

Canadian
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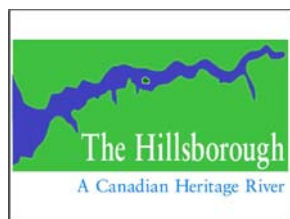


Le Réseau
de rivières
du patrimoine
canadien

Hillsborough River Prince Edward Island Monitoring Report 2007-2017



Prepared for
PEI Department of Communities, Land and Environment
The Canadian Heritage Rivers System



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Hillsborough River Monitoring Report Executive Summary

The Hillsborough River in Central Prince Edward Island was designated to the Canadian Heritage Rivers System (CHRS) in 1997. This report highlights the achievements of the Hillsborough River Association and its many partners in the conservation and interpretation of the stipulated natural, cultural heritage, and recreation values on the river since designation from July 2007 to January 2017. The *Hillsborough River Prince Edward Island Monitoring Report 2007-2017* provides a progress report on each of the objectives identified in *Charting a Course: A Management Plan for the Hillsborough River* and identifies the achievements of its people and those who have contributed to research, conservation, and documentation of the Hillsborough's history. A list of the individuals and organizations who contributed to these achievements since designation is included.

The Hillsborough River Association is a not-for-profit registered charity led by a volunteer board of directors. During the past ten years, it has had one part time watershed coordinator assisted by a small group of part time employees funded through the PEI Watershed Management Fund and a grant and employment application processes. Despite these limitations, thanks to the contributions of many individuals and partners, significant progress has been made towards the implementation of the management plan. This progress includes:

- ◆ Replacing the original bilingual (French & English) Hillsborough River Canadian Heritage River monument at Scotchfort with a trilingual (Mi'kmaq, French, & English) plaque;
- ◆ Co-hosting the 7th Canadian Rivers Heritage Conference at the Delta Prince Edward with the PEI Department of Communities, Land and Environment and Canadian Heritage River System Secretariat on the theme *Rivers: Building Nations...Sustaining Peoples*;
- ◆ Maintaining the three Hillsborough River Canadian Heritage River monuments at focal points on the Hillsborough with one being bilingual and two being trilingual (Mi'kmaq, French, & English);
- ◆ Co-development of the Hillsborough and Area Watershed Cooperative to facilitate watershed improvement and education on the Hillsborough and Vernon River watersheds;
- ◆ Continuing the branding of the Hillsborough River including the Port of Charlottetown as a Canadian Heritage River;
- ◆ Maintaining an active publishing, education, and community consultation program;
- ◆ Expanding its historic photograph image bank;
- ◆ Implementing and advocating for projects to improve water quality, habitat, and culture knowledge and conservation;
- ◆ Conducting stream enhancement activities including but not limited to: brush mat building; sediment trap installation and maintenance; native tree and shrub planting; cover structure placement for salmonids; community aquatic monitoring program (CAMP) estuary sampling; beaver management; removal of silt from Jay's Pond; and other projects;
- ◆ Improving public recreation access;
- ◆ Assisting the Hillsborough and Area Development Corporation in delivering six Bald Eagles Festivals at the Hillsborough River Eco-Centre;
- ◆ Adding a photographic bird display and artifacts to the Hillsborough River Eco-Centre, an interpretive centre featuring displays on the Hillsborough River's cultural and natural history;
- ◆ Expanding knowledge regarding the occurrence of little known species on PEI;

- ◆ Reviewing and providing expert advice on CHRS website materials; and
- ◆ Expanding knowledge on the history of various cultures on the Hillsborough.

One of the most important achievements is improved public awareness of the Hillsborough River and its values as well as improved communications among the diverse partnerships who are working towards the Hillsborough's *River Vision 2020*. A timeline is included in this report that summarizes some of the important achievements. A subjective assessment of the Hillsborough's *River Vision 2020* was developed and a series of recommendations on new projects is provided.

This report has determined that the majority of Hillsborough River heritage and natural values remain intact and that recreational opportunities have increased. Significant progress has been made in certain areas. The conclusion of this report is that the Hillsborough River is worthy of continued designation as a river of national significance within the Canadian Heritage Rivers System.



Figure 1. Great Blue Heron at Allisary Creek Impoundment. Photo courtesy John Sylvester ©



Figure 2. Saltmarsh and sand flats on the Hillsborough River, Prince Edward Island near Hickey's Wharf. Photo courtesy John Sylvester ©

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Section 1: Chronology of Significant Events, Actions and Research since Designation

1.0 Introduction

The Canadian Heritage Rivers System (CHRS) is a national program promoting river heritage conservation through the recognition of Canada's outstanding rivers. A cooperative effort of federal, provincial and territorial governments, the CHRS requires annual reports and an in-depth monitoring report every ten years to determine if the designated river retains the outstanding heritage values for which it was originally nominated.

In 1991, the Island Nature Trust under contract from the Prince Edward Island Department of Tourism, Parks and Recreation completed a systems study of 17 Island rivers for the Canadian Heritage Rivers Board. Three rivers were selected for consideration and assessed against the CHRS's cultural, natural and recreational values. In January 1994, the Hillsborough River became the first river in Canada to be co-nominated by a provincial government and a local group, the Hillsborough River Association. The Association then coordinated meetings with the people in the watershed and also with other interested parties to gauge public support for the designation of the Hillsborough and, as strong support was present, the Association developed *Charting a Course: A Management Plan for the Hillsborough River*. This plan was submitted to the Canadian Heritage Rivers Board and, in January 1997, the Hillsborough became the first designated Canadian Heritage River in Prince Edward Island and the 17th in Canada.

The Hillsborough River Association is a volunteer not-for-profit charitable organization whose role is to champion the Hillsborough's *River Vision 2020*. Its Board is community based and the Association functions through both formal and informal partnering, creation of a community presence, and education.

The purpose of this latest 10 Year Monitoring Report for the Hillsborough River is to fulfill the CHRS requirement to undertake a ten year monitoring report every decade after designation that assesses the values for which the river was nominated and determine if the river continues to possess these values and thus continues to merit designation.

The *Hillsborough River Prince Edward Island Monitoring Report 2007-2017* will be tabled at the Canadian Heritage Rivers Board meeting in the spring of 2017. This report is for information purposes only and is meant to be a concise and informative evaluation.

2.0 Background

The Hillsborough River lies on the south central portion of Prince Edward Island between approximately N 46.387° and N 46.227° Latitude and W 62.805° and W 63.143° Longitude (Figure 3). The Hillsborough's estuary extends eastward from the confluence of the West and North Rivers at Charlottetown to Head of Hillsborough and the uplands of the Hillsborough's many tributaries. More particularly, the Hillsborough River runs from the headwaters of the mainstream in Head of Hillsborough, the headwaters of its many tributaries, and is bounded by a line running from Duchess Point at Victoria Park in Charlottetown Harbour to Battery Point in Stratford (Figure 4). It lies in the Appalachian-Acadian Physiographic region (Canadian Heritage Rivers System, 2001b).

The Hillsborough River watershed is the Island's largest watershed representing 6.2 % of the Island, an area of 347.22 square kilometers. For centuries, the Hillsborough's estuary served as the Island's primary Mi'kmaq travel corridor from the Northumberland Strait to the portage routes to the north shore of Prince Edward Island. The Mi'kmaq fished and lived along its shores. Later, in the 18th century, the presence of

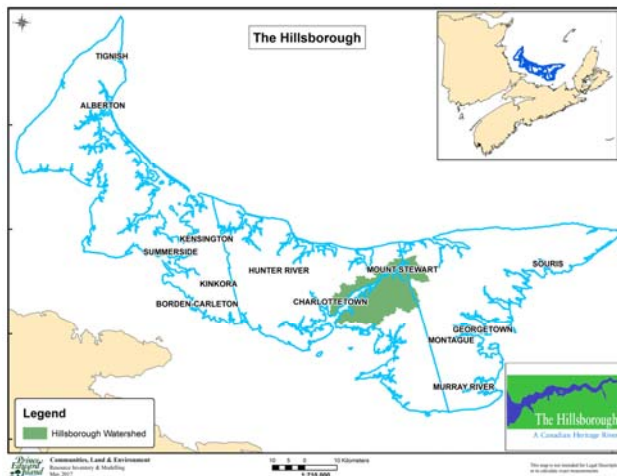


Figure 3. Watershed locator map for the Hillsborough River, Prince Edward Island. Illustration courtesy PEI Department of Communities, Land and Environment.

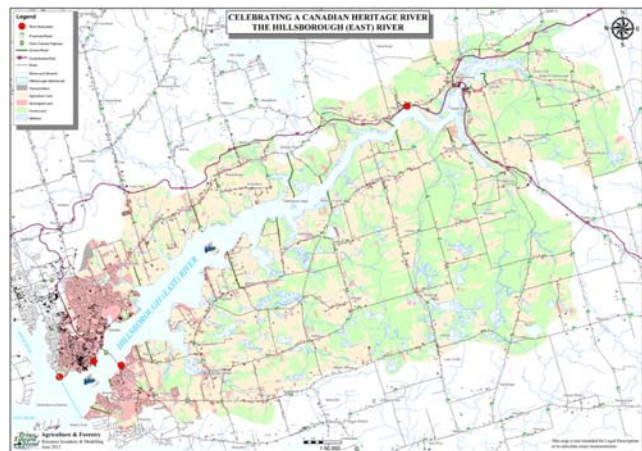


Figure 4. Map of Hillsborough River watershed. Illustration courtesy PEI Department of Communities, Land and Environment (for larger version see page 112).

this superb travel corridor allowed European settlers to develop their shipbuilding, farming, fishing, and trading enterprises.

The 33 km Hillsborough River and its 12 km estuary became the first river nominated from Prince Edward Island in January 1994. Its extensive wetlands, heron and tern colonies, and remnants of Acadian dykes and historic shipyards are just some of the outstanding natural and cultural values of this historic river that led to its designation in January 1997.

The Hillsborough's natural value centers on its essence as an estuary with extensive salt marshes—a rich breeding and feeding area for shellfish, fish, birds and other creatures of the land and fresh waters. With crossings located near either end of the tidal portion of the Hillsborough River and no highways immediately adjacent to the river for most of its length, viewing opportunities of the magnificent panorama of the pastoral landscape along the Hillsborough is an asset worthy of protection (Figure 5). It is thus important that the access corridors to the river be retained in public ownership and that a plan be developed to address the variety of challenges to access that have been identified (fallen trees blocking the path, erosion, route identification, and encroachment into the right-of-way).



Figure 5. Access road sign for the Hillsborough, a Canadian Heritage River. Courtesy Hillsborough River Association.

3.0 Methodology

The deliverables for this report were refined through consultations with Mr. Jim Young, Director of Environment, PEI Department of Communities, Land and Environment and Canadian Heritage River Board Member for Prince Edward Island, and Mr. Sean Ledgerwood of PEI Department of Communities,

Land and Environment who is the Prince Edward Island representative on the Canadian Heritage Rivers Technical Planning Committee. This second 10 Year Monitoring Report on the Hillsborough was defined as the period of July, 2007 to January 31st, 2017. The report was approved by the PEI Department of Communities, Land and Environment in May, 2017 and submitted to the Canadian Heritage Rivers Board for approval in May, 2017.

The primary approaches used to gain information about activities and changes on the Hillsborough River during this period were:

- A review of the Hillsborough River Association records including meeting minutes, the “*Hillsborough Tidings*” newsletter, correspondence, annual reports, and publications;
- Interviews with key individuals with the Hillsborough River Association;
- E-mails, telephone conversations, and meetings with members of the Hillsborough River Association’s Board;
- Correspondence, telephone consultations and interviews with key members of government and non-government organization staff or volunteers (see Appendix 1);
- A review of significant legislative changes that impact or potentially impact the cultural, natural, and recreational values of the Hillsborough River;
- The collection of stream enhancement data including but not limited to: brush mat building, sediment trap installation and maintenance, native tree and shrub planting, cover structure placement for salmonids, community aquatic monitoring program (CAMP) estuary sampling, beaver management and other activities;
- On site observations (e.g. demonstration areas, experimental sites, events);
- A search of relevant literature sources including newsletter and magazine series (*Island Magazine*; *Island Naturalist*; *Island Nature Trust Update*; *Island Trails*; *The Scots Thistle*); and
- A search of newspapers, government and non-government organization databases and web sites for either key words related to the Hillsborough Canadian Heritage River objectives and specific events identified by interviewees or the President of the Hillsborough River Association or a researcher hired by the Association.

Utilizing these approaches, the Hillsborough River Timeline (Table 1) was constructed. It represents the more significant achievements by the Hillsborough River Association and its partners, including government, on the conservation of the natural and historical resources and development or development of recreation on the Hillsborough Canadian Heritage River. Certain well known events (e.g. opening of Confederation Bridge) and more holistic programs that cover the entire province (e.g. improved language access) were included to provide a contextual basis for comparison.

The tables defined in the CHRS Principles, Procedures and Operation Guidelines (2016) were populated with data to identify changes in the Hillsborough’s CHRS cultural heritage, natural heritage, and recreational values and to illustrate the progress towards achieving the management goals in *Charting a Course: A Management Plan for the Hillsborough River*. A bibliography addressing the breadth of the achievements in the delivery of certain aspects of various values was developed. These values include the aspirations of its people in the areas of heritage research and conservation, community pride, ecological integrity, and recreation. Appendix 2 celebrates and acknowledges the individuals who have contributed to the achievement of these values and objectives identified in *Charting a Course: A Management Plan for the Hillsborough River* since it was developed.

Utilizing the information discovered in these various approaches, this report provides an assessment of the validity of The Hillsborough Canadian Heritage River Vision 2020 as expressed on page 3 of “*Charting a Course: A Management Plan for the Hillsborough River*”. Based on interviews with the current and former members of the Hillsborough River’s Board of Directors and an interpretation of its capacity as a volunteer organization, this report provides a subjective assessment on the progress made. Utilizing the information discovered in these various approaches, this report provides an assessment of the validity of The Hillsborough Canadian Heritage River Vision 2020 as expressed on page 3 of “*Charting a Course: A Management Plan for the Hillsborough River*”. Based on interviews with the current and former members of the Hillsborough River’s Board of Directors and an interpretation of its capacity as a volunteer organization, this report provides a subjective assessment on the progress made towards the goals and objectives identified in “*Charting a Course: A Management Plan for the Hillsborough River*” during its second decade since designation as a Canadian Heritage River. The *Hillsborough River Prince Edward Island Monitoring Report 2007-2017* also identifies a number of projects that should be implemented during the next ten year reporting period.

<i>River Vision 2020</i>
As of the mid-1990's, the stakeholders of the Hillsborough River watershed wish it to be:
✓ a model of human heritage, natural heritage and recreational values management;
✓ a river where people have come to terms with development of the watershed in a way that enhances the areas’s natural and heritage values;
✓ a river where people can play and enjoy the benefits of all they have preserved without adversely impacting the river;
✓ a river where participation levels in decisions affecting the watershed are very high and inclusive of all interests;
✓ a river where stewardship is shared and solutions to challenges are developed and delivered in cooperative ways; and
✓ a river where the people are empowered to replace what they draw from the river’s heritage and recreational resources.

4.0 The Hillsborough River Watershed Timeline

Table 1 provides a chronology of the work conducted by the Hillsborough River Association and its many partners in the conservation of the cultural and natural resources and the development of recreation on the Hillsborough Canadian Heritage River since July 2007 as well as the inclusion of precursor dates regarding the designation. Certain well known events that set a comparative context are included in this timeline.

Table 1. A Timeline of Significant Events for the Hillsborough Canadian Heritage River since July, 2007 with the Inclusion of some Relevant Precursor Events to Provide a Time Context.

Year	Description of Events
1992 , November	<i>Background Study of The Hillsborough (East) River</i> prepared
1993 , December 23	Submission of Canadian Heritage Rivers System Nomination
1994 , January 18	Hillsborough River nominated as Canadian Heritage River
1996 , September	<i>Charting a Course: A Management Plan for the Hillsborough River</i> published
1997 , January	Designation of the Hillsborough River as Prince Edward Island's first Canadian Heritage River
1997 , May	Confederation Bridge opened
2000 , July	Confederation Trail "Tip to Tip" trail surfacing completed. PEI becomes the first province to complete its first section of Trans Canada Trail
2002	Mi'kmaq Confederacy of PEI established as common voice for advancement of Treaty and Aboriginal Rights for Abegweit First Nation and Lennox Island First Nation
2006	Phase II development of Confederation Trail commences
2006, May	Government of Canada approves Indian Residential Schools Settlement Agreement
2007 , June	A Hillsborough Canadian Heritage River trilingual plaque was unveiled at Stratford
2007	New Watershed Management Fund inaugurated
2007	Island and Boston editions of the 1922 <i>Souvenir Booklet of the Celebration of the Landing of the Scottish Catholics on Prince Edward Island in AD 1772 and After</i> reprinted by PEI Scottish Settlers Historical Society (PEISSHS)
2007	Watercourse enhancement done at Scotchfort by Abegweit First Nation
2007	The Charlottetown Waste Treatment plant upgrade was completed
2007	Charlottetown waterfront boardwalk extended
2007	Cruise ship visitation hits 25,000 and renovations to cruise ship wharf underway
2007	Two Ducks Unlimited Canada (DUC) small marshes established on the Agriculture and Agri-Food Canada Charlottetown Experimental Farm & Fullerton's Creek water control structure and fishway repaired and dyke armoured
2007	<i>Lands Protection Act</i> Regulations exclude land holding limit for Natural Areas
2007	<i>Beverage Containers Act</i> established
2007	Free groundwater nitrate clinics commence
2007	<i>We are all upstream We are all downstream, We are all part of a watershed</i> report on public consultations released
2007-2014, June	Seven Bald Eagle Festivals held at Hillsborough River Eco-Centre at Mount Stewart
2007, July	Points East Coastal Drive-Hillsborough River Discovery Drive Mount Stewart, Scotchfort, and St. Andrew's Chapel sites signed and website change incorporated
2007, July	Sewage disposal system regulations allow site assessor licensing

Year	Description of Events
2007, July	50 th Anniversary of the “Kirkin’ O’ the Tartan” hosted by PEISSHS at St. Andrew’s Chapel
2007, July	Pigot’s Trail Allisary Creek Impoundment southeast plank trail installed
2007, July-August	Hillsborough Canadian Heritage River maps placed in key commercial stores
2007, August	“Birds of the Hillsborough” unveiled at Hillsborough River Eco-Centre
2007, August	The invasive vase tunicate (<i>Ciona intestinalis</i>) discovered on Hillsborough
2007, September	Mt. Stewart Royal Canadian Legion Branch #4 Cenotaph moved to Hillsborough River Eco-Centre
2007, September	First Pan Atlantic oyster shucking showdown established
2007, September	Georgetown Timber Ltd. announces indefinite shutdown
2007, November	Forest Eco-system Based Management Manual prepared
2007, December	Canada, PEI & Mi’kmaq Partnership Agreement signed
2007-2008	High pressure washing system developed to address tunicates on mussels
2007-2009	Launch of UPEI Robertson’s Library scanning of St. Dunstan’s University and Prince of Wales College archives
2007-2009, summer	Tour de PEI UCI International Women’s cycling races held
2007-2010	<i>Maritime Breeding Bird Atlas II</i> field work underway
2007-2010	Duck Unlimited Canada’s Greenwing Days conducted at Allisary Creek Impoundment
2007- 2012	PEI Scottish Settlers Historical Society publish the <i>Scot’s Thistle</i> newsletter
2007-2016	Hillsborough River Association initiated sampling on six Community Aquatic Monitoring Program (CAMP) sampling locations
2007-2016	Duck Unlimited Canada’s Project Webfoot conducted by Island Nature Trust at Allisary Creek Impoundment
2007-2017	Hillsborough River Association produced <i>Hillsborough Tidings</i> newsletter, and implemented watershed improvement work on an annual basis
2007-2017	PEI Trapper’s Association continued implementation of its Pisquid River Enhancement Project watershed improvement, education and landowner consultations
2007-2017	Wright’s Creek Watershed Environmental Activity continued watershed improvement, trail development, education and landowner consultations
2007-2016	Grades 5 to 9 compete in PEI Heritage Fair—attracting 20 to 30 schools and ~180 children researching and delivering 150 to 170 projects per year
2007-2017	1 Heritage Place designated, 21 registered and 1 de-registered (Mutch House, Stratford), three National Historic Events and 1 National Historic Person were designated
2007-2017	Benevolent Irish Society sponsored Irish heritage lectures and later courses
2007-2017	Nature PEI produced 40 issues of the <i>Island Naturalist</i> newsletter
2007-2017	Caledonian Society of PEI produced its <i>The Caledonian Flame</i> newsletter
2007-2017, November	Remembrance Day ceremonies held at Mount Stewart, Stratford and Charlottetown
2008	<i>Environmental Protection Act</i> Regulations establish new buffers
2008	PEI climate change strategy released

Year	Description of Events
2008	Higher resolution topographic mapping program implemented (LiDAR)
2008	Ecosystem-based Forest Management Standards Manual launch
2008	Great Enlightenment Buddhist Institute Society registers in PEI
2008	Wright's Creek Watershed Environmental Committee <i>Fish Habitat Management Plan</i> developed
2008, February	PEI Heritage Collector Cards launched
2008-2016, May	Fort Augustus Irish Descendants celebrated their Annual Irish Descendants Days
2008, May 26	New statue of St. Patrick unveiled at Fort Augustus Irish Descendants ceremony
2008, May	First province-wide Alternate Land Use Services Program in Canada initiated
2008, May	Town of Stratford released its Sustainability Plan
2008, October	Initial watershed information meeting for Stratford area
2008-2009	Digital elevation model developed and 50 cm contour lines developed
2008-2017	Recreation PEI produced its <i>Recreation PEI</i> newsletter
2009	Hillsborough River Association and Three Rivers Heritage Association applied for and received the Canadian Heritage Rivers Board approval to host the 7 th Canadian River Heritage Conference
2009	New Hillsborough Canadian Heritage River watershed display plaque released
2009	Pisquid River Enhancement Project presented its inaugural "Appreciation Awards for Watershed Stewardship"
2009	The Stratford and Area Watershed Improvement Group (SAWIG) incorporated
2009	Cultural & natural history interpretive panels installed along Confederation Trail
2009	<i>Lands Protection Act</i> amended to exclude natural areas and environmentally significant lands
2009	<i>Pesticides Control Act</i> amended to restrict lawn care products
2009	PEI High Slope Inventory completed
2009	go!PEI launched
2009	Prince Edward Island Historic Places resource guide for schools released
2009	Nancy Russell, Donna Allen, and Audette Chaisson of CBC/Radio-Canada awarded the Gilbert Buote Award from the Sister Antoinette DesRoches Historical Committee for their series "Vive l'Acadie de l'île"
2009	Government of PEI Aboriginal Affairs Secretariat established
2009	<i>Island Lives</i> digitized for UPEI's Robertson Library
2009	Debate commences over the fate of Charlottetown's "Experimental Farm"
2009, January 7	Eastern School District announced permanent school closures for Grand Tracadie Elementary, St. Jean Elementary, Parkdale Elementary, and St. Teresa's Consolidated Schools although St. Jean and Parkdale remained open
2009, April	Shipbuilding in Prince Edward Island designated an historic event of Canada
2009, April 25	Island watershed groups decide to establish the PEI Watershed Alliance
2009, May 2	Inaugural Smelt Festival held at Shepherd's Farm, Pisquid
2009, June 4	Island Trails opened the 13.2 km Dromore Woodland Trail in Public Forests

Year	Description of Events
2009, June	Commission of Land and Local Governance public hearings commenced
2010	New sewage system disposal Regulations established
2010	New forest inventory and orthographic mapping project commenced
2010	Five year Maritime Butterfly Atlas commenced
2010	Conservation strategy for Atlantic Salmon released
2010	2010 Survey of Recreational Fishing in Canada released
2010	<i>State of Wildlife 2007</i> report released
2010	Stratford and Area Watershed Improvement Group (SAWIG) released its updated watershed management plan
2010	Town of Stratford conducted a series of lectures on a Central Museum
2010	Archaeological dig conducted by Patricia Allen at Red Bank (Mount Stewart)
2010	Spirit Spring viewing stand and sign installed on Pisquid River in Dromore
2010	Interpretive plaque for Glenaladale Settlers' first church installed at Scotchfort
2010	Streamside incubation units with up to 10,000 Atlantic Salmon eggs installed on Upper Hillsborough River
2010	Mi'kmaq on Epekwitk ~ The Mi'kmaq on PEI Lunch & Learn series offered
2010	New bridge at Oak Drive - Norwood Road caused significant erosion
2010, April	The Catherine Hennessey Endowment Fund announced
2010, May	Hillsborough River Association Special Viewing of Captain Irving Johnson's <i>Around Cape Horn</i> DVD (Mystic Seaport)
2010, May	Hillsborough River Association hosted David Mosher's "Tall Ships in Action"
2010, June	Hillsborough River Association hosted Catherine Hennessey's "Homesteads of the Hillsborough"
2010, August	Council of the Federation signs Canada Water Charter (all premiers)
2010, September 22	Eastern Gateway Waterfront Master Plan Open House hosted by Charlottetown Area and Development Corporation (CADC)
2010, November	Hillsborough River Association hosted David Mosher's "Tall Ships in Action"
2010, December 6	Survey Quality GPS storm surge benchmark set at Charlottetown Yacht Club
2010, December 21-22	Storm surge and 120 km/hr winds damage various coastal areas
2010-2016, August	"Parkdale Homecoming" celebration gatherings
2011	Culinary Trail developed by Tourism and Culture PEI
2011	<i>2010 State of the Environment</i> report released
2011	PEI Woodlot Owners survey results released
2011	Deportation of the inhabitants of Ile Saint-Jean designated National Historic Event
2011	An Aboriginal Garden Display of a Medicine Wheel opened on Charlottetown's waterfront as part of its Cultural Capital of Canada designation
2011	Shamrock Club of Fort Augustus collected and created historic picture albums
2011	Daniel and JoAnne Murnaghan conferred the Woodlot Owner of the Year Award
2011	SAWIG opens its social media sites (website, Facebook and Twitter)
2011	Glenfinnan Bridge on Route 21 partially collapsed (reopened in 2012)
2011	Hillsborough Area Watershed Cooperative (HAWC) established

Year	Description of Events
2011	Dutch Thompson's recordings, <i>Island Voices</i> , added to UPEI's Robertson Library
2011	<i>Island Imagined</i> added to UPEI's Robertson Library
2011	Eastern Region Sport and Recreation Council established
2011-12	Sewage lagoon at Mount Stewart upgraded to improve effluent quality
2011, April	<i>Island Archives</i> launched by UPEI's Robertson Library consolidating various scanned and digital files on Island History
2011, April 29	Rising Tides: Preparing for Climate Change in Prince Edward Island workshop held at UPEI
2011, May	Hugh Graham wins inaugural Dr. Willie Eliot Research Award for "At the Oval"
2011, June	Doug Sobey's <i>Shipbuilding and the Forests of Prince Edward Island</i> released
2011, August 23	Shipbuilding on PEI as an Historic Event of Canada plaque unveiled
2011, November	Conor Leggott's HRA presentation on Shellfish Closure Areas and Sewage Overflows released
2011, November	GPS Survey Quality points established at Charlottetown and Mount Stewart
2012	John Sylvester commissioned to photograph the Hillsborough and Three Rivers Canadian Heritage Rivers for the 7 th Canadian Rivers Heritage Conference
2012	7 th Canadian Rivers Heritage Conference website opened with virtual aerial tour of the Hillsborough and Three Rivers Canadian Heritage Rivers
2012	Arts and Heritage Trail developed by Tourism and Culture PEI
2012	Corporate Land Use Inventory completed
2012	UPEI Climate Research Lab opens
2012	Abegweit Biodiversity Enhancement Hatchery (fish) commences operation and Moyaert's hatchery dedicated to aquaculture
2012	<i>Technical Manual for Watershed Management in Prince Edward Island</i> released
2012	City of Charlottetown commenced splitting of its remaining combined sewer
2012	Maritime Water Charter Report Card released
2012	Hazelbrook added to SAWIG
2012, February 6	Official launch of Queen Elizabeth II's Diamond Jubilee and Medal Award
2012, July 6	New <i>Canadian Environmental Assessment Act, 2012</i> came into force
2012, August 13	Mi'kmaq - Prince Edward Island - Canada Consultation Agreement signed
2012, August	<i>Prince Edward Island: Planning for a Sustainable Future—A Time for Questions</i> released
2012, August	Shepard Drive in Town of Stratford officially named to recognize the many contributions of Black Islanders
2012, September	New Charlottetown Festival and Event Centre held its first event (Shellfish Festival)
2012, September	Campaign launched to save the historic Glenaladale Estate at Tracadie Cross
2012, October	The historic Sacred Heart Roman Catholic Church built in 1916 at Mount Ryan/Johnston's River was demolished. A memorial steeple was retained.
2012, December	City of Charlottetown's Comprehensive Waterfront Master Plan released

