



Clean Annapolis River Project

# 2016-2017 Year in Review

June 20, 2017

## Message from the Executive Director

June 12, 2017

In reflecting back on 2016, it stands out as a year of great gains toward strengthening the foundation for CARP's work in the community, and in building the capacity and partnerships to carry our mission forward in an increasingly effective way.



Our hallmark projects, such as wood turtle monitoring and stewardship, and fish habitat restoration and aquatic connectivity are now very well established, and fit into larger regional and national programs. The data gathered through our freshwater and marine water quality monitoring work over the years is contributing to a better understanding of the condition of our river and basin, and the drivers of their water quality. Much effort has gone in to gaining a better grasp of the geographical landscape of the watershed, giving us a better understanding of land-use impacts on its ecological health, and the means to prioritise sites for remedial work such as wetland restoration, stormwater management, and pollution prevention, and habitat stewardship actions.

Interest and enthusiasm for the Annapolis River has been growing noticeable in the last couple of years. There are a number of initiatives to get people out on the river like the newly constructed boat launches and docks in communities including Annapolis Royal, Bridgetown, and Middleton. CARP's own Annapolis River Festival was held for its second year in 2016, and hosted over 1,500 guests who participated in activities including dragon boat races, canoe obstacle courses, kids activities, live music and much more. The growing enthusiasm for the river is apparent in the level of interest, volunteerism, and participation that we are seeing through our education and outreach programs, volunteer driven projects, and public events.

Support for CARP and our work has been growing steadily. We are heartened by the magnitude of support the community, stakeholders and businesses of the watershed have shown us, the supportive and collaborative nature of our local, provincial, and federal governments, and the strong working relationships we maintain with non-governmental, academic, and industry partners. As we enter the 2017 project cycle, we do so from a position of strength, confident that we have the capacity and support to make tangible positive impacts to the health of the Annapolis River watershed.

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## Support for education and training

As a community based organizations CARP has an important role to play in supporting students of all ages in their academic and their service learning pursuits. In recent years CARP has made significant effort to support students wherever possible. For the 2016-2017 project year this included:

- 2 Nova Scotia Youth Conservation Corps positions
- 1 Canada Summer Jobs position
- 1 Department of Community Services position
- 3 high school co-op positions supporting a variety of field activities
- 2 NSCC Natural Resources Environmental Technology student placements supporting wood turtle field surveys and other projects
- 1 Center of Geographic Sciences work term to complete aquatic habitat data assessment and a special project that involved the creation of a Story Map (now hosted on CARP's website)
- 1 Center of Geographic of Science special project on rain garden site identification
- 2 Duke of Edinburgh Award students completing their skills and volunteer service components
- 10 elementary school students completing community service hours, including swallow nest box maintenance and tree planting
- 4 Options to Opportunities (O2) classes (Digby, Annapolis, Bridgetown, Middleton) engaged in project activities
- Judging for the Bridgetown Elementary School Science Fair and contribution of a special award for projects that address environmental issues



## Public Outreach

CARP is proud of the strides it has taken to be a leader in the provision and support for public outreach and educational programs that engage community members and target stakeholder groups. In 2016-2017 CARP organized and/or supported **58 outreach programs reaching over 3400 individuals**. These programs take many forms including classroom presentations and activities, public events and field days, workshops, and guest presentations or activity facilitation for community based organizations.

CARP was approached by Champlain Elementary school in spring 2017 about opportunities to collaborate on a week-long enrichment program. CARP staff planned and delivered 5 days of programming to all 120 students at Champlain Elementary School, Granville Ferry. This program centered on the Annapolis River ecosystem, and exposed students to a variety of topics related to the local environment, and conservation issues. Sessions led by CARP included: a bird identification field trip to the Annapolis Basin Marsh, a tree identification field trip at the Annapolis Basin Marsh, native wildlife identification, benthic invertebrate sampling and identification, and a beach seine sampling and local fish identification field trip at the Annapolis Causeway. The delivery of this program would not have been possible without the volunteer support received in facilitating each activity session.



## The Annapolis River Festival

In 2016 CARP held the second annual Annapolis River Festival. The festival was developed as a signature fundraising event for CARP and is quickly growing in popularity as one of the key summer events in the western Valley.

