"The beach is perfectly safe for children. Although the water is somewhat polluted due to the beach being below city sewers, nothing is to be feared unless the water is swallowed."

Dr. Fred Adams, Medical Officer of Health
Excerpt from the "Border Cities Star" July 21, 1923

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DETROIT RIVER CANADIAN CLEANUP

www.DetroitRiver.ca

On the Right Track!

Optimism was the common theme throughout 2014/15, with progress on the restoration effort being seen on a number of fronts. Each spring, more and more people flock to the area to experience the fishing on the Detroit River, and Windsor is becoming world-renowned for its Walleye spawning run. Hundreds of thousands of Walleye are drawn into the river to spawn by the heavy flow of water from Lake St. Clair. Researchers have also continued to see Lake Sturgeon spawn on the new reef near Fighting Island and combined sewer overflows were reduced by 476 million litres in 2014, thanks to the City of Windsor's new Retention Treatment Basin.

As a partnership, we experienced several landmark moments in 2014, including the first ever binational celebration of a Beneficial Use Impairment (BUI) re-designation in May 2014 for the Tainting of Fish Flavour BUI. The following report provides updates on the progress of the Detroit River Canadian Cleanup's (DRCC) four main working groups: Habitat, Monitoring and Research, Point and Non-Point Source, and Education and Public Involvement.

Are you interested in learning more about the upcoming research and remediation projects? Please download the updated 'Pathway to Delisting' document from our website or request a copy from us. This living work plan identifies the remaining actions necessary to delist the Canadian side of the Detroit River from the Great Lakes Areas of Concern (AOC) list.

For more information and tips on what you can do to help improve our watershed and the Detroit River ecosystem, please visit ***www.detroitriver.ca****.*

Claire Sanders
Remedial Action Plan Coordinator

The Windsor Star

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The Detroit River Canadian Cleanup (DRCC) is a community-based initiative launched in 1998 to cleanup, enhance, restore and sustain the Detroit River Ecosystem.

Partnerships within the DRCC aim to promote and implement the cleanup plan called a Remedial Action Plan (RAP) to protect, enhance and restore the Detroit River in order to remove it from the list of Great Lakes Areas of Concern. The DRCC's members provide leadership in identifying partnerships and funding opportunities to support and complete cleanup goals for the Detroit River.

This document reports on accomplishments on the Canadian side of the Detroit River between April 1, 2014 and March 31, 2015.

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and many dedicated citizens like you!

Cover: Detroit River bathers near Windsor sewage outfall pipe. 1920s.

Education & Public Involvement

4th Annual Detroit River Evening

Over 50 people attended our 4th Annual Detroit River Evening at the Waterfront Hotel in Windsor. We were delighted to welcome Gord Miller, Environmental Commissioner of Ontario, who delivered an engaging talk on climate change. The evening was also an opportunity to learn more about the projects implemented by DRCC Member Organizations to improve the Detroit River.

Film Screening of "From Billions to None"

The Detroit River Canadian Cleanup held its 6th annual film screening on February 26th at Lakeshore Cinemas. The event was a huge success thanks to the 200+ attendees, volunteers and invited experts! This year's film, "**From Billions to None: the Passenger Pigeon's Flight to Extinction**," chronicled the tragic extinction of the Passenger Pigeon but also shared a message of hope and conservation.

The story of the Passenger Pigeon is a portal to current issues of extinction and biodiversity. Similar to the outreach goals of the DRCC, the film stresses the importance of conservation, public awareness and interested citizens. Based on the turnout at this year's film screening, it's safe to say Windsor-Essex has many interested citizens! "*The one thing that struck me about the movie and the gathering was the palpable expression of interest from the community*," said Mike Nelson, the Essex Region Conservation Authority's Watershed Planner and one of the night's Expert Panel Members."*That so many were interested and keen to learn more about the story of the Passenger Pigeon and the connections to the Detroit River reinforced the fact that the work that we do is important. It was also refreshing and reassuring to see so many different people from so many different walks of life interested in this topic*."

SOS: Saving Our Strait – Restoring Our River Together

From June 2014 – March 2015, over 4,250 people visited this DRCC-lead exhibit at Windsor's Community Museum, which depicted the last 60 years of tumultuous history surrounding the Detroit River and the international attention this Heritage River has received in the cleanup effort. At the end of the exhibit, a poster was designed using the compiled historic images (see insert) and pieces of the exhibit are now on display at the Ojibway Nature Centre and a digital version is on our website.

