



THE BLUE HERON

The Bras d'Or Stewardship Society

P.O. Box 158, Baddeck, Nova Scotia B0E 1B0

VOLUME VII

JANUARY 2005

NO.1

This current issue of the Blue Heron is full of interesting contributions. The topic range spans from the recently completed oyster reseed and enhancement project sponsored by The Bras d'Or Stewardship Society to the creating of an underwater reef to assist in eel grass production and to deter shoreline erosion at Kelly's Cove in New Campbellton. There is also an editorial on the rationale for monitoring the Bras d'Or Lakes in order to gather scientific information. An article on the possibility of having the Bras d'Or Lakes designated a 'biosphere' helps explain and clarify the meaning of such a proposal.

The Society is most pleased to report to its members that the Bras d'Or Lakes will be designated a 'no dumping' zone for sewage from boats. The Society instigated and promoted this designation process well over three years ago.

On November 1, 2004 a small news item appeared the Globe and Mail, Canada's national newspaper. This article highlighted a recent independent consultant's report regarding the 'sewage lagoon' situated off the Highland Road on Crowdis Mountain. This sewage lagoon is situated within the Bras d'Or Lakes watershed.

The report had been ordered by a Deputy Minister of the Nova Scotia

Department of Environment & Labor (DOEL) because of suspected violations of existing guidelines. These guidelines were put in place to manage this lagoon into which raw sewage has been dumped since 1975. The complainants were local citizens from Middle River concerned about the risk of ground water contamination from the lagoon should a major breach occur. One concerned individual had the will plus the 'force of character' to see the concerns of the community were not sidelined through bureaucratic gerrymandering. Full credit is due to this individual for a Herculean effort to bring about closure of the site.

The impact of this report may well become a 'benchmark' for changing the regulations and monitoring of such lagoons throughout the province. The report pinpointed "the lack of ability" of staff of the Sydney, NS DOEL office to interpret existing laws governing lagoon sites. The staff was unaware of risk classification categories of toxic sites and failed to monitor the site in accordance with existing guidelines.

On November 16, 2004 the Deputy Minister of the Provincial Department Environment and Labor (DOEL) met with the Middle River community. He announced that the sewage lagoon was to be closed. This outcome is testimony to all those who were deeply concerned about the existing

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NOTICE

**THE ANNUAL
GENERAL MEETING OF THE
SOCIETY WILL BE HELD ON
SATURDAY, MARCH 19, 2005**

**AT THE
ALEXANDER GRAHAM BELL
MUSEUM
AT 2:00 PM.**

**ALL MEMBERS ARE INVITED
TO ATTEND AS WELL AS
INTERESTED CITIZENS WHO
ARE CONCERNED WITH THE
FUTURE STEWARDSHIP OF
THE BRAS D'OR LAKES.**

and potential adverse consequences harmful to the environment.

The stage is now set for resolving this matter in the best interests of the greater community. The 23-page report is a significant document, maybe even historic. The recommendation of the Society has been to shut the lagoon down and effect any remediation required as soon as possible.

The best thing about this issue of BLUE HERON newsletter is that all the news is positive. We hope you enjoy it.

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"Our goal is to
protect, conserve
and restore the
Bras d'Or Lakes"



NEWS ITEMS:

OYSTER RESEED/ ENHANCEMENT PROJECT:

The Society acted as the sponsor for an oyster seeding and enhancement project proposal submitted to Enterprise Cape Breton Corporation (ECBC) in March of 2004. In July of 2004 a favorable response for the project was received from ECBC much to our delight. The project represents a high level of co-operation between both the federal and provincial governments as well as the First Nation's community. The details of the project are contained in James Crawford's report in this current Newsletter.

CROWDIS MOUNTAIN SEPTIC LAGOON:

In the introduction to this edition of the Blue Heron mention was made of the sewage lagoon used for dumping sewage waste. It is recommended that anyone seriously interested in this 'issue' obtain a copy of the independent consultant's report. This can be obtained through the Society or from the Provincial Department of Environment and Labor. It is well worth the read!

REGINA CONFERENCE:

In November 2004 Chairman Pat Bates attended a symposium on water quality in Regina. The society has participated in several conferences at a national level that has helped focus attention on the Bras D'Or Lakes. The goal is assisting in the creating of 'constructive dialogue' on how issues regarding water quality, sewage management and the future sustainability of watersheds can be enhanced.

SEMI-ANNUAL MEETING:

On August 14, 2004 a meeting for society members and concerned citizens was held at the Baddeck Community Center. Chairman Pat Bates highlighted the activities of the society. Jim Foulds, a professor

of biology at University College of Cape Breton made a presentation on the topic of "Biosphere Designation". The Society felt that a more detailed introduction to the Biosphere concept was required. Jim O'Brien, a Society Board member, has provided a synopsis of the biosphere concept in this newsletter.

ARTIFICIAL REEF CONSTRUCTION:

A project was carried out in the fall of 2004 to construct an artificial reef in Kelly's Cove at Blue Nose Point near New Campbellton. Kelly's Cove is situated near the entrance to the Great Bras d'Or Channel east of the Seal Island Bridge. This project is detailed in a reprint of the press release.