Year	Description of Events
2012-13	Stream crossing inventory of Public Lands managed by PEI Forests, Fish and Wildlife Division developed
2013, January	Federal Court decides Federal Government has jurisdiction for Métis
2013, May 3	Workshop on Planning for Risk under a Changing Environment
2013, June 16-19	7 th Canadian River Heritage Conference with the theme “Building Nations. . . Sustaining People” held at the Prince Edward Delta in Charlottetown with presentations, posters, a boat tour of the Charlottetown Harbour, a field trip to historic and natural history sites on the Hillsborough, a talk with Mi’kmaq Elder Judy Clark, and a visit to the Hillsborough River Eco-Centre, and a field trip to the Three Rivers and the Cardigan Heritage Centre
2013	Stratford and Area Watershed Management Plan released
2013	Centennial of 4-H in Canada
2013	PEI Women’s Institute launches <i>Recognizing... Reflecting... and Responding...</i>
2013	<i>Meacham’s 1880 Atlas</i> reprint released by PEI Museum and Heritage Foundation
2013	Andrew’s Mill Dam drawn down and silt excavated from one area
2013	Bridge built and hiking trail at Andrew’s Pond and Wrights Creek extended
2013	Government of PEI releases Wildlife Conservation Fund license plates
2013	Abegweit First Nation Fish Hatchery opened
2013	Wright’s Creek Fish Habitat Management Plan revised
2013, July	<i>Land’s Protection Act</i> report submitted to government
2013, July 8	Charlottetown City Council approves new Victoria Park management plan
2013, August	Gran Fondo - PEI cycling competitions commenced on the Island
2013, October 3-5	The Georgetown Conference: Rural Redefined held
2013, November	New Public Land Atlas launched
2013, November	“Ni’n na L’nu” “I am one of the people” Mi’kmaq exhibit opened at Confederation Centre of the Arts
2013, December	<i>2010 State of the Forest Report</i> released
2013, December	Closure of Veterans Affairs District Offices
2014	2014 Celebration Ride - PEI Snowmobile Association
2014	Heritage Trail Walking Program - Go PEI
2014	Nitrogen loading criteria identified for the Hillsborough River Basin
2014	Edition #8 <i>Field Checklist of Birds of Prince Edward Island</i> released
2014	Community of Mount Stewart paid off Hillsborough River Eco-Centre mortgage
2014	Hillsborough River Association’s website converted to a Word Press site
2014	PEI’s Sesquicentennial Fund celebration which included: Charlottetown Area Development Corporation’s “Great George Heritage Walk” and the “Historic Hillsborough Commons”; Town of Stratford’s “Diversity Fountain” with Michael Thomas statue and “2014 Kaleidoscope Festival”; City of Charlottetown’s “Commemorative Projects Come to Life”; Friends of St. Andrew’s Chapel Ltd.’s “St. Andrew’s Commemorative Lecture” featuring the life of Father of Confederation Thomas D’Arcy McGee; Irish Literacy

Year	Description of Events
	Association of Fort Augustus's " <i>Just Another Ireland</i> "; Fort Augustus Irish Descendants Association's "Fort Augustus Irish Settlers Day"; The Marshfield Pioneer Cemetery Trust Fund's plaque on "The Forgotten Father—Robert Poore Haythorne"; PEI Genealogical Society's genealogy series on the Fathers of Confederation; Community of Mount Stewart's "Heritage River Festival"; Friends of the Gatehouse Co-op's "Government House Legacy, Research, & Interpretation Project"; and the PEI Museum and Heritage Foundation's "Maritime Heritage Fair", "Beaconsfield Costuming Project", and "Heritage Photographic Exhibit" at the Carriage House
2014	Recreation PEI's "Walk the Lots" campaign, part of Samuel Holland 250 th Anniversary
2014	Tall ships visited Charlottetown
2014	<i>Those Splendid Girls: The heroic service of the Prince Edward Island Nurses of the Great War</i> launched
2014	DUC launched research studies on fish migration at and through fishways
2014, January	Abegweit First Nation Fish Hatchery reinstated Fish Friends program and established rearing tanks in Mount Stewart Consolidated and L. M. Montgomery Elementary School
2014, February 1	CLIVE (Coastal Impacts Visualization Environment) sea rise level and coastal erosion video game for PEI released
2014, February 11	UPEI's Robertson Library launches Islandnewspapers.ca with The Guardian
2014, February 26	Town of Stratford unveiled conceptual drawings for five Hillsborough River public access points
2014, March, 11	Climate Change and Aquaculture symposium held at UPEI
2014, April	Due to its increasing scope of operations, formal audits commenced for Hillsborough River Association Ltd for 2011-12 and 2012-13
2014, April	Storm surge erodes Hillsborough Bridge causeway
2014, April 28,	Island Water Futures: Assessing the Science Symposium (high capacity wells)
2014, May	150 th Anniversary of Caledonian Club of Prince Edward Island
2014, May 12-16	SAWIG delivered "Waters Cool" - Water Education program with Stratford Elementary, Donagh Consolidated, Prince Street and Grace Baptist schools
2014, May 26	Striped Bass forum hosted by Hillsborough River Association
2014, May 25	Fort Augustus Irish Descendants Association launched <i>Just Another Ireland</i> at their 25 th Anniversary celebration with County Monaghan, Ireland
2014, May 31	Scotland's Year of Homecoming Scottish Diaspora Tapestry World Premiere
2014, September 12	Premier Robert Ghiz unveiled plaque commemorating the completion of PEI's Trans-Canada Trail
2014, October 1-4	Heritage Canada The National Trust Conference 2014 <i>Heritage Builds Resilience</i> held
2014, October 4	Senator Robert Poore Haythorne trail opened in Marshfield
2014, October	Construction completed on Stratford to Iona portion of the Trans-Canada Trail and initial public walk held at the Stratford well field property
2014-2015	PEI's snowiest winter in recorded history—551+ cm (18+ ft)
2014-16, June	PEI Recreation Month

Year	Description of Events
2015	Charlottetown launched Dutch Elm disease eradication and sanitation program
2015	250 th Anniversary of Captain Samuel Holland's Survey of Prince Edward Island
2015	City of Charlottetown adopted Brook Trout Conservation Plan
2015	National Truth and Reconciliation Commission of Canada reports released
2015	National Truth and Reconciliation Centre opened at University of Manitoba
2015	Catherine Hennessey's <i>Prince Edward Island Pottery</i> ; Scott MacDonald's <i>Charlottetown: Then and Now</i> ; Allison Roland Jay's <i>Barney and Me</i> , & <i>Second Atlas of Breeding Birds of the Maritime Provinces</i> launched
2015	Consultations on new <i>Water Act</i> commenced
2015, February 24	Charlottetown opened its "Celebrate Mainstreet: A Rich History—A Vibrant Future" exhibit featuring 18 commercial establishments
2015, February 26	Nutrient Management workshop hosted by Pisquid River Enhancement Project and Hillsborough River Association
2015, February	Living Shorelines training offered
2015, March 30	UPEI Climate Research Lab launches its citizen science <i>Climate Diary</i>
2015, March 31	Hon. Wayne Easter commended Island watershed groups in House of Commons
2015, March	Launch of <i>Couldn't Have a Wedding without the Fiddler</i> and <i>Bowing Down Home</i> website at UPEI's IslandArchives.ca
2015, October 25	Benevolent Irish Society reception for Heather Humphreys T.D., Minister for Arts, Heritage, and the Gaeltacht, Ireland
2015, November	Province added a Watershed Ecologist position to address watershed coordination
2016	Charlottetown and Quebec 1864 Conferences designated as National Historic Events
2016, February 16	Charlottetown's "A Walk Though the Past" historical photo exhibit opened
2016, April	Hillsborough River Association hosted Reg Thompson's "The Best of Bygone Days" presentation
2016, April	PEI Scottish Settlers Historical Society initiative allows recreation of the almost-lost Battle of Culloden Glenaladale tartan
2016, June 11	The Scotchfort Hillsborough Canadian Heritage River Monument bilingual plaque was replaced with a trilingual Mi'kmaq, French and English plaque at a public ceremony and Mi'kmaq blessing
2016, June 25-26	PEI Scottish Settlers Historical Society celebrated its 50 th Anniversary with a Ceilidh and the launch of <i>Glenalladale Settlers 1772: Scotland to St John's Island</i> .
2016, July	Hillsborough watershed rated good in new water quality report cards developed by Government of PEI
2016, July-November	PEI Climate Change Mitigation Strategy Public Consultations
2016, August 13	Launch of <i>Tracadie and Area Architectural History</i>
2016, August 20-21	National Trust Launch Pad held for conservation of Glenaladale Estate
2016, October 8	PEI Scottish Settlers Historical Society and Confederation Centre Library

Year	Description of Events
	officially opened the Scottish Diaspora Tapestry display at Confederation Centre
2016, November	New formula established for PEI Watershed Management Fund
2016, November	PEI Climate change mitigation consultation launched
2016, December	New <i>Municipal Government Act</i> passed
2016, December 2	Charlottetown waterfront threat assessment released at public meeting
2016, December 16	Storm surge pushes water over Charlottetown Yacht Club's sea wall
2016, December	Fire destroys historic Cameron nee MacLauchlan House Head-of-Hillsborough
2016-2017	Hillsborough River Association worked with St. John River Society in planning the Canadian Heritage Rivers Canada 150 fund project
2017	Hillsborough River Association completed plans and publicity for the inaugural "All Around the Hillsborough" Snowshoe Event, the first CHR Canada 150 event held in Canada.
2017, January 21	Glenaladale Estate "Buy A Brick" launched and fund raising Ceilidh held
2017, January 23-24	Natural areas workshop held by Town of Stratford

Note 1: Only highlights of environmental legislation, policy and program changes between 2003 and 2010 are included in this list. A complete list for this period is provided in the 2010 State of the Environment Report.

Section 2: Changes and Threats to Natural, Cultural and Recreational Values during the period July 2007 to January 2017.

2.1 Cultural Heritage Values

Background

The Hillsborough watershed has been home to Aboriginal peoples for thousands of years. Today, it is still the home of the Mi'kmaq both on the Abegweit First Nation at Scotchfort and those in the Hillsborough watershed who reside off the Scotchfort Abegweit First Nation lands. Abegweit First Nation also includes land at Rocky Point across the water from Charlottetown and near the Morell River east of the upper Hillsborough. Since the early 1700s, French and British colonization changed the face of the Hillsborough watershed. Based on the Hillsborough River CHR nomination documents, at the time of designation, this river displayed nationally significant heritage sites with two National Historic Sites, one National Historic District, six historic plaques, and archaeological sites of significance to Aboriginal, French, Scottish, Irish and English history.

The Hillsborough was the key inland transportation corridor from the adjacent mainland and thence from the south shore to north shore for both Aboriginal and early European settlers. The richness of animal populations which provided food, the extensive saltmarshes which allowed the production of fodder, streams that could be used as power sources (Figure 6), an abundance of timber and other natural resources, and good soils allowed many cultures to prosper on the Hillsborough. During the latter days of the age of sail, the Hillsborough was a dominant force in shipbuilding, international trade, and crop

production. At the time of designation, there was an abundance of cultural sites identified on the Hillsborough.



Figure 6. Harvesting ice at Andrew's Pond, Charlottetown (East Royalty), PEI Circa 1930s. Photo courtesy of John Andrew.

Condition of Values since Designation

Significant research and other activity occurred on the Hillsborough in respect to the cultural heritage values during the first two decadal Canadian Heritage River reports in 1997 to 2007 and 2007 to 2017. The majority of these achievements have been made by individuals and organizations researching, creating, and or developing historical documents, displays, and other materials. The Hillsborough River Association and the many organizations and individuals espousing similar goals have thus served as the primary partners in the conservation of the historical resources on the Hillsborough. As such, they have been provocateurs of positive change in heritage conservation on the Hillsborough. In addition, the Association and its partners have championed activities to improve public awareness of the status of the Hillsborough as a Canadian Heritage River. Appendix 2 provides a list of those individuals and organizations who were identified during the research for these ten year monitoring reports who contributed to the cultural and natural heritage achievements and the development of recreational infrastructure and community engagement.

As awareness amongst those residing, researching or visiting the Hillsborough is one of the primary management tools, considerable effort has been expended by the Hillsborough River Association and its many partners in identifying the Hillsborough as a Canadian Heritage River. Significant achievements directly led by the Hillsborough River Association include:

- Co-hosting the 7th Canadian Rivers Heritage Conference at the Delta Prince Edward with the PEI Department of Communities, Land and Environment and Canadian Heritage River System Secretariat;
- The installation of a Hillsborough River CHRS plaque in Stratford (2007) with ceremonies that attracted large attendance;
- The replacement of the 1997 bilingual CHR plaque at Scotchfort with a trilingual Mi'kmaq, French and English plaque in 2016 with ceremonies that attracted a large attendance;
- The placement of the 1997 bilingual CHR plaque in the Hillsborough River Eco-Centre;
- Maintenance of a section featuring heritage rivers in the "Prince Edward Island Visitor Guide" as well as on the Points East Coastal Drive's Hillsborough River Discovery Drive which features six stops on the Hillsborough including one for the designation of it as a Canadian Heritage River;
- Continued branding of various map products with the CHRS symbol thus labeling the Hillsborough as a designated Canadian Heritage River;
- Production and distribution of 11 issues of the *Hillsborough Tidings*, the Hillsborough River Association's newsletter;

- Development of education programs including: the Hillsborough River Association's Community History Education Series and articles in newspapers, community newsletters, and other publications;
- Presentations to municipal, provincial and federal governments as well as various non-government organizations;
- Hosting public forums and community consultations;
- Design and installation of Hillsborough CHRS wall displays in municipal headquarters,
- Maintenance of the Hillsborough River website and development of its Facebook site HRA Watershed Management and its Twitter account;

Exploring the Hillsborough A Canadian Heritage River

A project of the Hillsborough River Association

Hillsborough Adventures

NW to NE to SE to SW from Delta

Culture and Heritage: 🏠

1. Prince Edward Battery
2. Fanningbank - Government House
3. Beaconsfield Historic House
4. PEI Regiment Museum (Queen Charlotte Armoury)
5. Province House National Historic Site
6. Coles Building and Public Archives
7. Founders Hall - Canadian Birthplace Pavilion
8. Historic Monuments
9. HMCS Queen Charlotte Naval Artifacts
10. Ardgowan National Historic Site
11. Abegweit First Nation
12. Hillsborough River Eco-Centre
13. St. Andrew's Chapel and Bishop A.B. MacEachern National Historic Site

Walking and Hiking: 🥾

1. Waterfront Boardwalk and Extension
2. Confederation Trail
3. Hillsborough River Walkway
4. East Royalty Nature Pathway
5. Royalty Oaks Natural Area
6. Mt. Stewart Wildlife Management Area Trails
7. Dromore Trail
8. Auburn Demonstration Woodlot
9. Robert L. Cotton Park Trail and Stratford Trails

Cycling: 🚲

1. Confederation Trail
2. Robert L. Cotton Park Trail and Stratford Trails

Driving Tour: 🚗

1. Viewing the Hillsborough

Water Tours: 🚤

1. Hillsborough River and Harbour Cruises

Birding: 🐦

1. Waterfront Boardwalk and Extension
2. Hillsborough Bridge
3. Belvedere Pond
4. Battery Road Saltmarsh and Glenfinnan Island
5. Pigot's Trail
6. Dromore Birding Trail
7. Auburn Demonstration Woodlot
8. Stratford Lagoon

Golfing: ⛳

1. Belvedere Golf Club
2. Fox Meadows Golf and Country Club

Aventures sur la rivière Hillsborough

N.-O. à N.-E. à S.-E. à S.-O. du Delta

Culture et patrimoine : 🏠

1. Batterie du Prince Édouard
2. Fanningbank, la Maison du gouvernement
3. Maison historique Beaconsfield
4. PEI Regiment Museum (Queen Charlotte Armoury)
5. Lieu historique national Province House
6. Immeuble Coles et Archives publiques
7. Salle des fondateurs - Pavillon du lieu de naissance du Canada
8. Monuments historiques
9. Matériel naval du NCSM Queen Charlotte
10. Lieu historique national Ardgowan
11. Première nation Abegweit
12. Éco-Centre de la rivière Hillsborough
13. Lieu historique national dédié à l'évêque A.B. MacEachern et la chapelle St. Andrew's

Marche et randonnée pédestre : 🥾

1. Promenade sur front de mer et extension
2. Sentier de la Confédération
3. Passerelle de la rivière Hillsborough
4. Sentier de la nature de East Royalty
5. Espace naturel de Royalty Oaks
6. Sentiers de l'air de gestion de la faune de Mt. Stewart
7. Sentier de Dromore
8. Bois de démonstration d'Auburn
9. Sentier du parc Robert L. Cotton et les sentiers de Stratford

Cyclisme : 🚲

1. Sentier de la Confédération
2. Sentier du parc Robert L. Cotton et les sentiers de Stratford

Visite en véhicule : 🚗

1. Admire la rivière Hillsborough

Randonnées sur l'eau : 🚤

1. Croisières sur la rivière et dans le port de Hillsborough

Observation d'oiseaux : 🐦

1. Promenade sur front de mer et extension
2. Pont de Hillsborough
3. Étang Belvedere
4. Marais salé du chemin Battery et l'île de Glenfinnan
5. Sentier Pigot
6. Sentier d'observation des oiseaux à Dromore
7. Bois de démonstration d'Auburn
8. Lagune de Stratford

Golf : ⛳

1. Belvedere Golf Club
2. Fox Meadows Golf and Country Club

Hillsborough River

La rivière Hillsborough

The map of Mount Stewart circa 1880 railway and other features related to Meacham's Illustrated Historical Atlas.

La carte de Mount Stewart datant d'environ 1880 montre le chemin de fer et d'autres caractéristiques liées à l'Atlas Historique Illustré de Meacham.

Figure 7a. CHRS display at the Delta Prince Edward Hotel, Charlottetown.

- Retention of the CHRS display in the Delta Prince Edward, the Island's largest hotel and convention location, which lies on the bank of the Hillsborough (Figures 7a & b). This display is supported by visitation points for three tour themes and is supported by the Association's website;
- Co-hosting seven Bald Eagle Festivals at the Hillsborough River Eco-Centre in Mount Stewart; and
- Leadership in the creation of the Hillsborough Area Watershed Cooperative to facilitate funding access through the PEI Watershed Fund.

During its first ten years after designation, three CHR plaques were installed with one being a bilingual plaque with French and English and two were trilingual plaques with Mi'kmaq, French and English. The third plaque was completed at Stratford as the organization celebrated its 10th anniversary. To better represent the inclusion of the Aboriginal people and their many roles on Elsetkuk, the Hillsborough, the

Explorer la rivière Hillsborough

Une rivière du patrimoine canadien

Un projet de la Hillsborough River Association

la rivière Hillsborough Menaqa ankaptm+k L's+tkuk

The map shows the river's course from its mouth at Charlottetown to its headwaters in the north. Key locations marked include Mount Stewart, St. John's, and various smaller settlements. The map also shows the river's connection to the ocean and its role in the local economy.

Historical Photographs and Illustrations:

- Top Left:** A black and white illustration of a Mi'kmaq birch bark canoe. Text: "The Mi'kmaq's birch bark canoe allowed fishing and provided transport back and forth between the mainland and the island. Courtesy of P. John Borden. Le canot d'écorce des Mi'kmaq leur permettait de faire la pêche et le transport aller-retour entre la terre ferme et l'île. Hommage de P. John Borden."
- Top Right:** A black and white photograph of a small boat on the water. Text: "The Acadia shallop (chaloupe) provided access to coastal fisheries such as the cod fishery. Courtesy of P. John Borden. Le chaloupe acadienne donnait accès à la pêche côtière, telle que la pêche à la morue. Hommage de P. John Borden."
- Middle Left:** A black and white photograph of a large sailing ship. Text: "Many of the Scottish, Irish and English shipbuilders on the Hillsborough built brigantines such as the V.C.R. Hinchin ex-Edith built in 1843 at Mount Stewart by David Egan, James N.L. de Jong and M.E. Moore's Launched from Prince Edward Island. Courtesy of Museum and Heritage PEI. De nombreux constructeurs de navires écossais, irlandais et britanniques sur la rivière Hillsborough bâtissaient des brigantines tels que le V.C.R. Hinchin (ex Edith) construit en 1843 à Mount Stewart par David Egan, James N.L. de Jong et de M.E. Moore. Lancé par Prince Edward Island. Hommage de Musée et patrimoine L.-P.-É."
- Middle Right:** A black and white photograph of a large, ornate house. Text: "Built in 1877 by a wealthy shipbuilder and merchant, Beaconsfield Historic House features guided tours of its Victorian furnished rooms. Photo: Government of PEI. Construite en 1877 par un constructeur de navires et marchand prospère, la maison historique Beaconsfield offre des visites guidées de ses pièces au décor victorien. Photo: Gouvernement du P.-É."
- Bottom Left:** A black and white photograph of a large, ornate house. Text: "Finished in 1847, Province House National Historic Site is the Birthplace of Confederation and is the second oldest active provincial legislature in Canada. Guided tours are available. Photo courtesy of Parks Canada, John Spleenier. Terminé en 1847, le lieu historique national Province House est le lieu de naissance du Canada et est la deuxième plus ancienne législature provinciale active au Canada. On y offre des visites guidées. Photo: Parks Canada, John Spleenier."

Map Details:

- Top Left:** A small inset map showing the location of the Hillsborough River within the province of Prince Edward Island.
- Bottom Left:** A small inset map showing the location of Mount Stewart within the Hillsborough River watershed.

Text on the Map:

- Top Left:** "I gave way to the sea in 2000. on P.E.I. river. Courtesy of P. John Borden. Je me suis évaporée en 2000. sur la P.-É. rivière. Courtesy of P. John Borden."
- Bottom Left:** "Mount Stewart 1847-51. Photo: Government of PEI. Mount Stewart 1847-51. Photo: Gouvernement du P.-É."

Website: www.mounstewartpei.com

Figure 7b. CHRS display at Delta Prince Edward Hotel, Charlottetown.

bilingual original plaque at Scotchfort beside the Abegweit First Nation was replaced with a trilingual plaque with Mi'kmaq, French and English on June 10th, 2016. The original plaque was placed in the Hillsborough River Eco-Centre.

A tidal river where a significant amount of the cultural artifacts are located near the river bank is a dynamic environment and the shores of the Hillsborough have changed over time due to natural forces (tidal action, storms, freeze-thaw cycles, erosion, and sedimentation) and human intervention. The various wharves have deteriorated from erosion and rot. Some structures have been lost to age, fire, vandalism, or misadventure. Towards the end of the first decade after designation and, until now, a small number of individuals utilizing historical records, archaeological reports, and electronic equipment have continued to mine and remove cultural artifacts from the Hillsborough to sell on the internet or to add to their private collections. Despite these factors, the Hillsborough is a vibrant place in which there are more artifacts and structures than there is display space, staff, or financial resources to interpret the material resources. Cruise ship visitation has soared from 25,000 in 2007 to 65,500 passengers and 30,900 crew on 57 ship visits in 2016. The latter was down from 73 ships in 2015 but cruise visitation for 2017 is projected to set new records.

Several event storms and storm surges occurred in the decade which caused significant damage to infrastructure and shoreline sites (Figure 8). The UPEI Climate Lab was opened in 2012 and, in conjunction with the Government of PEI, a variety of studies were released. Larger communities on the Hillsborough were briefed on predicted flood levels from storm surge events along tidal waters. In 2013, the PEI Department of Environment, Energy and Forestry released the Community Climate Change Vulnerability for Prince Edward Island to identify and discuss the impacts of a changing climate on the community, and to consider possible means to lessen these effects i.e. develop adaptation strategies for the future. Flooding and erosion were the focus of this assessment and Mount Stewart was one of the participating partners. In addition to this assessment, other workshops were developed and offered on erosion control techniques and predicted storm surge vulnerability models. During the winter of 2014-15, the Lab consulted with naturalists and agrologists to develop its *Climate Diary* book which provides space for citizen scientists to record various phenology observations. It was launched at workshops in March. In December 2016, a threat assessment for the Charlottetown waterfront was made available to the public.



Figure 8. Hillsborough Bridge storm surge damage. Photo by Dan McAskill.

The Hillsborough River Association has continued its work respecting conservation of the culture and natural habitat on the Hillsborough watershed and to promote recreation within the watershed. The mortgage of the Hillsborough River Eco-Centre (HRE), an interpretive centre featuring artifacts and displays celebrating the activities of the various cultures and the natural environment of the Hillsborough (Figure 9) was paid off by the Community of Mount Stewart in 2014. The Hillsborough River and Area Development Corporation (HRADC), which was very active in establishing the Eco-Centre, co-hosted along with the Hillsborough River Association seven Bald Eagle Festivals featuring multi-cultural events and food, traditional dress and displays, environmental education and history, making historic crafts (e.g. basketry, furniture caning), children's programming including Mi'kmaq games, cultural foods, and field interpretation. In late 2015, after struggling to recruit new board members for several years, it made a

decision to terminate its operations and transfer remaining funds to charitable organizations devoted to its work. Visitation to Founders Hall ~ Canada's Birthplace Pavilion in Charlottetown decreased in the mid-2010s period and the Charlottetown and Area Development Corporation closed it in 2015. Amidst some controversy, they offered the facility for sale. On a more positive note, in 2013 significant restoration work of stonework was done to the Richmond Street face of Province House in readiness for the sesquicentennial celebration of the Charlottetown Confederation meetings as well as associated ceremonies including the "Who's Your Father" initiative and unveiling of 1864-2014 statue at Founders Hall for the 2014 celebration.



Figure 9. Hillsborough River Eco-Centre.

Heritage Canada The National Trust Conference 2014 **Heritage Builds Resilience** was held at the Confederation Centre of Arts in October and offered a breadth of presentations. Due to the discovery of significant structural deterioration to Province House, it was closed to the public in 2015 and the historic furniture and artifacts were transferred to Halifax for storage while repairs are completed. So that the historic Charlottetown meeting continued to be celebrated, Parks Canada commissioned McAskill Woodworking and Ladner Upholstery to make replicas of the original furniture of the Confederation Chambre for an interactive hands-on interpretive display in conjunction with the Confederation Centre of the Arts.

Beaconsfield Historic House Site and its Carriage House were rehabilitated, more cultural programming opportunities were provided at Carriage House, a five year capital fund was provided by Government to address site maintenance and renovations and expert advice was provided on various cultural committees and conference initiatives. In addition to this work, interpretive panels on Charlottetown's history were developed and displayed; banners celebrating the contributions of veterans were placed in the City of Charlottetown and Town of Stratford; a variety of art installations were made in the downtown core of Charlottetown; a number of historic homes in Charlottetown were restored; enhancement of personal collections and conservation of artifacts occurred; the Town of Stratford acquired the original property map of Southport (Stratford); *Tracadie and Area Architectural History* was released; and much more (see Timeline and Bibliography). The City of Charlottetown offers the Heritage Incentive Program which provides a variety of incentives to conserve heritage buildings.

Advocacy work continued on heritage activities especially during Heritage Week in February. The PEI Museum and Heritage Foundation, City of Charlottetown, and the Town of Stratford held heritage award ceremonies to celebrate individual and collective achievements. These awards cover a range of achievements from publishing to heritage restoration projects. On the Hillsborough River watershed under the Heritage Places Protection Act, 21 additional structures were registered, one was designated, and one was deregistered as Heritage Places. In 2011, Deportation of the Acadians of Île Saint-Jean and the tradition of shipbuilding in Prince Edward Island were recognized as a National Historic Events. The former plaque was unveiled at Port La Joie-Fort Amherst in 2014 and the shipbuilding plaque was installed at Cardigan in 2014. As well, thanks to the persistence of the PEI Scottish Settlers Historical Society, John MacDonald of Glenaladale was designated a Person of National Historic Significance on June 26, 2012. A bronze plaque has been cast and is to be installed in 2017. In late 2016, research was completed on a submission proposal to support the designation of the Prince Edward Island Railway as a National Historic Event.

