



**Gulf of Maine Council
on the Marine Environment**

Celebrating 25 years of action
for a healthy environment

The Gulf of Maine Council GeoTour

Passport to Exploring the Gulf of Maine



www.gulfofmaine.org/geocache

Welcome to the Gulf of Maine Council GeoTour

The Gulf of Maine Council on the Marine Environment is celebrating its 25th Anniversary with a geocache tour of the Gulf of Maine Watershed.

The Gulf of Maine Council GeoTour was created to encourage people to get out, learn about and experience the beauty and value of the Gulf of Maine for themselves.

The GeoTour is like a scavenger hunt, but instead of visiting locations to collect objects, participants will be finding answers to site specific questions and collecting points. The treasure, a limited edition Gulf of Maine Council 25th Anniversary Geocoin, is available to participants who collect enough points and send in their GeoTour Passport.

The Gulf of Maine Council has partnered with organizations and geocachers in each of the five provinces and states that border the Gulf of Maine to create the GeoTour. Sites were selected to highlight just some of the important natural, historic, cultural or economic features in the region. Five sites are located in each of the five provinces or states that border the Gulf of Maine – Nova Scotia, New Brunswick, Maine, New Hampshire and Massachusetts – making twenty-five sites to celebrate twenty-five years of the Gulf of Maine Council.

What is a GeoTour?

A GeoTour or GeoTrail is a series of geocaches connected by one or more common themes (location, terrain type, heritage, etc.). Often the series has an accompanying brochure or passport containing guidelines, space to record finds, and can be kept as a memento. Prizes – such as geocoins – are often awarded for meeting certain milestones on the GeoTour.

What is Geocaching?

Thousands of people all over the world are discovering a new pastime known as geocaching (pronounced JEE-oh-kash-ing). This adventure hobby involves the use of a GPS (Global Positioning System) enabled device, and coordinates provided on the official geocaching website (<http://geocaching.com>). The GPS receiver guides its operator to hidden treasures just waiting to be found all over the countryside. A typical geocache consists of a waterproof container, a log book, and trinkets for trading. Once the log book is signed and trinkets exchanged, the container is put back in exactly the same place it was found, to await the next finder.

Geocaching is an entertaining high-tech treasure hunt. It has grown into a worldwide phenomenon catching the interest of everyone from adventure travelers to families looking for ways to spend more time together. The craze began in 2000, when a group of GPS enthusiasts began creating “adventures” using latitude and longitude coordinates as clues. Today, more than 5 million people worldwide have joined in the Geocaching fun. All you need is a map, a GPS device and a sense of adventure!

Every geocache hunt can be a completely different experience. In many cases, the trip leads the geocacher to new and unusual places they may never have seen if they hadn't been guided by their GPS receiver and the geocache hider's directions. Geocaching is a great family activity! Getting started is easy. All you need is a handheld GPS receiver or a GPS enabled smartphone and internet access.

About the Gulf of Maine Council GeoTour

The Gulf of Maine is one of the largest semi-enclosed coastal seas in North America, and is recognized as one of the world's richest marine ecosystems. Over 3,000 marine species and birds call the Gulf of Maine home. Coastal marshes and estuaries serve as nurseries and feeding grounds for fish, crabs, and shellfish, and abundant plankton provide the base of a rich food web all the way up to large fish, seals and whales. The Gulf of Maine provides a sanctuary for more than 30 species at risk, including the roseate tern and the critically endangered North Atlantic right whale. The initial influx of people to the Gulf of Maine began approximately 12,000 years ago and the first European settlements began to appear in the region in the early 1600s. Now, over 10 million people live in the Gulf of Maine watershed. Along its shores lie the cities and towns of coastal Massachusetts, New Hampshire, Maine, New Brunswick, and Nova Scotia. The Gulf has supported a long tradition of fishing, marine transportation, coastal development, and recreation, and continues to be a valuable resource for the people who live and work in the region.

The Gulf of Maine Council GeoTour was created to highlight just some of the areas and features that make this region so important. It provides an opportunity for you to get out, learn more about and experience the beauty and value of the Gulf of Maine for yourself. The GeoTour includes a total of 25 sites around the Gulf of Maine for you to visit; five sites in each of the five provinces or states that border the Gulf of Maine. GPS coordinates will lead you to the site and a 1-page site description provides you with interesting information and facts about each site. To add to the adventure, we have included a question about each site for you to answer. By answering the question, you will accumulate points and with enough points you will be eligible to collect a limited edition Gulf of Maine Council Geocoin.