BRAS D'OR LAKES CONFERENCE:

In October 2004, a two-day symposium was held at the community center in Whycobah to continue dialogue regarding collaboration amongst various groups regarding the future management of the Bras d'Or Lakes. Chairman Pat Bates represented the society and made a presentation on behalf of The Bras d'Or Stewardship Society.

2004 MEMBERSHIP CAMPAIGN:

Total funds raised from our 2004-membership campaign amounted to \$7,500.00. A total of 130 individuals contributed to our membership drive. This is about 40% below the previous years count which was about 200. We hope that you will continue to contribute to the Society as it is the only entity actively working to conserve, protect and restore the environmental integrity of the Bras d'Or Lake.

BRAS D'OR LAKES DESIGNATION:

Notification has been received that the Bras d'Or Lakes will be included in the designation of a "no dumping" zone for sewage from boats under the Canadian Fisheries Act. This is

the result of much hard work involving community consultations. The process of seeking the "no dumping" designation required considerable time and effort for which Laurie Suitor and Karen Malcolm deserve much credit.

BRAS D'OR LAKES CO-COORDINATOR:

A new Bras d'Or Lakes Coordinator has been hired by the Provincial Department of Environment and Labor to continue the work of Laurie Suitor. The society welcomes Sharon Carter to her new job. We hope that the new coordinator will provide focus on those issues which significantly impact on the environmental health of the Bras d'Or Lakes. You can reach Sharon at the following phone number: 1- 902-555-1212.

SOCIETY TO OFFER SCHOLARSHIP:

Society directors have agreed to provide a scholarship of \$500.00 to a graduating high school student who resides in the watershed of the Bras d'Or Lakes. The scholarship will be awarded based on an essay submitted by eligible candidates on a selected topic related to the mandate of the Society. The criteria requires that the award goes to a student who will be continuing his or hers education at a university or other institution of higher learning.

BRAS D'OR PRESERVATION FOUNDATION:

The Bras d'Or Preservation Foundation was the recent recipient of the Tourism Industry Association of Nova Scotia's "Sustainable Tourism Award". This is a newly minted award given to a non-profit entity that promotes the importance of conservation as a significant component of sustainable tourism. The Foundation is the 'first ever' recipient of this recently created honor.

OYSTER RESEED/ENHANCEMENT PROJECT

By James Crawford

During the past twelve months the Bras d'Or Stewardship Society has championed a proposal for increasing oyster biomass in the Bras d'Or Lakes. With low adult oyster population densities in most areas combined with the catastrophic insurgency of the MSX parasite into the Bras d'Or Lakes in 2002, there arose a cry from "mother nature" for help.

The directors of Bras d'Or Stewardship Society debated what could be done to rectify the demise of the oyster fishery in the Bras d'Or Lakes. The directors of the society determined that an oyster enhancement program would fall into the society's mandate to conserve, protect and restore a significant shellfish component of the watershed's ecosystem.

A collaboration of oyster seed producers that include the Eskasoni Fish and Wildlife Commission, the Atlantic Veterinary College in Prince Edward Island, both the provincial and federal Dept. of Fisheries and Oceans and the society developed a plan to reseed as many as 5,000,000 two-year-old oysters. Fisheries and Oceans Canada designed a protocol that the project leaders adhered to in selecting and reseeding the oysters. Three specific sites were selected to deposit the oyster seed.

The first site selected was along the north shore of The Boom, which has yet to exhibit and signs of the MSX parasite. Over three million oysters ranging from 2"-6" were seeded at this site. There were also three individual brood stock sanctuaries established along that shore to help create a continuing supply of new oyster recruitment.

Fisheries and Oceans Canada is projecting a potential controlled commercial harvest after 2005. This will allow two years of spat fall to help reestablish an oyster biomass in the area. There will be a 'monetary deliverable' to the commercial oyster harvester and local processors. This benefit will result from substantial investment from Enterprise Cape Breton Corporation and the provincial Department of Fisheries.

The second reseed site was the south shore of Nyanza Bay. This area has been severely impacted by the MSX parasite. Approximately 500,000 two-year old oyster seed was set out in this location. The significance of this site cannot be overstated. The race for survival against the MSX parasite is now underway. A generic rehabilitation strategy is the cornerstone for the development of a disease resistant oyster strain. Over time the surviving oysters in the infected sites will hopefully become the genesis of a disease resistant brood stock.

The third site selected also a positive MSX zone, was Morrison's Cove in St. Patrick's Channel, a stone's throw from the loading wharf of the Little Narrows Gypsum Plant. Bio-invasers introduced into the Bras d'Or Lakes circa 2002 had destroyed the oyster inventory here. The transport agent of this "insurgency" is thought to be the ballast water dumped by transport ships originating from the eastern seaboard of the USA, specifically Norfolk, VA, a heavily infected area with both the MSX parasite and Dermo parasites. Norfolk is one of the ports from which the 'gypsum boats' leave. It is believed that this ballast water is the most likely transfer medium by which the bio-invasers get a 'free ride' to inflict their damage in foreign waters i.e. in this instance the Bras d'Or Lakes.

