Kingsburg Beach, Nova Scotia

Green Shores for Homes Case Study

GREEN SHORES

Contents

Introduction

What is Green Shores for Homes?

The Green Shores for Homes (GSH) program offers best practices for homeowners to implement nature-based management on their lake- and ocean-front properties. Homeowners earn credits and receive a Silver or Gold rating.

Green Shores® was initiated by the Stewardship Centre for British Columbia (SCBC). In 2019, TransCoastal Adaptations Centre for Nature-Based Solutions at Saint Mary's University expanded the program to the Maritime provinces.

Why was this site selected?

In 2023, Credit 2.1 was added to the GSH Credits and Ratings Guide to incentivize homeowners to steward Species at Risk (SAR) habitat and avoid impacting them with shoreline projects. To test the effectiveness of this new credit, the Canadian Wildlife Service provided funding to SCBC and TCA through the Canada Nature Fund to implement two projects on eligible private properties containing SAR habitat within the Kespukwitk/Southwest Nova Scotia Priority Place.

The Kingsburg Beach project was selected as a coastal example of a relatively intact SAR habitat that required minimal intervention to achieve a Gold rating. Kingsburg Beach is one of few designated Protected Beaches under Nova Scotia's Beaches Act, and is considered important foraging habitat for at-risk birds, such as Bank Swallows and Piping Plovers. The dune habitat was being stressed and compacted by vehicles driving onto the beach.

Citation

Umlah, K. & Giacomodonato, H. (2026). Kingsburg Beach: Green Shores for Homes Case Study.

Kespukwitk Region & Species at Risk

To be eligible for this project, this site needed to meet the following criteria:

- The property is on a coast within the Kespukwitk region
- At least one of the target species at risk **(see right)** lives on or around the property's shoreline;
- The homeowner is willing to allow TCA to:
  a. Visit for a site assessment, and
  b. Use the shoreline project as a case study;
- The shoreline has not been significantly altered from its natural state;
- The property owner is committed to following through with Green Shores for Homes certification.

Target Species at Risk:

- Bank Swallow
- Piping Plover
- Blanding's Turtle
- Pink Coreopsis*
- Plymouth Gentian*
- Tall Beakrush*
- Water Pennywort*
- Eastern Baccharis*
- Wood Turtle
- Eastern Ribbonsnake
- Sweet Pepperbush*
- Snapping Turtle
- Eastern Lilaeopsis*
- Goldencrest*
- Redroot*
- Long's Bulrush*
- Tubercled Spikerush*
- Eastern Painted Turtle

* These species are Atlantic Coastal Plain Flora (ACPF), many of which can't be found anywhere else in Canada!


Piping Plover. Credit: Don Freiday, USFWS

Kespukwitk Region:

Kespukwitk is the Mi'kmaw province of Southwest Nova Scotia, and translates to "end of flow." Kespukwitk is a UNESCO Biosphere Reserve and one of eleven priority places in Canada for species at risk conservation. Priority places have significant biodiversity and concentrations of species at risk, which provide ample opportunities for conservation actions. Kesputwitk is a vital place to live and visit for 67 at-risk species, including the target shoreline SAR listed above. For some species, it is the only place in Canada where they are found.

Many of the critical habitats for species at risk within Kesputwitk are negatively impacted by human activities on the shoreline. Activities like development, erosion or flooding protection measures, removal of riparian vegetation, mowing, and removal of organic material can all impact a species at risk's ability to survive and thrive. This project explores how GSH certification can demonstrate SAR stewardship for intact habitats in Kespukwitk.


K. Umlah

Site Conditions

Kingsburg Beach is an exposed east-facing beach on the Atlantic Ocean. The beach is characterized by sandy sediment, a gentle slope, vegetated dunes, and significant **wrack** deposits. The community has taken great care of the dune system; little-to-no development has taken place within the riparian zone, giving the dunes the space they need to move. Dunes need space to shift and respond to wind, waves, and storms, and allowing this space at Kingsburg has led to a resilient habitat.