The 2016 event was co-chaired by Murray Freeman and Steve Campbell and was made possible through the dedication and support over 100 volunteers.

Highlights of the 2016 Festival:

- 1500+ festival attendees
- 408 participants in water-based activities, including dragon boat races, canoe races, and boat tours
- 100+ community event volunteers
- Appearances by municipal, provincial and federal dignitaries, including the Federal Minister of Sport and Persons with Disabilities
- Over \$20,000 raised for Clean Annapolis River Project

The 2017 Festival will take place at Jubilee Park, offering outstanding views and newly improved access to the river. This year's River Fest will see the return of last year's most popular events, as well as some exciting new additions such as a skill sharing expo that will offer festival goers hands on opportunities such as paddle carving, knot tying, and tea making.



## Grants

Securing funds for our projects is an ongoing challenge. The majority of project funding comes from external grants, each of which come with their own requirements and limitations. Below is a list of the successful grant and funding applications from 2016, to show the breadth of funding sources from 2016.

Funder	Department/Division	Project
Annapolis Investments in Rural Opportunity	AIRO	Annapolis Marsh Tours
Government of Canada	Employment and Social Development	Canada Summer Jobs
TD Green Streets	Tree Canada	Edible Trees
Province of Nova Scotia	Department of Community Service	Employment Program
Province of Nova Scotia	Summer Skills Program	Employment Program
Eastern Charlotte Waterways		Estuary Monitoring
NS Salmon Association	NSLC Adopt a Stream	Fish Habitat Restoration
Environment Canada	HSP Prevention Stream	Fish Habitat Restoration
Government of Canada	DFO - RFCPP	Fish Habitat Restoration
Environment Canada	EcoAction	Growing Ecological Health
Town of Annapolis Royal		Outdoor workshops
Awesome Annapolis		River Guardians
TD Bank	Friends of the Environment	River Guardians
Province of Nova Scotia	Environment	Rural H2O
Province of Nova Scotia	Habitat Conservation Fund	Species at Risk - Wood Turtle
Environment Canada	Habitat Stewardship Program	Species at Risk - Wood Turtle
Acadia University		Species at Risk - Wood Turtle
Nova Scotia Youth Conservation Corp	Clean Foundation	Youth Employment
TD Bank	Friends of the Environment	Youth Leading Environmental Change
World Wildlife Fund		Youth Leading Environmental Change
Paradise Active Healthy Living		Youth Program (Kids River Walk)
Nova Scotia Rural Communities Foundation		Youth Leading Environmental Change
Small Change Fund		Youth Leading Environmental Change



## Project Highlights



### Estuary Monitoring



#### *Project overview:*

An estuary of the Bay of Fundy, the Annapolis estuary is a unique and complex environment where the freshwater from the Annapolis River and its tributaries mix with the incoming tidal saltwater. Relatively little information has been collected to date about its health, and that is a topic that CARP has begun investigating more closely as part of studies geared at assessing land-based impacts to the estuary.



#### *2016 Highlights:*

Supported by the Gulf of Maine Council on the Marine Environment's Gulf of Maine Initiative (GoMC), CARP has teamed up with Eastern Charlotte Waterways (ECW) and GoMC partners in each of the six Bay of Fundy estuaries to monitor contaminants and assess overall estuary health. Initiated in 2015, work initially took place in Passamaquoddy, Musquash, Saint John, Chignecto, Minas, and the Annapolis estuaries. The program collected sediment samples that were analyzed for an extensive suite of parameters including trace metals, mercury, hydrocarbons, polychlorinated biphenyls, and pesticides. Water samples were also collected at 20 sites throughout the six estuaries to monitor nutrient levels, fecal coliforms and chlorophyll-a. Depth profiles, physical water characteristics (e.g. turbidity, temperature, etc.), aquatic vegetation assessments and fish assessments were also collected as part of initial work to establish baseline conditions.

#### *Future directions:*

Initial assessments compared baseline conditions to rain events, and showed nutrient levels to be of greater concern among the things measured in the Annapolis River estuary. Since 2016, CARP and ECW have been collaborating to continue estuary monitoring work in the Bay of Fundy, and are continuing to collect information about nutrient levels and fecal contaminants in selected estuaries in order to gain a better understanding of current baseline conditions and to begin to develop a longer term health record. CARP was pleased to receive a generous donation of a 40 HP outboard motor from Acadian Seaplants in order to help with the continuation of this project in 2017 and in years to follow.



