DRINKING WATER SOURCE PROTECTION
Our Actions Matter

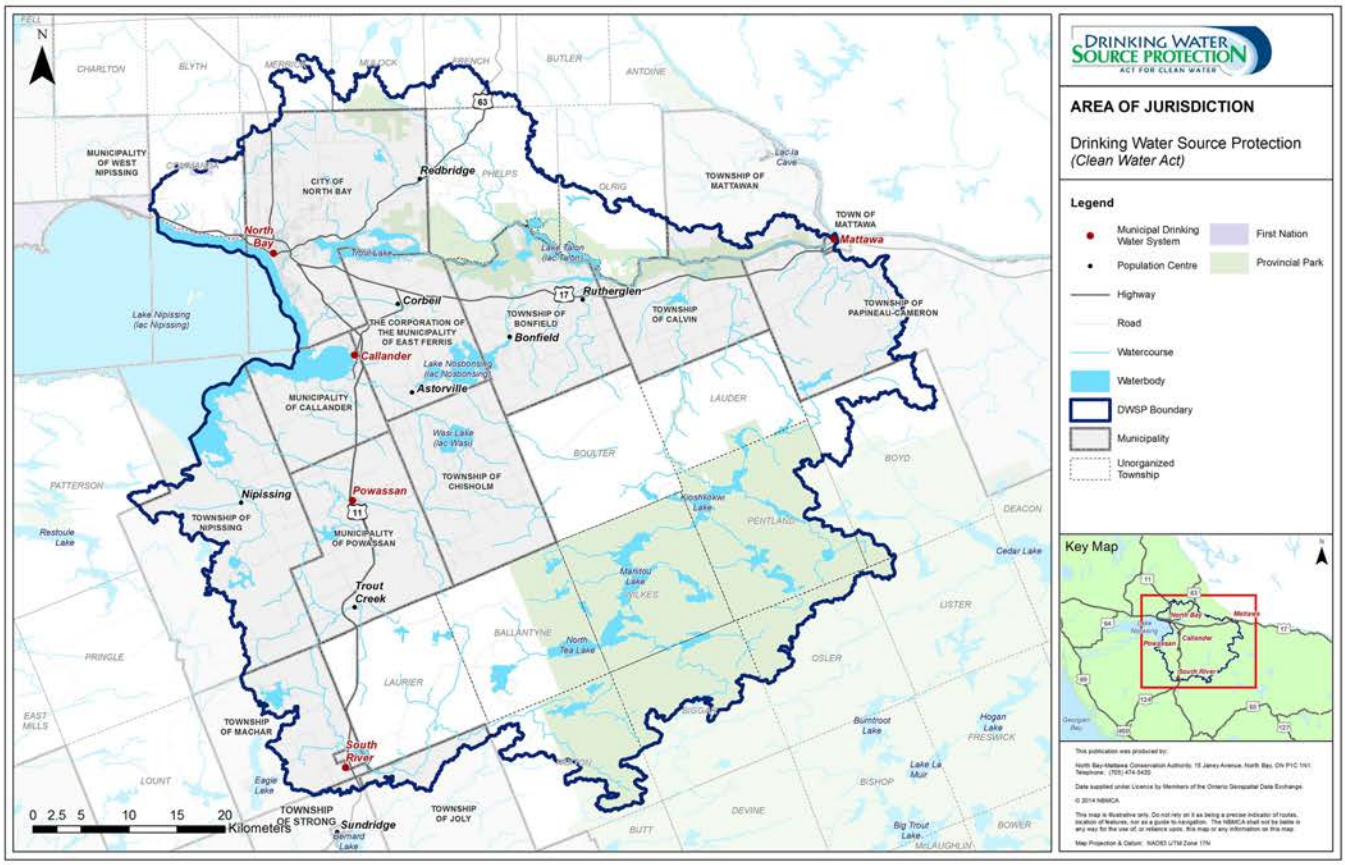
NORTH BAY-MATTAWA SOURCE PROTECTION AREA

Source Protection Annual Progress Report | Dec 31, 2017

I. Introduction

This annual progress report outlines the progress made in implementing our source protection plan (SP Plan) for the **North Bay-Mattawa Source Protection Area**, which came into effect July 1, 2015, as required by the Clean Water Act and regulations.

