

2020-21

ANNUAL REPORT





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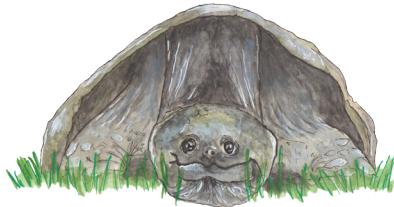
MESSAGE FROM THE DIRECTOR

What a year! 2020-21 started in a very uncertain environment with Coastal Action leadership struggling to figure out how to continue operations and maintain staff during the COVID-19 global pandemic. Communication and flexibility became our main priorities as we settled into the new reality of working from home, virtual meetings, and field team bubbles. Funding announcements were delayed, and contribution agreements and work plans were altered given the imposed restrictions. In the middle of all this chaos, Coastal Action also moved office locations from our home in Lunenburg at the Captain Angus Walters House for the past 10 years back to our roots in Mahone Bay in the newly renovated Mahone Bay Centre. We're proud to say that COVID has not beaten us down! 2020-21 turned out to be another very successful year with the organization reaching a new high for total annual revenue while successfully rolling out our new HR policies and programs, and creating our new 3-year strategic plan. The year certainly ended on a much higher note than what it started on! Looking forward to 2021-22!



Brooke Nodding

Brooke Nodding
Director, Coastal Action



STAFF



Brooke Nodding
EXECUTIVE DIRECTOR



Shanna Fredericks
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GRAPHIC DESIGNER &
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EDUCATION
TEAM LEAD



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BIODIVERSITY
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WATER QUALITY
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COASTAL AND MARINE

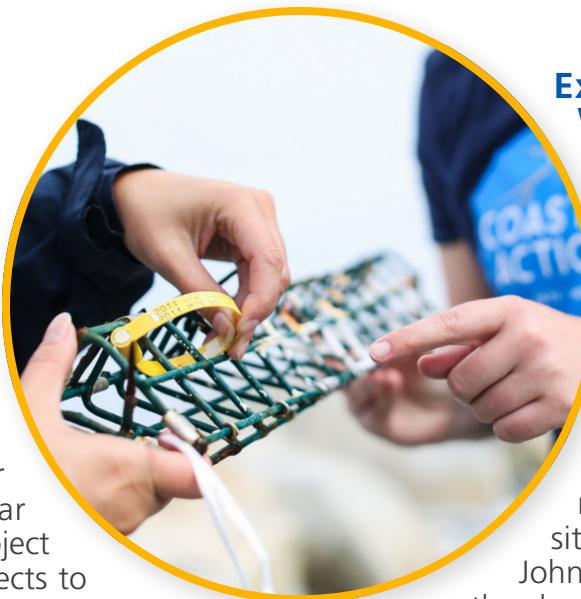
Our Coastal & Marine Team works to protect ocean wildlife and habitat through the research of various sources of anthropogenic debris. The team is focused on expanding current plastic pollution datasets and communicating our findings to encourage individuals, industry, and communities to adopt positive changes for Atlantic Canada's expansive coastal and marine environment.

Atlantic Canada Microplastic Research Project

Ever wonder about all the little plastics floating in the ocean or those tiny plastics embedded in the sand at your favourite beach? Our collaborative 3-year Atlantic Canada Microplastic Research Project (2017-2020) was one of the first projects to investigate this issue on a regional scale in the Maritimes. We looked at the abundance and types of microplastics in three near-shore marine environments; partnering with Clean Annapolis River Project (CARP), ACAP Humber Arm, and Civic Laboratory for Environmental Action Research (CLEAR).

Thanks to the financial support from Environment and Climate Change Canada's Atlantic Ecosystem Initiative, this project wrapped in the spring of 2020 with a regional dataset of 42 surface water samples and 84 sediment samples.

Plastics ranging in size from 1 mm to > 25 mm were found at all locations; however, microplastics (1-5 mm) were the most abundant. Analysis revealed that these microplastics originated from items such as single-use plastics, fishing debris, and synthetic clothing fibres. Shoreline sediment samples are being analyzed at CLEAR (Memorial University, St. John's) with results available in early 2022. To communicate our surface water findings, Coastal Action and partners are working on a peer-reviewed article to be submitted for publication in the Marine Pollution Bulletin.



