

REPORT



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MESSAGE FROM THE DIRECTOR

Coastal Action is excited to be celebrating our 25th year! Looking back over my time with the organization so much has changed. The organization has grown and matured considerably, and I can speak on behalf of both the staff and the board when I say we are all so proud of our successes and achievements. I hope readers enjoy this 25th Anniversary edition of our Annual Report which provides a quick snapshot of past milestones and accomplishments; reminiscing was a lot of fun! One of Coastal Action's greatest accomplishments has been the number of staff who have come and gone through our doors; we have many alumni scattered throughout government, academia, and the private sector. I hope you all continue to support us for the next 25 years!

Brooke Nodding Director, Coastal Action

& Breeke Ned

BOARD OF DIRECTORS

Kelly Wilson, **Chair**Chip Veinotte, **Vice-Chair**Jeremy Hopkins, **Treasurer**Sharon Church
Kirk Symonds
Andre Veinotte

Mike Allen Brian Gilbert Errol Knickle Karl Nauss John McGee





Brooke Nodding EXECUTIVE DIRECTOR



Shanna Fredericks ASSISTANT DIRECTOR



Molly LeBlanc SPECIÉS AT RISK & BIODIVERSITY TEAM LEAD



Clare Kellock CLIMATE CHANGE & EDUCATION TEAM LEAD



Ariel Smith COASTAL & MARINE TEAM LEAD



Sarah MacLeod WATERSHEDS & WATER OUALITY TEAM LEAD



Jennifer McKinnon GRAPHIC DESIGNER & FIELD TECHNICIAN



Emma Kinley FIELD OPERATIONS LEAD



Sam Reeves WATERSHEDS PROJECT COORDINATOR



Samantha Battaglia STORMWATER MANAGEMENT PROJECT COORDINATOR



Kaitlyn Harris ENVIRONMENTAL EDUCATION PROGRAMS COORDINATOR



Taylor Creaser COORDINATOR



Shawn Feener AMERICAN EEL PROJECT INVASIVE SPECIES PROJECT COORDINATOR



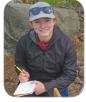
Andy Breen ATLANTIC WHITEFISH PROJECT COORDINATOR



Melissa Risto ATLANTIC WHITEFISH FISHERIES TECHNICIAN



Philip Longue ATLANTIC WHITEFISH FISHERIES TECHNICIAN



Kaylee MacLeod INVASIVE SPECIES FIELD TECHNICIAN



Bailey Silver AMERICAN EEL FIELD TECHNICIAN



Julia LeBlanc OUTDOOR ADVENTURE COORDINATOR



Anna Murphy STORMWATER MANAGEMENT FIELD TECHNICIAN



Spencer Coulstring WATERSHEDS PROJECT FIELD COORDINATOR



Alexa Goodman COASTAL & MARINE FIELD TECHNICIAN



Simon Inness WATERSHEDS PROJECT FIELD TECHNICIAN



Katherine Waterbury ENVIRONMENTAL ARTS COORDINATOR



Sarah MacKenzie WATERSHEDS PROJECT FIELD TECHNICIAN



Scott McIlveen OUTDOOR ADVENTURE COORDINATOR



Sally Rees YOUTH PROGRAM RESEARCHER & FACILITATOR



Stella Bowles NOVA ACTION YOUTH LEADER

COASTAL AND MARINE

Our Coastal & Marine Team works to protect ocean wildlife and habitat by focusing on the critical issue of marine debris, researching its impacts, and supporting individual and sectorbased behavioural changes to protect our oceans from further pollution. 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

In the Fall of 2019, we completed the sampling portion of our Atlantic Canada Microplastic Research Project (2017-2020).