The site at Morrison's Cove with its close proximity to the direct discharge of ballast water will certainly become the sentinel site with over 500,000 oysters having been sown out. Since the breakout of the MSX parasite in 2002 there remains little doubt that

other bio-invasers such as Dermo will find their way into the Bras d'Or Lakes. For the reader's information, Dermo is a companion parasite that infected Chesapeake Bay oysters during the 1980s. Dermo not only kills oysters but does harm other bivalves including mussels, clams/quahogs and scallops.

The past decade has been a rough one for the Bras d'Or Lakes and its oyster inventory. Increasing numbers of shellfish site closures due to fecal coli form contamination and the 'insurgency' of the MSX parasite has upped the anti in the battle to maintain the oyster population.

Unquestionably, the Bras d'Or Stewardship Society has been the "champion" bringing together the appropriate federal and provincial government departments, First Nation's communities and other communities to the table. The Bras d'Or Stewardship Society has been steadfast in its commitment to safe guard the Bras d'Or Lakes entertaining a minimal tolerance for those who fail to respect accountable stewardship practices.

Oyster restoration offers one of the most promising opportunities to make significant strides towards reestablishing sustainable biomass for the suspended oyster fishery. The oysters themselves play a significant role in maintaining water quality. Oysters are bottom filter feeders. The current momentum built to enhance the 'oyster community' under the mandate of this project will spur on going improvement towards the ecological health of the Bras d'Or Lakes and its watershed.

Biosphere Designation and the Bras d'Or Stewardship Society

By Dr. James O'Brien

At most if not all bi-annual general meetings (this year held on August 14, 2004), the Society has had invited guest speakers. This year was no exception. The speaker was Dr. Jim Foulds Ph.D. of UCCB (University College of Cape Breton). At the request of the board of the Society, Dr. Foulds kindly agreed to speak on the subject of Biosphere Reserve Areas (BSRAs). The Society has been discussing the possibility for such a designation for the Bras d'Or Lakes. The presentation was designed to help society members and the community understand the advantages and disadvantages of such a designation. Given the number of responses from those attending the meeting, the Biosphere subject evoked considerable public interest.

Dr. Foulds suggested the most important point he could make was to clarify what a BSRA designation is not: "It, BSRA designation, does not intrude upon the various rights already associated with the specified area. It is not another level of bureaucracy".

Such a designation has no regulatory function; it is strictly about recognition, the object of which is to promote (under UNESCO auspices) 'best practices' in terms of the use in the designated areas. A BSRA designation in Canada is not imposed from above; interested members of the public who wish to make such an application to UNESCO for a specific area can only obtain it.

It is, first and foremost, a form of recognition given only to areas judged to have a special combination of natural and human features worthy of special attention. The object is to promote within the BSRA conservation measures, sustainable economic goals and research endeavors.

BSRAs mostly involve public land and have three hypothetical zones:

- a) A central core zone or zones that are areas already protected under some form of statutory authority.
- b) A buffer zone or zones outside the core zones.
- c) A transitional zone outside the buffer zones.

The application process under the

UNESCO rules is fairly complex, time consuming and costly. Cost figures of about \$40,000.00 have been estimated. There exists already one BSRA in Nova Scotia, twelve BSRAs in Canada and over four hundred worldwide.

The Society's involvement with the BSRA concept originated when as requested, the Board of the society was asked to provide a representative to sit on a steering committee created to look into the question of applying for a BSRA designation initially for the St. Andrew's Channel area only. After consultation with Professor George Francis from the University of Waterloo, however, the entire Bras D'Or Lakes and its watershed area were considered more appropriate for which to make an application.

Apart from the Society there were representatives from a variety of Lakes concerned organizations including the Eskasoni Fish and wildlife Commission, Cape Breton Community Ventures, the Pitupaq Partnership, UCCB, the Bras d'Or Preservation Foundation and members at large. The steering committee held three meetings all chaired by Dr. Teresa McNeil. The committee then disbanded.

Since Dr. Foulds presentation at our 2004 summer meeting, a number of members have approached me, uneasy that the Society's directors seemed to be promoting the BSRA

concept. This is not the case. The directors do believe, however, it is one of our duties to try and keep members informed about cogent contemporary Lakes-related issues. We believe this is one such issue, indeed a suitable topic for our meeting. We are grateful that Jim Foulds agreed to speak to the issue. Despite Dr. Foulds lucid exposition, the board members, however, remain essentially neutral on this matter. We are not promoting or opposing the effort to have the Bras d'Or Lakes and its watershed designated a biosphere area.

The view of the board is that even if a BSRA designation occurred, in and unto itself, this accolade would not be harmful. We are not convinced such a designation will be of much practical value in terms of protecting the environmental integrity of the Bras d'Or Lakes and its watershed. In fact, its promotion may divert attention and possible funding from combined efforts to deal with sewage and other toxic materials into the Lakes, increasing shoreline damage, loss of biologically productive wetland areas and a host of other threats to this unique bioregion.



ACAP Launches Reef Balls To Create Artificial Reef and Restore Marine Environment

Cape Breton has its first reef ball marine habitat. The Atlantic Coastal Action Program-Cape Breton (ACAP-CB), a non-profit environmental agency in Sydney, created the project to restore marine environments. According to Shelley Porter, a biologist with ACAP-CB, marine environments are destroyed through industrial activity, dredging, construction and pollution. Reef balls are hollow structures made of concrete specially made for the marine environment. They help restore marine habitat by providing places for fish to hide and places for seaweed, mussels, oysters and other marine life to attach.

