



# GREEN RIBBON CHAMPION

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Coastal Stewardship and  
Education

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2019 Results and  
Recommendations

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## Acknowledgements

Funding and support for the 2019 delivery of Green Ribbon Champion has been provided through Lush Handmade Cosmetics Inc., Nuclear Waste Management Organization (NWMO), and the Township of Huron-Kinloss.

A special thank you to the Point Clark Beach Association and Lurgan Beach/Blair's Grove Beach Association for providing assistance with community engagement and encouraging coastal stewardship in their communities.



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## Summary

Green Ribbon Champion (GRC) is a coastal stewardship and education program that aims to preserve, protect, and enhance coastal ecosystems through education and restoration. By providing the necessary resources and collaborating with various shoreline partners, the Lake Huron Centre for Coastal Conservation (LHCCC) aims to improve the health and resiliency of Lake Huron's coastal ecosystems through localized community-based resource management.

GRC works to educate and empower a network of local shoreline residents to care for the shoreline by improving ecological literacy on beach-dune dynamics, ecosystem management and promoting community building. Through collaboration and marketing with Beach Associations, Municipalities, social media, and local news outlets, shoreline residents are informed of the program and encouraged to participate in GRC.

In 2019 GRC was implemented in the Township of Huron-Kinloss' shoreline communities of Point Clark, Lurgan Beach/Blair's Grove, and Bruce Beach with a total of 26 program participants. During the months of August, September and October LHCCC staff conducted 26 shoreline assessments and provided participants with a Beach Care Toolkit. Participants were prescribed a beach restoration plan and a return date to implement restoration recommendations. Recommendations included removal of invasive plant species, removal of equipment from dunes, Marram grass planting, and installation of sand fencing.

23 shoreline properties were involved in restoration activities during the months of October and November. A total of 588 m of shoreline was restored by 57 volunteers and LHCCC staff. Due to an early major snowfall and unseasonably cold fall weather, not all proposed restoration activities were completed. In addition, residents that expressed interest after the program had ended were added to a waitlist. Requests to participate were also received from shoreline residents and municipalities outside of the project area. This signals a need for program expansion to bordering shoreline communities to empower and support localized coastal resource management.

Throughout the program LHCCC staff were able to share information about coastal ecosystems and conservation with over 540 people through presentations, workshops, and assessments, and on social media with over 57,600 people. This number does not include those reached through local news outlets, interviews, and word of mouth.

Overall the Green Ribbon Champion program has been very effective in implementing localized coastal resource management and resiliency. The Lake Huron Centre for Coastal Conservation proposes expanding the program to neighbouring municipalities to influence sustainable societal values in coastal communities for conservation of rare and fragile coastal ecosystems and resources.



## Introduction

Great Lakes dunes are considered one of the rarest and most fragile ecosystems in Canada and are an important coastal ecosystem on Lake Huron. The dune ecosystem makes up only about 2-3% of the Lake Huron shoreline and supports a wide range of flora and fauna, including some very rare and at-risk species. Sand beaches and dunes are highly valued places by Ontario residents and visitors, attracting thousands of people in summer months in search of recreation and relaxation (Peach, 2006).

Beaches and dunes are dependent on each other for their supply of sand. Dunes store sand and go through periods of both building and erosion where the beach will borrow sand from the dune to protect against erosion (Peach, 2006). Marram grass (*Ammophila breviligulata*) is a grass species native to Lake Huron and is extremely important for dune stabilization. The roots bind together and capture sand, holding the dunes in place. This vegetative buffer between the nearshore waters of Lake Huron and development along the coast make dunes a natural form of shoreline protection from storms and high lake levels. The ecosystem services provided by dunes are plentiful and include sand management, protection from flooding, protection from wind erosion, improved water quality, carbon storage, and increased property values (Hings, 2019). A mature dune is valued at \$3,000 CAD/linear metre for these services provided.

Coastal conservation and stewardship activities benefit the health of Lake Huron by providing ecosystem services to the local community (Peach, 2006). Local scale coastal management promotes local community action because members have closer connections to their environment which well-being is drawn from (Hings, 2019). The quality of the environment and loss of sand beaches and dunes would have devastating negative effects on wildlife, water quality, infrastructure, economy, tourism, and social well-being.

Localized coastal educational programming, and conservation techniques including planting Marram grass, removal of invasive species, installation of sand fencing, and moving equipment off dunes are simple yet effective methods in ecosystem management and sustainability (Hings, 2019). Offering education and restoration programming tailored to the needs and values of the local population improves the resiliency of Lake Huron and influences environmental social values and shoreline management.