Expanding our Microplastic Work in Atlantic Canada

Furthering this work in 2020, we began expanding this regional microplastics research and helping to build capacity for other NGOs to conduct similar projects by delivering training workshops to community-based environmental partners in New Brunswick and Prince Edward Island. These groups will collect microplastic data from new coastal sites (Gulf of St. Lawrence and St. John River Watershed) and investigate the abundance of microplastics ingested by



COASTAL AND MARINE

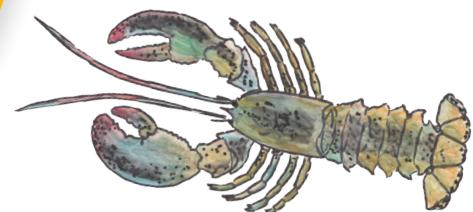
the blue mussel (*Mytilus edulis*), an economically and ecologically important species for the region. Expanding the reach of these standardized data collection methods will help strengthen the current body of research and facilitate comparisons of microplastic data in the region.

Bioswales & Microplastics

This year our Coastal & Marine and Climate Change Teams collaborated on a new project building bioswales, both for their stormwater management benefits and their ability to act as sinks for microplastic pollution. Over the next two years, students from Bridgewater Junior High School will help us build two bioswales and monitor the accumulation of microplastics in the sediment. We're looking forward to providing hands-on education opportunities as students discover the links between stormwater management and plastic pollution.



has been a success because it brings several groups together to work towards a common goal: retrieving abandoned, lost, and discarded fishing gear (ALDFG) and communicating data on the amounts and types of gear found.



Ghost Gear Project

The Atlantic Ocean is a powerful force. Ocean currents, storms, and strong winds can cause issues for many marine activities, including the loss of fishing gear. This poses environmental risks for habitat and species as well as economic challenges for the industry. Combined with illegal dumping and human error, fishing gear, or what is known as 'ghost gear', often ends up on the ocean floor. It is estimated that close to 70% of marine debris is fishing-related. Coastal Action's collaborative project, funded by Fisheries and Oceans Canada and launched in 2020, works to retrieve as much of this gear as we can.

In the Fall of 2020, we started our first retrieval efforts with five vessel captains targeting areas from Lunenburg to Yarmouth. By working with the Southwest Nova Scotia lobster fishing community to target certain areas, we were able to retrieve 7064 kg of ghost gear in the region within a 2-month retrieval season. This project





SPECIES AT RISK AND BIODIVERSITY

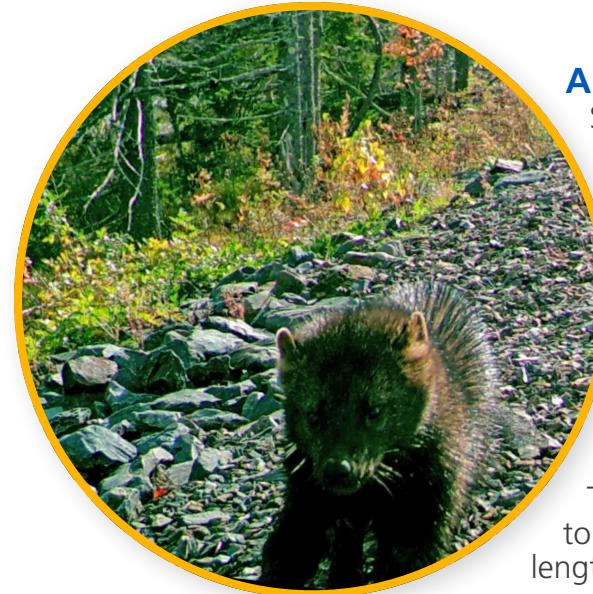
Our Species at Risk & Biodiversity Team works toward the recovery of threatened species including the Atlantic whitefish, American eel, and the snapping turtle, often accompanied by the removal of invasive species such as chain pickerel and smallmouth bass. The team also focuses on the assessment and restoration of wetland habitat, and participates in the Kespukwitk Conservation Collaborative – an initiative focused on biodiversity conservation in Southwest Nova Scotia.