The reef balls placed off the shore in New Campbellton weigh between 700 and 1500 pounds and range in diameter from 3 to 4 feet, each with a height of 3 feet. The texture of the reef ball, the materials used in its construction, the size of the ball itself and the size of holes within the reef ball are all factors to consider when placing reef balls. Porter explains that it is not simply dumping concrete structures into the water. The site is carefully surveyed. Two commercial divers from Scuba Tech in Sydney and two boat operators guide the twelve reef balls into their place, thirty-five feet below the surface of the Bras d'Or Lake. Ken Jardine, owner and operator of Scuba Tech



says that within minutes of being placed, a lobster moved into a hole in the base of a reef ball.

Reef balls benefit local communities by restoring the marine habitat that in turn encourages lobsters, creates diving locations for eco-tourism, and enhances the sport fishing industry. "Anything we can do for the health of our environment helps our economy," Porter says.

The New Campbellton site was chosen as a pilot site because it has a history of marine damage from road construction and the operation of a former limestone loading facility. The site is safe for divers and easily accessible for the ongoing monitoring taking place over the next 3 years.

Although this is the first reef ball habitat in Cape Breton, reef balls are used the world over. In Nova Scotia, reef balls were placed in Halifax Harbor to encourage marine life. Nationally, reef balls have been used in British Columbia.

The International Reef Ball Foundation, a non-profit group dedicated to restoring marine environments, sent volunteers to Sydney to train ACAP-CB staff. Porter says, "ACAP-CB staff will have the expertise to give community groups interested in rehabilitating marine environments the training and equipment they need to do so."

Other supporters of this project include Environment Canada, Municipal Ready Mix, Cape Bretoner Motor Inn, and the Nervous Wrecks Diving Club.



REEF BALL BACKGROUNDER:

- Twelve reef balls will be installed at New Campbellton, 75 meters off shore at Blue Nose Point.
 - Six are "pallet balls" that measure 3 feet high with a diameter of 4 feet and weigh approximately 3/4 tones.
 - Six are "bay balls" that measure 2 feet high and have a diameter of 3 feet, and weigh approximately 500 pounds.
 - The balls are poured into a preformed fiberglass mold using a formulated concrete.
 - The reef ball molds cost an average of \$4000 each but can be used over and over again.
 - The concrete is allowed to cure 5 days.
 - Reef balls will be transported to the site by a boom truck.
 - Professional divers from Scuba Tech have been contracted to do the installation.
 - ACAP will be recruiting volunteer divers to monitor the reef over the next three years to assess
 - The project is being funded through Environment Canada's Environmental Damages Fund.
 - Municipal Ready Mix donated the concrete and staff to assist with the pouring of the concrete.
 - Cape Bretoner Motor Inn has donated rooms to house the volunteers from the International Reef Foundation.
 - Nervous Wrecks Diving Club is volunteering divers to help monitor the project.
 - The total cost of this project is \$50,000
- Reef ball schedule: Journalists are invited to this event. There will be a place reserved on board the workboat for media crew and equipment. Please call and reserve a place 567-1628.

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DATE	TIME	ACTIVITY	LOCATION	PHOTO/INTERVIEW OPPORTUNITY
Sept. 27, 2004		Molds arrive from Florida (after storm delay)	Municipal Ready Mix MacRae Ave., Sydney River	
Sept. 29, 2004		Trainers arrive from Florida		
Oct. 1, 2004	8:30 - 4:30	Formulating and pouring concrete into the molds	Municipal Ready Mix MacRae Ave., Sydney River	Photo: Molds, molds constructed, concrete poured Interviews: Don MacQueen, engineer ACAP Shelley Porter, project coordinator, biologist
Oct. 2, 2004	9:30 - 4:30	Casting continues		
Oct. 12, 2004 *Call office to confirm 567-1628	9:00 am 11:00 am	Reef balls loaded onto boom truck and transported to site Reef balls placed in site		Photo op: loading of reef balls Floating reef balls out to site with divers Release: underwater footage will be available Interviews with divers, ACAP staff and Reef ball volunteers
Oct. 13, 2004 (weather date) for launch				



The Bras d'Or Stewardship Society is interested in contributions from our members. If you have something to contribute to the Newsletter or would like to work with the society's board, please let us know. The society is an all volunteer organization that welcomes input from individuals interested in promoting the conservation, protection and restoration of the Bras d'Or Lakes and its watershed.

MONITORING OF THE BRAS D'OR LAKES AND ITS WATERSHED

By Fred and Lynn Baechler

The entire Bras d'Or Lakes and its watershed cover approximately 3,600 km². Of that area, approximately 70% is the land-based area, the watershed, which drains into the Lakes. What monitoring is being conducted over this expansive area to obtain the data necessary to effectively manage the water resources in the watershed? The answer is: "very little" compared to the Lakes themselves.

