



Ducks Unlimited Canada



Conserving Nova Scotia's Wetlands through Education NSHCF16-12 Final Report 2016/2017 School Year

Submitted to:

Habitat Conservation Fund

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Conserving Nova Scotia's Wetlands through Education

NSHCF16-12 Final Report

2016-2017 School Year

1. Executive Summary

Ducks Unlimited Canada was able to deliver wetland education during the 2016-2017 school year through DUC's Project Webfoot, Wetland Centre of Excellence (WCE), youth group education programs, attending conferences, and through hosting public community events. DUC's wetland education programs in Nova Scotia would not be possible without the support of organizations such as the Nova Scotia Habitat Conservation Fund.

DUC has continued to work closely with school staff at Nova Scotia's first Wetland Centre of Excellence, Somerset and District Elementary School (SDES). All SDES students participated in several wetland conservation action projects, which included in-class education programming and guided field trips to Hutt's Marsh, a newly designated stewardship wetland site closer to the school. The Nova Scotia Habitat Conservation Fund directly funded the field equipment and education materials that will continue to benefit the 157 students at SDES and numerous community groups and partners.

In addition to evolving the WCE program in N.S., your support also allowed us to reach a total of 39 classes (906 students) in Nova Scotia through Project Webfoot. The Nova Scotia Habitat Conservation Fund directly funded bussing subsidies, field trip delivery costs, and education resources for many of these classes along with their teachers and family members' to engage in experiential learning in wetland education.

Wetland Centre of Excellence and Project Webfoot field trips were scheduled during the fall of 2016 and spring of 2017, with each field trip session lasting from 2 to 2.5 hours. Field trips were offered at 3 sites this year and involved 1 full time Ducks Unlimited Canada staff, 1 Ducks Unlimited Canada summer student, and 2 delivery partners: Friends of the Cornwallis River Society (Miner's Marsh, Kentville), and the Shubenacadie Provincial Wildlife Park (Shubenacadie). Classes participated in hands-on activities, such as bird watching, dipping for and identifying aquatic invertebrates with nets, nature hikes, and playing curriculum-linked ecology-based games. The hands-on element of the program gave youth the opportunity to fully experience a wetland, forming lasting memories and instilling an appreciation for these natural habitats that we were lucky enough to see in our feedback process.

The total number of students reached through the Project Webfoot and Wetland Centre of Excellence programs was approximately 1,063 students (906 PW, 157 WCE). DUC reached an additional ~5,000 youth and members of the public through education outreach programs at our Shubenacadie interpretive centre, community events, and trade shows.

Feedback forms assessed Project Webfoot on three categories; administration (registration), resource kit, and field trip experience. All categories indicated a high level of student and teacher satisfaction with the Project Webfoot program. On a 5 point rating scale (excellent, good, average, poor, very poor), 100% of respondents in Nova Scotia rated the overall field trip program and resource kits in terms of educational value as either "excellent" or "good". With the exception of 1 class, all classes reported that the bus subsidy assisted with the travel to their

field site (this one class was able to walk to their site). We consider all feedback when planning to improve the program for future years.

2. Project Goals and Objectives

Goal:

Wetlands are one the most productive ecosystems on earth, providing benefits to wildlife and humans alike. Wetlands provide us with clean drinking water, are a habitat for thousands of species (many of which are at risk in Canada), and mitigate the negative effects of climate change through carbon storage. Despite these valuable benefits, wetlands continue to be at risk of loss and degradation from misuse, urbanization, and industrial expansion.

Educating youth about wetlands, waterfowl, and wildlife is a big part of DUC's mission. To protect and sustain the health of precious natural resources like wetlands and watersheds, we need to provide young people with the opportunities to understand conservation concepts and practices, and empower them to make a difference in their own communities. DUC aims to increase youth awareness about the importance of wetlands, instill values that benefit conservation goals, and provide opportunities for families and community organizations to take on their own learning and action projects. See Appendix A for photos from the 2016/2017 Wetland Education year.

