

2020 Annual Report



Nottawasaga Valley
Conservation Authority

YEAR IN REVIEW

Planning and Regulations

3,307

Total Permit and Planning Inquiries

781

Conservation Authorities Act Approvals

130

Violations

20

Subdivisions (Includes Condominiums)

1,580

General Inquiries

Conservation Lands

13,001

Total Acres of Conservation Lands

60%

More Visitors Compared to 2019

Watershed Management

4

Flood Messages Issued

1

High Water Messages Issued

18

Benthics Monitoring Projects

2

Fisheries Monitoring Projects

Environmental Education

2,797

Children Attended Education Programs

43

Schools Hosted

66

School & Group Visits

70

Homeschooler Visits

206

Camp Tiffin Participants

70

Attendees on Family Nature Days

112

Students participated in the Georgian Bay Forever Microplastics Program

Environmental Restoration

29

Stewardship Projects

66

Forestry projects

\$580,681

Total funding applied

1,860.10

Forest Acres Managed

111,983

Total trees planted

31.38

Kilometres Stream/Shoreline Protected or Rehabilitated

361

Active Volunteers

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Board Members

Township of Essa

Councillor Keith White (Chair)

Town of Collingwood

Councillor Mariane Mcleod (Vice Chair)

Town of Wasaga Beach

Councillor George Watson (Past Chair)

Township of Adjala-Tosorontio

Deputy Mayor Bob Meadows

Township of Amaranth

Councillor Gail Little

City of Barrie

Councillor Gary Harvey

Town of the Blue Mountains

Councillor Andrea Matrosovs

Town of Bradford West Gwillimbury

Councillor Raj Sandhu

Township of Clearview

Councillor Thom Paterson

Municipality of the Grey Highlands

Councillor Dane Nielsen

Town of Innisfil

Councillor Rob Nicol

Township of Melancthon

Councillor Margaret Mercer

Town of Mono

Councillor Ralph Manktelow

Township of Mulmur

Councillor Shirley Boxem

Township of Oro-Medonte

Councillor Cathy Keane

Town of Shelburne

Councillor Walter Benotto

Township of Springwater

Mayor Don Allen

Town of New Tecumseth

Councillor Donna Jebb



Vision

A sustainable watershed that is resilient to the effects of climate change, urban growth and other stressors and provides for safe, healthy and prosperous people and communities.

Mission

Working together to deliver innovative, integrated watershed management that is responsive to the environmental, economic and social sustainability of the Nottawasaga Valley watershed.

What We Value

An abundance of clean water, clean air and fertile soils that provide for healthy people and ecosystems.

Natural heritage systems and the ecosystem services they provide, particularly as they support resilience to the effects of a changing climate.

Distinctive landforms and waterways including the Georgian Bay coastline, Niagara Escarpment, Minesing Wetlands and others that give our watershed a unique sense of place.

Quality recreational opportunities that our hills, forests, meadows, wetlands, waterways and coastline provide for residents and tourists alike.

A wealth of resources within the capacity of our watershed to provide for thriving communities, successful economies and sustainable agriculture, now and in the future.

Message from the Chair and CAO

Reflecting on 2020, we are proud of our many accomplishments during this pandemic year. We were able to provide a safe haven for the public to experience nature and enjoy our conservation areas. Our staff were committed to continue to complete project work in planning and engineering with our many stakeholders. In forestry planting over 100,000 trees and in stewardship, completing vital work in decommissioning the Petun Dam in the northwest part of our watershed.

The Nottawasaga Valley Conservation Authority (NVCA) continued to work with Conservation Ontario and other Conservation Authorities from across the province with written submissions and active participation in information

sessions involving senior levels of government to contribute constructively to the evolution of the regulatory environment which is currently changing in Ontario.

Continuing onward from our 20-year Integrated Watershed Management Plan, NVCA delivered our board approved 5-year strategic plan and 5-year business plan, which will direct staff as we navigate the recent legislative changes and upcoming changes to the regulations to the *Conservation Authorities Act*. These plans will also enable our team to deliver on NVCA programs important to the overall health and safety of our watershed.



NVCA took major steps forward, building on last year's server upgrades in acquiring Office 365 and other internet software and programs that have allowed us to seamlessly operate effective work from home and work from office models. As well, the pandemic has allowed staff to explore new technology and move into an increasingly paperless environment in an effort to improve workflows and customer service.

The introduction of internal systems that create operational efficiencies and help to streamline service delivery is a necessity with the increasing challenges NVCA faces in protecting lives and property from natural hazards, and preserving and restoring natural heritage features, making it imperative to provide staff with the all the tools we can to complete their day-to-day tasks.

We were very pleased to see that NVCA remains a highly valued organization by watershed residents and that we are seen as crucial in helping municipalities and environmental groups to achieve their goals and desired outcomes.



Keith White
Chair, Board of Directors



Doug Hevenor
Chief Administrative Officer



COVID Opportunities

The COVID-19 pandemic hit NVCA and the rest of Canada at a moment's notice. However, NVCA did not stand still. In fact, we took advantage of the situation and served our customers quicker and more efficiently.

Welcoming New Visitors

During the COVID-19 pandemic, NVCA welcomed many new visitors to our conservation areas, including people from the Greater Toronto Area, and some from as far as Ajax, Whitby and Waterloo. Of course, we continued to welcome visitors from the counties of Simcoe, Dufferin and Grey.

At the beginning of the pandemic, NVCA's conservation areas were closed for a month. Staff used this time to plan and implement COVID-19 related procedures so visitors could explore our conservation areas safely.

Even with the month-long closure, it is estimated that there was a 60% increase in the number of visitors to NVCA's conservation areas compared to 2019. This led to an increase in revenue from parking fees, which went directly into maintaining trails, improving amenities, enhancing signage and many other items to give visitors a more enjoyable experience.

NVCA Goes Digital

Since the beginning of the COVID-19 pandemic, the majority of staff have been working remotely. Continuing NVCA's centralized approach for applications and data, the Information Management Service team further developed tools, resources, and secured access to corporate information.

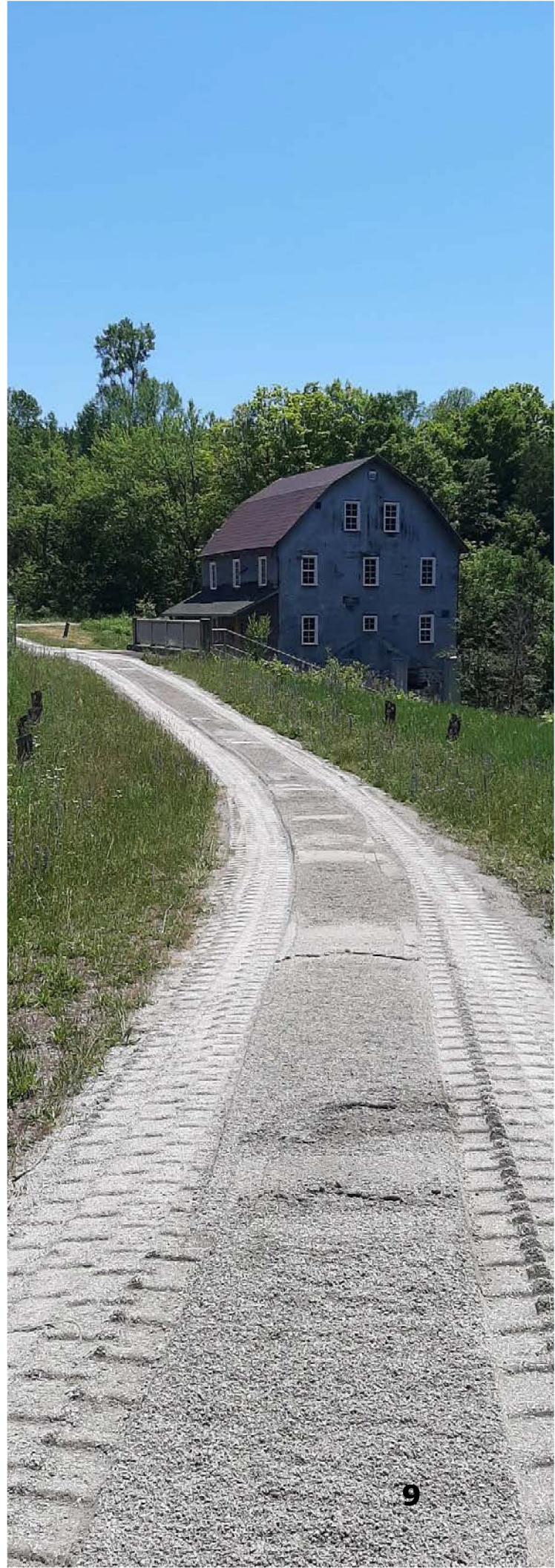
In 2020, NVCA's email platform was moved to Microsoft 365 and MS Teams was implemented for collaborative communication.