Snapping Turtle Project

In 2020 we were excited to start a new snapping turtle research project! Snappers are Canada's largest freshwater turtle and are currently listed as a species of special concern under the federal *Species at Risk Act*. Because snapping turtles are a long-lived species that reproduce later in life, their population is threatened by increases in adult mortality. The main threats to snapping turtles are anthropogenic and include road mortality, persecution, and legal and illegal harvesting.

With funding from the Habitat Conservation Fund, in the spring of 2020, we began monitoring turtles in the Petite Rivière watershed area. Last season, we located key nesting sites, monitored nest predation, and identified road-crossing hot spots. In the fall, our team set up trail cameras in areas where female snapping turtles were known to nest in hopes of capturing successful hatchling emergence. Although we didn't film any hatchling snappers, we did snap photos of some other critters, including beavers, a bobcat, and a fisher! These data will provide us with valuable insight into predators and rates of nest predation in the area. Our team also did several presentations and began developing educational materials to combat myths and reduce threats to this commonly misunderstood species.



American Eel Project

Started in 2008, the American Eel Project is a three-way partnership between Fisheries and Oceans Canada, the Canadian Committee for a Sustainable Eel Fishery Inc., and Coastal Action. In the fall of 2020, our team focused on fishing during rain events when adult eels are migrating downstream in large numbers at East River, Chester. The overall goals this season were to gather biological data, such as eel length and life stage, and to determine





SPECIES AT RISK AND BIODIVERSITY

an age class structure for the East River population. Data are provided to Fisheries and Oceans Canada to better understand impacts of the commercial elver fishery, maintain indices of eel and elver status, study biological characteristics and age class structure, and investigate the abundance and prevalence of an invasive swim bladder parasite, *Anguillicoloides crassus*.

Atlantic Whitefish Project

The Atlantic Whitefish Recovery Project is one of Coastal Action's longest-running projects.

Since 2004, we have been working to conserve Canada's rarest fish species, which is unique to Southwest Nova Scotia and currently only found in three remaining lakes. This spring, we captured and transported a total of 16 larval whitefish to Dalhousie University's Aquatron, where they will support a captive breeding program with the hopes of introducing whitefish to additional lakes in the future.

In the late summer, in partnership with DFO, we spent our nights on Minamkeak, Millipsigate and Hebb Lakes, removing invasive smallmouth bass and chain pickerel using an electrofishing boat. This boat sends small electric currents into the water to stun fish so that they can be captured. Electrofishing is a very efficient method of capturing fish without harming them. This season, we

were excited to capture three adult Atlantic whitefish, which were swiftly released unharmed back into the lake. Wild adult Atlantic whitefish have only been observed twice since 2014, this encounter included. In total, we removed 1,606 smallmouth bass and 984 chain pickerel from critical Atlantic whitefish habitat through angling, trapping, and electrofishing.

In late spring and early fall, in partnership with DFO, we tested out a new method of invasive species removal – floating light traps. These traps have an LED light source



at the top, which attracts some fish and invertebrate species, with the hopes of targeting young-of-the-year chain pickerel and smallmouth bass. Our team was surprised to capture two larval chain pickerel in the early fall – evidence of a second spawning event in addition to the typical spawning time in early spring.

Two separate spawning events could have important implications for assessing the growth rate and spread of the chain pickerel population across the province.



WATERSHEDS & WATER QUALITY

Our Watersheds & Water Quality Team works hard to monitor, assess, and restore the health of our coastal and inland waters. Our water quality monitoring work provides long-term datasets across entire watersheds, protects our waterways from the impacts of development, and ensures public health and safety in recreational waters. Our watershed restoration efforts in degraded aquatic and riparian habitats help to protect the ecological integrity of our watersheds while fostering a sense of stewardship in our local communities.

Water Quality

Our watershed-scale monitoring programs continued to gather valuable information, with a 14-year dataset for the LaHave River watershed and an 11-year dataset for the Petite Rivière watershed. We are proud of how we came together and adapted our procedures and protocols to continue our long-term monitoring work during the pandemic. With careful planning, we were able to continue the volunteer-based monitoring program on Fox Point Lake for the Municipality of Chester. This success demonstrated the continued need for and advantage of citizen science and community-based conservation programs.