Result:

Despite the multifaceted value of wetlands (both environmentally and economically), their importance is not always fully appreciated or understood by the public. Through education and awareness, youth and members of the broader public can both better understand why wetland conservation work is important and how they can become involved to take action. DUC provides invaluable hands-on opportunities to develop environmental literacy and to form lasting values that can result in these desired behavior shifts. DUC staff have seen first-hand how passionately student's talk about the natural world after a Wetland Education program, or the impressive array of information they retain after a field trip. The 2016/2017 school year was one of meaningful reflection for DUC, as we reviewed the successes of Project Webfoot over the years, grew our only Wetland Centre of Excellence into a hub of outdoor learning, and initiated a strategic planning process that will identify outstanding gaps or inefficiencies in running these connected but distinct programs. It is our goal to improve our Wetland Education program for next year by reflecting on the successes made possible by supporters like the Nova Scotia Habitat Conservation Fund.

The results of DUC's 2016/2017 wetland education program are outlined below, followed by a briefing on the longer term results witnessed by the program to provide context and meaningful assessment. The results of individual programs, including Project Webfoot and the Wetland Centres of Excellence, are outlined in the review of objectives below.

2016/2017 School Year Objectives:

Objective 1) Successfully raise enough funds to and deliver wetland education programs to 50 classes (over 1,800 students) throughout Nova Scotia, who will receive an education resource kit as well as participate in a hands-on wetland field trip in their community.

Result: During the 2016/2017 school year, DUC was able to deliver wetland education programs to 56 classes and over 1000 students in Nova Scotia. 39 of these classes were Project Webfoot participants, many of which received both in-class resources and a field trip to a wetland interpretive site. Project Webfoot participants that did not receive an in-class kit belonged to large schools where complete attendance at field trip events was prioritized over kit distribution. All 7 classes at the Somerset and District Elementary School WCE participated in two field trips to their

new wetland site, Hutt's Marsh, in the fall of 2016 and spring of 2017. We feel the delivery of these programs meets the goals set out in Objective 1. See the tables in the financial section for a list of classes participating in Project Webfoot activities and sponsored by the Habitat Conservation Fund.

Objective 2) Deliver two teacher workshops through conferences or professional development opportunities.

Result: DUC was successful in attending two teacher workshops while also providing additional professional development opportunities through the Wetland Centre of Excellence program.

DUC Education staff attended the Association of Science Teachers conference in Halifax, N.S. (Oct. 23/16) where we were able to provide attendees with materials and resources on how to incorporate wetland education into their classes. Our DUC Education Specialist delivered the "Investigating Amazing Aquatic Life" workshop to attendees at the 2017 EECOM conference in Wolfville Nova Scotia (May 17-21), teaching other environmental educators how to conduct a critter dipping program in a safe, interactive, and informative way.

Additionally, the Education Specialist attended regular meetings at Somerset and District School WCE to engage teachers in the program and determine school needs and wants for action projects, education material, and class visits.

Objective 3) Deliver a wetland education program to five community youth groups.

Result: Through partnership with the Department of Natural Resources, DUC was able to reach 5 community youth groups, including day and night time programs with Scouts, Cubs, Beavers, Guides, and Brownies at Shubenacadie Wildlife Park.

Objective 4) Continue to partner with Somerset and District School as a WCE and support them in their wetland conservation and stewardship projects at their local wetland in Somerset.

Result: Somerset and District Elementary School WCE is well on its way to becoming a strong hub of wetland education and action project activity in Nova Scotia. In 2016/2017, the WCE required fewer meetings with DUC to bring teachers and partners up to date with training and instead focused on delivery of educational programs to all classes in the school. Together, the WCE and DUC delivered 14 field trips to the new interpretive features at Miner's and Hutt's Marshes, also implemented in 2016/2017. Miner's Marsh is now the site of a new dipping dock and Hutt's Marsh recently completed construction of a new outdoor classroom and trail network the WCE students and broader Somerset community will be able to enjoy for years to come. The WCE was also provided with new materials for their wetland room, including binoculars, dipnets, and owl pellets, to supplement in-class resources and lesson plans.

