

## Smelt Surveys confirm spawning habitats at five different sites



The Rainbow Smelts (*Osmerus mordax*) are anadromous, they are born in freshwater and spend most of their lives in saltwater. They only return to freshwater to spawn like salmon. Spawning of Rainbow Smelt occurs after ice-out in early spring. The eggs are very adhesive and stick to whatever they come in contact with. With a diameter of about 1mm, the eggs take two to three weeks to hatch.

Smelts are an important food source for many predators such as the Atlantic salmon, brook trout, seabirds and many others. However, due to the lack of information, little is known about the state of the rainbow smelt stock.

In partnership with the Université de Moncton, rainbow smelt surveys were carried out by the SBWA in small streams and rivers in southeastern New Brunswick from Cocagne to Bay Verte. The objective of this study was to contribute information on the rainbow smelt, specifically on the location of spawning habitats.

The surveys focused on the presence/absence of smelt eggs and the suitability of streams for smelt spawning. The majority of the sites sampled in the Shediac Bay watershed were suitable for smelt spawning, with smelt eggs being found at five different sites.

## Message from the Executive Manager



**Jolyne Hébert is the Executive Manager of the Shediac Bay Watershed Association. A board of directors, consisting of citizens from the region, is responsible for administering the organization.**

Several projects highlighted in this newsletter focus on the coastal areas of the Shediac Bay. The work undertaken last summer was meant to restore the dunes from damages suffered during Hurricane Dorian in 2019. Unfortunately, Hurricane Fiona caused the complete loss of the dune system along Belliveau Beach. In addition, several areas along our coastline also suffered damages.

The type of hurricane forces experienced during Fiona has led to many discussions with concerned citizens, over the future of our adaptation to these extreme storms. This is a very challenging question, considering the proximity of our homes and infrastructure to the coastline.

Natural infrastructure, such as sand dunes and salt marshes, have the ability to absorb energy and protect us from high water levels. It is imperative to protect and restore the natural infrastructure that exists along our coastline.

We will continue to work with landowners to restore the dunes lost during the storm. Just as the energy of wind and waves have the power to destroy the dunes, they can also rebuild this important ecosystem.



Education and Awareness



Water Quality



Protection and Restoration

## Dune Restoration efforts at Belliveau Beach

In an effort to fortify our local dunes, the Shediac Bay Watershed Association installed about a half kilometre of snow fencing at Belliveau beach. The fence was installed about five feet away from the dune as to allow for future growth of marram grass (*Ammophila spp.*). The fence will also help keep the public from walking on the dunes and disturbing the fragile root system of the marram grass.

Marram grass is important as it helps lock the dunes in place thanks to their roots. This anchoring of the dunes plays an important role in preventing damage during high wind conditions. The root system can also encourage the establishment of other plants which serves to further protect the dune.

Unfortunately, the entire snow fencing was destroyed by hurricane Fiona and the dune was severely damaged. The SBWA is planning on replacing the snow fencing and restoring the dune. Possible restoration actions include planting marram grass and using Christmas tree to capture windblown sand.

Keep an eye out for our Christmas tree donation project and call out for volunteers in the coming month.



## SBWA on the lookout for invasive Japanese Knotweed

The Japanese knotweed (*Fallopia japonica*) is an invasive species originating from Asia that was introduced in the mid-1800s as an ornamental plant. Japanese knotweed thrives in various habitats, including riparian ecosystems and disturbed areas.

It became a troublesome invader and considerable challenge to manage due to its efficient reproduction and dispersal. The plant utilizes an extensive subterranean network of stems to create new shoots. Very small amounts of plant material like leaf and stem tissue can also give rise to new shoots if they come into contact with soil.

Native plant species are quite vulnerable to being outcompeted by a Japanese Knotweed invasion. Growing up to heights of more than three metres, this invader can easily shade out other native plants.

Native plants that are used for food and habitat by native insects, birds, and animals are replaced by this invader.

The plant is very distinctive with hollow, bamboo-like canes that can grow to over three metres in height. In late summer the knotweed flowers, producing creamy-white flowers that hang down from the stem.

There are several control methods for Japanese knotweed. The most effective cost-efficient control method involves monthly cuts from May to October, followed by the planting of willow cuttings. The cuts facilitate the growth of willows which in turn will outcompete the Japanese knotweed.

If you have Japanese knotweed on your property or have seen it in the Shediac Bay area, please contact the Shediac Bay Watershed Association.





## The SBWA monitors and evaluates Bank Swallow nesting colonies

The Bank Swallow (*Riparia riparia*) is New Brunswick's smallest swallow, and one of the most widespread birds throughout the world. It is part of a group of birds called "aerial insectivores," meaning it eats mostly insects that it catches while flying. These birds nest in burrows that they dig into places like riverbanks, ocean bluffs, and piles of gravel or sand. They can live in colonies ranging from a few as 10 nests, up to thousands of nests.

Bank Swallow numbers have declined greatly in the last 40 years. A combination of threats is contributing to this decline, including loss of breeding and foraging habitat through erosion control, flood control, excavation of gravel from pits and quarries, and through the conversion of pastureland. In 2017 the population was listed as "Threatened" under

Canada's federal Species at Risk Act. In 2021 the bird was listed under New Brunswick's Committee on the Status of Species at Risk as "Endangered."