During this past decade, significant progress was made respecting Mi'kmaq on Prince Edward Island. The Mi'kmaq Confederacy of Prince Edward Island continued to be very active in pursuing resolution of

various issues respecting Aboriginal treaty and land rights, negotiation of agreements with the Province of Prince Edward Island and the Government of Canada, documentation of oral history and resource use, pursuit of economic opportunities, and development and offering of educational opportunities respecting Mi'kmaq history. Abegweit First Nation signed the Canada, PEI & Mi'kmaq Partnership Agreement in 2007 and Mi'kmaq-Prince Edward Island-Canada Consultation Agreement in 2012, and the Mi'kmaq Confederacy of Prince Edward Island Child and Family Services and PEI Department of Social Services and Seniors Child Protective Services Protocol in 2013. These agreements address but are not limited to education, Aboriginal justice, economic development, health and culture. In 2009, the Angling Summary included a statement recognizing that the Island was the traditional ancestral home of the Mi'kmaq and that the peace, friendship and trade treaties signed with the British in the 1700s continue today. Abegweit First Nation celebrated its annual Mawiommi (PowWow) in June each year during the past decade. Mount Stewart Consolidated School began offering a course for all students on Mi'kmaq history and language and efforts were commenced to better represent the Mi'kmaq culture within the school. Abegweit First Nation and the PEI Department of Communities, Land and Environment entered into the Scotchfort Co-management Agreement in December, 2010 on 282 ha immediately north of the reserve and have hired a technician and workers to manage these designated Provincial Forest lands.

The Native Council on PEI continued its annual Abegweit PowWows at Panmure Island. It has been pursuing the establishment of the Kelewatl Natural Life Harvesting Commission and potential application of the 2016 *Daniels v Canada* (Indian and Northern Affairs) Supreme Court Judgement decision. In 2015, the Truth and Reconciliation Commission released a series of reports, namely: *Honouring the Truth, Reconciling the Future; What We Have Learned; The Survivors Speak; and Truth and Reconciliation Commission of Canada: Calls to Action*. In 2009, the Government of PEI established its Aboriginal Affairs Secretariat to, amongst other duties, address: intergovernmental representation in various forums; foster and maintain positive relationships with First Nations and Aboriginal organizations; provide general information about Mi'kmaq and Aboriginal organizations; develop and maintain public policy of duty to consult; provide advice on policy matters related to Aboriginal and treaty rights; manage archaeology and palaeontology within Prince Edward Island; and other duties. The Liberal Federal Government announced the new departmental name "Indigenous and Northern Affairs Canada" in 2015 symbolically recognizing the indigenous peoples of Canada.

Acadian culture was celebrated with new publications, heritage awards, the designation of the 1758 Deportation of Acadians from Île Saint-Jean as a National Historic Event, Confederation Centre of the Arts staging *Evangeline* with written material and history of 1755 deportation of Acadians, speakers series on Acadian culture at Miscouche, Farmers Bank in Rustico, UPEI, and various other sites, participation in the Eagle Festival at the Hillsborough River Eco-Centre (Figure 10) including period dress and foods, further program development of the Roma site at Brudenell and Farmers Bank, improved access to French language instruction, presentation and new books on Acadian culture, and other events.

The Benevolent Irish Society initiated a decade long celebration of Irish culture with education programs on Irish history, the Gaelic language, Saint Patrick's Day dinners, ceilidhs, and other aspects of Irish culture. The Fort Augustus Irish Descendants continued with its



Figure 10. Bald Eagle Festival 2014: Roma at Three Rivers volunteers in period costume. Photo by Evelyn Martin.

partnering with County Monaghan, Ireland with a tour and ceilidh in May, established a reading centre at the Irish Cultural Centre in Fort Augustus, researched and published *Just Another Ireland*, offered presentations at the Bald Eagle Festival, and more. The Shamrock Club of Fort Augustus researched and documented the history of the Irish communities around Fort Augustus. UPEI's Institute of Island Studies coordinated lectures on Irish and other cultures on PEI. In autumn 2015, a group of Irish players began the promotion of the Gaelic Athletic Association's hurling and Irish football games on PEI.

The celebration of Scots heritage on the Hillsborough and other parts of the Island was led by the PEI Scottish Settlers Historical Society (PEISSHS). Key achievements included leadership in development of PEI panels for the Scottish Diaspora Tapestry, celebration of their 50th anniversary (Figure 11) with a



Figure 11. PEI Scottish Settlers Processional March - PEI Scottish Settler's Historical Society 50th Anniversary Processional Marsh, Tracadie Cross, PEI. Photo by Dan McAskill.

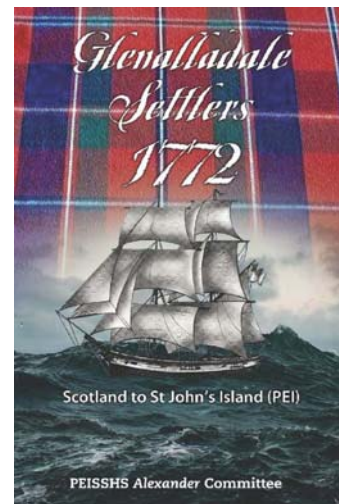


Figure 12. Glenalladale book.

ceilidh and the launching of *Glenalladale Settlers 1772* (Figure 12), creation of the Glenaladale House Committee to lobby for and raise funds to purchase and conserve Glenaladale Estate that led to the formation of the Glenaladale Heritage Trust, co-hosting with Confederation Centre Art Gallery the Scottish Diaspora Tapestry, hosting of Robbie Burns Dinners, offered presentations on Scots culture at the Bald Eagle Festival, offering presentations of Scots culture on PEI, participation in multicultural celebrations, and more. The Caledonia Club of Prince Edward Island was again active celebrating its annual St. Andrew's Dinner which arose from a dinner at Capt. John MacDonald's Glenaladale Estate, the annual PEI Highland Games and Scottish Festivals (#s143-152), Tartan Day celebrations, stitching panels for the Scottish Diaspora Tapestry, hosting Robbie Burns Concerts, and publishing *The Caledonia Flame* newsletter. Discussions commenced on a rejuvenation of the Gaelic language on PEI. Established in 1989, The College of Piping and Celtic Performing Arts of Canada continued its teaching of Highland bagpiping, Scottish-style drumming, Highland dancing and Island step dancing and its performances including Highland Storm in Summerside. For a portion of the time, they were offering certain classes in Charlottetown. A number of the groups representing Gaelic culture explored the development of better communications and education programs on the Gaelic culture and language. The Island lost noted family genealogist Waldron Leard of Kingsboro in 2015.

2015 marked the 250th anniversary of the survey of Prince Edward Island by Capt. Samuel Holland. This was celebrated with the restoration of his historic lot and township map, the launch of *Samuel Holland: His Work and Legacy in Prince Edward Island* (Figure 13), and a series of presentations and newspaper articles.

Multi-cultural festivals or events were celebrated in Charlottetown, Stratford, Mount Stewart and some other areas of the Province. The rich history of Black Islanders was celebrated during Black History Month in February with a variety of publications, presentations and musical events. Besides those above, a variety of cultural groups celebrated their rich cultures through meals, events, and publications. The Town of Stratford named Shepard Drive to recognize the contributions of the Island's Black Community as represented by David Shepard and Kesiah (Wilson) Shepard and Lawrence Hill, the author of *The Book of Negroes* assisted with the ribbon cutting ceremony on August 8, 2012. Stratford unveiled its Diversity Fountain which featured a statue of Michael Thomas, a renowned Mi'kmaq long-distance runner on its waterfront in October 2012 and assisted with the creation of the Michael Thomas Race Day in Stratford.

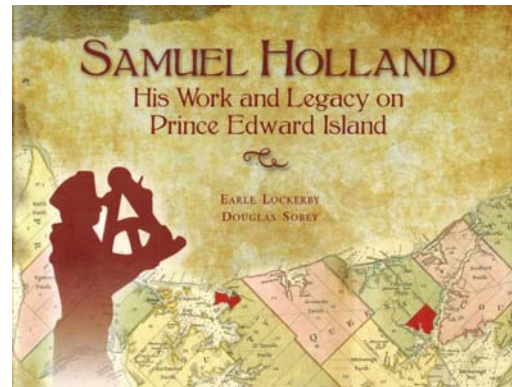


Figure 13. Samuel Holland book: Winner of the PEI Museum and Heritage Foundation's Publication of the Year celebrated Captain Samuel Holland's 250th Commemoration ceremony. Photo courtesy Earle Lockerby and Douglas Sobey.

Remembrance Day ceremonies were held in Mount Stewart, Stratford and Charlottetown. The J. Hamilton Douglas Legion in Mount Stewart continued its school visitation and student writing and art competitions which were awarded during the Remembrance Day ceremony at St. Andrew's Church. The Town of Stratford's Heritage Committee first developed its Stratford Heroes banners featuring local veterans from WWI, WWII, the Korean War and Afghanistan mission in 2011. Since then, they have added more banners which are displayed on town bus shelters and at Stratford Town Centre. In 2015, a series of 13 banners depicting a Victoria Cross winner from each province which had a veteran who had received this medal and a generic banner for each of the territories where no one had received this distinction. These banners were conceptualized and designed by Brent Wilson of the Gregg Centre for the Study of War and Society at UNB. Charlottetown used these banners as part of its 2015 Toll of War campaign.

In part, the culture of a community lies in its retention of its language and music. Since designation, there has been a resurgence of language training with the addition of Mi'kmaq and Gaelic classes and changes to legislation and policies to expand French language services. The revitalization of the Island's traditional music styles and crafts have seen numerous performances, expositions, shows, and festivals. Some of the venues on the Hillsborough watershed include Confederation Centre of the Arts, The Guild (formerly Art Guild), Trailside Café, St. Andrew's Chapel, Tracadie Community Centre, Dunstaffnage Community Centre, Fort Augustus Recreation Centre, Carrefour, Confederation Landing, Victoria Row, and various art galleries.

On its *Mainstreet* Program, CBC Radio produced three series featuring life on the Island and its history (*Bygone Days*, *Island History*, and *In the Garden*). The latter production ended during the decade. The hosts of *Island Morning* and *Mainstreet* also conducted many interviews on various aspects of heritage, natural history and outdoor recreation. In addition to these achievements, researchers and writers have produced publications on community history, family genealogy, transportation systems, recreation, natural history, and much more. The City of Charlottetown hosted a fund-raising dinner to establish the Catherine Hennessey Endowment Fund which is held by the Community Foundation of PEI to help host events to encourage an understanding of the City's cultural landscape. In late 2016, the arrangements were put in place to restore the 18 bells from St. Dunstan's Basilica which have been in storage since their

removal 40 years earlier. The long list of the achievements in the Hillsborough River's Timeline (Table 1) and the number and breadth of publications offer real proof of what has been achieved in the past decade.

Despite these many achievements, volunteer organizations and government agencies are under constant pressure imposed by flat line or reduced budgets and expanded roles and responsibilities. More and more volunteer time is being spent competing for limited project funds or filing the necessary paperwork respecting the project. Termination of funding streams and re-branding of government programs also creates challenges to volunteer watershed groups. There is a need for governments to be more timely in confirming support for projects so that organizations have the necessary lead time to allow marketing of interpretive sites, accessing well qualified students, and deliver necessary training and work plans. In addition, the value of volunteer time must be rewarded by less burdensome processes. Thankfully, the PEI Watershed Management Fund provides core funding to hire part-time watershed coordinators for the watershed groups working on the Hillsborough River.

Table 2 summarizes the status of the cultural heritage values identified in the Nomination Document for the Hillsborough. These have been grouped into the CHRS *A Cultural Framework for Canadian Heritage Rivers*, 2nd Edition themes and sub-themes.

Table 2. Changes and Threats to Cultural Values on the Hillsborough River during the period July, 2007 to January 2017.

CULTURAL VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
1. RESOURCE HARVESTING			
Sub-theme: 1.3 Extraction of Water - Direct drive power generation	New well field creation in Stratford - long term impact; historic mills researched and mapped - positive knowledge improvement;	Need for new water supplies for Stratford; Improving public knowledge	Assessments conducted for Stratford well field & well field protection plan developed; JoDee Samuelson UPEI Master's Thesis
2. WATER TRANSPORT			
Sub-theme 2.1 Commercial Transportation			
2.1.1. Prehistoric trade element			None
2.1.2 Portage routes	Ingrowth	Natural succession	None
2.1.3 Powered commercial trade—wharves along river	Ingrowth along wharf access roads reducing access	Natural succession	HRA brushed out most of the access roads; Town of Stratford commissioned proposals for improved access and public consultation meeting held

CULTURAL VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
Sub-theme 2.2 Transportation services			
2.2.3 Shipyards element: Numerous shipyards along estuary	Historical knowledge improved		Articles in <i>Hillsborough Tidings</i> newsletter
2.2.4 Facilities for loading and provisioning passengers	Increased cruise ship visitation	Tourism marketing	Workshops on cruise ship marketing and experiential tourism development
Sub-theme 2.3 Exploration and surveying			
2.3.1 French explorers: dykes, fortifications, bel-air spring, cemeteries	Weathering causing continued decline of dykes, historic gravestones	Storm tide impacts on dykes; Impact of weather and lichens on gravestones	None for dykes; Conservation measures implemented on some gravestones at Scotchfort, Marshfield & Charlottetown
3. RIPARIAN SETTLEMENT			
Sub-theme 3.1 Siting of dwellings			
3.1.1 Seasonal campsites: Mount Stewart	Red Bank Mi'kmaq site negatively impacted; Knowledge on this site improved	Sewage lagoon upgrading at Mount Stewart;	Archaeological excavations implemented and inventoried; Bruce Pigot's artifacts from site were documented
3.1.2 Homestead or farm: Glenaladale Estate		Family placed it on the market—fate dependent on who buys it	PEI Scottish Settlers Historical Society established fund raising campaign; Glenaladale Heritage Trust established to acquire and conserve it; National Trust Launch Pad implemented;
3.1.4 Dispersed dwellings in settlements: Fort Augustus-Irish settlement	Gradual loss of knowledge through death or age induced memory loss and disease	Need to transfer knowledge	<i>Just Another Ireland</i> book developed and launched by Fort Augustus Irish Descendants; Photographs collected and placed in theme binders at Shamrock Club

CULTURAL VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
Sub-theme 3.2 River Based Communities			
3.2.2 River industry based communities	Negative impacts of sewage on water quality	High rain events & combined sewer in Charlottetown cause direct discharge; Increase in population of Stratford; Aging of sewage treatment facilities	Splitting of the combined sewer system in Ch'town; Improvements of Ch'town, Stratford and Mount Stewart sewage treatment systems; Closure of a trailer park lagoon system and transfer to Charlottetown sewer treatment facility
Sub-theme 3.3 River influenced Transportation			
3.3.2 Road bridges, rail bridges, & river-influenced roads and railways	Significant erosion and infrastructure aging; Loss of Fullerton's Marsh walking bridge	Storm events; bridge and road deterioration from age; agricultural practices in conjunction with higher frequency event rainfalls and hedgerow removal	Removal of Clark's Creek Cranberry Wharf Road crossing and stabilization; Replacement of Route 21 Glenfinnan River Bridge; Establishment and utilization of new water flow formula for bridge and culvert entrances; Decommissioning of marine oil terminal in Hillsborough at Charlottetown;
4. CULTURE AND RECREATION			
Sub-theme 4.1 Spiritual Associations	Lack of Mi'kmaq on Scotchfort CHR Monument; Improve knowledge on Mi'kmaq culture	Improve recognition of Mi'kmaq heritage; Loss of Mi'kmaq language skills and cultural knowledge	Installed and offered Mi'kmaq blessing for new trilingual Mi'kmaq, French, and English CHR plaque; Researched Mi'kmaq language and oral history through Mi'kmaq Confederacy of PEI; Signing agreements between Mi'kmaq First Nations, Province of PEI and Government of Canada; Establishing Mi'kmaq courses for all students at

CULTURAL VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
			Mount Stewart Consolidated School
4.1.2 Sacred or spiritual sites: springs at Douglas Station and Scotchfort	Ingrowth of Spirit spring in Dromore	Natural succession	HRA developed viewing platform and interpretive signage
4.1.2 Ritual and ceremonial structures and sites: Bishop A.B. MacEachern National Historic Person Plaque, St. Andrew's Church, Scottish Settlers Roman Catholic Celtic Cross	Positive improvements	Concerted work by Friends of St. Andrews, PEI Scottish Settlers Historical Society, PEI Museum and Heritage Foundation, Fort Augustus Irish Descendants, and Benevolent Irish Society	Speaker presentations at St. Andrew's Chapel; Scottish Diaspora Tapestry stitching of 7 panels; PEISSHS unveiling of Diaspora at Confederation Centre; PEISSHS 50 th anniversary launch of <i>Glenaladale Settlers 1772</i> and Ceilidh
4.1.3 & 4.1.4 Burial Sites	Positive improvements	Erosion and natural succession	Maintenance and upgrading of Scotchfort and Marshfield Pioneer Cemetery
Sub-theme 4.2 Cultural Expression			
4.2.1 Riverside museums, art galleries	Resurgence of music and visual arts	Concerted work by musician, entrepreneurs, community organizations, governments; Availability of grants	Trailside Café expanded space and extended live music offerings; Red House Gallery opened in Mount Stewart; East Coast Music Association events and awards continued to be offered; Workshops offered to increase business skills of musicians; Festival of Small Halls inaugurated in 2008 to support Atlantic artists and help fund small community halls great success; 2014 Music Celebrations at Confederation Landing and elsewhere; Creation of

CULTURAL VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
			Charlottetown Events Centre
4.2.2 Culturally associated sites: Ardgowan National Historic Site (NHS), Province House NHS, NHS Plaques, MacDonald Consolidated School, Battery Point (Lot 48), Battery Point (Lot 35) landing site of the <i>Alexander</i> , Glenaladale Estate, St. Andrew's Chapel, John Stewart site (Mount Stewart)	Some positive conservation measures; Some losses	Recognition of Heritage Places; Aging of infrastructure; Fire vandalism damage; Demolition	Rejuvenation of Beaconsfield and Carriage House; Refacing of Province House for 2014 150 th Anniversary celebrations; Addition of 1 designated and 21 registered Heritage Places; Offering heritage awards by the PEI Museum and Heritage Foundation, City of Charlottetown, and Town of Stratford; Demolition of Mount Ryan Roman Catholic Church and placement of Steeple and commemorative plaque on site; De-designation and demolition of Mutch House in Stratford; Holding of National Trust Launch Pad for Glenaladale Estate implemented; 2017 Loss of Cameron-MacLauchlan house at Head of Hillsborough; See also Timeline and Bibliography
4.2.3 Cultural Landscapes: Great George Historic District	Gradual loss of knowledge death or age induced memory loss and disease	Need to transfer knowledge; Tourism opportunity	Renaming Grafton to Euston Street section of University Avenue to Great George Street; Cooperative program between City of Charlottetown and entrepreneurs to install interpretive panels; Research and launching books and other publications (see bibliography)
Sub-theme 4.3 Early Recreation	Inability to mark the Hillsborough River channel	Lack of funds and willingness by federal government	HRA wrote letters and approached government officials to make this change

CULTURAL VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
4.4.1 Recreational Boating: Charlottetown Yacht Club	Improvement for rowing history	Funding & significant loss of boats by roof snow collapse	Rowing PEI established; Successful fund raising campaign to replace boats
4.4.2. Angling: “The S”	Increased fin fish fishery	Increased population of striped bass, rainbow trout, and brown trout	HRA implemented a striped bass fishery workshop; Social media stories and one on one conversations expanded knowledge of opportunities; Angling Summary booklets providing new fishing opportunities in estuary
5. JURISDICTIONAL USES			
Sub-theme 5.3 Environmental Regulation			
5.3.1 Flood Control	Increased flooding of infrastructure	Climate change and sea rise level; Increased frequency of event storms (rainfall, ice, snow)	Establishment and utilization of new water flow formula for bridge and culvert entrances; Educational programs respecting climate change, flooding and erosion (UPEI Climate Lab, Gov't of PEI, and consultants); Modelling & emergency planning for storm flood events and other climate change scenarios; Public consultations respecting a new <i>Water Act</i> (2015-17); <i>Municipal Government Act</i> consultations & Act.

2.2 Natural Heritage Values:

Background

The *CHRS Nomination Document* for the designation of the Hillsborough River and the *Background Study of the Hillsborough (East) River* noted the following key natural heritage features:

- The Hillsborough was ranked first in natural values of 17 Prince Edward Island rivers;
- The Hillsborough's natural value centres on its essence as a tidal estuary with extensive saltmarshes;

- The overall natural beauty;
- The Hillsborough exhibits exceptional natural heritage values at the provincial level;
- 57 rare vascular plants were identified within the watershed, 25 being wetland species;
- The Hillsborough is the largest river system on Prince Edward Island;
- Two species of colonial birds, the Common Tern and the Great Blue Heron, have provincially significant nesting colonies;

Hydrologically, the Hillsborough lies within the Atlantic Ocean Basin and is a stream number 1 element. It falls within the Physiographic Sub-theme 2.1, #4 Appalachian Acadian Uplands Physiographic Province. Freshwater seasonal flow maximizes during snow melt periods (winter or spring) and event rain storms with the long term mean daily peak flow occurring in April and early May. Freshwater flow reaches its lowest mean daily flow during dry periods between July and September. Tidal flows maximize during spring tides, other moon events or storm surges.

Condition of Values since Designation

During the nomination process, it was determined that the natural values of the Hillsborough River on their own do not provide sufficient justification for including the river into the CHRS. However, the importance of the Hillsborough's natural values at a provincial level was accepted and the *Charting a Course: A Management Plan for the Hillsborough River* identifies management goals to conserve the natural and hydrological resources in the watershed. In addition, the beauty of the Hillsborough was identified as exceptional.

The Island has narrow, freshwater streams that do not afford significant transportation opportunities as they at best allow canoe travel on the larger streams or boats and canoes on impoundments. However, the tidal amplitudes on the Hillsborough's estuary encouraged river navigation by sailing and power vessels during open water conditions and the formation of thick ice in winter allowed sleigh travel and the movement of large buildings. For the first 160 years of the Island's European settlement period, these factors combined with natural resources and good soils allowed for much of the cultural development along the banks of the Hillsborough and its tributaries. The pastoral landscape that was created contributes to the natural beauty of the Hillsborough River and this beauty was identified as a CHRS Natural Heritage Theme. The viewsapes in the Hillsborough estuary, in particular, are spectacular.

Only one flow gauge station was operated on the Hillsborough during this 10 year reporting period and that was positioned at Andrew's Pond on Wright's Creek in 2015. Work on climate change model research led to the documentation of flood lines from storm surges at Mount Stewart and Charlottetown. Estuarine water sampling stations located on the upper, middle, and lower parts of the estuary were collected in 2007 to 2009 and then again in 2016. The water sampling raw data is available on line at <https://www.princeedwardisland.ca/en/service/view-surface-water-quality>. These have shown good water quality from a chemistry perspective and no long term trends were evident. Two anoxic events were recorded in Andrew's Pond which received the runoff from the Charlottetown Airport. During this period there were no fish kills reported. The Island's heaviest snowfall in recorded history occurred during the winter of 2014-2015 at 591+ cm (18 feet). The normal winter thaws did not occur that winter and a rapid melt and torrential rain in late April caused very significant movement of silt and flooding of homes and road and sewer infrastructure (Figure 14).

Based on 2010 aerial photography, 33.7% of the 36,284 ha Hillsborough Watershed was under agricultural crop production and 2.5% in blueberry production, an increase of 12.5% from 2000. In addition, during that decade, there was a loss of 73 ha (16.2%) in hedgerow cover and a 39 ha (4%) increase in forest cover within the buffer strip. The most significant surface water quality issue is still the movement of water borne sediment from agricultural lands, particularly lands under row crop cultivation. Buffer strip and agriculture crop rotation legislation and the implementation of soil engineering programs to reduce soil loss have improved the situation on lands where the farmers have followed the legislation and invested in soil loss abatement programs. During this 2007-2017 Hillsborough CHRS evaluation period, GF2 Agriculture Stewardship Program incentives were provided to qualified farmers to install/create 118 ha of Alternate Land Use area based features on the Hillsborough watershed. These structures consisted of 27 ha of ebuffers, 53 ha of high slope land, 0.27 ha of farmable berm, 11.2 km of fencing, 12.47 ha of headlands, 6.03 ha of I buffer, 0.83 ha of R buffer, 5.08 ha of terraces and 12.49 ha of waterways. The soil conservation structures actual area was 18 ha. The soil conservation structures reduced soil erosion on 1,563 ha. In addition, Greening Spaces financial assistance was provided for the creation of new hedgerows and trees and shrubs were provided to other landowners. Unfortunately, there was a further loss of hedgerows especially in the Fort Augustus area and more land conversion from high forest to agricultural land or blueberry culture. Blueberries represented 898.7 ha within the watershed in 2010, up from 607 in 2000, a 48% increase.



Figure 14. Roadside erosion on approach to Clark's Creek in Fort Augustus, PEI. Photo by Dan McAskill.

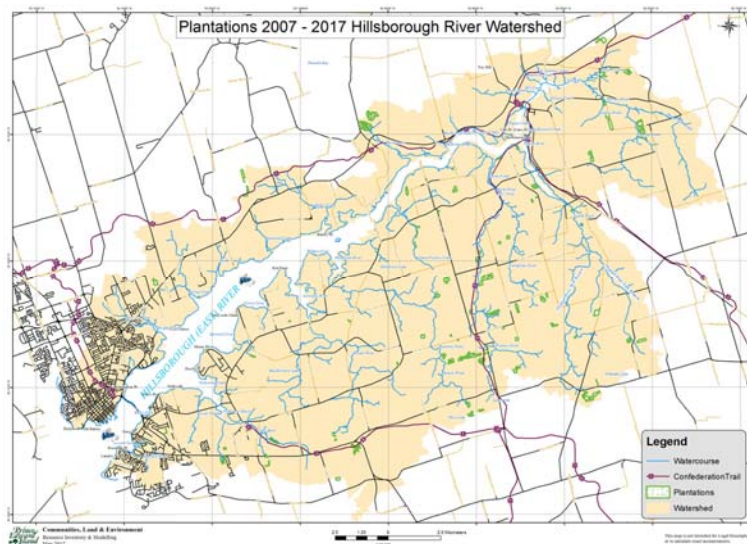
Highway bridge structures on PEI are designed for a 75 year life span. PEI Department of Transportation, Infrastructure and Energy (TIE) commissioned new intensity duration frequency (IDF) curves and implemented their use to address future predicted rain fall intensities resulting in roughly 20% larger flows. In an effort to address increased water levels associated with land subsidence and predicted climate change induced sea level elevations, recent bridges on the Hillsborough have been modified to address larger flow capacity, bridge approach design, armouring/stabilization, and other elements.

TIE continued its Environmental Management Division (now Section) to reduce the environmental impacts of public road construction and maintenance projects. This group developed the Department's Project Approval Process and empowered Environment Officers to implement necessary environmental controls and work methods. They also instituted training programs for Departmental staff, the PEI Road Builders Association, and contractor staff to reduce the environmental impact of projects. TIE's Capital Projects Division addressed a variety of significant construction projects on the Hillsborough watershed. They addressed three significant stream crossing challenges, namely: installing a new box culvert to increase tidal exchange at Belvedere Pond crossing of the Charlottetown's Bypass Highway in 2007 as well as associated in-filling of a small area to widen the road, replacing the Glenfinnan River Route 21 bridge in 2012, and removal of the large culvert on the Clark's Creek Cape Breton Road in 2013 to abate siltation and the subsequent closure of a 715 metre section of that road (Rte 257). They also constructed twin roundabouts and wide road widening on Riverside Drive in 2010-11 and, during the decade, expanded rip rap shoreline protection and maintained the rip rap protection along the approaches to

Hillsborough Bridge. The Highways Maintenance Division addressed point source erosion sites on the public road right-of-way through the modification of road grading practices and the use of sediment traps, diversion ditches, rock weirs, tap drains, placement of asphalt millings, and culvert replacement using the new IDF curves.

