserves (conservation, development, logistic) and the participation of local communities.

Great Bear Lake is a rare jewel, the last pristine large, cold-water lake of its kind on the planet, set in a ring of undisturbed forest and tundra that is both homeland to the Sahtugot'ine and wilderness to the rest of us.

The consideration and examination of social and economic impacts related to major industrial, commercial and infrastructure projects, especially by the Mackenzie Valley Environmental Impact Review Board (MVEIRB), in the Northwest Territories has lead to the identification of important information on local people's concerns. In its report on Community Visits, the MVEIRB found consensus among communities on the following key points:

- ". . . a desire for an economy that works in harmony with and respects communities' needs for traditional subsistence lifestyles"
- "Communities are concerned about maintaining their language and culture because industrial development brings with it a different set of values. Culture needs to be maintained, not as a reminder of a former way of life, but rather as a living and dynamic system that guides aboriginal existence."
- "Protection of language, respect for traditional knowledge and the elders, protection of heritage resources, access to land and respect for traditional laws were all things brought forward by communities . . ."
- "There is significant community fear that industrial development will destroy many known and unknown archaeological resources, as well as harm the spiritual and cultural powers of these areas. Often, knowledge of the traditional way of life and the cultural perspective that binds people together has a link to these locations of special significance."
- "Socio-economic impact assessment is not just about unemployment rates and average income. Communities want to be involved in the identification of relevant criteria and indicators linked directly to valued components of community wellness, and the collection and interpretation of this data."

These concerns, along with many others, indicate a real desire by the people to be involved in project review and development processes, as well as to ensure respect for and preservation of areas of cultural and historic significance to them. This is as truce for the Sahtugot'ine as it is for any other group in the NWT.

As noted earlier in this document, the elders of Déline have passed down a story through many generations. In times past, their spiritual teachers were often "mystically tied" to different parts of the environment: some to the caribou, some the wolf, some the northern lights and some the willow. Kayé Daoyé was one such person. He lived all around GBL or "Sahtu" in the Slavey language, but made his home primarily in Edaiila (the Caribou Point area), on the northeast shores of the Lake. Kayé Daoyé was mystically tied to the loche. One day, after setting four hooks, he found one of them missing. This disturbed him — in those days hooks were rare and very valuable — and that night he traveled in his dreams with the loche in search of the fish that had taken his hook. As he traveled through the centre of GBL, he became aware of a great power in the lake — the heart of the lake or the "water heart". Contemplating this heart, he became aware that it is connected to all beings — the land, the sky, plants, other creatures, people — and that it helps sustain the entire watershed of GBL.

The elders of Déline stress that the interconnectedness of all things includes all people — Dene and non-Dene alike. From this "universal law" of the interconnectedness of things flows the responsibility of people to care for the world in which we live. The water heart sustains the watershed of GBL, and we in turn have a responsibility to sustain it. We do this by treating it and other beings with the utmost respect.

Déline's elders also remind us that, in times past, laws have often been imposed upon the Dene, with little or no consultation, by the federal and territorial governments. Their exclusion from decision-making has created an unhealthy relationship between the Dene and other Canadians, as represented by the Crown. The elders want to change that relationship. They see the cooperative development of the GBL Management Plan — and its incorporation into the Sahtu Land Use Plan — as an opportunity for all three natural levels of government — Déline, the Northwest Territories and Canada — to work together in the development of one law for the good of all.

The elders see the development of the GBL Management Plan and the Sahtu Land Use Plan as complementary to the settlement of the Sahtu Dene and Metis Comprehensive Land Claim Agreement (the "SLCA") in 1993 and to the current negotiation of the Déline Self Government Agreement ("DSGA"). Indeed, they assert that the SLCA and the resource management regime it envisages is currently incomplete — that this regime will only be complete with the approval of the Sahtu Land Use Plan — and that significant developments in the watershed should not be allowed to proceed until the Land Use Plan is approved. They see the Sahtu Land Use Plan and the "law" it would create as being based on the consensus of all three levels of government, and on their common aspirations for this unique part of the world. They see the Management Plan/Sahtu Land Use Plan as an opportunity to bring Dene traditional laws and values into the system of laws by which we govern ourselves."

Déline has worked closely with the Sahtu Land Use Planning Board to ensure that its values and its vision for the GBLW are entrenched in the Sahtu Land Use Plan. The Conservation Zones and the Special Management Area are a direct result of that engagement. The creation of Saoyú-?Ehdacho National Historic Park was possible only because of the vision and tenacity of the Déline, particularly its elders.

The same is true for the proposed biosphere reserve. It will be created because of the vision and tenacity of the Sahtugot'ine, particularly the elders. It will provide a mechanism for implementing the Great Bear Lake Watershed management plan, so central to the objectives of the community. It will succeed because the Sahtugot'ine want it to succeed.

18. SPECIAL DESIGNATIONS:

[Special designations recognize the importance of particular sites in carrying out the functions important in a biosphere reserve, such as conservation, monitoring, experimental research, and environmental education. These designations can help strengthen these functions where they exist or provide opportunities for developing them. Special designations may apply to an entire proposed biosphere reserve or to a site included within. They are therefore complementary and reinforcing of the designation as a biosphere reserve. Check each designation that applies to the proposed biosphere reserve and indicate its name]

Name:

( ) UNESCO World Heritage Site

( ) RAMSAR Wetland Convention Site

(X) Other international/regional conservation conventions/directives (specify) IBP sites

(X) Long term monitoring site (specify)

() Long Term Ecological Research (LTER site)

(X) Other (specify)

19. SUPPORTING DOCUMENTS (to be submitted with nomination form):

To be completed

(1) Location and zonation map with coordinates

[Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84).
Provide a map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form. If applicable, also provide a link to access this map on the internet (e.g. Google map, website).]

(2) Vegetation map or land cover map

[A vegetation map or land cover map showing the principal habitats and land cover types of the proposed biosphere reserve should be provided, if available].