To improve workflows through technology, the team further developed GIS mapping tools to enable staff and the public to access spatial data.

Thriving in a Pandemic

The closure of our office has made reviewing proposed projects face-to-face with clients a challenge for our Regulations team.

With the automated property inquiry request forms that were put in place several years ago, along with other tools like online mapping, phone calls, email correspondence, and virtual meetings, our Regulations team were able to swiftly and efficiently process inquiries and permits for property owners in our watershed.



Teaching Virtually

NVCA's Education team provides participants with outdoor education opportunities and experience. Like many other programs, the team pivoted during the pandemic by developing a video series for families to learn about nature near their homes. These lessons include Backyard Exploration, Pond Dipping and Citizen Science. After completing the activities outlined in the lesson, families discussed their observations with our educators through Google Classroom.

The Education team was able to use this experience to develop and deliver live and pre-recorded virtual content to fulfill obligations to the Simcoe County District School Board's Grade 4 programming. Approximately 18% of students in the school board chose to learn virtually at home in the fall of 2020. These on-line engagements were in sync with the content delivered to students who learned in class, including population dynamics, plant and animal adaptations and food webs.

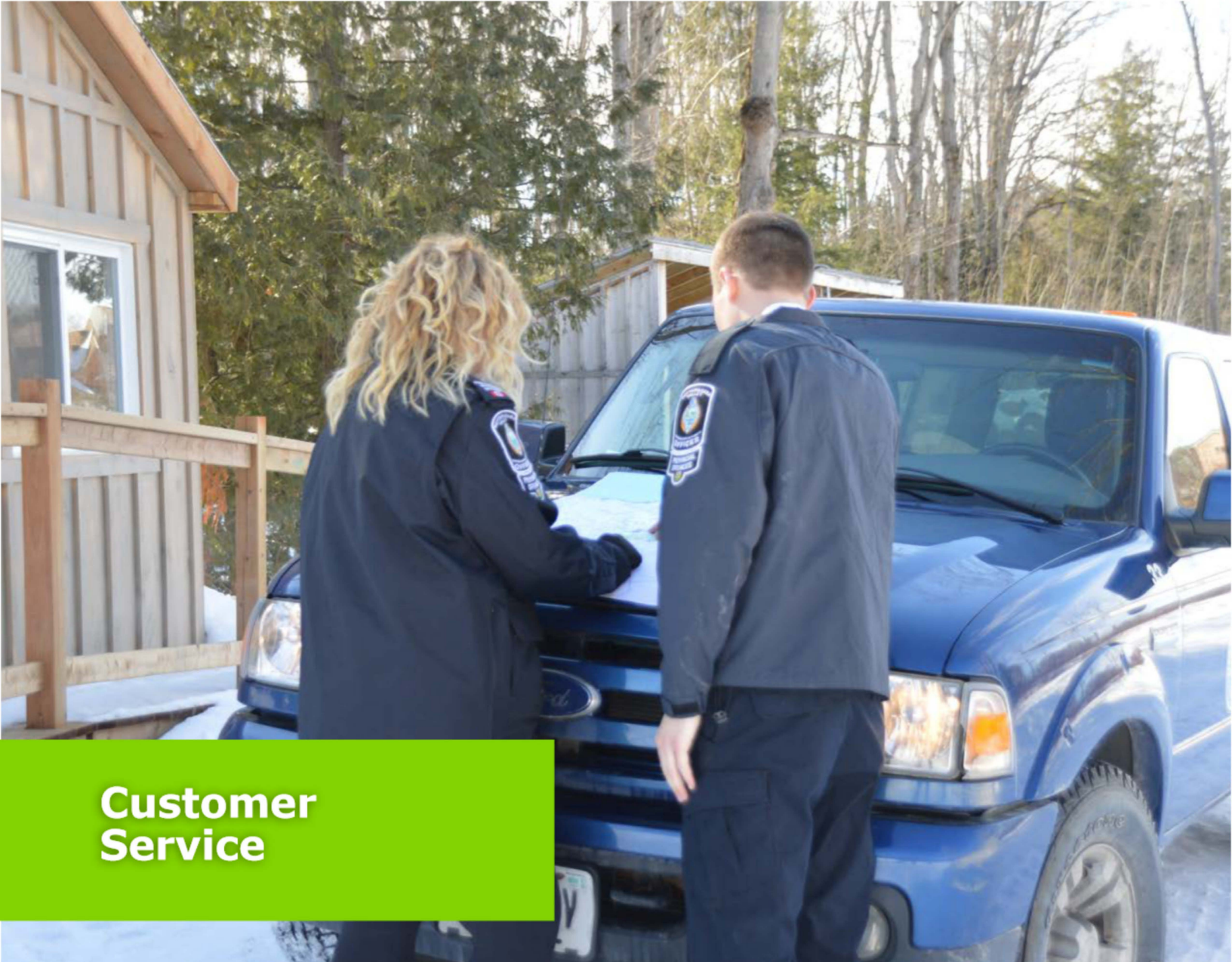
Less Travel Means More Efficiency

NVCA staff often collaborate with other organizations and stakeholders like municipalities, community groups and not-for-profit organizations across the watershed and other areas. Prior to the pandemic, staff would frequently travel to attend in-person meetings.

With video conferencing in place, staff attended meetings virtually while saving hundreds of hours of travel time, and was able to dedicate the time saved to meaningful work.







Customer Service

Safety First

NVCA's first priority is the safety of staff and customers. As the COVID-19 pandemic evolved, our staff followed protocols and recommendations from the Ontario government and the Simcoe-Muskoka District Health Unit.

Our Corporate Services team developed Standard Operating Procedures for work spaces and fleet vehicles to inform staff on how to safely return to work. Some

examples include purchasing cleaning supplies, dividing staff into cohorts, implementing a mask wearing policy and undertaking enhanced cleaning procedures.

The Lands team also installed plexi-glass barriers in the reception area of the John Hix Conservation Administration Centre to further ensure safety while staff are speaking with customers.

Commitment to Our Residents

NVCA is committed to provide customer service that is timely, welcoming and helpful. Our service timelines are governed by the Ministry of Natural Resources and Forestry. In 2019 and 2020, by collaborating with other conservation authorities and Conservation Ontario, NVCA endorsed Conservation Ontario's Client Service Standards for Conservation Authority Plan and Permit Review. With this endorsement, NVCA commits to making improvements to our planning and permitting services timelines.

This year, NVCA met ministry timelines by 98.7% and Conservation Ontario timelines by 95.2%. To further improve customer service, NVCA offers interactive mapping and requires applicants to submit online permit applications. Our Regulations team also encourages pre-consultations, which help applicants submit complete applications, which significantly reduces permit approval time.





