

## Solutions for sharing space with shorebirds in the Minas Basin, Bay of Fundy

Final Report to the Habitat Conservation Fund Contributions from Hunters and Trappers

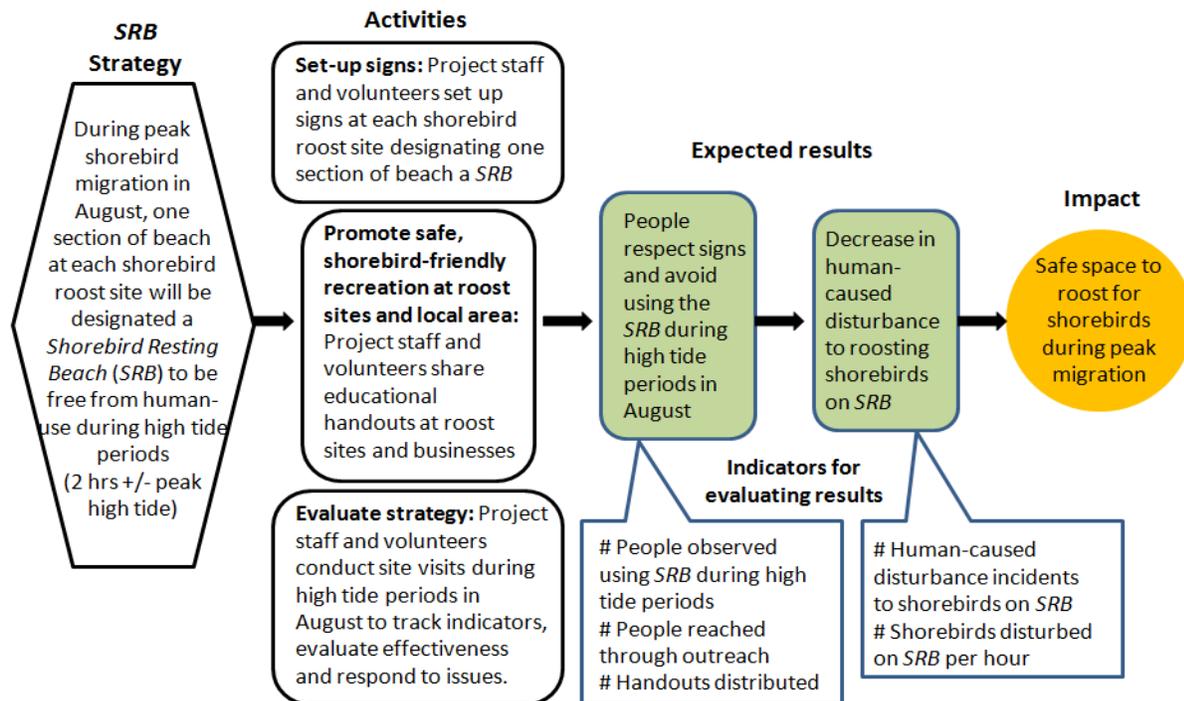
Prepared by Sue Abbott, Bird Studies Canada

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**Project goal:** To work collaboratively with anglers, other recreational users, and community partners to develop concrete and effective solutions that share space with shorebirds and reduce disturbance at critical high tide resting sites in the Minas Basin.

**Project overview:** This project engaged diverse stakeholders in developing and implementing shared space solutions to reduce human-caused disturbances to thousands of shorebirds during peak fall migration (August) at two priority coastal sites in the Minas Basin, Bay of Fundy. In spring/summer 2018, we adapted a shared space “Shorebird Resting Beach” (SRB) strategy that was first piloted at the Guzzle and Avonport Beach in 2017. Adaptations to the SRB strategy were informed by observational data collected during site surveys in 2017 and feedback from regular users at sites, landowners and managers at both sites (Figure 1). We re-tested the SRB strategy and evaluated impacts in August 2018 at both sites. This report provides a synthesis of key results from 2018 as well as other project activities that furthered shorebird habitat conservation in the Minas Basin.