The Kingsburg Beach project consists of two adjacent properties, which will be referred to as Property A and Property B. Properties A and B have approximate shoreline lengths of 85 m each, making the combined Kingsburg Beach project shoreline 170 m long. The average riparian buffer width is 40 m.

The two properties share many similarities. The houses located on each property have adequate **setbacks** from the Ordinary High Water Mark (OHWM), and have a vegetative buffer greater than the 15 m required by local regulations. On each property, this shore zone has been left relatively natural.

The beach access paths on each property were appropriately constructed to maintain dune movement and vegetation growth amongst any structures. There is a right of way for the public to access Kingsburg Beach on Property B.


K. Umlah

Typical shore zone and riparian area on Kingsburg Beach

The Kingsburg Beach project was selected to test the Green Shores for Homes rating system and new Credit 2.1 on a relatively intact habitat. Nonetheless, the property owners wanted to address the following issues through this project:

- Encroaching invasive Rugosa Rose (*Rosa rugosa*) into the riparian zone on one of the properties (Property A)
- Vehicles driving through the right of way onto the beach (Property B)
- Vehicles turning around at the end of the right of way, compacting the dunes and crushing vegetation (Property B)
- Mild erosion at the southernmost part of the dune (Property B)

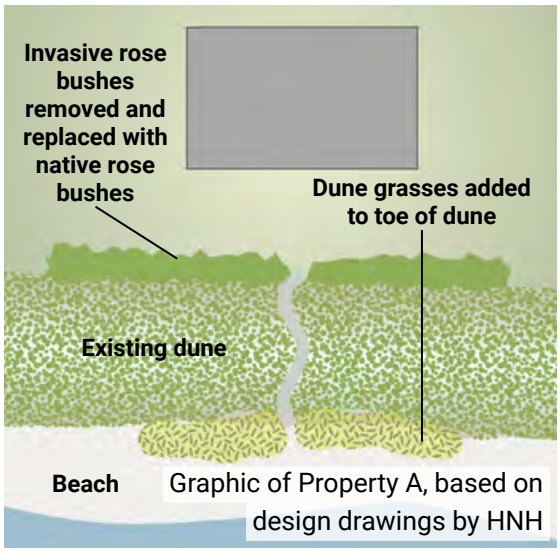
This demonstration project is coastal and conservation-focused. It can be contrasted to the Molega Lake site, which is a freshwater restoration site, to understand how GSH can be applied to conservation and restoration projects on both coastal and lake-front properties.

Wrack washed up organic debris, most commonly seaweed, that is deposited around the most recent high water mark.

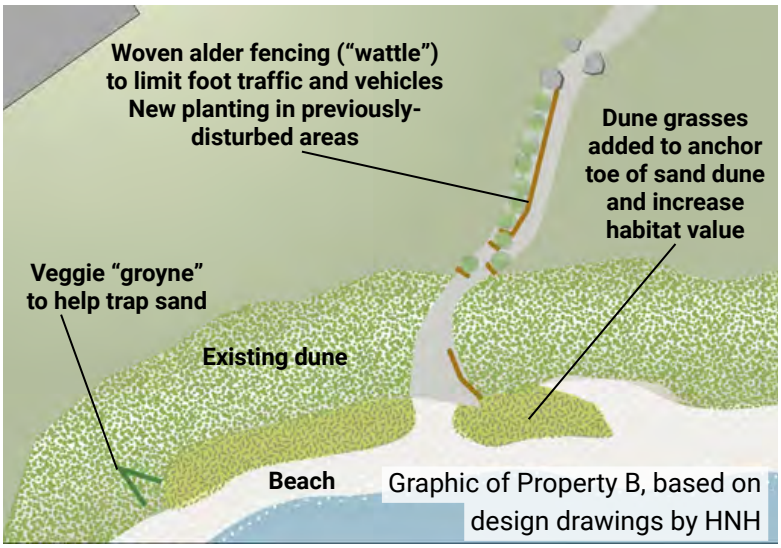
Setback the minimum distance allowed between a dwelling (ex. house) and waterbody (ex. ocean) to ensure safety for inhabitants from impacts caused by the waterbody (ex. erosion) as determined by local zoning regulations. See GSH Credit 1.2 for more information.