This project was funded by Environment and Climate Change Canada's Atlantic Ecosystem Initiative. We worked with partners Clean Annapolis River Project (CARP) in Nova Scotia and ACAP Humber Arm in Newfoundland to determine the quantity and type of plastics in three nearshore environments in Atlantic Canada. This work included sampling both surface water and shoreline sediment at all three study locations. Memorial University's Civic Laboratory for Environmental Action Research's (CLEAR) low-aquatic debris instrument (LADI) design was used to build the surface water trawling equipment.

Over the two years of data collection, Coastal Action and partners collected 42 surface water samples and 84 sediment samples from 14 sites across the study areas. Plastics were analyzed and categorized by Dr. Max Liboiron's CLEAR team and then shipped to Surface Science Western (University of Western Ontario) for Fourier-transform infrared spectroscopy (FTIR), which determines polymer type. Plastics between 1 mm and >25 mm were found at all locations, with microplastics (1-5 mm) most abundant. The types of plastics found can be linked to disposable single-use plastic materials, fishing debris, and synthetic clothing fibers.

Project results were communicated at the Clean Ocean Summit in November 2019 in Halifax, NS, during a panel discussion hosted by Coastal Action titled 'Microplastic Sampling in Your Community.' At this conference, Coastal Action participated in the Microplastic Working Group, a group that met monthly with our organization's leadership the following year. Data from this project is used to better inform the conversation and solutions around plastic pollution in the region. Reports for 2018 surface water



COASTAL AND MARINE

quantities and polymer type (FTIR), as well as 2018 sediment data for two locations (Bay of Fundy and LaHave), are available on our website. Coastal Action is currently working with partners on a peer-reviewed scientific article.

Ocean Friendly Nova Scotia Pilot Project

Ocean Friendly Nova Scotia (OFNS) is a voluntary program that recognizes businesses reducing single-use plastics at their establishments. The program uses a tiered recognition system (bronze, silver, gold) for foodservice businesses (cafés and restaurants) focused on eliminating eight

types of single-use plastics: straws, bags, bottles, cutlery, Styrofoam (cups, plates, to-

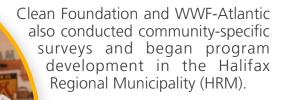
go containers), to-go containers, to-go cups and lids, and condiment packages/containers.

These categories have been identified as major pollutants across highways, towns, and shorelines by several groups (e.g., The Great Canadian Shoreline Cleanup, Nova Scotia Pick-me-up, and Divert NS). These items inevitably make their way to freshwater and marine habitats, impacting wildlife via ingestion and entanglement.

The OFNS program differs from other environmental recognition systems as it allows local businesses to choose items they would like to eliminate, with a goal of zero disposable plastics used. This voluntary approach gives businesses ownership over the transition to plastic-free, decreasing the financial burden associated with making the switch. The OFNS program provides environmental consultation

and collaborates with stakeholders to ensure that businesses and customers are provided with sufficient resources and support throughout the process.

In the summer of 2019, Coastal Action rolled out our pilot year of the program in the Town of Lunenburg, funded by Nova Scotia Environment. During this pilot year, we met with 15 businesses, collecting data through in-person surveys. Seven cafés and restaurants in Lunenburg officially joined the program in 2019. Our partners at the





SPECIES AT RISK AND BIODIVERSITY

Our Species at Risk & Biodiversity Team works towards the recovery of threatened species, including the Atlantic whitefish, American eel, and Southern Upland Atlantic salmon, and focuses on removing invasive species such as chain pickerel and smallmouth bass. Our team conducts assessments and restoration of wetland habitat, as well as participates in the Kespukwitk Conservation Collaborative; an initiative focused on biodiversity conservation in Southwest Nova Scotia.





This year, we concluded our three-year LaHave River Invasive Species Project. We evaluated predation pressure from smallmouth bass and chain pickerel on Atlantic salmon smolt during their seaward migration in the LaHave River watershed. In year 2 of the project, we tagged nearly 500 chain pickerel and smallmouth bass, to estimate population sizes in Wentzells Lake. In 2019, we analyzed over 150 stomach content samples from invasive fishes and found that smolt were the most abundant prey in chain pickerel, whereas dragonfly nymphs were the most abundant prey in smallmouth bass. These results confirm that these invasive fish, in particular chain pickerel, prey on Atlantic salmon smolt.

