

Introduction

The Chaleur Bay Watersheds Group (CBWG) is a non-profit organization that was formed in August of 2000. The CBWG quickly took shape and began working progressively towards achieving their goal of classifying the rivers and streams from Millstream River to Jacquet River as part of the classification program. Along the way the group has been involved in several different projects adopted to help improve the condition of the environment within the Chaleur region and to increase public awareness regarding several different environmental issues.

The 2002-2003 fiscal year in particular has been an interesting one for the CBWG. The group completed a provisional water classification report for the watersheds of the Jacquet River, Belledune River, Elmtree River, Little Elmtree River, Nigadoo River, Millstream River and Armstrong Brook which was submitted to the DELG during the last fiscal year. Since then, the group has been progressively moving toward the completion of specific action items identified during the classification process and has constantly been developing new ones. The following report will discuss the various projects that the CBWG has been involved with during the last fiscal year, discuss water quality at certain sampling sites, and make recommendations for future actions.

During the third year of the water classification process the scope of the group moved slightly away from the monitoring aspect. Although water quality monitoring and stream surveys were carried out, the main focus was directed towards the implementation of action items identified to improve water quality and overall water quality conditions.

Implementation of Action Items for 2002-2003

Following the provisional water classification of the watersheds within the area of interest for the CBWG, many areas were identified for the implementation of action items. Illegal dumping, inefficiently closed mines, agricultural activities and continued monitoring efforts were among the main focuses for the current fiscal year. Many of these projects were made possible through in-kind and financial support offered by several individuals, companies and/or organizations.

Grants Brook Farm Cattle Fencing Project

The CBWG had received approval from Environment Canada's Ecoaction Community Funding Program to stabilize a cattle crossing along Armstrong Brook. This particular area contributes significantly to the elevated levels of e. coli bacteria found within Armstrong Brook (see Provisional Water Classification Report for the CBWG, 2002), which was the root cause of the closure of the beach in Jacquet River Park. A total of \$20,000 was allotted for the completion of this project; however, due to circumstances beyond our control, it was impossible to complete the original project.



Figure 1. Trampling of riparian vegetation along Grants Brook caused by dairy cattle entering the water-course.

Although disappointed, the group quickly redirected their focus and came up with an alternate project that would be equally beneficial to the environment. This project entitled the “Grants Brook Farm, Cattle Fencing Project”, which was partially funded by the Agricultural Environmental Management Initiative, included leaving a 10-meter riparian buffer strip along the rivers edge, planting 3,000 tree seedlings, installing electric fence and providing the cattle with an alternative source of drinking water. This program was implemented with the goal of reducing sedimentation, bacteria levels and to help maintain cool water temperatures. Water quality monitoring will continue over the next fiscal year to determine the effectiveness that this project has had on protecting water quality.

Although not quite as significantly damaging to water quality and fish habitat as the Armstrong Brook Cattle Crossing Project, the Grants Brook Farm project will have a significantly positive influence on water quality. The group hopes that by showing other stakeholders that their intention is to work cooperatively with landowners in order to protect and improve water quality that they might be more likely to become involved in future projects. The CBWG feels that this project will have far reaching benefits for the environment beyond just improving water quality. In fact, other landowners have already contacted us in hopes of being involved in implementing future best management initiatives.

Benthic Invertebrates as Indicators of Water Quality

The rivers and streams of the Chaleur Bay Watersheds flow through a variety of different conditions as they go through the different watersheds. Typically they go through areas such as natural forests, wetlands, agricultural fields, residential areas, commercial areas, cut blocks and industrial areas. These different conditions have the potential to alter the water quality of a waterway. Water quality is often measured in terms of physical or chemical parameters, when in actuality it can more completely be examined by looking at the biological qualities of the water. Furthermore, testing of chemical parameters only takes into account the quality of the water at the time the sample was taken (Dwight, Moody. pg. 359). For this reason, benthic macro-invertebrates are often considered a better indicator of water quality and stream health (Dwight, Moody. pg. 359). They are usually sensitive indicators of stream health because they express long-term exposure to variations in water and habitat quality rather than instantaneous measurements of water quality parameters (Johnson et al, 1993).