Monitoring can be defined as the collection of data, which is referenced to a particular point in space and moment in time, in order to answer a particular question. Monitoring programs can be designed to obtain baseline or benchmark data to answer the question - what are natural conditions and how do they change seasonally and annually? (e.g.: tides, stream flows, water tables, and climate). They can also be compliance programs designed to ensure facilities do not exceed limits set by regulatory agencies (e.g. monitoring effluent from a sewage treatment plant). Finally, monitoring programs can be implemented to monitor the effectiveness of practices designed to protect the environment, (e.g. sediment erosion controls). Each of these monitoring programs can stand alone, but more importantly should be integrated to obtain a better understanding of the ecosystem of which we are a part. Interpretation of the data leads to knowledge and wisdom, so important to decision makers / planners as they balance their goals of public safety, economic development and resource development.

For the Lakes themselves, scientific research by government scientists

with Department of Fisheries and Oceans (DFO) and Environment Canada (Env Can) has been coordinated under the acronym SIMBOL (Science for Integrated Management of the Bras d'Or Lakes). This important research will be used as a benchmark for future physical and ecological studies within the Lakes. Preliminary results were published in Proceedings of the Institute of Science Volume 42, Part 1, 2002. To date, no such coordinated effort has been directed toward the watershed.

Environment Canada has a long history of monitoring water quality (bacteria) in the Bras d'Or Lakes as an indicator of the safety of shellfish harvesting. In 1997, Eskasoni Fish and Wildlife (EFCW) partnered with Environment Canada to monitor bacteria in the Lake in order to determine which areas should be opened or closed to shellfish harvesting. In addition, scientific studies have been carried out by EFCW on various fish species including herring, lobster, gaspereaux, eels and oysters. Additional studies have been, and are currently being carried out on invasive species such as the MSX parasite, green crabs and algae. Water quality parameters such as salinity and temperature are routinely monitored during many of these studies.

Within the watershed however, water monitoring is primarily compliance based, for a few parameters as required by Nova Scotia Department of Environment and Labor (NSDEL). These are exemplified by monitoring programs at mine sites (Georgia Pacific, Little Narrows and MacLeod Resources), landfill sites (Baddeck and Big Brook), municipal sewage treatment plants (Baddeck and Whycomagh), wastewater discharge sites and registered water supplies in the watershed.

Effluent from sewage treatment plants and sewage lagoons in First Nations communities such as Eskasoni, Waycobah, Chapel Island

and Wagamacook is monitored by the federal Department of Indian and Northern Affairs.

While these monitoring programs are important to ensure the facilities operate within acceptable limits, they don't answer the questions "what are the acceptable limits? Do they change with time and space within the watershed"? To answer these questions we need to understand how the ecosystem works.

The provincial Department of Natural Resources (DNR) monitors various wildlife species, especially "species at risk" and maintains a number of 0.04 hectare "permanent forest inventory plots" within the Bras d'Or Lakes watershed. In the mid 1980's, the Canadian Forest Service established a site in the watershed to monitor the effects of acid rain on the forest ecosystem.

In 1996 a long-term terrestrial biodiversity monitoring program was established on a 1-hectare upland area site near Irish Cove. The ecological monitoring is coordinated by researchers at University College of Cape Breton (UCCB), under the auspices of the national Ecological Monitoring and Assessment Network (EMAN). Another research site in East Bay, the 160 acre R.J. Logue Memorial Property, is considered an ecological monitoring and research site and is being catalogued with respect to vegetation and ecosystems.

Good background stream based monitoring programs are being funded by Georgia Pacific at Melford and MacLeod Resources at Marble Mountain, as part of their operational responsibilities. An automated stream gauge recorder was installed in Upper Middle River in May 2003 as a joint federal / provincial initiative. Stream gauging has been ongoing on the Island for nearly 100 years, however this Middle River station is the first one in the Bras d'Or Lakes

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watershed, the largest watershed on the Island.

The Stewards of River Denys Watershed Association has worked closely with scientists from DFO and EFWC, and is working toward acquiring an automated stream gauge recorder on Denys River. Several research projects are underway, partnered with students from Dalhousie University.

Short-term monitoring programs have been carried out on specific projects by community groups such as the Middle River Stewardship Group, East Bay Areas Community Council, Eskasoni Wind Generation, and the Grand Narrows Water Front Development.

Environment Canada has been monitoring climatic conditions on the Island for over 130 years. Only one meteorological station is located within the entire Bras d'Or Lakes watershed. Located in Baddeck, it monitors only a few parameters. Unfortunately, data collection from this station has been sporadic.

During the early 1970's the Federal government initiated a monitoring program called NAQUDAT (National Aquatic Database), which monitored water quality in the Middle River at one site for 2 years. NSDEL has monitored groundwater levels in specific aquifers on the Island for approximately 25 years. None are located within the Bras d'Or Lakes watershed.

In summary, there is some baseline monitoring being conducted by various government agencies such as DFO, Env Canada, provincial DNR and Natural Resources Canada. However, surface and groundwater monitoring within the watershed is essentially only being carried out by industry, mainly by the mining industry.

NSDEL as manager of the resource regulates clean water and wastewater programs and insists on submission of water quality data.

The result of these regulations is that critical baseline data has been and is being collected and financed primarily by private individuals and businesses within the watershed.