American Eel

Coastal Action has been part of a collaborative project studying American eel since 2008. This project is a three-way partnership between Fisheries and Oceans Canada and the Canadian Committee for a Sustainable Eel Fishery Inc., with the goal of monitoring the abundance and harvesting of American eel in this region. Taking place in East River, Chester and Oakland Stream in Mahone Bay, the study gathers data about both elver (baby eel) and silver (adult) eel during their respective up and downstream migrations. Our Elver Abundance Study is a continuation of



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SPECIES AT RISK AND BIODIVERSITY

In spring 2019, our team captured and measured an estimated 1,479,336 elver and 1,889 juvenile eel. During the fall, the team spent 149 days in the field, tagging 425 silver eel, and of those, 18 were recaptured as part of a mark/recapture study. We also found that 57 of our 72 sacrificed eel were infected with the swim bladder parasite, *A. crassus*. This year we partnered with Carrie Michael from the Mi'kmaw Conservation Group.

Carrie joined us for three weeks in the spring during

elver season and then again in the fall for silver eel season to learn about our study. MCG plans to monitor eel abundance in the Gulf Region, using a two-eyed seeing approach.

Canada'. This area, also known as the Mi'kmag region of Kespukwitk, is home to several species at risk and considered a biodiversity hotspot. In 2018, the conservation community in southwest NS, led by Environment and Climate Change Canada, joined forces to form the Kespukwitk Conservation Collaborative. Coastal Action is excited to continue our work under this adaptive management framework and build partnerships to address species-at-risk conservation in our region.

Atlantic Whitefish

Coastal Action has been working to protect and restore Canada's rarest fish species since 2004 in partnership with the Atlantic Whitefish Conservation and Recovery Team and DFO. Collections of larval Atlantic whitefish from the wild continued in 2019, with fish being transported to Dalhousie University's Aquatron. This year we transported 88 larval whitefish and a 1-year-old juvenile whitefish to the Aquatron to join the others collected in 2018. The goal is to conduct a captive breeding program that will translocate Atlantic whitefish to a new habitat free of chain pickerel and smallmouth bass. This spring, we were thrilled to see three adult Atlantic whitefish in one of our rotary screw traps! These fish were safely released back into the lake.

In addition, we removed 801 smallmouth bass and 124 chain pickerel from critical Atlantic whitefish habitat through angling, traps, and monitoring of a fishway.

Kespukwitk Conservation Collaborative

Southwest Nova Scotia has been identified as a 'Priority Place' by the Federal government's 'Pan-Canadian approach to transforming Species at Risk conservation in



WATERSHEDS AND 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.

In addition to our regular monitoring programs, water quality activities often spill over into our other teams and projects, whether its investigating candidate lakes for Atlantic whitefish translocation or assessing the ecosystem services of a wetland. Our teams do their best work when they're collaborating!



We have observed a growing interest in water quality issues across the south shore region of NS in recent years. Frequent inquiries from both stakeholders and the public highlight the importance of monitoring water quality and making that information available for everyone. The impacts of climate change on our lakes and rivers are already being observed; higher temperatures, along with more extreme and unpredictable weather events, will affect rainfall, snowmelt, river flows, and groundwater. Higher temperatures will also cause a decrease in water quality in surface water along with eutrophication and harmful algal growth. Having vital water quality information available will allow for informed decisions to be made.

We strongly believe in sharing and communicating this data effectively to empower our local communities through improved science literacy while supporting collaborative decision-making. As such, we are proud to contribute our water quality data to the Atlantic DataStream, an open-access, datasharing platform that hosts data from over 20 monitoring groups across Atlantic Canada. Through this platform, the public can now access Coastal Action's long-term monitoring datasets for the LaHave River and Petite Rivière watersheds, as well as our municipally contracted lake monitoring programs at Sherbrooke Lake and Fox Point Lake.