Design

Helping Nature Heal Inc. (HNH) designed the project to maximize credits under the Green Shores for Homes program. The design was split across the two properties along Kingsburg Beach. The design plan below shows key project elements.



Graphic of Property A, based on design drawings by HNH



Graphic of Property B, based on design drawings by HNH

HNH and TCA staff met with Federal and Provincial SAR biologists to discuss the needs of endangered Piping Plover, Bank Swallow, and other at-risk migratory birds, and to get feedback on the design. Guided by the design, the following activities were completed:

- Invasive Rugosa Rose (*Rosa rugosa*) creeping into the dune system was removed, and the dune was replanted with native Virginia Rose (*Rosa virginiana*) (Property A).
- At one end of the right of way, wattle fencing was installed, dissecting the path in half and leaving a ~1.5 m-wide accessible pathway, encouraging human access but excluding motorized vehicles (Property B).
- At the other end of the right of way, wattle fences were organized in a corral formation to further limit motorized vehicle access (Property B).
- Native shrubs that matched existing species growing on the dune, like bayberry, were planted along the right of way.
- A 'veggie groyne' using small fir trees was installed to facilitate the recapture of sand into the area where the most erosion was observed (Property B).
- Along the whole shoreline, native dune grasses (*Ammophila spp.*) were planted on the seaward side of the dune to promote dune rebuilding following storm damage (Property A & B).


K. Umlah


Prior to the wattle fence installation, vehicles would drive all the way through the right of way and onto the beach, or would use the end of this section as a turnaround point, compacting an even larger part of the dune.

This aerial view of the wattle fence along the right of way shows how pedestrians are directed to walk along the more disturbed parts of the pathway, allowing the other parts to recover. Vehicular access is now limited.

D. Slack

Outcomes & Impact for Species at Risk

All invasive Rugosa Rose plants were removed from the dune system and replaced with native Virginia Rose. Nearby patches of Rugosa Rose will be monitored to ensure they don't encroach back into the dune system. An area of approximately 510 m^2 across Properties A and B was planted with dune grasses on the seaward face of the existing dune, which had experienced some damage from past storms. All of these dune grasses survived. The 'veggie groyne' installed in the most eroded area of the beach captured sand and was already partially buried within a few months of the installation. The right-of-way remains a pedestrian-only path, and the wattle fencing remains. Some bayberry shrubs that were planted along the right-of-way were vandalized, but the homeowners recovered and replanted as many as they could. Vehicular access is completely restricted from the beach now, limiting the area impacted by compaction. Previously-disturbed areas will gradually become revegetated, increasing the resiliency of the dune habitat for SAR.


The partially buried 'veggie groyne' two months after installation

D. Slack

Permitting, Avoidance & Mitigation

All work took place well above the OHWM so permits were not required for the work. HNH, following GSH guidance, created an environmental management plan to minimize site disturbance and address sediment and pollutant control on the site. For example, hand tools and wheelbarrows were used instead of any heavy machinery, which minimized soil disturbance. This plan also described the SAR in the area and how to avoid negatively impacting these species or their habitat (i.e. working outside of the nesting period). SAR needs were also discussed with SAR biologists during the planning and design phases of the project.

Upon request, the Nova Scotia Department of Natural Resources and Renewables placed a sign at the end of the right of way informing users that the beach is protected, and that it is illegal to drive onto.

Official signage from DNRR.

Signage created by HNH.


Implementation by hand.