Although the DELG is currently developing a model to be used within the *Water Classification Regulation*, and Eastern Charlotte Waterways Inc. is working on a rapid assessment method (R.I.V.E.R.S.) to be used by volunteer groups to determine water quality characteristics, these tools were not completed in time for the CBWA to utilize them in during the 2002 field season. For this reason, the CBWG has gathered samples independently from the DELG to be used to complement water quality data gathered from past sampling sites. The methodologies used to gather the samples were similar to those outlined within the R.I.V.E.R.S. program. This was done in hopes that the data

from this program will eventually be able to be used once the R.I.V.E.R.S program has been finalized.

The CBWG was able to gather and have identified benthic invertebrate samples at 14 different sites, using funding provided by the Wildlife Trust Fund. At each of the 14 sites 3 replicate samples were collected within the riffle areas of the river or stream. The samples were then sent to the Huntsman Marine Center for identification. All insects besides Diptera were identified to species whenever possible.

At 8 randomly selected sites, an additional 3 replicate samples were collected and identified by CBWG staff and volunteers using taxonomic keys and procedures outlined by the R.I.V.E.R.S. program. At each site, stream habitat characteristics were also noted. For a more in depth description of the results of this program please see the summary report sent to the WTF.

Enviroscape Educational Program

The members of CBWG believe that educating the youth of this region is key to ensuring a healthy environment for the future. Therefore, the organization has been offering Enviroscape presentations to local schools and clubs, such as the Scouts. During these presentations the children receive information about the possible effects that specific activities, such as pesticide use, agriculture, and forestry, can have on water quality and fish habitat.

Armstrong Brook Stream Clean Up

An illegal dumping site located adjacent to Armstrong Brook was identified as one of the action items for the Armstrong Brook watershed during the provisional classification exercise. After a plan was developed with technical assistance from the Department of the Environment and Local Government, Municipality of Belledune several logistical arrangements were made and, a clean up event was scheduled for June 15, 2002. Although the event only had six participants, the outcome was very successful. In all, a total of 94 bags of garbage were removed with a total weight of 1,670 kg. Due to the overwhelming success of this clean up, other stream clean up activities will likely take place in future years at this site and in other locations throughout the watershed. The event was featured in articles in newspapers from both the Bathurst and Restigouche area. This helped to increase awareness of the general public regarding the severity of illegal dumping as well as to promote the hard work of the community members who took part. Signs provided by the regional office of the Department of Environment and Local Government were posted at this site and at other known dumping sites to deter further illegal dumping.



Figure 2. Armstrong Brook during Stream Clean-up, 2002.

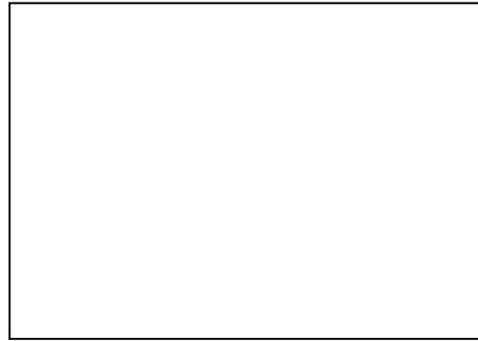


Figure 3. Armstrong Brook after Stream Clean-up, Fall 2002.