In summary, there is a huge "knowledge gap" in our understanding of the ecological integrity of the Bras d'Or Lakes watershed. Where are the stream gauges, precipitation gauges and monitoring wells needed to understand the "water cycle", the interconnection between climate, groundwater and surface water? Do we know enough about fresh water inflow to the Bras d'Or Lakes? Do we know what parameters (for example; underlying geological formations, land use, slope and or terrain, watershed size and elevation) control the chemical and biological loadings from each sub-watershed into the Lakes? Are groundwater levels rising or falling? Have flow rates changed in rivers because of land use practices? Do some sub-watersheds contribute higher sediment loads to the Lake than others? At what rate is the water level rising in the Bras d'Or Lakes? Why are erosion rates higher along particular shorelines? Do we know if the changes we observe in our natural environment are naturally occurring or are they due to human activities? Are demands on any of the natural resources in the watershed in conflict? What will be the impact of climate change? Do we need to adapt to the expected changes? Do planners need to put restrictions on certain areas for building lots? Do we care about any of these questions? Do we need answers to any of these questions?

We believe so! Our goal is to protect the Bras d'Or Lakes, but how do we protect something fed by so many sub-watersheds, we know so little about. Basic monitoring of ecosystem processes is a government responsibility, not to be solely financed by industry and private individuals. There is a need for long term integrated monitoring

of the aquatic ecosystems within the watershed.

Are there ways community groups can carry out monitoring? Are there resources to instruct citizens on proper sampling protocol? Is there funding to purchase proper equipment and set up monitoring stations? Is there funding for analytical work, for research and development? Government and community need to work together.

Costs could be reduced in some monitoring programs by using dedicated local people with good quality field equipment, demonstrated note taking capabilities, and a camera.

The government has a tremendous amount of data, collected and paid for by individuals and businesses. This data needs to be shared with other scientists and engineers who have the ability to work with it, interpret it and place it in the public forum where planners and decision makers can use it for the common good of society.

It is difficult to obtain funding for monitoring initiatives. Unless the government assists with funding, monitoring will always be a reactive process, and the opportunity to obtain background and benchmark data will be lost.



COLLABORATIVE PLANNING FOR THE BRAS D'OR LAKES WHY IT IS IMPORTANT

For the many people who are interested and concerned for the long-term health and well being of the Bras d'Or Lake attention tends to be focused on the issues of the day. The identification of the poorly managed and monitored sewage lagoon at Crowdis Mountain is an example. For the Lake the risk has always been the leakage of sewage run-off from the lagoon into the Bras d'Or by way of the adjacent streams and brooks. Also, there have been new reports about the large number of sites in the Lake closed to the Oyster Fishery due to high fecal coliform counts as well the consequences for oyster fishermen of the discovery of the MSX parasite in the Lake, effectively closing down the industry. Such an event and many other unfortunate actions are the basis for the work carried out by our Society. They are of a nature that quick action must be attempted on an urgent and informed basis.

Not all the news is negative, however. Some very responsible people have come together over the past two years recognizing that the long-term environmental sustainability of the Bras d'Or Lake and its watershed could not be left to some 'knee jerk reaction' to catastrophic events as they occur. Instead, people agreed that a new form had to be established. We have learned enough about tragedies that have befallen other valuable rivers and lakes. It is the current wisdom that the application of good prevention and precautionary principles are essential to avoid similar mistakes.

The result is the establishment of the Collaborative Environmental

Planning Initiative shortened to the "Collaborative Planning Initiative" for working purposes. The initiative arose from the recognition of a need to develop an overall management plan for the Bras d'Or Lakes and its surrounding watershed. This plan, and the process to develop and implement it, is meant to help address the many environmental issues present in the Lakes (fishery declines, water quality impacts, clear cutting, erosion, invasive species, etc.) including their social and economic dimensions. It is anticipated that a multi-partnered approach (collaborative) involving three levels of government, First Nations communities, industry and businesses, non government organizations (NGO's), and local communities is required to develop and help implement the plans that will protect, restore and enhance this unique environment, and support the communities living there. This initiative will also serve to coordinate much of the existing efforts taking place in the Bras d'Or.

Since 2003, federal, provincial, and municipal governments, along with leaders from the First Nations communities, have been working together to develop a common understanding and approach for developing a management plan for the Lakes. The Unama'ki Institute of Natural Resources, an environmental and natural resource management body that is supported by the five First Nations communities in Cape Breton has been helping coordinate this. A successful workshop attended by over 100 senior government and First Nations representatives was held in October 2003 in Wagmatcook and Eskasoni. This workshop, which was intended to help government "get their act together" helped solidify support for the initiative and set the direction to move forward. A second large workshop involving interested community members, industry, businesses and NGOs was held in October 2004. This was a good opportunity to discuss what

has been taking place to date and seek ways that all people with an interest in the Bras d'Or can work together to help sustain it.