## Partners

Funding for this program was provided by the following organizations:

\$12,000 - Lush Cosmetics Inc

\$3,000 – Nuclear Waste Management Organization (NWMO)

\$1,000 – Township of Huron-Kinloss

In-kind support and contributions were provided by:

Township of Huron-Kinloss

Municipality of Kincardine

Point Clark Beach Association

Lurgan Beach/Blair's Grove Beach Association

Saugeen Valley Conservation Authority

Canadian Conservation Corps (CCC)

Hodgins' Home Hardware in Lucknow

Elizabeth's Art Gallery in Goderich

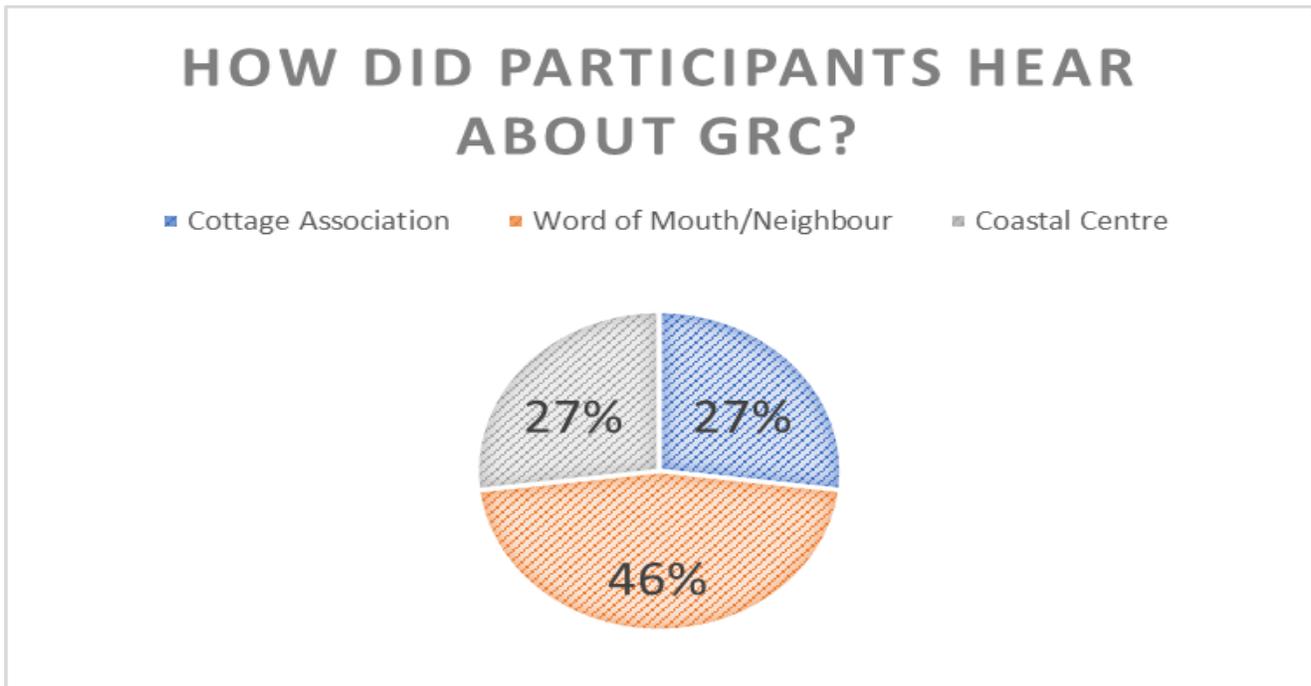
Professor Lynn Short, Humber College

## Discussion of Results

### Outreach and Participation

On August 1, 2019 LHCCC staff opened a 1-month registration period for the GRC program to residents of the Township of Huron-Kinloss. The program was advertised on the LHCCC website and social media accounts to inform the public and seek candidates for the program. Members of the public were directed to the GRC program website for program information, eligibility requirements, and registration forms. Eligibility requirements were simple; participants had to have a property adjacent to the shoreline with a Huron-Kinloss address. Kincardine My FM news station was sent a media release and interviewed LHCCC staff to aid in localized program promotion.

Meetings and presentations were held at the Township of Huron-Kinloss, Point Clark Beach Association, and Lurgan Beach/Blair's Grove Beach Association to introduce the program and the benefits of participating, and to request for support with promotion and outreach. Program brochures were provided to the partners and distributed in the community. These partnerships played a significant role in participant recruitment. Figure 1 shows that 73% of participants heard about the program through a Beach/Cottagers' association, neighbour, or word of mouth.