Modification of the Group's Mandate

In part due to the success of CBWG in working with watersheds between Millstream and Jacquet River, a request was received by the public to extend our boundary south to include adjacent watercourses. In response to this request, the group has adjusted its role and objectives to include both Grants Brook and Peters River. A general concern was expressed to the staff of the CBWG regarding these watersheds and the proximity and influence they have on Millstream Gully. Millstream Gully is unique due to several habitat conditions that make it an ideal habitat for the Maritime Ringlet Butterfly; an endangered species. To counter any potential negative impact on this species due to urban sprawl, the Town of Beresford has initiated a land stewardship program to protect the fragile habitat of the Maritime Ringlet Butterfly (<http://www.maritimeringlet.ca/interface/interface.html>). Concern over the possible effect of expanding urban activities within both of these watersheds caused us to pursue establishing water quality monitoring sites within each of these watersheds to assess base line water quality. The CBWG, in partnership with the Town of Beresford and residents of the watersheds, hope to also provide provisional water classifications for these watercourses under the New Brunswick *Water Classification Regulation*.

Not only did the group expand their boundaries to include both Grants Brook and Peters River but there was also an effort made to develop a coastal monitoring/evaluation program for the coastal area extending from Peters River to Jacquet River. The bay is an integral part of everyday life here in the Chaleur Region. It affects our climate, provides us with jobs, and gives us a place to enjoy recreational activities. Therefore, it is essential that the CBWG remain and increase their involvement in the monitoring of coastal waters.

Over the past field season, sanitary shoreline surveys were conducted to identify possible sources of pollution in conjunction with the collection of water samples. With the support of Environment Canada, the group was able to collect water samples at the estuaries of several watercourses and have them analyzed at the Environment Canada mobile laboratory for fecal coliform bacteria. Although only one run of samples were collected, they provided the group with an estimate of the current water



Figure 4. Fishing boats at Petit-Rocher Wharf, Chaleur Bay.

quality conditions and gave insight into which areas further efforts should be directed. The results of the samples are listed in Table 1 for 13 different tributaries of the Chaleur Bay. These results may suggest that further work should be carried out to determine whether or not there are additional impacts that perhaps weren't noticed during the sanitary shoreline surveys for Grants Brook, Haché Brook, Jacquet River and Armstrong Brook. Nonetheless, several possible sources of pollution have already been documented during the sanitary shoreline survey where work should take place. The successful completion of the Grants Brook Cattle Fencing Project, will no doubt contribute to lowering the levels of fecal coliform within Grants Brook.

Although there is extensive information available on how to monitor freshwater systems, a simple cost effective manner of determining the overall quality of marine areas is not yet readily available. Regardless, the group recognizes the impact that land based activities can have on the coastal waters and will continue to work towards the improvement of freshwater resources as a means of in part improving the bay. The CBWG wishes to continue to work with various levels of government, non-profit organizations, citizens, fishermen and other experts to try and identify an effective method of determining the overall quality of marine habitats within the area of interest.

Table 1. Fecal coliform results from Sanitary Shoreline Survey, 2002.

Watercourse	Date	Fecal coliform (MPN/100 mL)	Temperature (°C)
Peters River at mouth	2002/07/12	17	19
Haché Brook at mouth	2002/07/12	1600	17
Grants Brook at mouth	2002/07/12	540	20
Millstream River at mouth	2002/07/12	49	23
Nigadoo River at mouth	2002/07/12	130	21
Madisco Brook at mouth	2002/07/12	23	20
Little Elmtree River at mouth	2002/07/12	8	17
Elmtree River at mouth	2002/07/12	46	20
Fournier Brook at mouth	2002/07/12	33	20
Guitard Brook at mouth	2002/07/12	23	18
Belledune River at mouth	2002/07/12	8	20
Armstrong Brook at mouth	2002/07/12	540	21.5
Jacquet River at mouth	2002/07/12	> 1700	26.5

Nigadoo Mine

The Nigadoo Mine has been a subject that has caused much concern to residents of the area since its closure in 1977, and more frequently in recent years. Very few precautions were taken to ensure the protection of the surrounding surface water and groundwater until in 1986, when eight transformers carrying PCB's were removed from the site (Lemieux, 2001). This is of particular interest because the Nigadoo River is not only important as a habitat for fish such as Brook trout and Atlantic salmon, but also because it is the village of Petit Rocher's drinking water supply. The topography of the land has been altered to insure that service runs off from the mine yard and from tailings pond area to enter the Nigadoo River below the designated water supplies.