Integrated Solution for Better Customer Service

The Engineering team provides technical comments on permit applications for our Regulations team and development submissions for our Planning Services team. This year, the Engineering team made significant improvements to their work flow, helping the Regulations and Planning Departments meet the province's customer service timelines. This means that our customers are receiving reviews faster and can proceed with the next steps of their development quicker.

Accessible for All Abilities

NVCA is committed to providing service for people with disabilities by complying with the *Accessibility for Ontarians with Disabilities Act, 2005* (AODA). This allows our staff to identify, prevent and remove barriers that may limit access to our services, facilities and information.

This year, our Corporate Services team completed the Multi-Year Accessibility Plan which describes the actions NVCA will take to remove and prevent barriers to people with disabilities who use our facilities and services, including employees and members of the public.



Over 100,000 trees planted

Every spring, NVCA's Forestry team plants over 100,000 trees throughout the watershed. Although the tree planting season regularly has its challenges, even a pandemic did not dampen these tree planting efforts.

In the 2020 planting season, a few parts fell off the planting machine. Crews were worried that there would be a delay in completing the plantings on time as they had to wait for replacement parts. The resourceful team persevered and found the missing parts scattered across the fields. The planting continued and was completed on schedule. The 2021 season is shaping up to be another successful year for the Forestry team with another 100,000 trees going into the ground.

Like farmers, the Forestry team watches the weather closely at the beginning of the tree planting season for optimal conditions. Ideal climate conditions for tree planting is cool so the trees remain dormant but not frozen, warm so the ground is soft, but not hot or the trees will leaf out. This is trickier than Goldilocks pursuit.

As the trees mature, they will help stop soil erosion, put nutrients back into the ground and create habitat for wildlife. They also help with flood management. As the snow melts in the winter, the snow under the trees will take longer to melt, and their roots also help water go into aquifers, helping to refill groundwater.



Restoring Our Watershed

Amid the COVID-19 pandemic, volunteers and staff at NVCA were masked up, sterilized, armed with hand sanitizer and physical distanced during environmental restoration events. This was also one of the strongest years for the stewardship team.

They completed restoration projects that improved water quality, established wildlife habitat and helped with flood management.

Goodbye Petun Dam, Welcome Back Black Ash Creek

Located in the headwaters of Black Ash Creek, this 6 metre high man-made earthen structure created a 100 metre long stagnant pond which supported algae growth and increased summer stream temperatures by 7°C! Historically, Black Ash Creek was home to native brook trout. While the creek currently supports a wild rainbow trout population, only a few native brook trout remain in the upstream reaches.

To maintain high water quality in the Nottawasaga Valley Watershed, our rivers and streams need to be kept cool as much as possible. Warm water encourages algae growth, which reduces oxygen concentrations for fish and other animals that live in the river.

Funding and staff time available for river restoration work were both limited, therefore it was important to rely on sound data and good science to identify the highest priority best “bang for the buck” projects and locations. The Watershed Science team collected extensive water temperature, flow and fish community data in 2017 and 2018. They identified that removing the Petun Dam was the most effective and “transformative” ecological restoration project that could be completed on all of Black Ash Creek.

Thanks to generous funding from Bruce Power, Greenbelt Foundation and a wide range of other partners, NVCA’s stewardship team completed a \$160,000 project to remove the dam and restored 130 metres of stream habitat. This project had several goals — to improve downstream water temperatures, enhance brook and rainbow trout habitat, remove a potential threat for downstream flooding, address future impacts from climate change and improve downstream water quality in Black Ash Creek.

The dam removal is the largest ecological restoration project that NVCA has completed in the Town of the Blue Mountains and this work will provide water quality benefits further downstream in the Township of Clearview and Town of Collingwood.

With the restored habitat, it is hopeful that brook trout will once again call the headwaters of Black Ash Creek home and that production of young rainbow trout will increase, creating ecological, recreational and economic benefits to local areas.





Gorgeous Grasslands

When thinking about restoring the environment, tree planting most often springs to mind. But, few realize the true ecological value that Ontario's native grasslands play, or their large historic extent.

In Southern Ontario, native grasslands once covered more than 400,000 hectares of land. First Nations played a large role in maintaining these ecosystems. The "broad meadows" were recorded by European explorers such as Champlain, La Salle and Cadillac, who came to the region in the late 1600s and early 1700s.

Today, less than 3% of the native grasslands remain.

In 2020, NVCA worked with farmers, rural landowners, volunteers and the Nature Conservancy of Canada to help restore some of these grasslands and enhance hay and pasture management. In addition to more than 40 hectares of native grassland, 7.4 hectares of rotational grazing and 18 hectares of pasture in delayed hay were planted to protect grassland nesting birds, including ground-nesting bobolink and meadowlark. This work was made possible thanks to funding from Forests Ontario's Grassland Initiative and Nature Conservancy Canada.

To successfully plant native grassland, good site preparation is essential. Thousands of dollars could be wasted if not done properly, as weeds and non-native cool-season grasses can easily outcompete young seedlings. Site preparation methods include planting the fields in corn and soy for a few years prior to seeding. Another option is tilling the field multiple times over 1-2 years. For smaller sites, clear tarps were used to harness the sun to heat-kill underlying weeds and their seeds.

At our large grassland restoration sites, once the last crop of soybeans was harvested, volunteers seeded the fields by hand with a native seed mix of grasses and wildflowers in the fall and spring. A light cover crop is also seeded to help with weed suppression. In these projects, 10 kilograms per hectare of annual rye, oats and white millet were used.

Another project involved adding several pollinator patches in an old low-diversity pasture to increase native species diversity. New grassland typically takes 3 years to start maturing, so patience is needed, especially in the first year.

The patience pays off. During monitoring of a grassland site planted in 2019, staff noted that perhaps the most striking change was the great, loud hum of pollinators, insects and birdsong. Where, before grasslands were restored, it was nearly silent.





Restoring the Nottawasaga River

The Nottawasaga River Restoration Program is a strategic multi-year initiative aiming to manage the high quality water source and fish habitat in the Niagara Escarpment World Biosphere Reserve, and extend these resources downstream into the agriculturalized Simcoe Lowlands.

In 2020, NVCA's Stewardship team and Nottawasaga Futures staff completed a project on a private land owner's property situated on the upper Nottawasaga River in the Township of Adjala-Tosorontio. Staff and volunteers restored a 400 metre long section of the Nottawasaga River by stabilizing 355 metres of eroding bank, creating 2,900 square meters of floodplain and planting 1,325 native trees and shrubs. The total value of the project was over \$92,000.



This project provides large-scale opportunities for enhancement of both recreation fisheries and native fish populations. The proposed river restoration work will increase the production of migratory Chinook salmon and rainbow trout which currently support strong sport fisheries in southern Georgian Bay and the lower Nottawasaga River. Restoration will also expand the resident brown trout fishery in the upper river. Anticipated water quality improvements will benefit many native fish including Northern Brook Lamprey a “species at risk” and an unusual river resident ling cod population.

This project was made possible through partnerships with the Ontario Trillium Foundation, Fisheries and Oceans Canada, Patagonia-Tides Foundation, HJ McDonald Foundation, local landowners, the South Simcoe Streams Network, Nottawasaga Steelheaders, Headwaters Flyfishers, Somerville Nurseries, Township of Adjala Tosorontio and Rumball Excavation.