**Figure 1.** Methods of participant recruitment for GRC.

It was found that participants would refer neighbours post-assessment after participants met LHCCC staff and engaged in stimulating discussion around beach-dune conservation and saw the value in participating. Participants are motivated families and individuals willing to make positive, beneficial changes to the shoreline.

26 residents from the shoreline communities of Point Clark, Lurgan Beach/Blair’s Grove, and Bruce Beach registered for GRC. Figure 3 shows participant locations along the Huron-Kinloss shoreline. 22 participants were members of one of the Beach/Cottagers’ Association, with 15 from Point Clark Beach Association, 5 from Bruce Beach Cottagers’ Association, and 2 from Lurgan Beach/Blair’s Grove Cottagers’ Association. 4 participants did not belong to a Beach/Cottagers’ Association.

LHCCC exceeded their registrant goal by 30% (goal of 20 residents). LHCCC’s registration goal was surpassed 4 days prior to the deadline, with 5 additional registrations after registration had closed. Figure 2 shows GRC gained traction after several weeks and continued into week 10. As many residents are seasonal and attend cottages on weekends or holidays, the data suggests registration should begin in July each year and remain open for a 2-month period.

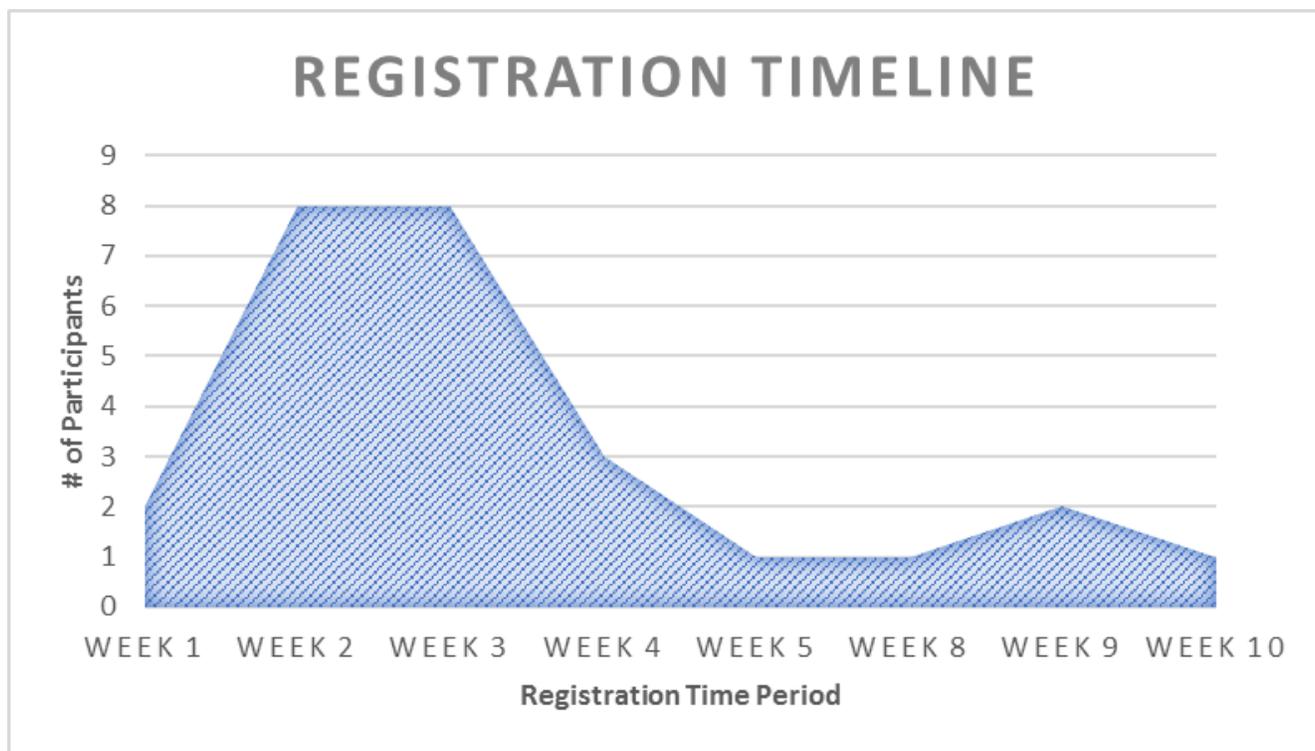


Figure 2. GRC registration timeline.

