

What is a Water Master Plan (WMP)?

It's a working document that includes a physical and socio-economic portrait of the watershed, a diagnostic derived from this information, and an action plan.

AGIR has now established a **Master Plan for the Diable Watershed 2008-2013**. Four separate diagnostics have given rise to the same number of issues, which primarily focuses on:

- Water quality;
- Water availability;
- Preservation of ecosystems;
- The recreation potential of water.

These issues have been the guiding principles for the **Master Plan for the Diable Watershed 2008-2013**, created with the consultation council* of the OBV. The plan includes four issues, from which flow nine directions, 17 objectives, and a large number of actions to achieve the identified goals.

Because talk has to lead to action!

**The consultation council (CC) of AGIR ... briefly stated... The CC is a working group made up of 30 or so representatives from various sectors including municipal, economic (ski areas, contractors, golf courses, agriculture, etc.), community, institutional and associations (public health, citizens, environmental groups...). Together, they establish an agreed-upon vision of the challenges to be met and actions to be taken to ensure sustainable management of the water resources of the Diable River watershed.*

And the purpose of the watershed agreements?

The agreements serve as tools to ensure that the WMP is put into effect.

Watershed agreements, are tools used to motivate and encourage stakeholders to carry out actions derived from the plan. Doing so, allows stakeholders to get media visibility in the region as well as create a strong partnership with the AGIR team. They are essentially voluntary contracts, without legal status, between AGIR and a private or public sector partner – the "promoter". The watershed agreements have a number of advantages, such as facilitating networking among the various users of the Diable River and sensitization of the general public. More importantly, they promote positive initiatives by watershed stakeholders.

For example...

Let's say that employees of municipal public works departments take a training course developed by AGIR pour la Diable. The course is about erosion control methods in road building and maintenance activities and on construction sites. Then the municipalities apply the methods they've learned, on their territories, so they have now observed and checked out the reality of how it works, on the ground. AGIR could then sign an agreement with these municipalities. Then AGIR could publicize the agreement via a news release. And the OBV team would follow up on the agreement to ensure that it is respected and followed. Even though the agreement has no legal power, it morally binds the promoter. This approach is used to motivate and educate stakeholders/promoters in the watershed. Once the agreement is signed and publicized, it seems unethical for a promoter not to follow through with the promised actions.

The Action Plan for the Diable River Watershed 2008 - 2013.

Because it's time to take action – to AGIR !

Here are some examples of the ways and means used by AGIR pour la Diable and its consultation council to deal with the plan's four major issues.

<p>Enjeu : Preserve the aquatic, wetland and riverside ecosystems;</p> <p>Action : Train first-line responders about legally protected sensitive zones;</p> <p>Moyen : Develop and distribute a Guide to Good Environmental Practices. The goal of the guide is to inform responders of the laws in effect and the importance of keeping wetlands in mind when developing a project.</p>	<p>Enjeu : Ensure maintenance of water quality so that all social, economic and ecological needs can be met.</p> <p>Action : Develop and offer a training program on erosion control measures for construction sites and roadside ditches.</p> <p>Moyen : Develop a two-day "erosion training" program that includes both theoretical and practical aspects, for the public works departments of area municipalities.</p>
<p>Enjeu : Promote sustainable water-based recreational sports;</p> <p>Action : Develop a campaign to promote non-motorized, water-based activities;</p> <p>Moyen : Establish public access for non-motorized boat-launch.</p>	<p>Enjeu : Ensure that enough water is available to meet all social, economic and ecological needs;</p> <p>Action : Carry out a public education campaign, on the importance of reducing water consumption;</p> <p>Moyen : Promote the purchase of water reduction systems as well as the importance of consuming responsibly.</p>



Managing the Diable River Watershed, a team work approach!

What is AGIR pour la Diable?

It is a not-for-profit organization whose mission is to promote and facilitate the sustainable management of the Diable River and of the lands and bodies of water linked to it.

In 2005, socio-economic and municipal stakeholders in the Mont-Tremblant area founded the **Alliance pour une Gestion Intégrée et Responsable du bassin versant de la rivière du Diable, or AGIR pour la Diable**. The acronym AGIR, made from the first letters of the organization's name, also means "to take action", a highly suitable concept in this context. The organization achieves its mission by carrying out three major mandates :

- Coordination of the dialogue among the watershed's various users in the development and implementation of a **Master Plan for Water** (Plan directeur de l'eau - PDE);
- Gathering data to enhance existing knowledge on the watershed;
- Educate the public on the importance of preserving water resources in the watershed.

The Diable River watershed covers an area of 1185 square kilometres. A small area, shared by a multitude of users: permanent residents, vacationers and chalet owners, swimmers, fisherman, boat owners (motorized and not), lodgings, restaurants, golf courses, ski resorts, real estate developers.... Also, three county regional municipalities (MRC) and eight municipalities divide up the territory ! All the more reason to emphasize integrated, responsible and sustainable management of the water network.

