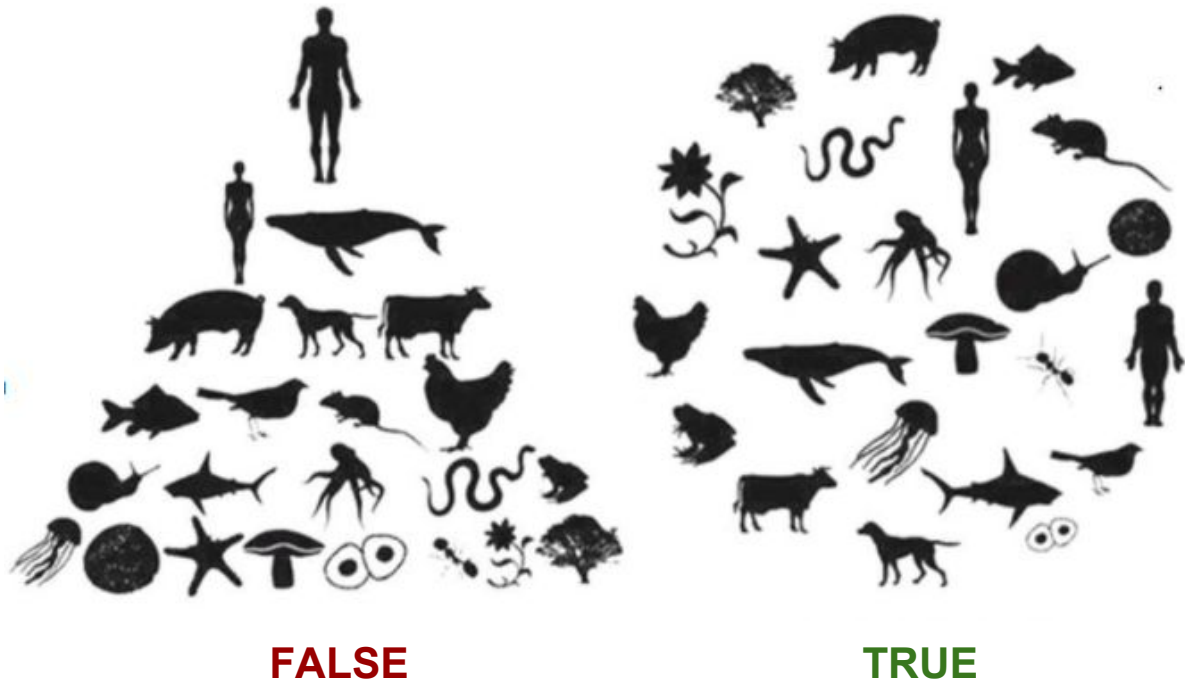


What is Ecology?

The relationship that living things, including people, share with each other and their environment.



The local ecology and its health is important in a wide range of issues that can be related to day to day life in Ottawa and Gatineau. Human developments and activities have direct long and short term effects on physical and biological aspects of the environment, which can directly affect ecology.

Ways the local ecology of the Chaudiere falls region can affect us directly include:

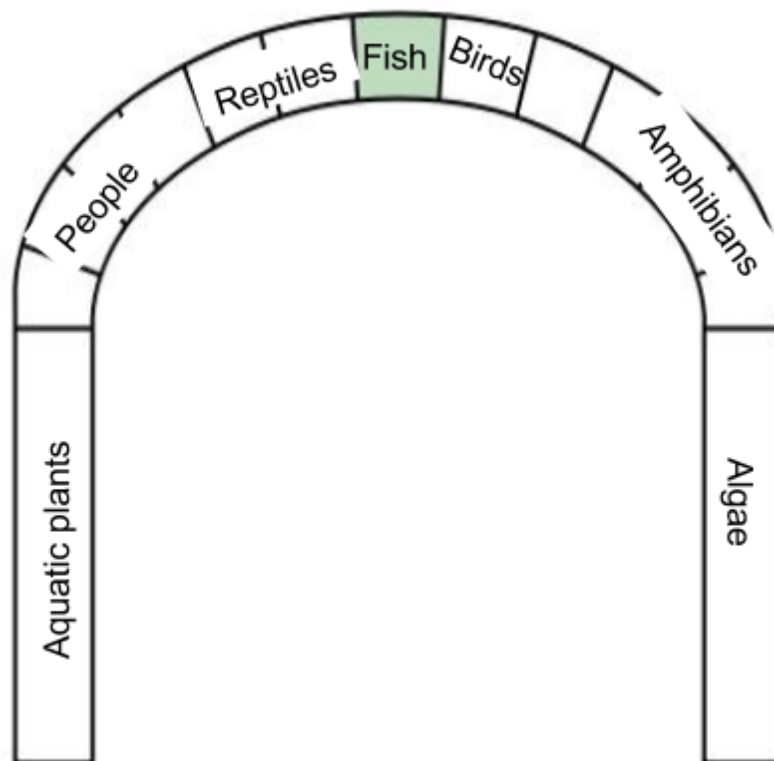
- Fishing
- Water quality
- Watersport, such as sailing, kayaking, rowing
- Waterfront recreation
- Wildlife, favourable or not, such as herons or mosquitoes
- View, concrete vs. park as seen from peace tower.