Larger projects that could have detrimental impacts on the environment are subject to environmental impact assessments (EIAs) with proponents submitting environmental impact statements that are reviewed by the Environmental Land Management Section of PEI Department of Communities, Land and Environment. During the decade on the Hillsborough Watershed, EIAs were reviewed on: the decommissioning of the Irving Oil marine terminal (2009); the Charlottetown and Area Development Corporation's Charlottetown Event Centre (CADC)(2010); and construction of Maritime Electric's 138 kV transmission line from Charlottetown to St. Charles (2013). A Watercourse and Wetland Alteration Permit application for the Mount Stewart lagoon upgrade project was approved. Better enforcement of watercourse protection standards on road and industrial construction projects have reduced soil loss rates. However, there are still significant concerns over the control of water movement at the Charlottetown Airport and its runway expansion projects as well as housing development adjacent to Andrew's Pond. The provisions for federal EIAs changed in 2012 with the implementation of the new Canadian Environmental Assessment Act, 2012. Many projects that previously required an EIA screening or assessment were eliminated potentially reducing scrutiny. In addition, the scientific and technical capacity within the federal government was reduced with the significant loss of scientific staff and destruction of long term records.

With the exception of land conversion, forest management practices cause comparatively low levels of erosion. The majority of harvesting operations were clearcuts but the area harvested is unknown because the forest inventory does not align with the Hillsborough's CHRS review period (see note p. 40). There was an increase in biomass harvesting during the decade and one of the Government of PEI's strategies was to develop biomass energy facilities. In addition, the Government of PEI or the PEI Energy Corporation has conducted consultations on climate change and energy. The ramifications of increased biomass harvesting within the Hillsborough watershed on forest conservation requires further analysis. The majority of tree planting activities were on cutover forest land. 223.5 ha was reforested on private land and 8.3 ha on public land, primarily with first generation improved conifer seed (Figure 15). In the absence of clearly defined utilization and regeneration standards, the implications of this harvesting and the potential implications of carbon sequestration remain largely unknown.



In addition to the conifer plantations of white spruce, black spruce, white pine, red pine, and red spruce, 2,280 eastern hemlock, 1,035 red oak, 982 yellow birch, 770 sugar maple and 82 white ash seedlings were planted for species enrichment purposes on private lands. The Greening Spaces program continued to provide seedlings for

Figure 15. Forest plantations created during 2007 to 2016 on the Hillsborough watershed. Illustration courtesy PEI Dept of Communities, Land and Environment.

school and community planting projects including Hillsborough River Association, SAWIG, Pisquid River Enhancement Project, and Wright's Creek Watershed Environmental Committee. However, the government announced the establishment of a \$0.50 per seedling cost at the end of 2016. The PEI Watershed Alliance raised that issue during the October 20th, 2016 Prince Edward Island Legislative Assembly's Standing Committee on Communities, Land and Environment public meeting. The PEI Department of Communities, Land and Environment continued its tree quality improvement breeding programs conducting measurements of offspring and roguing of poorer growing parent trees. These forest improvement programs are supported through a combination of landowner contributions and PEI Department of Communities, Land and Environment program support. The J. Frank Gaudet Tree Nursery offered tree insect and disease workshops for nursery managers, tree pruning contractors, and forestry consultants and, in 2015, released its Tree Insect and Diseases: PEI Facebook site. In 2016, PEI Department of Communities, Land and Environment launched its FishWildlifePEI Facebook site and commenced posts to the Government's Twitter account.

At the start of this decadal review period, watershed groups had access to the \$150,000 PEI Watershed Management Fund (WMF), the Wildlife Conservation Fund and (WCF) other project and employment based funds. In 2008, the Government responded to the recommendations of the 2007 Environmental Advisory Council's *We are all upstream We are all Downstream We are all part of a watershed: A report on the Public Consultations on Managing Land and Water on a Watershed Basis* and increased the WMF to \$870,000 but no monies were allocated to two groups that were being funded by the DFO Atlantic Coastal Action Program (ACAP). In the winter of 2014-15, the fund was increased by \$250,000 but these two groups were added to the pool of candidate watershed groups. In June 2015, the PEI Watershed Strategy was released and in May 2016 the administration for the PEI Watershed Fund was transferred from its Environment Division to the Forests, Fish and Wildlife Division. After discussions with watershed groups, the area based funding available through this fund was changed in November 2016 to add performance based criteria. The new funding criteria is 50% based on area, 25% on performance, 12.5% on leverage of other funds, and 12.5% on community involvement. During the three year transition period, the current funding allocations will remain in place.

During the second ten years since designation, a variety of community groups have led in-stream enhancement programs on the Hillsborough. The most notable of these have been: the PEI Trappers Association's Pisquid River Enhancement Project; the Hillsborough River Association (HRA); and Wright's Creek Watershed Environmental Committee (WCWEO)(2007-17), the Stratford and Area Watershed Improvement Group (SAWIG)(created in 2009). These four groups created the Hillsborough and Area Watershed Cooperative (HAWC) in 2011 to facilitate funding access to the PEI Watershed Management Fund as the PEI government wished watershed enhancement programs be co-ordinated over larger land areas rather than smaller groups. One or more of these group worked cooperatively with a variety of partners including PEI Departments of Communities, Land and Environment and Transportation, Infrastructure and Energy, Rural and Regional Development, DFO, Ducks Unlimited Canada, the Atlantic Salmon Federation, the Environment Canada Eco-Action Program, the PEI Wildlife Conservation Fund, the Abegweit First Nation Biodiversity Enhancement Hatchery (established in 2012), many landowners and community groups, and others.

The Pisquid River Enhancement Project (PREP) expanded its operations and hired Soleil Hutchinson part time as their Watershed Coordinator. Angela Douglas worked for and raised funds for PREP on watershed enhancement projects in 2006, developed its website in 2007-08, and became its Watershed Coordinator in 2008.

To facilitate its coordination and fund raising operations, Angela moved over to the Hillsborough River Association as the part time Watershed Coordinator in 2014 and coordinated watershed management activities between PREP, HRA and WCWEP and facilitated funding for SAWIG through HAWC. She also served as the Watershed Alliance Secretary, Chair, and an Eastern Group Representative. PREP and HRA, working individually, in partnership, or with other partners implemented the following projects: tweaked rock pool placement to improve fish passage at Leard's Dam and along the Pisquid River to allow rainbow smelt access to new spawning areas as far upstream as Dunphy Road; assessed and maintained three existing large sediment traps to capture and remove sediment; installed and maintained two new instream sediment traps at Head of Hillsborough and two on the Pisquid River; worked with landowners and government to provide better agricultural land stewardship and highways maintenance to reduce point problem areas for siltation; installed dozens of cover structures; installed 100s of brush mats; removed dozens of beaver dams impeding fish passage on mainstream areas of the Hillsborough and its major tributaries; cleared 100s of in-stream obstructions and garbage to improve water flow and spawning habitat; installed a limited number of digger logs on Clark's Creek and Pisquid River (Figure 16); installed eight rock weirs to create pools; planted over 10,000 trees and shrubs over most of the mainstream and tributaries of the Hillsborough; repaired approaches to culverts to allow better fish passage; surveyed fish habitat and developed and implemented solutions to address problems; designed and developed the Lady's Slipper Trail in Pisquid (Figure 17) and the Kelly Trail in Pisquid-Dromore; brushed out the old road and unveiled the Robert Poore Haythorne Trail in Marshfield at a public ceremony in 2014; collected native milkweed (*Asclepias* spp.) seed and delivered it to the J. Frank Gaudet Tree Nursery for propagation for Monarch (*Danaus plexippus*) enhancement programs across PEI; brushed out and repaired four of the Hillsborough River public access roads to the Canadian Heritage River; removed trees blocking hiking trails; partnered with Shepherd's Farm to coordinate and run the annual Smelt Festival commencing in 2008 (Figure 18); conducted annual Atlantic Salmon redd surveys on the Pisquid River and periodically on the Head of Hillsborough and Clark's Creek tributaries; assisted with delivery of the seven Bald Eagle Festivals at the Hillsborough River Eco-Centre; assisted with



Figure 16. Digger log and bank stabilization for stream improvement on the Hillsborough River, PEI. Photo by Angela Douglas.



Figure 17. Lady's Slipper Trail field trip participants during 2014 Bald Eagle Festival at Pisquid, PEI. Photo by William F. Bowerbank.



Figure 18. Wagon ride during the Pisquid River Enhancement Project 2016 Annual Smelt Festival at Shepherd's Farm in Pisquid, PEI. Photo by Dan McAskill.



Figure 19. 7th Canadian Rivers Heritage Conference Banner. Photo courtesy of Don Jardine.

maintenance and delivery of celebrations for HRA CHRS monuments; assisted with electro-fishing operations to assess fish occurrence; developed the Spirit Springs interpretation sign and viewing platform; communicated with and facilitated highways maintenance projects with PEI Department of Transportation, Infrastructure and Energy and PEI Department of Communities, Land and Environment; mentored students on watershed and upland management; facilitated research with university students; hired Conor Leggott to research and develop a brochure and public presentations to address multiple shellfish closures caused by Charlottetown's remaining combined sewer; created content and posted to the Facebook HRA Watershed Management site established in 2011; created and posted to the HRA's Twitter site commencing in 2015; provided stream and woodlands interpretation for school students at Mount Stewart Consolidated School and Emmanuel Christian School; developed, implemented and coordinated the excavation of Jay's Pond on Clark's Creek (2016); participated in PEI Watershed Alliance meetings; conducted Community Aquatic Monitoring Program (CAMP) assessments at six sites on the Hillsborough estuary since 2006; developed PPT presentations or provided verbal or written submissions for government consultations

(e.g. Water Act White Paper review; Charlottetown's Integrated Community Sustainability Planning; Charlottetown's Gateway Project Open Houses); facilitated staff training and/or obtained certification for program delivery (e.g. electro-fishing, Watershed Alliance training, chainsaw training, first aid training, Canadian Aquatic Biomonitoring Network [CABIN] certification); cleaned up a large roadside illegal garbage dump in Marshfield as well as a number of smaller dumps and delivered the materials to the Island Waste Management Site for proper recycling or disposal; submitted plant and animal records to citizen science initiatives; submitted CHRS Annual Reports; edited CHRS website revisions; co-hosted the 7th Canadian Rivers Heritage Conference in Charlottetown (Figures 19-21); and documented watershed improvements with photographs and delivery of annual summaries to the HRA Board which were recorded in the *Hillsborough Tidings* newsletter.



Figure 20. 7th Canadian Rivers Heritage Conference support staff with Quebec Labrador Foundation's Larry Morris and QLF sponsored students. Photo courtesy of Don Jardine.



Figure 21. Ceremonial award paddles for the 7th Canadian Rivers Heritage Conference. Photo courtesy of Don Jardine.



Figure 22. Boat landing developed in 2014 by Wrights Creek Watershed Enhancement Committee at Andrew's Pond, Charlottetown, PEI. Photo by John Andrew.



Figure 23. Excavation of silt from Andrew's Pond. Photo by John Andrew.

From 2007 to 2017, the Wright's Creek Watershed Environmental Committee developed its Watershed Management Plan and received community approval for it, developed a Fish Habitat Plan in 2008 and revised it in 2013, in conjunction with the Ellen's Creek Watershed Group, developed their Brook Trout Conservation Plan which was adopted by the City of Charlottetown in 2015, conducted in-stream restoration work, developed an instream and a marsh silt trap and conducted silt removal, developed and maintained silt traps and holding ponds in drainage ditches, worked with the City of Charlottetown and the Charlottetown Airport Authority to address erosion and runoff challenges, partnered with the City of Charlottetown to create hiking trails; created two observation platforms and two docks in Andrew's Pond, (Figure 22) extended the recreation trail and added a bridge, connected the recreation trail to the East Royalty Trail and added a viewing platform overlooking the Andrew's Pond dam, negotiated and developed a bridge and observation deck on the north side of St. Peter's Road to link the trails around the pond, excavated five springs to improve spawning potential, installed web cams and monitoring equipment for turbidity, temperature, and water level and provided on line access to the data, excavated 100s of tonnes of silt from Andrew's Pond (Figure 23), planted trees, hosted public meetings to gather input on watershed improvement operations, provided an historical display on Andrew's Pond and its associated mills and ice harvesting operations, and made presentations to the City on conservation and biodiversity concerns. The City of Charlottetown's Brook Trout Conservation Plan is monitored by the Urban Watershed Working Group that reports to the City of Charlottetown's Sustainability Committee.

SAWIG formed and commenced operations, hired a part time Watershed Coordinator (Kelly Farrar), developed its Watershed Management Plan after consulting with the community, extended its operational area in 2012 to include Hazelbrook, commenced in-stream restoration work in 2011, developed its "Water School" week long education program with Grade 5 school students in 2012, inaugurated its Environmental Award in 2011 (Figure 24), held free nitrate clinics in 2009, developed and implemented its Building Better Backyards for Birds workshops, developed a Natural Heritage Study for the Town of Stratford, worked with Dalhousie University's Dr. Rob Jamieson and Janeen McGuigan to develop comprehensive recommendations on the Pondsides Park watershed system, participated in Master's research projects on watershed governance (University of Manitoba) and cultural values mapping (UPEI Institute of Island Studies) and honours thesis research

Figure 24. Luke Hannah being presented the Dr. David McKenna Environmental Award by Kelley Farrar of the Stratford and Area Watershed Improvement Group in 2015. Photo courtesy SAWIG.



at UPEI, led community cleanup on buffer zones and beaches, implemented tree planting projects, partnered with the Town of Stratford to provide stream and wetland advice on development projects, developed and maintained its social media site, established an invasive species website and control information for ten species, and other projects. Kelley Farrar serves on the PEI Invasive Species Council and represents HAWC. All four watershed groups participate in the PEI Watershed Alliance spring and autumn workshops.

Abegweit First Nation established the Abegweit Biodiversity and Enhancement Hatchery in 2012 and the Abegweit Conservation Society, its registered charity. Abegweit First Nation led a watershed improvement crew and enhanced the stream through Abegweit First Nation, and worked on sections of the Head of Hillsborough and on Midgell and Morell watersheds. In addition, it hired a forest technician and a work crew to implement the co-management of 282 ha of adjacent Public Land. Chainsaw safety courses were offered to facilitate silvicultural treatments.

On the Hillsborough, all the community based sewage treatment systems discharge into the Hillsborough estuary. During the reporting period, improvements were made in sewage treatment at Charlottetown, Stratford and Mount Stewart. The most impressive upgrade was the separation of the remaining combined sewer and storm water systems in Charlottetown which commenced in 2012 and was completed in 2016. This change will greatly reduce the number of by-passes to wastewater treatment from heavy rainfall/snow melt periods. A private lagoon system in Charlottetown was closed and the waste was directed into the Charlottetown sewage treatment facility. In addition, a lagoon system in East Royalty was modified to at least temporarily address concerns over non-compliant effluent discharges. Problems arose from odour at both the City of Charlottetown's Sewage Treatment plant and the Town of Stratford's Lagoon System. Charlottetown also upgraded its plant to better address the challenge. As a temporary measure, the Town of Stratford installed a "Blue Frog" system and other measures to attempt to overcome periodic discharges that exceed regulatory effluent standards and to address odour complaints. In 2016, the Province of PEI engaged a consultant to ascertain the structural capacity of the Hillsborough Bridge to carry both a sewage force main and an active transportation trail. Also in 2016, the Town of Stratford completed its analysis of sewage treatment systems and held public consultations on the options. Its Town Council recommended the construction of new facility in Stratford but the Province of PEI advised that it would not support this option. Mount Stewart upgraded its sewage lagoon in 2011-12 with the addition of a wetland, UV disinfection and a solar mixer.

After a successful pilot project in 2007-09, septic system contractors were trained in site assessment suitability and selection of septic system design. Technological improvements in construction materials for septic systems have helped to improve groundwater contamination and the testing of hydrologic conductivity. Based on the success of this work, Sewage System Disposal Regulations were amended in 2010 to prohibit the spreading of material removed from septic tanks on fields. It compelled operators to bring this material to the Charlottetown and Summerside wastewater treatment plants. The well field protection plan for the City of Charlottetown was revised in 2016 and Stratford created a wellfield protection plan of its newest municipal wellfield in 2012. Fecal coliform sampling was conducted at estuarial stations on the Hillsborough River from 2007 to 2009 and again in 2016. Significant shellfish closures occurred on the Hillsborough. Closures are addressed by a Memorandum of Understanding on conditional shellfish closures but there is no long term evidence of expansion or reduction of the fecal coliform levels in the estuary.

The Province used the submission of water quality samples to monitor ground water quality and a number of water chemistry and bacteriological studies were conducted. Free nitrate clinics were conducted in communities along the Hillsborough early in the decade. In addition, government programs were

continued to encourage water sampling and analysis and to provide treatment recommendations on the results. The annual average nitrate concentrations from well water samples ranged from 2.7 to 3.5 mg/l with sample sizes ranging from 92 to 131. However, a study of well water samples in the Pisquid River watershed showed that over 10% of the wells exceeded the 10 mg/L Canadian drinking water limit during this period. Work was commenced on nutrient management balance programs and more than 66 fields within the Hillsborough watershed were under a balance sheet program that was part of the Crop Insurance Program. However, that program was discontinued years ago. For the past eight years, the Agricultural Stewardship Program has been providing a one-time-only 50% subsidy up to \$3,000 for a farmer to develop nutrient management planning for their farmlands. Nutrient loading criteria for the Hillsborough River were established for the Hillsborough River basin. In 2016, the PEI Department of Communities, Land and Environment released water report cards for Island watersheds and the Hillsborough was rated as good.

The Maintenance Services Ltd. Construction and Demolition Site in Hazelbrook was officially closed on May 31st, 2011. Afterwards, remediation of the site was completed.

In 2010, the Council of the Federation signed on to the National Water Charter. In preparation for the Council's 2012 meeting in Halifax, a Maritime Water Charter Report Card assessed Nova Scotia, New Brunswick and PEI's progress in meeting their commitments in eight areas respecting the charter. The PEI Watershed Alliance did the assessments for PEI. They red flagged (poor status) two areas of concern, namely: reinforce water conservation, water quality and adapting to the water related aspects of climate change as a key priority for businesses, citizens, and their governments; and working with communities to ensure they have plans to deal with water-related emergencies and enhance best-practice sharing of planning tools among communities. A green flag was provided for enhancement of water monitoring effort and cooperation and sharing of information on water conservation and water quality. The remaining five areas noted fair progress.

In respect to natural beauty, the pastoral landscape and beauty still exist. However, there has been a reduction in forest cover and hedgerows due to conversion of forested and hedgerow habitats into agricultural production (blueberries, row crops) and housing. On the positive side, the Government continued its buffer zone and crop rotation legislation, policies on wetland conservation and forestry, an Island wide waste sorting and collection system, the forest enhancement incentives program, the Greening Spaces Program, incentives for erosion control, and other programs. Ducks Unlimited Canada invested \$810,000 on 55 projects on the Hillsborough watershed completing or maintaining 600 ha of wetland and 44.9 ha of upland small marshes (Figure 25). In conjunction with a doctoral candidate at UPEI, DUC initiated a study to evaluate fish

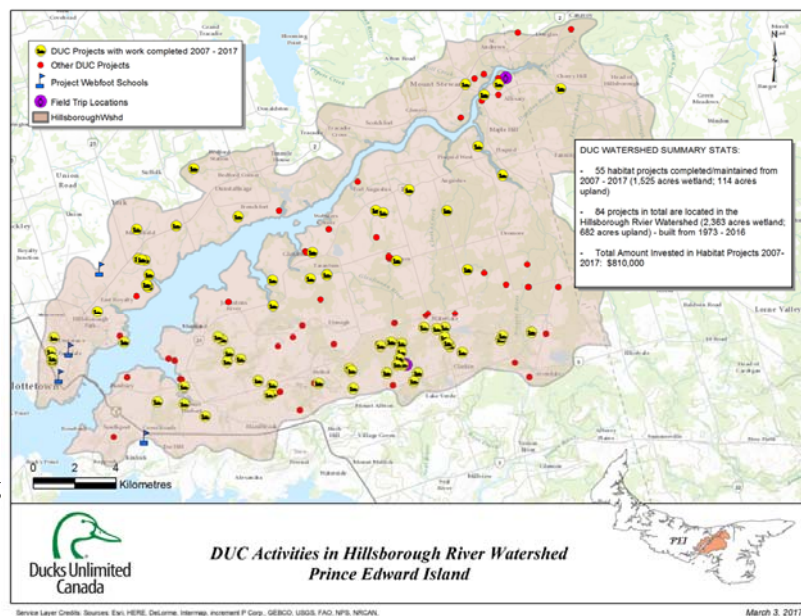


Figure 25. Ducks Unlimited Canada 2007-2017 enhancement projects. Illustration courtesy Ducks Unlimited Canada, PEI Field Office.

passage through various fish passage facilities including Tuddy MacKinnon's Pond on Glenfinnan River. Island Nature Trust purchased 4 ha adjacent to the 278 ha Jenkins Complex Natural Area to better protect this resource. The variations in the value of the Canadian dollar in relation to the United States dollars have impacted many of the agricultural, fisheries and forestry resources on the Hillsborough as well as the exportation of various value added manufactured products. Higher demands for soya beans, pulse crops, and corn have caused significant changes in crop rotation in portions of the watershed. Hedgerow removals and conversion of high forest to blueberry production and agricultural crops are changing the viewsapes and reducing the ecosystem services of farms in certain areas of the Hillsborough watershed.

Utilizing an expert panel assessment system, vascular plants, vertebrate animals, and some invertebrate animal populations were ranked for abundance and population risk by the Province and Atlantic Canada Conservation Data Centre (ACCDC). A rarity ranking system was used to rank species at risk and the location data (Geographic Positioning System (GIS) coordinates) for these rare species was stored in GIS computers residing at the ACCDC. Nature PEI increased its citizen science initiatives using partnerships with the PEI Department of Communities, Land and Environment, UPEI students and faculty, volunteers, the Wildlife Conservation Program grants and other community partners to collect and identify lichens and spiders on Prince Edward Island. Fund raising efforts for Island Nature Trust to publish the plants data in a new Flora of Prince Edward Island have been unsuccessful. Concern has been raised respecting a decline in pollinators and the yellow-banded bumble bee (*Bombus terricola*) has been listed as a species of special concern by COSEWIC. Based on these more detailed surveys, 89 vascular plants, 13 birds, 2 mammals, 1 amphibian, and 23 insects (dragonflies, damselflies, and butterflies) have been identified up to August 21, 2016 as rare based on ACCDC's ranks of S1, S2, and S2/3 or were flagged on COSEWIC as threatened or endangered (Figure 26). The Government of Prince Edward Island maintained the existence of its Species at Risk Technical Advisory Committee which provides advice to the Minister but it has not met since 2014.

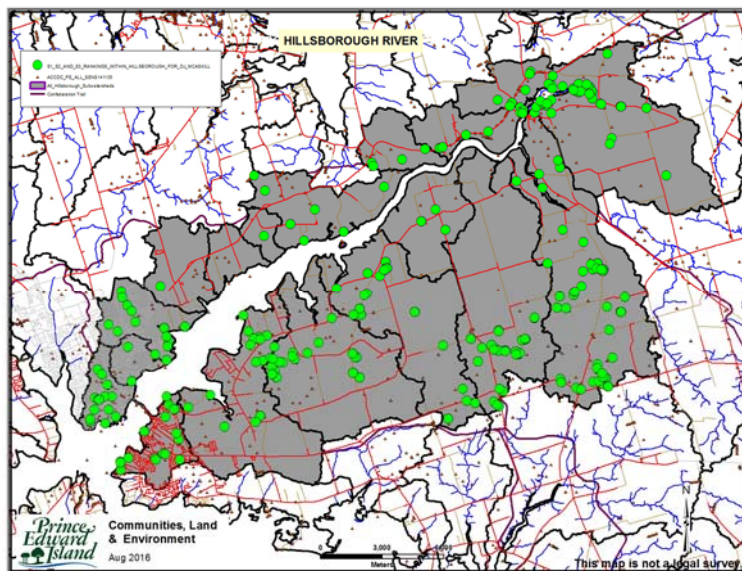


Figure 26. Rare plant sites on the Hillsborough watershed. Illustration courtesy PEI Department of Communities, Land and Environment and Atlantic Canada Conservation Data Centre.

Decades ago, a colony of Common Terns became established on the bridge piers which once supported the Hillsborough Bridge at Charlottetown. At the time of designation, Common Tern (*Sterna hirundo*) populations were already declining in Atlantic Canada. The Hillsborough bridge piers have continued to deteriorate and a number of them have collapsed into the estuary. In the past several years, the terns have attempted to nest on one or two piers but, each time, they abandoned the attempt within a few weeks. The cause is uncertain. A few pairs of Great Black-backed Gull (*Larus marinus*) continue to nest on the piers and large numbers of Double-crested Cormorant (*Phalacrocorax auritus*) now roost from spring through autumn annually.

In 2015, a few pairs attempted to nest on the piers. In 2005, two artificial tern nesting platforms were established on Belvedere Pond in Charlottetown in an effort to help mitigate the loss of tern nesting

habitat on the Hillsborough. The first pair attempted nesting on these platforms in 2007 but this effort was abandoned in 2008 after changes to the water flow at the new culvert made this untenable. One or two pairs of Common Tern nested annually at the Allisary Creek impoundment during the 2007-16 period. There are scattered reports on one or two pairs in certain saltmarsh areas along the mainstream of the Hillsborough.

The regionally significant Great Blue Heron (*Ardea herodias*) colony was recognized as an Important Bird Area in 2000. According to provincial government surveys, its population has fluctuated up and down with the maximum number of nests reaching 530 in 2004 and the minimum number being 277 in 2007. Surveying of this colony was discontinued in 2007. Since then, there has been a significant increase in nesting by Double-crested Cormorants which also use tree nests at this site and their feces is causing increased tree mortality. Anecdotal observations suggest a large decline of Great Blue Heron in this colony.

Region wide declines in flycatchers and certain other bird species have been documented in long-term breeding bird survey data. The COSEWIC status of Bank Swallow (*Riparia riparia*), Barn Swallow (*Hirundo rustica*), Bobolink (*Dolichonyx oryzivorus*), Canada Warbler (*Wilsonia Canadenis*), Common Nighthawk (*Chordeiles minor*), Olive-sided Flycatcher (*Contopus cooperi*), and Red Knot (*Calidris canutus*) has been set as threatened. The Eastern Wood Peewee (*Contopus virens*) and Rusty Blackbird (*Euphagus carolinus*) were changed to species of special concern. In 2013, the Island Nature Trust commenced a landowner education program to assist Bobolinks and Barn Swallows. Nature PEI, Environment Canada and Bird Studies Canada have all been providing information to the public respecting the estimated number of birds killed by various causes. Feral and domestic cat predation leads the known causes.

In 2014, the *Field Checklist of Bird for Prince Edward Island* was released in English and French. In the past decade, a small number of more southern birds and birds species from Europe have been discovered on Prince Edward Island raising the total number of species recorded to 368. The *Second Atlas of Breeding Birds of the Maritime Provinces* was completed in 2015. These documents provide information on the birds utilizing various habitats on PEI.

The spread of white-nosed syndrome through bat colonies in Nova Scotia and New Brunswick led to a COSEWIC emergency assessment subcommittee review of bats in Canada. On February 3rd, 2012, three species were listed as endangered. Two of these species are known to be present in PEI colonies, namely, the Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*). In the winter of 2012-13, the syndrome was discovered in bats on Prince Edward Island and there has been a catastrophic decline of these bats on PEI. Recently, bats were seen using a few abandoned wells for roosting and this might assist with maintenance of a small number of bats.