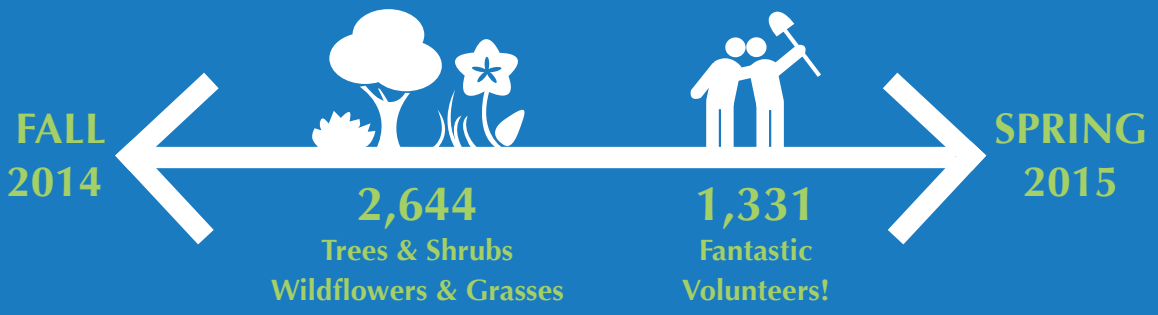
State of the Detroit River Boat Tour

Cautious optimism was the message as some of the noticeable improvements were highlighted during the DRCC-sponsored Citizens Environment Alliance's State of the Detroit River Boat Tour held on July 12, 2014. The four-hour cruise of the Detroit River, attended by over 100 people, featured expert narration about the Detroit River's environmental hot spots and unique fish and wildlife habitats by Dr. John Hartig of the Detroit River International Wildlife Refuge and Phil Roberts, a local naturalist and member of the Public Advisory Council.

Cleanup Events and Community Tree Plantings

The DRCC supports community cleanups and tree planting activities through our member organizations. Not only do these activities improve habitat quality for plants and animals, they also enhance the quality of life for local residents. Planting native trees and wildflowers restores lost habitat and increases biodiversity, while fostering environmental stewardship in the community.

Events in fall 2014 and spring 2015 included five community cleanups involving over 100 people who collected over 11.5 m^3 of garbage! Below is an approximate breakdown of the number of native trees, shrubs and wildflowers planted in the Detroit River watershed in fall 2014/spring 2015, and the number of people who helped:



Monitoring & Research

Restrictions on Fish Consumption

The Great Lakes Institute for Environmental Research (GLIER) at the University of Windsor has recently done extensive work to characterize the spatial distribution of mercury in sediments of the Detroit River. Overall, these assessments have revealed a strong influence of localized anthropogenic sources in the middle and lower reaches of the Detroit River, and the possibility that the upper reach of the Detroit River may be influenced by sediment contributed from Lake St. Clair and/or the St. Clair River. Despite efforts to understand how mercury moves through the river system and into fish, there has been no way to identify or track this mercury within the Detroit River, until now. Over the last year, GLIER has teamed up with researchers at the University of Michigan to apply a new eco-sleuthing technique, known as **mercury isotope analysis**, to "fingerprint" sediment mercury sources. What they found was striking. The mercury "fingerprint" of contaminated sediment in U.S. waters differed from the mercury "fingerprint" of contaminated sediment in Canadian waters within the midstream and downstream reaches of the Detroit River. Upstream of the southern tip of Belle Isle, mercury "fingerprinting" supported GLIER's original suspicion that mercury may be contributed to this section of the river from sources in Lake St. Clair and/or the St. Clair River. In the future, these distinct mercury "fingerprints" could be used to assess what sources of mercury are getting into fish in different regions of the river. Establishing stronger cause-effect linkages between sediment sources of mercury in the Detroit River and the mercury found in fish could help guide work related to restrictions on fish consumption.

Degradation of Benthos: Sediment and Benthic Sampling

Over the last several years, GLIER has sampled 73 sites in the Detroit River for benthic invertebrates and sediment in order to determine whether contaminants are contributing to benthic toxicity. Benthic invertebrates are bottom-dwelling organisms that depend on water for a portion of their life cycle and are an integral part of the food web. Because they feed primarily on microorganisms attached to the sediment, they are excellent indicators of local sediment conditions. The sampling strategy separated the river into benthic habitat type and a gradient was applied to each habitat (clean vs. contaminated areas), which was then correlated to benthic community structure. Results indicate that sediment toxicity is not driving any impairments in our benthic community in the Detroit River. Using these data, an assessment of the Degradation of Benthos BUI will be completed soon.