**Figure 1. Results chain describing theory of change for the Shorebird Resting Beach (SRB) strategy at the Guzzle and Avonport Beach**



**Objective #1. Partner with striped bass anglers, other recreational users and landowners to share space with shorebirds at two priority shorebird sites in the Minas Basin: The Guzzle and Avonport Beach.**

We achieved anticipated results of recognizing diverse societal values of coastal sites by collaborating with those who regularly visit and use the Guzzle and Avonport beach and developing feasible strategies to share space over the long-term.

We successfully partnered with key stakeholders at both the Guzzle and Avonport Beach in order to ensure that diverse societal and biodiversity values were considered and, as much as possible, integrated into shared space solutions at both sites. We relied on information collected at the sites in 2016 and 2017 to understand frequency of use and use patterns of primary recreational user groups and perspectives of landowners and land managers. Based on preliminary success of the SRB strategy in reducing disturbances to roosting shorebirds in 2017, we made adaptations to the strategy and tested it again at both sites in 2018.



Anglers and shorebirds sharing space at the Guzzle. Photo R. Whitman.

At the Guzzle, striped bass anglers were identified as a primary user group due to consistent use of the site during high tide periods, thus, we targeted engagement of anglers in planning shared space solutions for shorebirds during peak shorebird migration in August. We successfully integrated anglers' ideas for sharing space at the Guzzle from 15 anglers who participated in an online survey conducted in spring 2017. Based on angler input and further face-to-face discussions with anglers at the Guzzle, we selected the west side of the Guzzle as a designated roost space for shorebirds for a four hour period - two hours before and after high tide – (Figure 2). The west section of beach showed higher shorebird use and less angler use, so it was a natural choice to designate as a SRB. In spring 2018, we posted a simple update for anglers and other recreational users at the Guzzle in order to share results from the SRB pilot in 2017 and to inform about continuation of the SRB in 2018. We also encouraged anglers to connect with us. In addition to this on-site communication, we sent an email update to anglers and other recreational users who expressed interest in receiving updates.

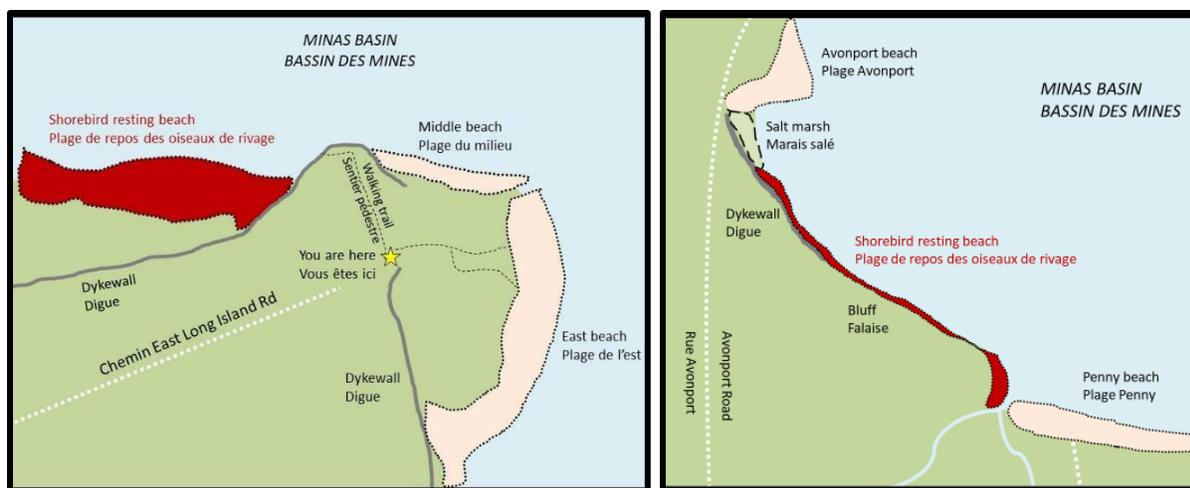
At Avonport Beach, we connected with three private landowners who own coastal lands at and near the site and NS Agriculture dykeland maintenance staff who are responsible for maintaining dykes. We also engaged with recreational users, particularly swimmers and bathers who represented the main recreational user group.