The continued protection programs for raptors have led to an increase in some species, especially the Bald Eagle (*Haliaeetus leucocephalus*) where the number of nesting pairs increased to over 80 across PEI. In the 1960s, there was a single Bald Eagle on the Brudenell River and no nesting eagles elsewhere on PEI. On the Hillsborough, there were no known eagles nests prior to 1996 while there were six in 2007 and more discovered since then. It is believed that the Osprey (*Pandion haliaetus*) population on the Island has stabilized after years of increase. During the June gaspereau run, Bald Eagles concentrate along the upper Hillsborough estuary. The HRADC, HRA, Nature PEI, and the PEI Department of Communities, Land and Environment co-hosted seven Bald Eagle Festivals between 2007 and 2014 at the Hillsborough River Eco-Centre and Pigot's Trail in Mount Stewart. Counts of over 30 eagles were recorded at the observation site on Pigot's Trail.

As time and water conditions permitted, the Hillsborough River Association and Pisquid River Enhancement Project staff surveyed Atlantic salmon (*Salmo salar*) redds during the 2010 to 2016 period on the Pisquid, Head of Hillsborough, and Clark's Creek systems (Figure 27). The Pisquid was surveyed each year but only sporadic surveys were completed on Clark's Creek and the Head of Hillsborough. None of the three systems achieved the 90% conservation requirement for the system although the Pisquid did have an increasing trend of attainment of the conservation requirements.



Figure 27. Atlantic Salmon redd survey on the Pisquid River, PEI. Photo by Angela Douglas.

The Hillsborough River has one of the most important commercial fisheries for the American smelt (*Osmerus mordax*) and the American oyster (*Crassostrea virginica*) on Prince Edward Island. In 2007, there were 11 shellfishers operating 13 oyster licenses on 122.48 ha with only one license being for off-bottom culture. Since 2007, the number of bottom culture leases increased by one and the total area decreased by 2.7 ha. (-2.2%). In 2017, there were 25 oyster spat collection licences totalling 7.38 ha and one mussel spat collection license representing 3.09 ha. During the decade, the number of oyster spat licenses increased by 12 (an increase of 92%) while the number of mussel spat collection licenses remained at one and the area remained the same (Figure 28). There is no specific smelt population data for the Hillsborough but concerns are being expressed over the population level because of declines in areas in the Northeastern United States and concerns over illegal fishing of smelt during the smelt migration season at Clark's Creek Route 21 crossing in Fort Augustus. However, smelt landing data is incomplete. The Atlantic silversides (*Menidia menidia*) fishery on PEI is the most important fishery of this species in Atlantic Canada and a DFO review was commenced on the species but is awaiting release.

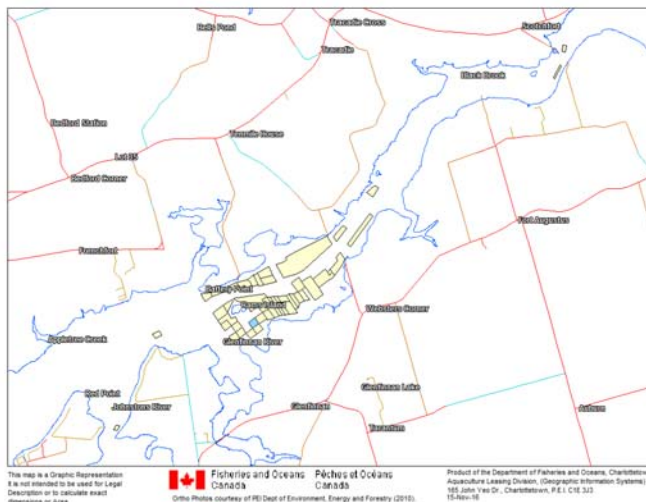


Figure 28. Aquaculture lease locations on the Hillsborough River. Illustration courtesy Department of Fisheries and Oceans Canada.

In conjunction with government departments, dams were modified at Leard's Dam (Figure 29) on Pisquid River (Pisquid River Enhancement Project, Hillsborough River Association, Atlantic Salmon Foundation), Jay's Pond on Clark's Creek (Hillsborough River Association, Pisquid River Enhancement Project), and Tuddy MacKinnon's Pond on Glenfinnan River (Ducks Unlimited Canada). Ducks Unlimited Canada provided funds to support a UPEI doctoral candidate to study fish passage at various sites including Tuddy MacKinnon's Dam. The PEI Department of Communities, Land and Environment hired a Watershed Ecologist in 2015 to assist watershed groups working across the Island. Further efforts to improve smelt passage at dams and culverts that obstruct smelt passage in the lower

reaches of the Hillsborough tributaries are recommended. It would also be useful to obtain better information on the populations of smelt, Atlantic silversides (*Menidia menidia*), gaspereau (*Alosa pseudoharengus*), and other species specific to the Hillsborough.

The southern Gulf of St. Lawrence population of the striped bass (*Morone saxatilis*) was listed as threatened under the Federal Species at Risk Act in 2004. The listing was reassessed in 2012 and it was reduced to a Special Concern designation level. As numbers increased a limited recreational fishery was established on the Hillsborough in 2013. HRA hosted a Striped Bass Workshop in May 2014 to address the science, regulations and fishing techniques. By 2016, the season had been increased and good numbers were being fished at Mount Stewart, Pisquid River, Cranberry/McBride's Wharf (Fort Augustus/Scotchfort) and other sites.



Figure 29. Reconstructed Leard's Pond bypass to improve fish passage at Pisquid, PEI. Photo by Todd Dupuis.

The number of fishers on the public oyster beds have declined and it is uncertain if this is related to populations or other causes.

Concern is growing over the impact of invasive species on the Hillsborough with the discovery of: the golden star tunicate (*Botryllus schlosseri*) in 2006; the vase tunicate (*Ciona intestinalis*) in 2007; American waterweed (*Elodea canadensis*), an aquarium plant, at Pondsides Park; the discovery of the damage to eelgrass (*Zostera marina*) beds from European green crab (*Carcinus maenas*); and the discovery of koi or nishikigoi (*Cyprinus carpio*) but commonly known here as goldfish or carp in the pond in Cotton Park. Since the discovery of invasive tunicates the federal and provincial governments and the aquaculture industry developed mitigation strategies. In 2015, DFO finalized its Aquatic Invasive Species Regulation to prevent the introduction of aquatic invasive species into Canadian waters and to control and manage their establishment and spread once introduced. Initial establishment of other invasive species of water habitats have already become established in Eastern Prince Edward Island. A number of other plants have been listed as invasive in natural habitats, only one of which is being controlled. The latter is the purple loosestrife (*Lythrum salicaria*) and Ducks Unlimited Canada introduced a beetle (*Galerucella californiensis*) to help control its growth. In addition, the City of Charlottetown initiated control programs at Victoria Park to remove Japanese knotweed (*Polygonum cuspidatum*) and glossy buckthorn (*Frangula alnus*). An informal group of volunteers started working on invasive species on PEI in 2007. Seeing the need to address the lack of coordination and understanding associated with invasive species, the PEI Invasive Species Council (ISC) was established in 2015. A spotters network workshop was held that year. Since then, fact sheets in the control of a number of species were developed and a web site was developed. In 2015, the Town of Stratford added an identification and reporting component to their website. In 2015, the Nature Tracker app was beta tested and, in 2016, a workshop on its use was provided. Invasive species geo-tracking was included that year.

There has been a significant urbanization of lands near Charlottetown and strip development along certain paved roads and increased subdivisions in rural areas. Stratford has become the fastest growing community based on home or housing unit construction.

Note: Since 1980, the Province of Prince Edward Island has utilized a 10 year inventory period to collect and interpret vegetation covertypes. Thus, stereo-graphic aerial photography was collected in 1980, 1990, and 2000 and digital photography was collected in 2010. These reporting periods do not coincide with the Hillsborough River 10 Year Report cycle. Since the last aerial photography was conducted only three years into the second decadal CHRS report period for the Hillsborough, vegetative cover cannot be systematically compared. In 2010, there was 12,241 ha of land in farm crop production (i.e. 30.9% grain, 23.5% hay, 16% in soy, 11.4% potatoes, 10.2% in pasture; 5.5% in corn, and 2.5% other) and 899 ha in blueberry production. This represents an increase of 1,457 ha (12.5%). The Department of Agriculture and Fisheries indicated that 899 ha of blueberry land were under production or were in the process of

conversion. The production of blueberries has saturated the industry and there has been a significant reduction in price. During the last decade, there was significant forest harvesting of mature woodland, especially conifers and mixed wood forest.

Table 3 summarizes the condition of the Hillsborough River for those natural heritage values for which the Hillsborough is identified in the document *A Framework for the Natural Values of the Canadian Heritage Rivers, second Edition* on pages 15, 18, 22, 31, 38, 49, 58, 71, and 80.

Table 3. Changes and Threats to Natural Heritage Values on the Hillsborough River during the period July 2007 to January 2017.

NATURAL HERITAGE VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
1. HYDROLOGY			
Sub-theme 1.2 Seasonal Variation	None	Climate change predictions indicate a 20% increase in flow rate	Education and awareness programs on flood mapping and emergency management; New Intensity-Duration-Frequency Curves developed and are being applied for bridges and culverts in Hillsborough basin Flood model released
Sub-theme 1.3 Water Content	None		
Sub-theme 1.4 River Size	None		
2. PHYSIOGRAPHY			
Sub-theme 2.3 Geological Processes	None		
3. RIVER MORPHOLOGY			
Sub-theme 3.2 Channel Patterns— Estuarine	Siltation and channel movement	Glenfinnan River Rte 21 Bridge failure; Clark's Creek Cape Breton Road culvert crossing—heavy siltation	Replace bridge with larger opening; Removal of structure, stabilization of soils, and closure of road
4. BIOTIC ENVIRONMENTS			

NATURAL HERITAGE VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
Sub-theme 4.1 Aquatic Ecosystems			
4.1.1 Riverine Systems: Lowland Zone	Fish passage blockage—short term and long term	Beaver dams Poor design of fish passage structures Aging infrastructure and erosion	Implement Beaver Management Policy to remove beaver dams in mainstream areas; Conduct research on rainbow smelt and trout fish passage structures (Tuddy's Dam on Glenfinnan River-UPEI/DUC); Upgrading culverts and amelioration of drop culvert blockages
4.1.2 Estuarine Systems:			
4.1.2.8 Intertidal Zone	Loss of eel grass beds	European Green Crab browsing and other causes	Research on causes; study on european green crab markets
4.1.2.9 Saltmarshes	Long-term loss	Sea rise level increase; Climate change induced storms	Modelling research and policy discussion
5. VEGETATION			
Sub-theme 5.1 Significant Plant Communities			
5.1.9 Trees - Extant Red oak stands	None		Planting of red oak seedlings
5.1.9 Trees—Yellow Birch and Sugar Maple	Long-term loss of certain tolerant hardwood species	Climate change	Issue identified; Research continues on implications and potential solutions
6. FAUNA			
Sub-theme 6.2 Rare Animal Species	Long-term decline in flycatchers, grassland species and certain other specialized species	Species dependant and multiple causes	Bobolink and Barn Swallow nesting habitat conservation or creation

NATURAL HERITAGE VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
	Great Blue Heron decline	Nesting habitat decline; Species succession	Maritime population appears relatively stable
	Common Tern decline	Nesting habitat decline	Nesting platforms tried but were unsuccessful
	Striped Bass recovered	Population increased	COSEWIC review implemented; Sports fishery opened
7. NATURAL BEAUTY			
Unlisted in original national framework but identified in CHRS Hillsborough Nomination Document and CHRS Natural Heritage Themes	Long-term decline of Elm Trees in Charlottetown; Removal of hedgerows and conversion of forest to agricultural or blueberry production;	Dutch Elm Disease; Agricultural field expansion; Commodity pricing and U.S.-Canadian exchange rate	Charlottetown established diseased elm tree removal and maintenance program; Awareness programs, expression of public concern, and provision of seedlings

2.3 Recreation Values

Background

The Hillsborough River Nomination Document indicated that the Hillsborough has outstanding recreation opportunities in an estuarine environment which include natural and human heritage appreciation activities, canoeing, boating, fishing, birdwatching, scenic touring and cycling. The document did not identify or rate the recreation capacity or pressures. However, some descriptive wording was provided on water related activities, nature appreciation, fishing and hunting, trails and routes, and human heritage appreciation.

Condition of Values since Designation

Little recreation research specific to the Hillsborough has been conducted. There is Island wide data for hunting, fishing, and trapping and limited tourism exit surveys data. In 2012, Gardner Pinfold was commissioned to collect use information on the utilization of Confederation Trail. They utilized three count stations with the closest to the Hillsborough being at Morell. In total, 20,000 trail users were recorded and the surveys showed longer lengths of stay than golfing and higher levels of spending. Anecdotal observations by members of the Hillsborough River Association, Island Trails, and Confederation Trail staff suggest a higher use levels in 2016.

Representatives of the Hillsborough River Association met with a variety of organizations, Mayors of Stratford and Charlottetown, and Tourism PEI to promote the Canadian Heritage River brand on the Hillsborough as well as Three Rivers. Thus, the Hillsborough River Canadian Heritage River brand was

included in a variety of visitor products including maps, tourism brochures, recreation brochures, and the Prince Edward Island Visitor Guide.

The Island East Tourism Group Inc. was established and visitation to the Hillsborough Discovery Drive area has increased despite a more challenging tourism environment. In 2011, the Eastern Region Sport and Recreation Council was established with funding secured from the PEI Department of Health and Wellness. Recreation PEI and Go PEI established a number of new programs to assist various groups and individuals to participate in recreational activities as part of health and wellness initiatives. Cycling PEI, PEI Road Runners Association, Island Trails, Nature PEI, and other groups, led recreation initiatives. The Bald Eagle Festivals and Smelt Festivals included outdoor recreation and education activities.

Water Related Activities

At the time of designation, boating potential on the Hillsborough estuary was considered “outstanding” or “exceptional”. Some of this potential was based on a sought after, marked water travel corridor up the tidal segment from Charlottetown’s Hillsborough Bridge to Mount Stewart. Despite lobbying efforts with the Canadian Coast Guard, efforts to establish a set of buoys marking this path have been unsuccessful. The Hillsborough River Association does not have the financial resources to establish and maintain or to carry the liability for a set of channel marker buoys.

Charlottetown Harbour remains the primary sail and power boating area on the Hillsborough. Sail boat races are held throughout the summer and Charlottetown Race Week attracts many off-Island visitors for the races and events. Post-tropical Storm Arthur in July 2014 damaged several sailboats in Charlottetown and some of the club’s infrastructure. It caused the postponement of the 2015 Race Week. There was significant damage to Charlottetown’s boating facilities (Charlottetown Yacht Club). The facilities have since been repaired. Quartermaster Marine offers boat tours of the lower Hillsborough and adjacent waters but seldom venture above the Hillsborough Bridge as navigation buoys are inadequate. As well, an amphibious vessel called the Harbour Hippo offers water based tours of the waters adjacent to Charlottetown. The Charlottetown Yacht Club has a launch platform for kayaks and canoes. Anecdotal observation suggest that the total amount of kayaking and canoeing on the Hillsborough has increased. Rowing PEI is now established at the Charlottetown Yacht Club and is offering both opportunity and training. Two teachers at Charlottetown Rural High School built a Voyageur style cedar canoe in 2016 and commenced work on a second canoe. Mount Stewart held canoe and kayak races as part of a multi-sport relay as part of their River Festival. National Recreational Small Boat operator regulations came into full force.

Thanks to promotion by Tourism Charlottetown and others, cruise ship visitation to Charlottetown has increased dramatically. Expansion of the government wharf was completed in 2007-08. During and since its creation, representatives of the Hillsborough River Association met with a variety of organizations to promote the Canadian Heritage River brand on the Hillsborough. Thus, the Hillsborough Canadian Heritage River brand continued to be included in a variety of visitor products including maps, brochures, and PEI’s Visitor Guide.

Trails and Routes

In 2007, the themes for the tourism routes across the province were changed. The Island East Tourism Group supported by ACOA and the Government of PEI developed the Hillsborough River Discovery Drive as part of the new Points East Coastal Tour. This initiative was supported by a website. It led to a 5% increase in visitation. The Hillsborough River Discovery Drive covers a 79 km road route between

Stratford and St. Peter's and St. Peter's to Bedford. The drive has six points of interest within the Hillsborough watershed, namely: Robert L. Cotton Park; County Monaghan Monument; Scotchfort Scenic Look Off; The Hillsborough Canadian Heritage River; Hillsborough River Eco-Centre; and St. Andrew's Chapel with an Information Stop at Scotchfort. During the summer there were onsite interpreters five days a week at the Hillsborough River Eco-Centre and at St. Andrew's Chapel.

The numbers of Islanders and visitors hiking, walking, snowshoeing, and cycling have significantly increased (Figure 30). The Confederation Trail (the former railway right-of-way)

cycling and hiking routes were expanded, directional signs were installed to advise trail uses of nearby amenities, new interpretative signs were added to Confederation Trail (Hillsborough Bridge, Southport "Ferry", Hazelbrook Station, Fullerton's Marsh, Hillsborough Consolidated School, and Mount Herbert), distance signage was expanded, the existing portions were maintained, and significant promotion was conducted. Trailside Café and Adventures which opened in 1997 had a fleet of 50 bicycles for rent. It continued to offer bicycle rentals until about 2007. During the 2007 to 2017 period, the following trails were opened: the Dromore Woodland Trails—a northern extension of the Appalachian Trail (2009), Lady's Slipper Trail in Pisquid (~2011), Wright's Creek Trail (2008 and extended in 2012, 2013 & 2015 – Figure 31), the Stratford to Iona section of Trans Canada Trail (Figure 32) completed thanks to Weston Foundation (2014), the connector from Fullerton's Creek Conservation Park to the Stratford Waterfront as well as expansion of other connector trails in Stratford; Monaghan railway corridor between Lake Verde and Pisquid cut out and rough graded; a three-loop Fullerton's Creek Conservation Trails was created (2014), the Public Lands Atlas was revised (2013), the Robert Poore Haythorne Trail in Marshfield (Figure 33) was officially opened (2014), and Michael Haynes launched *Trails of Prince Edward Island* (2015). Trail maps were revised to add new trails to the City of Charlottetown, Town of Stratford and Island Trails

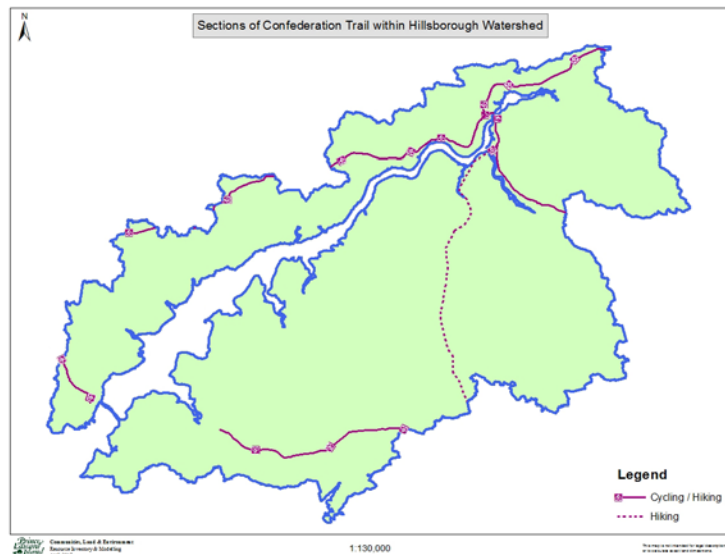


Figure 30. The sections of the Confederation Trail within the Hillsborough River Watershed, PEI. Illustration courtesy PEI Department of Communities, Land and Environment.



Figure 31. Bridge constructed in 2014 to expand Wright's Creek Trail. Photo by John Andrew.



Figure 32. Town of Stratford Trans-Canada Trail extension at Stratford, PEI. Photo by Douglas Murray.



Figure 33. Opening of Senator Poore Haythorne Trail at Marshfield, PEI. Photo by Dan McAskill.

websites. The Confederation Trail Cycling Guide was made available online in 2014. Island Trails and Trails-for-All continued to promote hiking events on trails. During the decade, both Stratford and Charlottetown expanded their network of cycling routes. The Tour de PEI, a very successful UCI International Tour women's cycling race competition, was conducted from 2007 to 2009 but stopped in 2010 due to fund-raising difficulties. Annual Gran and Medio Fondos cycling events commenced in 2013 and three of these routes feature the Tracadie Cross-Mount Stewart-and south side of the Hillsborough to Charlottetown Route 22/21, namely: Gran Fondo, Medio Fondo, and "Tour de Hillsborough".

In some years since designation, a lack of snow on the Confederation Trail or good ice cover on the Hillsborough has hampered snowmobiling. The number of licensed snowmobiles has ranged from 702 to 1,820 machines during the 2004-14 period with a nine year mean of 1,370. However, the popular snowmobile corridor still exists in winter. The utilization of wheeled ATVs has increased as have the number of complaints of environmental damage in the watershed by riders using these vehicles in an inappropriate manner. PEI Conservation Officers and RCMP officers have tried to control the illegal use.

Nature Appreciation

Birding has increased significantly with higher numbers of birders visiting the Hillsborough watershed. Additional web-based rare bird alert systems have been created and a Facebook site "Birding on PEI" and eBird Canada have allowed better documentation of birds. Nature PEI led two short term citizen science initiatives to expand knowledge on lichens and spiders. The "Field Checklist for Birds for Prince Edward Island, Edition 8" was revised in 2014 adding 15 species to the number of birds recorded on PEI (Figure 34). Expert panels were convened to identify species at risk and surveys were conducted of amphibians, dragonflies, damselflies, butterflies, mosquitos and blackflies. The 2nd Maritime Breeding Bird Atlas was completed and the *Second Atlas of Breeding Birds of the Maritime Provinces* was released in 2015. Fund-raising initiatives for a new flora of Prince Edward Island were unsuccessful. A variety of education programs have been conducted to enhance nature appreciation (see Table 5). A number of amendments were made to clarify the Environmental Protection Act and the Land Protection Act.

Recreation PEI facilitates funding grants for low income families that improve the potential to participate in various recreational activities (Canadian Tire Jump Start and Kid Sport). It initiated a variety of



programs supporting outdoor recreation including the Go PEI campaign initiatives including Go Outdoors (2015) and partnered with ParticipACTION initiatives, the latest being ParticipACTION 150 Play List launched in January 2017. The signage system for public lands was expanded to improve recreational opportunities through inclusion of signage for Fish and Wildlife Section managed lands. The management of Provincial Forests and the Fish and Wildlife Section lands was combined under the Provincial Forests Section.

Figure 34. Field Checklist of Birds of Prince Edward Island. Image courtesy of PEI Department of Agriculture and Forestry.

While the Agriculture Crop Rotation Act has addressed certain issues, it has not solved the agricultural land soil erosion problem. Education programs and Alternate Land Use Service incentives have reduced the amount of erosion occurring and, where these have been applied, they have positively impacted the landscape in some areas. However, the 20% increase in flow volume and the occurrence of more frequent high intensity rain storms is accelerating erosion in long length row crop fields. The Natural Areas Protection Act was amended to allow a de-designation process for natural areas on public lands. In 2007, designated natural areas were excluded from the aggregate land holdings under the *Lands Protection Act*. Changes to the Lands Protection Act allowed farmers to expand the land base they controlled by up to 40% if they excluded non-arable lands within their land holdings.

In 2007, a Public Lands Atlas for Prince Edward Island was printed and a second edition was released in 2013. New public land signage was developed for Wildlife Management Areas, Natural Areas, Ponds and Provincial Forests. These signs were unveiled at the Hillsborough River Eco-Centre in October, 2007. The atlases and signage have enhanced recreational opportunities on public lands.

The Community of Mount Stewart completed the payments on the mortgage for its Hillsborough River Eco-Centre which was opened in 2004. It features both the natural and cultural history of the Hillsborough watershed. In an effort to increase visitation and create revenue, marketing studies were conducted in 1995-96. One of the recommendations was to create an Eagle Festival to coincide with the high concentration of Bald Eagles feeding on the gaspereau spawning in the river. The inaugural Eagle Festival in 2007 attracted between 400 and 500 visitors was conducted at the Hillsborough River Eco-Centre and Pigot's Trail (Figure 35). By the conclusion of the seventh, several thousand people attended the festival.

The Town of Stratford established its Sustainability Plan in May, 2008 and, in 2016, installed a viewing platform on its Fullerton's Creek Conservation Park Trail (Figure 36) and a Barn Swallow nesting structure. The City of Charlottetown completed its inaugural Integrated Community Sustainability Plan (ICSP) in February, 2010. Six years later, it initiated public consultations leading to the creation of a new ICSP.



Figure 35. Pigot's Trail on the Ducks Unlimited Canada Allisary Creek Impoundment. Illustration courtesy PEI Department of Communities, Land and Environment.



Figure 36. New viewing stand at Fullerton's Creek Conservation Park in Stratford, PEI. Photo by Douglas Murray.

Fishing and Hunting

Based on license sales between 2007 and 2015:

- Angling fishing participation for resident and courtesy resident have shown an increase in participation rates from approximately 7300 in 2005-8 (range 7271 to 7477) to 8850 in 2012 but declined steadily to 6765 in 2015 (data for 2016 not available). While there had been a very strong increase in courtesy licenses for those 60 years of age and older between 2009 and 2013, there was a drop of 16% by 2015. Salmon licenses showed a decline from 616 in 1997 to 93 in 2009 but jumped to 210 in 2011 after which Atlantic salmon fishing was included in the regular angling license.
- Despite the introduction of the Waterfowler Heritage Day in 2000, Youth Waterfowl Workshops, Ducks Unlimited's Green Wing Program, and the Ruffed Grouse Society's Novice Upland Game Hunting Workshop (Table 5), total resident game hunting permits remained relatively steady ranging from 2054 in 2006 to 2218 in 2015. In 2011, a courtesy license was issued for seniors aged 60. Youth hunting permits varied from 158 in 2007 to 244 in 2015. In 2011, a three day non-resident category was introduced. Full season non-resident permits varied from 622 in 2007 to 219 in 2015 but total non-resident categories from 2011 to 2015 varied from 564 to 707, with an average of 639 between 2007 and 2015. Permit data for 2016 were not available.
- Participation rates in trapping ranged from 99 resident and 2 junior trapping licenses issued in 2007-08 to 134 and 21 respectively in 2015-16. The 29 year average from 1987-88 to 2015-16 for residents was 135 and for junior trappers is 10 but the 10 year average between 2006-7 and 2015-16 was 114 residents and 10 junior trappers. Education programs to encourage new participants in trapping and more humane trapping were conducted.

Note: 2016 data was not available.

Long term monitoring of duck production at ten sites chosen at random from a wetland inventory was discontinued in 2011. There are insufficient sampling sites to provide waterfowl production estimates at the watershed level. However, at the Atlantic Flyway level, there was a ~11% decline in the 2015 breeding black duck population compared with 2014 and a 12% decline below the long term average (1990-2014) in the American Black Duck population. There was a substantive increase in the Mallard population. The latter is of concern because of hybridization between the two species. During the 2007 to 2015 period for which Canadian Wildlife Service (CWS) data is available, there was a significant decline on the Atlantic Flyway in Blue-winged Teal (*Anas discors*). The International Black Duck Harvest Strategy was adopted in 2012 by the CWS and the United States Fish and Wildlife Service (USFWS). This strategy is aimed at maintaining and increasing their population levels while providing equal access to the black duck resource in both countries. Based on the International Black Duck Harvest Strategy, the Canadian Wildlife Service introduced regulations in 2013 allowing more liberalized harvests with a longer season and a larger bag limit for certain species. Black duck numbers decreased and, in the subsequent year, the bag limit was reduced below the 2013 level.

Despite a very small number of complaints respecting resident Canada Geese on Prince Edward Island, the CWS determined at a region level that the resident Canada Goose population allowed the creation of a two week early goose season on PEI. Thus, the CWS released proposed regulations that would create a September hunting season for Canada geese in the Atlantic Provinces in 2013 and modify the daily bag limit in different portions of the hunting season. The combined changes to the black duck and Canada Goose harvesting seasons led to the formation of Hunters for Conservation and considerable debate has evolved over these harvest rates since those changes were imposed.

Analysis of Breeding Bird Survey data has shown a decrease in the populations of many species with grassland and aerial flycatchers being particularly hard hit. In 2013, the Island Nature Trust commenced education and stewardship programs for Bobolink and Barn Swallows.