### Ocean Acidification



#### *Project overview:*



The ocean, once considered a good carbon sink for the absorption of worldwide CO<sub>2</sub> emissions resulting from human activities, has been shown to be experiencing rapid changes in seawater chemistry from absorption of CO<sub>2</sub>. The weak acid nature of CO<sub>2</sub> results in a release of protons (H<sup>+</sup>) into seawater, increasing its acidity. Rapid changes in the acidity of coastal and marine waters can



have devastating effects on aquatic habitats and biodiversity. While there has been much study into ocean acidification, less is understood about coastal acidification in estuaries. Coastal acidification in estuarine and near shore environments is influenced by a complicated set of relationships, and can be affected by a wide variety of factors such as:

- nutrient loadings and nutrient cycling processes from watersheds,
- the underlying geology and landform structures in watersheds and estuaries,
- metabolic activity in intertidal sediments,
- the amount of freshwater and marine water exchange happening within an estuary or near shore environment.

### 2016 Highlights:

In order to better understand the relationships affecting coastal acidification, CARP has partnered with Eastern Charlotte Waterways and Dalhousie University on a three year project to study the vulnerability of estuaries and near shore environments within the Bay of Fundy to coastal acidification. The study is also aiming to complete a baseline assessment of changes in coastal acidity levels in the near shore and estuarine areas of the Bay of Fundy. Work on this project was initiated in 2016 with the collection of monthly acidification water samples throughout the winter, spring, summer and fall, and collection of radium samples in the late summer.

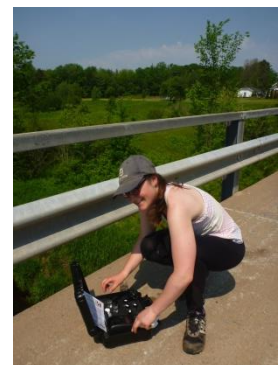
## River Guardians

### Project overview:

The Annapolis River Guardians program, an extensive volunteer-based water quality monitoring program, is CARP's longest running project and has contributed to the collection of over 27 years of data on the Annapolis River. The program was initiated in the early 1990's by Dr. Graham Daborn and the late Dr. Mike Brylinksy of the Acadia Centre for Estuarine Research, with the intent of providing a long-term record of the river's health and an early warning for environmental problems. Since its inception, over 150 volunteers have participated in the program, and more than 4,500 water samples have been collected and analyzed. CARP is able to monitor areas of the river through the River Guardians program and use the information as a tool to help to identify and prioritize further pollution prevention and restoration efforts.



TD Friends of the  
Environment  
Foundation



### 2016 Highlights:

In 2016, nine volunteer River Guardians helped to collect over 110 water samples for analysis from May through to November. Measures that are monitored include water and air temperatures, bacteria levels, dissolved oxygen, pH, conductivity, total dissolved solids, and turbidity. Public road signage provides information about bacteria levels from sites along the river, results from monitoring are published throughout the year on the River Guardians webpage, and the final reporting of river health and long-term trends are published in an annual report card.

The 2016 field season was an exceptionally dry one, with minimal summer precipitation, providing a unique opportunity to study more closely the relationship between E. coli bacteria levels and precipitation. This study is something which CARP has begun to pursue with the data collected from the River Guardians program and with the assistance of a volunteer local statistician from Annapolis Royal.

### *Future directions:*

The River Guardians program has been undergoing continuous improvements and modifications since it was started 27 years ago. CARP is currently in the process of finding sponsors to support continued monitoring efforts, sustain the important long-term dataset of the river's health and continue to engage the public in water quality monitoring initiatives.



## Assessing and Restoring Habitat Connectivity for Anadromous Fishes in Nova Scotia

### *Project overview:*

Aquatic habitat connectivity refers to a network of streams and rivers in a



watershed, and how accessible the habitats within that network are to fish and other organisms. Beginning in 2007, CARP began to evaluate aquatic habitat connectivity in the Annapolis River watershed, and has been collaborating with the Nova Scotia Salmon Association's NSLC Adopt A Stream Program (AaS) since 2010 to improve methods to assess and restore aquatic habitat connectivity within the Annapolis watershed and throughout Nova Scotia. In 2014, CARP began working with the AaS program to develop a province-wide database that will provide a tool for housing provincial watercourse crossing data from community groups. The database has been continually improved throughout its development as the aquatic connectivity program has been adapted to make data collection and watercourse crossing assessments more effective.