**Objective #2: Use stewardship approaches that promote sharing space at The Guzzle and Avonport Beach to reduce disturbance to resting shorebirds caused by recreational users during high tide periods.**

We implemented a shared space strategy that designated a SRB section of beach to be free from human use during high tide periods (Figure 1). In early August, we placed signs marking the start and end points of the designated SRB section at Avonport Beach and the Guzzle (Figures 2 & 3). Signs remained at each

site through August to coincide with peak fall migration for Semipalmated Sandpipers. At each site, we shared information about shorebirds and promoted the SRB strategy using handouts (see page 7) with recreational users. Local businesses helped share educational handouts with their clients and visitors (see also page 6). We conducted surveys of sites during shorebird roosting periods around peak high tide times (Table 1). Surveys were usually four hours in duration (two hours before and after peak high tide); however, survey effort was less than four hours on days with poor weather or visibility. We collected key indicators to assess effectiveness of the SRB strategy including number of shorebirds disturbed and number and causes of shorebird disturbance incidents (Figure 1). We categorized human caused disturbance by recreational user type, e.g., walker, angler, photographer and swimmer and non-human caused disturbances as predatory bird (e.g., Peregrine Falcon), non-predatory bird (e.g., shorebird or gull) or unknown (shorebird flocks flushing or moving for no apparent reason). We estimated number of shorebirds disturbed for each disturbance incident using binoculars or a spotting scope.

**Figure 2. Location of Shorebird Resting Beach sections (red area) at the Guzzle (left) and Avonport Beach (right) in 2017 and 2018**



**Figure 3. Signs used to mark start and end points of Shorebird Resting Beach at the Guzzle (left) and Avonport Beach (right) in 2017 and 2018**



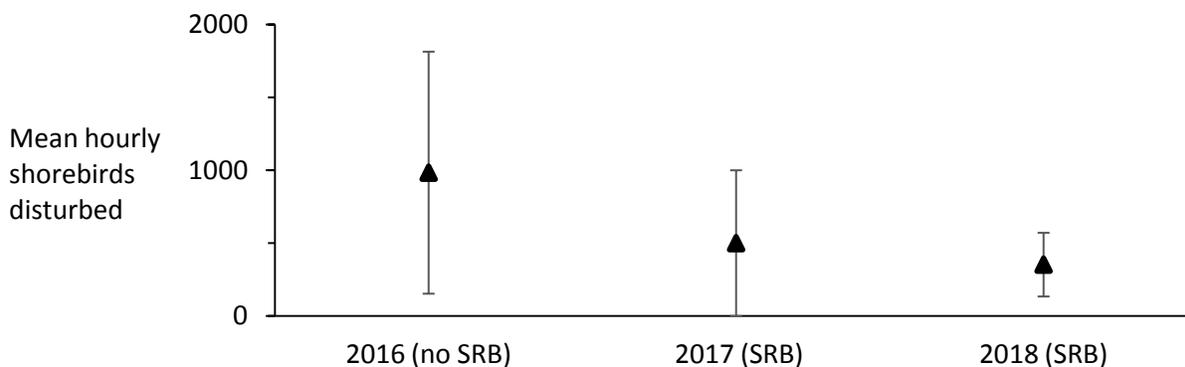
In 2018, we conducted 12 surveys to evaluate effectiveness of the SRB at both sites totalling 42.5 hours at Avonport Beach and 43 hours at the Guzzle (Table 1).

