

Aquatic Species at Risk in the Sydenham River

Mussels

northern riffleshell - **Endangered**
 wavy-rayed lampmussel - **Endangered**
 rayed bean - **Endangered**
 snuffbox - **Endangered**
 mudpuppy mussel - **Endangered**
 kidneyshell - **Endangered**
 round hickorynut - **Endangered**

Fish

northern madtom - **Endangered**
 eastern sand darter - **Threatened**
 spotted gar - **Threatened**
 blackstripe topminnow - **Special Concern**
 pugnose minnow - **Special Concern**
 bigmouth buffalo - **Special Concern**
 spotted sucker - **Special Concern**
 greenside darter - **Special Concern**

Reptiles

Eastern Spiny Softshell Turtle - **Threatened**

Endangered: A species facing imminent extirpation or extinction.

Threatened: A species that is likely to become endangered if limiting factors are not reversed

Special Concern: A species is of special concern because of characteristics that make it particularly sensitive to human activities or natural events.



eastern spiny softshell turtle

Best Management Practices *helping species at risk series*

- Restricted Livestock Access
- Manure Application
- Manure Storage
- Well Repair and Decommissioning
- Tree Planting
- Fuel & Pesticide Storage
- Wetlands
- Bioengineering for Streambank Stabilization
- Septic Systems
- Clean Water Diversion
- Milkhouse Waste Water
- Conservation Tillage
- Exotic Species
- Riparian Buffers

Partners in Conservation

Environment Canada
 Department of Fisheries and Oceans
 Government of Canada's Species at Risk Program
 Middlesex Stewardship Committee
 Natural Heritage Information Centre
 Ontario Great Lakes Renewal Foundation
 Ontario Ministry of Natural Resources
 Royal Ontario Museum
 Rural Lambton Stewardship Network
 St. Clair Region Conservation Authority
 Stewardship Kent
 University of Guelph
 World Wildlife Fund

Best Management Practices

helping aquatic species at risk

Manure Storage

The Sydenham River in southwestern Ontario is the only major watershed which lies completely within the Carolinian Life Zone and is relatively undisturbed by industrial development. This has made the river a biological treasure. The Sydenham River supports an incredible variety of aquatic life, or what we call biodiversity. At least 82 species of fish and 34 species of freshwater mussels have been found here, making it one of the most species rich watersheds in all of Canada. Several species in the Sydenham River are found nowhere else in Canada, and some remain at only a few locations globally. Many of these species at risk have been nationally listed as endangered, threatened, or of special concern by the Committee on the Status of Endangered Wildlife in Canada. You can help too. By adopting Best Management Practices (BMPs), you can help protect the Sydenham River and its tributaries. This series of fact sheets will assist you in deciding which BMPs are right for your property.

An essential part of good livestock/poultry farming is proper manure storage. Once waste has been created by your animals, a storage facility should be the next destination for the waste. Proper waste storage allows you to keep the waste until a time when spreading is most beneficial. By keeping wastes in a storage facility, you will reduce the chance of your animals contracting disease from being in contact with the wastes. It also helps prevent bacterial and nutrient contamination of groundwater and surface water.

The Sydenham River, particularly the North Branch, suffers from significant amounts of phosphorus and nitrogen loading which leads to oxygen

- Technical advice and grants may be available to assist in implementing Best Management Practices on your property.
- If your project involves work in or near a watercourse, you may require permits including a Fill, Construction or Alteration to watercourse permit from the Conservation Authority.
- Call before you begin your project.

depletion in the stream. This has a negative impact on the aquatic life of the river, affecting the entire food chain. Often the aquatic life supported by a healthy stream, supports insects and other wildlife which are beneficial to farmers. For example, aquatic insects such as dragonflies are predators of many insect pests.

This fact sheet describes the different types of storage available.



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“Working Towards Healthy Watersheds”

Types of Storage

The type of storage necessary for manure depends on the animals that are raised on your farm, the number of animals, and the topography of your farm. The following are types of storage facilities that are used to keep manure.

Liquid Manure Storages

Earthen Storage

An earthen storage is an in-ground or partially in-ground, plastic or clay-lined storage that is constructed with sloped walls to contain manure. This system collects all precipitation that falls in the area as well and, therefore, must be larger than a covered structure. The initial cost of constructing such a storage is less expensive, however, maintenance is required more often than in other storage methods. The storage structure must be fenced and include warning signs at all access points. If additional storage is needed, it can be excavated relatively easily to increase the size of the storage unit.

Open Concrete or Steel Storage

This type of storage is composed of a reinforced concrete or glass-lined steel tank that is constructed in-ground, above-ground or partially in-ground. This system



also must store all precipitation that falls in the area and, therefore, is larger than a closed storage. A fence or wall a minimum of 5 ft. above ground with lockable gates is required for safety measures. The cost of building such a structure is less than a covered structure, however, application times are required more frequently than a covered storage of the same size due to the collected precipitation.

Closed Concrete or Steel Storage

Closed storage is usually constructed of reinforced concrete with covers of reinforced concrete or woodframe/metal roofing. The structure can be completely in-ground or partially above-ground but in such a case there must be at least 2 ft. of tank above the ground. In a structure completely in-ground, the cover must be composed of reinforced concrete to allow for the weight of heavy loads. Covers that open must have a lock and must be secured to the tank with a short safety chain.

Solid Manure Storages

Open Storage and Runoff Containment

This storage system is composed of a concrete pad and walls for the solid portion



of manure and an earthen or concrete sloped section where the liquid runoff is stored. The runoff area must have the safety features of a 5 ft. wall or fence with locking gates and warning signs for safety.

Roofed Storage

This is very similar to the open storage. This storage unit is composed of a concrete floor and partial sidewalls as with the open storage but includes a roof structure. The advantage of this type of storage is the elimination of runoff from the manure stack due to rainfall.



Temporary Storages

Temporary storages are an option only when your permanent storage is at maximum capacity during the winter months or other poor spreading times. If this is the case, the proper procedure to store and avoid leaching and runoff is to spread straw on the ground before unloading the manure and then to cover the waste with a tarp. Once conditions are favourable, apply the manure from the temporary storage to your fields.

Some additional considerations before building a manure storage

While planning your storage building, ensure that you follow municipal and provincial regulations regarding the building of the structure including obtaining a municipal building permit. The storage system should be large enough to contain at least 200 days of waste (250 days recommended). Other considerations when building and locating the manure storage includes the depth of the local water table, soil type, distance from the barn where wastes are produced, and the future plan for the herd or flock number.

All access points should be clearly identified with warning signs. Where fences are required, they should be a minimum of 5 ft. in height and kept locked when not in use. Covers for liquid storage tanks that are less than 45 lbs should be locked in place.