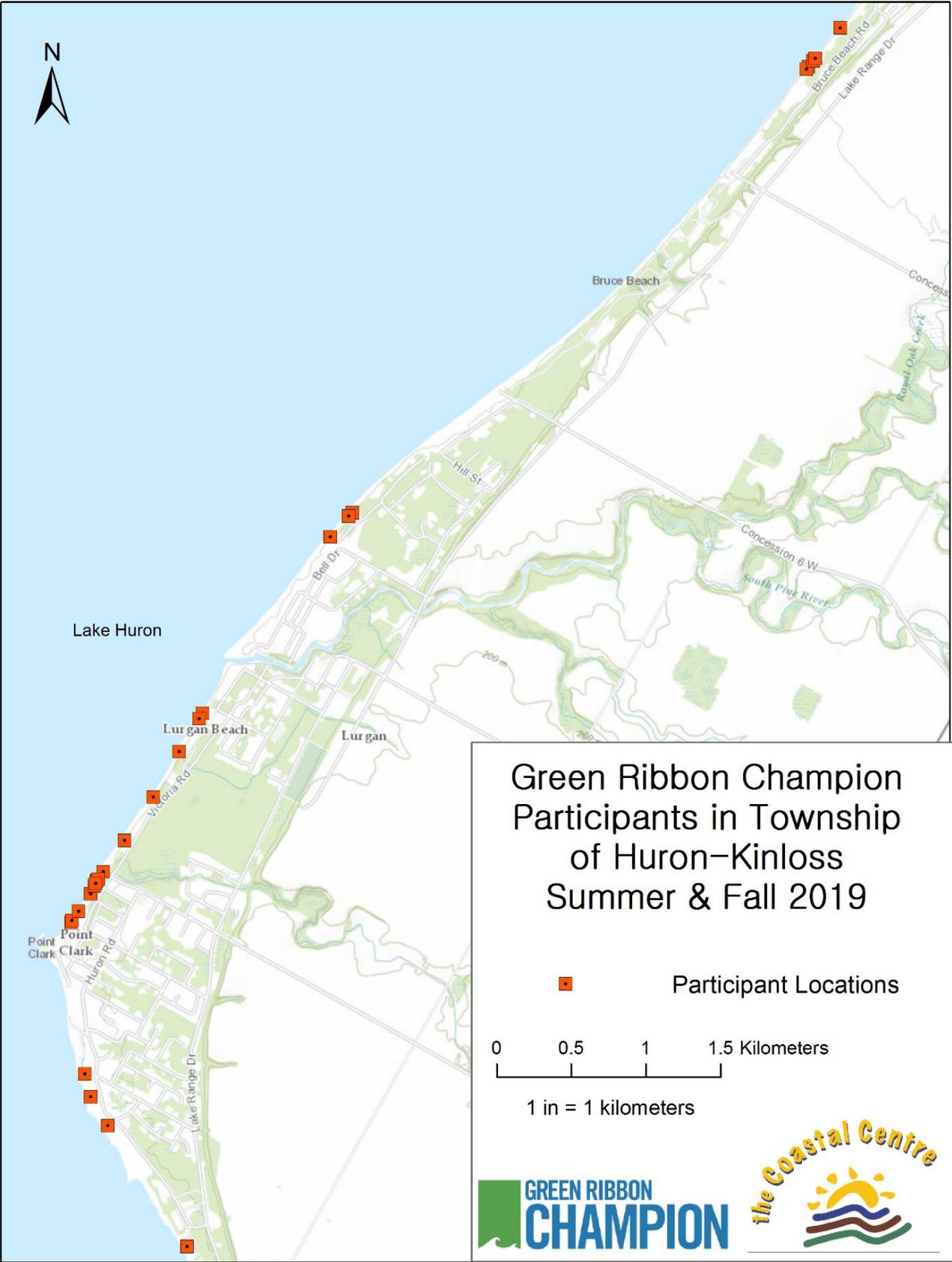
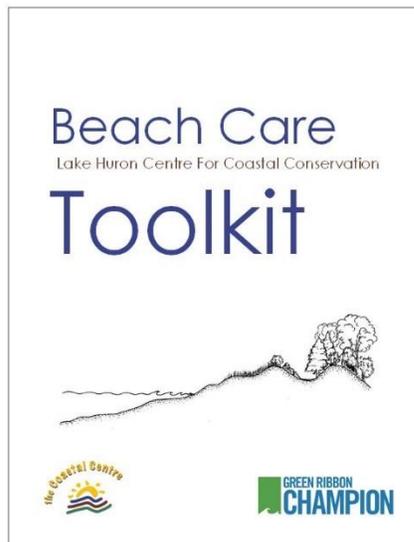


Figure 3. Map of GRC participant locations in Huron-Kinloss.