To Participate in the Gulf of Maine Council GeoTour

Before you begin, there are a few things you should know:

- **Protect yourself**
You may encounter things like poison ivy, briars, ticks, mosquitoes or larger wildlife on your adventure. Weather can also change quickly in the region.
- **Be aware of tides**
At some of the sites you may visit, tides can and will come in fast and get very high. Always consult tide tables for predicted tide times and heights these sites
- **Be visible**
Some of the sites you may visit are open to hunting and fishing at certain times of the year. Some sites, such as in federal, state or provincial parks, may also require or suggest that you check in with staff before into the site.
- **Step carefully and leave no trace**
Some of the sites that you may visit are sensitive or protect important species and their habits. Obey signs and regulations to avoid impacting or damaging these areas. Always remember to carry out what you have carried in.
- **Have fun!**

Here is what you will need:

1. A GPS unit or mobile device with GPS capability.
2. A copy of the GeoTour with the 1-page description for the site(s) you plan to visit.
3. A copy of the Passport.
4. The GPS coordinates for the site(s) that you plan to visit entered into your GPS unit or mobile device
For the sites that use existing geocaches, you can log in to <http://www.geocaching.com>, search the geocode, and automatically download the GPS coordinates to you device.

Here is how to play:

1. Using the GPS coordinates that you have entered into your GPS or mobile device, find and visit as many of the Gulf of Maine GeoTour geocaches as you can.
2. Read the question(s) for the site that you are visiting, find the answer(s), and record your answers in the Passport.

Each question is worth points that you can accumulate towards a prize. Your goal is to accumulate **100 points**

3. Once you have accumulated 100 points in the Passport, email a copy of the Passport with your answers to geocache@gulfofmaine.org.

Don't forget to send your mailing address.

4. Once we have verified your answers, a limited edition Gulf of Maine Council 25th Anniversary Geocoin will be mailed to you*.



** Geocoins will be awarded in the order the Passports are received, while supplies last. The Gulf of Maine Council is not responsible for Passports that are lost. Only one geocoin will be awarded per Passport submitted, and only one geocoin per family or per name and address submitted. The Gulf of Maine Council reserves the right to limit or revise this offer at any time. Additional terms and condition may apply.*

5. Once you receive a geocoin, activate it.

How To Activate My Coin?

All geocoins are inscribed with a unique tracking number that allows the owner and other players to track its journey from geocache to geocache. This cannot be done, however, until the geocoin has been 'activated' and its web page created.