We are ecology

However, often we forget that humans are not separate from ecological processes, and that these direct effects are moreso superficial reasons for maintaining ecological health. Although humans are directly affected by these aspects of our environment, we often forget that we are indirectly affected by all aspects of our environment's ecology.

Remaining sustainable, and maintaining ecological health is important because the damage that is done to unique ecosystems, have vast effects and are often permanent, or very hard to restore. In terms of restoration, it is better to create developments that will never need it, even far in the future, than to remain shortsighted.

Effects on species within systems also often have magnified domino effects, where the rest of the system is affected, and the damage is perpetuated among trophic levels. It is easiest to empathize with species that provide a direct service to humans, but what is often overlooked is that species provide services to each other, and to the physical environment, in innumerable relationships such as mutualism, predation, oxygenation, nitrogen fixation, and many, many more. Human life is ultimately dependant on these relationships.



This diagram provides a good visual for how if one part of the system is affected, the entire system is. However, it is oversimplified, and isn't accurate in terms of the keystone species of the Ottawa river.

Island biogeography

The restoration and conservation of this island ecosystem is not only important to all living organisms of these islands, but wildlife and humans that live along the Ottawa River and within it. Firstly, an island environment is special in that it allows the development of unique organisms to exist in isolation from other species on the

mainland. The island species may not be found anywhere else, and once their island is decimated this species will perish. Furthermore, species on these island may provide services for species and humans on the mainland. For example, certain plants located on the around Chaudiere islands are important to the water quality downstream in the Ottawa river. Although freshwaters cover only 1% of the earth's surface, almost 10% of the world's species live in freshwater ecosystems (Loh and Wackernagel, 2004). Freshwater biodiversity is declining faster than marine and terrestrial biodiversity (Dudgeon et al., 2006). When the island ecosystems were destroyed these functions were no longer provided.

Chaudiere Ecology

Past

Before the arrival of the indigenous people around 9000 years before present, the Chaudiere falls region was untouched and remained in equilibrium without human interference. Thick mixed-forest vegetation covered the islands as well as fauna: White tailed deer, rabbits, herons, wolves, porcupines, beavers, squirrels, minks, waterfowl, turtles, snakes and many more. Background local and overall extinction rates are always present, even without human interference, but these happen over very long periods of time, sometimes millions of years. Presently, some of these species are now vulnerable, threatened, endangered. Some, like wolves, are no longer present in the region. There had not yet been a hydroelectric dam established, and the flow of the Ottawa river was untampered. This allowed for seasonal flooding in this island, and in the alluvial islands further down the river. This allowed for the creation of wetland environments during certain parts of the year that many birds, bugs and fish called home.

Certain species were not able to exist outside of the unique Chaudiere falls environment. One example was riverweed, an aquatic genus of plant that is only present near rapids, or after waterfalls. This sensitive and nationally rare group of species are described as "the lungs of the river" as they oxygenates of the river. These species are also a habitat for waterfowl and rare species of falcons. There are hundreds of bird species that inhabit the Ottawa River, many of which use this nationally rare species of riverweed to overwinter, and stay in Canada yearlong instead of migrating, since these areas remain unfrozen year-long.