**Table 1. Number of surveys and site visits at Avonport Beach and the Guzzle during 2016 (pre-project baseline year), 2017 (SRB pilot year) and 2018 (SRB).**

Minas IBA Roost Site	Survey effort	2016 (no SRB)	2017 (SRB pilot)	2018 (SRB)	Total
Avonport Beach	Number of surveys	11	16	12	<b>39</b>
	Survey hours	22.5	56.5	42.5	<b>121.5</b>
Guzzle	Number of surveys	10	15	12	<b>37</b>
	Survey hours	24.5	55	43	<b>122.5</b>

At the Guzzle, the SRB strategy implemented on the west beach was effective in reducing recreational use and shorebird disturbance. Mean hourly number of shorebirds disturbed by human causes decreased 64% from 984 (SE 830) in 2016 to 353 (SE 218) in 2018 (Figure 4). Rate of recreational use of the west beach decreased 93% from 2 users/hour in 2016 to 0.14 in 2018 (Table 2). Interestingly, number of recreational users observed in the vicinity of the west beach per survey hour more than doubled from 2016 to 2018. In 2017, 100% anglers respected the SRB. In 2018, the vast majority of anglers respected the SRB in 2018; however, three out of six human disturbance incidents to shorebirds were caused by anglers (Table 3). We observed full respect of the SRB by walkers and photographers in 2018, which marked improvements over previous years (Table 3). Walkers were a leading cause of human disturbances in 2016 and photographers in 2017.

**Figure 4. Mean hourly shorebirds disturbed by human causes at the Shorebird Resting Beach section at the Guzzle in 2016 (no SRB), 2017 (SRB pilot) and 2018 (SRB) (points represent means, bars represent standard error)**



**Table 2. Recreational use in the vicinity of and on west beach at the Guzzle during 2016 (no SRB in place), 2017 (SRB pilot) and 2018 (SRB)**

	2016 (no SRB)	2017 (SRB pilot)	2018 (SRB)
Recreational users in the vicinity of west beach per hour (n= number of recreational users observed)	3.5 (n=85)	2.8 (n=152)	6.8 (n=292)
Recreational users observed on west beach per hour	2.0	0.2	0.14

\* Not all recreational users caused disturbances as shorebirds may not have been present at the time

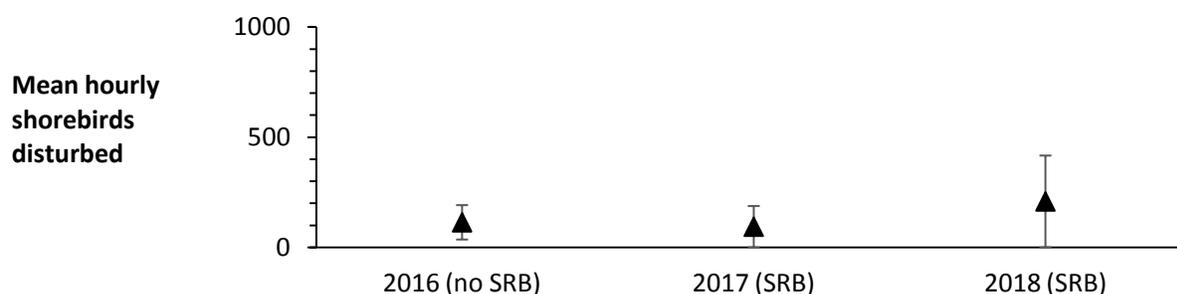
**Table 3. Number of human-caused shorebird disturbance incidents per hour on the west beach at the Guzzle in 2016-2018 (n= number of incidents)**

Human-cause	2016 (no SRB)	2017 (SRB pilot)	2018 (SRB)
Birder	0.12 (n=3)	0	0
Angler	0	0	0.70 (n=3)
Photographer	0	0.11 (n=6)	0
Walker	0.57 (n=14)	0.02 (n=1)	0
Farm vehicle noise	0	0	0.70 (n=3)
<b>Total</b>	<b>0.69 (n=17)</b>	<b>0.13 (n=7)</b>	<b>0.14 (n=6)</b>