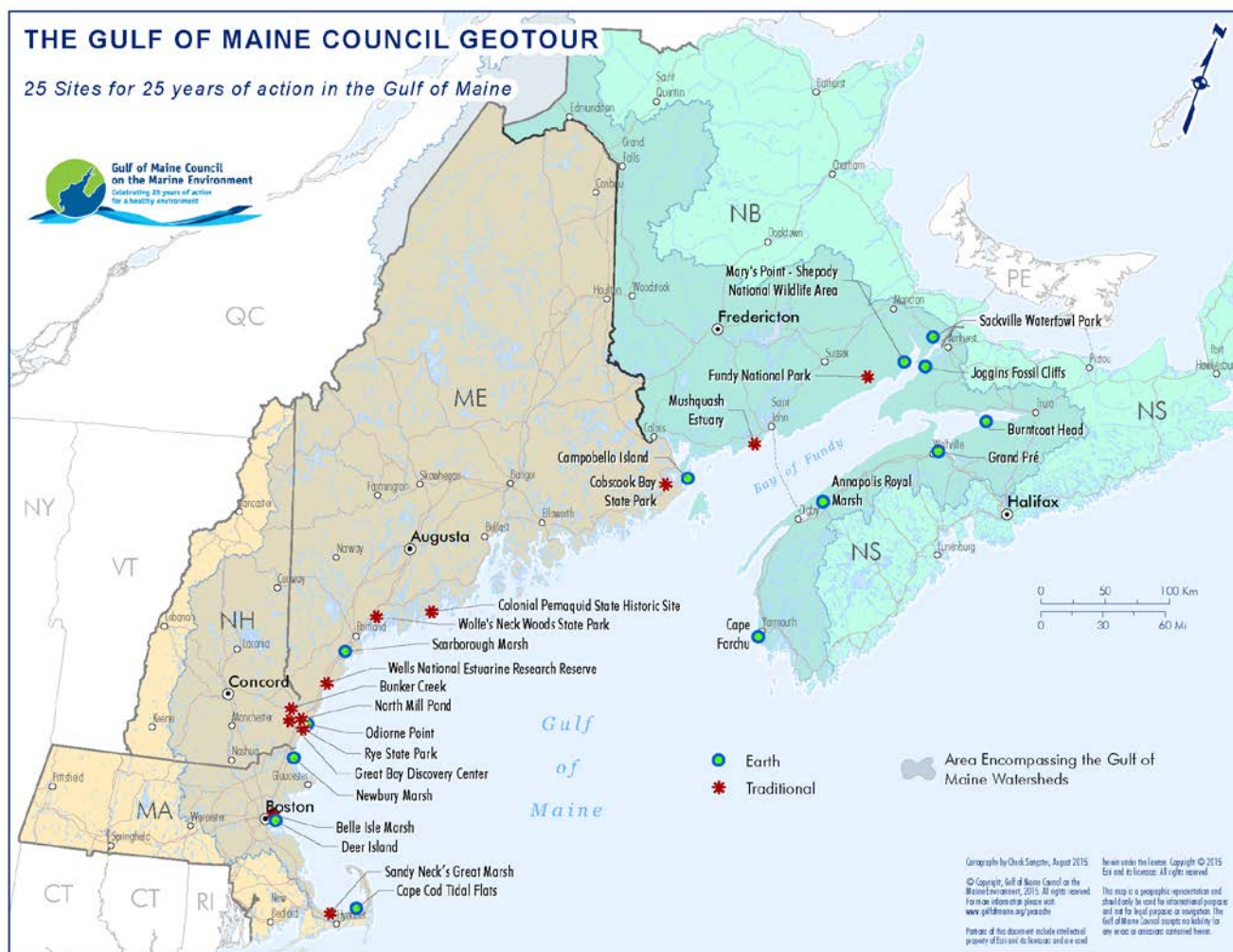
To retrieve the activation code for the Gulf of Maine Council 25th Anniversary geocoin just surf to <http://phdcoins.ca> and click on the *Activation Codes* link on the left hand menu. Select the name of the coin (Gulf of Maine Council 25th Anniversary Geocoin) from the dropdown list and type the tracking number in the proper field. Then just click on the *Get Activation Code* button and it will be displayed on the next screen. If you entered your email address in the space provided it will also be emailed to you.

To activate your coin you now have to surf to geocaching.com and login with your geocaching account username and login. Follow the links under the *Play* tab to *Find Trackables* and click on *Geocoin Home*. There you will find a button labeled Activate a Geocoin. After pressing the button, just follow the instructions to activate your geocoin and create its web page.

You can now keep your geocoin as a souvenir of your participation in the Gulf of Maine GeoTour, or you can hide your geocoin in a geocache of your choice and track its travels on Geocaching.com as it is found and re-hidden by other geocachers. To track the travels of your geocoin, you will need to become a member of Geocaching.com.

If you are registered with Geocaching.com, don't forget to log your finds to participate in the broader geocaching adventures.

Site Descriptions and Passport



Nova Scotia	New Brunswick	Maine	New Hampshire	Massachusetts
<ul style="list-style-type: none"> Cape Forchu Light, Yarmouth Annapolis Royal Marsh, Annapolis Royal Grand Pré National Historic Site/World Heritage Site, Grand Pré Burntcoat Head, Burntcoat Joggins Fossil Cliffs, Joggins 	<ul style="list-style-type: none"> Sackville Waterfowl Park, Sackville Shepody Bay National Wildlife Area, Harvey Fundy National Park, Alma Musquash Estuary Marine Protected Area, Musquash Campobello Island 	<ul style="list-style-type: none"> Cobscook Bay State Park, Dennysville Colonial Pemaquid State Historic Site, Bristol Wolfe's Neck Woods State Parks, Freeport Scarborough Marsh, Scarborough Wells National Estuarine Research Reserve, Wells 	<ul style="list-style-type: none"> Bunker Creek, Durham North Mill Pond, Portsmouth Odiorne Point, Rye Rye Harbor State Park, Rye Great Bay Discovery Center 	<ul style="list-style-type: none"> Newbury Marsh, Newbury Belle Isle Marsh, East Boston Deer Island, Boston Sandy Neck's Great Marsh, Barnstable Cape Cod Tidal Flats, Brewster

The following pages include information about each of the twenty-five (25) sites. The sites and their descriptions are organized by province and state, starting in the north with Nova Scotia and ending in the south with Massachusetts.