(3) List of legal documents (if possible with English, French or Spanish synthesis of its contents and a translation of its most relevant provisions)

[List the principal legal documents authorizing the establishment and governing use and management of the proposed biosphere reserve and any administrative area(s) they contain. Provide a copy of these documents.

(4) List of land use and management/cooperation plans

[List existing land use and management/cooperation plans (with dates and reference numbers) for the administrative area(s) included within the proposed biosphere reserve. Provide a copy of these documents. It is recommended to produce English, French or Spanish synthesis of its contents and a translation of its most relevant provisions]

Rakekee Gok'é Godi: Places we take care of. Report of the Sahtu Heritage Places and Sites Joint Working Group. 2000
The Water Heart: a management plan for Great Bear Lake and its watershed. 2006
Sahtu Land Use Plan. 2013
Tłı̨chǫ Wenek'e : "Tłı̨chǫ Land Use Plan". 2013

(5) Species list (to be annexed)

[Provide a list of important species occurring within the proposed biosphere reserve, including common names, wherever possible.]

See below

(6) List of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the proposed biosphere reserve over the past 5-10 years].

Saoyú-ʔehdacho

- 2006 - Saoyú-ʔehdacho | Socio-Economic Background Information and Preliminary Assessment (toc pdf |full text pdf)
- 2006 - Saoyú-ʔehdacho | Renewable Resource Assessment (summary pdf | full text pdf)
- 2005 - Saoyú-ʔehdacho | Reconnaissance of Flora and Fauna (summary pdf | full text pdf)
- 2005 - Saoyú-ʔehdacho | Non-Renewable Resource Assessment Phase 2 (summary pdf | full text link)
- 2004 - Saoyú-ʔehdacho | Cultural Values Report
- 2004 - Saoyú-ʔehdacho | Commemorative Integrity Statement (summary pdf | full text pdf)
- 2002 - Saoyú-ʔehdacho | Non-Renewable Resource Assessment Phase 1 (link)
- 1996 - Grizzly Bear Mountain & Scented Grass Hills | Historic Sites and Monuments Board Agency Paper: Narrative and Landscape (pdf)
- 2007 - Saoyú-ʔehdacho | Working Group Final Report (pdf)

Edaı̨ı̨la

- 2009 - Edaı́ı́la | Ecological Assessment Phase 2 (summary pdf) (full text pdf)
- 2007 - Edaı́ı́la | Cultural Assessment Phase 1 (summary pdf | full text pdf)
- 2007 - Edaı́ı́la | Non-Renewable Resource Assessment Phase 1 (link)
- 2006 - Edaı́ı́la | Ecological and Renewable Resource Assessment Phase 1 (summary pdf | full text pdf)

Johnny Hoe River

- 2006 - Johnny Hoe River | Ecological and Renewable Resources Assessment Phase 1

Great Bear Lake Watershed

- Great Bear Lake State of Knowledge of the Terrestrial Environment. Northern Environmental Consulting. 2004

- Important Wildlife Areas in the Northwest Territories. JM Wilson and CA Haas. ENR-GNWT. 2012. Manuscript Report No. 221
- Great Bear Lake Working Group (2005) ‘‘The water heart’’: a management plan for Great Bear Lake and its watershed. May 31, 2005 with caveat of February 7, 2006; directed by the Great Bear Lake Working Group and facilitated and drafted by Tom Nesbitt, Déline, Northwest Territories

Great Bear Lake

- Past, present and future of fishery management on one of the world’s last remaining pristine great lakes: Great Bear Lake, Northwest Territories, Canada. Muir, A.M, Leonard, D.M, Krueger, C.C. Rev Fish Biol Fisheries. 2012.
- State of the aquatic knowledge of Great Bear Lake watershed. Report prepared for Water Resources Division, INAC, Yellowknife.. MacDonald, D.D., D.A. Levy, A. Czarnecki, G. Low and N. Richea. 2003. 151 pp.
- The Great Bear Lake: its place in history. Lionel Johnson. Journal of the Arctic Institute of North America, vol 8, no 4, 1975

Sahtu

- Rakekée Gok'é Godi: Places we take care of. Report of the Sahtu Heritage Places and Sites Joint Working Group. 2000

NWT

- NWT State of the Environment. Department of Environment and Natural Resources, Government of Northwest Territories, Yellowknife. NT.
- Tłı̨chǫ Wenek’e : “Tłı̨chǫ Land Use Plan”. 2013. Tłı̨chǫ Government, Behchokǫ̀, NT, Canada.

(7) Original Endorsement letters according to paragraph 5

(8) Further supporting documents.

20. ADDRESSES:

20.1 Contact address of the proposed biosphere reserve:
[Government agency, organization, or other entity (entities) to serve as the main contact and to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: _____

Street or P.O. Box: _____

City with postal code: _____

Country: _____

Telephone: _____

E-mail: _____

Web site: _____

20.2. Administering entity of the core area(s):

Name: _____
Street or P.O. Box: _____
City with postal code: _____
Country: _____
Telephone: _____
E-mail: _____
Web site: _____

20.3. Administering entity of the buffer zone(s):

Name: _____
Street or P.O. Box: _____
City with postal code: _____
Country: _____
Telephone: _____
E-mail: _____
Web site: _____

20.4. Administering entity of the transition area(s):

Name: _____
Street or P.O. Box: _____
City with postal code: _____
Country: _____
Telephone: _____
E-mail: _____
Web site: _____

Vegetation, birds, mammals and fish of the proposed Great Bear Lake biosphere reserve