It rates progress on implementation of policies by all affected municipalities, ministries and agencies as specified in the SP Plan. It also flags challenges experienced with certain policies, local threats and the challenges experienced in addressing a pre-existing issue, and sets the stage for preparation of a work plan to revise the SP Plan and Assessment Report due in November 2018. The work plan will assess the effectiveness and appropriateness of the policies in the current SP Plan to protect sources of drinking water and will recommend changes and/or additional action. As well, the Minister's letter approving the SP Plan specified additional requirements for the work plan. A copy of the letter, dated March 5, 2015, is included in the SP Plan.



II. A message from your local Source Protection Committee

Our progress score on achieving source protection plan objectives this reporting period:

- (●) **P : Progressing Well/On Target** – The majority of the source protection plan policies have been implemented and/or are progressing.
- ( ) **S : Satisfactory** – Some of the source protection plan policies have been implemented and/or are progressing.
- ( ) **L : Limited progress** – A few of source protection plan policies have been implemented and/or are progressing.

The majority of the source protection plan policies (29 out of 30) have been implemented. The outstanding policy requires review of the terms of approval of a municipal sewage lagoon. In that case, the review has been completed but the decision by MOECC is pending and due by June 30, 2018.

All eight municipalities have implemented all significant threat policies. However, the education and outreach approach used for the implementation of Policy SMF1, Municipal Action to Prohibit Land Application of Nutrients, does not technically constitute a prohibition. A full explanation is provided later in section 7.

Policies to address the microcystin issue (blue green algae blooms) in Callander Bay through research and monitoring, as well as education and outreach efforts to spur action by residents, require ongoing commitment and resources. This poses a challenge. The five affected municipalities (Callander, Chisholm, East Ferris, North Bay and Powassan) are beginning a process to negotiate such a commitment and develop a multi-year work plan that will be within their capacity. Factors, such as erosion related to public works and modifications of the landscape, which are beyond the prescribed activities under the Clean Water Act have been identified and are being addressed through education and outreach. Some of the better practices advocated will also provide benefits related to climate change adaptation and sustainability of municipal infrastructure.

III. Our Watershed

To learn more, please read our assessment report(s) and source protection plan(s).

The North Bay-Mattawa Source Protection Area (SP Area) covers 4,000 km^2 and is home to about 80,000 residents. It is located 350 km north of Toronto and 360 km west of Ottawa. The SP Area includes the North Bay-Mattawa Conservation Authority (NBMCA) administrative area (2,800 km^2) with its ten member municipalities, as well as the South River watershed. Extending the SP Area to include the latter watershed, brought the Municipality of Powassan and the Village of South River into the program and added portions of five more municipalities, giving each the opportunity to participate in the project.

Therefore the Source Protection Authority includes fifteen (15) municipalities, namely: the Township of Bonfield, the Municipality of Callander, the Township of Calvin, the Township of Chisholm, the Municipality of East Ferris, the Township of Joly, Machar Township, the Town of Mattawa, Mattawan Township, Papineau-Cameron Township, the Municipality of Powassan, the Township of Nipissing, the City of North Bay, the Village of South River, and Strong Township. Not all municipalities in the South River watershed currently have sitting members. The SP Area crosses a major watershed divide in Ontario with 85% of the territory draining to the Ottawa River basin via the Mattawa River and the remaining 15% draining to Lake Nipissing which is part of the Great Lakes basin.

Five (5) municipal drinking water systems are included in the SP Plan: Callander, Mattawa, North Bay, Powassan and the Village of South River. The City of North Bay draws drinking water from Trout Lake at the headwaters of the Mattawa River. The Municipality of Callander takes water from Callander Bay, which is a confined bay of Lake Nipissing that is fed by the Wasi River. The Village of South River obtains drinking water from the South River. Both the Town of Mattawa and the Municipality of Powassan get their water from wells. Many residents who live outside these five communities rely on their own private wells or intakes.

