

Lake Stewardship Plan

Grace and Dark Lakes

Introduction

The purpose of the Grace and Dark Lake Stewardship Plan is to identify and protect the unique character and the special values that contribute to the reason why people want to live and recreate in this area. The Plan also identifies specific community-based actions that help to conserve and restore specific elements of the lake through stewardship actions... the things that people can do for themselves.

The Stewardship Plan was prepared through a community-based process, led by a lake association, that involved input from all residents commercial operators, recreational lake users and government stakeholders; anyone who had a stake in the future health of the lake and watershed. The final plan is an action-oriented community document that blends land use planning and stewardship activities to provide a comprehensive "made on our lake" approach to protecting the quality of life on and around the lake.

The scope of the Grace and Dark Plan includes all stream and river systems that flow into Grace and Dark Lakes, including Yankton and Scraggy Lakes as well as many other smaller lakes (See Watershed Map on page 8). Although background information has been collected on the entire watershed,

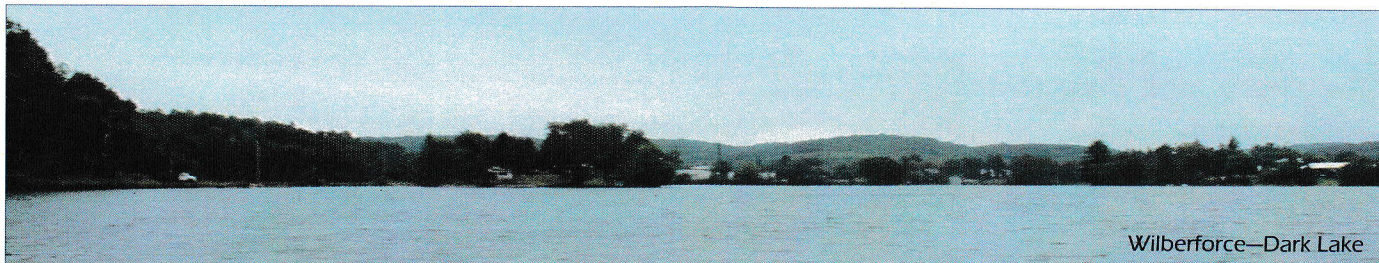


Historic Log
Boathouse
Grace and Dark Lake

the specific scope of the plan focuses on the immediate area adjacent to Grace and Dark Lakes.

The Grace and Dark Lakes Stewardship Plan is intended to be used as a catalyst to ensure the long-term sustainability and healthy existence of our lakes for future generations. A list of stewardship actions are provided at the end of this report that the whole lake community can do to maintain the lake's health, beauty, wildlife habitat, and recreational opportunities.

The Grace and Dark Lake Stewardship Plan is a living document that will continue to evolve over time as individual circumstances and issues occur and new information becomes available. This is just the first step.



Wilberforce—Dark Lake

How was the Grace and Dark Lake Stewardship Plan Prepared?

The Stewardship Plan was created through the volunteer efforts of members of the Grace and Dark Lakes Cottagers Association. In March of 2003, the Association established a Steering Committee to define the scope of the plan, develop a budget and explore the feasibility of completing a Stewardship Plan. The Committee worked with Randy French (French Planning Services Inc) to design a framework, facilitate meetings, gather and evaluate background information, and generally coach them through the process.

The Committee thought that the Plan should provide a focus for the appreciation and protection of the environment, in particular water quality, by fostering awareness, promoting social activities and supporting local initiatives instead of the creation of a set of rules and regulations. This approach was confirmed through consultation with shoreline residents and businesses.

In order to finance the process, the Lake Association formed a fundraising committee to raise funds through donations and a raffle. The Association also applied to the Trillium Foundation and was unsuccessful. A total of \$11,933.20 was raised, \$6,305 directly from the community and an additional \$5,628.20 from a Raffle with prizes donated from local people and businesses.

The commitment of the Executive Committee and the devotion of individual volunteers has been the catalyst for its completion.

The Association approached everyone who had a vested interest in the community, lakes and river, including full time residents, all cottage and property owners, local businesses and local and provincial governments. The intent of the process was to engage shoreline property owners in discussion about the values that are important to their quality of life, to identify the issues and concerns that impact these values, and to prepare a list of stewardship actions.

The Grace and Dark Lakes Stewardship Plan was adopted at the Annual General Meeting in August 2006.



Fund Raising Committee Members

Rick Arnold

Pat Collins

Nancy Fisher

Sue Forbes

Laura Freeman

Bill Vella

Lake Planning Process

Phase One – Identify and Confirm Issues and Actions – 2003-2004

Discuss, identify and confirm issues relevant to the protection of the health and character of the lakes with lake residents and stakeholders.

Phase Two – Collect Background Information – 2004-2005

Collect information on the Natural, Physical and Social Elements, and Land Use through workshops, surveys and research

Phase Three – Prepare and Review Lake Stewardship Plan – 2006

Prepare lake plan and establish actions to be implemented and confirm with steering committee, lake residents and stakeholders.

Phase Four – Implement the Lake Stewardship Plan

Create awareness about the Plan and undertake actions.

Summary of Consultation

The process of preparing the plan was as important as the end product and, therefore, it was extremely important that ample opportunity be given to engage residential and commercial property owners as well as provincial officials and municipal councilors and staff. As a result this process was conducted over a three year period.

The purpose of the consultations was to obtain opinions and comments from everyone.

Resident Workshop 2003

Residents who live on and around Grace and Dark Lakes and Grace River were invited to attend a workshop on July 26, 2003 at the community centre in Wilberforce. The purpose was to provide information about the initiative, identify important local values and issues on the waterway, sources of information, and determine the level of interest in participating in the preparation of the plan. A Community Map was created.