Credit 2.1: Enhanced Critical, Sensitive, or Migratory Bird Habitat Stewardship

The Kingsburg Beach project earned 2 points under Credit 2.1: Enhanced Critical, Sensitive, or Migratory Bird Habitat Stewardship (see the credits table on page 9 for details). This credit applies to all projects and shoreline types where critical habitats, sensitive habitats, or migratory birds are present, and incentivizes efforts that enhance stewardship and conservation of these habitats for the species that occupy them. This project was within critical habitat for Bank Swallows, and is important foraging habitat for Piping Plovers.

One (1) point was awarded for scheduling implementation activities outside the general nesting period of migratory birds. In Nova Scotia, the nesting period is April to August; implementation began in early September. During daily visual checks, there were no signs of migratory birds in the work area on construction days.

Similarly, one (1) point was awarded for planned monitoring of habitat quality and species observations, which will take place for three years post-construction. The homeowners, HNH, and TCA have committed to this ongoing monitoring. Monitoring provides useful environmental information and insight into the longer-term effects of project actions, and helps to determine the need for any adaptive management.

Construction Details

Below is a summary of the activities undertaken on each day of implementation in September, 2025.

Day 1 – September 3: Invasive rose removal, veggie groyne installation, dune grass planting, and beginning of wattle fence installation, creating pathways for pedestrians along the right of way.

Day 2 – September 4: Wattle fence weaving completed on the right of way.

The original right of way where vehicles would drive onto the beach.

The right-of-way after wattle fence installation, limiting access to pedestrians only.

Invasive *Rosa rugosa* removal on dune

Native *Rosa virginiana* planting on dune

Veggie groyne installation for sand capture

Dune grass planting at dune toe


D. Slack

Project Timeline

Oct 2023

Mar 2024 — GIS analysis determined Kingsburg an area of interest as Piping Plover and Bank Swallow habitat; adjacent nesting habitat

Jan 2025 — Helping Nature Heal (HNH) contracted for design and implementation; toured potential sites that overlapped with target areas

Feb 2025 — List of ranked sites evaluated based on selection criteria, two neighbouring Kingsburg Beach properties selected

Mar 2025 — Roles and responsibilities outlined for property owners. Site visit to determine scope of work. Contacted gov agencies to determine jurisdiction for restricting vehicle access on beach. Design completed

Apr 2025 — Unsuccessful outreach to Dept of Natural Resources for signage to limit vehicle access. Delineation of ordinary high water mark

May 2025 — Eligible GSH credit assessment undertaken based on design. Information received from DNR about sign placement to restrict vehicle access to the beach

July 2025 — Developed best approaches for managing Species at Risk onsite during construction

Aug 2025 — Project team meeting to discuss safety, implementation, and permitting

Sept 2025 — 2 days of implementation: wattle fence installation, invasive rose removal, veggie groyne installation, and native vegetation planting

Oct 2025 — Post-construction monitoring site visit by HNH; gathering submittals for verification

Nov 2025 — Verification and certification. Contractor completion of GS Level 3 training. Public education visit with GS Local Government Working Group

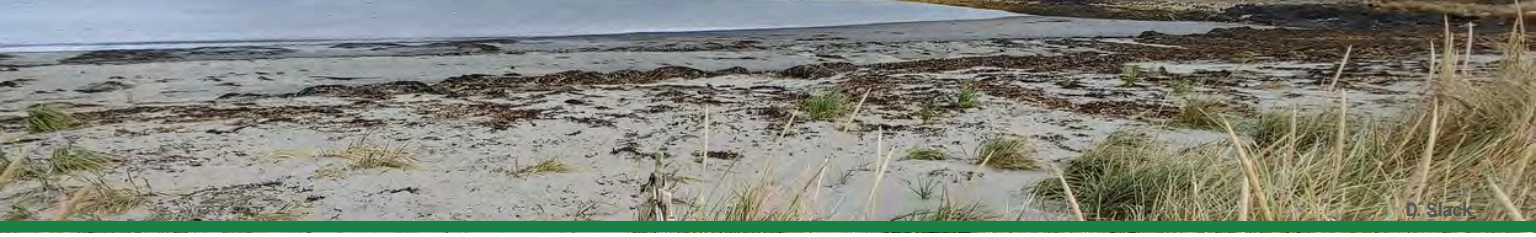
2026 — Finalization and dissemination of case studies; ongoing monitoring and adaptive management as needed