What is a watershed organization ("organisme de bassin versant" – OBV)?

It's a "table around which are seated all the stakeholders and users of water, working within a single watershed" (Source: Regroupement des organisations de bassin versant du Québec – ROBQV – a coalition of Québec's watershed organizations)

In November 2002, the government of Québec put into place a National Water Policy to manage this "blue gold" on a sustainable basis. The integrated management of water thus instituted, required the creation of watershed organizations (OBVs) for the 33 rivers deemed to have priority. These rivers were facing environmental problems or usage conflicts. According to the ROBQV, the OBVs "are not environmental groups, but organizations for planning and coordination of actions related to water management."

Its stakeholders, however, recognized the importance of managing the watershed in an integrated, durable manner. Managing the territory as a whole brings users together. Creating a common management vision, is the key to ensure that stakeholders take proper actions in protecting water resources. Since its creation, AGIR pour la Diable has followed the same management processes as the 33 priority watersheds in Québec. However, as of March 2009, the Ministry of the Environment reviewed the lay-out of watersheds in the province. Since then, Québec is now divided in 40 watershed zones and not 33. The Diable River is a sub-basin of the Rouge River watershed. The AGIR staff maintains its activities on the Diable territory but will also work in partnership with the new management team for the Rouge.

And what, exactly, is this process?

- 1 The OBV first analyzes the watershed. To do this, it creates a description and a diagnostic of the current situation.
- 2 Then, with the water stakeholders working together in a consultation council, the OBV determines the issues, direction and objectives needed to ensure the integrated management of the watershed.
- 3 Then from this shared vision flows a five-year Action Plan. It includes the means selected to achieve the predetermined objectives. All the documents developed during the earlier stages (description, analysis and action plan) form what is called the Water Master Plan (WMP, or in French, PDE).
- 4 Finally, the OBV and its partners put the action plan into play through a number of projects, some of which are the subject of watershed agreements. The organization repeats the entire process every five years.

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The last ice age, which occurred 10,000 years ago, defined the shape of the landscape in the Diable River watershed. As the glaciers traveled, they scraped and scoured the mountainous land in the region. The result of their work is what we now see: mountainous terrain, fast-flowing rivers and a myriad of lakes.

Today, humans occupy 13 per cent of the watershed. Lakes and streams represent seven per cent of the Diable River territory, and the forest, 80 per cent. The Diable and her tributaries flow amid various species of deciduous and coniferous trees that are typical of the mixed forest found in the Laurentians area of Québec. The trees, and in fact, all the vegetation in the watershed, lie primarily on thin and sensitive soil that is susceptible to erosion.

There is a rich diversity of species of fauna and flora – animals and vegetation – in the Diable River watershed. We can count 14 amphibian species, eight species of reptile, 49 species of mammal and 31 species of fish, as well as over 140 bird species. At least nine species of flora and 13 species of fauna are at risk. This is the case for species such as the cougar, woodland tortoise, red headed woodpecker and the *Isitère asutarle*, which is in the orchid family.

Current biological inventories indicate that wetlands occupy approximately five per cent of the watershed in the portion located outside of Mont-Tremblant National Park. Unfortunately, these sensitive habitats may become stressed due to the exponential growth of real estate and commercial development.

Water quantity is indispensable in a watershed. Using estimates from the historical data for the Rouge River, the average river flow of the Diable is 20,5 m³/s. In Québec, this flow is considered low; as a result of the low flow, outflows are not diluted quickly.

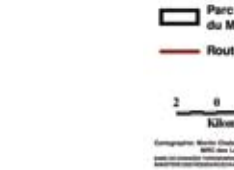
In 2007, nine lakes in the watershed were affected by blooms of blue-green algae. The Laurentian territory is one of the most affected regions in the province. The question is, will we keep seeing increases in algal bloom in the future ?

Swimming, canoeing, kayaking, non-motorized water sports . . . The Diable River delights both locals and visitors with its many charms. Navigable over most of its course, the section located in Mont-Tremblant National Park attracts over 7,000 guests annually. AGIR's mandate is to protect the watershed for all living beings and ensure that the territory is managed in a sustainable and respectful manner.



Watershed Overview

- Total surface area: 1,185 km²
- Length of the river: 116 km
- Headwater: Lac du Diable in Mont-Tremblant National Park
- Confluence : Rouge River (southernmost limit in the municipality of Mont-Tremblant)
- Total length of all waterways in the watershed: 3, 000 km
- Total number of wetlands, lakes, streams, bogs, etc: 354 (includes 25 heavily populated lakes)



- Population: 25 000 residents – 50 per cent are year-round residents and 50 per cent are seasonal residents.
- Number of tourists per year: three million
- Estimated demographic growth in the MRC des Laurentides by 2026: 32 per cent
- Primary drinking water sources for the Mont-Tremblant population: Lake Tremblant and the Diable River. Up to half of the watershed's population depends on groundwater supply.
- Number of businesses: 820
- Dominant economic sector: real estate development and ecotourism
- Primary usages: drinking water, waste-water dilution, fish hatchery, golf course irrigation, snowmaking, fishing, swimming, canoeing, kayaking, sailing and lakeside resort living.