### *2016 Highlights:*

In 2016, CARP began a two-year collaboration with AaS to deliver a project to support the training of community groups to assess watercourse crossings, provide technical support in the analysis of collected data, and expand upon the existing AaS program by developing a set of criteria to target a greater number of fish species in watercourse crossing assessments. As many groups throughout the province do not have full or consistent staffing, it is can be difficult for them to analyze their watercourse crossing datasets. In an effort to make planning of restoration efforts more accessible, CARP and AaS have been building analytical capabilities into the AaS database so that groups will be able to use this tool to support their work, for a wider variety of target fish species.

### *Future directions:*

Information obtained from the project's first year will be used to guide watercourse crossing restoration efforts in 2017 with participating groups across the province. It is hoped that the wider impacts from this project will improve the ability of groups throughout the province to undertake aquatic habitat connectivity restoration work, and make great strides towards addressing many of the aquatic habitat connectivity issues across Nova Scotia.

## Subwatershed Management Planning

### *Project overview:*

Understanding the factors that impact sport fish populations can often provide the groundwork for the development of effective management strategies; however, the process of fish habitat restoration is often confronted with complex socio-economic and ecological challenges. The dynamic interactions



that occur on an ecosystem-level mean that alterations made at a local scale can have unknown downstream effects. Therefore, when undertaking restoration planning, focus has predominantly shifted towards managing ecosystems at a watershed scale. Watershed boundaries do not change much over time, and utilizing watersheds as management units provides the opportunity to address cumulative downstream impacts and the causes of degradation rather than simply providing site specific fixes.

In developing watershed-based management strategies for the Annapolis River, CARP has broken down the 2,650 km<sup>2</sup> watershed into smaller, sub-watershed management units. In 2012, 7 priority sub-watersheds were identified based on habitat suitability for salmonids. CARP began developing restoration plans for these sub-watersheds using data collected from in-field monitoring and assessments, background information acquired from literature reviews, surveys of available geo-spatial information, and past restoration efforts. This information, combined with local ecological knowledge, provides the basis for prioritizing areas for restoration activities.

### 2016 Highlights:

- 6 sites across multiple sub-watersheds were assessed using the Habitat Suitability Index (HSI) method, relaying important information on habitat quality for native fish species within our river systems;
- A management plan for the Nictaux sub-watershed was updated using newly acquired data from HSI surveys, culvert assessments, and restoration activities;
- A new management plan was developed for the Moose River sub-watershed.

### Future directions:

The restoration activities identified in the Moose River and Nictaux sub-watershed management plans are being prioritized, with many being incorporated into remediation actions for the 2017 field season. In-field monitoring and data collection will continue for the other identified priority sub-watersheds so that management plans can be developed. This includes the South, Fales, Black, Round Hill, and Bear River systems.



## Fish Passage Restoration and Habitat Enhancement

### Project overview:

While threats to fish populations are numerous and diverse, degradation of freshwater habitats remains the most significant contributor to the observed declines in species. Much of this habitat loss has been attributed to modifications of the physical environment by human land-use impacts. Habitat fragmentation, a key contributor to habitat loss, is considered a significant threat to fish populations worldwide. Watercourse alterations through human activities, such as the construction of watercourse crossings, have the potential to significantly affect the ecological integrity of aquatic ecosystems. Watercourse crossings that are poorly designed, installed incorrectly, or lack regular maintenance can become barriers to fish passage. In addition to habitat fragmentation, other threats to fish populations include in-stream habitat loss through channel modification, sedimentation, and alterations to water quality.

In order to address these threats to freshwater habitats within the Annapolis River watershed, CARP has built upon its ongoing fish habitat restoration program (formerly “Broken Brooks”) through a multi-





faceted and deliberate approach using sub-watershed management plans. The project has evolved to include aquatic connectivity assessments, targeted habitat quality and connectivity restoration, and consultation with partners and stakeholders. By taking this approach, CARP has implemented varied restoration and enhancement actions in watercourses supporting significant recreational fisheries.

