

Petitcodiac Watershed Monitoring Group

Groupe de surveillance du bassin de la Petitcodiac

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Hello again!!

Well, I'm pleased to bring you the second issue of "Current News", we had some very nice comments about the first issue, and we hope you enjoy this one just as much!

Summer's already over, we had a very good sampling season this year, volunteers sampled in August, September and the final sampling will be October 31st.

A lot has happened since August, we had our annual barbecue on October 17. To show appreciation to our volunteers, they were each given a t-shirt with PWMG's logo on it. Thanks again for your great work!

There is also a new PWMG staff member he is Georges Brun. Georges will be doing a lot of field work this fall. He will be working to identify potential sources of pollution in the watershed and he will also gather historical data about the watershed.

Finally, I would like to mention that our new website is now up, please visit us at:

www.web-maestro.com/pwmg

If you have any comments or suggestions, do not hesitate to contact me. In this month's issue of Current News you will find articles on a variety of subjects including:

- ✓ Results of sampling
- ✓ Open house/workshop
- ✓ Defining a stakeholder
- ✓ Interesting websites
- ✓ Point source vs non point source pollution
- ✓ Conservation tips
- ✓ And much more!

Happy Halloween and see you next time!

Isabelle

Pollution : point source and non point source*

One of the goals of water quality monitoring is to identify the impacts of different human activities on aquatic ecosystems.

The sources of water pollution are classified into two types:

- **Point source pollution** is discharged into the environment through pipes, sewers, or ditches from specific sites such as factories or sewage treatment plants.
- **Non-point source pollution** is caused by land pollutants that enter a body of water over a large area rather than at a single point. It includes agricultural run-off, mining waste, urban waste and construction sediments. Soil erosion is a major cause of non-point source pollution.

Although some water pollutants can be natural, for instance nitrate in water can occur naturally in certain types of soil, it can also be the result of excessive use of fertilizers, pollution resulting from human activities is more frequent than from natural causes.

PWMG has just undertaken an inventory of potential point source and non point source pollution in the watershed. It is very important to understand that this is not an exercise to incriminate but to identify sites that will require more thorough investigation and assistance in resolving any existing problems. By doing this survey, we are simply trying to understand why the water quality is the way it is and collectively finding the best solutions. We want to work as a community to ensure that we have clean and safe water for future generations. If you have any questions about the work Georges is doing or water quality in general, please contact me I will be happy to answer any questions.

*References: Raven, P.H., L.R. Berg and G.B. Johnson. 1995. Environment. Saunders College Publishing, Orlando, 569 pages.

Water conservation tips:

Did you know that the average Canadian consumes 350 liters of water per day, compared to Europeans who consume 40 liters per day?

How can we cut back on our water consumption?

Here are some conservation tips that are easy to adopt, that will not change your daily routine and will help conserve a lot of water:

- Shut off water when you are brushing your teeth
- Take a quick shower instead of a bath
- When washing dishes, fill the sink instead of letting water run
- Only wash clothes or start the dishwasher when you have a full load
- Keep water in the fridge instead of running water until it's cold

Questions, comments, suggestions?

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Sampling results (part 2)

In the last issue of “Current News”, there was an article on the results from the past two years of sampling. There was also a map of the watershed in which you could find the water quality class (excellent, good or poor) for each sampling site. A lot of people were curious as to what were the specific reasons behind that classification. The results were compared to median values used to categorize existing water quality parameters. Four water quality parameters were examined: total coliform* (TC), total phosphorous (TP), total organic carbon (TOC) and dissolved oxygen (DO) (see table). Following is a list of the different sampling sites and the reason why each were given that particular classification. For example, site number 1 on the Anagance River was given a poor classification because dissolved oxygen levels were generally below 5 mg/l.

Water type	TP (mg/l)	TOC (mg/l)	DO (mg/l)	FC (no./100 ml)
Excellent	<0.017	<10	>6	<100
Good	0.017-0.033	10-15	5-6	100-200
Poor	>0.033	>15	<5	>200