Objective 5) Support the Greenwing Legacy Interpretive Centre as a hub for wetland education. This will involve assisting with education development and delivery.

Result: DUC again participated in the annual Groundhog/World Wetlands Day event organized in collaboration with DNR. Over 200 people visited the park during the event, many stopping at the Wetland Centre for family-friendly programming and interactives. Our annual Duck Day event attracted again over 200 people and featured nature-themed crafts, nest box building, and critter dipping. DUC also ran 10 programs for schools outside the Project Webfoot and WCE programs,

at Shubenacadie Wildlife Park, and over the year trialed 3 new pilot programs for school groups at the Wetland Centre; All About Owls, Wetland Mysteries, and Owl Pellets.

Objective 6) Engage with three community organizations through partnerships, resources and training to deliver wetland education initiatives throughout the province.

DUC believes building partnerships with like-minded organizations to work towards a common goal (in this case, wetland conservation and education) creates a stronger education program all in support of the Nova Scotia Wetland Policy.

During the 2016/2017 school year, we partnered with the Shubenacadie Provincial Wildlife Park, Friends of the Cornwallis River Society, Somerset and District School, and Tantramar Wetlands Centre to provide resources and training to participate in and deliver wetland conservation education through the Project Webfoot and Wetland Centre of Excellence programs.

Additionally, with increased staffing in Nova Scotia, DUC has connected with many more organizations. This includes involvement with the Nova Scotia Environmental Network (Environmental Education caucus), public events such as the DNR Woodlot owner of the year award, NS Envirothon, DUC Duck Day Celebration, and World Wetlands Day (in conjunction with Groundhog Day) at the Shubenacadie Provincial Wildlife Park.

Objective 7) Install a floating dock to serve as a safe interactive space for students to participate in the wetland field trip activities such as ‘critter dipping’ where students learn about the biodiversity of wetlands at Miner’s Marsh in Kentville.

The Miner’s Marsh dipping dock was completed in May 2017 and hosted 12 classes over 2016/2017 exploring aquatic invertebrates and water quality science. The project was completed in collaboration with a number of community partners, including the Town of Kentville and the Cornwallis Headwaters Society.

Long Term Objectives:

- Conserve wetlands by ensuring their values are apparent to both youth and the general public.
- Encourage Nova Scotians to take action to conserve wetlands throughout their lives. This can be done by simple sustainable actions, or becoming advocates for wetlands at risk in their own communities.
- Continue to financially support our education initiatives through corporate, individual and foundation sponsors.

Long term objectives of DUC’s education programs are measured through supporting the Nova Scotia Wetland Conservation Policy and quantified by the number of wetlands that have been restored, conserved, or managed for protection in Nova Scotia.

3. Description of Activities Completed

2015/2016 School Year Program

Wetland Centre of Excellence Task:	Period:
Continue to support the Somerset and District Elementary School Wetland Centre of Excellence by hosting meetings, training events, and collaborating on action project plans and field trip delivery.	September 2016
Implement infrastructure needs at wetland field trip destination sites (Hutt's and Miner's Marshes)	May 2017 and Oct 2017, resp.
Provide WCE with new materials for Wetland Room at SDES (Owl Pellets, Binoculars)	June 2017
Built partnerships with the local community groups such as Green Schools Nova Scotia and the DUC Valley Chapter in the area of the WCE for their involvement in the program. Continue to build relationships with members of the Nova Scotia Environmental Network, EECOM, and other networking groups.	Throughout school year
Project Webfoot Tasks:	Period:
Contact education partners (Shubenacadie Wildlife Park, Friends of the Cornwallis River Society) and provide them with field trip resources. Confirmed contracts and staffing. Received updates on their projects.	September 2016 - March 2017
Contacted schools to register for the program and provided them with their pre field trip education kit for teachers to use before their wetland field trip.	September 2016 - April 2017
Delivered NS PW classes via DUC staff and education partners to three sites (Shubenacadie, Kentville, Somerset)	April 2017 - June 2017
Received feedback forms from teachers and education partners	June 2017 - September 2017
Delivered outreach program and teacher workshops throughout the year	September 2016 - June 2017

4. **Project Results**

Somerset and District Elementary School Wetland Centre of Excellence

In 2014, Somerset and District Elementary School was designated as a Wetland Centre of Excellence at the DUC Valley Chapter Dinner event as a celebration of their wetland education accomplishments to date and intentions to continue to provide wetland education experiences for students through the WCE program. The SDES WCE is the first WCE in Nova Scotia and the first Elementary School to be designated as a WCE through this national DUC program.