Green Shores Credits

The following points were awarded to the two Kingsburg properties. The points awarded were very similar between the two properties, but there are a few credits where the points differ due to the activities that differed. Since the properties are separated by another property in between them, they cannot be certified as one project.

	Points awarded to both properties
	Points awarded to Property A only
	Points awarded to Property B only

Credit	Activity	Points
1.1 No Shoreline Protection Structures	No shoreline protection structures across 100% of the shoreline on sediment shore.	15
1.2 Setback/Impact Avoidance	**Current regulatory setback:** meet the current setback from the OHWM required within local jurisdiction, with no variance or relaxation of that requirement. **Add SLR:** Show that the setback also reflects changes in the level or location of the OHWM based on predicted SLR used by local jurisdiction or 1m SLR if there are no specific predictions for the area.	3 4
2.1 Enhanced Critical, Sensitive and Migratory Bird Habitat Stewardship	Project work that could disturb migratory birds are scheduled to occur outside the general nesting period and practices that negatively impact migration are avoided/mitigated. Annual monitoring of habitat quality and species observed (3 years).	1 1
2.2 Riparian and Emergent Vegetation	Maintain/plant native vegetation in 75-100% of the riparian buffer. Add 3m width inland from the riparian buffer for the length of the shoreline. Implement a plan for monitoring and maintaining plantings. Complete vegetation survey as per monitoring guide.	7 1 1
2.4 Invasive Plants	Remove invasive vegetation and replant cleared areas with native vegetation in the riparian buffer.	2
2.5 Organic Material	Retain a minimum of 80% of existing organic material onshore. For wrack material: implement a shoreline maintenance plan. Monitoring 3 years post-construction.	3 1 1
2.7 Access Design	Remove an existing shoreline access and replace it with native vegetation.	3
	Have an existing access that meets “Best Practices” as outlined in GSH guide. Share an access with your neighbours.	1 2
3.5 Herbicides, Pesticides, and Fertilizers	Manage landscaping without the use of synthetic herbicides, pesticides, or fertilizers. Completion of Landscape Maintenance Checklist.	2 1
4.1 Shoreline Collaboration	Work with one other (separate) waterfront property owner.	4
4.2 Public Information and Education	Provide two or more public education measures regarding your shoreline project.	2
4.4 Shoreline Stewardship Participation	Integrate the project with an environmental program aimed at shoreline protection, restoration, or enhancement.	2
	Totals:	54 / 53
Gold	The project exhibits exceptional design regarding improvement/conservation of the natural features and processes of the shoreline.	*Minimum 40 points of which a minimum of 20 points (collectively) are acquired from Shoreline Process and Shoreline Habitat credit categories.*



Costs

Project Element	Costs rounded to nearest 100
Background Info collection	$9,100
Design	$9,100
Staff Hours & Travel	$9,500
Plants	$4,000
Signage	$100
Post-construction Monitoring	$8,900
Total	**$40,700**

The table on the left is a breakdown of the approximate costs for each element of this project. Staff hours in design and construction were the largest costs for this project. **The total cost for the project was $240 per linear meter of shoreline.**

A triple bottom line analysis found that Green Shores projects have a 7:1 benefit-cost ratio, meaning for every $1 spent, about $7 of economic, social, and ecological benefits can be expected (Eyzaguirre et al. 2020). For this project, the value added may be up to $284,900!