Lake Values

Pristine Water Quality

Diverse Natural Environment (wetlands) & Wildlife

Natural Vistas, Landscapes and Shorelines

Tranquil Ambience & Remote Feeling

Social and Recreational Activities

Bays and Rock Face Lookouts

Sustainable Property & Economic Development

Historical & Cultural Features

Appreciating Property Value

Stakeholder Workshop 2004

A second workshop was held on May 14, 2004 at the Falldown cottage for business operators and government agencies associated with Grace and Dark waterway for similar purposes as the resident workshop.

Residential and Commercial Surveys

A survey was distributed during the summer of 2003 to everyone with property interests on the shorelines of Grace and Dark Lakes. Forty-eight (48) of the approximately 180 surveys distributed (about 27%) were completed and returned. The purpose of the survey was to identify people's ideas, perspectives, issues, concerns and aspirations for the lake. The key values and issues identified are shown on the tables in the sidebar.

Lake Issues

Phosphorus levels and algae blooms

Swimming Rafts

Development in Natural Areas

Noise (ATV, dogs, music, boats)

PWC and water-skiing impacts on loons

Fishing

No Public Beach

West Nile Virus

Shore Erosion

Water levels for spawning and river flow

Family vs. Passive use

TSW dam operation

Local mill washing logs

Inappropriate commercial & residential development

Boating Activity...crime and safety

Pollution, toxins and geese

Urbanization

Trailer Park Expansion

Background Information Considered in the Lake Plan

List of Information Collected

Natural Elements

- Water quality
- Wetlands
- Wildlife habitat
- Fish habitat
- Nesting sites
- Streams
- Vegetation
- Invasive Species
- Rare Species and Species at Risk

Physical Elements

- Narrow water bodies
- Steep slopes
- Flood prone areas
- Access
- Watershed conditions
- Mineral and aggregate resources
- Forestry

Social Elements

- Aesthetics
- Ambience
- Historical development
- Cultural sites
- Recreation
- Boating

Land Use

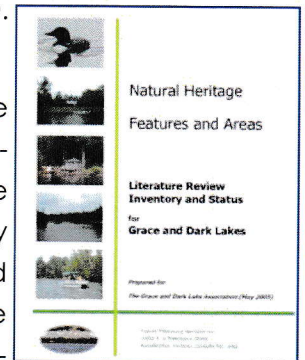
- Official Plans
- Zoning By-laws
- Site Plan Control By-laws
- Crown Land Policy
- Legislation

The collection and analysis of background information was primarily completed by volunteers who live or cottage on Grace and Dark Lakes. A list of tasks were compiled and the volunteers undertook the preparation of specific components of the plan. The Executive Committee felt that this was the best way to minimize costs as well as to promote and maintain a high level of expertise on the lake.

The Association's approach was to focus on the collection of existing water quality and natural heritage information, including shoreline, stream, upland forest and wetland inventories, fish community, wildlife habitat, invasive species and species "at risk" within the watershed. Once this information was collected the committee could then identify information gaps and prioritize the collection of new information within the available financial and people resources of the association.

Collecting background information helps to identify important values, development constraints and land use considerations. There were many agencies that were supportive of the process and involved in this stage: the Ministry of Natural Resources (MNR) Bancroft District and the Minden Area Office, the Ministry of the Environment (MOE), the Natural Heritage Information Centre and Parks Canada, as well as independent research provided by Dr. E.O. Evans, MNR Research Scientist at Trent University.

There were many documents provided by the Ministries of Natural Resources and the Environment detailing information on natural heritage areas, including shorelines, wetlands, geology and natural history, water quality and fish and wildlife. This information provided the backbone for the Natural Heritage Features and Areas — Literature Review, Inventory and Status for Grace and Dark Lakes (May 2005), prepared by French Planning Services, exclusively for the Grace and Dark Lakes Plan Executive Committee.



Our Vision for Grace and Dark Lakes

A vision statement provides guidance for what the lake should be and look like in the future and describes a common objective that is important to all community members. The following Vision Statement reflects the values that are shared by all people living on or near Grace and Dark Lakes.

Our vision for the future of our lakes is...

A place where water quality, fish and wildlife habitat, natural beauty, recreational opportunities and peace and tranquility is maintained and improved for present and future generations to enjoy.

Following the workshops and the survey, the following principles and targets were established. The principles apply to the preparation and implementation of the Stewardship Plan and the Targets provide a focal point and a method for measuring efforts in the preparation and implementation of the plan and the protection of these features.

Principles

Protect Lake Character

The natural, social and historic character and natural ambiance of the lake must be protected, enhanced and rehabilitated.

Balanced Approach

The plan focuses on results and balances a range of approaches/activities, such as communication, education and regulation, to achieve those results.

Educate and Communicate

Implementation emphasizes education, communication and voluntary compliance vs. legislative and regulatory constraints.

Water Quality

Fish & Wildlife

Shorelines

Trees & Vistas

Development

Character

Social Life

Targets

The water of Grace and Dark Lakes should not contain contaminants in excess of natural historic levels and current Provincial Water Quality Objectives.

The Lakes should support a sustainable fish population including optimal habitat for naturally reproducing lake trout, and maintain stability in the biodiversity of fish and wildlife species and their habitat.

Shorelines are the "ribbon of life" and must be protected and rehabilitated to increase the amount of natural vegetation and landform in the littoral, riparian and upland areas.

Natural vistas, ridges and tree lines should be maintained. Building and structures should have a minimal impact on the natural appearance of the shoreline and the landscape.

Cooperative working relationship must be fostered between all community members to ensure that new development respects the environment and character of the lake, as well as maintain property values.

The historical, cultural and natural character of the lake is to be recognized, protected and restored, where appropriate. Future development must complement and be compatible with the historical, cultural and natural character of the lake.

A range of social and recreational activities should be promoted that are consistent with the natural character of the lake, preserve the health and ambiance of the lake, as well as foster a sense of community.