## Shoreline Assessments

Shoreline Assessment appointments were scheduled with registered participants for 2-3 hours. LHCCC staff bundled neighbouring properties to occur on the same day, with up to 3 properties per day. LHCCC staff met 1-on-1 with participants to discuss program components, assess target areas, complete beach health reports, and provide advice. Each participant was provided with a Beach Care Toolkit, a 100-page resource book containing a GRC participant guide, beach-dune ecosystem information, best principles for shoreline management, and a dune planting guide. Figure 4 shows the Beach Care ToolKit cover.



**Figure 4.** Beach Care Toolkit.

GRC target areas for good beach stewardship were assessed using standardized protocols involving measurements, representative photographs, and plant identification. Target areas included the beach access pathway, sand dunes, dune profile, invasive species, and equipment storage. Five target areas were graded on an A - D scale. Table 1 shows the grading scale used for each target.

**Table 1.** Target area grading scale.

GRADE	TASKS REQUIRED
A	0
B	1 - 2
C	3 - 4
D	>5

The following supplies were required to complete each assessment:

- GRC forms,
- Clipboard and pencil,
- Phone with camera,
- 60 m tape measure,
- Stake,
- Coastal plant identification book,
- Dune protection sign display.

The assessment also provided LHCCC staff an opportunity to learn from residents about property history and shoreline changes experienced over the last several decades.

## Restoration Activities

Restoration measure recommendations made by LHCCC staff were reviewed and approved by Saugeen Valley Conservation Authority prior to implementation. Each assessment was subsequently followed up with a custom restoration plan and a proposed date for LHCCC staff and volunteers to return and assist with implementation of recommendations. The restoration plan included:

- A site map (Bruce County maps),
- List of non-native/invasive plants to be removed,
- Materials and tools required,
- Work plan,
- Recommended future work,
- Site sketch (Figure 5),
- Photographs captured at the assessment.

The amount of time required to carry out restoration was dependent on the scope of proposed work. LHCCC staff were required to keep projects within the capacity of the program thereby equipping participants to continue with dune stewardship into the future. Restoration appointments were scheduled on average for 3 hours. LHCCC staff bundled neighbouring properties to occur on the same day, up to 2 properties per day. Dune restoration measures implemented included:

- Removal of non-native/invasive plants,
- Planting of Marram grass,
- Installation of sand-fencing,
- Moving of equipment such as furniture and watercrafts,
- Installation of dune protection signs.

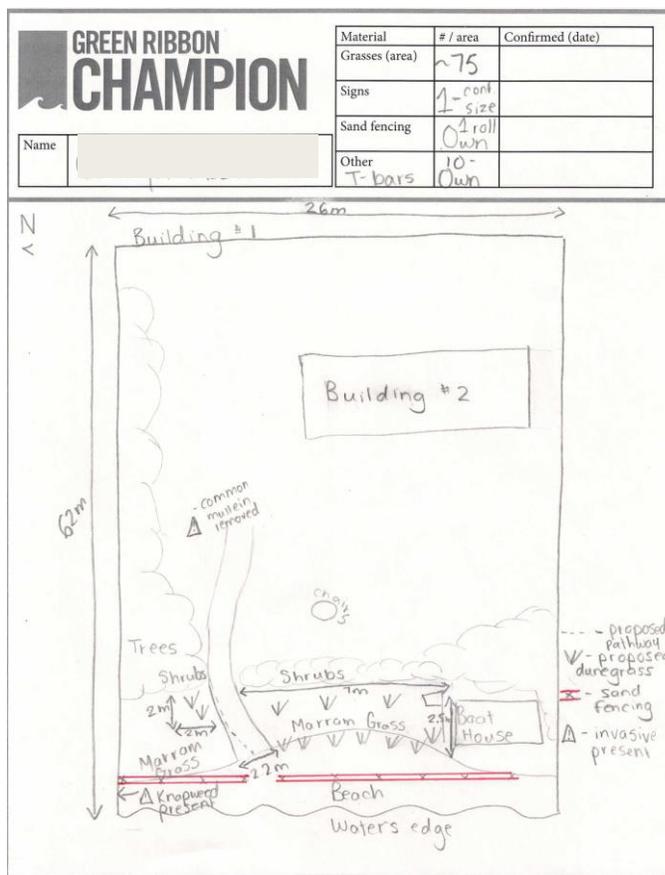


Figure 5. Example of property sketch.