Lessons Learned

Effective outreach efforts are important for project success. The Kingsburg site was selected for a fully-funded GSH project after approximately 10 months of outreach efforts to recruit participants. This ultimately contributed to a shorter timeline for the planning, implementation, and verification phases. Outreach efforts involved: social media posts, including Facebook posts in targeted community pages; a webpage on the TCA website; Green Shores and TCA newsletters; information shared during Green Shores for Homes trainings; and flyer distribution in targeted communities. Working with contractors and consultants proved useful to find participants who had previously considered undertaking shoreline work.

It is important to engage with the communities regarding changes to shoreline access. While there was no opportunity to do public engagement about access within this project's scope, it is recommended that the community should be engaged for future modifications. Signage was installed to help users understand why changes were made, but additional communications would be helpful. Some of the shrubs planted along the right of way were vandalized, possibly as a result of not communicating the intent of access changes.

Wattle fencing and native shrub planting in progress

Wattle fencing created a 'corral path' one month post-construction

Green Shores for Homes Rating

The Kingsburg Beach project received a Green Shores for Homes Gold rating! Gold ratings are awarded to projects that go 'above and beyond' to improve or conserve natural features and processes on the shoreline. Gold ratings require a minimum of 40 points, 20 of which must collectively come from Credit Categories 1 and 2: Shoreline Processes and Shoreline Habitats.

The Kingsburg Beach project achieved 44 points from the first two credit categories alone. Many of these points reward actions that homeowners took to minimize impacts and allow the shore zone to remain in a naturally functioning state. For example, on both properties, the house locations are well set back from the ordinary highwater mark, exceeding regulatory requirements for setbacks and vegetative buffer widths. An adequate setback allows space for natural processes, protects riparian zone habitat and function, and avoids the need for interventions to protect the building like hard armouring. The project earned 54 points in total, solidifying its status as a Gold-standard project (see the credits table on page for details).

Conclusion

The Kingsburg Beach Gold-rated Green Shores for Homes (GSH) demonstration project focused on conservation of SAR habitat within the Kespukwitk Priority Place. The Kespukwitk Priority Place is a hotspot of biodiversity with high concentrations of species at risk (SAR).

Projects prioritizing conservation of existing high quality habitat tend to score well in the Green Shores for Homes Credits and Ratings system, as the science behind the program recognizes that undisturbed, natural dune systems like Kingsburg Beach are more resilient to climate change than altered shorelines. The Green Shores program encourages leaving shorelines as natural as possible whenever possible. The naturally-vegetated dune and sandy shoreline ecosystem at Kingsburg Beach will continue to provide important foraging habitat for SAR, such as Piping Plover and Bank Swallow.

Overall, the project achieved the following objectives:

- Replaced invasive species with native species that provide greater ecosystem services (absorbing wave energy near the house on Property A and a potential food source for coastal species)
- Maintained safe, sustainable pedestrian access to the beach
- Reduced damage to the dunes from previous vehicle traffic
- Facilitated dune resilience

Project implementation took place over 2 days in early September and cost around $240 per meter of shoreline. The project was led by Helping Nature Heal Inc. with assistance from TransCoastal Adaptations staff. The GSH program provides homeowners a useful framework for the conservation of habitat and SAR stewardship on private property.

Further Reading

About Us. (c.2020). Kespukwitk Conservation Collaborative. Retrieved December, 2025, from https://kswnsconservation.ca/about-us/

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Stewardship Centre for BC (2023). Green Shores® for Homes Monitoring Guide. https://stewardshipcentrebc.ca/PDF_docs/greenshores/Resources/Green_Shores_for_Homes_Monitoring_Guide_2023.pdf

Photo Credits

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This project took place in Mi'kma'ki, the ancestral and unceeded territory of the Mi'kmaq people. This land is governed by the Treaties of Peace and Friendship. We are all treaty people, and we all have a responsibility to take care of Mi'kma'ki as it takes care of us.