In addition to the many municipal, provincial and federal government departments with programs operating in the Bras d'Or, there are also a number of organizations formed and working to address the environmental issues present. The Collaborative Environmental Planning Initiative will work to coordinate and support these groups, which include among others:

1. The NS Sustainable Communities Initiative (SCI): which has been in place for approximately four years and has a Field Team in the Bras d'Or consisting of federal, provincial, municipal, and First Nations representatives. It is supported by a Coordinating Committee and two Co-Champions (Federal/Provincial). A three-member secretariat provides support to these groups as well as to another Field Team in the Annapolis Valley. The goals of the Sustainable Communities Initiative are:
 - a) To improve working relationships and coordination among government departments;
 - b) To build and strengthen government-community relationships;
 - c) To work with community partners to support long-term sustainability efforts.

The main efforts of the Bras d'Or Field Team to date have included: supporting a proposal to have the Lakes designated a non-discharge zone for sewage, supporting broadband internet capacity for the region, and identifying the issues for residents in First Nation and non First Nation.

2. The Unama'ki Institute of

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Natural Resources (UINR): represents the five Cape Breton First Nations bands, the UINR contributes to an understanding and protection of the Bras d'Or ecosystem through research, monitoring, education and management. The UINR is based in Eskasoni, NS, the largest community on the Bras d'Or.

3. The Pitu'paq Committee: is composed of the five Mayors/Wardens and five First Nation Chiefs from the communities around the Bras d'Or Lakes. The committee has been formed to address sewage issues as they relate to on-site systems, sewage treatment plants, and marine vessels.
4. Science for the Integrated Management of the Bras d'Or Lakes (SIMBOL): is a partnership of scientists from the Department of Fisheries and Oceans, Natural Resources Canada, and the Unama'ki Institute of Natural Resources. This group has been studying the ecology of the Bras d'Or Lakes and watershed to provide a scientific basis for management. Research priorities were determined with community input. Many of the findings of this research have been published in the Proceedings of the Nova Scotia Institute of Science (Vol. 42, 2002).
5. The Bras d'Or Stewardship Society: is a 150+ member citizen based, lake-wide organization that promotes strategies to conserve, restore and protect the Bras d'Or Lakes for current and future generations. The Society provides a forum for education, cooperation and partnership among interested individuals and communities. Gathering ideas and scientific information, the society is positioned to voice concerns

regarding the safeguarding of the future environmental health of the watershed to government, business and to general public.

6. Plus numerous local organizations (approximately 150) active and engaged in a wide variety of issues within the Bras d'Or Lakes watershed.

So as you can see, serious efforts are being made by dedicated people on a cooperative basis to put in place a planning and managing regime that can ensure the sustained health of this great Cape Breton and Canadian resource in future years. The ongoing support of the Bras d'Or Stewardship membership is critical to our ability to participate in and influence, in a positive way the work of the Collaborative Planning Initiative. In fact it may be of interest to members to know that the work of the Society has earned us participation in National Conferences on Oceans and Waterways protection in Ottawa, St. John's and Regina with the costs born by hosting organizations.

Officials for the Society are grateful for your support and we look forward to continuing progress in 2005.

Pat Bates
Chairman

Reclaiming the Limestone Quarry at Irish Cove

By David B. Hopper¹, MES, MCIP

Driving along Highway 4 travellers may have noticed a changing landscape on the Bras d'Or Lake shore at Irish Cove. Over the past eighteen months reclamation work at the former Irish Cove limestone quarry has gradually transformed

the site from a quarried landscape to one that is more visually compatible with the surrounding landscape.

The Irish Cove limestone quarry reclamation project was initiated and managed by the Department of Natural Resources (DNR) with assistance from a planning group with Vince Cunningham and Daniel Cash representing Irish Cove and Wilfred MacNeil from the Johnstown Community Development Cooperative(JCDC). Thereclamation work was contracted to H.W. Phillips and Son Limited, supervised by the Department of Transportation and Public Works and financed through the SYSCO cleanup fund.

The project began within DNR's Mineral Development and Policy Section in early 2001, wherein staff prepared a concept reclamation plan for the site. Later on in June, DNR presented the concept plan to local residents at a town meeting in Johnstown. Concern over the site's safety, environmental and aesthetic issues were raised as primary concerns of the local community and DNR staff pledged to make them the primary objectives of the final reclamation plan.

FUTURE LAND USE:

A future land use concept was also presented by DNR incorporating a passive recreation-use scenario that recognized the potential to provide public access to the shore of Bras d'Or Lakes. A 'Geopark' was proposed which included an interpretive trail to highlight the geology, marine fossils, landscapes and the spectacular views of the lake and the East Bay hills. While local residents voiced their approval of the idea in general, the public access to the property arose as a strong dissenting issue. The proposed access point was the wooden bridge at the end of Lakeshore Drive, which would require visitors to drive through the small village of Irish Cove to a parking area located near the bridge. In an effort to find an alternative solution for public

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access DNR staff looked at the possibility of constructing an access lane off Highway 4. However, the additional cost of constructing a new intersection and turn lane pushed costs beyond the project's budget. Therefore it was agreed among the planning group to focus on the immediate reclamation objectives only, which will return the site to a safe and sustainable natural setting and thus create the potential for a geopark in the future.