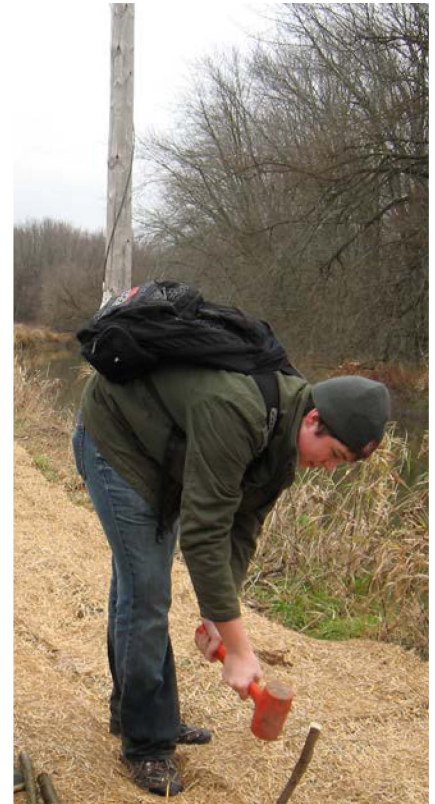
Growing Live Stake Nurseries

Each year, NVCA undertakes stewardship projects to prevent soil and nutrients from going into rivers, streams and wetlands. This reduces algae blooms, improves water quality, and provides fish and wildlife habitat. A single kilogram of phosphorus can grow up to half a ton of algae, so a little prevention goes a long way!

A bio-engineering technique called livestaking is frequently used in restoration projects to stabilize riverbanks. Stems are selectively cut from dormant plants, usually native willow and red osier dogwood, and planted into the new restoration site. These livestakes then form new roots and grow into new shrubs, stabilizing stream banks and preventing erosion.

Livestaking success is dependent on getting the right species for the site conditions. To protect the donor plant, NVCA staff collect the willow and red osier dogwood from donor sites across the watershed. In 2020, NVCA's stewardship staff and volunteers started a livestake nursery to make collecting even easier.

To establish the livestake nursery, a shallow trench was dug and planted with species well suited for a standard nursery. It will take a few years before the young plants are big enough to harvest livestakes from.





Data and Mapping

A New Database for Our Scientists

NVCA's Watershed Monitoring team use scientific data to determine the health of the Nottawasaga Valley Watershed. They do this by collecting, analyzing and interpreting different types of data such as stream temperature and flow, forest size, and the types of benthic macroinvertebrates (aquatic bugs) and fish that live in our rivers and wetlands. This information is used to gauge the success of stewardship projects and to help evaluate the impact of proposed developments. NVCA also shares this information with outside organizations like municipalities, businesses, non-profit organizations and members of the public to support a variety of other projects.

In 2020, NVCA partnered with the Georgian College Big Data Analytics post-graduate program to develop a database that will house and analyze NVCA's 25 years of benthic macroinvertebrate data. These tools will help NVCA staff gain deeper insight into the meaning of data sets, which will help other program areas determine the impact of their projects. NVCA's data can easily integrate with data from other organizations. The students will also develop data collection forms so our staff can enter data directly into the database while out in the field.



Updating Maps to Promote Safe Communities

One of the main roles of conservation authorities is to promote public safety and avoid property damage as a result of flooding and erosion. NVCA uses the best information available to map these hazards in order to identify communities and areas that are susceptible to flooding and erosion.

These hazards are a natural process that change over time so hazard maps need to be updated on a regular basis to reflect these changes. In the Nottawasaga Valley Watershed, this

is especially important as land use is changing rapidly, primarily from rural to urban. Often, these changes impact the flow of streams and rivers, as well as landscape and topography.

New data, modelling, and software development allow NVCA, municipalities and residents to have a better understanding of flood and erosion risks. With funding from the National Disaster Mitigation Program and municipal partners, NVCA's Engineering staff, in partnership with municipalities, were able to update hazard areas for various portions of the watershed, and continues to work with our municipal partners to ensure municipal staff can make informative decisions.



Responding to Development

Flooding and erosion are recurring natural processes in some areas of the Nottawasaga Valley Watershed.

NVCA is mandated under O. Reg 172/06 of the *Conservation Authorities Act* to regulate activities in natural and hazardous areas in order to avoid the loss of life and damage to property from flooding and erosion, and to conserve and enhance natural resources.

The Key to Safe Development is Planning Early

Many new developments (e.g. subdivisions, site plans, and severances) in the Nottawasaga Valley Watershed contain some type of natural heritage feature or hazard, whether it is a river, wetland, woodlot or flood and erosion hazards. These features present numerous constraints and opportunities for development.

Promoting that our watershed residents are safe from these hazards is the top priority for NVCA's Planning Services team.



Protecting Properties and Lives

Development in the Nottawasaga Valley Watershed continues to grow. Five years ago, around 2,000 permit and planning applications were processed per year, compared to 3,307 applications processed in 2020.

NVCA's Regulations team works with property owners in the Nottawasaga Valley Watershed to promote new development that addresses the risks associated with flooding and erosion by giving sound, scientific-based advice.

Some recommendations our Regulations Technicians provide may include altering the location of the structure or redesigning the structure. The applicant may be required to hire a consultant to provide additional studies to support the proposal, such as engineering drawings, soil reports, natural hazard assessments or environmental impact studies.

To save time and to ensure applications are successful, applicants are encouraged to contact NVCA staff for a pre-consultation meeting before permits are submitted, or even prior to purchasing a property.

During the pre-consultation stage of the development process, applicants may be required to submit a natural hazard study to determine the extent of natural hazards on the property. At times, an environmental impact study may be requested to determine the impacts of the natural heritage features on site.

These studies help NVCA staff locate development limits outside of environmentally sensitive features and areas affected by natural hazards.



A Regulations Success Story

In 2020, a property owner submitted a permit application in hopes of building a detached barn for their farm. Much of the property was regulated for flood and meander erosion hazards from a watercourse that ran through a portion of the property.

The owner was hoping to build the barn close to the watercourse, which would mean that it was within the river's floodplain. Upon review, one of our regulations technicians found that parts of the property were far enough from the watercourse that it was not regulated for flood hazards or meander erosion hazards.

The regulations technician worked with our engineering staff and provided background information to the property owner and recommended that the barn be relocated a few meters away from the watercourse in an area with less risk. By working together, there were minimal changes made to the site plan and the property owner was not required to provide additional surveys and assessments. Best of all, the barn would be more resilient against potential flooding and erosion impacts and climate change.