In recent years very little has been done to reduce the likelihood of contaminants from the mine site entering the river. However, this past summer Mr. Gilles Thériault, the Regional Water Planning Officer with the Department of the Environment and Local Government (DELG), spearheaded a project to clean up and promote reforestation of a portion of the mine area. A clean up was coordinated and included staff from the CBWG, Village of Nigadoo, Village of Petit-Rocher and the Bathurst office of DELG. In total, over 5 tons of metal and approximately 125 tires were removed from the abandoned mine site. Fertile grubbing was spread along a large portion of the mine site in order to encourage plant growth. This has definitely improved the aesthetic quality of the mine site; however, additional work should be done to remove the remainder of the debris and to complete the reclamation of the site.

Water Quality Monitoring and the Water Classification Regulation

Water samples were collected during the months of August, September and October in order to determine the baseline water quality of Hendry Brook, Duncans Brook, Fournier Brook, Grants Brook, Peters River and Elmtree River. Within the *Water Classification Regulation* the water quality standards used are limited to dissolved oxygen, bacteria, aquatic life and trophic status for lakes (NBDELG, 2002) for the various classes. See Appendix 1 for more detail. At all of the sites mentioned above the levels of dissolved oxygen and bacteria were suitable for excellent classifications. However, benthic invertebrate populations should be examined, as well as consider existing and future land/water uses and the wishes of the watershed stakeholders before a provisional classification is stated.

Of the watercourses sampled this year Elmtree River, Hendry Brook, Duncans Brook, and Fournier Brook have already been assigned provisional water classifications. These provisional classifications were based upon surrounding land use and public consultations carried out during February of 2002. They were given classifications of B within the area zoned industrial and A further up into the watershed. In order to ensure that the provisional classifications developed were representative, additional water quality monitoring was carried out (see Appendix 3 for sample site locations).

Guitard Brook was also classified based upon land use and public consultations. Following the completion of a stream survey along this brook, it was apparent that the assigned classification should be representative due to the limited amount of development and surrounding land use activity in this area. Both Grants Brook and Peters River were sampled this year and will likely receive provisional water classifications within the next fiscal year. The following section will briefly discuss the findings from this monitoring effort.

Duncans Brook is a very small watercourse that flows through the Village of Belledune and eventually into the Chaleur Bay. The land use within the watershed of Duncans Brook consists mainly of woodland, industrial, commercial and residential activities. The flow of the brook has been rerouted and now collects surface runoff from the Belledune Industrial Park. Within the industrial park a sawmill, a construction company and a cement-processing factory are found. Based mainly upon recommendations received during the public consultations, this brook was classified as B in the lower industrial extremities, and A in the upper, less disturbed portions.

Sampling site BC-B, Duncans Brook upstream from highway 134, had all parameters within the CWQG for the protection of aquatic life. Although there are no guidelines established for the protection of aquatic life it has been suggested that a maximum level of 0.01 mg/L TP-L be considered acceptable for rivers. On two separate occasions, Aug. 28, 2003 and September 25, 2003 the TP-L exceeded this level reaching 0.041 and 0.61 consecutively. Nonetheless, the water quality results indicate that the provisional classification developed during public consultations of Class A in the upper portions of the watershed and Class B in the more industrialized areas would be acceptable.

The watershed of **Hendry Brook** is also quite small in size. It is located within the Village of Belledune and has land use consisting mainly of woodland and industrial activities. Water quality at the sampling site for this brook (BC-A) reflected excellent water quality with all parameters were found to conform to the limits outlined within CWQG for the protection of aquatic life.

Fournier Brook is a small stream that flows through the municipality of Pointe-Verte and then out to the Chaleur Bay. The watershed of Fournier Brook is dominated by residential, woodland and industrial land use. During a stream survey of this small brook numerous illegal dumping sites were found along its banks. Also along one of the tributaries of Fournier Brook is a man made pond that could possibly be obstructing fish passage. The water sampling site on this brook (BC-C) is located directly upstream from route 134. Water quality results for this site are indicative of excellent water quality with all parameters within the CWQG for the protection of aquatic life.