Special Character of the Grace and Dark Lakes' Watershed

Grace and Dark Lakes are headwater lakes supplying water for lakes downstream within the Iroindale-Burnt River sub-watershed, which empties into Cameron Lake. Grace and Dark Lakes are a component of the Trent River basin and Trent Severn Waterway canal system. Grace Lake receives inflow water from the north via the Iroindale River, which originates from a small, ground-water fed lake, and the east from Farquhar Lake through Farquhar Creek. The Iroindale River (also known as the Grace River as it flows between Grace and Dark Lake), is a tributary river of the Burnt River.



Watershed and Water Level

Grace and Dark Lakes are found in the Haliburton Highlands, which lie on top of the Canadian Shield, which is dominated by Precambrian granite and very shallow, acidic soils.

The immediate watershed (See map on page 8), which is the total land surface area drained by the tributaries that empty into Grace and Dark Lakes is approximately 6,549 hectares (65.49 sq km), which is considered to be relatively small. The drainage basin comprises a small area north of Wilberforce around the lakes and includes a few small, relatively undeveloped lakes, the Burnt River tributaries and wetlands.

Grace Lake is a headwater source for the Iroindale River, which originates from cold ground-water seepage sources from a small lake north of Grace Lake. Grace Lake receives inflow from the Iroindale and four other streams including Farquhar Creek. Grace and Dark are connected to one another via the Iroindale (Grace) River at the sole outlet of Grace Lake. Dark Lake also receives water from Lower and Cardiff Lake via Cardiff Creek. Dark Lake Dam is the outflow for the Iroindale River, which flows to the Burnt River and the Kawartha Lakes. Therefore, any future improvements of Grace and Dark Lakes' ecological health would benefit all downstream water bodies.

The Grace and Dark Lakes are located approximately 3 km north of the Village of Wilberforce. Grace Lake's planning area encompasses the geographic townships of Dudley and Harcourt within the Municipality of Dysart et al and Dark Lake, also known as Pusey Lake, is located between the geographic townships of Cardiff and Monmouth in the Municipality of Highlands East.

Lake Description

Grace and Dark Lakes are two distinct lakes separated by a shallow portion of the Iroindale (Grace) River. While this portion of the river is navigable, it is often challenging at times of low water levels. Combined, the lakes have a total surface area of 278.1 hectares. Grace Lake has a maximum depth of 39 metres (128 ft) and Dark has a maximum depth of 37 metres (121 ft) (See page 9 and 10 for Bathymetry Map). In terms of surface area, Grace Lake is about four times larger than Dark Lake .

	Grace	Dark
Shoreline Length	9.6 km	5.7 km
Surface Area	221.6 ha	56.5 ha
Max. Depth	38.7 m	36.6 m

The water levels of Grace and Dark Lakes are regulated by the Trent-Severn Waterway and are, therefore, subjected to water fluctuations to maintain water-levels for navigational purposes and habitats downstream. According to the MNR, the lake level fluctuates about 0.5 to 1.5 metres annually. The variation of water levels may change due to climate change (warmer and dryer growing seasons) or other natural variations.

Land Use

Land along the shoreline of Grace Lake is 100% patented or privately owned. There are no Crown land parcels remaining along the shoreline.

The primary land use on Grace and Dark Lakes is waterfront residential and undeveloped lands. A few commercial operations exist on Dark Lake and Grace River:

- Bostonian Inn, Park Cottages, Terrace Inn
- River Bank Trailer Park & Cottages,
- The Glens (campgrounds)

Current shoreline development on Grace Lake is limited, although 100% of the shoreline is patent (MNR 1983). A significant portion of the north end of the lake is undeveloped and held by one owner. It is very likely that these lands will be developed with shoreline residential lots at some time in the future.

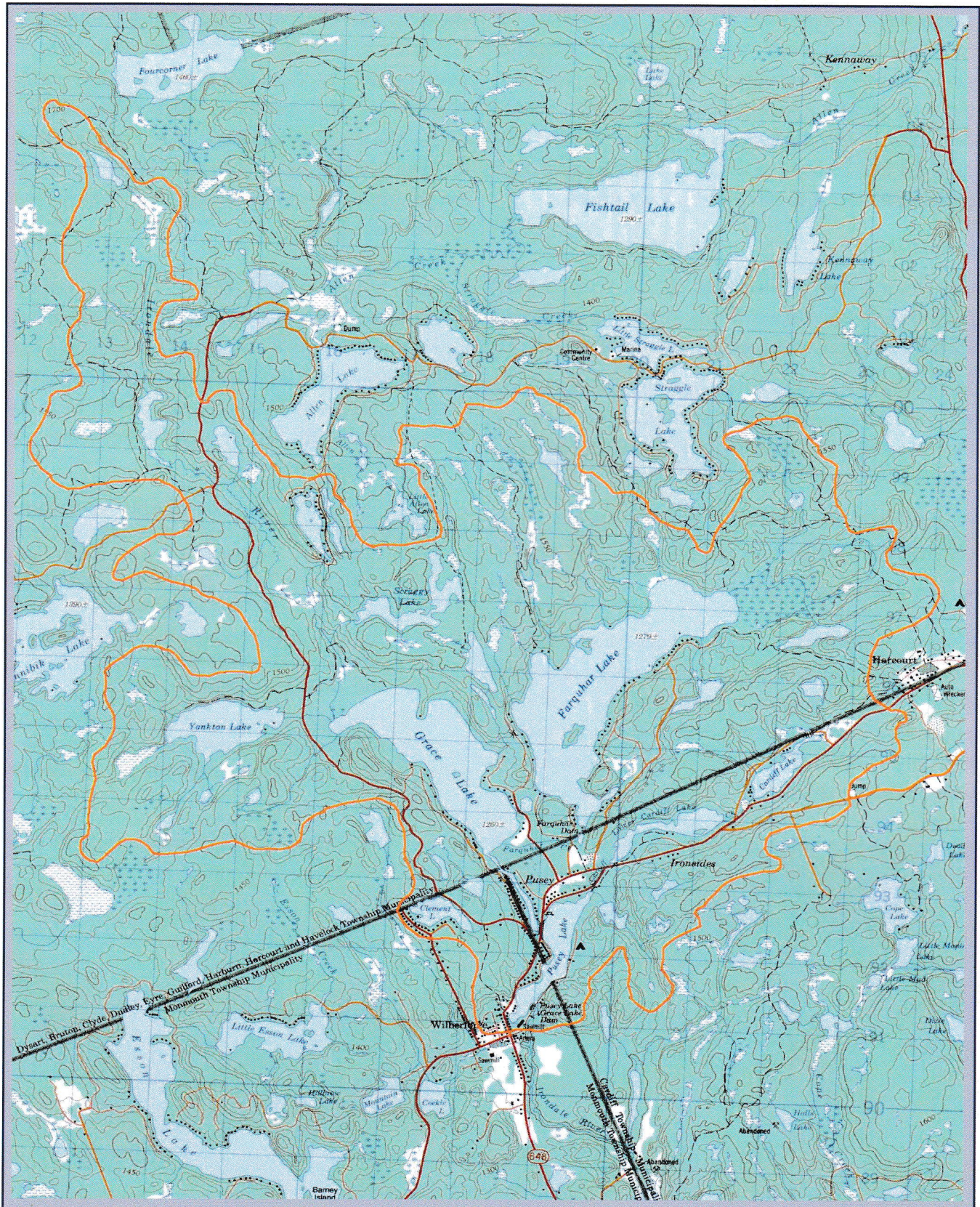
On the contrary, Dark Lake has a higher number and density of resort, cottage and permanent dwelling developments along the shoreline. The Wilberforce Veneer Mill is located on the south west portion of Dark Lake in the Community of Wilberforce and concerns have been expressed about the possible localized effect of washing logs for processing. As of Summer 2006, the mill is no longer operational but it is possible it may resume operations again.

