Algal Bloom Action Plan

In New Brunswick the departments of Environment and Local Government (DELG) and Health (DH) work in partnership to respond to algal blooms. DELG has developed an algal bloom response protocol that outlines various steps to be taken when notified of a potential algal bloom. The protocol specifies the sampling and analyses to be carried out and the communications process to be followed.

In addition to the response protocol, an action plan to address algal blooms is presented below. The action plan indicates an overarching approach and includes developing partnerships, working with local stakeholders, ongoing monitoring and consideration for potential causes and solutions.

Algal Bloom Response Protocol

DELG responds to reports of algae blooms by following a written protocol in partnership with DH. When a potential algal bloom is reported and confirmed, a sample of the bloom is sent to a certified taxonomist for algae identification (confirmation on presence of blue green algae). This information is used by both DH to protect public health and DELG to understand the ecological conditions of the waterbody surrounding the algal bloom. The Department of Health also has their own guidance document titled “Guidance for Public Advisories on Cyanobacterial Blooms in Recreational Water” which provides information on how they issue advisories around algae blooms.

Communication

DELG communicates reports of algal blooms to the Department of Health and the general public by following the DELG response protocol. An initial questionnaire contained within the protocol is used to determine next steps. DELG also provides information on preventative measures and environmental influences that may cause algal blooms. Information regarding algal blooms can be found on DELG’s website.

DH is responsible for conducting health risk assessments and is the lead agency for posting advisories around lakes when warranted. DH also maintains a webpage on blue green algae that contains a listing of lakes (DH website) that have had algal bloom advisories.

Nutrient Reduction

The Environmental Trust Fund has been used to fund projects throughout New Brunswick that deal with lakes in general. Lake associations have benefited from funding that has been put towards lakes volunteer monitoring. The data collected can be used to partially understand the environmental conditions surrounding algal bloom occurrences.

Projects that targeted reduction of nutrient inputs have also been funded. Such projects have been focused on riparian zone improvements such as tree planting and shoreline assessments, alternative septic system designs, and promoting the reduction in the use of phosphorus containing products around lakes.

DELG also provides education material to lake residents on steps to reduce nutrient inputs and encourages the use of best management practices for forestry and agricultural industries.

Septic systems are regulated by the Department of Health via their on-site sewage disposal system Regulation (2009-137, Public Health Act). Properly installed and maintained septic systems are important in ensuring that excessive nutrients do not reach watercourses.

Drinking Water

In New Brunswick the Watershed Protection Program is designed to help prevent water pollution in designated watersheds before it occurs. The program consists of designated watersheds, zones of protected areas within each designated watershed and the Watershed Protected Area Designation Order (Regulation 2001-83, Clean Water Act) which defines the protected zones and the types of activities that can occur within each zone. The Watershed Protected Area Designation is written in such a way that all developments, activities, or things not described are prohibited within a protected area. Further information can be found on DELG's website.

In addition to the overall water protection program, water quality monitoring has been undertaken within the designated watersheds. The monitoring is carried out to determine the state of water quality and to assess possible trends over time of certain chemical parameters.

In cases where a drinking water supply has an algal bloom, DH follows the Canadian Drinking Water Guidelines (Health Canada Information). Additional sampling for potential toxins may be carried out until the bloom is no longer visible.

Science

DELG collects water quality samples at approximately 8-10 lakes each year. This involves collecting water quality samples at locations on the lake and at various depths as well as completing a temperature/dissolved oxygen profile on each lake. This information is used to assess the potential changes in water quality over time.

DELG uses the Canadian Council of Ministers of the Environment (CCME) freshwater aquatic life guidelines which provide guidance on nutrient levels as well as numerous other parameters that are monitored as part of our lake monitoring program.

Additional scientific research by other agencies is supported by DELG (see below).

Partnerships

Lake associations around some lakes carry out specific projects related to protection of water quality as well as promotion of best management practices when living near a lake. Additional research projects have involved universities, watershed and lake associations, and consultants. General topics have included lake water quality and change over time related to climate change, causes of algal blooms, and monitoring programs that track nutrient levels and variability over time.

DELG employees attend lake association meetings and provide presentations on specific topics. DELG has provided funding to hold workshops on lakes. Presentations from university researchers and other government agencies have been given on specific topics. The workshops have also provided networking opportunities to those in attendance.

Legislation and Regulatory Tools

DELG has many tools that can be used to help with algal blooms. The overarching legislative authority includes the Clean Water Act and Clean Environment Act. Related Regulations under the Acts include Watercourse and Wetland Alteration Regulation (90-80; Clean Water Act), Environmental Impact Assessment Regulation (87-83; Clean Environment Act), and Watershed Protected Area Designation Order (2001-83; Clean Water Act).

In addition, the Water Quality Regulation (82-126; Clean Environment Act) requires owners or operators of a source of water contaminants to obtain an approval for the construction, operation, or modification of the source. Maximum amounts of the contaminants may be set out in the approval.