IV. At a Glance: Progress on Source Protection Plan Implementation

1. Source Protection Plan Policies

P : Progressing Well/On Target

As previously stated, twenty-nine out of thirty policies (97%) have been implemented. The outstanding policy requires review of the terms of approval of a municipal sewage lagoon. In that case, the review has been completed but the decision by MOECC is pending and due by June 30, 2018.

2. Municipal Progress: Addressing Risks on the Ground

Eight (8) municipalities in our source protection region have vulnerable areas where significant drinking water threat policies apply.

P : Progressing Well/On Target - All municipalities (100%) in our source protection area have fully implemented the Land Use Planning policies in the SP Plan through either Official Plan Amendments or Zoning By-Laws, and have processes in place to ensure that their day-to-day planning decisions conform with the source protection plan.

The Clean Water Act (2006) also requires that municipalities take the next step to ensure their Official Plan conforms with the local SP Plan and the 2014 Provincial Policy Statement 2.2.1(e) when they next undertake an Official Plan review under the Planning Act. To date, seven out of eight municipalities have amended their Official Plan to conform with the SP Plan.

All municipalities have also fully implemented education and outreach policies as required.

3. Septic Inspections

P : Progressing Well/On Target

Changes to the Ontario Building Code came into effect in 2011 requiring periodic inspections of all septic systems located in areas where treatment or disposal of sewage could pose a significant threat to a source of municipal drinking water. Only two septic systems were located in areas where a malfunctioning system might pose a threat due to the release of pathogens. However, several hundred septic systems are located within the Callander issue contributing area (ICA) and require inspections due to the potential to release phosphorus, which might increase the growth of blue green algae in Callander Bay. All but two of the latter 567 systems were inspected and only 3 were found to have major deficiencies requiring replacement, which is a failure rate of only half of one percent. This suggests that the septic licensing program is operating well in this area and mandatory maintenance inspections, at least for reduction of phosphorus loading to waterways, provide minimal additional benefit.

Further, recent studies suggest that phosphorus from septic systems in non-calcareous soils typical of the area is not mobile. Therefore, the Source Protection Committee is expected to consider amending the areas subject to mandatory maintenance inspections.

4. Risk Management Plans

Not applicable to the North Bay-Mattawa SP Area.

5. Provincial Progress: Addressing Risks on the Ground

P : Progressing Well/On Target

Ontario ministries must review previously issued provincial approvals, prescribed instruments (PIs), for activities that could pose a significant threat to source water. Ministries have three (3) years to complete the review and make any necessary changes (by the end of June 2018). These are all complete except for one for which the decision is still pending but due by June 30, 2018 (described in section 1 above). None of the completed reviews required any additional conditions. All new approvals must consider potential impacts to source water as specified in the SP Plan and protocols are now in place.

Completed reviews of existing PIs included operation of one waste disposal site (landfill), the handling and storage of fuel for emergency power supplies at each of the five municipal drinking water systems, and six approvals that govern the operation of wastewater/sewage works.

6. Source Protection Awareness and Change in Behaviour

The SP Plan includes a number of policies directed toward increasing public awareness of what people should be doing to help protect source water. Information has been posted online by the North Bay-Mattawa SP Authority at actforcleanwater.ca regarding safe use of fuel oil tanks and heating systems, awareness of the threats posed by organic solvents and dense non-aqueous phase liquids (DNAPLs), application of pesticides, proper disposal of hazardous waste, and the potential risk from pathogens in uncomposted manure. Municipalities have installed links from their websites to this information.

Although the signage policy SVA1 is voluntary, all five municipalities with drinking water systems have installed road signs at the boundaries of vulnerable areas. The objective is twofold: to alert emergency responders if a spill occurs in a vulnerable area, and to increase public awareness of these areas. Fifteen (15) Drinking Water Protection Zone signs have been installed by municipalities on roads within North Bay, Callander, Mattawa, South River, and Machar, and by the Ministry of Transportation on Highway 11 in Powassan and on Highway 63 east of North Bay.

The most substantive efforts to change behaviour are related to addressing the microcystin issue in the source water for the Municipality of Callander. Policy ICA1 specifies that a community-based social marketing approach be used to identify changes in behaviour that would be effective, identify barriers to adoption of desired behaviors, and then reduce or remove those barriers. A short description of the first initiative, the Restore Your Shore program, is provided later in this report.