Grants Brook is somewhat larger than the aforementioned watercourses. Within the watershed boundary of Grants Brook, land use is significantly varied with residential, agricultural, commercial, residential and recreational occurring. The watershed boundaries for this watercourse extend from Robertville through Dunlop and Beresford where it flows into Millstream Gully and eventually into the Chaleur Bay.

The sampling site for this particular watershed is located just upstream from route 134. The water quality results for this particular site demonstrated that all of the parameters tested were well within the CWQG for the protection of aquatic life.

Peters River originates in the area of North Tetagouche then flows through the communities of Robertville, Dunlop and finally through Beresford where it joins Millstream Gully and then flows out to the Chaleur Bay. Land use within this watershed is made up of woodland, residential and agricultural uses.

There is currently one sampling site on Peters River. It is located directly upstream from route 134 in Beresford in a relatively urbanized area. Water quality at this site indicated that water quality was relatively good with just one parameter (aluminum) exceeding the CWQG for the protection of aquatic life. The concentration of aluminum from the sample collected on October 30, 2002 (0.129 µg/L Al) was slightly higher than the 100 µg/L guideline for water with a pH greater than 6.5.

Elmtree River watershed measures approximately 81 km². Within the upper portions of this watershed, activities are limited mainly to forestry and some recreational activity. Once again, two separate sampling sites were located on Elmtree River. One sampling site was BC-07, located just upstream from Boily Lane. The second site is located slightly further downstream in close proximity to where the transmission lines cross the river. This site was chosen due to recommendations made by the staff of the regional DELG office in order to determine whether or not Madran Mine is having an impact on water quality. This mine was closed some time ago, but according to DELG staff during spring freshet and periods of heavy precipitation the mine shafts overflow and reddish/rust colored water occasionally flows into the river.

Elmtree River had been assigned a provisional classification in 2002 (Class A upstream from the railway bridge, Class B downstream). Previous sampling results for BC-07 demonstrated levels of aluminum, zinc and acidity that exceeded the CWQG for the protection of aquatic life during specific periods. There were three duplicate samples collected at this site in August, September and October. The samples collected on October 30, 2002 had elevated levels of aluminum that exceeded the CWQG for the protection of aquatic life (guideline 0.005 mg/L, Al) at a concentration of 0.198 mg/L and 0.197 mg/L. These same samples also had pH levels that were more acidic than the CWQG for the protection of aquatic life (pH guideline equals 6.5-9.0) on October 10, 2002.

A second water quality monitoring site, BC-E was located downstream from BC-07 and the Madran Mine. Water quality at this site had levels of cadmium which exceeded the proposed CWQG for the protection of aquatic life (0.017 µg/L, Cd) on August 28, 2002 (0.5 µg/L, Cd) and September 25, 2002 (0.4 µg/L, Cd). BC-E also demonstrated levels of copper on August 28, 2002 (5.8 µg/L, Cu) and September 25, 2002 (4.2 µg/L, Cu) which exceeded the CWQG for the protection of aquatic life of 2 µg/L for hardness of 0-120 mg/L. Likewise, levels of lead exceeded the CWQG for the protection of aquatic life on

both August 28, 2002 (2.3 µg/L, Pb) and September 25, 2002 (1.9 µg/L, Pb). Finally, zinc was also higher than the 0.030 mg/L limit established within the CQWG for the protection of aquatic life on August 28, 2002. Therefore, it seems apparent that the old Madran Mine is likely contributing to increased levels in heavy metals even during dry periods of the year.

Recommendations for Future Actions

Since the initiation of CBWG in August of 2000, the group has expanded its scope considerably beyond the initial goal of implementing the Water Classification Regulation. For this reason, it would be essential for the committee to establish a concrete set of bylaws. Furthermore, the presence of the committee has dwindled off considerably and it could also be advantageous to recruit new members and fill empty positions.