Several public access points to Dark Lake are located along municipally maintained roads and a government dock in Wilberforce. No direct public access points are available on Grace Lake. In the winter, snow machines gain access to both lakes by the above routes as well as from the major snowmobile routes.

- 72 % and 76 % of respondents favoured the prohibition of new boathouses and two-storey boathouses, respectively, and most respondents also favoured prohibiting accommodations in boathouses.
- There was disagreement over the requirement of buildings to be set back 100 ft from the shoreline, with only 40% in favour;
- 56% of respondents favour municipal regulation and 60% favour increased municipal inspection programs to enforce regulations of shoreline alternations.



Grace and Dark Lakes' Watershed



Grace Lake Bathymetry

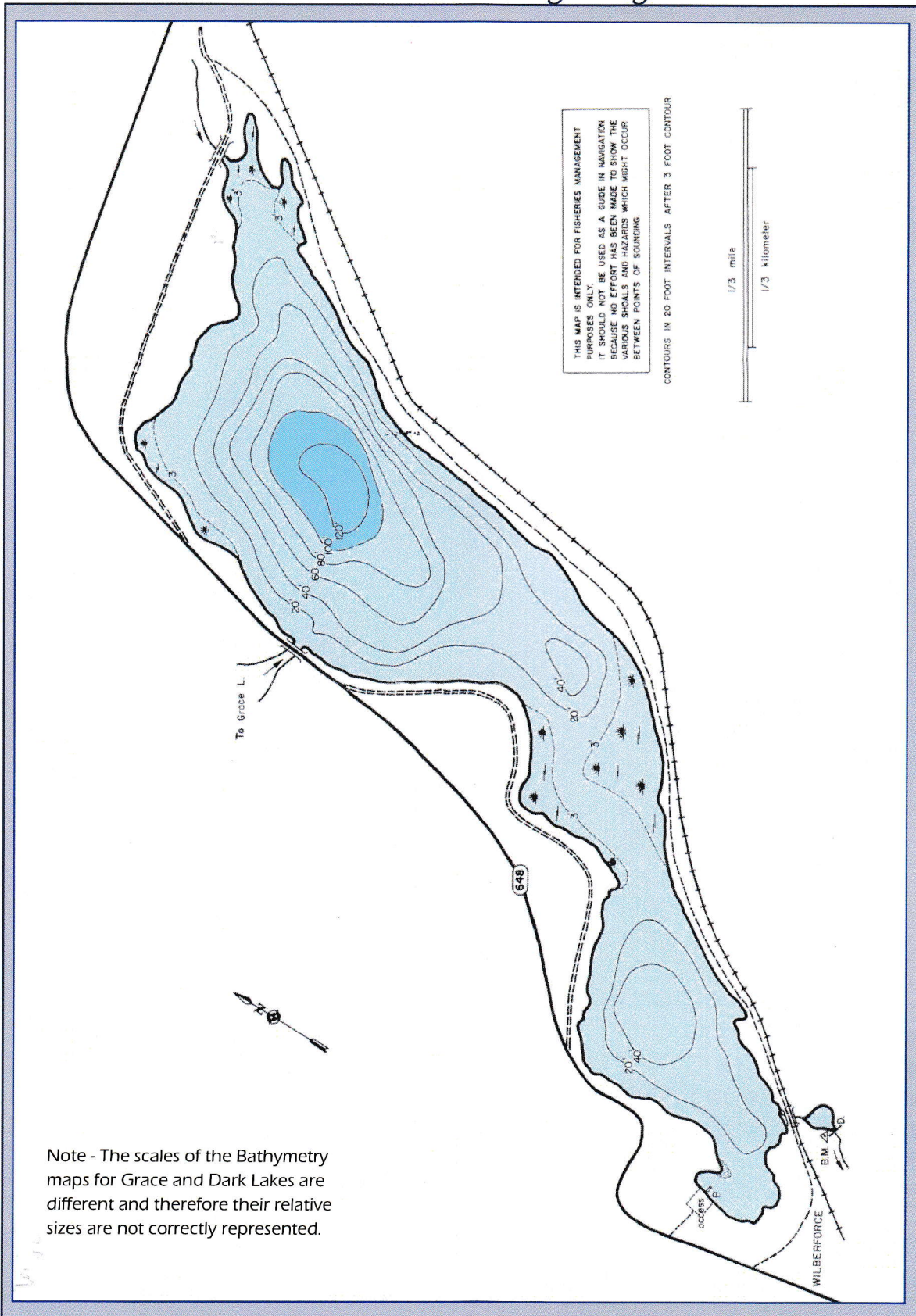


GRACE LAKE
LINDSAY DISTRICT
HALIBURTON COUNTY
HARCOURT AND DUDLEY TOWNSHIPS
556 ACRES
CONTOURS IN FEET



Contour Intervals - 12 ft

Dark Lake Bathymetry



Natural Values in the Grace and Dark Watershed

Natural Facts

The people of Grace and Dark Lakes have indicated that the lakes are special because of their natural shorelines, pristine water quality and abundance of wildlife and vegetation indigenous to the area. It is the desire of the community that, through a stewardship approach, the lakes remain as close to their current state as is humanly possible.

Natural heritage areas and features, such as wetlands and fish and wildlife habitat, provide ecological functions that are critical to the survival of all species, including humans.

Here are some of the facts about Natural Heritage values on Grace and Dark Lake:

Water Quality

Water is our keystone resource and most of survey respondents indicated that quality of water is a value that must be preserved for future generations. Several people noted that this rating was based on present conditions but they also expressed concerns about water quality deterioration due to the increased presence of bacteria and weeds as well as clarity and fluctuating water level impacts; 60 % of respondents indicated that declining water quality had significant impact on the quality of lake life. Geese and faulty or inadequate septic systems were also mentioned as contributing factors to worsening water quality.

Artificial manipulation of water levels, shoreline development and land use changes, acid rain and climate change have negatively impacted the quantity of lake water across southern Ontario. Manipulation of the lakes' water levels can seriously hamper trout spawning by: exposing incubating eggs to cold and drying air and reducing the quality and quantity of cold, deep water summer habitat.



Generally, there is a lack of consistent data available to make accurate assessments of how water quality is changing over time. Water quality sampling has been conducted sporadically and for differing purposes on these lakes since the 1970s, and is practically non-existent for Dark Lake. Continued monitoring and water quality sampling would provide a more detailed picture of how water quality changes throughout the year and how the lake and individual basins are responding to changes in land use and the efforts that aim to improve water quality.

Defining the health of water quality is dependent on it's use (i.e., drinking vs. navigational vs. recreational use). Water quality is defined through the analysis of its chemical (nutrients, alkalinity, conductivity, total dissolved solids (TDS and pH), physical (turbidity, colour and odour) and biological (chlorophyll a and fecal coliform concentrations) content.