The SBWA has been working with Birds Canada to monitor and evaluate several Bank Swallow nesting colonies within the Shediac Bay watershed. This past summer we visited Bank Swallow colonies in the Grande-Digue and Shediac areas to assess their health. A minimal amount of time was spent at each colony so as not to disturb the nesting birds. Each site had an active colony, with nearly 50 burrows counted at one site. Adults were seen carrying food for their young and entering and leaving their burrows. These colonies will be visited again next summer to document any changes.

## Eelgrass monitoring program continues

Eelgrass is an important component of the ecosystem of the Shediac Bay. It is a marine plant that can grow up to 2 metres in deep waters. The leaves are supported by a rhizome (underground stem) on the seabed. It serves as shelter and food for a wide variety of fishes, crustaceans and shellfish. In addition, this marine plant helps filter the water column and stabilize sediment, thereby creating a buffer zone between land and water. Eelgrass is threatened by the arrival of an invasive species, the green crab (*Carcinus maenas*) and the impacts of human activities.

A monitoring program on eelgrass health was implemented in 2016 to establish baseline data

in order to assess the evolution of eelgrass in the Shediac Bay. Four monitoring sites were established in the coastal communities of Grande-Digue, Shediac Bridge, Shediac and Pointe-du-Chêne. We use sampling protocols established by SeagrassNet as part of a worldwide study to investigate and document the status of seagrass resources and the threats to this important marine ecosystem. The study area in the Bay of Shediac will help determine if there are changes in the eelgrass bed over the long term.

An overall increase in eelgrass cover was noted at the sites in Grande-Digue, Shediac and Pointe-du-Chêne in 2022. This is a hopeful sign

that the eelgrass beds are starting to recover from Hurricane Dorion, which hit the coast during the fall of 2019. The Shediac Bridge site, which was the hardest hit of all four sites, does not seem to be recovering at the same rate as the other sites. There was no eelgrass counted at this site in 2022. We will be able to determine the impact of Hurricane Fiona on eelgrass in the Shediac Bay when we conduct our surveys next summer.

Funding for the eelgrass monitoring program was provided through the New Brunswick Environmental Trust Fund, the New Brunswick Wildlife Trust Fund, and the DFO Oceans Management Fund (Ecology Action Centre).



## The presence of juvenile Atlantic salmon confirmed with electrofishing

This fall we went electrofishing at three sites in the Shediac Bay watershed. Electrofishing is a common scientific survey method used to sample fish populations to determine abundance, density, and species composition. It requires knowledgeable certified operators with specialized equipment that creates a weak electric current in the water. This current stuns the fish for a few seconds, giving us time to catch them with a net. The captured fish are placed in a bucket of water while they wait to be identified, measured and released. This technique is harmless to the fish, and allows us to carry out this important work.

The main objective was to confirm the presence of Atlantic Salmon in the Shediac and Scoudouc River tributaries. Juvenile Atlantic salmon were found at all three sites, along with other species such as American eel, creek chub, and blacknose dace. The information we collected will make it possible to target restoration projects in certain areas to contribute to the recovery of Atlantic salmon. This monitoring program was conducted in partnership with “Friends

of the Kouchibouguacis,” a watershed group based in Saint-Louis-de-Kent. Funding for this project was provided through the Atlantic Salmon Conservation Foundation.



### Contact Info

Shediac Bay Watershed Association

612D Main St.  
Shediac, NB E4P 2H3  
506 533-8880

For more information please visit our website or follow our Facebook page:

[www.shediabayassociation.org](http://www.shediabayassociation.org)



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### Current News

#### Contributors :

Jolyne Hébert  
Simon LeBlanc  
Olivia DeYoung  
Charles LeGresley

## Featured Species - Monarch Butterfly



Large and brilliantly coloured, the monarch butterfly (*Danaus plexippus*) is one of the easiest to recognize in New Brunswick. Their wings are deep orange with a black border that has white dots. Males have two small black dots on their wings which helps to differentiate them from females. These black dots act as scent glands, to attract female mates. Females lay their eggs exclusively on milkweed plants, and once the eggs hatch the caterpillars eat the milkweed leaves. Adult monarchs can collect nectar from a wide variety of sources, including milkweeds, asters, goldenrods, clovers and thistles.

Monarch butterflies begin as small eggs that the female monarch lays on the milkweed plant. In the wild, a female monarch can lay between 300-400 eggs in just a few weeks, and will often only lay one egg per milkweed plant! The eggs take three to 12 days to hatch. What emerges are small black, yellow and white striped caterpillars. After about two weeks of eating milkweed, the caterpillars hang themselves upside down under a leaf and form a chrysalis. After spending two weeks in the chrysalis, the

chrysalis begins to turn transparent, and the adult monarch butterflies emerge. They are ready to fly away once their wings are spread and dried off.

Every fall, adult monarchs set out on an incredible 5,000-kilometre journey, where they overwinter in the Oyamel Fir forests of Mexico. This is one of the world's longest insect migrations. The butterflies stay there until March, when they start their journey back to Canada. It takes 3-4 generations of monarchs to reach Canada in the spring, meaning the monarchs that leave Mexico are not the same butterflies that will arrive in Canada!

There are several threats facing the monarch butterfly population such as climate change, habitat loss, and pesticide use. For these reasons, it is listed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as “Endangered.”

If you are interested in contributing to the survival of monarch butterflies, consider keeping your lawns and gardens pesticide free, and grow some milkweed plants in your garden at home!

Class : *Insecta*

Order : *Lepidoptera*

Family : *Nymphalidae*

Genus : *Danaus*

Species : *Danaus plexippus*