We are seeing more and more evidence of how climate change is affecting our aquatic environments. Unpredictable weather that can cause floods or droughts and an increase in algae blooms are growing concerns on local lakes. Our municipally funded monitoring contracts at Fox Point Lake, Sherbrooke Lake, Bayswater Beach, and Rafuse Cove were all initiated by public concern. More and more people are aware of the importance of water quality and how it impacts everyday life; therefore, local community involvement is needed now more than ever. We need community engagement to help protect the aquatic environment.



The Watersheds & Water Quality Team also works in collaboration with other Coastal Action Teams, providing water quality support and analysis for projects such as the Atlantic Whitefish Recovery Project, which aims to protect and restore Canada's rarest fish species. We are excited for continued collaboration and the expansion of our monitoring programs in the coming year.



WATERSHEDS & WATER QUALITY

Watersheds

2020 marked the first year of a five-year fish habitat offsetting project with Nova Scotia Power Incorporated. This project will restore 35,000 m² of fish habitat using methods such as digger logs, deflectors, step-pool enhancement, riparian planting, and catchment liming throughout the LaHave River watershed.

Throughout the 2020 field season, we completed ground-truthing assessments on seven tributaries within the West Branch and Main River Sub-watersheds to identify suitable sites for offsetting. Data such as substrate composition, water quality, riparian health, invertebrate presence, and stream width and depth were used to prioritize seven sites where offsetting activities will occur in 2022. Pre and post-restoration monitoring of factors such as fish abundance and age class, water quality, and habitat suitability will be conducted each year to identify any positive or negative changes linked to the restoration measures.

With funding from the Nova Scotia Salmon Association's Adopt-A-Stream Program and the Government of Canada's Habitat Stewardship Program, we conducted in-stream restoration, fish passage improvement, electrofishing surveys, and habitat suitability assessments in local watersheds. Fish passage improvements included the removal of a large debris jam on a tributary of the West Branch, which improved access to 3,800 linear meters of upstream habitat.

Backpack electrofishing surveys and Habitat Suitability Assessments were conducted in the Main River and West Branch Sub-watersheds to identify Atlantic salmon (*Salmo salar*) and brook trout (*Salvelinus fontinalis*) distribution and abundance.



For a second consecutive year, we spent a day with New Germany Rural High School students introducing them to fish habitat assessments and the importance of native fish habitat protection and restoration. Stewardship and youth education plays a major role in our watersheds and water quality work and we're always happy to see the level of interest and engagement in our local schools.



CLIMATE CHANGE

Our climate change work assists municipalities and towns with creating greenspace through tree planting programs and communicating climate change risks through flood mapping and outreach initiatives. Additionally, we support small-scale farmers in sequestering carbon on their lands through the installation of perennial cropping and grazing systems.