The Ottawa river and its tributaries were also populated with many fish species, some of which are currently threatened. Among these include the longnose and spotted gar, the latter being threatened. These species can grow up to a meter in length and have been around for 140 million years, and for the first time now face extinction. These species bred in calm and murky water just before and after the chaudiere falls. The river was also home to the currently threatened american eel, which migrated down the river in order to breed.

After the arrival of the indigenous people, certain species present on these islands and along the Ottawa River were hunted. These hunting practices were sustainable, and they never hunted more than what was necessary for survival and did not hunt to a point where species were not capable of fully regenerating their population. The resources these people used for living, as well as establishing their homes did not disrupt the environment, and they did not waste any part of these resources. They were able to appreciate the untouched beauty of nature, and realise that they were part of it. Their attitudes towards the environment was different then the view of the Europeans. They believed in the equality between people and nature, and saw how they interacted together and how they were connected to each other, and they understood how the balance that can be achieved.

Upon the arrival of Europeans, the sustainability of the system was lost. Many of the animals present in this region were hunted to the point where their populations could not be recovered, and local wolves were driven out and killed. Large physical sections on Chaudiere island, Albert Island, and Victoria island were destroyed to make room for a saw mill that is now abandoned, as well as hydroelectric generation buildings. In victorian times, the chaudiere falls were a huge tourism attraction, second only to Niagara falls. However, this was lost with the development of the ring dam which was built around the falls in 1908.

Here is a view of what the Chaudiere islands would have looked like before European development. These islands are just northwest of the Chaudiere islands, directly before the dam.



Present

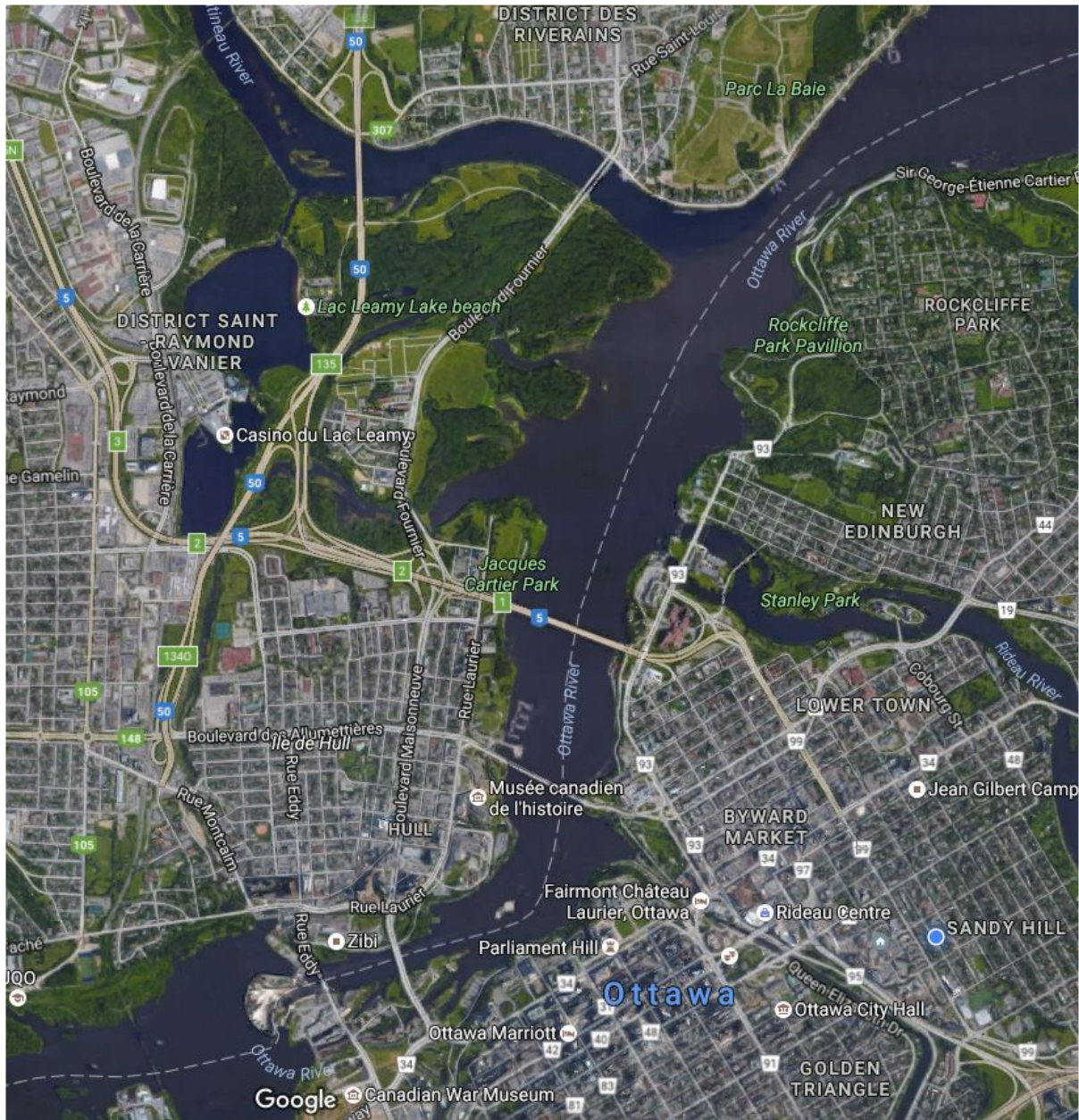
Here is a view of what the Chaudiere falls region looks like today