1. Vegetation of the proposed Great Bear Lake biosphere reserve

	Common Name	Species	NWT GS Rank COSEWIC / SARA STATUS
Dryopteridaceae	Fragrant Cliff Wood-fern	*Dryopteris fragrans*	Secure
Equisetaceae	Field Horsetail	*Equisetum arvense*	Secure
	Dwarf Scouring-rush	*Equisetum scirpoides*	Secure
Cupressaceae	Common Juniper (Ground juniper)	*Juniperus communis*	Secure
Pinaceae	Tamarack	*Larix laricina*	Secure
	White Spruce	*Picea glauca*	Secure
Sparganiaceae	Narrow-leaf Bur-reed	*Sparganium angustifolium*	Secure
	Northern Bur-reed	*Sparganium hyperboreum*	Secure
Poaceae	Broad-leaf Arctic-bent	*Arctagrostis latifolia*	Secure
	Pendant Grass	*Arctophila fulva*	Secure
	Blue-jointed Reed Grass	*Calamagrostis canadensis*	Secure
	Purple Reed Grass	*Calamagrostis purpurascens*	Secure
	Short-leaved Fescue	*Festuca brachyphylla*	Secure
	Red Fescue	*Festuca rubra (F. rubra ssp rubra)*	Exotic/Alien
	Alpine Sweet Grass	*Hierochloe alpina*	Secure
	Vanilla Sweet Grass	*Hierochloe odorata*	Secure
	Arctic Bluegrass	*Poa arctica (includes P. brintnellii; P. lanata; P. williamsii)*	Secure
	White Bluegrass	*Poa glauca*	Secure
	Fowl Bluegrass	*Poa palustris*	Secure
	Kentucky Bluegrass	*Poa pratensis (incl. P. alpigena; P. pratensis ssp. pratensis and ssp. colpodea)*	Secure
	Narrow False Oat	*Trisetum spicatum*	Secure
Cyperaceae	Circumpolar Sedge	*Carex adelostoma (C. morrisseyi)*	Sensitive
	Black-and-White-Scale Sedge	*Carex albonigra*	Secure
	Water Sedge	*Carex aquatilis*	Secure
	Dark-brown Sedge	*Carex atrofusca*	Secure
	Bigelow's Sedge	*Carex bigelowii (C. consimilis, C. lugens, C. cyclocarpa, C.yukonensis, C. anguillata)*	Secure
	Buxbaum's Sedge	*Carex buxbaumii*	Secure
	Silvery Sedge	*Carex canescens*	Secure
	Hairlike Sedge	*Carex capillaris*	Secure
	Capitate Sedge	*Carex capitata*	Secure
	Creeping Sedge	*Carex chordorrhiza*	Secure
	Low Northern Sedge	*Carex concinna*	Secure
	Thread-leaved Sedge	*Carex filifolia (C. elyniformis)*	Sensitive
	Short-Leaf Sedge	*Carex fuliginosa (C. misandra; C. fuliginosa ssp. misandra)*	Secure

	Garber's Elk Sedge	*Carex garberi*	Secure
	Glacier Sedge	*Carex glacialis*	Secure
	Northern Bog Sedge	*Carex gynocrates*	Secure
	Arctic Marsh Sedge	*Carex holostoma*	Secure
	Lapland Sedge	*Carex lapponica (C. canescens ssp. subloliacea)*	Secure
	Bristly-stalk Sedge	*Carex leptalea*	Secure
	Mud Sedge	*Carex limosa*	Secure
	Mackenzie Sedge	*Carex mackenziei (C. norvegica Willdenow ex Schkuhr, Besch. Riedgrä)*	May Be At Risk
	Boreal Bog Sedge (Magellan's Carex)	*Carex magellanica (C. paupercula)*	Secure
	Sea Sedge	*Carex marina (syn. C. amblyorhyncha)*	Secure
	Seaside Sedge	*Carex maritima*	Secure
	Fragile-seed Sedge	*Carex membranacea*	Secure
	False Unicinia Sedge	*Carex microglochin*	Secure
	Blunt Sedge	*Carex obtusata*	Secure
	Loose-flowered Sedge	*Carex rariflora*	Secure
	Swollen Beaked Sedge	*Carex rostrata*	Undetermined
	Rock Sedge	*Carex rupestris*	Secure
	Russet Sedge	*Carex saxatilis (C. physocarpa)*	Secure
	Bulrush Sedge	*Carex scirpoidea*	Secure
	Weak Arctic Sedge	*Carex supina*	Secure
	Sparse-flowered Sedge	*Carex tenuiflora*	Secure
	Sheathed Sedge	*Carex vaginata*	Secure
	Little Green Sedge	*Carex viridula (C. oederi)*	Secure
	Williams' Sedge	*Carex williamsii*	Secure
	Needle Spike Rush	*Eleocharis acicularis*	Secure
	Few-flowered Spike Rush	*Eleocharis quinqueflora (E. pauciflora)*	Secure
	Narrow-leaved Cottongrass	*Eriophorum angustifolium (incl. E. triste)*	Secure
	Sheathed Cotton-grass	*Eriophorum callitrix*	Secure
	Tussock Cotton-grass *m*	*Eriophorum vaginatu*	Secure
	Simple Kobresia	*Kobresia simpliciuscula*	Secure
	Tufted Bulrush	*Trichophorum caespitosum (Scirpus caespitosus)*	Secure
Juncaceae	Northern Wood Rush	*Luzula confusa*	Secure
	Seaside Arrowgrass	*Triglochin maritima*	Secure
	Marsh Arrowgrass	*Triglochin palustris (T. palustre)*	Secure
Liliaceae	Northern False Asphodel	*Tofieldia coccinea*	Secure
	Scotch False Asphodel	*Tofieldia pusilla (T. palustris)*	Secure
	Mountain Death Camas	*Zigadenus elegans*	Secure
Orchidacea	Tall Northern Green Orchid	*Platanthera aquilonis (Habenaria hyperborea, P. hyperborea)*	Secure
	Blunt-leaved Bog Orchid	*Platanthera obtusata (Habenaria obtusata)*	Secure
Salicaceae	Trembling Aspen	*Populus tremuloides*	Secure
	Alaska Willow	*Salix alaxensis (S. longistylis)*	Secure
	Littletree Willow	*Salix arbusculoides*	Secure
	Arctic Willow	*Salix arctica (S. anglorum, S. crassijulis, S. hudsonensis)*	Secure
	Northern Willow	*Salix arctophila*	Secure
	Bebb Willow (longbeaked willow)	*Salix bebbiana (S. rostrata)*	Secure
	Short-fruit Willow	*Salix brachycarpa*	Secure
	Gray willow	*Salix glauca (S. cordiflora ssp callicarpea & glauca ssp stenolepsis?)*	Secure