### 2016 Highlights:

- 10 culverts received restoration work, which included the installation 7 tailwater control weirs, 4 low-flow barriers, 9 baffle pairs, 2 fish chutes, and the removal of 4 debris piles. These remediation activities restored access to 16.27 km of upstream habitat for native fish species, and improved access to an additional 4.15 km;
- 57 watercourse crossing assessments were conducted, 29 of which were culverts on fish-bearing streams. Based on the data collected, 25 (86%) of the culverts assessed did not meet the current provincial guidelines for non-barrier status;
- Over 2 km<sup>2</sup> of potential spawning habitat in the Nictaux River was enhanced through the removal of fine, compacted sediments in the streambed;
- A sub-watershed planning document was reviewed and updated for the Nictaux River, and a new document was created for the Moose River. The Moose River sub-watershed plan includes the results of an investigation into the impacts of the municipal reservoir on summer water temperatures, and an engineering plan for the installation of a cold water siphon.

### Future directions:

The sub-watershed management plans along with a growing watercourse crossing database are being used to guide restoration actions to be undertaken in 2017. Between June and September of 2017, field crews will be working hard with the goals of restoring 3000 m<sup>2</sup> of in-stream habitat through installation physical structures, and providing 10 km of newly accessible upstream habitat for native fish species through culvert restorations.



## Wood Turtle Monitoring and Stewardship



### Project overview:

The overall goal of the Wood Turtle Monitoring and Stewardship project is to ensure the long-term persistence of the wood turtle and its habitat in the Annapolis River watershed. Project objectives in 2016 included: monitoring the movement patterns and distribution of wood turtles in the watershed through the use of radio telemetry; assessing habitat use by sub-populations in the Annapolis river watershed; implementing an outreach program to engage communities within the watershed to create awareness and promote education about the ecological needs and importance of the wood turtle; recruiting, training and re-training volunteers in



project activities, in order to build organizational capacity and develop a skilled and engaged volunteer base; engaging landowners and stakeholders in the development and adoption of stewardship activities tailored to land uses around confirmed wood turtle habitat in the watershed; and providing support for province wide recovery initiatives.

### *2016 Highlights:*

During the 2016 field season survey effort included 30 visual survey events, totalling 177.25 hours of visual survey effort. Turtles were observed on 10 of these events, including 4 new captures. Thirty six radio-telemetry sessions were conducted, totalling 295 hours of survey effort. A total of 134.74 hours were spent on nesting surveys. While 4 females were observed digging test pits or searching out nest sites, only 1 laying event was observed. This nest was protected and resulted in six out of eight hatchlings successfully developing and emerging.

Over the course of the field season 20 individual turtles were observed, including 7 first captures. Since 2012, CARP has observed and notched 41 individual turtles.

Ten new stewardship plans were developed for properties in the Annapolis River watershed. Nine of these properties are located within the Village of Lawrencetown, the result of an effort to promote broader community engagement in recovery initiatives and to promote collaboration across property borders. The other stewardship plan was for a property in Brickton.

Two interpretive panels were produced, to be installed in communities that include areas of wood turtle habitat. Six turtle crossing signs were produced, to be installed in areas where turtles are at risk of mortality or injury from vehicle collisions. Twenty-seven outreach activities were conducted, reaching over 750 individuals.

### *Future directions:*

CARP has applied for grants to support the continuation of this work in the 2017-2018 project year. The project will continue to emphasize the engagement of volunteers to support field activities in order to make it feasible and sustainable. This project creates great opportunity for educational programs, and CARP will continue to involve schools and community organizations in field surveys. Already in 2017 CARP has partnered with St. Mary's Elementary School in Aylesford to deliver an experiential learning program with the grade 4 and 5 classes thanks to funding received from the WWF Go Wild Schools program.

As the only NGO in Nova Scotia with a robust wood turtle program, CARP will continue to support efforts of the Provincial Recovery Team by providing training and support to other organizations and partners and by piloting protocols developed by the Recovery Team. CARP is a leader in stewardship planning on private lands and will work with the team to formalize stewardship planning tools so that they can be adopted in province wide recovery initiatives.