Another important issue that was unable to be corrected over the last year was the cattle crossing on Armstrong Brook. As previously mentioned the beach located at Jacquet River was closed to swimming over the past year due to high levels of *E. coli* bacteria in the water. The group will continue to work cooperatively with farmers and the local agricultural conservation group in the area to remedy the problem. Continued cooperation with the agricultural conservation group and other farmers is essential. Also along a section of Armstrong Brook the removal of an illegal stream blockage should be among the list of action items to complete for the coming year. The group will work with the appropriate stakeholders to ensure that the blockage is removed and fish passage is restored.

Illegal dumping sites remain a problem within the watersheds. A continued effort will be directed towards the organization of cleanups along with the DELG and other groups within the watersheds. Once again, public education will remain an important aspect of this activity.

As mentioned within the water quality section of this document an additional sampling site was added to Elmtree River to determine the effect of the old Madran Mine. The mine has been closed for some time now but water quality results seem to demonstrate that the mine may be affecting water quality. Further sampling should take place within the spring freshet to determine the extent to which this abandoned mine is impacting water quality. Mine shafts and other exposed areas should be identified and coordinates recorded. A comprehensive plan should be prepared in conjunction with the regional office of DELG and other pertinent stakeholders to determine steps that should be taken to remedy the mine site.

As mentioned within the *Proposed Provisional Classifications within the area of interest for the Chaleur Bay Watersheds Group under the Water Classification Regulation* document, work must be carried out to repair an ineffectively operating sewage treatment system on a small tributary of Millstream River. The CBWG will continue to work collaboratively with the owners of the system and the appropriate government agency to

see the issue resolved. Similarly, the group will continue to work to improve the situation regarding faulty private septic tanks within the watersheds. To do this the group will prepare information packets and supply them to residents in order to raise awareness of the problem and help protect both surface and groundwater. The group also hopes to receive funding from the Environmental Trust Fund to continue replacing problematic septic systems for low income households that might otherwise be unable to do so.

While carrying out the shoreline surveys it was documented that there were several areas of Beresford Beach (especially the dune area) that erosion is causing many cottage and home owners to lose land. The coastal committee would be an excellent method of perhaps proposing and supporting the use of marram grass and other native vegetation rather than building extensive breakwaters.

Continuation of stream surveys and expansion of the coastal committee will also play a large role in the future of the group. Although, there is a much better understanding of the issues affecting the environment there are still unanswered questions that must be researched further. Mapping should also continue to assist the group in documenting their findings.

Although the group has continued to regularly distribute newsletters and give presentations in local schools; education of the general public is also something that should be further developed. The group has placed a strong emphasis on becoming a resource center for the community, and would like to be actively involved in distributing information regarding the implementation of best management practices within the sectors of agriculture, residential and forestry. Education programs will be continued within local schools but workshops and site tours for homeowners, farmers and other stakeholders will be offered more frequently to give groups and individuals the theoretical and practical knowledge necessary to help protect their local environment beyond just water quality. Some of the many subjects that should likely be addressed would be on how to make homes more energy efficiency, reducing waste, using less water, protecting and improving fish habitat, and reducing the use of pesticides. This will be done in conjunction with local municipalities, various special interest groups and the different levels of government.

References

Lemieux, Colette. 2001. *Nigadoo Mine*. Chaleur Bay Watersheds. 385 Principale Street, Nigadoo, New Brunswick.

Murphy, Kevin. 2002. *Proposed Provisional Classifications within the area of interest for the Chaleur Bay Watersheds Group under the Water Classification Regulation*. Chaleur Bay Watersheds Group. 385 Principale Street, Nigadoo, New Brunswick.

New Brunswick Department of Environment and Local Government. 2002. *Understanding The Law, A Guide to New Brunswick's Water Classification Regulation*. Fredericton, New Brunswick.