During the decade under review, the PEI Department of Communities, Land and Environment began releasing the non-native Ring-necked Pheasant (*Phasianus colchicus*) from wild captured birds in Nova Scotia and New Brunswick. Since then, there was a significant increase in observations of this popular hunted species but there is no open season for them. Departmental staff began pheasant crowing count surveys in the Hillsborough watershed and some other areas.

Since the implementation of the Island's Wetland Conservation Policy which introduced a compensatory payment scheme to create habitat enhancement to replace the area lost to development, losses of wildlife habitat within urban communities have continued as the money is largely invested in areas outside the affected community. Based on harvest levels, coyote (*Canis latrans*) populations peaked in 2004 and have since stabilized. The Beaver (*Castor canadensis*) Policy for PEI was revised in 2007. Harvest levels of muskrat (*Ondatra zibethica*)—a primary species in many wetlands—dropped to the lowest level since 1997/98 in 2008/09. However, numbers rebounded from 2010 through 2013/14 to the levels of 1997-99 periods. Garry Griffin's thesis (2013) on muskrats showed that the number of trappers, pelt prices and weather accounted for 75% of the harvest variation.

The PEI Watershed Alliance was created in 2010 to facilitate knowledge transfer and coordinate activities across the Island. The 2006 Angling Summary noted the long term decline in brook trout and that the native Atlantic salmon populations were perilously low. The 2009 Angling Summary noted that: the daily and total possession limit was reduced from 10 to 8; Atlantic salmon fishing was only catch and release; a five day family fishing license was introduced; resident and non-resident licenses were combined; the Victoria Day long weekend became a free family fishing day; and a statement recognizing the Island was the traditional ancestral homeland of the Mi'kmaq and that their treaty rights include their right to access and use natural life aquatic resources. As a further Atlantic salmon conservation measure, special regulations were put in place for smolt on the Pisquid River for 2014 and 2015 restricting the type of hooks being used for fly and bait fishing during May. Recreational fishery opportunities for rainbow trout were extended from September 16 to October 31st in 2014 on the Hillsborough River below the Mount Stewart rail bridge and below Route 21 bridge on Pisquid River. These fishers must obtain and complete a log book to record catches. Scott Roloson, a graduate student at UPEI, has been studying rainbow trout habitat utilization and movement within various watersheds including the Hillsborough.

Research studies in the Southern Gulf of St. Lawrence showed that the striped bass population had dramatically increased between 2011 and 2013. In 2013, DFO opened a limited recreational fishery and Aboriginal harvest. Since then, the limits have been adjusted upwards to allow more fishing opportunities. Anecdotal observation of the number of smelt fishing shacks of the Hillsborough has dramatically declined. However, smelt fishing has continued at a lower level but fishers are now sitting on buckets in the open or setting up temporary tent fishing shelters to fish. Smelt fishers are now moving more between estuaries responding to catch levels, ice conditions, and the taste of the smelts (Figure 37).



Figure 37. Smelt shacks on the Hillsborough. Photo courtesy of Evelyn Martin.

During the decade, improvements to the annual Angling Guide exposed anglers to new fishing possibilities in the estuary sections of tidal rivers.

Human Heritage Appreciation

Some of the highlights for the Hillsborough as a CHRS river during the July 2007 to January 2017 period include: a trilingual CHRS monument was established at Stratford (2007); the bilingual CHRS monument plaque at Scotchfort was replaced with a trilingual Mi'kmaq, French and English plaque in June 2016 (Figure 38); the *French Language Services Act* expanded French language services (2013); Beaconsfield was rejuvenated to repair it and the Carriage House (2016-17); properties were added to the Heritage Places Protection Act registry and designation list; Founders Hall continued operations but visitation declines led to closure in 2015; the Mi'kmaq Confederacy of Prince Edward Island conducted extensive oral history interviews and documented traditional resource harvesting sites; the Holland College School of Performing Arts (SOPA) was established; the Florence Simmons Performance Hall was created; and education and interpretive programs on natural history, genealogy, cultural history and recreation were implemented (Table 5). In addition, various methods including award nominations, music contests, song writing clinics, and expansion of events were used to expand music, dance, theatre, and visual arts for different cultures; the Jack Frost Festival was continued and moved to the Charlottetown Events Centre; two national historic sites were maintained; shipbuilding as a national historic event was designated and the official plaque was unveiled at Cardigan in 2011 and installed in 2014; research was implemented and a variety of publications were released (see bibliography in Appendix 3); seven Eagle Festivals were hosted at the Hillsborough River Eco-Centre in Mount Stewart, the Hillsborough River Association's Community History Education Series was conducted (2007-16); additional images were added to the Hillsborough River Image Bank; and a number of heritage homes were restored. Additional interpretive panels were added to the Confederation Trail and interpretive panels were researched and established on the Stratford to Iona spur of the trail in preparation for the official ceremony for the completion of PEI's section of the Trans-Canada Trails in autumn 2014. The Heritage Trail Walking program was established by Recreation PEI-Go PEI to encourage heritage appreciation through walking to at least ten sites during 2014. In 2015, they established the Walk-a-Lot challenge to commemorate the 250th anniversary of Samuel Holland's survey of lots. Many more events are listed in the Timeline (Table 1).



Figure 38. Unveiling ceremony for the Scotchfort (Glenroy) Trilingual Canadian Heritage River Monument, June 2016. Photo by Rosemary Curley.

Volunteers are the mainstay of human heritage appreciation. They have produced significant new publications (Appendix 3), renewed culture expression including Mi'kmaq and Gaelic classes, improved French language service, expanded traditional music and visual art venues, restored, renovated, and established new interpretive sites, restored heritage buildings, and much more. More singer song writers began recording their music and playing to live audiences across PEI and more are now plying their craft internationally. The City of Charlottetown and Town of Stratford were successful in obtaining PEI 2014 funding to create visual art along its waterfront. In essence, this spirit in our culture has increased. The Provincial Heritage Fairs and education efforts, CHRS signage, and interpretive panels have helped to

expand awareness. During the July 2007 to January 2017 period, there were a variety of awards celebrating individual or community group contributions to culture, natural heritage, and recreation. Some of the new awards established included the Pisquid River Enhancement Project's Watershed Appreciation Awards, Stratford Environmental Award, Stratford's Brown and Hood Heritage Award and others.

Despite these achievements, more volunteer organizations are struggling to recruit executive committee members as core members are lost to employment opportunities outside PEI, volunteer burnout, loss of capacity or death. Job losses and changes in Employment Insurance programs have caused an exodus of seasonal workers to western provinces. The failure of governments to commit government funding programs to seize development opportunities until after the tourism marketing has been released means that many of these organizations are never sure if they will be able to run their programs, resulting in further stress to an already stressful situation.

Table 4. Changes and Threats to Recreation Values on the Hillsborough River during the period July 2007 to January 2017.

RECREATION VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
1. BOATING			
Sub-theme 1.1 Canoe, Kayak, Boating	Increase in kayaking; Canoeing stable; Emergence of paddle boarding; Boating stable despite storms	More ready availability of kayaks and marketing; Marketing and exposure (paddle boards); Failure to place buoys on Hillsborough; Post tropical storms and storm surges	None; Letters sent to Coast Guard & DFO asking for buoy placement; Repairs to boat facilities and other infrastructure
2. ANGLING			
Sub-theme 2.4 Fly Fishing	Relatively stable		
Sub-theme 2.5 Ice Fishing	Decrease in use of ice fishing shacks	Cultural change and introduction of portable shelters tools; Changes in ice conditions	Fishers have changed their tactics; climate warming has changed ice conditions in the estuary
Sub-theme 2.6 Species Specific	Dramatic increase in striped bass fishery effort; Increase in rainbow trout fishery; New effort on brown trout; Low population of Atlantic salmon; Dramatic increase in Rainbow smelt spawning access in	Increased population led to reconsideration of striped bass COSEWIC status; Increased occurrence of rainbow and brown trout; Variation in Atlantic salmon fish passage quality (beaver dams) and habitat; Improved	Introduction of new fishing regulations; Extended season for rainbow trout fishery introduced on Hillsborough in 2014; Removal of beaver dams on mainstream and repairs to culverts; Smelt & trout fish passage research commenced (Roloson); watershed group stream

RECREATION VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
	Pisquid River; Increase in illegal harvest of migrating Rainbow smelt at Clark's Creek	smelt passage on Pisquid River; Cultural practices of individual new immigrants	improvement programs (silt trapping and removal through sediment traps and excavation of Jay's Pond); Closure of 715M of Cape Breton Road and removal of stream crossing; Education programs for new immigrants and increased enforcement; Atlantic salmon genetics were investigated; (+ Timeline & Bibliography)
3. WATER: CONTACT			
Sub-theme 3.2 Water Contact	Increase in shellfish closures; Increase in nitrate in ground and surface waters;	Charlottetown's combined sewer system and climate change based event storm frequency; Aging of sewage treatment facilities; Population growth especially in Stratford; Nitrate migration into ground and surface waters from chemical fertilizers, other farming practices and septic system	HRA awareness and education program regarding combined sewers (HRA, Conor Leggott); Stratford introduced Blue Frog aeration system in its lagoon; Mount Stewart upgraded its lagoon system; Septic tank regulations improved as well as disposal of septic tank waste; Water testing clinics; Water quality monitoring; (+ Timeline & Bibliography)
4. WATER ASSOCIATED ACTIVITIES			
Sub-theme 4.3 Hunting	Decline in American Black Duck and Blue-winged Teal populations; Significant increase in Mallard population & MALLXABDU hybridization rate	Pressure from some groups for increased hunting opportunities	Population monitoring (CWS-US Fish & Wildlife); Spring Canada Goose - Black Duck PEI survey (2016); Public consultation meeting held on creation of September Canada Goose hunting season, increase in length of waterfowl season and changes to bag limits; Hunters for Conservation created (2013); (+ Timeline & Bibliography)

RECREATION VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
6. NATURAL HERITAGE APPRECIATION			
Sub-theme 6.1 Wildlife	Increase in hiking and cycling; Improvement in wildlife population information	Need to improve human health; Lack of information on species occurrence on PEI	Creation of Eastern and Central Region Sports & Recreation Councils and advocacy/support programs (2011-16); Tourism promotion and experiential tourism education workshops and promotion; Tour de Prince Edward Island (2007-09); Gran Fondos (2013-16); Expansion of hiking/cycling trails and interpretation panels (2007-16); 7 Annual Bald Eagle Festivals at Hillsborough River Eco-Centre (2007-14); Mount Stewart River Festival (2014-16); Nature PEI's hosting of Island's first CBC 4 Kids birding event; Stratford's Building Better Backyards for Birds training events; Various education programs; (+ Timeline & Bibliography)
Sub-theme 6.2 Vistas/Scenic Quality	Changes to pastoral landscape	Hedgerow removal and forest land clearing for agriculture; Loss of wetlands; Ecological succession of fields and woodlands; Housing and cottage development;	Creation of small marsh habitat via Wetland Policy payment provisions respecting wetland loss; Advocacy and education programs; Hedgerow planting programs; Municipal Government Act (2016); (+ Timeline & Bibliography)
7. HUMAN HERITAGE APPRECIATION			
Sub-theme 7.1 Historic Sites	Increase in number of registered and designated sites; Increase in number of designations of persons or events of national significance; Loss or deterioration of heritage places;	Greater appreciation of historic places, events; Heritage Week and various awards programs; Development pressure, fire, aging, or vandalism	Registration or designation of 22 heritage places; De-registration of one PEI Heritage Place in Stratford; Upgrading of Historic Places (Charlottetown Dominion House); PEI Scottish Settlers Historical Society's campaign to save Glenaladale Estate

RECREATION VALUES	DESCRIPTION OF CHANGE	REASON	ACTIONS TAKEN
			(2013); Creation of Glenaladale Heritage Trust Inc. (2016); (+ Timeline and Bibliography)
Sub-theme 7.2 Cultural Landscape	Increased historical research & publication; Increased awareness of heritage; Loss of artifacts	Increased interest; Use of metal detectors to find, sell or collect artifacts	7 th Canadian Rivers Heritage Conference (2013); Heritage Week displays, lectures and award ceremonies at PEI Museum and Heritage Foundation, Charlottetown, and Stratford; Designation of Shipbuilding as an Event of National Historic Interest; Designation of Captain John MacDonald as a Person of National Historic Interest; Scottish groups designed and stitched panels for Scottish Diaspora (2013); 50 th Anniversary PEI Scottish Settlers Historical Society's (2016) research and launch of <i>Glenaladale Settlers 1772</i> , & hosting of Scottish Diaspora Tapestry at Confederation Centre (2016); + Timeline and Bibliography

Notes on changes or threats: Erosion and nitrification of ground water were rated as moderate threats. The balance of the changes or threats are dependant on global forces—including climate change, international trade, currency exchange values—and human demographics. Provincial and Federal legislation and budgetary allocations have the potential to reduce the identified threats.

Table 5 summarizes some of the training that is available to assist Hillsborough Rivers watershed residents to achieve their aspirations in respect to cultural heritage, natural heritage and recreation and which aid in the achievement of the Hillsborough Rivers's 2020 Vision.

Table 5. Some of the Education Programs supporting the implementation of the Hillsborough River Association's Vision.

Program	Lead Organization(s)
Cultural Heritage:	
Hillsborough Speaker Series	Hillsborough Rivers Association; Friends of St. Andrew's Chapel
CHRS Monuments	Hillsborough River Association, Canadian Heritage River System Secretariat, PEI Department Communities, Land and Environment,

Program	Lead Organization(s)
	Abegweit First Nation, Town of Stratford, City of Charlottetown, Charlottetown Area Development Corporation
Enactments & Period Dress	City of Charlottetown, Board of Roma at Three Rivers
Historic Trapping Methods	Clarence Ryan presentations to Hillsborough River
Provincial Heritage Fairs	Historica Foundation & PEI School system, Grades 5 through 9 (from 2007 to 2017), Donagh Regional, Mount Stewart Consolidated, Immanuel Christian, Grace Christian, École François-Buote, St. Jean's Elementary, Stonepark Elementary Schools have participated
PEI Heritage Collector Cards	PEI Public Archives and Records Office
Heritage Trail Walking Program	Go PEI
Mi'kmaq Heritage	Abegweit First Nation Mawiomi PowWows 2007-16; Native Council of PEI PowWow at Panmure Island; replacement of bilingual CHRS plaque at Scotchfort to a trilingual Mi'kmaq, French and English plaque, Mi'kmaq Confederacy of Prince Edward Island research and documentation of oral history, displays, Mi'kmaq treaties and rights, and education and cultural awareness programs; 7 th Canadian Rivers Heritage Conference field tour; Mount Stewart Consolidated School Mi'kmaq language and history training; PEI Department of Communities Land and Environment's Fishing Summary; Government of PEI and Mi'kmaq Confederacy cultural education series; PEI Aboriginal Affairs Secretariat
Artifact Conservation Programs	Community Museums Association; Archives Council; PEI Museum and Heritage Foundation; PEI Public Archives and Records Office
Genealogy	PEI Genealogical Society; Community schools; Public Archives and Records Office; Cardigan Heritage Centre; Prince Edward Island Scottish Settlers Historical Society; Fort Augustus Irish Descendants Association; Benevolent Irish Society of PEI; UPEI Seniors College; UPEI's Institute of Island Studies; New genealogy publications in Bibliography (see Appendix 3); Expansion of online resources including Island Register, UPEI Robertson Library digital data archive Islandarchives.ca, Ancestry.ca, and other sites
<i>By Gone Days, Island History, In the Garden</i> shows	CBC Radio <i>Mainstreet</i> features
Architecture lectures	Institute of Island Architectural Studies and Conservation
PEI Studies Desk	Robertson Library, UPEI
Prince Edward Island Collection (non-circulating and circulating)	Confederation Centre Library
Island Studies lectures	Institute of Island Studies, UPEI
Visual Arts	Public Forest Council; Arts Guild; Confederation Centre of the Arts; various craft shows, art galleries, and studio tours; Holland College
Natural Heritage	
Stream Enhancement	Pisquid River Enhancement Project; Hillsborough River Association; Stratford and Area Watershed Improvement Program; Wright's Creek Watershed Environmental Committee; PEI Watershed Alliance; Hillsborough Area Watershed Cooperative; Abegweit First Nation; Atlantic Salmon Federation; UPEI Biology and Engineering Departments and Institute of Island Studies; Atlantic Veterinary College; PEI Department of Communities, Land

Program	Lead Organization(s)
	and Environment, PEI Department of Agriculture and Fisheries; PEI Department of Transportation, Infrastructure and Energy; Fisheries and Oceans Canada; Macphail Woods Ecological Forestry Project; Island Nature Trust; Ducks Unlimited Canada; Holland College Wildlife Conservation Technology
Adopt an Eagle Program	Island Nature Trust with 18 adoptions from West Kent Elementary (8), Mount Stewart Consolidated (5), L. M. Montgomery (2), Queen Charlotte Intermediate Schools (1); Charlottetown Rural (1) Schools
Confederation Centre Public Library Nature Series	Island Nature Trust; Confederation Centre Library
Atlantic Teacher's Tour	Canadian Woodlands Forum & PEI Department of Communities, Land and Environment
Fish Friends Program	Atlantic Salmon Federation; Abegweit Biodiversity Enhancement Hatchery; Mount Stewart Consolidated School; L. M. Montgomery Elementary School
Electro-fishing Training	PEI Department of Communities, Land and Environment; University of New Brunswick certification course
Project Webfoot	Ducks Unlimited Canada in conjunction with Island Nature Trust—Mount Stewart and Donagh Elementary Schools Grade 4 students
Environmental Management	PEI Department of Transportation, Infrastructure and Energy (staff, contractors); PEI Department of Communities, Land and Environment (staff, contractors); PEI Department of Agriculture and Fisheries (staff, contractors, woodlot owners); Hillsborough River Association; PEI Watershed Alliance
Provincial Forest Envirothon	PEI Department of Communities, Land and Environment; teams from Grades 9-12 of Charlottetown Rural High School, Colonel Gray High School, Morell High School
Forest Management	PEI Department of Communities, Land and Environment; Public Forest Council (2007-2011); PEI Model Forest Partnership (now terminated); PEI Woodlot Owners Association; Macphail Woods Ecological Forestry Project; Forest Consultants
Agriculture	PEI Department of Agriculture and Fisheries; PEI Soil and Crop Improvement Association; PEI Federation of Agriculture; various commodity groups;
Forest Insect & Disease	PEI Department of Communities, Land and Environment; PEI Invasive Species Council
Pesticide training courses	PEI Department of Agriculture and Fisheries
Septic system site evaluation, selection & operation	Holland College, PEI Department of Communities, Land and Environment, Septic system contractors, central wastewater system operators
Education programs	UPEI; Holland College; Seniors College; PEI School System
Animals & Plants	Macphail Woods Ecological Forestry Project; Natural History Society of Prince Edward Island (Nature PEI); Island Nature Trust; PEI Department of Communities, Land and Environment; Atlantic Canada Conservation Data Centre
Invasive Alien Species	PEI Invasive Alien Species Working Group Spotter Network Workshop (2015); PEI Invasive Species Council education materials & 2016 workshop; Island Nature Trust; Canadian Food Inspection Agency; Town of Stratford; City of Charlottetown

Program	Lead Organization(s)
Confederation Trail Maintenance & development	PEI Department of Transportation, Infrastructure & Energy; PEI Tourism and Culture; Island Trails
Riparian Zone Planting	PEI Department of Communities, Land and Environment; Pisquid River Enhancement Project; Hillsborough River Association; Stratford and Area Watershed Improvement Program; Wright's Creek Watershed Environmental Committee; PEI Watershed Alliance; Island Nature Trust; Town of Stratford; City of Charlottetown
Riparian Zone BMPs	Island Nature Trust; PEI Watershed Alliance; Watershed groups
Fish, Game and Fur Bearer Harvesting	PEI Department of Communities, Land and Environment; PEI Trappers Association; PEI Wildlife Federation
Environmental Farm Plan	PEI Federation of Agriculture
Citizen Science Initiatives	Bird Studies Canada (Backyard Bird Count, Christmas Bird Counts, Maritimes Nest Record Scheme, Great Backyard Bird Count); Island Nature Trust (Piping Plover Surveys, Bobolink and Swallow surveys, Farmland Birds Project (Barn Swallows and Bobolinks conservation program); Atlantic Canada-Conservation Data Centre (Maritime Butterfly Atlas); Hillsborough River Association (CAMP, CABIN); Nature PEI (lichens, spiders); UPEI Bird List Server; Ebird Canada; Nature Tracker; I-Naturalist; and others
Recreation:	
Boat Safe Handling Courses	Blue Heron Canadian Power and Sailing Squadron's Winter Boating Seminar Series of Study Courses; On-line courses
National Pleasure Craft Operator Competency	On-line courses
Bird identification courses	Natural History Society of Prince Edward Island (Nature PEI); Bird Studies Canada; Holland College's Wildlife Conservation Program; UPEI Seniors College
Project Webfoot	Ducks Unlimited Canada (youth awareness program); Island Nature Trust
Youth Waterfowl Workshop	PEI Department of Communities, Land and Environment (2007-16); Delta Waterfowl; Canadian Wildlife Service; Ducks Unlimited Canada; PEI Wildlife Federation; PEI Archery Association
Waterfowler Heritage Day	PEI Department of Communities, Land and Environment
Firearms Safety Training	PEI Department of Communities, Land and Environment
Mandarin Firearms Safety & Hunting Training	PEI Department of Communities, Land and Environment
Advanced Trapper Workshops	PEI Department of Communities, Land and Environment/PEI Trappers Association
Trapper Education Program	PEI Department of Communities, Land and Environment/PEI Trappers Association
Becoming an Outdoors Woman	PEI Department of Communities, Land and Environment (Tracy MacDonald up to 2012)
Tourism workshops	Tourism Industry Association of PEI; PEI Department of Economic Development and Tourism; Atlantic Tourism and Hospitality Institute; Institute of Island Studies (UPEI); Island East Tourism Group; Strategic Tourism Expansion Program (STEP)
Snowshoeing	Eastern Region Sports and Recreation
Hiking, walking, learn to run	Recreation PEI-Go PEI; Eastern Region Sports and Recreation

Program	Lead Organization(s)
	Council; Island Trails; Trails for All
High Five Program Leader Training	Recreation PEI
Principles of Healthy Child Development	Recreation PEI
Recreation & Facility Training	Recreation PEI; PEI Department of Health and Wellness; Atlantic Recreation and Facilities Conferences

Section 3: Integrity Guidelines since Designation for the Hillsborough River.

Integrity was considered at the time of the nomination of the Hillsborough River, and the document states: “The Hillsborough River meets all the general integrity guidelines.”

Table 6 summarizes the condition of the Hillsborough River integrity guidelines since designation. The framework themes are drawn from the 2016 document *Canadian Heritage Rivers Systems: Principles, Procedures and Operational Guidelines*. Since only general integrity guidelines were provided at the time of nomination, these specifics frame the changes or threats to river integrity.

Table 6. Hillsborough River Integrity Guidelines since Designation

NATURAL, CULTURAL OR RECREATIONAL INTEGRITY VALUE	CHANGE IN INTEGRITY VALUE	THREAT OR STRESSOR (Current, Immediate, Long-term)	ACTION(S) TAKEN TO ADDRESS THREAT	THREAT STILL PRESENT
3.3.1 NATURAL INTEGRITY VALUES:				
The nominated area is of sufficient size and contains all or most of the key interrelated and interdependent elements to demonstrate the key aspects of the processes, features, activities or other phenomena which give the river its outstanding value	As the largest river system in PEI, the Hillsborough has supported many of the uses which make it valuable for CHRS nomination. Early settlement would not have taken place if the size and the flow were not sufficient to support these populations and the variety of activities. Its role as an inland transportation and settlement route made the Hillsborough an important strategic location.	None		

NATURAL, CULTURAL OR RECREATIONAL INTEGRITY VALUE	CHANGE IN INTEGRITY VALUE	THREAT OR STRESSOR (Current, Immediate, Long-term)	ACTION(S) TAKEN TO ADDRESS THREAT	THREAT STILL PRESENT
	Recreational opportunity on the river is varied, due to the presence of both fresh water and salt water environments.			
The nominated area should contain those ecosystem components required for the continuity of the species, features or objects to be protected	The communities on the Hillsborough River have always been dependent upon the natural resources of the river valley. Interest in the river's heritage has improved and will continue to improve cooperation between governments and residents.	None		
The quality of the water should be such as to provide the continuity and/or improvement of resources upon which "value" to the system has been determined	Water quality on the Hillsborough is excellent. Inclusion in the national system of Heritage Rivers can only serve to improve water conservation efforts on the river. [The term excellent comes from the nomination document. It referred to the recreational water quality. Since the nomination, significant waste water treatment improvements have been made]	None		

NATURAL, CULTURAL OR RECREATIONAL INTEGRITY VALUE	CHANGE IN INTEGRITY VALUE	THREAT OR STRESSOR (Current, Immediate, Long-term)	ACTION(S) TAKEN TO ADDRESS THREAT	THREAT STILL PRESENT
The natural aesthetic value of the river is not compromised by human developments	The pastoral beauty of the landscape is high to exceptional	Long-term housing and cottage development on private lands	Environmental Protection Act; Municipal Government Act (2016); Charlottetown and Stratford development and biodiversity strategies	Continuing
3.3.2 CULTURAL INTEGRITY VALUES:				
The nominated area is of sufficient size and contains all or most of the key interrelated and interdependent elements to demonstrate the key aspects of the processes, features activities or other phenomena which give the river its outstanding value	The Hillsborough River meets the four historical integrity values.	None		
The visual appearance of the nominated section of the river enables an appreciation of at least one of the periods of the river's historical appearance	Most of the nomination area has the same appearance as during the later stages of historical development. Examples include a number of private and public buildings, dykes, woodlands, wetlands and pastoral quality of the countryside. Neighbouring land use does not seriously affect the	Expansion of housing and cottage development on private land impacting some areas; Rezoning of properties within Charlottetown and Stratford; Zoning regulations respecting height of waterfront structures impacting some areas of	Public hearings held on re-zoning applications; Developers utilizing appeal processes to over-ride city and town decisions	Ongoing

NATURAL, CULTURAL OR RECREATIONAL INTEGRITY VALUE	CHANGE IN INTEGRITY VALUE	THREAT OR STRESSOR (Current, Immediate, Long-term)	ACTION(S) TAKEN TO ADDRESS THREAT	THREAT STILL PRESENT
	historical experience offered by the Hillsborough River.	Charlottetown and Stratford.		
The key artifacts and sites comprising the values for which the river is nominated are unimpaired by impoundments and human land use.	Most of the artifacts comprising the values for which the river is nominated are unimpaired by impoundments and human land uses.	None for impoundments; Present where agricultural land clearing and subdivisions are created in rural areas; Dramatically increased in Stratford and increased in Charlottetown	Alternate Land Use practices being encouraged but minimal governmental regulation of land clearing outside of stream and wetland buffers; Public hearings held on re-zoning applications; Developers utilizing appeal processes to over-ride city and town decisions	Ongoing
3.3.3 RECREATIONAL INTEGRITY VALUES:				
The river possesses water of a quality suitable for contact recreational activities, including those recreational activities, including those recreational opportunities for which it is nominated.	The quality of the water is excellent, suitable for contact and non-contact recreation.	Sewage treatment out-falls	Charlottetown completed its combined sewer system in 2016; Mount Stewart and Stratford upgraded their lagoon system; Stratford, Charlottetown, and Government of PEI have initiated studies to address upgrading of sewage treatment in Stratford	No respecting combined sewer treatment and Mount Stewart lagoon; Yes to Stratford sewage treatment replacement plant
The river is capable of supporting increased recreational uses without significant loss or impact on its	Current levels of recreational use upstream of the Hillsborough Bridge are low and there are no significant	Lack of channel buoys above Hillsborough Bridge—long term	Letters and discussions with Coast Guard.	

NATURAL, CULTURAL OR RECREATIONAL INTEGRITY VALUE	CHANGE IN INTEGRITY VALUE	THREAT OR STRESSOR (Current, Immediate, Long-term)	ACTION(S) TAKEN TO ADDRESS THREAT	THREAT STILL PRESENT
natural, cultural or aesthetic values	indications of impacts by recreational users. Recreational use by sailors and power boaters are relatively high but there are no significant impacts by recreational users.			