## Youth Leading Environmental Change

### Project overview:

Youth Leading Environmental Change is a free program that engages youth throughout the Annapolis River watershed in environmental education, stewardship actions and leadership development training. Youth have the opportunity to learn how landscape features

and functions impact human and environmental health, as well as community wellbeing. Participants reinforce their understanding of these concepts and apply them through a variety of environmental restoration and stewardship activities that will positively impact their community and the health of the ecosystem.

CARP launched the YLEC program in 2016, and while there is always room for improvement, it was a great success in terms of engaging youth ambassadors in stewardship and conservation activities. Weekly programs were offered to the pool thirty of registered students who participated based on their availability from May through October.

### 2016 Highlights:

Through the project 30 students in grades 5-12 from schools between Digby and Aylesford, Nova Scotia, participated in the Youth Leadership development program. These students joined CARP for training sessions and field activities.

Training and field sessions included:

- Wood turtle radio-telemetry training and radio-telemetry surveys
- Wood turtle visual survey training and visual surveys
- Wood turtle nest survey training and nest surveys
- Pollinator ID and information sessions
- Pollinator garden planting
- Fish identification training
- Benthic invertebrate ID training and sampling
- Community reforestation (urban tree planting)
- Beach clean up

Students shared their experiences with groups of peers and members of the public through presentations. This included special events at public libraries, guest presentations to community organizations, and in class presentations and activities. As a result CARP was able to engage over 150 additional people in the project. Through the program CARP has developed a pool of youth volunteers to support future projects and activities.



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### *Future directions:*

Funding has been received to support the program in the 2017-2018 program year. CARP has opened registration to 40 students and is working to find youth to represent communities from across the watershed. Activities commenced in May and are offered on a weekly basis. Planned projects for 2017 include wood turtle stewardship, pollinator garden creation, Atlantic sturgeon research, fish habitat restoration, marine plastic sampling, and more. When partnership opportunities arise CARP will aim to support other community organizations across the watershed. For example, YLEC students will help to develop a pollinator garden at Riverside Park, Middleton, in collaboration with the Town of Middleton and the Middleton Rotary Club.

CARP has also received inquiries from a large number of students looking to complete their high school co-op hours or to complete service hours for the Duke of Edinburgh Award. By continuing the YLEC program, CARP will have the capacity to accommodate these students, and support their interest in becoming involved in environmental conservation and stewardship.

### **Edible Trees**

#### *Project overview:*



Tree Canada's Edible Tree program provides financial support for the available community-based projects that provide residents with access to fresh fruit and nut trees and shrubs while making a positive difference to the Canadian environment including:

- Food security for local communities and food banks
- Providing shade
- Absorbing and deflecting solar radiation
- Improving air quality
- Absorbing and filtering water
- Creating habitat for wildlife



### *2016 Highlights:*

CARP worked collaboratively with the Cornwallis Community Garden Association to enhance their existing garden space by creating an orchard that is accessible to all community members and by creating a second small orchard on an adjacent property that will be accessible for students at Clark Rutherford Memorial School. CARP also worked with staff at the Meadows Adult Residential Center, an assisted living-facility, to create an orchard for residents. CARP was also able to support a small addition to the Annapolis Royal Community Garden. Students enrolled in CARP's Youth Leading Environmental Change were involved in project delivery, assisting with site preparation and tree planting.



Through this program CARP was able to plant 42 fruit trees including apple, peach, plum, nectarine, cherry, pear and crab apple. 16 shrubs and bushes were planted including blueberry, gooseberry, grape, currant and serviceberry.





### *Future directions:*

This was a one-time grant that supported material costs. CARP will continue to work with partners to access the Edible Trees or similar funding programs in the future. Several sites that could incorporate edible trees have been identified and incorporated into project applications. CARP supported an application from the Town of Digby to the Edible Trees program in 2017, but has not yet heard the results of this application.

## Rural H2O



### *Project overview:*

The Rural H2O program, which took place through late 2016 to early 2017, aimed to educate rural homeowners with private water sources about the risks to water quality, engage them in source water protection and water conservation on their properties. The project intended to meet the goals of protecting community health and ensuring access to safe drinking water in the long term. This was done by addressing homeowner practises that can put water sources at risk such as disposal of waste, sewage and fuel storage as well as through education about water quality risks and water conservation measures.