Watersheds

Our watershed restoration efforts focus on improving stream and riparian habitats to support our endangered Atlantic salmon and other native aquatic species. The Southern Uplands Atlantic Salmon Designatable Unit, a group of salmon populations whose natal rivers stretch from Canso, along the Atlantic Coast, and into the Bay of Fundy, has suffered drastic declines of 88-99% since the 1980s.

With only 95 adult salmon returning to the LaHave River in 2018, our work focuses on reducing the pervasive threats of invasive fish species and habitat fragmentation in this

important watershed.

In 2019, this work included restoring 900 m² of steppool habitat; improving fish passage through four culverts, providing access to over 12,000 m of stream habitat for trout and salmon; enhancing 270 m² of stream-side habitat through tree/shrub plantings; and assessing over 20 stream crossings to identify barriers to fish passage. These restoration activities help to improve the quality of cold-water refuge and spawning habitats for native fish,

while reducing the impacts of habitat fragmentation.

We're always seeking new opportunities to engage our local communities in protecting watershed health and place great importance on fostering our next generation of environmental stewards. Over the course of three days in 2019, we introduced 75 students from New Germany Rural High School to some hands-on environmental assessment and restoration work. Students learned how to conduct fish habitat and benthic invertebrate surveys and assisted with in-stream restoration work in a local stream. These experiences help to introduce students to careers in science and the exciting realities of environmental field work





CLIMATE CHANGE AND EDUCATION

Our climate change work supports our local institutions and municipalities in managing stormwater through green infrastructure initiatives and helps small-scale farmers sequester carbon on their lands through silvopasture and perennial cropping systems.

Green Infrastructure

In 2019, our team hosted 11 community planting days to install 19 small-scale nature-based infrastructure projects, including bioswales, living shorelines, vegetated buffers, and rain gardens. We partnered with over 300 volunteers

collectively from the Town of Shelburne, NSCC Lunenburg Campus, Bridgewater Junior High School, the Mahone Bay Centre, the South Shore Waldorf School, and Forest Heights Community School to plant 1,273 plants and transform over 8,100 square feet of land into small-scale nature-based infrastructure to help manage stormwater runoff.

Carbon Farming

This year the Climate Change and Education Team piloted a new agricultural project featuring the installation of multifunctional treed and grazing systems on two local farms. Together with Sweet Fern Farm and Wayward Farm, we supported the planting of 1,042 woody perennials and trees and transformed approximately nine acres (36,500 m²) of degraded or underutilized pasture land into productive agricultural land.

These systems were designed to prioritize food production, carbon sequestration, and biodiversity, as well as increase the land's capacity to withstand climate change impacts.

Home Stormwater Management and Water Conservation

We partnered with the Clean Annapolis River Project (CARP) this year to deliver





CLIMATE CHANGE AND EDUCATION

Our environmental education programs strive to connect 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.

Morton Centre Environmental Education Programs

Each year we lead several environmentally themed programs at the Morton Centre, a beautiful 99-acre property located on Heckman's Island, just outside of Lunenburg. In 2019, we

engaged 434 participants in programs including a grade 2 program called Shapeshifter

Search; four day camps for youth ages 6-14; two family nature events; a grade 4 program

called Cycle Savers with a leadership component

for youth ages 15-18; and a few special one-time events for local groups such as Girl Guides of Canada, Scouts Canada, and Duke of Edinburgh Award.

Trailblazers After-School Program

We began a chapter of the Trailblazers After-School Program in spring 2016 for students in grades 6-9 at Bluenose Academy. The program focuses on encouraging youth to be active and playful while also learning wilderness and leadership skills. In spring and fall of 2019, we delivered Trailblazers to 72 students at Bluenose Academy, New Germany Elementary, and Pentz Elementary.