Section 4. Designation Document Recommendations and Current Status

Introduction:

The Hillsborough River Association set out its vision and goals in *Charting a Course: A Management Plan for the Hillsborough River* in 1996. The Association operates as a volunteer organization with one part-time watershed coordinator and seasonal project staff for the watershed component of its operations. Periodically, the Association raises funds through membership sales, donations, product sales and applications for project funds to various organizations. During its first decade, the Association's total budget between 1996 and 2006 was \$ 89,418 with over 60% of that in the first two years. The revenue during the past five years has been: 2011-12 \$77,096; 2012-13 \$155,550; 2013-14 \$39,878; 2014-15 \$50,030; and 2015-16 \$36,958. The higher revenues for 2011-12 and 2012-13 were associated with the co-hosting of the 7th Canadian Rivers Heritage Conference. Grants associated with the watershed component represented an average of \$37,413.

The subjective assessment of progress provided in Table 7 is based on the various goals and objectives and is placed in the context of the progress toward these aspirations, the measures that were identified in the plan, and the organization's structure, partnering efforts, and budget.

Table 7. A subjective assessment of the progress towards the River Vision 2020.

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
1. River Vision 2000: As of the mid-1990s, the stakeholders of the Hillsborough River watershed wish it to be:		
a model of human heritage, natural heritage and recreational values management	Initiated/underway	Very good progress

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
a river where people have come to terms with development of the watershed in a way that enhances the area's natural & heritage values	Initiated/underway	Good to reasonable progress dependant on area
a river where people can play and enjoy the benefits of all they have preserved without adversely impacting the river	Initiated/underway	Very good progress
a river where participation levels in decisions affecting the watershed are very high and inclusive of all interests	Initiated/underway	Good progress
a river where stewardship is shared and solutions to challenges are developed and delivered in cooperative ways	Initiated/underway	Good progress
a river where the people are empowered to replace what they draw from the river's heritage and recreational resources.	Initiated/underway	Good progress
2. Hillsborough Canadian Heritage River Goals:		
a) To sustain and enhance the cultural, recreational and natural values of the watershed through shared responsibility and stewardship for the general betterment of all life and its processes within the watershed;	Initiated/underway	Very good progress
b) To encourage sustainable development which is compatible with the above goal.	Initiated/underway	Good progress
3. Estuary and Saltmarsh Goals:		
Goal: Recognize the estuary and saltmarshes of the Hillsborough River as unique within the Canadian Heritage River System.	Initiated/underway	Good progress
3.1 Objectives:		
To Maintain and improve, where necessary, ground water and water within the estuary.	Initiated/underway	Good progress
To maintain and improve saltmarsh and associated wildlife.	Initiated/underway	Fair progress but storm surges and predicted event storms preclude long-term protection of saltmarsh; Potential migration from rising seawater levels was

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
		explored; Potential loss of species from nitrogen enrichment of saltmarshes
To interpret salt marsh history and its role in the settlement of the Hillsborough.	Initiated/underway	Good progress
To increase awareness of the Hillsborough saltmarshes as part of a larger ecosystem.	Initiated/underway	Good progress
4. Human Heritage Goals:		
4.1 Aboriginal and Mi'kmaq:		
Goal: The Hillsborough River shall be managed to recognize the contributions, both past and present, of the aboriginal community to the heritage of <i>Elsetkuk</i> -Hillsborough River.	Initiated/underway	Good progress
4.1.1 Objectives:		
To promote the aboriginal heritage of the Hillsborough River as an integral part of interpretive programming.	Initiated/underway	Good progress
To ensure continued participation of the Aboriginal community in management of Aboriginal heritage resources.	Initiated/underway	Good progress
To respect use of the river where it does not compromise heritage values.	Initiated/underway	Good progress
4.2 European Settlement:		
Goal: The goal of settlement heritage is the continued awareness and appreciation of the impact humans have made on the watershed. We will learn from experience to make better choices for the future.	Initiated/underway	Good progress
4.2.1 Objectives:		
To support, where appropriate, research and conservation of archaeologically significant areas including the remnants of settlement patterns such as dykes, lot lines, hedgerows, portage routes, mills and dams, etched into landscape by our ancestors.	Initiated/underway	Poor progress; in-situ loss of artifacts degraded potential to gather new information; loss of historic hedgerows changing certain viewsapes

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
To monitor (in partnership with other human and natural heritage groups and individual supporters) progress in heritage landscape conservation in the watershed and publicize within a Canadian Heritage River community.	Initiated/underway	Good progress
To support agricultural, fishery, forestry and other sustainable resource uses that maintain the historic pastoral landscape and aquatic character of large parts of the watershed, while encouraging where possible associated space for animals.	Initiated/underway	Good progress
To research, recognize and where appropriate publicize historic achievements and milestones in the human occupation and settlement of the various parts of the watershed.	Initiated/underway	Good progress in many areas
4.3 Farming:		
Goal: The continued stewardship of the land for sustainable agriculture purposes while complementing the other life processes occurring in the estuary, streams, saltmarshes, wetlands, and riparian zones of the watersheds.	Initiated/underway	Good on many farms but poor on others
4.3.1 Objectives:		
To encourage among farmers the value of stewardship of land and water as part of our common heritage;	Initiated/underway	Good progress
To encourage the development and implementation of farm management plans;	Initiated/underway	Good progress
To encourage the improvement of soil quality and depth.	Initiated/underway	Monitoring at province scale underway; some farmers actively engaged but others less so
To expand community support of agriculture that is conservation-based as far as water and land resources are concerned.	Initiated/underway	Good progress
To encourage and monitor progress in land and water conservation in the watershed and publicize this progress as points of pride	Initiated/underway	Recognition of progress outweighed at times by public perception of certain events

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
within a Canadian Heritage River community.		
To actively promote and support tree and shrub planting to add to the aesthetics, wildlife habitat and erosion control.	Initiated/underway	Good progress
To encourage land use and agricultural practices that enhance the historic pastoral character of large parts of the watershed.	Initiated/underway	Expectation poorly defined
To recognize historic achievements in agriculture, especially those that enhance the watershed values, such as conservation, preservation and sustainable development.	Initiated/underway	Recognition of progress outweighed at times by public perception of certain events; Achievement and appreciation awards created and awarded
4.4 Fishery:		
Goal: The continued stewardship of the land surrounding the waterways to complement stream and estuary health within the watershed; secondly, the stewardship of the in-stream and estuary habitat, including the riparian zone.	Initiated/underway	Good progress
4.4.1 Objectives:		
To encourage among fishers, fishery groups, watershed users, and landowners awareness of the value of stewardship of land and water as part of our common heritage with the natural world.	Initiated/underway	Good progress
To encourage (in partnership with the fishery communities such as shell fishers, fin-fishers, etc.) progress in land, water, habitat and species conservation in the watershed and publicize this within a Canadian Heritage River community.	Initiated/underway	Good progress
To support agriculture and fishery practices that enhance the historic pastoral landscape and marine character of large parts of the watershed.	Initiated/underway	Good progress
To enhance and protect natural springs feeding the waterways.	Initiated/underway	Good progress

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
To recognize historic achievements and milestones in the fishery, especially those related to conservation, preservation and sustainable development.	Initiated/underway	Poor progress
To ensure a garbage-free river, free from abandoned smelt shacks, fishing debris and other debris from human use of the river corridor (adopting in part the Women's Institute model of community action to achieve clean-up).	Initiated/underway	Good progress
To ameliorate conflicts between various management goals.	Initiated/underway	Good progress
4.5 Forestry:		
Goal: Continued stewardship of the land for sustainable forest purposes which compliment other life processes occurring in the steams, riparian zones and estuary of the watershed, secondly the interpretation of the forestry story.	Initiated/underway	Good progress on certain lands, poor on others
4.5.1 Objectives:		
To work with individuals and groups involved in forestry to share awareness of stewardship of woodland ecosystems as part of our common heritage.	Initiated/underway	Fair progress
To involve communities in support of forestry that is conservation-based as far as water and woodland ecosystem resources are concerned.	Initiated/underway	Fair progress
To promote tree and shrub planting where it will add to the aesthetics, wildlife habitat, erosion control, and windbreaks.	Initiated/underway	Good with some exceptional applications
To encourage land use and forestry practices that enhance the historic pastoral character of large parts of the watershed.	Initiated/underway	Expectations poorly defined
To recognize historic achievements and milestones in forestry, especially those that enhance the watershed management values, such as conservation, preservation and sustainable development.	Initiated/underway	Fair progress

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
To support and, where possible, lead by example in establishing long-lived high value forest cover types in the riparian zones throughout the watershed.	Initiated/underway	Good progress on certain properties
To encourage the recreational and educational use of woodland, with special attention to the demonstration woodlots and natural areas within the watershed.	Initiated/underway	Good progress
To encourage “green” areas within the urban areas of the watershed.	Initiated/underway	Good as expressed by trails growth, Dutch elm disease sanitation efforts, tree planting and tree replacement; community sustainability plans; experimental infiltration program; water conservation promotion
4.6 Shipbuilding:		
Goal: To protect the shipbuilding heritage values and to increase public awareness of the significance of the industry to PEI	Initiated/underway	Good progress
4.6.1 Objectives:		
To identify shipbuilding sites and encourage their preservation.	Initiated/underway	Good progress on knowledge level
To foster appreciation and pride in the shipbuilding heritage.	Initiated/underway	Good progress
To educate with a focus on a hands-on approach with activities such as: archeological digs, shipbuilding demonstrations and wooden ships festivals.	Initiated/underway	Good progress
To study impact of increased recreational or other use on shipbuilding heritage sites and to monitor these sites within the watershed for possible disturbances.	Completed/addressed	Continued prospecting and removal of historic artifacts within the watershed
To research the vessel building history of the Mi'kmaq and French occupants and promote inclusion in interpretive efforts.	Initiated/underway	Poor progress

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
4.7 Transportation:		
Goal: The Hillsborough River shall be recognized as an important transportation route for the early peoples, and will be maintained and improved to interpret this heritage.	Initiated/underway	Good progress
4.7.1 Objectives:		
To acknowledge the use of the river as a transportation route, through a rediscovery of traditional transportation modes (horse and sleigh) and improvement of modern popular transportation (snowmobiles, dog sledding, non-motorized boating).	Initiated/underway	Reasonable progress
5. Recreation:		
Goal: To promote recreation as an important part of the watershed and to influence positively the protection and management of the watershed, the economic well-being of its people and the heritage and educational values of the river.	Initiated/underway	Very good on land based elements. Good on kayaks, canoes and paddle boards
5.1 Objectives:		
To encourage sensitive development for areas of natural and human heritage, and to minimize adverse impacts of recreation development generally on the Hillsborough and its watershed.	Initiated/underway	Good progress
To develop specific management for significant natural and human heritage values.	Initiated/underway	Good progress
To promote hiking, cycling and nature appreciation activity such as wildlife viewing where those activities will not jeopardize the integrity of heritage values, nor negatively impact upon recreational values.	Initiated/underway	Very good progress
To emphasize interpretation of human heritage values, firmly within the context of how these values interact with natural history of the watershed.	Initiated/underway	Good progress

RECOMMENDATION OR KEY ACTION	DEGREE OF ACHIEVEMENT	COMMENTS
To develop a communication program covering locally available material and suggested activities for community groups, ensuring involvement of local residents in heritage interpretive programming.	Initiated/underway	Very good progress in certain aspects, fair in others
To develop specific cooperative wildlife and fisheries management programs with local residents to retain and enhance fish and wildlife habitat.	Initiated/underway	Good progress overall with very good on the Pisquid River
To recognize traditional uses of natural resources, specifically trapping, hunting and fishing in the Hillsborough River and its watershed.	Initiated/underway	Fair despite recruitment programs on hunting and trapping. Good for forest based recreation opportunities.

Section 5. Summary of Benefits and Costs since Designation for Hillsborough River

There are no studies of the costs and benefits of designating Canadian Heritage Rivers on Prince Edward Island. The factors involved with such a costs and benefits statement far exceed the resources that would be required to study these influences on PEI. The Government of PEI and the Hillsborough River Association both independently decided that such a designation had value and the existence of the CHRS itself, supported by the federal, provincial and territorial members speaks to the merit. However, significant cuts to the CHR Secretariat and the failure to address cost of living increases for grants for deliverables required under the system are at odds with the merit of the system.

The Hillsborough River Association identified the potential factors involved and these are noted in Table 8.

Table 8. Summary of benefits of achieving the Designated Canadian Heritage River status for Hillsborough River watershed.

Type of Benefit	Description
Environmental Benefits: (ex: improved water quality; improved habitat; increases in fish/animal/plant populations, etc).	Improved science and knowledge on the factors influencing river biology (nutrients flow patterns, sedimentation, fish passage, silt stabilization, etc.). Increased awareness of the need to monitor water quality and pressure to improve water quality. Increased citizen science initiatives (water quality (CAMP); invertebrates (CABIN); Nature PEI lichen and spider occurrence monitoring project; Invasive Species; Nature Tracker App). Continued access to native trees and shrubs for forest improvement and watershed enhancement. Continued investment in Alternate Land Use Service grants to support conservation measures.

Type of Benefit	Description
	<p>Upgrading of waste water treatment facilities and regulations for disposal of wastes.</p> <p>Separation of Charlottetown's Combined Sewer system.</p> <p>Upgrades to Mount Stewart and Stratford's lagoon systems and closure of one problem lagoon with rerouting to a higher stage treatment facility.</p>
<p>Cultural Benefits: (ex: improved appreciation of river / watershed / aboriginal or other history of river use; increased identification and protection of culturally significant sites, etc.)</p>	<p>Installation and unveiling ceremonies of one trilingual Hillsborough River CHR plaque at Stratford waterfronts.</p> <p>Replacement of the original bilingual CHRS Hillsborough River Plaque with a trilingual Mi'kmaq, French and English plaque</p> <p>Hosting of seven Bald Eagle Festivals at the Hillsborough River Eco-centre in Mount Stewart</p> <p>Upgrading of the PEI Museum and Heritage Foundation's Artifactory.</p> <p>Registration or designation of 22 new PEI Heritage Places and loss of 1 registered site.</p> <p>Shipbuilding on PEI and Deportation of the Inhabitants of Île Saint-Jean as National Historic Events; plaques unveiled.</p> <p>Implementation of the Heritage Fairs for grades 5 to 9 students.</p> <p>Designation of Captain John MacDonald as a Person of National Historic Significance.</p> <p>Release of various books on built heritage, culture, genealogy, and the natural environment (see Timeline and Bibliography sections)</p> <p>2014 Sesquicentennial Celebration achievements</p>
<p>Recreational benefits: (increased or decreased use of river; changes in use of river; improved access to river, etc.)</p>	<p>Increase in recreational boating (kayaking, canoeing, and paddle boardings).</p> <p>Expanded recreational fishing opportunities for striped bass, rainbow trout, and brown trout.</p> <p>Development of a new Public Land Atlas to identify those lands which the public can access (land on PEI is 90% private).</p> <p>Increased use and expansion of the Confederation Trail.</p> <p>Development of trails at Dromore, Pisquid, Stratford, Charlottetown, and Marshfield.</p>
<p>Improved Knowledge: (ex: increased understanding of river wildlife/vegetation/history /traditional knowledge, etc.)</p>	<p>See publications list in Appendix 3 (Note: this represents some of the publications not all).</p> <p>Mentoring of students.</p> <p>See Table 5 education programs.</p> <p>Community Museums Association study tours and training.</p> <p>Implementation of the Heritage Fairs for grades 5 to 9 students.</p> <p>Citizen Science workshops (Nature PEI)</p>
<p>Monetary benefits: (increased access to funding; increased revenue, etc.)</p>	<p>Support funding for CHR nomination, designation and decadal review documents and for CHR plaques.</p> <p>Construction of new facilities.</p> <p>Expansion of experiential tourism and recreation opportunities.</p> <p>Development of potential for cultural heritage tours.</p> <p>Multiplier effect of new money entering Hillsborough River economy.</p>

Type of Benefit	Description
	Release of <i>2012 Canadian Nature Survey: Awareness, participation and expenditures in nature-based recreation, conservation and subsistence activities</i> .
Increased Stewardship: (increased involvement in stewardship activities, number of activities / events, etc.)	Cataloguing of historical artifact collections at heritage centres. Citizen science initiatives (see above). Registration or designation of 22 new PEI Heritage Places And loss of 1 registered site. Designation of Capt. John MacDonald as a Person of National Historic Significance and shipbuilding on PEI as an Event of National Historic Interest
Community engagement and collaboration: (increased dialogue with community and other partners and stakeholders; increased participation in river management discussions; increased involvement in river activities)	Increased communication and collaboration between various groups interested in cultural and natural heritage conservation. Expanded public discussions in newspapers, radio and television programs regarding environmental and heritage activities. Dramatic increase in interest in local family and cultural genealogy as well as development of new research tools at UPEI's Roberston Library, Confederation Centre Library, PEI Genealogical Society, and online sources such as Ancestry.ca, genetic testing for family genealogy, etc. Enhanced community discussion of waterfront development and entranceway initiatives at Charlottetown and Stratford (e.g. Charlottetown Gateway, Charlottetown and Stratford waterfronts, Charlottetown Event Centre, Cruise Ship Tourism, Georgetown Conference: Rural Redefined).
Have any education programs related to the river, health of the river or watershed, use of the river, etc. been undertaken since designation?	Extensive educational programs were implemented during the decade and are listed in Table 5. Note that it is not a complete list of the opportunities. See Appendix 3 publications list.
Have any communications products (signage, exhibits, photo contests, social media and web etc.) been developed to communicate the designation and its benefits?	Three trilingual CHR plaques are installed at Charlottetown, Stratford and Scotchfort. Two of these plaques are in high visitation corridors on the waterfront and one is along the Points East Coastal Drive Hillsborough Discovery Drive. Research and development of 11 issues of <i>Hillsborough Tidings</i> , the Hillsborough River Association's newsletter. Installation of Hillsborough River Canadian Heritage River signs at major river crossing points along the mainstream and along Confederation Trail. Inclusion of CHR logo on various map products for Hillsborough River. See publications list in Appendix 3 (Note: this represents some of the publications). Development of online communication products (7 th Canadian River Heritage Conference website and Facebook site; Hillsborough River Association website (1999-2017); Community government web sites; Museum and Interpretation Centre websites; facility websites, Facebook sites and other social media tools; Points East Coastal Drive website).

	Heritage Centre interpretation facilities, programs and advertising. Development of community art installations & photo expositions. Expanded Veterans exhibits and ceremonies. Media releases from various organizations. Participation in community festivals.
Please list any other benefits (include indirect and intangible benefits)	Government official and legislator awareness developed from review of funding applications. Improved environmental and cultural awareness. Improved land use and knowledge of cover-type mapping. Increased citizen science initiatives within Hillsborough River (e.g. atlas of breeding birds of the Maritimes, Maritimes butterfly atlas, studies on dragonflies/damselflies; eBird; UPEI Bird List Serve. Skills development in cultural interpretation, watershed improvement, forest management, construction, trails development and management, water chemistry testing, flora and fauna identification, etc.). Intellectual property rights for publications and knowledge gained. Project management, community relations, fund raising and social media skills development. Conveyance of cultural knowledge and skills between generations.
DETRIMENTAL EFFECTS	DESCRIPTION
Volunteer burnout	The primary challenge discovered to date is volunteer burnout because of the large number of initiatives and a small and an aging population.
Process fatigue	The tolerance level of volunteers for the rather convoluted CHRS administrative processes is very low. Members wish to invest their time and energy in achievements not navel gaze and deliberate over complex tables such as the decadal review template. This template needs radical change so that it is a tool not an impediment!

Section 6.0 Still Waters and the View Upstream...

This report acknowledges some of the achievements made by the many partners working towards *River Vision 2020*. As the report was time and funding limited, these achievements represent only a partial list of what actually has been achieved. One of the more common statements made during the consultations has a flavor like “well, not much happened...or... well, we did a little bit.” This is a pretty typical expression of fact in many Island communities but there is an underlying knowledge that we will get it done. Placed in the reality of the time context, this report is a celebration of just how much has been achieved!

The goals and objectives set out in *Charting a Course: A Management Plan for the Hillsborough River* are still valid with the exception of the Great Blue Heron and Common Tern colonies statements. More work is required to achieve some of what could be done with added energy and better communication. There is still a pressing need to invest in measures that stop point source soil erosion, explore archaeological sites, collect historical images, and document oral history before this information is lost. These needs were identified in the management plan and the Association will continue to push for progress on these needs.

One of the goals of this report was to look at the possibilities, i.e. the View Upstream in our Timeline on the Hillsborough. So, from the Hillsborough River Association's perspective, the possibilities to enhance the *River Vision 2020* include:

- Implement an outreach program on the release of the *Hillsborough River CHRS 2007-2017 Report* to share the knowledge on what has been achieved and to energize more individuals and organizations to contribute to the *River Vision 2020*.
- Install the Hillsborough Canadian Heritage River signage on all major crossing points on the large tributaries of the Hillsborough River so that: visitors recognize they are in the Hillsborough Canadian Heritage River; residents take pride in the river's dynamic history; and both visitors and residents relate to watersheds from a soil conservation perspective.
- Enhance fish passage to allow American smelt access to their traditional smelt spawning areas on the Hillsborough and better recognize the ecological role of smelts as a mover of nutrients from estuaries and coastal waters to fresh water habitats.
- Research and submit nominations for awards that enhance the profile of those contributing to the implementation of *River Vision 2020*.
- Install more interpretive signage on the Confederation Trail within the Hillsborough watershed so that: the visitor experience is enhanced, the increasingly urbanized population becomes more aware of the natural values and history of the watershed, and visitors can utilize the Hillsborough public access roads or Confederation Trail to walk or cycle to Hillsborough River viewpoints.
- Complete the Maple Hill to Vernon River and Iona spurs of the Confederation Trail (former CN railway line) to a cycling surface and add interpretive signage.
- Improve knowledge of the impact of aquatic and terrestrial invasive species on the Hillsborough watershed and encourage landowners and visitors to utilize measures to curtail the spread of invasive species.
- Improve the marketing of the Hillsborough River Eco-Centre so that: the visitor experience is enhanced, the financial stability of its operations is achieved, and the dynamic history and ecological roles are conveyed to residents and visitors.
- Discuss ways and means of ensuring that various organizations conserve their minute book records so that they become an educational tool for future generations.
- Support the development of a Museum of Nature within the PEI Museum and Heritage Foundation that achieves the natural history and curatorial mandates set out in current legislation.
- Mobilize discussions with government so that casual staff and grant funding for interpretive facilities including the watershed groups on the Hillsborough, the Hillsborough River Eco-Centre, archives, and museums is determined well before marketing campaigns are initiated so that the volunteer boards are offered the respect they should be afforded and the time to develop better marketing campaigns. (This is a needed tool to reduce the amount of volunteer burnout from incessant uncertainty).
- Identify important dates and achievements on the Hillsborough so that themes can be used for marketing and conveying historical information.
- Support surveys for rare species in calcareous wetlands and low salinity sites on Hillsborough
- Develop a working model of an aboiteau to explain how the saltmarshes were drained to produce forage crops.

- Investigate the costs and possibilities of installing web cams on a Bald Eagle nest or Osprey nest and an underwater camera on an oyster bed, a bubbling spring, or under ice platform to encourage visitation, inspire visitors, and educate through seeing.

Section 7. Overall Assessment.

The Hillsborough River became the first Canadian Heritage River co-nominated by a non-government organization (the Hillsborough River Association) and a province. The cultural heritage and recreation values were the primary factors that provided the basis for the designation of the Hillsborough River as the 17th Canadian Heritage River in 1997. The Hillsborough River ranked first in natural values among the 17 major Prince Edward Island river systems and the quality of the Hillsborough's natural heritage led to the cultural and recreational development on the river. *Charting a Course: A Management Plan for the Hillsborough River* sets out the *River Vision 2020*, the goals, and objectives for the Hillsborough River.

Despite the challenge of being largely a volunteer organization with only a part time watershed coordinator, thanks to the contributions of many individuals and partners, significant progress has been made towards the implementation of the management plan. One of the more successful is the effort invested in improving public awareness and facilitating communications with the diverse partnerships.

Based on the findings in this report, the designation of the Hillsborough River as a Canadian Heritage River should remain in place.