	Snowbed Willow (New England Dwarf Willow)	*Salix herbacea*	Secure
	Blueberry Willow	*Salix myrtillifolia*	Secure
	Bog Willow	*Salix pedicellaris*	Secure
	Diamond-leaved Willow	*Salix planifolia (incl S. tyrrellii)*	Secure
	Polar Willow	*Salix polaris*	Secure
	False Mountain Willow	*Salix pseudomonticola*	Secure
	Net-veined Willow	*Salix reticulata*	Secure
	Richardson Willow	*Salix richardsonii (S. lanata ssp. richardsonii)*	Secure
	Scouler Willow (mountain willow, fire willow)	*Salix scouleriana*	Secure
Myricaceae	Sweet Gale	*Myrica gale*	Secure
Betulaceae	Green Alder	*Alnus viridis (incl A. crispa)*	Secure
	Arctic Dwarf Birch (Dwarf Birch)	*Betula nana (B. glandulosa, B.x eastwoodiae)*	Secure
	Water Birch	*Betula occidentalis (B. fontinalis, B. x eastwoodiae)*	Secure
	Paper Birch (white birch)	*Betula papyrifera (B. papyrifera var. commutata)*	Secure
Santalaceae	Northern Comandra spp	*Geocaulon lividum*	Secure
Polygonaceae	Alpine Knotweed	*Bistorta vivipara (Persicaria vivipara, Polygonum viviparum)*	Secure
Caryophyllaceae	Field Mouse-ear Chickweed	*Cerastium arvense*	Secure
	Slender Mountain Sandwort	*Eremogone capillaris (Arenaria capillaris)*	Secure
	Arctic Campion	*Silene involucrata (syn Melandrium affine, M. furcatum, Lychnis brachycalyx, L. gillettii, Silene tayloriae (as S.involucrata ssp tenella)*	Secure
	Taimyr Campion	*Silene taimyrensis (S. ostenfeldii, Melandrium ostenfeldii & Melandrium taimyrense, Melandrium dawsonii)*	Secure
	Northern Bog Starwort	*Stellaria calycantha*	Undetermined
	Fleshy Stitchwort Secure	*Stellaria crassifolia*	
	Long-stalked Stitchwort	*Stellaria longipes (S. laeta, S. monantha, S. stricta, S. subvestita, S. edwardsii, S. ciliatosepala, S. crassipes)*	Secure
Nymphaeaceae	Variegated Pond Lily	*Nuphar variegata (N. variegatum, N. lutea ssp. variegata)*	Secure
Ranunculaceae	Yellow Anemone	*Anemone richardsonii*	Secure
	Seaside Buttercup (Crowfoot)	*Ranunculus cymbalaria*	Secure
Brassicaceae	Alpine Whitlow-grass	*Draba alpina (D. micropetala, D. pilosa)*	Secure
	Rock Whitlow-grass	*Draba glabella (D. daurica, D. hirta)*	Secure
	Yellow Arctic Whitlowgrass	*Draba nivalis*	Secure
	Worm-seed Wallflower	*Erysimum cheiranthoides*	Secure
	Pallas Wallflower	*Erysimum pallasii*	Secure
	Naked-stemmed Wallflower	*Parrya nudicaulis*	Secure
	Bog Yellowcress	*Rorippa palustris (R. islandica)*	Secure
Saxifragaceae	Northern Golden Saxifrage	*Chrysosplenium tetrandrum*	Secure
	Kotzebue's Grass- ofparnassus	*Parnassia kotzebuei*	Secure
	Marsh Grass-ofparnassus	*Parnassia palustris (incl. P. palustris var. montanensis)*	Secure
	Nodding Saxifrage	*Saxifraga cernua*	Secure
	Prickly Saxifrage	*Saxifraga tricuspidata*	Secure
Grossulariaceae	Northern Black Currant	*Ribes hudsonianum*	Secure