Sustainable Food Program Curriculum

In 2019, our team was approached by the Nova Scotia Health Authority to develop a curriculum-linked program that incorporated concepts of sustainable agriculture and climate change for grade 7-8 students at the Ross Farm Museum. The curriculum design phase began in 2019, and the program will be piloted in 2020.



Nova Action is a youth-led environmental initiative that started in 2019. A determined group of ten youth from across Nova Scotia joined the Nova Action Cohort intending to make change in their own communities. These youth, representing communities in Cape Breton, the Fundy Shore, Halifax, the Annapolis Valley, and the South Shore, will each be researching an environmental issue in their community and sharing what they find in 2020 and 2021.



HIGHLIGHTS





2,315Number of individual plants planted.



454
Children who participated in environmental camps and programs.



7,372Coffee cups diverted from landfills.



donated their time.

925

Invasive fishes removed from critically endangered Atlantic whitefish habitat (801 smallmouth bass and 124 chain pickerel).



Bursary

Award Winner

Robyn Lohnes



Volunteer

Award Winner

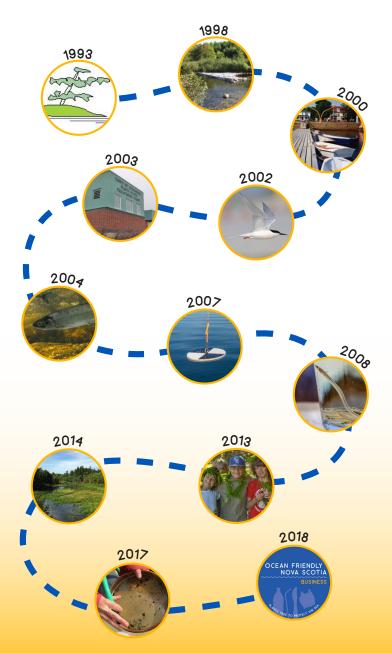
John McNeil

4,831 m³
Stormwater runoff diverted.

600 kg
Toxins removed from stormwater runoff.

126
Microplastic samples collected from 14 sites in Atlantic Canada.

HIGHLIGHTS OVER 25 YEARS



1993: Humble Beginnings Bluenose Atlantic Coastal Action Program (Bluenose ACAP or BACAP) was formally recognized as a registered charity on December 29, 1993 to address the lack of sewage treatment in the Town of Lunenburg.

1998: Mushamush Restoration Instream fish habitat restoration was an ongoing priority within the Mushamush River watershed. Initiated during the 1998 field season, the organization installed 150 digger logs, 30 deflectors, six rock sills, four crib walls, and conducted 15 dam removal projects.

2000: Clean Boating Between 2000-2005, the organization successfully installed four sewage pump-out facilities for boaters in the Towns of Mahone Bay, Bridgewater, Lunenburg, and the Village of Chester. During that time, 1,095 boats pumped out approximately 153,300 L of raw sewage, diverting it from local waters.

2002: Roseate Tern From 2002-2012, the organization, now Bluenose Coastal Action Foundation (BCAF), was dedicated to the recovery of the endangered Roseate tern (and their habitats) all throughout Mahone Bay, with focused efforts on Quaker, Grassy, Westhaver, Gully, Crow, and Pearl Islands.

2003: Lunenburg Sewage Treatment September 12, 2002, a great day! The organization celebrated the grand opening of the Lunenburg Wastewater Treatment Facility on Starr Street in the Town of Lunenburg.

2004: Atlantic Whitefish Recovery Project BCAF was formally asked to participate on the Atlantic Whitefish Conservation & Recovery Team, focusing first on raising awareness of the species, while later, more dedicated research and monitoring activities concentrated on Atlantic whitefish and their invasive predators.

2007: LaHave River Water Quality Monitoring The LRWP was initiated in 2007 in response to increasing public concern for the health of the LaHave River with a goal to identify and reduce harmful environmental impacts within the watershed. Now in its 14th year, the LaHave water quality monitoring program has become one of the strongest, longest-running water quality datasets in Atlantic Canada.