Lakes are dynamic and fragile systems, responding not only to artificial stimulus but also to natural fluctuation events. Basin size, volume, soil, bedrock and climate are instrumental in lake buffering capacity. All surface waters are subject to nutrient, sediment and toxic contamination, some of which may come from the lake's own substrate or runoff from the landscape.

Eutrophication is a natural aging process of lakes from nutrient enrichment, which causes increased productivity over time. Lakes are categorized based on their condition or productivity level during the aging process, known as their trophic status. Human activity increases the rate of aging beyond the natural process causing drastic changes such as altered species composition and compromised drinking water quality. Here are some facts about the water quality of Grace and Dark Lakes:

- Grace and Dark Lakes are characterized as oligotrophic lakes, which means that these types of lakes have low nutrient concentrations with a high degree of water transparency (clear water), which is typical of northern lakes on the Canadian Shield. Both lakes have deep basins, 37 to 39 m, and have a collective mean secchi disc depth reading of 5 m, which is considered to be very good.



Secchi Disc

- The average total phosphorus content, for both lakes, was $< 10 \mu\text{g/L}$, which indicates low productivity. Grace Lake had slightly higher averages between 10 to $12 \mu\text{g/L}$ (MNR survey 2003), indicating a slightly more productive system. The deep and unproductive waters of these lakes is typical of northern lakes and provides excellent conditions to support a Lake Trout fishery.
- Both lakes have a coldwater thermal regime (temperatures decrease with depth), with high concentrations of dissolved oxygen to depths of 20 metres in Dark Lake and to the bottom waters of Grace Lake.
- Oxygen profiles of the water column, from surface to 1 m off the bottom, are completed to determine if oxygen depletion is a factor, with respect to ecosystem health, and to assist in the management of coldwater species. Certain fish species, like lake trout, have very specific habitat requirements.
- During the summer months of 1983 and 1985, the lower depths of Grace Lake were found to have high concentrations of dissolved oxygen ($> 6 \text{ mg/L}$)
- During the summers of 1983 and 1986, Dark Lake's water, 12 to 23 m off the lake bottom, became

devoid of oxygen creating an inhospitable environment for oxygen-dependent species, such as lake trout. This anoxic episode may have been site-specific or the result of dredging and pollution reported in Grace River between Grace and Dark Lakes since the 1960s. Unfortunately, current data is lacking for this parameter.

- The water of both lakes are slightly alkaline (Alkalinity $> 25 \text{ mg/l}$) and pH (> 7) which suggest that Grace and Dark Lakes are resilient against acidification, especially Dark Lake. This localized buffering capability, which is rare on the granite-rock-based Canadian Shield, is due to pockets of hybrid granite-gneiss, diorite bedrock, a silicate-based rock enriched with calcium compounds and other buffering minerals which raise alkalinity and pH.
- Current Secchi disc and total phosphorus data continues to be collected for Grace Lake through the Ministry of the Environment's Lake Partner Program.
- Based upon the available information, water quality seems to be in good condition and is fairly stable.