	Canada Gooseberry	*Ribes oxyacanthoides*	Secure
	Swamp Red Currant	*Ribes triste*	Secure
Rosaceae	Shrubby Cinquefoil	*Dasiphora fruticosa (Potentilla fruticosa)*	Secure
	Entire-leaved Mountain Avens	*Dryas integrifolia (incl D. chamissonis, D. sylvatica,D.crenulata)*	Secure
	Rocky Mountain Cinquefoil	*Potentilla rubricaulis*	Secure
	Prickly Rose	*Rosa acicularis*	Secure
	Cloudberry	*Rubus chamaemorus*	Secure
	Red Raspberry	*Rubus idaeus (R. idaeus ssp. strigosus)*	Secure
	Arctic Raspberry	*Rubus arcticus (incl. R. acaulis and R. stellatus)*	Secure
Fabaceae	Alpine Milk-vetch	*Astragalus alpinus*	Secure
	American Milk-vetch	*Astragalus americanus*	Secure
	Alpine Sweet-vetch	*Hedysarum alpinum*	Secure
	Boreal Sweet- vetch	*Hedysarum boreale (H. boreale ssp. mackenziei, H. mackenziei)*	Secure
	Arctic Locoweed	*Oxytropis arctica (incl. O. bellii)*	Secure
	Field Locoweed	*Oxytropis campestris (O. campestris var. varians, and var. roaldii, O. hyperborea, O. jordalii, O. sericea var. spicata)*	Secure
Empetraceae	Black Crowberry	*Empetrum nigrum*	Secure
Elaeagnaceae	Buffalo-berry	*Shepherdia canadensis*	Secure
Onagraceae	Fireweed	*Chamerion angustifolium (Epilobium angustifolium)*	Secure
	River Beauty	*Chamerion latifolium (Epilobium latifolium)*	Secure
Pyrolaceae	One-flowered Wintergreen	*Moneses uniflora*	Secure
	One-sided Wintergreen	*Orthilia secunda (Pyrola secunda)*	Secure
	Arctic Pyrola	*Pyrola grandiflora*	Secure
Ericaceae	Bog Rosemary	*Andromeda polifolia*	Secure
	Red Bearberry	*Arctostaphylos rubra*	Secure
	Common Bearberry (Kinnikinnik)	*Arctostaphylos uva-ursi*	Secure
	Arctic White Heather	*Cassiope tetragona*	Secure
	Leatherleaf	*Chamaedaphne calyculata*	Secure
	Alpine Laurel	*Kalmia microphylla*	Undetermined
	Common Labrador Tea	*Ledum groenlandicum*	Secure
	Narrow-leaved Labrador Tea	*Ledum palustre ssp decumbens (L.decumbens)*	Secure
	Alpine Azalea	*Loiseleuria procumbens*	Secure
	Lapland Rosebay	*Rhododendron lapponicum*	Secure
	Alpine Bilberry	*Vaccinium uliginosum*	Secure
	Rock Cranberry (Lingonberry)	*Vaccinium vitis-idaea*	Secure
Plumbaginaceae	Western Thrift	*Armeria maritima*	Secure
Gentianaceae	Marsh Felwort	*Lomatogonium rotatum*	Secure
Menyanthaceae	Bog Buckbean	*Menyanthes trifoliata*	Secure
Scrophulariaceae	Elegant Indian Paintbrush/Painted Cup spp	*Castilleja elegans*	Secure
	Red-tip Lousewort -	*Pedicularis flammea*	Sensitive
	Labrador Lousewort	*Pedicularis labradorica*	Secure
	Woolly Lousewort	*Pedicularis lanata*	Secure
	Sudetan Lousewort	*Pedicularis sudetica*	Secure
Lentibulariaceae	Common Butterwort	*Pinguicula vulgaris*	Secure
Caprifoliaceae	Twinflower	*Linnaea borealis*	Secure
Asteraceae	Narrowleaf Arnica	*Arnica angustifolia (A. alpina var. omentosa)*	Secure
	Tilesius Sagebrush	*Artemisia tilesii*	Secure

	Siberian Aster	*Eurybia sibirica (Aster sibiricus)*	Secure
	Balsam Groundsel	*Packera paupercula (Senecio pauperculus)*	Secure
	Marsh Ragwort	*Senecio congestus*	Secure
	Black-tip Ragwort	*Senecio lugens*	Secure
	Lindley's Aster	*Symphyotrichum ciliolatum (Aster ciliolatus)*	Secure

2. Birds of the proposed Great Bear Lake biosphere reserve

Common Name	Species	NWT GS Rank COSEWIC /SARA Status
American Robin	*Turdus migratorius*	Secure
American Pipit	*Anthus spinoletta*	Sensitive
Bohemian Waxwing	*Bombycilla garrulus*	Secure
Tennessee Warbler	*Vermivora peregrina*	Secure
Orange-crowned Warbler	*Vermivora celata*	Secure
Yellow Warbler	*Dendroica petechia*	Secure
Yellow-rumped Warbler	*Dendroica coronata*	Secure
Palm Warbler	*Dendroica palmarum*	Secure
Blackpoll Warbler	*Dendroica striata*	Sensitive
Northern Waterthrush	*Seiurus noveboracensis*	Secure
Wilson's Warbler	*Wilsonia pusilla*	Secure
American Tree Sparrow	*Spizella arborea*	Sensitive
Chipping Sparrow	*Spizella passerina*	Secure
Savannah Sparrow	*Passerculus sandwichensis*	Secure
Fox Sparrow	*Passerella iliaca*	Secure
Lincoln's Sparrow	*Melospiza lincolnii*	Secure
White-throated Sparrow	*Zonotrichia albicollis*	Sensitive
Harris's Sparrow	*Zonotrichia querula*	Sensitive
White-crowned Sparrow	*Zonotrichia leucophrys*	Secure
Dark-eyed Junco	*Junco hyemalis*	Secure
Lapland Longspur	*Calcarius lapponicus*	Secure
Boreal Chickadee	*Poecile hudsonica*	Sensitive
Ruby-crowned Kinglet	*Regulus calendula*	Secure
Gray-cheeked Thrush	*Catharus minimus*	Secure
Swainson's Thrush	*Catharus ustulatus*	Secure
Smith's Longspur	*Calcarius pictus*	Undetermined
Snow Bunting	*Plectrophenax nivalis*	Secure
Red-winged Blackbird	*Agelaius phoeniceus*	Secure
Rusty Blackbird	*Euphagus carolinus*	May Be At Risk Special Concern under COSEWIC
Pine Grosbeak	*Pinicola enucleator*	Secure
White-winged Crossbill	*Loxia leucoptera*	Secure
Common Redpoll	*Carduelis flammea*	Secure
Hoary Redpoll	*Carduelis hornemanni*	Undetermined
Cliff Swallow	*Hirundo pyrrhonota*	Secure
Gyrfalcon	*Falco rusticolus*	Secure Not At Risk
Peregrine Falcon	*Falco peregrinus anatum/tundrius*	Sensitive Special Concern under COSEWIC
Sora	*Porzana carolina*	Secure
Sandhill Crane	*Grus canadensis*	Secure
Black-bellied Plover	*Pluvialis squatarola*	Sensitive
American Golden Plover	*Pluvialis dominica*	Sensitive
Semipalmated Plover	*Charadrius wilsonia*	Secure
Lesser Yellowlegs	*Tringa flavipes*	Sensitive
Great Horned Owl	*Bubo virginianus*	Secure
Spotted Sandpiper	*Actitis macularius (Actitis acularia)*	Secure

