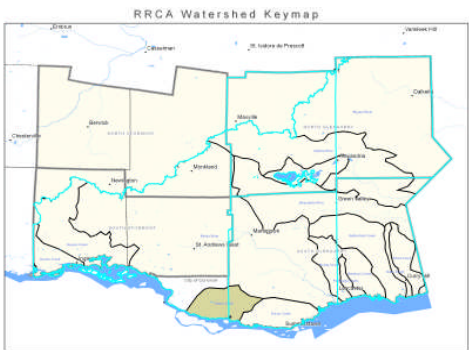




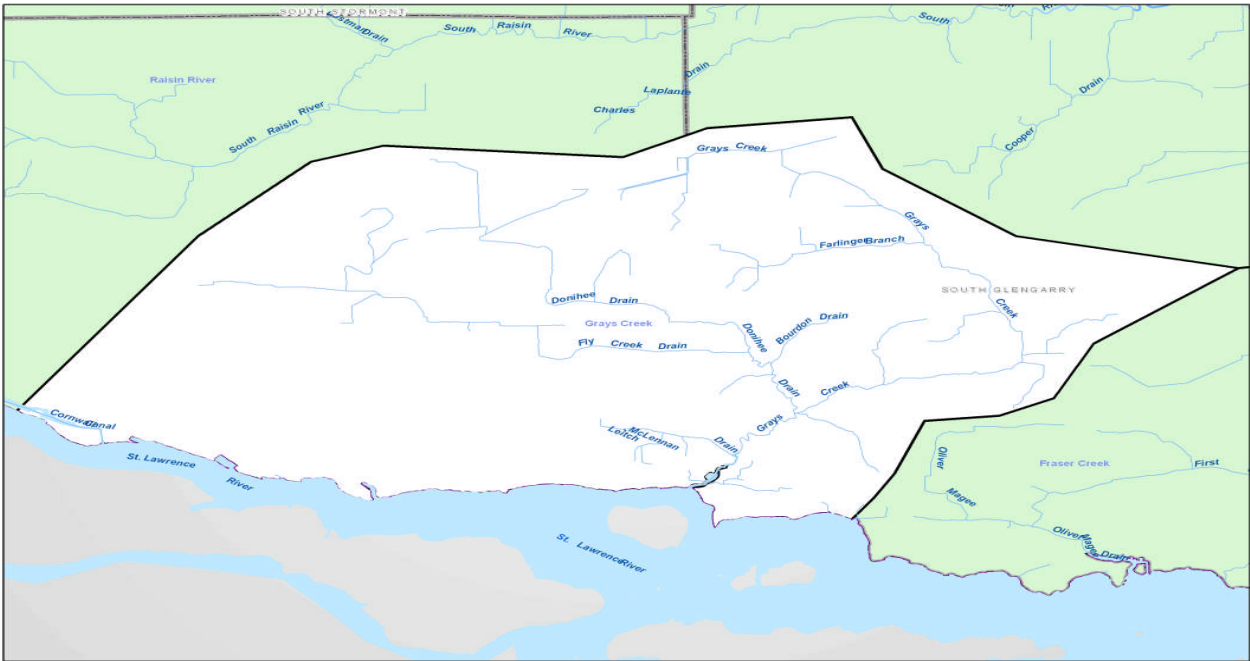
Gray's Creek Report Card

Grades:

- F+** Forest Conditions
- B** Wetland Conditions
- C-** Surface Water Quality



This Watershed Report Card outlines the environmental information for the Gray's Creek watershed as of 2006. The information provides a description of forest, wetland and water parameters and ideas for local action to assist agency staff, municipalities and interested parties working for the protection of local forest, wetland and water resources.



Municipalities: Municipalities of Cornwall and South Glengarry
Watercourses: Gray's Creek, Donihee Drain



Forest Conditions

Grade **F₊**

Overall, forest conditions in the Gray's Creek watershed rank a F+ grade. The amount of forest cover (22%) is low and may not be ecologically sustainable. The Remedial Action Plan delisting criteria is 30% forest cover in the Area of Concern tributary watershed to maintain ecosystem function. There is no forest interior present meaning the existing woodlots are too small and/or narrow to support sensitive species that need to live in large protective forests.

The Remedial Action Plan delisting criteria is 5% forest interior habitat in the Area of Concern tributary watershed. Forest interior habitat consists of forest cover in which the forest extends 200 metres from forest edge and has a minimum core area size of 40 hectares.

Indicators	Gray's Creek Results		Raisin Region Watershed Average		Indicator Description
Forest Cover	22%	D	36%	B	Forest cover is the percentage of the watershed that is forested. It is believed there should be at least 25-30% natural cover to sustain native plants and animals.
Forest Interior	0%	F	4%	D	Forest interior refers to the protected area inside a woodlot that some species require to survive. The outer 200 metre perimeter is 'edge' habitat and prone to stresses from predators, alien species and the elements.

Local Actions Needed for Improvement:

- Protection of all woodlands and Locally Significant Wetlands at the municipal planning level is a very important and effective method of preserving local forest cover.
- Forest interior can be increased by "bulking up" woodlots to make them larger and rounder by planting native trees and shrubs around existing woodlots or allowing the edges to naturalize on their own (eg. Retire land near woodlot edges).
- Connections can be made between woodlots and other habitat types by planting hedgerows or windbreaks along fields, waterways and roads.
- To improve the health of individual woodlots, owners should prepare and follow Woodlot Management Plans.