The following materials were required to complete restoration projects:

- Marram grass plants,
- Buckets,
- Spades, shovels, hand trowels, garden forks,
- Gloves,
- Safety equipment,
- Paper yard waste bags,
- Post pounder
- T-posts,
- Sand-fencing,
- 14-16 gauge metal wire,
- Cutting pliers,
- Sign posts,
- Dune protection signs,
- Fasteners

Total material quantities were calculated post-assessment using measurements captured at the assessments. LHCCC staff purchased equipment from Hodgins' Home Hardware in Lucknow. Hodgins' Home Hardware provided an in-kind contribution of \$454.00 towards the cost of T-posts and sand-fencing. LHCCC coordinated material pick-up and delivery to participant properties with the Township of Huron-Kinloss ahead of scheduled restoration dates. The Township of Huron-Kinloss provided in-kind contributions including: delivery of T-posts, sand-fencing, sign posts, preparation of dune protection signs, and installation of dune protection signs.

LHCCC implemented restoration measures at 23 participant properties during the months of October and November. The total length of shoreline restored was 588 m (~4%) of the



Figure 6. 2019 GRC Results.

approximate 15 km of shoreline in Huron-Kinloss. LHCCC exceeded their goal by 42% (goal of 250 m). A total of 300 m of sand-fencing was installed on 20 properties. 4 participants had T-posts and sand-fencing of their own that was utilized and included in this total. 3 properties had existing living fences of Cedar and Willow shrubs and did not require sand-fencing.

The most prevalent invasive plant species removed was Spotted Knapweed (*Centaurea stoebe*). See Figure 7. Invasive plants are highly competitive weeds that invade and degrade native plant communities. Spotted Knapweed creates dense monocultures reducing plant species richness and diversity, habitat for native species, wildlife forage, and affects human health by causing irritation when in contact with bare skin (Powell, 2017). Spotted Knapweed produces 1,000 or more seeds per plant that may remain viable in the soil for five years or more after management occurs (Powell, 2017).

23 participant properties (88%) contained this invasive plant species. In total 49-yard waste bags of non-native and invasive plants were removed from the shoreline. The Township of Huron-Kinloss assisted with yard waste pick up and disposal.



*Figure 7. Spotted Knapweed in Lurgan Beach.*



**Figure 8.** *Volunteers separating Marram grass into individual stems for transplanting.*

Non-native and invasive plants removed were replaced with native Marram grass. Marram grass stems (Figure 8) were transplanted in areas without vegetation and areas prone to erosion. Marram grass was harvested using best management practices from Kincardine's Station Beach, with permission from the municipality. In total 5,300 Marram grass stems were planted.

57 volunteers assisted LHCCC staff with the implementation of GRC restoration activities in October and November. 2 volunteers joined LHCCC

from the Canadian Conservation Corps (CCC) and cumulatively contributed 504 hours to the project. A total of 669 hours and \$18,351 were made in in-kind contributions by volunteers to GRC.



**Figure 9.** *Volunteers planting Marram grass in Point Clark.*

## LAKE HURON CENTRE FOR COASTAL CONSERVATION

20 dune protection signs were installed on participating properties. Dune signs are educational tools used to inform beach-goers of the importance of sand dunes and to prevent damage to these sensitive ecosystems. Participants had a choice of 2 styles and 4 sizes. The Township of Huron-Kinloss assisted LHCCC staff with preparation and installation of signs. Signs can be re-positioned according to shoreline conditions.



*Figure 10. Dune protection sign.*

## Community Events & Social Media

LHCCC staff attended several educational events throughout the duration of GRC. 2 public workshops were held in Point Clark to educate and promote beach-dune conservation along the shoreline. On September 21 LHCCC staff hosted a Coastal Plant ID workshop at Point Clark beach with guest educator and horticulturalist, Lynn Short from Humber College. 35 members of the public were in attendance. Due to a high demand for tickets for the sold-out workshop, additional tickets were made available. Workshops of this nature are best kept small to ensure a quality experience for those attending. For this reason it is recommended to facilitate multiple similar workshops in the future.