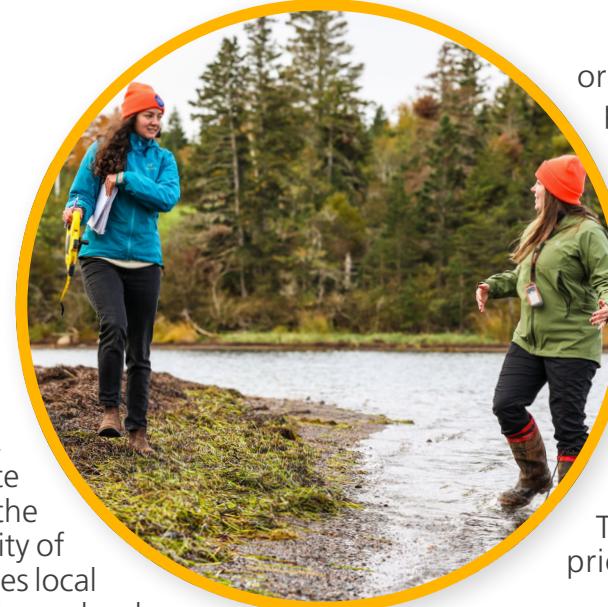
Flood Mapping



In 2020 our team piloted a new project, collaborating with 3D Wave Design to create a 3D interactive flood map-model for the Town of Lunenburg and the community of Blue Rocks. The map-model illustrates local impacts and risks associated with sea-level rise and storm surge to help inform emergency and development planning and accelerate public awareness of climate change risks. The map includes interactive features such as flooding scenarios and adjustable storm surge, sea-level rise, and tide heights. We distributed the map model to NGOs, municipalities, and the general public through three webinars. These webinars showcased the map-model and facilitated discussions about local climate change risks, solutions, and actions. This map-model is publicly available online and includes resources about coastal climate change mitigation and adaptation best management practices. After a successful flood mapping pilot project, we recently acquired funding to create three more flood map-models for coastal communities in Nova Scotia throughout 2021-2024.

Carbon Farming

This year the Climate Change Team continued the Carbon Farming project piloted in 2019 that supports the installation of multifunctional treed and grazing systems on local farms. In 2020, we partnered with Soil Mates Farm and Newbury Hill Farm to plant 1,552 trees and transform approximately five acres ($20,200 \text{ m}^2$) of degraded



or underutilized pasture land into productive agricultural land.

The installed systems included mixed-species windbreak hedges to protect crop fields, mixed species fruit and nut tree silvopasture systems to provide perennial crops and ruminant livestock grazing on marginal, sloped pasture land, and native species planting to help transition Christmas tree lots to productive wood lots.

These systems were designed to prioritize food production, carbon

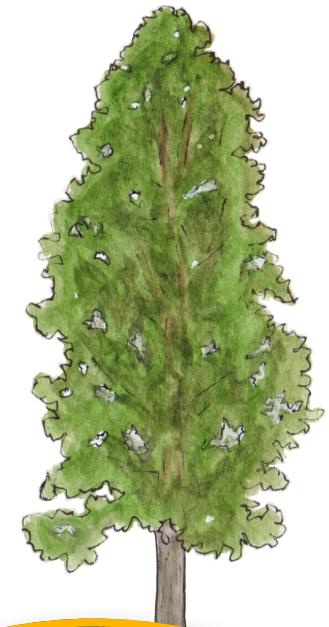


CLIMATE CHANGE

sequestration, and biodiversity, as well as increase the land's capacity to withstand climate change impacts. Some of the tree species included heartnut, chestnut, buartnut, apple, peach, cherry, paw paw, elderberry, mulberry, sea buckthorn, and hemlock. As part of our project outreach activities, we provided two educational webinars to 36 participants and created two videos that feature tours of each treed system as well as interviews with participating farmers.

Community Greening

We partnered with Talking Trees, to deliver a tree planting project at an empty lot in the Town of Mahone Bay. The empty lot had been previously disturbed by human activity, resulting in soil compaction, early ecological-succession stage vegetation, and the presence of various invasive species like multiflora rose. To help restore the site, improve stormwater management, and increase biodiversity, we planted native trees and shrubs like white pine, red maple, serviceberry, bayberry, and larch. A site management plan was developed for dealing with invasive species. We also engaged the general public in the site restoration by hosting three community planting days, where we partnered with 30 local volunteers to plant 150 native trees and shrubs.



ENVIRONMENTAL EDUCATION

Our environmental education programs strive to connect children and youth to nature. Coastal Action delivers a wide variety of education initiatives in hopes of fostering environmental stewardship values and inspiring action in our local communities. Our programming falls under the following three themes: Earth Education, Wellness in the Outdoors, and Youth Leadership.

Earth Education

Many of us have experienced the sense of awe and wonder that comes from spending time in the natural world, especially when you're a kid, and every new place is exciting and undiscovered. Those experiences are memorable and show us how important it is to protect and conserve natural spaces. That is what we try to tap into with the Earth Education programs at the Morton Centre. We utilize unique storylines, props, and characters to build on that feeling of nature being a magical place, introducing environmental concepts to children and youth in a relatable way.

One of the parents said of our programs, "this program has taught my daughter so much about the environment and how important it is to protect it. The best part is that she doesn't even realize how many important things she has learned because the instructors of this program use fun ways to explore and learn that don't make you feel like you are learning. This was her second year doing a summer program with them, and she has already asked 'when do I go back?'"