Virtual Board Meetings

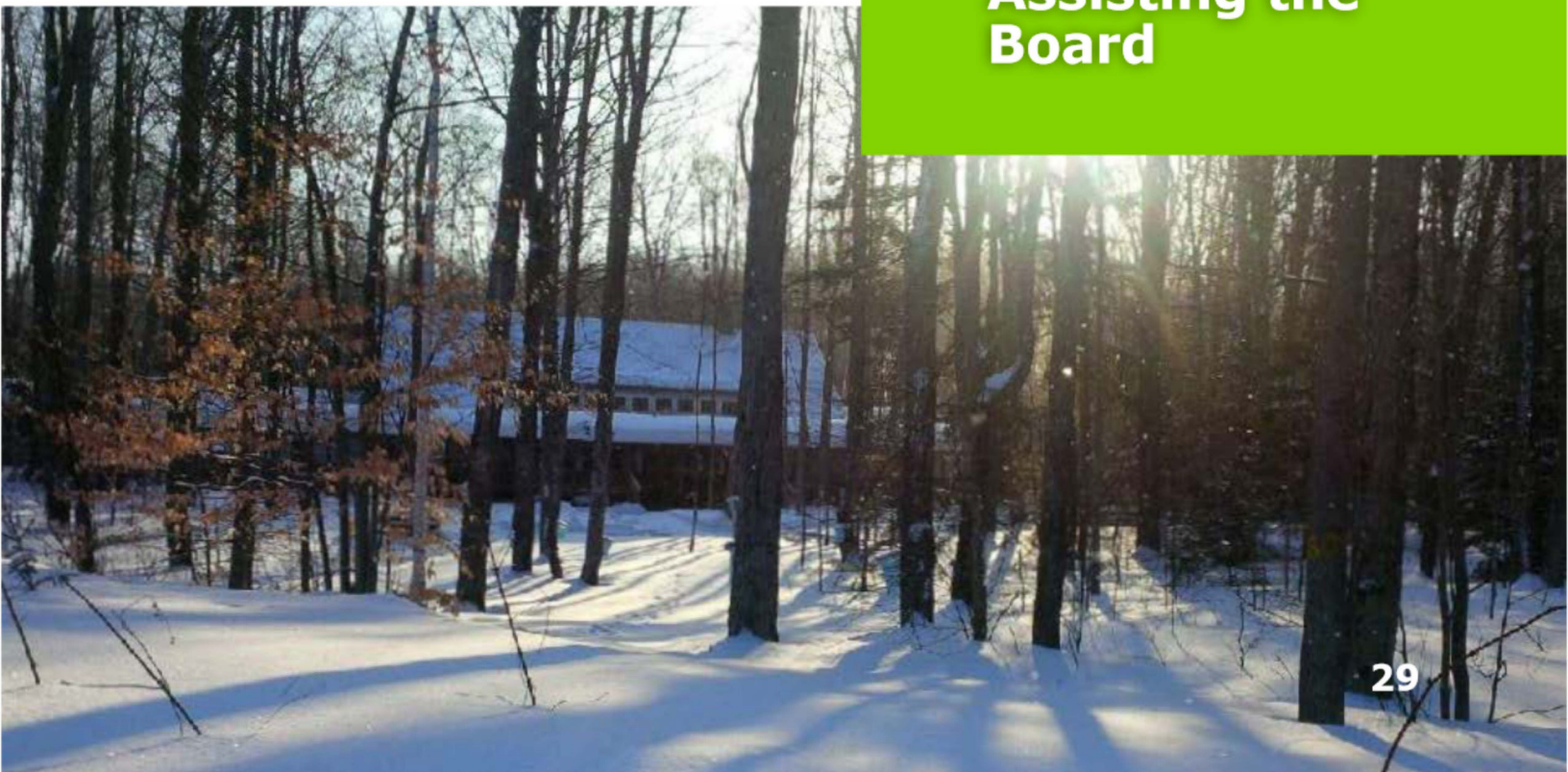
Throughout NVCA's history, board meetings have always been in person. With COVID-19 restrictions, the Corporate Services team used WebEx to allow board meetings to continue as scheduled, and BoardBookIt so board members can vote on resolutions virtually.

All of the board meetings after March 2020 were also broadcasted to YouTube for live public viewing.

Budget Presentations

In September 2020, board members were presented with the 2021 Draft Budget with a proposed increase of \$35,768 to the general levy, below the \$38,000 approved guideline.

NVCA's Chair, Vice Chair, CAO and Director of Corporate Services attended nine council meetings to present the budget to our member municipalities.



**Assisting the
Board**



2.5 Million Trees and Counting

There's a saying that says "the best time to plant trees was 20 years ago, the second best time is today".

In the spring of 2020, NVCA's Manager, Forestry, Rick Grillmayer, planted his 2.5 millionth tree. Some of the trees he planted have already become forests!

In his 25 years with NVCA, Rick worked with 577 individual landowners and many other partners to plant new forests. When these trees mature, they will have stored enough carbon to equal taking 8,900 cars off the road. The trees will also help reduce flooding by slowing down the movement of water and making rivers more predictable.

In the 1930s, some areas in the Nottawasaga Valley Watershed were covered by eroding sand. As people settled in these communities, they cleared land for farming, but the topsoil quickly eroded and sand was exposed underneath.

To stop the erosion and restore the land, the Ministry of Natural Resources (MNR) planted millions of trees in the watershed between the 1960's and early 1990's. At that time, NVCA only played a small part in the tree planting efforts. When the MNR cancelled their tree planting program in 1992, the work was left with NVCA and soon after, Rick was called to do the job.

When Rick started working for NVCA in 1995, he worked as a resource technician. In 1997, he became the conservation authority's forester. At that time, he knew little about planting trees, but through trial and error, mentoring from other foresters, and paying close attention to what worked in the past, he produced a unique program for NVCA. It involved meeting with landowners, submitting a proposal, planting the trees, and visiting them after 6 months, 1 year, and 5 years.

He estimates that 70% of the trees he planted have survived and he's pretty happy with this number. Sometimes the trees die from drought, flood, get eaten by deer or they simply cannot compete with other vegetation around the area. Many trees he planted at the beginning of his career are now over 9 metres tall, and can be seen from space through satellite imaging. Sometimes, he drives by them just to take a peek.

Rick is well-respected in the forestry world. He created a well-oiled machine, capitalizing on funding grants while helping hundreds of landowners and the environment. Tree planting season starts again this spring. After that, he will be making the rounds to check up on the thousands of trees he has planted in the last few years.



Water Quality

Low Impact Development

As the Nottawasaga Valley Watershed becomes more urbanized, the way rainfall and snowmelt runs off the land changes as well. Hard surfaces like roads, pavements, parking lots and sidewalks means less water will be infiltrated into the ground, causing flood, erosion and pollution problems. One of the roles of NVCA's Engineering team is to use various management practices to mitigate flooding.

One practice is to use Low Impact Development (LID), a technology that increases the ability for water to go into the ground while removing contaminants.

This technology is already being used in municipalities in neighbouring watersheds such as the Lake Simcoe Watershed and the Credit River Watershed. In the Nottawasaga Valley Watershed, we are at the beginning stages of implementing LID. The Engineering team is communicating with municipal partners to share the benefits and maintenance techniques of using the technology. In 2020, the use of LID was recommended through the plan review process whenever there was opportunity.

Protecting Our Clean Drinking Water

In the Nottawasaga Valley Watershed, residents get their drinking water from either municipalities or private wells. NVCA is a partner in the South Georgian Bay Lake Simcoe Source Protection Region, responsible for protecting municipal drinking water sources in the watershed.

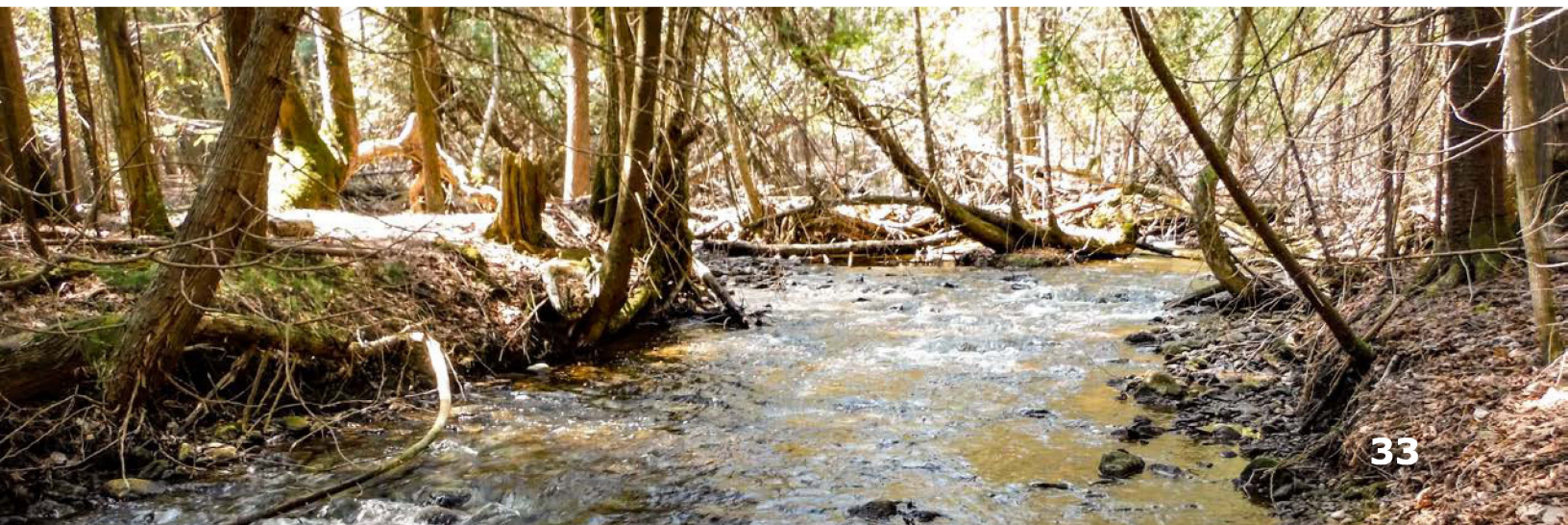
To do this, NVCA's Risk Management Official assists in the implementation of the Drinking Water Source Protection Program for delegated member municipalities. Risk Management Plans were slated to be completed by July 1, 2020. However, due to various reasons, including the COVID-19 pandemic, the Ministry of Environment, Conservation and Parks approved a two year extension for the completion of the Risk Management Plans.