2008: Elver Abundance Study A partnership between DFO and CCSEF formed to continue studying the elver population within East River-Chester. An important ongoing study providing valuable data to the federal assessment process for the potential listing of the American eel as an endangered species in Canada.

2013: Morton Centre Summer Camps The organization begins offering environmental education programs to build connections between young people and the natural world, foster a sense of environmental stewardship in our youth and local communities, and address the lack of environmental programming in schools.

2014: Shale Pit Remediation Starting in 2014, and culminating in 2016, Coastal Action successfully transformed an abandoned shale pit mine within the Petite Rivière watershed into a beautiful functioning 1-ha wetland for the purposes of addressing poor water quality conditions in the area.

2017: Microplastics Project A three-year collaborative project focused on quantifying microplastics in both surface water and sediment in three near-shore rural communities within Atlantic Canada; LaHave River/Islands, Bay of Fundy, and Bay of Islands. Resulting data used to better inform solutions to plastic pollution in the region.

2018: Ocean Friendly "Plastic free to protect the sea!", the tagline for Coastal Action's business recognition program for the elimination of single-use plastics in the food service/hospitality sector. Seven businesses participated in this first pilot year of the program.

FINANCIAL REPORT

BREAKDOWN of FUNDING (year ends March 31)	2020	2019
REVENUE		
Project funding	\$907,079.00	\$780,331.00
Donations and fundraising	\$183,061.00	\$89,369.00
	\$1,090,140.00	\$869,700.00
EXPENSES - Projects		
Salaries and benefits	\$696,889.00	\$501,075.00
Project materials and supplies	\$190,809.00	\$181,953.00
Travel and conferences	\$72,638.00	\$64,408.00
Bad Debt	\$3,795.00	
Equipment purchases	\$6,232.00	\$26,115.00
Training	\$7,048.00	\$22,430.00
Insurance	\$15,655.00	\$8931.00
Advertising and promotion	\$15,074.00	\$17,891.00
	\$1,008140.00	\$821,637.00
EXPENSES - General Operations		
Audit and accounting fees	\$13,867.00	\$7,775.00
Rent and building expenses	\$36,509.00	\$6,649.00
Telephone and utilities	\$7,583.00	\$6,602.00
Office and administration	\$9,561.00	\$6,368.00
Bank charges	\$2,419.00	\$2,185.00
Board expenses	\$973.00	\$1,561.00
Director liability insurance	\$0.00	\$1,166.00
	\$70,912.00	\$31,140.00
TOTAL EXPENSES	\$1,079,052.00	\$937,426.00
NET SURPLUS - for year	\$1,459.00	\$12,338.00
NET ASSETS - beginning of year	\$173,539.00	\$161,201.00
NET ASSETS - end of year	\$174,998.00	\$173,539.00

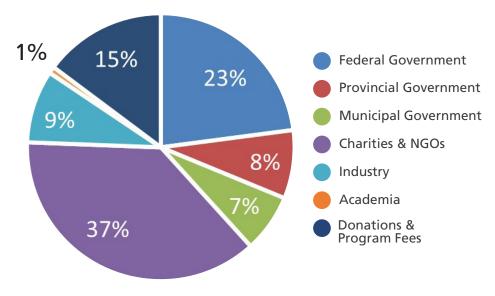


Figure 1: 2019-20 Coastal Action breakdown of revenue.

REVENUE OVER TIME

In our 3-year strategic plan (2018-2021), 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 2EO



THANK YOU

Once again, Coastal Action would like to thank the many partners and volunteers who help make our work a success; all of our great environmental efforts and achievements would not be possible without you! We are extremely grateful, not only for all the support received throughout the 2019-20 fiscal year, but for all the support received over the past 25 years as well! 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 2019-20 our new most successful year to date, and to our partners and funders who made it all possible.