### *2016 Highlights:*

CARP partnered with Bluenose Coastal Action Foundation to deliver the program. Each group conducted three public workshops 25 assessments and education sessions in their respective regions

Visual well inspections were the first component of the assessments. Almost half of the participating homeowners had never done an inspection of their well prior to the assessment taking place. The most common risk to source water identified during visual well inspections were well caps that were damaged or improperly sealed. Additional risks to source water included: missing, damaged or blocked vent screens, lack of grading and/or grass buffer surrounding well head, improper sealing between dug well crocks, surface water pooling near the well head, and others.

Septic system maintenance practises that could pose a risk to source water were also assessed. Almost all of the participants had private septic systems, with two using municipal sewage disposal and one with no interior plumbing. In general, awareness and maintenance of septic systems was high among participants, with only five homeowners that did not get their septic pumped regularly every three to five years, as recommended by NSDOE (2009). Very few homeowners had experienced problems such as backups in the past, used additives, or disposed of chemicals in the septic system.

The importance of regular water quality testing as the only way to ensure safe drinking water was emphasized to each homeowner during the assessment. Most of the homeowners tested for bacteria at a frequency of about one to two tests every 10 years. Very few tested more frequently than that, however, no one tested every six months. No homeowners tested for chemicals on a regular basis. Four homeowners had known health related problems with their water prior to the assessment.

The final portion of the home assessments included an evaluation of homeowner water usage practises and recommendations on how to decrease the water footprint in the home. Water conservation devices such as low flow shower heads, toilet tank water displacers and toilet leak detection tablets were handed out to interested homeowners following the assessments.

### *Future directions:*

Prior to the termination of the program, CARP administered the provincial Environmental Home Assessment Program in the region. This project addressed issues related to drinking water quality and

septic system maintenance and provided rebates to support homeowners in water testing and system maintenance. The Rural H2O program builds on EHAP by incorporating source water protection and water conservation. CARP feels that there is still need for similar programs to EHAP and Rural H2O and will continue to search for opportunities to fund a similar project or reinstate the old program.

## New Opportunities 2017-2018

### Integrated Management Planning for the Annapolis River Watershed



CARP has been successful in receiving funding through the Community Foundations of Canada's Community Fund for Canada's 150<sup>th</sup> for a project titled *Integrated Management Planning for the Annapolis River Watershed*. This project will involve the planning and delivery of a consultation and strategic planning process that will link CARP's organizational planning to components of the County of Annapolis' Economic Development Strategy, most notably the 2050 target to "reduce, remediate and manage contamination of Annapolis County land, air and water".

The consultation process will be designed to complement and build upon the public consultation sessions conducted by the County, and will focus on regional ecological sustainability, and the derivative environmental, social and economic benefits. By undertaking this process with support of the County, CARP will be better positioned to focus its efforts on the issues of greatest import and impact to the residents of the region while aligning and supporting the existing municipal economic development strategy.

The following actions will be delivered by CARP in partnership with the Municipality of the County of Annapolis:

1. Plan and deliver three public consultation meetings in three locations spread throughout Annapolis County.
2. Plan and deliver two consultation and strategic planning meetings with identified stakeholder groups in Annapolis County (e.g. agriculture, forestry, fisheries, tourism).
3. Summarize the results in a report that informs collaborative strategies and actions that will maximize environmental, social, cultural, and economic benefits to residents and stakeholders.

### Wetland Protection and Enhancement



CARP was successful in securing financial support for wetland enhancement and protection in the watershed, and we look forward to adding this to our suite of projects beginning in the summer of 2017. The project aims to address the loss of wetland habitat in working landscapes of the Annapolis watershed and surrounds through the identification and prioritization of potential wetland restoration sites within the Annapolis River watershed using remote sensing and geospatial analysis, as well as the physical restoration and enhancement of wetlands in working landscapes where they have been historically degraded or in-filled. The project will span a two year time frame, and is expected to provide a number of ecological benefits from the incorporation of wetlands into working landscapes, such as the enhancement of wildlife habitat quality, improvement in water quality and quantity from increased capture, retention and filtration of overland runoff, reduced erosion, and improved carbon sequestration in enhanced/restored wetland habitats.