Wetland Conditions

Grade **B**

Overall, wetland conditions in the Gray's Creek watershed rank an B grade. The amount of wetland cover (11%) is high enough to be ecologically sustainable. Grays Creek exceeds the Remedial Action Plan delisting criteria which highlights that sub-watersheds should contain 7-10 % wetland cover. Provincially Significant Wetlands comprise 92% of the wetland cover of this sub-watershed.

Wetlands are an important source of habitat for fish and wildlife species. Wetlands serve as flood control areas by holding water and reducing flow. Wetlands act as holding areas for the local water table and play a very important role in water quality improvement.

Indicators	Gray's Creek Results		Raisin Region Watershed Average		Indicator Description
Wetland Cover	11%	B	8%	C	Wetland cover is the percentage of the watershed that is wetland (swamp and/or marsh). It is believed there should be at least 10% natural wetland cover to sustain biodiversity and wetland functioning.

Local Actions Needed for Improvement:

- Protection of all Provincially and Locally Significant Wetlands at the municipal planning level is a very important and effective method of preserving wetland cover.
- Wetland biodiversity can be increased by planting native trees and shrubs around existing wetlands or allowing the edges to naturalize on their own (eg. Retire land near wetland edges). This will provide essential habitat for many wetland species.
- Connections can be made between wetlands and other habitat types, such as forests, by planting hedgerows or windbreaks along fields, waterways and roads to support the movement of native species.
- To improve the health of individual wetlands (swamp), owners should prepare and follow Woodlot Management Plans and fence out any livestock.
- To create or improve the size of individual wetlands, owners should contact the Conservation Authority for assistance in designing a wetland project.





Surface Water Quality

Grade **C-**

The Gray's Creek sub-watershed ranks a C- with respect to overall water quality based on benthic, phosphorus and bacteria scores.

Waste water from residential, industrial and agricultural effluents could be a major threat to the water quality of Gray's Creek.

A Hilsenhoff Index score of higher than 5.00 indicates that organic pollution is likely and water quality deteriorates.

Indicators	Gray's Creek Results		Raisin Region Watershed Average		Provincial Guideline	Indicator Description
Benthic Score (H.I)	6.73	F	6.30	F	5.00	Benthic organisms are the aquatic invertebrates that live in stream sediments and are a good indicator of water quality and stream health. The Hilsenhoff Index assigns a weighting for each taxon of invertebrate based on its tolerance of organic pollution. The sum of the weighted scores gives an indication of the degree of organic pollution in the stream.
Phosphorus (mg/L)	0.063	C	0.134	D	0.03	Phosphorus is found in such products as soaps, detergents, fertilizers and pesticides and contributes to excess algae and low oxygen in streams and lakes.
Bacteria (per 100 ml)	56	B	180	F	100	E. Coli bacteria are found in human and animal waste and their presence in water indicates fecal contamination. E. Coli bacteria are a strong indicator for the potential to have other disease-causing organisms in the water

Local Actions Needed for Improvement:

- Plant buffers (grassed or treed) along creeks, rivers and open drains to filter runoff and provide shade.
- Implement protection of identified groundwater infiltration zones and conduct groundwater research and monitoring.
- Target soil erosion measures to areas of high erodibility.
- Encourage landowners to repair or replace faulty septic systems.
- Encourage agricultural Best Management Practices in the areas of manure storage and spreading, soil conservation practices, fertilizer and pesticide application, milkhouse washwater disposal and cattle access restriction.
- Promote the completion of Environmental Farm Plans and Nutrient Management Plans
- Protection of Provincially and locally significant wetlands in Official Plan





Watershed

Gray's Creek Features

Area	The total area of the Gray's Creek sub-watershed is 4449 ha or 44.5 km ² (2.6% of Raisin Region Watershed).
Land Use	The major land uses within Gray's Creek are residential (City of Cornwall), industrial, and agricultural. Despite intensive human activity, 967 ha (22%) of the sub-watershed contains vegetative cover.
Soil Type	The sub-watershed is underlain by clay loam with poor drainage, some muck with very poor drainage, and numerous pockets of loam with good drainage. Gray's Creek and Donihee Drain flow within a flat clay plain underlain by sensitive marine deposited silty clay. Glacial till deposits have also been noted along the creek channel bottom. Erosion along Gray's Creek was more severe at creek bends, high channel banks, and in areas characterized by silty clay and glacial till.
Stream Flow	Gray's Creek is a fourth order stream system and its length is 54 km (< 20 m width), 3 km (5.6%) of which runs through public land.
Fishery Resources	Warm water forage and sport fish community of 28 species, none of which are species of concern.
Woodlot Size	200 stands total in the sub-watershed, with an average size of 4.83 ha, the largest stand is 62.2 ha.
Riparian Forest	Of the 3 km of streams that run through public land, 1 km (33.3 %) has a riparian buffer, only 7.8 % of the 51 km of streams on private land is buffered.
Rare Species	Plants – Brainerd's Hawthorn
Significant Natural Sites	Provincially Significant Wetlands – Summerstown Swamp Locally Significant Wetlands - None Significant Natural Areas - None Areas of Natural and Scientific Interest – None



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