**Figure 11.** Lynn Short (left) addresses attendees at Coastal Plant ID workshop in Point Clark.

On November 2 LHCCC hosted a beach conservation workshop called *Huron Hues: Painting for Conservation* at the Point Clark Community Centre with local guest artist, Bethany Davidson. Attendees learned about beach-dune dynamics and ecosystem management techniques. To commemorate Lake Huron, Davidson led a guided waterscape painting. 20 members of the public were in attendance. \$200 in donations were raised for LHCCC in support of Lake Huron restoration projects.



*Figure 12. Huron Hues in Point Clark.*



LHCCC staff were able to share information about coastal ecosystems and conservation through presentations and events. Table 2 lists events LHCCC staff attended during the duration of GRC.

40 social media (Facebook, Instagram, and Twitter) posts were published during the duration of GRC that reached over 57,600 people. Examples of post topics include: dune dynamics, native and non-native/invasive dune plant species, shoreline litter, and event promotion.

*Figure 13. LHCCC staff release Painted turtle at Morrison Dam, hosted by Huron Stewardship Council.*

**Table 2:** Events attend by LHCCC Technician during length of GRC delivery.

Event	Location	Date	Participants
Art & Soul Collective: Beach Conservation	Port Elgin	07/28/2019	12
Point Farms PP Discovery Drop-in	Goderich	08/13/2019	20
Huron Stewardship Council Turtle Release	Exeter	08/29/2019	200
Coastal Plant ID Workshop	Point Clark	09/21/2019	35
ABCA Wonders of Wetlands	Clinton	10/29/2019	150
Huron Hues: Painting for Conservation	Point Clark	11/02/2019	20
		<b>Total</b>	<b>437</b>

## Challenges

### Weather

Weather presented some challenges for the completion of restoration activities. Restoration was scheduled to begin the last week of September however, lingering summer temperatures required activities to be postponed to avoid risk of losing Marram grass plants, as grasses must be dormant before harvesting. As October was already scheduled with restoration work, September dates were moved to the beginning of November.

Due to an early significant snowfall the first week of November the remaining restoration projects were cancelled. Pending funding, LHCCC staff will return next year to re-assess shoreline properties and carry out restoration activities. Participants were however met by LHCCC staff for an assessment and provided a Beach Care Toolkit.

In addition, 2 storm events occurring in October caused significant damage to some areas of the Lake

Huron shoreline including Huron-Kinloss. LHCCC staff attended participant properties to reposition sand-fencing up to 8 m landward and complete repairs.



**Figure 14.** Damaged sand-fencing in Bruce Beach after 1st October storm.

## Scope of Work

Working within the capacity of the project for severely degraded shorelines was a great challenge. Full days (7 hours) were dedicated to properties that required a substantial amount of time and labour to remove dense stands of non-native/invasive vegetation and subsequently plant native vegetation. LHCCC staff advised participants that shoreline restoration is a multi-year project and although participants understood and expressed their commitment to improving the coastline, the restoration activities only initiated a fraction of what is possible with limited time, people, and equipment.



*Figure 15. Shoreline restoration in progress in Point Clark.*

## Equipment

Multi-year restoration projects often require removal of dense stands of non-native/invasive vegetation. This is a very time consuming and laborious task when using manual methods and without the use of machinery. Figure 15 shows shoreline restoration that began on a shoreline property with a turf grass lawn. The use of machinery to remove non-

native/invasive vegetation would increase the area restored within the same amount of time. See Recommendations for Future Programming, Restoration Equipment.

## Volunteer Recruitment

LHCCC staff recruited larger volunteer groups to assist with restoration projects having a larger scope of work. 2 community volunteer days were scheduled with a local high school where LHCCC staff planned to facilitate a field trip focused on beach conservation for 47 students. In return GRC participants would receive additional support with restoration activities. Unfortunately, due to inclement weather the volunteer days were cancelled. The volunteer days were not rescheduled because of persistent cold temperatures and accumulated snow. See Recommendations for Future Programming, Community Volunteer Days.

## Conflicting Messaging

Another challenge that arose was a concern about motorized vehicles on the beach and beach grooming practices as described in Township of Huron-Kinloss Best Management Principles for the shoreline. Residents expressed their dissatisfaction that overgrooming of the beach was occurring. A further concern was that beach grooming practices were outdated and need to be revisited. Residents fear



*Figure 16. Beach grooming tracks in Point Clark.*

grooming machines are damaging dune vegetation and important habitat for animals. Figure 16 is a photograph LHCCC staff captured of grooming tracks away from the water's edge where no algae wash-up or high densities of garbage are present.