In 2020, our Earth Education programs included four summer day camps for ages 6-15 and a pilot initiative for a curriculum-linked school program for grades 7 and 8.



Wellness in the Outdoors

In 2020, the Environmental Education Team delivered sessions of the Trailblazers afterschool program and GO Crew: Empowering Girls in the Outdoors program, which both encourage outdoor play and exploration in youth ages 10-15. Time spent outdoors not only helps us to appreciate and understand the world around us, but it can also improve our physical and mental wellbeing. The Trailblazers afterschool program and GO Crew



ENVIRONMENTAL EDUCATION

program provide youth with opportunities to play and recreate outside with their friends. Outdoor games and exploration are fun ways of engaging in physical activity for kids. Getting active in the outdoors and breathing in the fresh air can also benefit our mental health.

Along with heart-pumping running games and activities, our staff facilitate opportunities for youth to spend time sitting silently in natural spaces to reconnect and feel a sense of calm.



One of the parents said about Trailblazers: "My 9-year-old son participated in the Trailblazers program for the first time this year and loved every minute of it! He enjoyed being outside with his friends, learning and building upon skills for outdoor safety and survival, and just having fun in nature. He really enjoyed contributing to the water retention garden in Lunenburg and learning about the positive impacts he can have on the environment. I found the leaders to be very friendly and passionate about what they do. Communication was thorough, consistent and easy. I would recommend this program to anyone and everyone!".

Youth Leadership

Youth are often left out of the conversation when it comes to environmental issues and resource management. Excluding youth not only results in the neglect of innovative ideas and solutions, but it also further cements the disconnect between youth, the environment, and their role in its protection.

We understand that youth have the power to break new ground and make a change when given the right tools, resources, and support. That's why we've expanded our projects that support youth in leading their own environmental initiatives and action



projects. In 2020, our youth leadership programs included Earth Quest, a club for ages 14-16 to explore community-based climate change initiatives through the Roots & Shoots model, and Nova Action, a youth-led cohort of high school students from across the province researching environmental issues in their communities.





HIGHLIGHTS



7,064 kg

Ghost gear retrieved
at-sea.



1,523 km²

Seafloor searched for
ghost gear.



3,574 kg

Marine debris retrieved
on shorelines.



121

Youth participants in
our programs.

2019



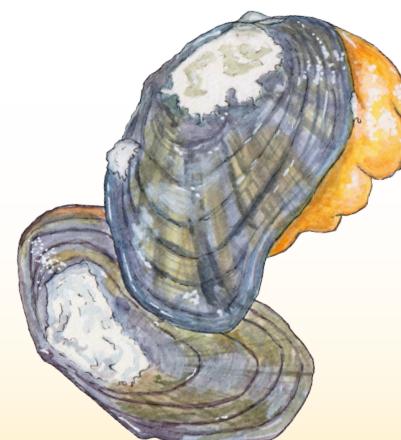
Bursary

Award Winner
Josh Foster



Volunteer

Award Winner
Dr. Alan Warner



2020



Bursary

Award Winner
Robyn Lohnes



Volunteer

Award Winner
John McNeil

We made a mistake, let's blame COVID! We featured our 2020 award winners in the 2019 annual report; therefore, we are highlighting both 2019 and 2020 award winners this year. Didn't want the 2019 recipients to lose out in the glory:

CONGRATULATIONS TO ALL!

FINANCIAL REPORT

BREAKDOWN of FUNDING (year ends March 31)	2020	2021
REVENUE		
Project funding	\$1,090,140.00	\$1,286,757.00
COVID-19 Government Assistance (Note 6)	n/a	\$80,897.00
	\$1,090,140.00	\$1,367,654.00
EXPENSES - Projects		
Salaries and benefits	\$696,889.00	\$821,852.00
Project materials, contract fees, and supplies	\$197,151.00	\$357,991.00
Travel and conferences	\$72,638.00	\$37,987.00
Equipment purchases (Note 3c)	\$6,232.00	\$33,395.00
Bad Debts	\$3,795.00	n/a
	\$983,753.00	\$1,251,225.00
EXPENSES - General Operations		
Legal, audit, and accounting fees (Note 8)	\$7,525.00	\$42,735.00
Rent and building expenses (Note 7)	\$36,509.00	\$41,456.00
Telephone and utilities	\$7,583.00	\$10,034.00
Office and administration	\$10,534.00	\$16,275.00
Bank charges	\$2,419.00	\$3,901.00
Human Resources and Workplace Training	\$7,048.00	\$20,707.00
Insurance	\$15,655.00	\$15,829.00
Advertising, website, and promotion	\$15,074.00	\$8,430.00
	\$95,299.00	\$159,367.00
	2020	2021
TOTAL EXPENSES	\$1,079,052.00	\$1,410,592.00
NET SURPLUS (deficit) - for year	\$11,088.00	(\$42,938.00)
NET ASSETS - beginning of year	\$109,498.00	\$120,586.00
NET ASSETS - end of year	\$120,586.00	\$77,648.00