Taken from the worldwide web <http://www.maritimeringlet.ca/interface/interface.html>

Appendix 1. Chaleur Bay Watersheds Group Annual Report, 2002-2003.

Table 1. The Classes and Associated Water Quality and Management Standards (taken from NBDELG's "A Guide To New Brunswick's Water Classification Regulation")

Name of Class	Suitable Uses	Aquatic Community Standards	Dissolved Oxygen Standards	Bacteria Standards	Standards for Trophic Status (lakes ponds and impoundments)	Prohibited Activities
Outstanding Natural Waters	Habitat for aquatic life; primary and secondary contact activity; other appropriate uses .	The aquatic life shall be as naturally occurring.	The concentration of dissolved oxygen shall be as naturally occurring.	The faecal coliform organisms and <i>E. coli</i> shall be as naturally occurring.	The trophic status shall be as naturally occurring.	Release of contaminant; creation of a new mixing zone; release of a contaminant into a mixing zone; significant withdrawals.
AP (designated surface drinking water supplies)	Raw drinking water (treated or untreated); uses permitted under the Watershed Protected Area Designation Order (WPADO).	The aquatic life shall be as naturally occurring.	The concentration of dissolved oxygen shall be as naturally occurring.	<i>E. coli</i> shall be as naturally occurring; the total coliform organisms shall be as naturally occurring.	The trophic status shall be as naturally occurring.	See the watershed Protected Area Designation Order.
AL (lakes, ponds and impoundments)	Habitat for aquatic life; primary and secondary contact activity; other appropriate uses	The aquatic life shall be as naturally occurring.	For cold water species: ≥ 9.5 ppm (early life stages) and ≥ 6.5 ppm (other life stages); for warm-water species: ≥ 6.0 ppm (early life stages) and ≥ 5.0 (other life stages); for estuarine waters: $\geq 80\%$ saturation.	The faecal coliform organisms and <i>E. coli</i> shall be as naturally occurring.	The trophic status shall be stable or naturally changing; the water shall be free of algae blooms that impair use as habitat for aquatic life, or use for primary or secondary contact activity.	Direct discharge of a contaminant that is not being released, or any increase in the volume of a contaminant that is being directly discharged, on the date of commencement of the <i>Regulation</i> ; creation of a new mixing zone

Appendix 1. Chaleur Bay Watersheds Group Annual Report, 2002-2003.

Table 1. The Classes and Associated Water Quality and Management Standards continued

Name of Class	Suitable Uses	Aquatic Community Standards	Dissolved Oxygen Standards	Bacteria Standards	Standards for Trophic Status (lakes ponds and impoundments)	Prohibited Activities
A	As habitat for aquatic life; primary and secondary contact activity; other uses that will not prevent the standards from being met.	The aquatic life shall be as naturally occurring.	For cold water species: ≥ 9.5 ppm (early life stages) and ≥ 6.5 ppm (other life stages); for warm-water species: ≥ 6.0 ppm (early life stages) and ≥ 5.0 (other life stages); for estuarine waters: $\geq 80\%$ saturation.	<i>E. coli</i> shall be as naturally occurring	The trophic status shall be stable or naturally changing; the water shall be free of algae blooms that impair use as habitat for aquatic life, or use for primary or secondary contact activity.	Creation of a new mixing zone; release of a contaminant into a mixing zone.
B	As habitat for aquatic life; primary and secondary contact activity; other uses that will not prevent the standards from being met.	Releases shall not cause adverse impact to the aquatic community in that the receiving water shall be of sufficient quality to support all indigenous aquatic species without detrimental changes to resident biological community.	For cold water species: ≥ 9.5 ppm (early life stages) and ≥ 6.5 ppm (other life stages); for warm-water species: ≥ 6.0 ppm (early life stages) and ≥ 5.0 (other life stages); for estuarine waters: $\geq 80\%$ saturation.	The faecal coliform organisms shall be less than 14 per 100 ml for estuaries with identified shellfish beds, and <i>E. coli</i> shall be less than 200 per 100 ml for all other watercourses (geometric mean of a minimum of 5 samples in a 30 day period)	The trophic status shall be stable or naturally changing; the water shall be free of algae blooms that impair use as habitat for aquatic life, or use for primary or secondary contact activity.	
C	Habitat for aquatic life; secondary contact activity; other appropriate uses	The aquatic life shall be as naturally occurring.	For cold water species: ≥ 9.5 ppm (early life stages) and ≥ 6.5 ppm (other life stages); for warm-water species: ≥ 6.0 ppm (early life stages) and ≥ 5.0 (other life stages); for estuarine waters: $\geq 80\%$ saturation.	The faecal coliform organisms shall be less than 14 per 100 ml for estuaries with identified shellfish beds, and <i>E. coli</i> shall be less than 400 per 100 ml for all other watercourses (geometric mean of a minimum of 5 samples in a 30 day period)	The trophic status shall be stable or naturally changing; the water shall be free of algae blooms that impair use as habitat for aquatic life, or use for primary or secondary contact activity.	