Three primary socio-economic sectors:

- In the northern part of the watershed: Mont-Tremblant National Park (which covers 60 per cent of the watershed);
- In the central region: major urban activities and development (three per cent of the watershed in this sector is outside the park boundaries), as well as ecotourism and resort development (57 per cent of this sector is outside the park boundaries);
- In the southern part of the watershed: one per cent agricultural land, also outside the park boundaries.

Watersheds: just what are they?

Think of a funnel. The funnel rim represents the high ridges of a region. On either side of these high grounds are different drainage basins or watersheds. The divide separating the high grounds is called the watershed line. When precipitation falls to the ground, it is quick to create pathways for itself on either side of these high lands. The precipitation finds itself in a region being drained by a river system. In our watershed, the primary draining river is called the Diable. Before finding itself in the Diable River, the precipitation may first drain into other bodies of water, which we call tributaries. These smaller water systems drain into a primary water system such as the Diable River. Important tributaries on the territory include the Caché and Boulé rivers as well as two creeks called Clair and Noir. So a watershed is an area drained by a primary river, such as the Diable, but it also includes all other streams, lakes and wetlands flowing in the same direction. The Diable River is also the tributary of a larger river system known as the Rouge River, which in turn eventually flows into the Ottawa River, which eventually flows into the St. Lawrence River . . .

It is important that water be managed properly along the whole length of the watershed, as this minimizes the risk of contaminating the water flowing from the head of the river (point of origin) to the mouth (exit). If a water droplet were to be contaminated near the head of the river, it would transport its pollutants all the way to the mouth. When towns located near the origin point mismanage their water (potable water, wastewater, etc.), stakeholders living downstream from them will inevitably inherit a number of specific problems linked to poor water quality. Efforts may be deployed downstream to resolve water quality and quantity issues, but they will not be permanently addressed until proper water management habits are established upstream..

The socio-economic profile of the Diable River watershed has clearly been transformed over the past decades. In the 20th century, forestry industries were the primary economic engine on the territory of this watershed. However, at the start of the 21st century, activities such as ecotourism and real estate development have taken over. They are undoubtedly representative of the demographic growth and tourist interest in the region, but unfortunately have significant repercussions on the environment in the Diable River watershed.

In 2004, major rates of forest clearing (destruction), sometimes exceeding 75 per cent, in the riparian zones (areas bordering lakes, rivers and streams), have been measured around certain lakes in the watershed. It is known that most problems occur when 30 per cent (or more) of riparian zones are cleared. This critical percentage is usually encountered around lake roads and private lakeside properties.

Erosion is one of the most significant consequences encountered when riparian zones are cleared. The impact of human activities such as forestry, agriculture, real estate development and ecotourism certainly amplify this type of degradation. However, thin soils in the watershed also greatly influence the erosion rate of the territory.

"The road network in the Diable River watershed totals 600 km of roads, and half of these are local streets. This network is condensed in the municipality of Mont-Tremblant, Saint-Faustin-lac-Carré and lac Supérieur. Over one third of this network is found in riparian zones." (Desaulniers, S., 2007.) Water streaming on roads tends to accumulate a variety of pollutants such as sediments, hydrocarbons, oils and greases, de-icing salts and heavy metals. When these reach the rivers, lakes and streams, they pollute them.

Statistics from the federal government of Canada reveal that a Canadian consumes upwards of an astonishing 300 liters of water per day. The population of the Diable watershed is no exception. The demand for water follows the trend in the ecotourism and demographic growth in the region. Due to heavy usage, the water must be treated for drinkability as well as after use (wastewater treatment). Costs attached to these treatments are high, and the treatments are not always 100 per cent effective.



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3, 2, 1, Action...AGIR acts! In 2008, a number of partners and volunteers teamed up with AGIR to restore fish habitat in the Gélinas stream in Mont-Tremblant. Four sills were created to maximize the stream's potential as a spawning site for brook trout (*Salvelinus fontinalis*). The AGIR team hopes to restore additional fish habitat in the watershed.

3, 2, 1, Action...AGIR acts! The AGIR team monitors, on a monthly and year-round basis, the Diable's water quality. Since 2006, a sampling program has been in place that allows us to follow the physical, chemical and biological parameters of the water. The results may be found on our website.

3, 2, 1, Action...AGIR acts! In order to prevent blooms of blue-green algae (cyanobacteria), AGIR has organized various riparian zone restoration workshops as well as coordinating massive tree distribution campaigns. Our team also spends time with lake- and riverside residents in order to provide them with water sampling training. Sharing this knowledge allows residents in the watershed to monitor the water quality of the lakes where they reside. Finally, in 2008, AGIR also worked on numerous lakes in the Rouge River watershed.