PLANNING AND SURVEYING:

In 2002, prior the reclamation work, several different surveys were conducted to gather necessary data for reclamation planning. DNR staff from St. Peter's carried out a ground survey needed to produce a contour map of the quarry. The resulting survey map helped in the effort to locate sources of overburden on the site or 'soil' to be placed on top of the fill and to determine a final landscape or re-contour plan. The survey diagram was also used to calculate the volume of material needed to fill in the quarry and create the required slopes (generally a ratio of 1 unit of height to 3 units of length) for drainage and re-vegetation. In addition DNR contracted Biodiversity Research Associates from Sydney to do a vascular plant survey prior to any ground disturbance. This study was to alert the project planners of any existing rare or endangered species on site and to provide baseline data for future biological studies after reclamation and revegetation. The Irish Cove Brook provided the focus for the last survey conducted prior to reclamation. The Provincial Department of Fisheries and Aquaculture conducted a fish habitat survey from the lake to the upstream sections lying south of Highway 4. This work provided data on existing habitat conditions and an estimation of species diversity. The Inlands Fish Habitat section of the Department of Fisheries and Oceans surveyed the stream morphology for planning a

stream restoration design along the section lying between the bridge at the end of Lakeshore Drive and the culvert running underneath Highway 4. Once the data was collected, mapped and final plan determined then the process of reclaiming the Irish Cove Quarry began in late summer of 2003.

LANDSCAPING:

The early work focussed on the removing hazardous debris abandoned by the former quarry operation such as pieces of metal, cable, old tires, truck parts, drums, power poles and lines, decommissioning a water well and dismantling a truck-loading ramp. The most significant aspect of the reclamation work began almost immediately, which involved trucking over 108,000 tonnes of crushed and screened, limestone stockpiled near the edge of Irish Cove Brook back into the quarry. After several attempts over the last 10 years DNR was unable to interest a buyer for the limestone, so the stockpiles were returned to the landscape and thus removed a long-standing visual blot on the local scenery. Fill and overburden was bulldozed up against the quarry wall creating new slopes ready for the seeding and new growth.

REVEGETATION:

The revegetation plan aimed to assist in the eventual return to forest cover. This involved a combination of replanting at least 150 shrubs and trees (mainly alder, wild rose and bayberry) on the slopes. This was meant to increase the distribution of native species, create small islands for seed source and capture, wildlife cover and some height variance from the lower lying grasses and legumes. The seed recipe selected for the site is known as the 'wildlife mix', which consists of creeping red fescue, birdsfoot trefoil, quick growing grasses, and clover. After seeding a layer of hay was placed on top for mulch and to stabilize the soil and seed. The last site inspection conducted by DNR in October 2004 found that seed germination was

successful with clover and trefoil being most dominant. A surprising result was found to be growing in the new field where the stockpiles were once located - giant sized turnips! The source of these blue-ribbon vegetables likely came from stow-away seed in the hay. Also a number of red spruce saplings was given to Vince Cunningham of Irish Cove for residents to create a memorial grove on the site for a long-time resident and nature buff who passed on a few years ago.

STREAM RESTORATION - A COMMUNITY-LED PROJECT:

The Irish Cove Brook is the most significant ecological feature on the site. Although stream restoration lies outside the jurisdiction of DNR some preparation for future restoration of the Irish Cove Brook was conducted based on a recommendation from DFO. Several large boulders were carefully removed from stream to minimize stream braiding and to provide more opportunity for the stream to develop a meandering flowage. Further work is still required to restore the Irish Cove Brook to bring back a healthy fish population. Toward the end of the reclamation project DNR began to create an interest within the community toward pursuing the goal of restoring the brook. With assistance from the Strait-Highlands Regional Development Agency (SHRDA) a meeting was organized at the DNR office in St. Peter's in January 2004. The invitation went out to many different groups including several provincial departments, DFO, Unama'ki Institute of Natural Resources, Richmond County Wildlife Association, Johnstown Community Development Cooperative and residents of Irish Cove. The meeting was well attended and resulted in keen show of interest to implement a plan to restore the brook. Residents spoke fondly of water tubing and fishing in the stream when they were children and felt the real success story of quarry reclamation was tied to the restoration of the stream.

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Reclaiming the Limestone Quarry...cont'd

Needing a champion to lead the way, the JCDC agreed to work with the SHRDA in trying to find funding partners to finance the work needed for building in-stream structures and planting the banks and riparian zone. Although the initial attempts have been unsuccessful the residents still hope the Irish Cove

Brook stream restoration project will find some provincial and/or private assistance to rejuvenate this small part of the Bras d'Or watershed.

Once this can occur it will signal the final transformation of the former quarry property at Irish Cove to a natural state that is environmentally healthy and a fitting tribute to this beautiful area of Cape Breton.

¹ Formerly of the Department of Natural Resources and project manager for the Irish Cove Reclamation Project. David is now the Private Land Conservation Coordinator for the Department of Environment and Labour.

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Bras d'Or Watch
to report any observed acts, incidents and violations that threaten the integrity of Bras d'Or Lakes please call:
1 800 565 1633

Our Email: stewardship@baddeck.com

2005

BRAS D'OR STEWARDSHIP SOCIETY

- | | | | | |
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| CONTRIBUTOR | <input type="checkbox"/> | \$50.00 | | responsible stewardship. |
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| LIFETIME MEMBER | <input type="checkbox"/> | \$500.00 | Address | |

Mail check or money order along with your name and address to:

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