Wasaga Beach Councillor Stan Wells was reappointed to the South Georgian Bay Lake Simcoe Source Protection Committee as the municipal representative from the Nottawasaga Valley Source Protection Authority.

New and Expanding Wells

Municipalities must follow the *Clean Water Act* and associated regulations to ensure contaminants do not get into drinking water sources (source water) and not too much water is taken. This includes assessing the vulnerability of their new or expanding drinking water systems before the water can be provided to the public.

When a new well comes online or expanded, it is required to be in compliance with legislative and regulation requirements including the *Safe Drinking Water Act* and the *Clean Water Act*. In 2020, the Township of Clearview, Township of Springwater and Town of Shelburne undertook Class Environmental Assessments to establish new municipal wells or expand current ones. NVCA's Watershed Science team assisted our member municipalities to ensure alignment with the *Clean Water Act* and associated regulations.





Putting the Wiggle back in the Willow

For the last 10 years, “Putting the Wiggle Back in the Willow” was identified as a priority restoration project.

Willow Creek was historically over-widened and straightened. When rivers and streams are over-widened, water moves too slowly and does not transport sediment downstream fast enough, causing too much sediment to accumulate. Too narrow, and the channel erodes too much and entrenches downwards. There’s a “Goldilocks’ Zone” where the sediment levels are balanced.

In addition, the streambanks of Willow Creek are prone to erosion, as there is a lack of trees and strong roots along the creek to hold soil in place, causing sediment to deposit into the river.

The combination of the two problems created a habitat that did not support a high biodiversity of fish and benthic macroinvertebrates. These insects are the base of the fisheries food-chain.

To ‘Put the Wiggle back in the Willow’, NVCA staff and volunteers spent the last 10 years installing wing-deflectors, triangle-shaped mats of Christmas trees that are cabled into the streambank. These structures act like sediment traps and use natural

processes to recreate the meanders that existed in Willow Creek many years ago. Native plants are then planted on the deflectors and along the streamside, which stabilize the banks and provide habitat.

After 10 years of hard work from hundreds of volunteers and donations from generous organizations, about a kilometer of Willow Creek is now restored. There is still about a kilometer more to do until we reach the unimpaired section.

To determine the success of this work, NVCA’s staff sampled the benthic macroinvertebrates and chemistry of the water in this section of Willow Creek. Their conclusion: fish diversity has doubled, the number of fish increased 2.5 times and the benthic water quality index increased from poor to fair. Deposits of sediment in the middle of the creek also disappeared.

Thanks to organizations such as TD Friends of the Environment Foundation, Environment Canada and Nature Conservancy Canada who helped us fund this project over the years. Also, a big thank you to, Somerville Nurseries Inc. for donating the Christmas trees for the wing deflectors.



Learning never stops

Enhancing Flood Forecasting Capabilities

NVCA's 18 municipalities are connected by the rivers and streams in the Nottawasaga Valley Watershed. To predict areas that are at risk of being flooded, it is important to know where there will be large amounts of rainfall and snowmelt, and when this water will move to downstream municipalities.

To better serve our communities, the Engineering team is looking into improving the accuracy and lead time for flood forecasting by enhancing current models. The initial stages of these improvements will be completed through the models developed for the Town of Wasaga Beach, along with new modelling planned for the Upper Nottawasaga River. Models for other sections of the watershed will be developed through the next few years.



Investigating the June 2017 Flood

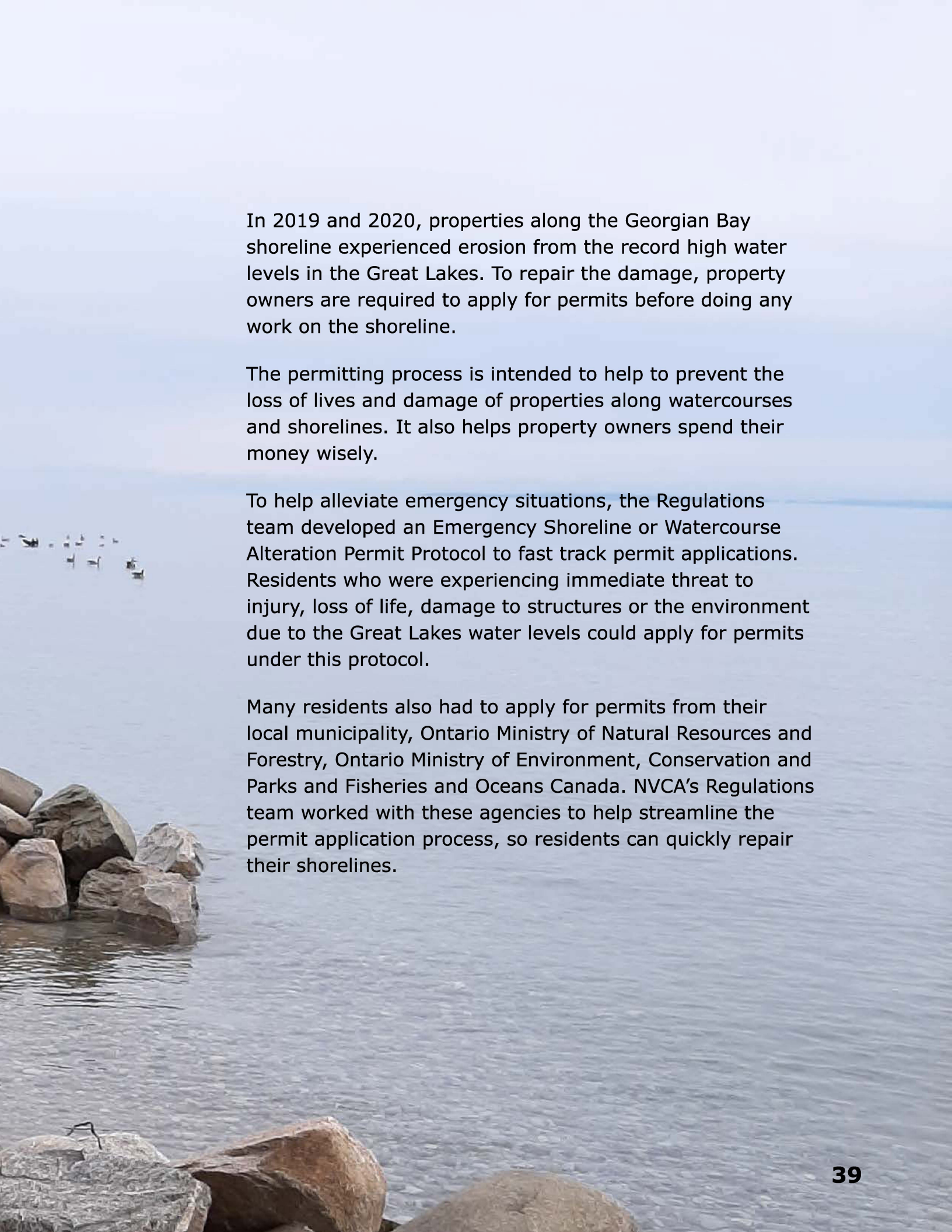
In June 2017, without warning, the Town of Mono, Adjala-Tosorontio and New Tecumseth experienced widespread flooding. In certain areas, it was considered a 100-year flood event, meaning it had a 1% chance of happening. Many homes were flooded, driveways were washed out, roads were damaged and many farmers lost their crops.