# Recommendations for Future Programming

## Assessment Protocols

Existing Green Ribbon Champion protocols are effective in grading shoreline properties on target areas. To modernize GRC a target area on shoreline litter and plastic pollution is recommended. Increasing public awareness on plastic pollution and encouraging beach clean-ups is a critical conservation method in preserving beaches, dunes, and wildlife that exist along the shoreline.

In addition, a protocol to measure the high-water line is recommended. The high-water line indicates previous high-water levels and influences restoration activities. This protocol would prevent future equipment damage caused by storm winds and high wave energy.

## Restoration Equipment

It is recommended that a rototiller be used to restore severely degraded properties with large areas of turf grass. Manual turf grass removal using a spade is extremely laborious and time consuming. The use of a rototiller would drastically reduce the amount of time required to remove turf grass, allowing more time for restoration planting of native vegetation. Electric rototillers cost as low as \$300.00 (homedepot.ca) and can be purchased at a local hardware store. A rototiller should be included in the future GRC budget and LHCCC staff will seek approval of use by the local Conservation Authority before implementation.

## Restoration Follow-up

Restoration projects should be followed up with to ensure continuation and support to residents. Projects requiring a substantial amount of work could make new coastal stewards feel overwhelmed and for this reason it is important to check-in on progress and address issues that may arise. It might be necessary to provide direction in the second year and confirm the results of the previous year with 2019's participants. This would provide LHCCC staff with data such as survival rate of Marram grass plantings that would be taken into consideration upon future implementations. Consistent multi-year funding would assist with restoration follow-up and help LHCCC staff measure restoration results from previous years.

## Encouraging Neighbouring Properties

Another recommendation is to encourage neighbours to join the program to connect shoreline efforts. Invasive and non-native plant species on neighbouring properties are likely to continue to emerge through wind, water, animal, and human dispersal unless completely controlled. Neighbours are also more inclined to participate when they have community support. With the participation of neighbouring properties a greater area of shoreline can be restored, thereby maximizing invasive plant species control efforts and allowing native plants to establish and for dunes to grow. In addition, stretches of the shoreline are bundled for same day restoration requiring less travel time between properties and more time spent on education and restoration efforts.

## Community Volunteer Days



**Figure 17.** *Volunteers from Lurgan Beach and CCC plant Marram grass and remove invasive species in Bruce Beach.*

Continued volunteer assistance and partnerships are required to ensure success of Green Ribbon Champion moving forward. Volunteer days increase public knowledge and awareness of shoreline issues and conservation methods. There are opportunities to partner with other local groups/communities such as Community Living, youth groups, and First Nations. Volunteer days are community building events to increase social well-being, sense of place, and to expand the coastal stewardship

network. Community volunteer days should be scheduled before Thanksgiving weekend as many seasonal residents close their cottages for the winter on Thanksgiving weekend. Weekend dates before Thanksgiving would ensure high attendance and allow seasonal residents to participate.

## Expanding to Bordering Shoreline Communities

Bridging the geographical requirement gap for stewardship programming is recommended to support residents who are committed to improving the shoreline and the health of Lake Huron. Residents outside of Huron-Kinloss registered for GRC and were placed on a waitlist. LHCCC staff were able to provide educational materials to assist residents in learning about best shoreline management practices. Equipping residents with the resources and tools to protect and maintain coastal ecosystems should be a priority for municipalities and is ultimately everybody's responsibility.

## Conclusion

Green Ribbon Champion met its objective in increasing coastal stewardship and has made a positive impact on the health of Lake Huron's coastal ecosystems. LHCCC staff were able to increase public awareness and knowledge on beach-dune conservation directly with over 540 people. LHCCC staff with the assistance of 57 hard-working volunteers, restored 588 m of shoreline, planted 5,300 Marram grass stems, and removed 49-yard waste bags containing non-native/invasive vegetation.

The presence of invasive plant species on 88% of participating shoreline properties poses serious risks to native plant communities, wildlife, and human health, highlighting the need for continued localized community-based ecosystem management education. Additional GRC opportunities remain in Huron-Kinloss as well as the opportunity to expand to neighbouring shoreline communities of Kincardine and Saugeen Shores where similar coastal ecosystems exist.

Overall, Green Ribbon Champion has successfully increased coastal knowledge and sustainable societal values, resource conservation, and social well-being along the Lake Huron shoreline. The LHCCC looks to continue working with both new and existing partners to foster coastal resource management and responsibility.

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