White-rumped Sandpiper	*Calidris fuscicollis*	Secure
Semipalmated Sandpiper	*Calidris pusilla*	Sensitive
Least Sandpiper	*Calidris minutilla*	Sensitive
Pectoral Sandpiper	*Calidris melanotos*	Secure
Wilson's Snipe	*Gallinago delicata*	Undetermined
Red-necked Phalarope	*Phalaropus lobatus*	Sensitive
Parasitic Jaeger	*Stercorarius parasiticus*	Undetermined
Bonaparte's Gull	*Larus philadelphia*	Secure
Mew Gull	*Larus canus*	Secure
Herring Gull	*Larus argentatus*	Secure
Arctic Tern	*Sterna paradisaea*	Secure
Northern Hawk Owl	*Surnia ulula*	Secure Not At Risk
Great Gray Owl	*Strix nebulosa*	Secure Not At Risk
Short-eared Owl	*Asio flammeus*	Sensitive Special Concern under SARA (Schedule 3)
Hairy Woodpecker	*Picoides villosus*	Secure
American Three-toed Woodpecker	*Picoides tridactylus*	Secure
Northern Flicker	*Colaptes auratus*	Secure
Say's Phoebe	*Sayornis saya*	Undetermined
Northern Shrike	*Lanius excubitor*	Secure
Gray Jay	*Perisoreus canadensis*	Secure
Common Raven	*Corvus corax*	Secure
Horned Lark	*Eremophila alpestris*	Secure
Tree Swallow	*Tachycineta bicolor*	Secure
Greater White-fronted Goose	*Anser albifrons*	Secure
Snow Goose	*Chen caerulescens*	Secure
Canada Goose	*Branta canadensis*	Secure
Tundra Swan	*Cygnus columbianus*	Secure
American Wigeon	*Anas americana*	Secure
Mallard	*Anas platyrhynchos*	Secure
Northern Shoveler	*Anas clypeata*	Secure
Northern Pintail	*Anas acuta*	Sensitive
Green-winged Teal	*Anas crecca*	Secure
Canvasback	*Aythya valisineria*	Secure
Greater Scaup	*Aythya marila*	Secure
Lesser Scaup	*Aythya affinis*	Sensitive
Surf Scoter	*Melanitta perspicillata*	Sensitive
White-winged Scoter	*Melanitta fusca*	Sensitive
Long-tailed Duck	*Clangula hyemalis*	Sensitive
Bufflehead	*Bucephala albeola*	Secure
Red-breasted Merganser	*Mergus serrator*	Secure
Ruddy Duck	*Oxyura jamaicensis*	Secure
Ruffed Grouse	*Bonasa umbellus*	Secure
Spruce Grouse	*Dendragapus canadensis*	Secure
Willow Ptarmigan	*Lagopus lagopus*	Secure
Rock Ptarmigan	*Lagopus mutus*	Secure
Sharp-tailed Grouse	*Tympanuchus phasianellus*	Secure
Red-throated Loon	*Gavia stellata*	Secure
Pacific Loon	*Gavia pacifica*	Secure
Common Loon	*Gavia immer*	Secure Not At Risk
Horned Grebe	*Podiceps auritus*	Secure
Red-necked Grebe	*Podiceps grisegena*	Secure Not At Risk
Osprey	*Pandion haliaetus*	Secure
Bald Eagle	*Haliaeetus leucocephalus*	Secure Not At Risk

Northern Harrier	*Circus cyaneus*	Secure Not At Risk
Sharp-shinned Hawk	*Accipiter striatus*	Secure Not At Risk
Northern Goshawk	*Accipiter gentilis*	Secure Not At Risk
Red-tailed Hawk	*Buteo jamaicensis*	Secure Not At Risk
Rough-legged Hawk	*Buteo lagopus*	Secure Not At Risk
Golden Eagle	*Aquila chrysaetos*	Secure Not At Risk
American Kestrel	*Falco sparverius*	Secure
Merlin	*Falco columbarius*	Secure Not At Risk

3. Mammals of the Proposed Great Bear Lake biosphere reserve

Common Name	Species	NWT GS Rank COSEWIC /SARA Status
Masked Shrew	*Sorex cinereus*	Secure
Pygmy Shrew	*Sorex hoyi*	Secure
Snowshoe Hare	*Lepus americanus*	Secure
Arctic Hare	*Lepus arcticus*	Secure
Arctic Ground Squirrel	*Spermophilus parryii*	Secure
Red Squirrel	*Tamiasciurus hudsonicus*	Secure
Beaver	*Castor canadensis*	Secure
Northern Red-backed Vole	*Clethrionomys rutilus*	Secure
Brown Lemming	*Lemmus trimucronatus*	Secure
Victoria Collared Lemming	*Dicrostonyx kilangmiutak*	Secure
Muskrat	*Ondatra zibethicus*	Secure
Meadow Vole	*Microtus pennsylvanicus*	Secure
Tundra Vole	*Microtus oeconomus*	Secure
Taiga Vole (Chestnutcheeked vole)	*Microtus xanthognathus*	Secure
North American Porcupine	*Erethizon dorsatum*	Secure
Gray Wolf	*Canis lupus*	Secure Not At Risk
Arctic Fox	*Vulpes lagopus*	Secure
Red Fox	*Vulpes vulpes*	Secure
Black Bear	*Ursus americanus*	Secure Not At Risk
Grizzly Bear	*Ursus arctos*	Sensitive Special Concern under COSEWIC
Marten	*Martes americana*	Secure
Ermine	*Mustela erminea*	Secure
Least Weasel	*Mustela nivalis*	Secure
Mink	*Mustela vison*	Secure
Wolverine	*Gulo gulo*	Sensitive Special Concern under COSEWIC
Northern River Otter	*Lontra canadensis*	Secure
Lynx	*Lynx canadensis*	Secure Not At Risk
Boreal Caribou	*Rangifer tarandus caribou*	Sensitive Threatened under SARA (Schedule 1)
Barren-ground Caribou	*Rangifer tarandus groenlandicus*	Sensitive
Moose	*Alces americanus*	Secure
Muskox	*Ovibos moschatus*	Secure
*Polar Bear (rare, accidental)	*Ursus maritimus*	Vulnerable, threatened