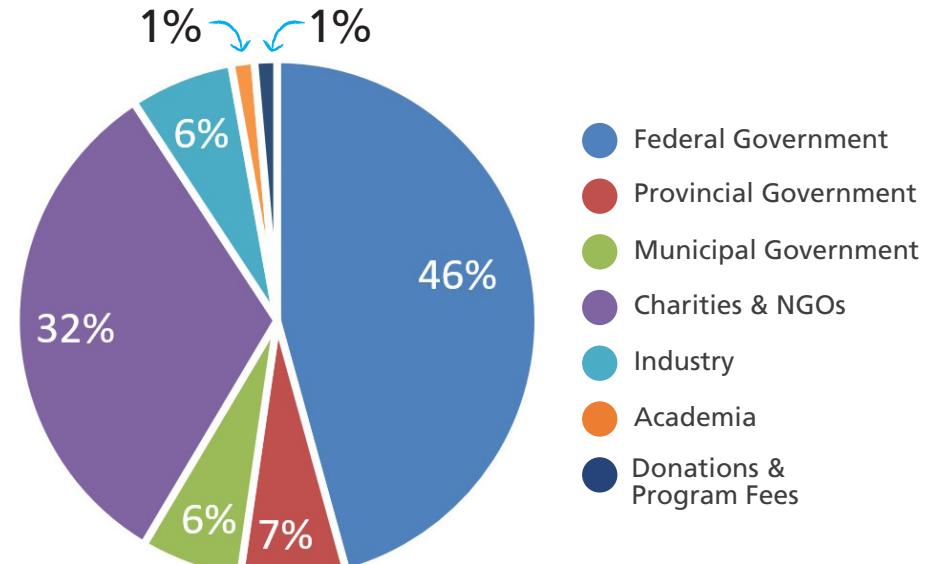


Figure 1: 2020-21 Coastal Action breakdown of revenue.

REVENUE OVER TIME

In our 3-year strategic plan (2019-2021), Coastal Action prioritized increasing and diversifying revenue with a goal of \$1M by the end of the 2020-2021 fiscal year.



DONATIONS

When you donate to Coastal Action, you're helping to conserve the species and ecosystems that make southwest Nova Scotia such a special place, as well as supporting our environmental education and outreach efforts. Over 95% of all donations go directly towards our environmental programming.

Tax receipts will be issued for donations exceeding \$10. Please include a return address on all correspondence in order for a receipt to be sent. For more information, contact the Coastal Action office at (902) 634-9977.

DONATIONS CAN BE MAILED TO:

Coastal Action
Mahone Bay Centre
45 School Street, Suite 403
PO Box 489
Mahone Bay, NS BOJ 2E0



THANK YOU

Once again, Coastal Action would like to thank the many partners and volunteers who help make our work a success; all our great environmental efforts and achievements would not be possible without you! We are extremely grateful for the continued support from our board members, staff, volunteers, and partners, especially during this ever-changing and unprecedented year of COVID-19! From the smallest contribution to the largest donation, every bit counts and is greatly appreciated. Thank you, in particular, to our board members and staff who worked tirelessly to continue to build on our impressive mark from last year, now making 2020-21 our new most successful year to date, and to our partners and funders who made it all possible. Coastal Action management is very proud of how our team not only survived this past year but rallied around each other to adapt and excel in the face of much confusion, uncertainty, and constant change. We do have the best team!





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