Site	Class	Reason	Site	Class	Reason
1	Poor	DO (4.3 and 4.5)	16	Good	FC (>100 in 1998)
2	Excellent	--	17	Good	FC (>100 in 1998)
3	Good	FC (>100 in 1998)	18	Excellent	--
4	Poor	FC (>200 in 1998)	19	Excellent	--
5	Good	TOC (11.2 in 1997)	20	Good	TOC (14), DO (5.7 in 1997)
6	Good	FC (>100 in 1998)	22	Poor	TP (.059 to .062), FC (>200 in 1998)
7	Good	TOC (12.1 and 10.8)	23	Poor	FC (>200 in 1997 and 1998)
8	Good	TOC (11.8), FC (>100 in 1998)	24	Poor	TP (.067), DO (4.9 in 1997), FC (>200 in 1997 and 1998)
9	Excellent	--	27	Poor	FC (>200 in 1998)
10	Good	FC (>100 in 1998)	28	Excellent	--
11	Good	FC (>100 in 1998)	29	Poor	TP (.039 in 1998), FC (>200 in 1998)
12	Excellent	--	30	Poor	FC (>200 in 1998)
13	Excellent	--	31	Poor	TP (.054), TOC (17 in 1998), DO (5.4 in 1997), FC (>200)
14	Excellent	--	32	Excellent	--
15	Excellent	--	35	Poor	TOC (16), FC (>200 in 1998)

Glossary

Dissolved oxygen: Dissolved oxygen is one of the most important indicators of the quality of water for aquatic life. It is essential for the basic metabolic processes of animals and plants inhabiting our inland and coastal waters. D.O. levels will determine the number and types of organism living in that body of water.

Total coliforms: A family of bacteria, which occur naturally in the environment. Coliform bacteria are not necessarily harmful but their presence can be an indication of other bacteria, which may be harmful to human health.

Total organic carbon: Total organic carbon is generally humic substances and partly degraded plant and animal materials. Sources include plant and animal materials, runoff from agricultural lands, and municipal and industrial waste. Excessive levels can deplete the water of dissolved oxygen in the decomposition process.

Total phosphorous: Phosphorus is generally not present in significant quantities in surface waters because it is an essential nutrient and taken up by plants. Phosphorus originates from weathering of bedrock, decomposing of organic matter, domestic sewage phosphates from detergents, and drainage from farming operations. While not commonly toxic to humans, animals or fish, an excess of phosphorus in surface waters can lead to an overabundance of plant growth.

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Water classification: Multi-stakeholder approach?

In the last issue of “Current News”, I explained that water classification is a water monitoring method used to harmonize the use and protection of watercourses. In general it involves categorizing watercourses into classes and then managing those watercourses according to goals or standards set for each class. I also explained that water classification is rooted in a multi-stakeholder approach. A lot of people asked: what is a multi-stakeholder approach and what are the steps involved in water classification?

Multi stakeholder approach

A stakeholder is an individual or organization who has a direct interest in a watershed area. They may have a special interest in protecting water resources or enhancing the socioeconomic aspects of quality of life (i.e. employment, business, tourism, etc.). Stakeholders include property owners in the watershed, industries in the area, various community and recreation groups that utilize the area for recreational purposes, students, volunteers, etc. A multi-stakeholder approach is simply the involvement of all stakeholders in the decision-making process dealing with issues that involve the watershed.

Step-wise process

Following is an outline of the general steps to achieve water classification:

1. **Introduction:** familiarize the group with water classification, start recruiting stakeholders, hold information sessions throughout the watershed.
2. **Watershed evaluation:** define boundaries of the watershed (mapping), collect water quality data, explore land use, collect historical data and identify potential sources of pollution.
3. **Planning for classification:** Prepare water classification proposal, present proposal to public and stakeholders, consider comments and review proposal.
4. **Action:** Recommend a classification scheme to minister of environment and develop action plans for achieving desired classification

As of October 1999, PWMG has started contacting stakeholders and information sessions will be held throughout the watershed. We are continuing to gather water quality data and work has already started to define land use, watershed boundaries (mapping) and identify sources of pollution. If you have any questions on water classification or you want to find out how you can get involved, please contact me at 858-4529.

Upcoming events

Sampling for this year is almost done but that doesn't mean that PWMG's work is over. This fall, PWMG will be going around the watershed to make presentations to interested groups, associations, schools, etc. on water classification.

Later this fall we will also be hosting an open house. You will all be invited to this event where we will display results of sampling and maps that have been done of the watershed. You will also be able to pick up information on a variety of subjects and ask questions to experts from the government, university, etc.

Later this winter, PWMG will be holding a workshop. The details of this workshop have not been clarified as of yet but our main objectives will be to identify environmental issues in the watershed.

As you can see, we will be keeping pretty busy and we'll do our best to keep you informed of our on-going activities!

Interesting websites

www.ec.gc.ca/water/accueil

Environment Canada's web site on water quality and water management

www2.ec.gc.ca/ceqg-rcqe/water.htm

Canadian water quality guidelines for freshwater ecosystems

www.epa.gov/ow/

U.S. Environmental Protection Agency web site on water and watershed management

is.dal.ca/aczisc/fundy/forum

Useful site on on-going activities, research, etc. in the Bay of Fundy

Reminder

“Current news” next issue will be in December... See you then!