4. Fish of the proposed Great Bear Lake biosphere reserve

Common Name	Species	NWT GS Rank COSEWIC /SARA Status

Lake Whitefish	*Coregonus clupeaformis*	Secure
Lake Cisco	*Coregonus artedii*	Secure
Round Whitefish	*Prosopium cylindraceum*	Secure
Arctic Grayling	*Thymallus arcticus*	Secure
Lake Trout	*Salvelinus namaycush*	Secure
Pond Smelt	*Hypomesus olidus*	Secure
Northern Pike	*Esox lucius*	Secure
Longnose Sucker	*Catostomus catostomus*	Secure
Burbot	*Lota lota*	Secure
Ninespine Stickleback	*Pungitius pungitius*	Secure
Fourhorn Sculpin	*Myoxocephalus quadricornis*	Special concern sensitive
Slimy Sculpin	*Cottus cognatus*	Secure
Walleye	*Sander vitreus*	Secure

Misc. Info

The diverse ecoregions of the GBLW provide habitat for a wide range of terrestrial plant and animal species. Habitat and wildlife include:

- three important herds of barren-ground caribou: Bathurst herd, Bluenose-West and the Bluenose-East herds. The GBLW is fall and wintering habitat for both the Bluenose East and West herds. It is also Important Wildlife Area for barren-ground caribou. The Bluenose-East herd is of particular value to the SSA and in particular to the community of Délîne;
- muskox habitat in its natural range and three Important Wildlife Areas for muskox;
- eskers and habitat for denning wolves, wolverines, arctic fox, red fox and bears, particularly grizzly bears;
- general moose habitat and Important Wildlife Area for moose;
- boreal woodland caribou habitat;
- furbearer habitat and Important Wildlife Areas for furbearers; and
- general waterfowl habitat, important breeding duck habitat, important habitat for waterfowl and shorebirds including breeding and nesting habitats.

A variety of wildlife is harvested in the GBLW: waterfowl, moose, fish, barren-ground and boreal woodland caribou and furbearers. GBL's subsistence fishery is very important. Although a variety of fish are caught, lake trout is the most heavily-harvested. Lake cisco and whitefish also form a significant component of the subsistence fishery.

May-be at risk plants, International Biological Programme sites and karst features are documented in the zone. Special Harvesting Areas were established in the GBLW for for fish, moose, waterfowl and birds.

The GBLW provides habitat to three important herds of barren ground caribou. The Bathurst herd uses the area between GBL and Great Slave Lake to the south. The total population of this herd, in 2012 was estimated at 32,000, down from a high of 450,000 in the 1990s.. The causes for this change in herd size are uncertain. Caribou herd size varies naturally over time in response to factors such as climate, weather, fire and predation, and other North American migratory caribou herds have also recently declined in numbers. Human influences, including harvesting, wounding loss, wastage, disturbance and habitat change can also affect rates of decline and recovery.

ENR radio-tracking studies show that Bluenose-East herd generally migrates to and concentrates in the Edaiila/Caribou Point area during mid-July to mid-October. Thereafter, most of the herd migrates south and west, typically over-wintering south and south-west of GBL. ENR's radio-collaring data indicates that the Bluenose-West herd often concentrates during the fall rut

(October) in the northern part of the GBLW/the Special Management Zone. Thereafter this herd generally migrates west and south, with concentrations over-wintering in the Whitefish River/Luchaniline area north of Déline.

Most of the calving and post-calving grounds of the Bluenose-West herd are protected by Tuktut Nogait National Park, and the protection of these calving and post-calving grounds is one of the primary purposes of this national park. In contrast, the calving and post-calving grounds of the Bluenose-East herd (in the western parts of the Nunavut Settlement Area and north of the GBLW) are currently afforded no special land use plan or legislative protection whatever.

The Bluenose-East herd is of particular significance because of its value to the Sahtu settlement area as a whole and to the community of Déline in particular. In 2012, this herd was estimated to number approximately ……. animals. In terms of the weight and economic value of the harvest, the Bluenose-East herd is clearly the most important harvest resource of the Sahtu settlement area.

Boreal woodland caribou move along the Mackenzie River corridor, west of Déline. In May 2002, this species was listed as a threatened species under the Species at Risk Act ("SARA"). ENR is now preparing a status report on this species, after which it will prepare a recovery strategy under SARA.

Musk-ox have been re-occupying and expanding their historic range in the NWT and Nunavut since commercial harvesting ended in the early 1900s. In ……. musk-ox numbers in the GBLW were estimated to be……

There has been no recent census of grizzly bear numbers in the GBLW, but numbers are thought to be healthy in this largely undisturbed and extensive region.

Within the GBLW there are many archaeological and other sites of cultural significance. Yamoria and the Giant Beavers is a trail of particular significance. It is the trail that Yamoria took when he chased the Giant Beavers from the Sahtu, killing them and forever saving the people from future attacks.

Great Bear Lake has three major peninsulas. Two of them (Saoyú/ʔehdacho – Scented Grass Hills and Grizzly Bear Mountain) are protected as a National Historic Park.

The Camsell and Johnny Hoe Rivers are the main inflows to GBL, contributing 21% and 12% respectively of the total inflow to the lake, while the Dease, Haldane, Whitefish and Sloan Rivers are the other major inflows. GBL is drained by the Great Bear River, which flows into the Mackenzie River and ultimately the Arctic Ocean.

Annex I to the Biosphere Reserve Nomination Form, January 2013

MABnet Directory of Biosphere Reserves

Biosphere Reserve Description[1]

Administrative details

Country:
Name of BR:
Year designated: (*to be completed by MAB Secretariat)*
Administrative authorities: (17.1.3)
Name Contact: (20.1)
Contact address: *(Including phone number, postal and email addresses)* (20.1)
Related links: *(web sites)*
Social networks**: (16.4.3)**

Description

General description: *(Site characteristics in 11.1; human population in 10)*

Approximately 25 lines

Major ecosystem type: (14.1)
Major habitats & land cover types: (11.6)

[1] To be posted on the MABnet once the nomination has been approved. The numbers refer to the relevant sections of the nomination form.