To investigate how this flood happened and to better understand the impacted areas, NVCA's Engineering team was awarded further funding from the National Disaster Mitigation Program.

Through the investigation, the team gained a better understanding of where the flood waters reached and what it impacted. Information that was not captured in traditional flood estimation mapping were revealed, including the areas that would be most frequently impacted by flooding.

A photograph of a rocky shoreline. In the foreground, there are large, smooth, grey and tan rocks scattered along a sandy beach. To the left, some branches with orange and yellow autumn leaves hang down. In the background, the water is calm, and a line of trees with yellow foliage is visible on the horizon. A large number of birds, possibly seagulls, are gathered on the water's surface in the distance. A bright green rectangular box is overlaid on the left side of the image, containing white text.

High Waters in the Great Lakes



In 2019 and 2020, properties along the Georgian Bay shoreline experienced erosion from the record high water levels in the Great Lakes. To repair the damage, property owners are required to apply for permits before doing any work on the shoreline.

The permitting process is intended to help to prevent the loss of lives and damage of properties along watercourses and shorelines. It also helps property owners spend their money wisely.

To help alleviate emergency situations, the Regulations team developed an Emergency Shoreline or Watercourse Alteration Permit Protocol to fast track permit applications. Residents who were experiencing immediate threat to injury, loss of life, damage to structures or the environment due to the Great Lakes water levels could apply for permits under this protocol.

Many residents also had to apply for permits from their local municipality, Ontario Ministry of Natural Resources and Forestry, Ontario Ministry of Environment, Conservation and Parks and Fisheries and Oceans Canada. NVCA's Regulations team worked with these agencies to help streamline the permit application process, so residents can quickly repair their shorelines.



Protecting and Maintaining Our Properties

NVCA owns and manages over 13,000 hectares of property throughout the Nottawasaga Valley Watershed. By conserving these lands, we are able to protect important natural features, as well as ecosystems and their functions. Watershed residents and visitors are able to enjoy recreational opportunities provided by these natural areas.

A Strategy for Land Conservation

By working with external consultants, NVCA's Conservation Services team completed the 2020 – 2030 Land Securement Strategy. The plan prioritizes lands in the Nottawasaga Valley Watershed that have significant natural heritage features or lands that have restoration potential.

Partnership with community partners is an integral component to the successful implementation of the plan.

Maintaining our Properties

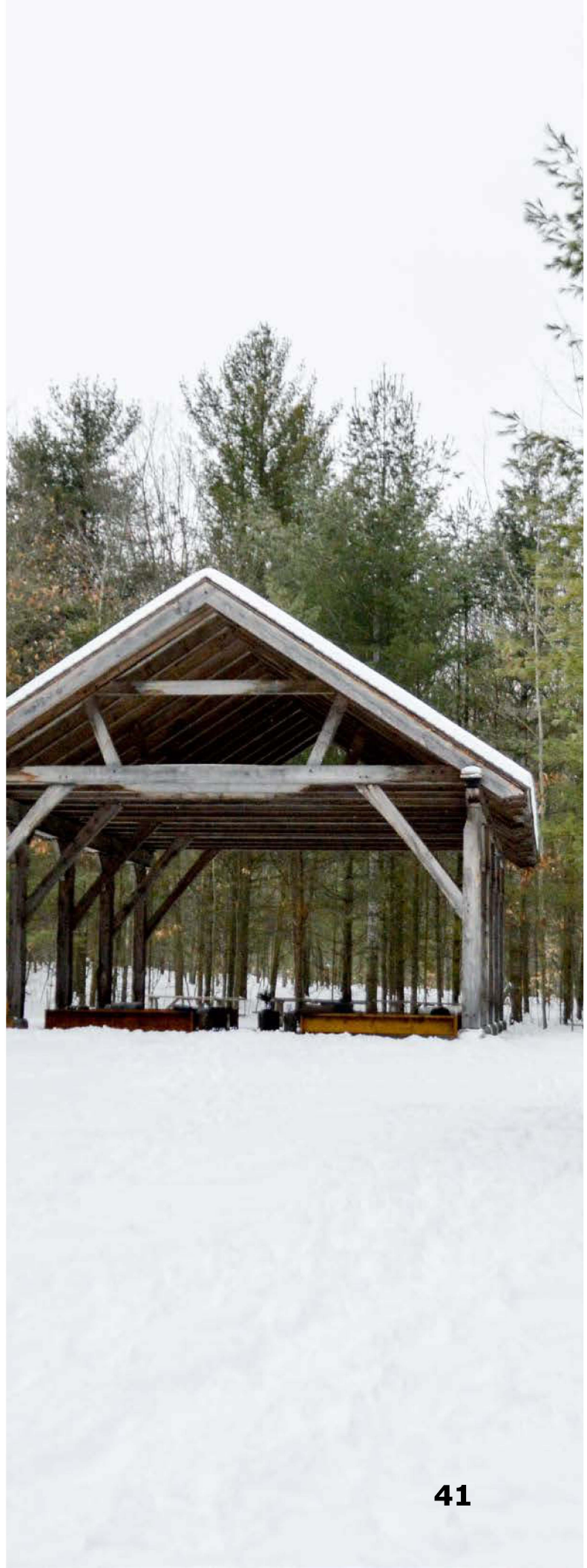
With large events and education programming cancelled or rescheduled, NVCA's Lands team undertook a variety of maintenance projects that would have otherwise been challenging to undertake with a full roster of programs.

It was important for the team to follow the changing COVID-19 guidelines to ensure the safety of guests during the small events hosted throughout the summer.

The Future of the Historic Fort Willow Conservation Area

The Historic Fort Willow Conservation Area is a significant historical site that is owned and managed by NVCA in partnership with the Friends of Historic Fort Willow. This site was originally used by local Indigenous peoples, followed by fur traders, explorers, military and eventually European settlers.

NVCA's Conservation Services team completed a master plan that lays out recommendations on the development of the site for the next 5 years.





Education is key

The Purpose of Regulating

Many residents in the Nottawasaga Valley Watershed are not aware that their property is located in areas regulated by NVCA, and conduct illegal activities that will harm the environment, their property, or even their lives.

Through non-compliance investigations, NVCA's Regulations Technicians are able to inform residents about the dangers of building in areas prone to flooding and erosion and often work with the applicant to secure proper permits for their development and bring them back into compliance

Furthermore, NVCA's Regulations Team plays a key role in education as they consult with landowners, real estate agents, and the general public to help explain the regulations, why a particular area is regulated, and what the permitting process is like.

Finding Funding to Make Restoration Real

The Nottawasaga Valley Watershed's 18 municipalities contribute seed funding to environmental restoration projects. Our Stewardship team uses these funds to help leverage additional funding from external grants like foundations, private donors and the provincial and federal governments. Every dollar contributed by municipalities result in six dollars of external funding!

In our grant writing process, NVCA's Stewardship team share compelling stories with funders about why this work is important. This includes a detailed description of the geographic area, unique features, water quality of the watershed, why it's important to protect them and the ramifications of doing nothing. Examples include habitat loss, flood and erosion risks, unsafe drinking water and economic setbacks.