During the 2015/2016 school year, the Education Specialist and WCE teachers identified field trips, in-class visits, and cross-curricular lessons and materials were a priority for implementation in 2016/2017. As a result, the DU Education Specialist delivered 14 in-class visits and field trips to the new interpretive features at two local wetland sites. These were the location of two

infrastructure projects taken on by DU and a number of partners to improve the interpretive value of the wetlands and provide for convenient gathering and instruction places. Miner's Marsh now hosts a dipping dock where students can easily access the aquatic systems they are introduced to in the WCE wetland room, and Hutt's Marsh features an outdoor classroom that allows students to spend more time in a comfortable setting looking at their samples, preparing notes, and listening to their teacher's instructions. Hutt's Marsh was identified as a wetland stewardship site due to its closer proximity to the school (in comparison to Miner's Marsh), its potential for enhancement and a pre-existing conservation agreement with the landowners and their receptiveness to the WCE program. With a wetland identified closer to the school, this allows students to longer and more frequent visits which supports the long term stewardship of this site. Bird boxes installed in 2016/2017 were monitored this year by WCE students.

Project Webfoot

39 classes (906 students) participated in Project Webfoot in 2016/2017, visiting either Shubenacadie Wildlife Park, Miner's Marsh in Kentville, or the new features at Hutt's Marsh in Somerset. 12 classes were able to take advantage of DUC curriculum-linked in-class kits, supplementing their field trips with wetland and wildlife lesson plans and learning materials. In cases where DUC could either host a single class with both field trip and in-class kit or two classes with field trips, the later was chosen to ensure maximum participation at each school. In no cases was one class left out if another grade 4 class in the school was participating in Project Webfoot.

The combination of in-class resources and field trip experience provides classes with a complete complimentary education program that is designed to meet their curriculum needs and encourage classes to continue wetland education throughout the year. Resources kits included interactive, hands-on lessons and activities that align with the gr. 4 science curriculum unit 'Habitats and Communities'. These resources encourage students to develop and foster their innate curiosity and appreciation for wetlands and conservation. Feedback from previous years indicated that the Marsh World booklets and web-based i-biome program were particularly desirable and have been kept on for future years.

The field trip program was offered to all 39 classes through partnerships with local environmental organizations and provided students with the opportunity to participate in hands-on wetland activities at a local wetland site. The hands-on aspect of the program personalizes the experience for each student which helps to establish a lasting impression and appreciation for these natural habitats. Each class received a wetland field trip to one of the following sites: the Wetland Interpretive Centre at the Shubenacadie Wildlife Park, Miner's Marsh in Kentville, or Hutt's Marsh in Somerset. DUC hired a summer student stationed at the Wetland Interpretive Centre who assisted the Education Specialist with Project Webfoot delivery at all locations, among other duties. Increased staff capacity allowed DUC to deliver a wider variety of programs at multiple locations, compared with previous years.

* See Appendix B for examples of wetland education materials used at the WCE and during Project Webfoot delivery.

5. Project Assessment & Future Plans

Somerset and District Elementary School Wetland Centre of Excellence Project

WCE Assessment Methods:

As the Wetland Centre of Excellence program is designed as an in depth continual partnership with the designated school, the assessment of the SDES WCE program was measured primarily through qualitative means, while also considering quantitative measurements.