Streams

Streams are a significant feature of the landscape and are an integral source of water to the lake. Streams also provide for specific habitat for fish and wildlife:

- There are 4 permanent inflowing or out-flowing streams: Farquhar Creek, flowing into Grace Lake; the inflow of the Irondale river at the north end of Grace, Grace/Irondale River outflow, which connects Grace and Dark Lakes; and the Irondale outflow at the base of Dark Lake. There are six (6) intermittent streams — a stream which dries up for 3 months or more of the year: four linked with Grace and two with Dark, which connects them to smaller lakes. There may be more tributaries linked to these lakes, but are currently unidentifiable.
- All of the streams occur on privately owned land.
- These streams have not been surveyed or inventoried to date.
- Inappropriate development and human activity may threaten stream fish habitats and communities through the loss of riparian vegetation, removal of structural habitat (woody debris and rocks), sedimentation, nutrient impacts, channelization, herbicides, pesticides,

infilling, dredging, damming and changes in flow regime.

Vegetation

Natural vegetation helps to stabilize soil from erosion and reduce runoff into the lakes, as well as providing a good food source and habitat for wildlife:

- Grace and Dark Lakes' watershed is comprised of mixed and coniferous forests, and the shorelines are dominated by steep rocky ridges in the upland areas, several pockets of wetland vegetation, and sandy outwashes along the shoreline.
- Historically, the watershed was covered with old-growth Eastern White Pine, Eastern Hemlock and Yellow Birch tree species. Intensive logging in the late 1800s and early 1900s removed these stands, replacing them with younger, mixed forests, dominated by white pine, yellow birch, red and sugar maple, hemlock, poplar and balsam fir tree species.
- The landscape is predominantly forested and non-agricultural owing to the rough, rocky topography, and the rolling open country that rises up to 472 metres in height above sea level, which is about 80 metres above the normal water level of Grace Lake .



Wetlands

Wetlands provide habitat for fish and wildlife; flood and erosion control; shoreline stabilization and sediment retention for the protection of water quality; recharge for groundwater; and tourism, recreational and educational opportunities.

- There is one large wetland abutting the shoreline

in the northern and north-western areas of Grace Lake where the Irondale River and Yankton Lake creek enters into Grace Lake. As well there are several smaller patches of wetlands distributed across the lakes' southern and south-eastern shorelines near the outlet of the Irondale River and the Farquhar Lake creek. The limited amount of wetlands on these lakes makes these wetlands even more important to the ecology of Grace and Dark lakes.

- Wetlands on or surrounding Grace and Dark Lakes have not been inventoried nor evaluated.

Fish Community

Grace and Dark Lakes support a cold water fishery of wild, self-sustaining lake trout populations due to the presence of optimal deep-water habitat, and a warm-water component dominated by small-mouth bass:

- Fish species that are common to both lakes include Lake Trout, Smallmouth Bass, White Sucker, Pumpkinseed and Rock Bass.
- Rock bass and blue gill have been inadvertently introduced to the lakes, most likely via the Trent-Severn Waterway or bait-bucket release.
- Historical MNR records note Walleye or Yellow Pickerel were stocked in Dark Lake.
- MNR managed both lakes as supplemental lake trout and natural smallmouth bass fisheries from 1940 until early 1990s; stocking of lake trout ceased in the mid-1990s because lake trout were naturally reproducing. Lake trout are only found in 2000 lakes — < 1 % of Ontario's lakes.
- Dr. D. O. Evans (MNR) has initiated an experimental slot and stocking design on four lakes, including Grace Lake, to study the impacts on natural lake trout populations from stocking and angling pressures. This information will help to improve the management of these species.
- Artificial manipulation of water levels may be negatively impacting fish spawning beds (winter kill or egg desiccation); earlier fall draw-downs may address these issues. More information on this is required.

Exotic Species

Exotic or invasive species are non-native species that have been introduced into local habitats and can have devastating affects on the overall health of an aquatic ecosystem.

- The Rockbass was introduced into both lakes during the 1960s as bait fish by anglers. This is a hardy fish, tolerant of stressed ecosystems and an aggressive competitor for many species, especially smallmouth bass and lake trout.
- Zebra mussel have not been introduced into Grace or Dark Lakes; current calcium concentrations and pH levels are not conducive for the production of shells.
- Most watersheds across Ontario have been invaded by Purple loosestrife. It was first introduced as an ornamental garden plant in the 1800s, and has so far not been found in Grace and Dark Lakes.



Wildlife

Wildlife viewing is an integral component that contributes to the high quality of life on the lakes, according to the survey:

- The watershed has preferred habitat for the American marten and the southern-flying squirrel (a species "at risk").



- There are no deer yards within the periphery of the watershed, but a small deer yard is located downstream from Dark Lake on the western shoreline of Wilbermere Lake and a larger one upstream from Grace Lake on the southern boundary of Algonquin Provincial Park. Deer use yards as shelter and a food source during the harsh winter months.
- Significant birding habitat, such as rock cliffs and wetlands, have not been evaluated for the planning area.
- There is a wide variety of mammals listed for the

area and 30 species have been confirmed.

- 24 reptile and amphibian species are confirmed and, 26 bird species, including Great Blue Herons and Loons, breed in the planning area and an additional 80 bird species have been observed.
- Shoreline development, lead sinkers and jigs, water level fluctuations, watercraft and nest predators put loons, other waterfowl, reptiles and shoreline wildlife at risk of population declines.

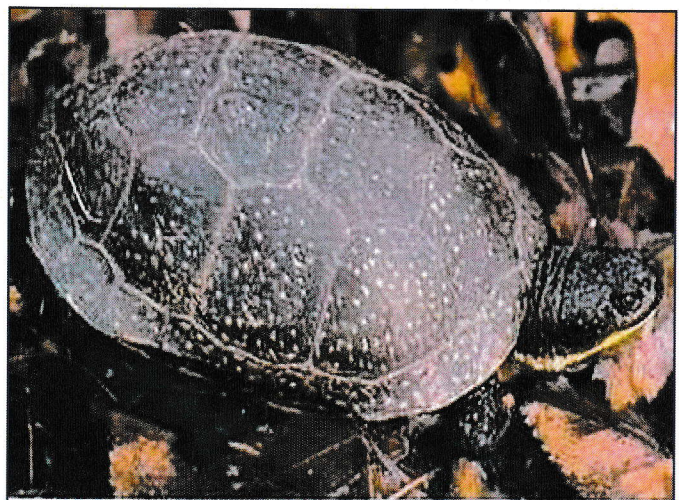
Species at Risk (SAR)

Species at Risk include animals and plants that are rare, threatened or endangered. The long term existence and rehabilitation of these species depends on the protection and maintenance of their habitats. The following species are known to inhabit the Grace and Dark area:

- Eastern Hog-nosed Snake, Threatened in Ontario.
- There are 13 rare Dragonfly and Damselfly species, 1 rare Butterfly, and 19 rare vascular plants.