7. Source Protection Plan Policies: Summary of Delays

Implementation of all policies appears to be on schedule except for policy SMF1.

Policy SMF1, Municipal Action to Prohibit Land Application of Nutrients, requires municipalities to prohibit the application of agricultural source material (ASM), non-agricultural source material (NASM), and commercial fertilizer, where such applications could pose a significant threat to drinking water. However, once threat circumstances are considered, the only significant threat would be potential pathogens from the application of uncomposted ASM. Therefore an education and outreach approach has been used, which does not actually constitute a prohibition as specified by the policy.

At the time of Source Protection Plan development, there was concern that policy SMF2, Land Use Prohibition - Nutrient Handling & Storage and Livestock Activity, would be insufficient as it only prohibited land uses, and not specific activities. This led to the creation of policy SMF1, intended to prohibit the application of nutrients through some municipal instrument such as a by-law. As noted in the Explanatory Document for the Source Protection Plan, municipalities at that time questioned the need for this policy based on both the unlikelihood that the activity would occur and the difficulties anticipated with enforcement of an "appropriate" by-law.

Following the approval of the Source Protection Plan, the need to regulate ASM and NASM outside of agricultural land use (which is already addressed by Land Use Planning policy SMF2), is questionable. Unless applied to agricultural lands, NASM is waste and is covered by policy WDS1: Prohibition and Management of Waste Disposal Sites under Part V of the EPA, and applying it to land requires an Environmental Compliance Approval (ECA). There are several types of ASM and all are unlikely to be applied in a residential area. It should be noted that once manure has been composted, it is no longer considered ASM.

Drafting a bylaw to implement policy SMF1 was found to pose several difficulties. Its wording would need to be complicated making it difficult both for the public to interpret and a by-law officer to enforce. When balanced against the unlikelihood of a threat occurring, an education and outreach was chosen as the appropriate tool to implement SMF1. In that regard, information has been posted on the Source Protection website actforcleanwater.ca to inform residents of the potential risk of applying uncomposted manure and other forms of ASM near sources of drinking water. The affected municipalities have installed links from their websites.

The Source Protection Authority considers significant threats from the application of nutrients to be sufficiently addressed through this Education & Outreach approach. When the Section 36 review of the SP Plan is undertaken, policy SMF1 should be revised.

Note that this SP Plan does not provide for a Risk Management approach under Part IV of the Clean Water Act.

8. Source Water Quality: Monitoring and Actions

Callander Bay Phosphorous Issue

The only identified drinking water issue is the risk of the toxin microcystin-LR in the source water for Callander due to the periodic incidence of cyanobacterial blooms (blue green algae) in Callander Bay. When the risk was identified the Municipality upgraded its water treatment plant to include charcoal filtration on all treated water. However, the SP Plan still needs to address the issue in the source. Problematic growth of cyanobacteria is generally attributed to levels of phosphorus in excess of Provincial Water Quality Objectives. The SP Plan includes four policies directed specifically to addressing the issue and also requires consideration of the issue through several other policies such as approvals for sewage treatment facilities and waste disposal sites.

The area in which activities could contribute to the issue is called the Issue Contributing Area (ICA). The four specific ICA policies are:
ICA1: Education - Issue Contributing Area,
ICA2: Nutrient Management Act Tools to Implement Phosphorous Best Management in Issue Contributing Area,
ICA3: Governing Research in the Issue Contributing Area, and
ICA4: Monitor Issue in Callander ICA - Phosphorous Contribution Related to Microcystin LR.

Phosphorus is a fundamental nutrient for most organisms. The intent of these policies is primarily directed toward improving understanding of the factors contributing to the issue, informing residents and encouraging positive action to both reduce inputs of phosphorus and to enhance attenuation mechanisms. The contributing watershed is 300 sq km and includes territories of five municipalities. A big unknown continues to be the amount of internal loading from organic deposits in Callander Bay.