With this information, funding organizations decide if the proposed projects match their funding goal. Once the funding is received, NVCA's Stewardship team works to restore degraded areas to help improve water quality, prevent flood risks and provide safe habitats for plants and animals.





Fostering Wonder within Our Youth

Over the past three decades, NVCA's Education Program has delivered high quality, hands on, environmentally based outdoor education. Thanks to a long-term partnership with the Simcoe County District School Board, our educators work with students at the Tiffin Centre for Conservation or at their schools to help them connect with local natural environments. NVCA also offers secondary school programming including several Specialist High Skills Major certificate programs for high school students focused on their next steps at post-secondary school.

In the COVID-19 pandemic, our education program was forced to close for six months. When our Education team came back to work, they developed new programs for the youth in our watershed that could be safely delivered during the pandemic.

Adopted from the traditional summer camp, Fall Camp Tiffin was a day camp designed to enhance children's knowledge, understanding and appreciation of the natural world and our amazing planet! This fun and educational program focused on experiential activities in which young explorers learning at home during the pandemic discovered the variety of species and spaces at our 300+ acre Tiffin Centre for Conservation.

The Borrow an Educator program allowed groups to choose a nature learning activity in the comfort of their own bubble. Some of these programs included: Free Play Forest, Nature Exploration and Hike, Natures Art Room and Focus on Forests.



Teaching About the Newest Type of Pollution

Plastics tend to break down into small fragments which enter the environment as microscopic particles, known as microplastics or microfibers. These can be found in most watercourses, including in Georgian Bay. Microplastics can concentrate harmful chemicals on their surface, like polychlorinated biphenyls (PCBs). These are linked to harmful health effects in wildlife and people.

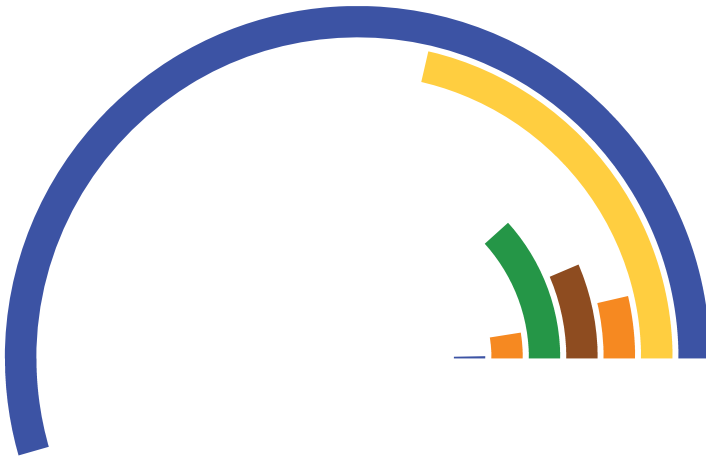
Thanks to funding from Georgian Bay Forever, education staff will teach students in grades 6-8 in the Town of Collingwood about this newest type of pollution.

Aligned with this focus, NVCA's environmental educators taught students about how water flows in the Nottawasaga Valley Watershed, eventually leading downstream into Georgian Bay. Students walked to the closest body of water from their school, and did some hands-on discovery, which involved taking sediment/soil samples.

Using microscopes, students were asked to look at their samples for natural and unnatural materials. They also took photographs so that they can share what they learned. These activities helped students understand how microplastics are building up in our shared environment, and followed up with what they can do to help reduce them. This program will continue until 2022, with plans of reaching 400 students a year.

Revenues

- Municipal Levy, 54.6%
- User Fees, 21.4%
- Federal Grants, 3.8%
- Provincial Grants, 6.6 %
- Contributions & Donations 11.9%
- Municipal Grants, 1.2 %
- Reserves & Other, 0.5 %



Expenses

- Planning Services, 28.7%
- Engineering - Special Projects, 0.2%
- Flood Forecast & Warning, 7.0%
- Watershed Science, 8.3%
- Corporate Services 11.4%
- Information Management & Technology, 5.3%
- Governance, 6.4%
- Conservation Lands, 10.4%
- Stewardship, 18.9%
- Education, 3.5 %



NVCA's total 2020 budget was \$5,185,988. Revenue came from diverse sources, including member municipalities, provincial and federal governments, local non-governmental partners, and user fees for programs and services.

The 2020 balanced operational budget as approved required the use of \$40,144 from NVCA's reserves. Additional board approvals for the use of operational reserves throughout the year brought the total to \$70,144. With solid revenue performance including funding

partnerships and expenditure control, NVCA ended the year requiring the use of \$69,078.

In 2020, NVCA purchased \$47,531 in capital assets (from an approved capital budget of \$181,724), with the overages funded through operational dollars.

This financial information is condensed from year-end, unaudited, statements. The auditor's report for the year ending December 31, 2020, is posted on the NVCA website at nvca.on.ca once approved by the Board of Directors.

CHIEF ADMINISTRATIVE OFFICER

Doug Hevenor

CORPORATE SERVICES

Sheryl Flannagan, Director

FINANCE & ADMINISTRATION

Haleigh Ferguson, Executive Administrator

Christine Knapp, General Accountant

Kelcey Montag, Accounting Clerk

Kimberly Winder, Receptionist/Administrative Assistant

COMMUNICATIONS

Maria Leung, Communications Coordinator

INFORMATION MANAGEMENT AND TECHNOLOGY

Hendrik Amo, Manager GIS/IT

Robert Bettinelli, Information Management and Technology Specialist

Lyle Wood, GIS Analyst

WATERSHED MANAGEMENT SERVICES

Chris Hibberd, Director

Morgen Wilson, Development Review Coordinator

ENGINEERING & FLOOD PROGRAM

Mark Hartely, Senior Engineer

Alison Edwards, Water Resource Engineer

Michael Saunders, Engineering Technologist

Peter Alm, Water Resource Engineer

Sheri Steinginga, Flood Operations Field Specialist

WATERSHED SCIENCE

Ryan Post, Manager, Watershed Science

Devon Owen, Watershed Monitoring Technician

David Featherstone, Senior Ecologist

Ian Ockenden, Watershed Monitoring Specialist

PLANNING

Lee Bull, Manager, Planning Services

Amy Knapp, Planner

Emma Perry, Planner

Mike Francis, Planning Ecologist

REGULATION & ENFORCEMENT

Daniel Dyce, Regulations Technician

Meagan Kieferle, Regulations Technician

Kate Thomson, Regulations Technician

NVCA Staff

As of December 31, 2020

CONSERVATION SERVICES

Byron Wesson, Director

LANDS & OPERATIONS

Kyra Howes, Manager, Lands & Operations

Clint Collis, Lands & Operations Technician

Mike Bacon, Lands & Operations Technician

Spencer Macdonald, Lands & Operations Technician

ENVIRONMENTAL EDUCATION

Naomi Saunders, Manager, Environmental Education,

Bob Cole, Environmental Education Associate

Charlotte Driscoll, Environmental Education Associate

Grant Wilson, Environmental Education Assistant

Jo-Ann White-McKenna, Environmental Education Associate

Maegan McConnell, Environmental Education Assistant

Pamela Green, Environmental Education Associate

Susan Hall, Environmental Education Assistant

Taryn Arsenault, Environmental Education Associate

FORESTRY

Rick Grillmayer, Manager, Forestry

STEWARDSHIP

Fred Dobbs, Manager, Stewardship Services

Sarah Campbell, Aquatic Biologist

Shannon Stephens, Healthy Waters Program Coordinator



Nottawasaga Valley
Conservation Authority

www.nvca.on.ca
e: admin@nvca.on.ca
t: 705-424-1479

8195 8th Line
Utopia, ON
L0M 1T0



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