At Avonport, the conservation impact of the SRB was not significant due to low overall human use of the SRB section in all years. Mean number of shorebirds disturbed by humans was lower than the Guzzle in all years (Figures 4 & 5). An increase in shorebirds disturbed and human-caused shorebird disturbance incidents in 2018 was due to one swimmer causing 10 separate disturbances to a flock of 1,000 roosting shorebirds (Table 4). The SRB section at the south end of the site (see Figure 2) was chosen because it supported high numbers of shorebird flocks and because the alternative small section to the north showed overwhelming preference by bathers and swimmers during high tide periods and it would not have been feasible to restrict recreational access. As such, future communication to Avonport recreational users should include messaging to swimmers about avoiding close approaches to the Shorebird Resting Beach.

To expand shorebird stewardship at other important Minas Basin roost sites, we developed and placed an interpretive sign with educational handouts and stewardship tips at Blue Beach in 2018 (see page 9 for photo); however, we did not have resources to measure potential impacts. Despite past vandalism issues on site, the sign was respected by visitors.

**Figure 5. Mean hourly shorebirds disturbed by human causes at the Shorebird Resting Beach section at Avonport Beach in 2016 (no SRB), 2017 (SRB pilot) and 2018 (SRB) (points represent means, bars represent standard error)**



**Table 4. Number of human-caused shorebird disturbance incidents per hour on the south beach at Avonport Beach in 2016-2018 (n= number of incidents)**

Human-cause	2016 (no SRB)	2017 (SRB pilot)	2018 (SRB)
Walker	0.04 (1)	0	0
Walker with off-leash dog	0.04 (1)	0	0
Sunbather	0	0.02 (1)	0
Swimmer	0	0	0.23 (10)
<b>Total</b>	<b>0.09 (2)</b>	<b>0.02 (1)</b>	<b>0.23 (10)</b>

**Objective #3: Strengthen and diversify local stewardship partnerships with businesses and tourism operators through a public shorebird celebration event held at Evangeline Beach.**

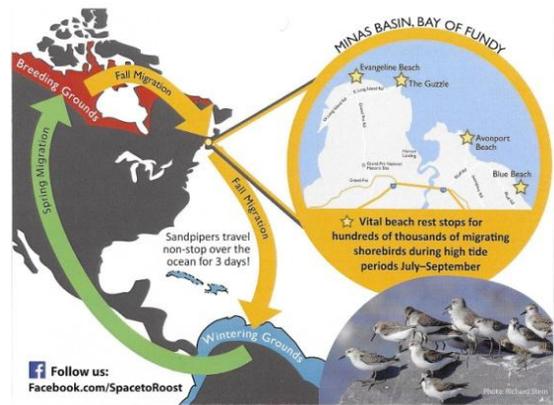
Despite less funding than anticipated, we achieved our objective of strengthening and diversifying local stewardship partnerships. We engaged the following local businesses and partners in sharing shorebird stewardship messages by assisting in the distribution of approximately 1,300 English handouts and 100 French handouts during July-August 2018:

- Avonport Convenience store, Avonport
- Avonport community mailboxes (copies of handout were affixed to mailbox)
- Beach Breeze Motel, Grand-Pré
- Blue Beach Fossil Museum, Hantsport
- Land of Evangeline Canteen, Grand-Pré Evangeline Inn Motel & Café, Grand-Pré
- Glooscap First Nation Band Office
- Grand Pré Convenience, Grand-Pré
- Grand-Pré National Historic Site, Grand-Pré
- Grand-Pré Service Station, Grand-Pré
- Just Us! Coffee, Grand-Pré
- Land of Evangeline Camping & Resort, Grand-Pré
- Wolfville Visitor Information Centre, Wolfville

We worked closely with Bay of Fundy shorebird partners, in particular Nature Conservancy of Canada, to organize a Western Hemisphere Shorebird Reserve Network (WHSRN) Bay of Fundy 30<sup>th</sup> Anniversary event held on 30 July 2018. The event was a great success drawing well over 50 people. We displayed colourful shorebird cut-outs created by 13 youth through the NS Museum of Natural (see below). At the event, we took the opportunity to promote shorebird conservation messages during interviews with two news outlets.