Bioclimatic zone (11.5)
Location (latitude & longitude): (6.1)
Total Area (ha): (7)
Core area*(s):* (7)
Buffer zone*(s):* (7)
Transition area*(s) :* (7)

Different existing zonation: (7.4)
Altitudinal range *(*metres above sea level): (11.2)
Zonation map(s): (6.2)

Main objectives of the biosphere reserve

Brief description (13.1)

Approximately 5 lines

Research

Brief description (16.1.1)

Approximately 5 lines

Monitoring

Brief description (16.1.1)

Approximately 5 lines

Specific variables (fill in the table below and tick the relevant parameters)

Abiotic		Biodiversity	
Abiotic factors		Afforestation/Reforestation	
Acidic deposition/Atmospheric factors		Algae	
Air quality		Alien and/or invasive species	

Air temperature		Amphibians	
Climate, climatology		Arid and semi-arid systems	
Contaminants		Autoecology	
Drought		Beach/soft bottom systems	
Erosion		Benthos	
Geology		Biodiversity aspects	
Geomorphology		Biogeography	
Geophysics		Biology	
Glaciology		Biotechnology	
Global change		Birds	
Groundwater		Boreal forest systems	
Habitat issues		Breeding	
Heavy metals		Coastal/marine systems	
Hydrology		Community studies	
Indicators		Conservation	
Meteorology		Coral reefs	
Modeling		Degraded areas	
Monitoring/methodologies		Desertification	
Nutrients		Dune systems	
Physical oceanography		Ecology	
Pollution, pollutants		Ecosystem assessment	
Siltation/sedimentation		Ecosystem functioning/structure	
Soil		Ecosystem services	
Speleology		Ecotones	
Topography		Endemic species	
Toxicology		Ethology	
UV radiation		Evapotranspiration	
		Evolutionary studies/Palaeoecology	
		Fauna	
		Fires/fire ecology	
		Fishes	
		Flora	
		Forest systems	
		Freshwater systems	
		Fungi	
		Genetic resources	
		Genetically modified organisms	
		Home gardens	
		Indicators	
		Invertebrates	
		Island systems/studies	
		Lagoon systems	
		Lichens	
		Mammals	
		Mangrove systems	
		Mediterranean type systems	
		Microorganisms	
		Migrating populations	

		Modeling	
		Monitoring/methodologies	
		Mountain and highland systems	
		Natural and other resources	
		Natural medicinal products	
		Perturbations and resilience	
		Pests/Diseases	
		Phenology	
		Phytosociology/Succession	
		Plankton	
		Plants	
		Polar systems	
		Pollination	
		Population genetics/dynamics	
		Productivity	
		Rare/Endangered species	
		Reptiles	
		Restoration/Rehabilitation	
		Species (re) introduction	
		Species inventorying	
		Sub-tropical and temperate rainforest	
		Taxonomy	
		Temperate forest systems	
		Temperate grassland systems	
		Tropical dry forest systems	
		Tropical grassland and savannah systems	
		Tropical humid forest systems	
		Tundra systems	
		Vegetation studies	
		Volcanic/Geothermal systems	
		Wetland systems	
		Wildlife	

Socio-economic		**Integrated monitoring**	
Agriculture/Other production systems		Biogeochemical studies	
Agroforestry		Carrying capacity	
Anthropological studies		Climate change	
Aquaculture		Conflict analysis/resolution	

Archaeology		Ecosystem approach	
Bioprospecting		Education and public awareness	
Capacity building		Environmental changes	
Cottage (home-based) industry		Geographic Information System (GIS)	
Cultural aspects		Impact and risk studies	
Demography		Indicators	
Economic studies		Indicators of environmental quality	
Economically important species		Infrastructure development	
Energy production systems		Institutional and legal aspects	
Ethnology/traditional practices/knowledge		Integrated studies	
Firewood cutting		Interdisciplinary studies	
Fishery		Land tenure	
Forestry		Land use/Land cover	
Human health		Landscape inventorying/monitoring	
Human migration		Management issues	
Hunting		Mapping	
Indicators		Modelling	
Indicators of sustainability		Monitoring/methodologies	
Indigenous people's issues		Planning and zoning measures	
Industry		Policy issues	
Livelihood measures		Remote sensing	
Livestock and related impacts		Rural systems	
Local participation		Sustainable development/use	
Micro-credits		Transboundary issues/measures	
Mining		Urban systems	
Modelling		Watershed studies/monitoring	
Monitoring/methodologies			
Natural hazards			
Non-timber forest products			
Pastoralism			
People-Nature relations			
Poverty			
Quality economies/marketing			
Recreation			
Resource use			
Role of women			
Sacred sites			
Small business initiatives			
Social/Socio-economic aspects			
Stakeholders' interests			
Tourism			
Transports			

Annex II to the Biosphere Reserve Nomination Form, January 2013
Promotion and Communication Materials

For the Proposed Biosphere Reserve

Provide some promotional material regarding the proposed site, notably high quality photos, and/or short videos on the site so as to allow the Secretariat to prepare appropriate files for press events. To this end, a selection of photographs in high resolution (300 dpi), with photo credits and captions and video footage (rushes), without any comments or sub-titles, of professional quality – DV CAM or BETA only, will be needed.

In addition, return a signed copy of the following Agreement on Non-Exclusive Rights. A maximum of ten (10) minutes on each biosphere reserve will then be assembled in the audiovisual section of UNESCO and the final product, called a B-roll, will be sent to the press.

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Bureau of Public Information

Photothèque de l'UNESCO
Bureau de l'Information du Public

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c) The name of the photographer will be cited alongside UNESCO's whenever his/her work is used in any form.

2. I certify that:

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b) The photo(s) is/are in no way whatever a violation or an infringement of any existing copyright or licence, and contain(s) nothing obscene, libellous or defamatory.

Name and Address :
Date :

Signature :

(sign, return to UNESCO two copies of the Agreement and retain the original for yourself)

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m.ravassard@unesco.org

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