Appendix 1. Individuals contacted during this study

John Andrew, Director, Hillsborough River Association; Chair, Wright's Creek Watershed Environmental Committee

Randall B. Angus, Director, Integrated Resource Management Directive, Mi'kmaq Confederacy of PEI; Member, 7th Canadian River Heritage Conference Steering Committee

Phil Arbing, Director, Hillsborough River Association; Member, All Around the Hillsborough Planning Committee

Mark Arsenault, Habitat & Wildlife Technician, PEI Department of Communities, Land and Environment; Director, Hillsborough River Association; Member Hillsborough Area and Development Corporation; Member Bald Eagle Festival Committee

Myrna Babineau, Acting President & Treasurer, PEI Scottish Settlers Historical Society, Charlottetown, PE

Boyde Beck, Curator of History, Exhibits and Editor Island Magazine, PEI Museum and Heritage Foundation

Sean Blaney, Botanist, Atlantic Canada - Conservation Data Centre, Sackville, NB

Kevin Brothers, Provincial Forest Supervisor, East, PEI Department of Communities, Land and Environment

Brian Brown, Manager, Field Services Section, PEI Department of Agriculture and Forestry

Dr. David Cairns, Research Scientist, Fisheries and Oceans Canada, Charlottetown, PE

Dr. Wayne Cameron, former Director, Hillsborough River Association, Stratford PE

David Carmichael, Horticultural Technician, PEI Department of Communities, Land and Environment

Nichola Cleaveland, Librarian, Confederation Centre Public Library Service, PEI Department of Tourism and Culture

Shelley Cole-Arbing, Environmental Coordinator, Environmental Management Section, PEI Department of Transportation and Infrastructure Renewal

Reg Conohan, former Eastern District Provincial Forest Supervisor, PEI Department of Agriculture and Forestry, Southampton PE;

Carol Craswell, Supervisor, Land Administration, PEI Department of Transportation and Infrastructure Renewal

Rosemary Curley, Vice-President, Hillsborough River Association, President, Nature PEI; former Wildlife Biologist, PEI Department of Environment, Energy and Forestry; Member Bald Eagle Festival Committee; Member, PEI Invasive Species Council

Doug Deacon, Past Chair, Island East Tourism Group, Charlottetown PE; former Co-owner, Trailside Café

Ruth DeLong, Trails Communities Relations Coordinator, PEI Department of Tourism and Culture

Maxine Doucette, Village Chair, Community of Mount Stewart, PE

Angela Douglas, Watershed Coordinator, Hillsborough River Association and Pisquid River Enhancement Project; Chair and Secretary, PEI Watershed Alliance

Kelley Farrar, Watershed Coordinator, Stratford and Area Watershed Improvement Group

Mary Finch, Watershed Ecologist, PEI Department of Communities, Land and Environment

Chief Brian Francis, Chief, Abegweit First Nation, Scotchfort PE

Mary Gallant, former Editor of *The Scot's Thistle*, and former Board member, PEI Scottish Settlers Historical Society; Board member Glenaladale Heritage Trust Inc., Maple Hill PE

Terry Gauthier, Tree Improvement Supervisor, PEI Department of Communities, Land and Environment; former Coordinator, Greening Spaces, PEI Department of Communities, Land and Environment

Beth Grant, Executive Director, Recreation PEI, Charlottetown, PE

Garry Gregory, Wildlife Management Biologist, PEI Department of Communities, Land and Environment

Honourable Dr. Diane Griffin, Senator for PEI, Past President, Hillsborough River Association; Atlantic Region Nature Conservancy of Canada Board Member; former PEI Program Manager, Nature Conservancy of Canada; former President, Nature PEI

Megan Harris, Executive Director, Island Nature Trust, Charlottetown PE

Dr. Catherine Hennessey, Heritage Consultant & Hillsborough River Association History Resource Advisor

Rebecca Hersom-Petersen, Natural Resources Project Manager, Abegweit First Nation, Scotchfort, PEI

Beth Hoar, Member, PEI Invasive Species Council; Parkland Conservationist, City of Charlottetown, PE

Jim Hornby, Consultant, Author, Folklorist, Historian, and Researcher, Mt. Herbert, PE; author *Black Islanders*

Fred Horne, President, PEI Genealogical Society; former Coordinator, Hillsborough River Association; Archivist/Collections Coordinator, MacNaught History Centre and Archives

Andrew Ing, GIS Technician, Information Technology Shared Services, PEI Department of Finance

Sandra Jamieson, GIS Technician, PEI Department of Communities, Land and Environment

Don Jardine, Project Manager, UPEI Climate Research Lab; Coordinator, 7th Canadian River Heritage Conference; former Director of Pollution Prevention Division, PEI Department of Environment, Energy and Forestry

Dr. David Keenlyside, Executive Director, PEI Museum and Heritage Foundation

Neil A. Kinsman, Regional Coordinator - East, Sport, Recreation and Healthy Living Division, PEI Department of Health and Wellness

Dr. Helen E. Kristmanson, Director, Aboriginal Affairs and Archaeology, Intergovernmental and Public Affairs Office, Executive Council of Prince Edward Island

Sean Ledgerwood, Climate Change Mitigation Specialist, PEI Department of Environment, Labour and Justice; Member, CHRS Technical Planning Committee; Lead 7th Canadian River Heritage Conference

Simon Lloyd, Special Collections Librarian, Robertson Library, UPEI

Barbara MacDonald, External Relations Manager, PEI Field Unit, Parks Canada; Member, Hillsborough River and Area Development Corporation, Mount Stewart, PE; Member, Bald Eagle Festival Committee

Dr. Edward MacDonald, Associate Professor, Department of History, UPEI

Genevieve MacDonald, Director, Hillsborough River Association, Glenfinnan, PE

Philip MacDonald, former Chair, Friends of St. Andrews, St. Andrews, PE

Ronald MacDonald, Treasurer, Hillsborough River Association, Webster's Corner, PE

Tracy MacDonald, Technician, PEI Department of Communities, Land and Environment; Becoming an Outdoors Woman Coordinator/Instructor

Barb MacFarlane, Secretary, Hillsborough River Association, Johnston's River, PE

Rosanne MacFarlane, Freshwater Fisheries Biologist, PEI Department of Communities, Land and Environment

Don MacNeil, former President, Hillsborough River Association 1997 to 2012, Red Point, PE

Kate MacQuarrie, Director, Forests, Fish and Wildlife Division, PEI Department of Communities, Land and Environment

Ken Mayhew, Information Officer, Forests, Fish and Wildlife Division, PEI Department of Communities, Land and Environment

Mary Lynn McCourt, GIS Supervisor, PEI Department of Communities, Land and Environment

Alan McLennan, Program Coordinator, Eastern Habitat Joint Venture, PEI Department of Communities, Land and Environment

Derek Mills, A/Chief Aquaculture Division, Fisheries and Oceans Canada, PEI Area Office, Charlottetown PE

Mike Montigny, Field Manager, Forests, Fish and Wildlife Division, PEI Department of Communities, Land and Environment

John Morrison, Director, Sport, Recreation and Physical Activity, PEI Department of Health and Wellness

Doug Murray, Consultant; former PEI Director for Canadian Heritage Rivers Board (1997 through 2002); Director of Parks, PEI Department of Tourism and Parks; leader on Confederation Trails/Trans-Canada Trail development

Mary Myers, Manager, Production Development, PEI Department of Communities, Land and Environment

Peter Nishimura, Climate Change Adaptation Specialist, PEI Department of Communities, Land and Environment

Dr. Irene Novaczek, Research Scientist, Fisheries and Oceans Canada; Member, Planning Committee, 7th Canadian River Heritage Conference, Charlottetown, PE

George O'Connor, President, Benevolent Irish Society, Charlottetown PE

Dr. Carolyn Peach Brown, Associate Professor, Director of Environmental Studies, UPEI Charlottetown, PE

Stephen B. Pigott, Acting Regional Engineer - Eastern, Capital Projects, PEI Department of Transportation, Infrastructure and Energy

Jonathan Platts, Conservation Program Specialist, Ducks Unlimited Canada PEI, Charlottetown PE

Brad Potter, Manager, Fish and Wildlife Section, PEI Department of Communities, Land and Environment

Gary Ramsay, Reference Librarian, Confederation Centre Public Library Service, PEI Department of Tourism and Culture

Bruce Raymond, Manager, Watershed and Subdivision Planning Section, PEI Department of Communities, Land and Environment

Aggi-Rose Reddin, Historian, Genealogist, acting Secretary, PEI Scottish Settlers Historical Society, Charlottetown, PE; Board member Glenaladale Heritage Trust Inc., Savage Harbour PE

Scott Roloson, Graduate Student, UPEI

Clarence Ryan, Chair, Pisquid River Enhancement Project (part of PEI Trappers Association; former President PEI Trapper's Association; former Government of PEI Problem Beaver Trapper

Peter Sheppard, Provincial Forest Technician, PEI Department of Communities, Land and Environment

Jacob Smith, Executive Director, Eastern Regional Sport and Recreation Council

George Somers, Manager, Drinking Water and Wastewater Management Section, PEI Department of Communities, Land and Environment

Charlotte Stewart, Heritage Officer, PEI Department of Education, Early Learning and Culture

Scott Taylor, Hatchery Manager, Abegweit Biodiversity Enhancement Hatchery, Abegweit First Nation, Scotchfort PE

Dr. Kevin Teather, Associate Professor, Biology Department, UPEI, Charlottetown, PE

Barry Thompson, Manager, Sustainable Agriculture Resources, PEI Department of Agriculture and Fisheries

Brian Thompson, Director, Land and Environment Division, PEI Department of Transportation, Infrastructure and Energy

Mary Leah Trainor, President, Fort Augustus Irish Descendants Association, Johnston's River, PE

Dr. Michael R. van den Heuvel, Canada Research Chair in Watershed Ecological Integrity, Canadian Rivers Institute, Departments of Biology and Biomedical Sciences, UPEI

Julie Vasseur, PEI Program Manager, Nature Conservancy of Canada Atlantic Region, Charlottetown, PE

Jackie Waddell, former Executive Director, Island Nature Trust

Greg Wilson, Manager, Environmental Land Management, PEI Department of Communities, Land and Environment

Janet Wood, Manager Tourism Services, Product Development, PEI Department of Economic Development and Tourism

Jim Young, Director, Environment Division, PEI Department of Communities, Land and Environment; PEI Board Member, Canadian Heritage Rivers Board; Co-Chair, 7th Canadian River Heritage Conference

Julie Lynn Zahavich, Piping Plover Project Coordinator, Island Nature Trust

Appendix 2. Individuals, Groups, Organizations, and Businesses who supported the implementation of the Hillsborough River Association's Vision.

The Hillsborough River Association wishes to acknowledge all those who have supported the implementation of the Vision defined in *Charting a Course: A Management Plan for the Hillsborough River*. The Vision for the Hillsborough was and is holistic as it reaches to the aspirations of entire communities on the river as well as those who have links to the heritage of this place. The Association wishes to thank all those who have contributed in any way to the progress towards the Vision of the Hillsborough during the past 20 years. Your contributions speak collectively to what has been achieved.

No list will cover all those who have contributed but the following list attempts to identify the breadth of those who have assisted with this voyage towards a common Hillsborough River Vision.

4-H	Rick Barron
Abegweit First Nation	Chris Barrett
Doug Abercrombie	Hynman Barrett
Active Communities Inc.	Ernest Beagan
Clifford Affleck	Leona Beagan
Earl Affleck	Boyde Beck
Jason Affleck	Barbara Bernard
Randy Affleck	Emile Bernard
Agro Co-operative Association	Hon. Carolyn Bertram
Patricia Allen	Hon. Pat Binns
Allied Youth	Bird Studies Canada
Etta Anderson	Michael Bird
Dr. John Andrew	Gerry Birt
Andrews of Stratford	Roger and Eleanor Birt
Randy Angus	Dr. Francis Blanchard
Phil & Liz Arbing	Kimball Blanchard
Anne of Green Gables Chocolates	Sean Blaney
Shane Arbing	Blue Heron Power & Sail Squadron
Archives Council	Anne Boswell
Georges Arsenault	Laura Boswell
Jean-Paul Arsenault	Norman Boswell
Mark Arsenault	Myles Boulter
Robert Arsenault	Jackie Bourgeois
Wade Arsenault	Bill Bowerbank
Atlantic Baptist Homes	Georgina and Harvey Bowness
Atlantic Canada Conservation Data Centre	David Boyce
Atlantic Canada Opportunities Agency	Anna Bradley
Atlantic Salmon Federation	Don Brander
Atlantic Super Store	Hon. Philip Brown
Audubon Christmas Bird Counts	Marion Bruce
Myrna Babineau	Scott Buchanan
Barry Bain	Bill Buell
Vince Baird	P. John Burden
Paul Baglole	Ellen Burge
Jamie Ballem	Dr. Marie Burge
Paula Banks	Wilf Burke
Tim Banks	Mary Burnett
Chris Barrett	Nial Burnett

Suzanne Burns-Chisholm
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 Art Cameron
 Guy Cameron
 Isabel Cameron
 Ron Cameron
 Dr. Wayne & Joan Cameron
 Harris Campbell
 Canada Revenue Agency
 Canadian Aquaculture Institute (UPEI)
 Canadian Coast Guard Maritimes, Charlottetown
 Office
 Canadian Fertilizer Institute
 Canadian Heritage Rivers System Board
 Canadian Heritage Rivers System Secretariat
 Canadian Summer Job Program
 Canadian Wildlife Service
 Capital Commission of PEI
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 Carrefour de l'Île St. Jean
 Emma Carter
 Catherine Casey
 Mike Cassidy
 Cavendish Farms
 CBCL Ltd.
 CBC staff
 Century 21
 CFCY
 Roland Chaisson
 Charlottetown Area Development Corporation
 Charlottetown Convention Bureau
 Charlottetown Driving Park
 Charlottetown Fire Department
 Charlottetown Harbour Authority
 Charlottetown Home Hardware
 Charlottetown Yacht Club
 J. Cheverie
 Jordan Chowan
 Mark Christian
 City of Charlottetown Council & Staff
 City of Charlottetown Micro-Grant & SERF
 Danny Clark
 Rev. Gary Clark
 Marlene Clark
 Roberta Clark
 Sherri Clark
 Mi'kmaq Elder Ruth Clark
 Clean Farms
 Gary Clow

George Coade
 Coastal Ocean Associates Ltd.
 Anna Coffin
 Dr. Garth Coffin
 Ike Coffin
 Lawrence Coffin
 Junior and Alan Coffin
 Shelley Cole-Arbing
 Gordon Coles
 Comité acadien francophone de l'est
 Community Access Program
 Community Foundation of PEI
 Community Museums Association
 Community School Association
 Stephanie Compton
 Confederation Centre Library
 Confederation Player's Program
 Pat Connolly
 Reg Conohan
 Nick Coomber
 Cooper Institute
 Tom Corrigan
 Cottage Laine
 Isabel Court
 Steve Cousins and Family
 COWS
 Matt Cox
 Roger Craig
 Aaron Crane
 Cynthia Crane
 Georgina (Knockwood) Crane
 Olive Crane
 Carol Craswell
 Marina Craswell
 Beatrice Crawford
 Duncan Crawford
 Leo Creamer
 C.R.M. Ready Mix Co. Ltd.
 Crossroads Fire Department
 Crossroads Lions Club
 Iain Cudmore
 Culinary Institute of PEI
 Rosemary Curley
 Mike Currie
 Tracey Cutcliffe
 Odette Cyr
 Marie Daley
 Barb Dalziel
 Dasco Equipment
 Don Deacon
 Doug Deacon

Jonas Deacon
 Fiep de Bie
 Ruth DeLong
 Delta Marsh
 Delta Prince Edward
 Molly Demma
 Vernon “Super” Dennis
 Gerry Desroches
 Kim Devine
 DFO Recreational Fisheries Conservation
 Partnership Fund
 Randy Dibblee
 Sabine Dietz
 Pierre Charles Dillon
 Billy Dockendorff
 Hon. Valerie Docherty
 Janelle Doiron
 Donagh Home and School Association
 Connie Doucette
 Donalda Doucette
 Maxine Doucette
 Angela Douglas
 Hon. Mildred Dover
 Bill Doyle
 Eddie Doyle
 Peter Doyle
 Ramona Doyle
 Dragon Boat Festival
 John Drake
 Kelly Drake
 Dr. Lawson & Eileen Drake
 Lee Drake
 Ducks Unlimited Canada
 Ducks Unlimited (US)
 Anna & Charlie Duffy
 Jack Duffy
 Jarrod Duffy
 Tom Duffy
 Madison Dunn
 Ralph (Dewey) Dunn
 Marian Dunphy
 Mayor David Dunphy
 Cynthia Dunsford
 Fred Dunsford
 Dunstaffnage Seniors Club
 Todd Dupuis
 École La-Belle-Cloch Choir
 École Saint-Augustin Choir
 East River Fire Department
 East Royalty Lions Club
 Eastern Graphic

Eastern Habitat Joint Ventures
 Eastern Region Sport and Recreation Council
 Entegritty Wind Systems Inc.
 Darrell Evans
 Stacey Evans
 Executive Council, Government of PEI
 Michael Farmer
 Kelley Farrar
 Federated Womens Institutes of PEI
 Barb Feehan
 Kathy Feehan
 Dr. Adam Feneck
 Festival of the Fathers
 Max Finkelstein
 Ron Fisher
 Fisheries and Oceans Canada
 Maurice & Stella Fitzpatrick
 Jim Follwell
 Kaylee Foote
 Morgan Foote
 Christine Forgeron
 Fort Augustus Enhancement Committee
 Fort Augustus Heritage Park Sub-Committee
 Fort Augustus Irish Descendants Association
 Fort Augustus Lions Club
 Fort Augustus Recreation Club
 Founders Hall
 Chief Brian Francis
 Jesse Francis
 Friendly Pharmacy
 Friends of St. Andrews
 Friends of the Farm
 Emile Gallant
 Mabel Gallant
 Mary J. & Paul Gallant
 Michael Gallant
 Richard Gallant
 Ron & Donna Gallant
 Wayne Gallant
 Eileen Gaudet
 Jerry Gavin
 Nancy H. George
 Denisa Georgescu
 Honourable Robert Ghiz
 Donna Giberson
 Don Gibson
 Leo Gill
 Debbie Gillis
 Don & Judy Gillis
 Ginger Snaps Treasures & Treats
 William & Elizabeth Glen

Good Earth Productions
 Keith and Cheryl Good
 Gord Goodwin
 Chief Roddy Gould Jr.
 Mike Grady
 Beth Grant
 Kara Grant
 Kim Green
 Brian Greenan
 Ann Greyborn
 Senator, Dr. Diane and Kevin Griffin
 Brian Grimsey
 Daryl Guignon
 H.M.C.S Queen Charlotte
 Dennis Haché
 Nicholas & Bill Halman
 Wayne Hambly
 Hanna Hameline
 Carl Hamm
 Luke Hannah
 Robert, Caleb & Jake Harding
 Guillaume Harmanghe
 Harness Racing PEI Inc.
 Ira Harper
 Megan Harris
 Havre-Saint-Pierre Historical Committee
 Andy Hennessey
 Dr. Catherine Hennessey
 Michael Hennessey
 Shane Hennessey
 Benoit Henry
 Dept of Canadian Heritage Building Communities
 through Arts and Culture
 Shawn Hill
 Hillsborough River and Area Development
 Corporation
 Hillsborough River Eco-Centre
 Ricky Hitchcock
 HMCS Queen Charlotte
 Beth Hoar
 JoAnne Holden
 Harry Holman
 Mitchell and Delmar Holmstrum
 Les Homans
 Arlene M. Hoop
 Tom Horn
 Jim Hornby
 Fred Horne & Mary Burke
 Hoskin Scientific
 Peter Houston
 Charles Hughes

John Hughes
 Natasha Hughes
 Robert Hughes
 Human Resources Development Canada
 Marie Soleil Hutchinson
 Andrew Ing
 David Ing
 Harley Ings
 Rod Inness
 Institute of Island Studies (UPEI)
 Heather Irving
 Island Coastal Services Ltd.
 Island Nature Trust
 Island Trails
 John Ives
 Ben Jacks
 Jacques Whitford Associates
 Josh Jadis
 William Jadis
 Sandra Jamieson
 Don Jardine
 Jasper Wyman and Son Ltd.
 Cassandra Jay
 Franklin Jay
 Vince Jay
 Brendan Jenkins
 Harold & Mary Jenkins
 Jim Jenkins
 Mayor Kevin Jenkins
 Julie Jones
 Rollie & Jeanette Jones
 Harris Johnston
 Roy Johnstone
 Journal-Pioneer
 Dr. Rachel Kassner
 Gary & Heather Keast
 Jeff Keefe
 Andrew Kelly
 Donald Kelly
 Doug Kelly
 Glen & Debbie Kelly
 Jamie Kelly
 Kevin Kelly
 Pat Kelly
 Kelly Family Reunion Committee
 Dr. David Keenlyside
 Meike Keunecke
 Dr. Barry King
 Craig Knickle
 Matilda Knockwood-Snache
 Paul Knox

Kyla Kok
 Eleanor, Jim, and Danny Koughan
 Kristie's Restuarant
 Dr. Helen Kristmanson
 Kwik Kopy Design and Print Cetre
 Kyle Knish
 Gord Ladner
 Lady's Slipper 200 Year Club
 Brody Lambe
 Sean Landsman
 Jim Larkin
 Maureen Larkin
 Sharon Larter
 Ernie Laverty
 Morgan Laverty
 Sean Ledgerwood
 Hon. Clifford Lee
 Connor Leggott
 Dr. Mark Leggott
 J. Hamilton Douglas Royal Canadian Legion
 Branch #4
 Let Them Be Kids Foundation
 Brian Levenson
 Wade Lewis
 Carter Livingstone
 Simon Lloyd
 Lone Cry Singers
 Lynanne & Peter Love
 Kevin MacAdam
 Wes MacAleer
 Hon. Lawrence MacAuley, M.P.
 Athol MacBeath
 David MacCannell
 Rev. Alan MacDonald
 Angie MacDonald
 Agnes MacDonald
 Audrey MacDonald
 Barbara MacDonald
 Dunstan MacDonald
 Dr. Ed MacDonald
 Genevieve & Carl MacDonald
 George MacDonald
 Gerald MacDonald
 Hector MacDonald
 Holly MacDonald
 Joe MacDonald
 Kay MacDonald
 Patricia MacDonald
 Philip MacDonald
 Ron & Joie MacDonald
 Scott MacDonald

Syd MacDonald
 Tammy MacDonald
 Gary MacDougall
 Gerald MacDougall
 Wayne MacDougall
 Melissa MacEachern
 Stacey MacEwen
 Elmer MacFadyen
 Stu MacFadyen
 Barb MacFarlane
 Rosanne MacFarlane
 Frank MacIntyre (E.M.C.)
 Gerald (Buddy) MacIntyre
 Earl MacInnis
 Carl "Pex" MacKay
 MacKinnon's On the Wharf
 Don MacKinnon
 Ken MacKinnon
 Roland MacKinnon
 Trevor MacKinnon
 Wade MacKinnon
 Hon. Wade MacLauchlan
 Kevin MacLaren
 Keith MacLean
 Norida MacLean
 Roderick MacLean
 Ron & Gail MacLean
 Steve MacLean
 Chase MacLeod
 Kim MacLeod
 Brooke MacMillan
 Mitchell MacMillan
 Sandi & Dr. Scott MacMillan
 Don MacNeil
 Mark MacNeil (Jacques Whitford Environment
 Ltd.)
 Peggy MacNeil
 Peggy May MacNeil
 Ron MacNeil
 Jennifer MacPherson
 Stan MacPherson
 Kate MacQuarrie
 Carol MacWilliams
 Kenny MacWilliams
 Mail Boxes Etc.
 Maritime Electric Co. Ltd.
 Marshfield Pioneer Cemetery Trust Fund
 Marshfield Women's Institute
 Evelyn Martin
 Christina Martinez
 Matthews Canada Ltd.

Winston Maund
 Ken Mayhew
 Myah McAdam-Young
 Ryan McAdam-Young & Family
 Dan McAskill
 Joe McAskill
 Shauna McCabe
 Mary Lynn McCourt
 McDonald's Stratford ESSO
 Barb McDonald
 Trevor McInnis
 Allan & Joanne McIsaac
 Dean McIsaac
 Leo McIssac
 Luke McIsaac
 Dr. David & Anne McKenna
 Emmett & Barb McKenna
 Dr. Doug McKenzie-Mohr
 Brian McLellan
 Allie McLennan
 Allison & Betty McNally
 Wade McNally
 Andrea McNeil
 Bonnie McOrmand
 Mermaid Art Gallery
 Mermaid Women's Institute
 Metro Building Supplies
 Thomas Micah
 Paul Michael
 Mi'kmaq Confederacy of Prince Edward Island
 Janey, James & Alan Miller
 Janet Miller
 Chris Mills
 Derek Mills
 Hon. Robert Mitchell
 Alan Molyneau
 Mike Montigny
 Sylvia Moore
 Emile Morell
 Ernie Morello
 Barb Morgan
 John Morrison
 Donald Moses
 David Mosher
 Mount Stewart Enhancement Committee
 Mount Stewart Fire Department
 Mount Stewart Lady's Slipper Carvers Club
 Fred Mullen
 Natalie Munn
 David & JoAnne Murnaghan
 Leonard Murnaghan

Cavelle Murphy
 Clair Murphy
 Danny Murphy
 Kevin Murphy
 Leaming Murphy
 Nancy Murphy
 Ray Murphy
 Hon. Shaun Murphy, M.P.
 Doug Murray
 Mike Murray
 Keith Mutch
 Becky Myers
 Mary Myers
 Shawn Myers
 Mystic Seaport
 Native Council of Prince Edward Island
 Natural History Society of Prince Edward Island
 aka Nature PEI
 Nature Canada (formerly Canadian Nature
 Federation)
 Nature Conservancy of Canada
 Dr. Irene Novaczek
 Dwaine Oakley
 Suzanne O'Callaghan
 George O'Connor
 Olde Dunstaffnage School Community Centre
 Orwell Corner Historic Village
 Dennis & Marie O'Shea
 Katlyn Ostridge
 Parkdale-Sherwood Lions Club
 Parks Canada PEI Field Office
 Les Parsons
 Mary Patterson
 Elizabeth Paul
 Michael Pendergast
 PEI Department of Education, Early Learning and
 Culture
 PEI Department of Communities, Land and
 Environment
 PEI Department of Economic Development and
 Tourism
 PEI Department of Health and Wellness
 PEI Department of Rural & Regional Development
 PEI Department of Transportation, Infrastructure
 & Energy
 PEI Department of Workforce & Advanced
 Learning
 PEI Employment Development Agency
 PEI Genealogical Society
 PEI Jobs for Youth
 PEI Liquor Commission

PEI Museum and Heritage Foundation
 PEI National Park
 PEI Scottish Settlers Historical Society
 PEI Shellfish Association
 PEI Trappers Association
 PEI Wildlife Conservation Fund
 PEI Wildlife Federation
 Real Pelletier
 Dan Pettit
 Jeremy Pierce
 Bruce Pigot
 Frank Pigot
 Keith Pigot
 Ross Pigot
 Helen Piggot
 Jessy Pirch
 Jonathan Platts
 Brad Potter
 Mike Praught
 Earl & Margaret Proctor
 Public Archives and Records Office
 Quartermaster Marine
 Quebec Labrador Foundation (QLF)
 Howard Quinn
 Isabel Quinn
 Kerry Quinn
 RBC (Queen St., Charlottetown)
 Billy Ransey
 Bruce Raymond
 RBC Blue Water Fund
 Recreation PEI
 Red Shores Casino and Racetrack
 Aggi-Rose Reddin
 Jack Reddin
 Tony Reddin
 Cindy Rice
 Nora Richard
 Darren Riggs
 Wayne Roach
 Kevin Roache
 Glenda Rodd
 Scott Roloson
 Roma at Three Rivers
 Rose's Barber Shop
 Sherry Ross
 Royal Canadian Mounted Police
 Ashton Ryan
 Clarence Ryan
 Saint Andrew's Chapel
 Saint John River Society
 Salamander Foundation

Danny Sark
 Keptin Dr. John Joe Sark
 Tiffany Sark Carr
 Steve Sayle
 Margie Scotto
 David & Elaine Seeler
 Shamrock Club of Fort Augustus
 Peter Sharkey
 Gail Shea
 Shawn Shea
 Earle Shephard
 Peter Sheppard
 Rachel & Tim Shields
 Sierra Club of Canada
 Brian Simpson
 Tracey Singleton
 Sister Antoinette Arsenault Historical Society
 Marilyn Smallamn
 Art Smith
 Bruce Smith
 Jacob Smith
 Kent Smith
 Matt Smith
 Morley Smith
 Ron Smith
 Dr. Doug Sobey
 Soci    Saint-Thomas D'Aquin
 George Somers
 Margaret Somers
 Southport Motel
 Kelli Spence
 Jennifer Stewart
 Stratford & Area Watershed Improvement
 Group(SAWIG) Board and Members
 Rudy Stocck
 Greg Stroud
 John Sullivan
 Swiss Chalet (Charlottetown)
 John Sylvester
 The BUZZ
 The Guardian
 Linda Taylor
 TD Friends of the Environment Fund
 TD Green Streets
 Kevin Teather
 The Cotton Trust
 Wayne Thibideau
 Barry Thompson
 Bob Thompson
 Brian Thompson
 Dale Thompson

David Thompson
 Guy Thompson
 Reg “Dutch” and Jill Thompson
 Rena Thompson
 Robert Thompson
 Wilfred Thompson
 Myra Thorkelson
 Gavin Toombs
 Tourism Charlottetown
 Tourism Industry Association of PEI
 Town of Stratford Council & Staff
 Tracadie Area Residents for Resource Protection
 (TARRP)
 Tracadie Lions Club
 Trailside Café and Adventures
 Billie Trainor
 Clair Trainor
 George Trainor
 Hilda Trainor
 John Trainor
 Kimberlee Trainor
 Mary Leah Trainor
 Paul Trainor
 Christina Turbide
 Kent Turpin
 UNB’s Canadian Rivers Institute
 University of Prince Edward Island
 UPEI Climate Research Lab
 Maria Van DeCappelle
 Bernie & Brenda van Gaal
 Elinor Vass
 Gwen Vessey
 Community of Mount Stewart Council & Staff
 Cecil Villard

Edith Vissey
 VolNet Project
 Donna Waddell
 Jackie Waddell
 Wakelins Grocery
 Hilary Walker
 Elmer Walsh
 Penny Walsh
 Wanapitei C.A.N.O.E. (Canoe & Northern
 Outdoor Expeditions Inc.)
 Christine Watts
 Hon. Francis (Buck) Watts
 Dr. David Weale
 Regina Wells
 Wendy’s Restaurant (Grafton Street,
 Charlottetown)
 Logan White-Myers
 Wildlife Conservation Fund
 Perry Williams
 Greg Wilson
 Paul Winters
 Paul Wisener
 Wizard Business Products
 David and Brian Wood
 Janet Wood
 Wally & Doris Wood
 Wright’s Creek Watershed Environmental
 Committee
 David Yeo
 Lorne Yeo
 Jim Young
 Youth In Action
 Julie-Lynn Zahavich

Plus all those other landowners, business owners and staff, staff of government departments and agencies, staff and non-government organization members, politicians, students, teachers, support staff of schools, journalists, researchers, genealogists, writers (see bibliography), song writers, singers, photographers, artists, hunters, fishers, trappers, conservationists, cyclists, hikers, walkers, snowmobilers, consultants, sports organization members, fire departments, service organizations, and others who have contributed positively to achieving this Vision.

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CELEBRATING A CANADIAN HERITAGE RIVER THE HILLSBOROUGH (EAST) RIVER

- Legend**
- River Monument
 - Provincial Route
 - Trans Canada Highway
 - Access Road
 - Confederation Trail
 - Road
 - Rivers and Streams
 - Hillsborough Watersheds
 - Transportation
 - Agriculture Land
 - Developed Land
 - Forest Land
 - Wetland