Fish Tumours: Food Web Bioaccumulation Model

Past research on liver tumor frequencies in fish have shown a strong relationship between Polycyclic Aromatic Hydrocarbons (PAHs) in sediment and tumours. PAHs are a cancer causing pollutant that originates from natural and man-made sources including petroleum, driveway coal-tar sealants, and gasoline combustion. In 2014, work by Dr. Ken Drouillard at GLIER developed a model to determine a tolerable PAH daily intake by fish and to determine fish exposure by examining the sediment and water chemistry at various zones in the Detroit River. The food web bioaccumulation model estimates PAH Total Daily Intake (TDI) rates of fish in 6 model zones. The model predicted that Brown Bullheads found on the Canadian side of the river have a 600% lower TDI for PAHs compared to bullheads found on the US side of the river. These results show that work required on the Canadian side of the river to help reduce tumours in fish is minimal. Collection of Brown Bullheads and analysis of livers will continue in 2015 to validate the model.

Turkey Creek PCB Cleanup

In October 2008, 975 cubic metres of PCB-contaminated sediment was removed from the Grand Marais drain east of Walker Road in order to attain a cleanup goal of 1 ppm PCB. The post-remediation monitoring and reporting of the Turkey Creek PCB cleanup site was completed in 2014. Data analysis showed that concentrations of PCBs in sediment, water, and forage fish have decreased over time at the remediated areas. PCB concentrations in sediment at the mouth of Turkey Creek have also shown improvements over time. This project and follow-up monitoring addresses several Beneficial Use Impairments, including: Restrictions on Fish and Wildlife Consumption, Degradation of Fish and Wildlife Populations, Degradation of Benthos, and Bird or Animal Deformities and Reproductive Problems.

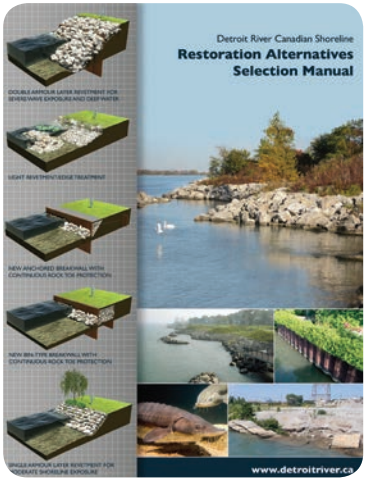
Habitat

Biodiversity Conservation Strategy Implementation

The primary focus of the Biodiversity Conservation Strategy (BCS) is to implement large scale habitat restoration projects in priority areas of the Detroit River AOC, as identified in the BCS Report. In 2014-15, a total of 12 hectares (30 acres) were restored to Carolinian upland forest or tallgrass prairie at five sites. All project decisions were guided by the priorities outlined in the Biodiversity Conservation Strategy and are consistent with the habitat priorities of the Detroit River RAP.

Mill Street Waterfront Improvements

The Windsor Port Authority undertook shoreline and in-water habitat improvements at the new HMCS Hunter location at the Mill Street dock in Windsor. Sloping armor stone was placed along the shoreline to improve fish and aquatic habitat. Root wads were submerged in the calm water of the harbour to provide habitat for fish and an area for turtles to bask. Future plans for the site include a demonstration rain garden with native plants and interpretive signage.



Shoreline Design Manual

The Essex Region Conservation Authority created a public-friendly, visually appealing manual that describes the various options for shoreline restoration that are possible along the Canadian side of the Detroit River. The manual will be used along with the Detroit River Shoreline Assessment Report to guide shoreline restoration efforts for private landowners in the AOC. An easy-to-follow decision-making matrix was designed to help guide landowners, contractors and technical staff of approval agencies to choose the best shoreline solution based on common site characteristics. This resource supports a growing effort to restore habitat diversity and ensure sustainability along the shoreline while achieving the primary erosion protection function.