Appendix 3. Chaleur Bay Watersheds Group Sampling Sites, 2003.

Station Listings

Chaleur Bay

Station Name: Peter's River u/s from route 134
Description: Approximately 10m u/s from route 134

Site:

Water Body: Peter's River

StationID:

PID:

Station Status: Active

Historical ID:
NAD-83 (CSRS) NAD-27
UTM Zone: 20
Latitude: **UTM Northing:** 5282600
Longitude: **UTM Easting:** 298300

Station Name: Grants Brook u/s from route 134
Description: approximately 10m u/s from route 134

Site:

Water Body: Grants Brook

StationID:

PID:

Station Status: Active

Historical ID:
NAD-83 (CSRS) NAD-27
UTM Zone: 20
Latitude: **UTM Northing:** 5286100
Longitude: **UTM Easting:** 297050

Station Name: Fournier Brook u/s from route 134
Description: approximately 10m u/s from route 134

Site:

Water Body: Fournier Brook

StationID:

PID:

Station Status: Active

Historical ID:
NAD-83 (CSRS) NAD-27
UTM Zone: 20
Latitude: **UTM Northing:** 5303550
Longitude: **UTM Easting:** 293350

Station Name: Duncan's Brook u/s from route 134
Description: approximately 10m u/s from route 134

Site:

Water Body: Duncan's Brook

StationID:

PID:

Station Status: Active

Historical ID:
NAD-83 (CSRS) NAD-27
UTM Zone: 20
Latitude: **UTM Northing:** 5306100
Longitude: **UTM Easting:** 290800

Station Name: Hendry Brook u/s from route 134
Description: approximately 10m u/s from route 134.

Site:

Water Body: Hendry Brook

StationID:

PID:

Station Status: Active

Historical ID:
NAD-83 (CSRS) NAD-27
UTM Zone: 20
Latitude: **UTM Northing:** 5307650
Longitude: **UTM Easting:** 289500

Appendix 3. Chaleur Bay Watersheds Group Sampling Sites, 2003.

Station Name: Elmtree River d/s from mine

Description: located just upstream from small ATV bridge that crosses Elmtree just under the power lines, on small dirt road just across from the tree nursery.

Site:

Water Body: Elmtree River

Historical ID:

StationID:

NAD-83 (CSRS)

NAD-27

PID:

UTM Zone: 20

Station Status: Active

Latitude:

UTM Northing: 5298700

Longitude:

UTM Easting: 289950

Station Name: BC-07 Elmtree River @ bridge by Boily Lane

Description: from route 134, take Madran Road, follow to a T intersection, turn left and follow road to pépinière. See sign at bridge re: Wild Turkeys

Site:

Water Body: Elmtree River
00BR01BJ0068

Historical ID:

StationID: 12456

NAD-83 (CSRS)

NAD-27

PID:

UTM Zone: 20

Station Status: Active

Latitude: 47.807677

UTM Northing: 5298549

Longitude: 65.816694

UTM Easting: 289050