The present-day conditions of the Chaudiere falls region are very different from what is described above. Little to none of this original environment has been preserved. Waste from this mill, old cars and metal parts litters the cracked concrete parking lot that nearly covers Chaudiere island, and completely covers Albert island. Most of the physical habitat has been covered with concrete, and no room is left for the wildlife that once existed there. The previous industrial zoning of the region has left the soils toxic, and unremediated. Victoria island contains slightly more green space as it is a sacred ground for the indigenous people of this area, as it was once the market and meeting place of different indigenous groups. However, much of it is covered in human developments and paths and the parts that are green are subject to mowing, and trimming, and other forms of human modification and influence, and are thus not left in their original pristine state. Many of the flora that exists on it are brought in by people for appearance, such as non-native garden plants, and most of the original flora has been displaced. Without its natural ecosystem, most of the original wildlife on this island perished, leaving black squirrels, and making way for invasive species.

The rapids once created by the falls are partially blocked by the dam, and many fish species that once relied on the rapids for migration have since perished. This dam blocked the migration of some of the 85 species including the american eels, which is endangered under the ESA (Endangered Species Act), who rely on this mobility to reproduce. Energy Ottawa intends on implementing an eel ladder, and some

breeding grounds for sturgeon, which is also protected by the ESA. However a step in the right direction, these attempts at species protection would not be necessary had the falls been left untouched. Furthermore, this dam also restricts the important seasonal flooding of the Ottawa river, and keeps water levels high before the falls. The seasonal flooding in the past provided a wetland - a unique home for numerous species on the islands further down the river, such as Petrie Island. At one time the types of habitats and communities found on these flooded, alluvial islands, Kettle Island, the Duck Islands and Petrie Islands, would have been common along much of the Ottawa River shores between Ottawa and Montreal. Today, flooding and water level control from hydroelectric projects, development, shoreline armoring and farming have transformed the floodplain habitats. The natural environments of the shores, forests and backwaters along the Ottawa River have all but disappeared and are long past regeneration, apart from a few areas such as the Petrie Islands, which remain under threat by the ongoing residential, commercial, and industrial expansions, such as the Zibi development, and the Energy Ottawa Chaudière Falls dam expansion. The water levels being artificially high also pose a threat to the unique ecology of the region. This alteration causes shoreline erosion, and has eroded away the banks of the Ottawa river, and of the delta of the Gatineau river. Not only has this erased cultural heritage on the coastline, but it has lessened the area of the unique ecosystem found in the convergence of the two rivers.



This delta is home to primary growth maple swamps, which support a variety of provincially rare flora as well as regionally rare fauna. This delta is a good spot to offer shelter and food for migratory birds and in result is possibly the most popular birding site in the Outaouais.