Point / Non-Point Source

Rain Gardens

Several demonstration rain gardens were installed in the Detroit River watershed in 2014, including one at the Ojibway Nature Centre. Rain gardens are a sustainable, easy way that homeowners can help to manage rainfall and snowmelt, and improve water quality. Rain gardens help to protect streams, rivers, and lakes from pollutants carried by stormwater runoff. The result could significantly lower pressure being placed on stormwater sewers and wastewater treatment plants, which ultimately results in lower operating costs and a cleaner environment. Rain gardens also help protect communities from flooding and provide habitat for wildlife, such as birds and butterflies. For more information, or to receive the Essex Region Conservation Authority's (ERCA) booklets, "**How to Create a Rain Garden: A Guide for Homeowners!**" or "**A Guide to Local Native Plants**", please contact the DRCC or ERCA.

Rural NPS Pollution Remediation Program

Over the last 18 years, the Essex Region Conservation Authority has implemented the Rural Non-Point Source (NPS) Pollution Remediation Program. The program aims at reducing rural non-point source pollution (e.g., nutrients, suspended solids and bacteria) in the Detroit River's watershed through the implementation of Best Management Practices. In 2014/15, seven buffer strips were planted, two soil erosion control structures were installed, and three septic system upgrade projects were completed.

City of Windsor's Award Winning Combined Sewer Overflow Treatment System!

The underground Combined Sewer Overflow (CSO) Retention Treatment Basin (RTB) on Riverside Drive in Windsor, incorporates innovative technology that considerably reduces the footprint of a conventional treatment system. In 2014, the CSO RTB captured 476 million litres (ML or megalitres) of combined stormwater and sewer overflows that would have previously been discharged directly to the Detroit River without any treatment! Of that, 394ML was sent to the Lou Romano Water Treatment facility for full treatment and 82ML received primary treatment at the RTB.

DETROIT RIVER
Canadian Public Advisory Council

In 2014, the Public Advisory Council (PAC) welcomed our new Detroit River RAP Coordinator, Claire Sanders. She has adapted to the job quickly and instantly took her place as an excellent successor to previous occupants of this vital position. Sarah Baldo was also welcomed to the partnership as the new RAP Assistant.

A highlight of the past year, as previous years, has been the campaign to save Ojibway Shores as green space. In June 2014, the Essex County Field Naturalists' Club sponsored a BioBlitz, which determined that much of the 33-acre Windsor Port Authority property contains a unique collection of plants and animals, some of which are threatened or endangered. Public Advisory Council members are proud of the effort put forth to save this ecological gem and remain optimistic that Ojibway Shores will stay natural.

The PAC has encouraged the City of Windsor to rezone as parkland a 30-acre connector of land between Ojibway Shores and the Black Oak Heritage Park from its present industrial zone designation. This issue will likely be settled once the fate of Ojibway Shores is determined.

Our most recent issue centres around the proposal by the owner of 15 acres adjacent to Ojibway Shores to infill 22,500 cubic metres straight out into the river from the shoreline. PAC has expressed concern to officials on both sides of the Detroit River.

The PAC wrote letters to the Ministers of the Environment of Ontario and Canada about extreme levels of algal blooms in western Lake Erie. Both ministers replied that they are addressing the problem.

The PAC and member organization Little River Enhancement Group continue to lobby the City of Windsor for the joining of the Shooting Range and Eastern Woodlands on the Windsor Airport. We are optimistic that it will happen in May 2016.

Respectfully submitted,

Tom Henderson, Chair
Gord Harding, Vice Chair

The Detroit River Canadian PAC is a group of citizen volunteers and representatives from non-government organizations dedicated to improving the health of the Detroit River ecosystem. If you are interested in getting involved in the PAC, please contact the RAP Coordinator.

PAC members Ian, Dave, and Al, with Claire (DRCC) and Caroline (ERCA) at a very rainy community planting.

An Area of Concern is a location in the Great-Lakes - St. Lawrence River Basin that has been identified as severely polluted or degraded.

Acronyms

AOC	Area of Concern
BCS	Biodiversity Conservation Strategy
BUI	Beneficial Use Impairment
CSO	Combined Sewer Overflow
DRCC	Detroit River Canadian Cleanup
ERCA	Essex Region Conservation Authority
GLIER	Great Lakes Institute for Environmental Research
NPS	Non-Point Source
PAC	Public Advisory Council
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
RAP	Remedial Action Plan
RTB	Retention Treatment Basin
TDI	Total Daily Intake

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