WHSRN Bay of Fundy 30<sup>th</sup> Anniversary event. *Photos R. Stern*



### Help shorebirds continue their migration

**Shorebirds can't swim, so they must be well-rested and well-fed to fly 4,000 km non-stop over the ocean to their wintering grounds in South America!**

**What months are shorebirds present?**  
 • Mid-July to mid-September (highest numbers in August)

**When is shorebird resting time?**  
 • 2 hours before to 2 hours after high tide (refer to tide chart on back side)

**How do I view shorebirds safely?**  
 • Use binoculars for a closer look  
 • Take photos with a telephoto lens

**How do I avoid disturbing resting flocks?**

- Stay as far away from flocks as possible
- Walk slowly when shorebirds are present
- Keep dogs on leash
- Explain to children why shorebirds need rest

**What else can I do to help shorebirds?**

- Keep beach litter-free (pack out used fishing line, hooks, bait, cans, bottles, plastics etc.)



Inside of the educational handout shared at roost sites and by local businesses and partners. Printing costs were generously provided by Blomidon Naturalists Society.

### **Objective #4. Develop a “road map” to guide shorebird stewardship in the Minas Basin over the long-term, including: finalised strategies for resting sites, monitoring plan to facilitate adaptive management, and partners’ roles.**

We achieved our objective to develop a conservation ‘road map’ for shorebird and habitat stewardship in the Minas Basin Bay of Fundy. We worked with Dalhousie University’s School for Resource and Environmental Management to engage a total of seven individuals in project visioning and planning in fall 2018 using Open Standards for the Practice of Conservation (OS) planning framework. OS uses adaptive management principles for improving effectiveness of conservation actions. The process engaged partners in an online survey and a subsequent workshop to identify project goals, build shared understanding of the conservation situation in the Minas Basin, and identify and prioritize conservation strategies targeting shorebird roost habitats. The online component used Survey Monkey (surveymonkey.com) to gather knowledge from partners on top threats facing shorebirds and habitats and ideas for framing goals for future conservation efforts in the Minas Basin. Information gathered

from participants' online submissions were then transcribed into the OS framework. A subsequent workshop engaged participants in the development of a conceptual model.

The following individuals participated in these workshop activities:

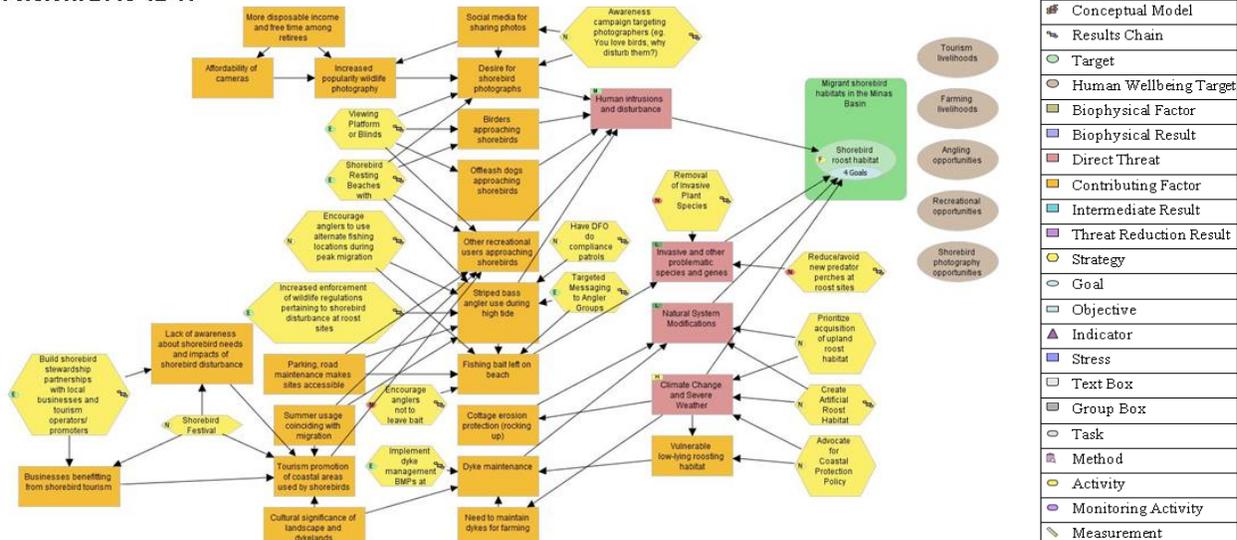
- Sue Abbott, NS Program Manager, Bird Studies Canada
- Jaya Fahey, Masters of Environmental Studies candidate, Dalhousie University
- Kerry Lee Morris-Cormier, Shorebird Reserve and Interpretive Centre Manager, Nature Conservancy of Canada
- Julie Paquet, Shorebird Biologist, Canadian Wildlife Service
- Donald Sam, Wildlife Biologist, NS Lands & Forestry
- Richard Stern, Local shorebird expert, Blomidon Naturlists Soc.
- Rick Whitman, Local shorebird expert, Blomidon Naturlists Soc.