The following "at risk" species ranges extend into Grace and Dark Lakes' watershed but have not been confirmed by recent field observations:

- Birds — Peregrine Falcon, Black Tern, Least Bittern, Red-headed Woodpecker & Short-eared Owl
- Reptiles — Blanding's Turtle
- Mammals — Southern Flying Squirrel, Eastern Wolf & Eastern Cougar



Blanding's Turtle

photo by Jim Harding

Physical Elements in the Grace and Dark Watershed

Physical Facts

To understand current natural trends within the watershed environment, one must be aware of geology, climate, landscapes and settlement. The following are some facts about the physical influences in the Grace and Dark watershed.

Soils and Steep Slopes

Grace and Dark Lakes have bare, rocky ridges, and areas reaching heights of 472 metres (above mean sea level) around Grace Lake. The shoreline is typical of lakes on the Shield.

Grace and Dark Lakes' shoreline is irregular, with small pockets of wetland vegetation, especially in the shallower portions of Dark Lake. These wetlands support considerable amounts of aquatic vegetation, as well as emergent stumps, boulders and gravel, and sandy outwashes near the mouth of the Grace River (Irondale River) on Grace Lake.

Steep rocky ridges, averaging approximately 40-80 m. in height (above lake level) are found along the eastern and western shorelines of both Grace and Dark lakes. Both lakes' watershed includes shallow glacial tills, remnants of rock and finely ground material, largely of granite-origin, deposited by the glaciers thousands of years ago. Within the south-east area, as well as along the northern shoreline, of Grace Lake and entirely encompassing Dark Lake is a glacial spillway, which is characterized by deposits of stratified sandy soil and gravel beds, often designated by cedar swamps (MNR Lake Files, 2004).

The soils in the area are shallow, stony, sandy and acidic, with low fertility and frequent bedrock outcrops. The surface deposits are predominantly ice-deposited materials that range from well drained sandy loam tills to well drained medium to fine sands with some inclusion of coarse sand and gravel. Silt and clay are a component of nearly all sands:

- The overall thin soil cover of rock, silt and fine sands, on Precambrian bedrock, makes many areas susceptible to erosion if disturbed and are difficult for septic system installation.

Minerals and Aggregates

Aggregates such as sand, gravel and rock, used for construction, industrial, manufacturing, and maintenance purposes, are plentiful, and several (3) quarry pits are currently in operation in the watershed along the northeastern edge of Dark Lake:

- Mineral resources in the area are unknown and mining or aggregate extraction should be prohibited with the viewscape and soundscape of the lakes.

Floodplains

Floodplains are limited due to the rock ridges, but flooding may be a potential concern for the wetland and lowland areas.

Narrow Waterbodies

Narrow waterbodies are defined as aquatic areas with less than 150 metres (500 ft) from shore to shore. The confined nature of these areas results in the perception of increased density and less private recreational space for boating and swimming:

- The Grace (Irondale) River connecting Grace and Dark Lakes is the only narrow and shallow waterbody on these lakes.
- Dredging, pollution and lowering water levels are a concern for this area, as well as constricted navigation.

Viewscape

The viewscape is the area surrounding the lakes that can be seen from any point on the lake. These areas are important to the maintenance of the natural beauty of the rocky outcrops, valleys, and rolling landscape that surround the lake:

- The viewscape of the lake should be recognized in the Official Plan(s) and new pits and quarries or mining sites should be prohibited in this area.

Social Elements Contribute to Quality of Life

Community Values and Character

Residents of Grace and Dark Lakes have clearly indicated their support for maintaining the special nature of the lakes. Residents and resort operators value the peace and quiet that exists as well as other social amenities such as recreational activities and social events. Social elements enhance the quality of life on the lakes and it is recognized that a collective community effort is required to ensure protection and enhancement of the natural, social and historical character that are precious for future generations to enjoy.

Landscape and Aesthetics

Participants at the residential workshop indicated that the most valued attributes of the lake are its diverse and beautiful natural shorelines, fish and wildlife and the tranquil serenity. Significant portions of the shorelines and backlands remain undeveloped, and these vegetated shorelines, sandy beaches, steep rock ridges, wetlands and the tree line contribute to the natural beauty of this area. High profile development and resource management activities such as aggregate extraction or clear-cut forestry practices could seriously impact these values.

Cultural Sites

There are many local natural, historical and cultural sites that help to connect us to the land and the history of the area. It is important to continue to develop an awareness and appreciation of these unique features:

- Some of the sites include the rock face lookout; Agnew's; old logging roads; sand beach; Whiskey Bay; Wedding Bay; Trent Dam; and an old dance pavilion.

Recreational Activities

Residents on Grace and Dark Lakes enjoy power boats and waterskiing, but, most of the time, the enjoyment of quieter sports such as canoes,

sailboats, swimming, scuba-diving and ice-skating are preferred:

- < 1% of all boats are personal watercraft.
- One of the perceived major impacts is boat traffic (80% of respondents indicated a significant to moderate impact), followed by daytime noise (60%).
- Improved conduct and use of personal watercraft (PWCs) and other recreational boats, would reduce concerns about water and air pollution, noise, safe operation of boats and wave action harming the delicate nesting grounds of the loons and other wildlife.
- Beach access on Grace lake was a concern echoed by several people in the community.