Future

The future plans for the Chaudière region has yet to be determined. A company called Windmill Development Group is attempting to get their plans approved to establish a so-called “eco-friendly” community, called the Zibi development, on these islands. After reviewing the master plan for this development, it was clear that this development would not be as environmentally sustainable as is advertised. Zibi may be an attempt at a “sustainable eco-neighbourhood”, but ultimately does not get over fact that it is physically displacing an ecosystem. Even if there was the greatest

effort to make this development waste free and carbon neutral nothing could be more ecologically conscious than restoring these islands to their original, untouched state.

Windmill claims that the Zibi development will be “one of the most sustainable communities in the world”, and claims to be leaders in green development. However, upon our analysis, it's apparent that Windmill's Zibi development goals are likely more so greenwashing than actual green development.

Greenwashing: disinformation from a company or corporation in order to give it a “green” or environmentally friendly public image. This can happen when a company spends more time and money advertising and marketing their ‘green’ public image, than in actual action and reduction of their ecological footprint.

Windmill aims to make Zibi sustainable and less ecologically damaging through a receiving a “green label” called the One Planet Living plan, created by Bioregional North. However, this label is new and has only been used with under 10 other developments globally, Zibi being the first in Canada. This label has been under criticism for being overly subjective. It can be subject to change from the developer, and is flexible based on the specific development. Changes to goals can be good, in order to better suit the specific development's ecological management, but the detrimental aspect is that these changes can be made to the label after the development plan has already been made, as well as during the review process by the International panel. Skeptics have also noted that on Bioregional's board of directors is Jonathan Westeinde, the founder of Windmill Development Group, which is in charge of the Zibi development. This fact, along with the flexibility of the label, shows that the “green development” label is not impartial, and the development's sustainability as well as ecological goals can't be considered as verified independently. In addition, many of the green label's goals aren't quantifiable and are not easy to track and measure, with goals such as ‘perceived happiness’ and ‘organic food consumption’. In a similar development called Grow Community, on Bainbridge Island near Seattle, the One Planet ‘green development’ label is in use. The developers highlighted successful progress, however, in its first annual verification of goals, 12 of the label's targets were not tracked, and 2 were not even measured. This system is not only not impartial, but can be seen to be unclear in achieving its goals, and without the ability to evaluate them, Zibi cannot be deemed a “sustainable community”.

Although this development claims to be waste free and carbon neutral, these declarations are overall false. There would be waste for the production of the materials used to construct this development, as well as waste from the construction itself. In addition, the development would not use renewable and sustainable

construction resources. After the development is finished there would be short and long term environmental effects. The short term effects include the waste produced by the construction, the transportation of the materials into the island and destruction of what left of the natural habitat. The shoreline of the island, the only part that remains relatively untouched, would be destroyed, and covered by sidewalk and viewing paths. This habitat is crucial to the few species that remain on the island as well as the species in the Ottawa River. The long term effects include the consequences of the destruction of habitat, as well as the long term waste production. Furthermore, the water quality of the river could be at risk which could affect human, animal and plant life along the entire river. Waste from the development: garbage, gas from machinery, food waste and parts from construction are all at risk to end up in the river. Also, the expansion to the hydro dam would further the consequences such as restricting seasonal flooding. The area around the falls would be opened up to public access once again, but crucially, it will not be restored to its natural state. The toxic soils and decrepit industrial relics that remain on the islands would also not be restored or refurbished, as the development argues that they are “culturally significant” to our heritage.

The master plan includes an area designated for the indigenous people of this region, as these islands are sacred ground for them. However, this plan is not taking into consideration the actual demands of these people, with respect to their own land. It is simply checking off a box in trying to get this plan approved. The Algonquin people have a “Green vision”(hyperlink to http://www.perc.ca/index.php?option=com_content&view=article&id=374:article-11&catid=69:vol-30-3-jul-aug-2015-pedestrian-issues&Itemid=63) for the Chaudiere falls region, and want significant portions of the unceded land to be restored to its original natural state of beauty, and for the fauna and flora that once lived there to return and thrive.

The master plan has been appealed twice already, but Windmill will keep trying to push for Zibi, and will keep draining legal fees. The islands are situated directly between the cities of Gatineau and Ottawa, and are visible from the peace tower of the parliament of Canada. These islands in the nation's capital could be an opportunity for Canada to show the world it cares about ecology and sustainability, as well as showing respect our indigenous peoples and their land.

https://en.wikipedia.org/wiki/Chaudi%C3%A8re_Falls
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