During the development of the conceptual model, participants identified factors contributing to threats impacting shorebird habitats, such as presence of off-leash dogs and birders leading to shorebird disturbances from recreational users. They also brainstormed potential strategies to mitigate threats. All information was then integrated into OS software to produce a conceptual model for shorebird habitat conservation, including top threats, underlying contributing factors and prioritized strategies based on feasibility and conservation impact (Figure 6). Of the 16 strategies identified through this process, the following six were identified as most effective for conserving shorebird habitats:

- Implement Shorebird Resting Beaches (with an interpreter) at shorebird roost sites during migration
- Build shorebird stewardship partnerships with local businesses and tourism operators and promoters
- Implement dyke management best management plans at shorebird roost habitats
- Increase enforcement of wildlife regulations pertaining to shorebird disturbances at roost sites
- Install viewing platforms and blinds to reduce disturbance at key roost sites
- Target messaging to angler and photographer groups to reduce disturbances

**Figure 6. Conceptual model for the conservation of shorebird habitat in the Minas Basin Bay of Fundy**

**Conceptual Model for Space to Roost**  
 Version: 2018-12-10



## Lessons Learned & Next Steps

Funding from the NS Habitat Conservation Fund Contributions from Hunters and Trappers in 2016-17 and 2018-19 allowed Bird Studies Canada to collaborate with recreational users and numerous partners on developing and testing shared space solutions - the SRB strategy - at vital shorebird habitats in the Minas Basin. Through this project, we successfully increased understanding of shorebird and recreational use and human-caused disturbances at two key high tide roost sites: the Guzzle and Avonport Beach. We also successfully tested a targeted conservation strategy designed to provide safe space for roosting shorebirds while supporting recreational use.

Given the observed decrease in disturbance incidents and number of shorebirds disturbed by humans at the Guzzle's SRB, we recommend continued implementation of SRB at this site. Despite less impactful results observed at Avonport's SRB, we recommend continuing the strategy given the high use of this section by shorebirds, support for SRB among local landowners and recreational users, and potential for increasing recreational use of this site in the future. With the growing popularity of amateur photography and social media photo sharing sites (e.g., Instagram), photographers will be an important target audience for future conservation messaging in future years.

The development of the conservation 'road map' worked well for integrating partner's knowledge and will be an important tool to guide future shorebird conservation efforts and will facilitate adaptive management in future years.



Jaya Fahey next to access point sign at Avonport Beach in 2018.



Interpretive sign placed at trail head at Blue Beach in 2018.