Noise and Light Pollution

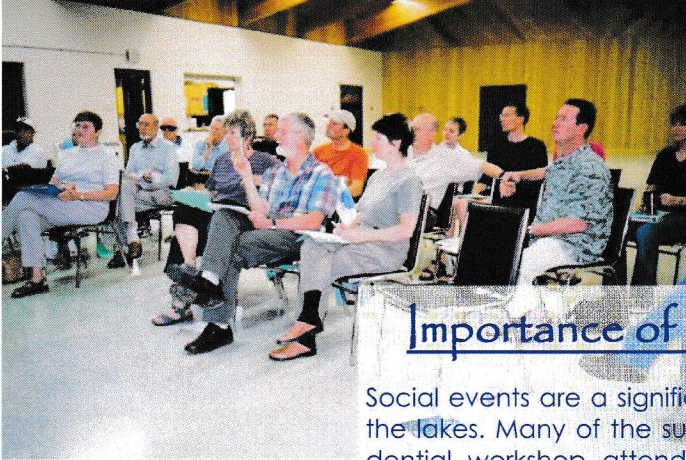
The quiet and darkness of the shorelines is an important social component of the enjoyment of cottagers on Grace and Dark Lakes. Excessive and unnecessary lighting detracts from the natural ambiance of the lake and results in reduced visibility of the stars:

- The survey results indicate that daytime noise was of greater concern (65%) than of nighttime noise (45%), development (40%) and lighting and snowmobiles (25%).
- The majority of survey respondents indicated that peace and tranquility are the most important components to the quality of lake-life.

The survey results indicate that daytime noise was of greater concern (71% of respondents were affected to some degree) and that nighttime noise was also a concern (54% were affected).

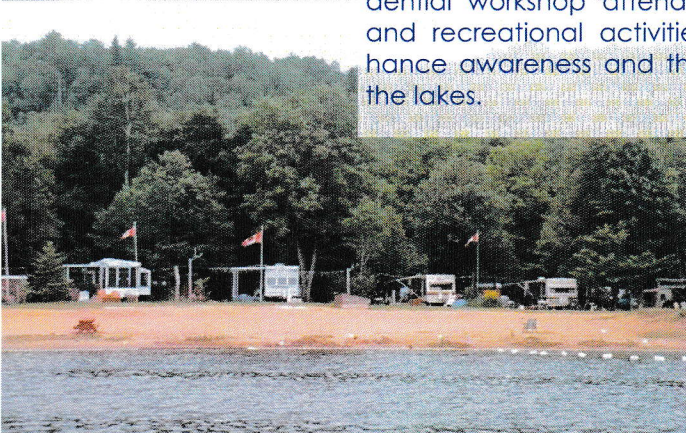


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Importance of Social Events

Social events are a significant contribution to life on the lakes. Many of the survey respondents and residential workshop attendees indicated that social and recreational activities were important to enhance awareness and the sense of community on the lakes.



Grace and Dark Lake Action Plan

The following actions have been developed through consultation with the Executive Committee, lake residents, and other stakeholders. The following provides a summary of the actions to be accomplished and more detailed information is provided in the Natural Heritage Features and Areas — Literature Review, Inventory and Status for Grace and Dark Lakes (May 2005).

- Action 1 – Continue to Monitor Water Quality through the Ministry of Environment's Lake Partner Program** – consider additional monitoring programs for macro-benthics, fish and wildlife, and invasive species.
- Action 2 – Provide Information to Property Owners About Proper Septic System Operation and Maintenance** – initiate septic work partnerships with the municipalities through their Septic Re-inspection Program to pump septic tanks on a regular basis.
- Action 3 – Promote the Preservation of Natural Shorelines** – encourage the restoration of degraded shorelines and discourage the use of fertilizers and pesticides within a 50 m buffer of the lake.
- Action 4 – Improve Communication with Lake Residents**
- Action 5 – Promote Stewardship** – through the association newsletter, workshops and on the lake programs, provide information on best shoreline practices and promote Environment Canada's Ecological Gifts Program and the Haliburton Land Trust.
- Action 6 – Prepare Cottage Etiquette List**
- Action 7 – Research the History of the Area and Prepare a Book**
- Action 8 – Promote the Safe Operation of Boats** – encourage the use of 4 stroke motors and high efficiency 2 stroke motors.
- Action 9 – Provide Input to the Local Municipalities Regarding New Development** – to ensure proposed development is in character (density, scale and massing) with its surroundings.
- Action 10 – Work with the Coalition on Equitable Water Flow** – to ensure the equitable distribution and management of water levels for all Trent Severn Waterway reservoir and flow through lakes.

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How Can I Get Involved?

The future health of Grace and Dark Lake depends on the participation and commitment of everyone in our community. We encourage you to read the Natural Heritage Report for the Grace and Dark Lake Plan and get involved in the action plan.

Each member of the executive committee have a copy of the Natural Heritage document. For more information please contact us:

Grace and Dark Lakes Cottager's Association

PO Box 40, Wilberforce, Ontario, K0L 3C0
www.GraceAndDarkLakesAssoc.ca

2006 Executive:

Peter Falladown	President
Dan Fisher	Vice President
Rene Wolfram	Treasurer
Nesta Falladown	Secretary
Mark Ayles	
Rick Arnold	



French Planning Services Inc.

1016 Holiday Park Drive, RR #2,
Bracebridge, Ontario
P1L 1W9

www.lakeplan.com

Randy French, BES Planner & Facilitator
Jasmine Chabot, B.Sc. Ecologist & GIS Specialist

Whose Plan is It, Anyway?

This document was prepared through the initiative of the Grace/Dark Lakes Cottager's Association and the Lake Plan belongs to all of us - both residents, commercial operators and visitors.

We all play an important role in protecting our precious natural heritage. Through wise use of resources, adhering to local by-laws and being constantly aware of the sensitivity of our natural surroundings in our daily activities we should be able to continue keeping Grace and Dark Lakes a pristine area for generations to follow.