Assessment Results:

All SDES classes participated in at least one WCE project or field trip during the school year and showed interest to continue WCE projects through surveys. Continuing from feedback last year, the wetland field trip site was established at Hutt's Marsh to accommodate scheduling and distance of field trips. In previous years, teachers who participated in field trips to Hutt's Marsh (vs. Miner's Marsh) provided feedback on the natural appearance of Hutt's Marsh as well as the opportunities it provides for classes as a long term project. Feedback from teachers indicated the trail system at Miner's Marsh was more accommodating for the 'nature walk' aspect of the field trip. In 2016/2017, more WCE field trips were delivered at Hutt's Marsh compared with Miners. See Appendix E for photos of the field sites.

Future Plans for WCE program:

Future plans for the WCE program are based on feedback from the initial year of the WCE partnership (2014-2015) and ongoing feedback from teachers throughout the school year. Future plans for the SDES WCE include the maintenance and development of new action projects. Feedback from SDES staff on the nest box project indicated that this project fits well with the science skills curriculum as students are able to apply observation, critical thinking and data collection techniques.

Project Webfoot

Assessment Methods:

Teacher feedback, combined with consultation with staff and delivery partners involved in this program via both interviews and feedback forms resulted in the following project results and future planning. Teachers and Education Partners were able to rank the Project Webfoot program on registration, education resources, field trip component and the value of the program in relation to the NS Science curriculum. See Appendix C for the feedback form provided to classroom teachers.

Assessment Results:

DUC registered and delivered 39 classes. Feedback forms (see Appendix C) were issued all classes who attended a field trip (this year, all 39 classes) and analyzed by our Education Specialist resulting in the summary provided in this report.

See Appendix D for a summary of comments from teachers.

Future plans for the PW program:

Based on this assessment, DUC wishes to continue Project Webfoot programming and will prioritize areas based on the following criteria:

- a. Register PW classes enrolled in the previous year.
- b. Register new classes in the current year's focus area: large urban areas where children might not otherwise have the opportunity to experience wetlands
- c. Request from sponsors to adopt a specific class
- d. Register all interested Grade 4 classes in one school before proceeding to a new school

Based on the national feedback, it is evident we the bussing subsidy is a significant draw for the classes. The guided field trip, liability insurance, and ease of registration are also appealing to teachers.

For future years, we will continue to maintain revenue sources and encourage our supporters to continue their generous level of support. With the development of the WCE program in Nova Scotia with the addition of SDES we will also seek funding to expand the WCE program to reach a broader geographic audience in NS as well as provide stewardship and mentorship opportunities for high school students in the province. In time, DUC hopes to see the WCE and Project Webfoot programs more strongly integrated, so that WCE's might deliver Project Webfoot programs and form a sort of learn-by-teaching experience for older students.

6. Communication/Marketing and Media

After registering for Project Webfoot at the beginning of the school year, classes receive a certificate with their sponsor name and contact information in their education resource kit. Classes were encouraged to send letters, cards, and pictures to their sponsor.

During field trips, delivery partners displayed the visiting classes' assigned sponsor (e.g. Nova Scotia Habitat Conservation Fund) on either a white board or sandwich board on site (depending on the site/location of the field trip). DUC staff or education partner staff/volunteers also acknowledge the class sponsor during the delivery of the field trip as well.

All donors are listed in DUC's Annual Report which is available online at www.ducks.ca/annualreport.

7. Conclusion

The third year of the implementation of the Wetland Centre of Excellence program in Nova Scotia was very successful. We will continue to support this program and expand its impact on local schools and community partners while supporting the students' engagement in wetland education to inspire them to become involved with conservation throughout their education and adult lives. Project Webfoot remains a curriculum-based program that is enormously successful. Nova Scotia continues to be a priority area for the Project Webfoot program and has delivered over 27,000 grade 4 students within the province delivered to date. We aim to continue this program with your assistance. We are extremely grateful to have the continual support of the Nova Scotia Habitat Conservation Fund. Meetings will be scheduled with SDES staff to continue to develop the WCE program. Project Webfoot registration for the current school year is well underway and we are confident that the program will continue to build on its previous successes. As such, the Nova Scotia Habitat Conservation Fund has been integral to the success of the Wetland Centre of Excellence and Project Webfoot programs' goal to expose youth to wetlands and encourage their conservation.