Local research since 2008 has confirmed that current farm practices do not directly contribute significantly to phosphorus loading. As well, virtually all septic systems have been found to be functioning properly and northern Ontario soils are not usually conducive to migration of phosphorus due to low alkalinity. However, phosphorus loading in watercourses has been found to be associated with high turbidity following storm events and during high flows. Stream bank erosion is a major contributor of phosphorus to the Wasi R watershed which provides 70% of the inflow to Callander Bay.

The first education and outreach initiative called "Restore Your Shore" (RYS) encouraged property owners to plant shorelines with trees, shrubs and perennials to intercept overland flows and help stabilize banks. The NBMCA has been providing shoreline assessments, planting plans, planting stock, and planting assistance to eligible shoreline and stream bank property owners within the Callander-Wasi watershed at no cost to property owners. In 2015, RYS planted 36 stream banks and shorelines, exceeding its goal by 20%. In 2016, the program was extended to all parts of the NBMCA jurisdiction. It is funded by grants from various organizations

An Erosion & Runoff Mitigation Study completed in 2016 identified specific practices with respect to ditching, bridge design and culvert installation as contributing to the erosion problem. A workshop for municipal public works staff was held April 12, 2017 to increase their awareness of better practices. As well, draining land, stream channelization and other initiatives over the last sixty years that were intended to increase the amount of arable land have increased stream flows and worsened erosion.

9. Science-based Assessment Reports: Work Plans

The Assessment Report (AR) identifies two areas of additional work:
- the delineation of the Callander Issue Contributing Area (ICA), and
- assessment of the pipeline threat in the North Bay IPZ.

The ICA defines the area in which policies to address the issue of microcystin-LR may be applied and has been delineated as 120 m either side of a water course. However, meanders of streams have changed substantially over the years. Newer data and a better understanding of the factors involved are being used to revise the delineation of the ICA.

In March 2014, the AR was revised to recognize TransCanada's Energy East Project to transport crude oil including diluted bitumen through the North Bay IPZ-3, and the need to assess the threat posed. The Site Specific Risk Assessment (SSRA) prepared for TransCanada concluded that modelled spills could impair water quality above the intake. A detailed review of that report was completed and the SPC began a review of the vulnerability scoring and delineation of the North Bay IPZ, both of which are ongoing. Although cancellation of the Energy East Project was announced on October 5, 2017, the SPC expects to complete its assessment of the pipeline threat and develop policies if needed, in case a future proponent would pursue a similar project.

10. More from the Watershed

To learn more about our source protection region/area, visit our Homepage.
http://www.actforcleanwater.ca/www.actforcleanwater.ca/index.html

An ongoing concern of the North Bay-Mattawa Source Protection Authority is the threat to the City of North Bay's drinking water from the transportation of hazardous substances. Hwy 63 conducts traffic immediately adjacent to Trout Lake in the vicinity of the intake. The Ontario Northland Railway corridor is located on a steep slope and passes through the IPZ-1 above Trout Lake. Also along Hwy 63 is a curve that does not meet MTO design specifications for the posted speed. Two transport trucks have had single vehicle accidents at that location since 2012. The first resulted in a spill of formaldehyde entering Trout Lake and emergency response moving quickly to assess potential impact to the city's water supply.

The Source Protection Authority is looking at ways to address these threats by working with the responsible agencies, namely ONTC, which is a crown corporation, and MTO, a provincial ministry.

An emerging concern relates to the discovery of perfluoroalkylated substances (PFAS) in Lees Creek, the major tributary to Delaney Bay where the North Bay intake is located. PFAS were originally used in non-stick cookware, water resistant clothing and fire-fighting foam. Although the levels of PFAS in the creek and its fish make them no longer safe for consumption, the volume of water in the receiving bay is large and may provide adequate dilution. Analysis of water samples has determined that the North Bay drinking water supply contains PFAS, however the concentrations meet current Health Canada guidelines. The Department of National Defense (DND) notified the North Bay Parry Sound District Health Unit of the situation in December 2016. DND is working with the City of North Bay, MOECC, Transport Canada and other agencies to assess the area and develop a mitigation plan.

Powassan 3-D Simulation

(10X vertical exaggeration)