Cape Forchu

Yarmouth, Nova Scotia

Coordinates: N43°47.657 W066°09.288

Geocaching.com code: GC11K5K

Type of Cache: Earthcache*



This spot marks the most southwesterly point of Nova Scotia. Its harbour was once the jumping off place for ships heading to New England. Today, fishing fleets head out into the Gulf or across the end of Bay St. Mary to reach the Bay of Fundy. This site embodies cultural history and physical geography in its very accessible but stark setting at a tip of land, the most southwest point of Nova Scotia.

This shoreline is thought to have had its first European visitation by Leif Erickson in 1007. Samuel de Champlain landed here in May 1604 and provided the name, relating to its “fork” like surroundings. By the late 19th century, Yarmouth was the second largest port of sailing ship registry in Canada. The wealth of the town at that time is still evident in its residential historic district.

Geologically, you are looking at a massive volcanic formation. At this site, if you look carefully, you will be able to find pock marks where lava “bombs” fell back to the ground into still molten lava.

Cape Forchu has convenient parking, an interpretive centre, a small cafe, and a new coastal trail. The site is open year round but some services are seasonal. The athletic can climb on the rugged rocks. You will observe sea birds and maybe seals.

Learn more about this area:

www.capeforchulight.com

Thank you to: Treasurehumper (cache owner), Dan Earle (Gulf of Maine Institute)

Passport Question:

What is the name of the red boat on the “Lost to the Sea” interpretive panel?

***Please note:** To log this Earthcache, please visit Geocaching.com for additional tasks or questions to be completed.



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More information on the GOMC, its partners and its activities can be found at www.gulfofmaine.org

Did You Know: The Gulf of Maine Council has presented awards to many individuals who have supported the work of the Gulf of Maine Institute: Linda Kukis Scherf (2000) for her Gulf of Maine Institute Without Walls youth stewardship program; John Terry (2008) for his mapping programs and stewardship programs; and Roger Outhouse (2012) for the environmental work done by his Gulf of Maine Institute youth team

Annapolis Royal Marsh

Annapolis Royal, Nova Scotia



Coordinates: N44° 44.655 W065° 30.841

Geocaching.com code: GC11X03

Type of Cache: Earthcache*

The Annapolis Royal Marsh was developed through a partnership with Ducks Unlimited and the town of Annapolis Royal. This constructed freshwater wetland/marsh was completed in 2002 and is primarily used to treat the community's wastewater before it enters the Annapolis River. However, it also provides habitat for a wide variety of wetland species, such as frogs and muskrats, and serves as an important breeding ground for waterfowl. Great blue heron, sandpipers, black duck, blue and green-winged teal, grebes, sora rails, red-winged blackbirds, song sparrows and yellow warblers have been spotted in this marsh.

A recreational trail, French Basin Trail, surrounds the marsh. Interpretative panels are located at various spots along the trail during the summer season and enable visitors to explore the marsh and learn about the importance of wetland conservation. The constructed wetland has become a major attraction in the community and has made nature very accessible to residents and visitors. The local schools are also starting to incorporate field trips to the wetland into their program of study.



Nearby, on the causeway over the Annapolis River, you can also find the **Annapolis Royal Power Generating Station** (N 44° 45.222 W 065° 30.687). Opened in 1984, the generating station was initially designed as a pilot project to determine the viability of larger tidal generation on the Bay of Fundy. This 20 MW tidal power station is currently the only modern tidal generating station in North America and it harnesses the tidal difference created by the large tidal range. While effectively generating enough 'clean' electricity to power over 4000 homes, increased river bank erosion has been experienced both upstream and downstream and there have been two notable cases of impacts on marine life.

Learn more about this area:

www.annapolisriver.ca/frenchbasintrail.php

www.nspower.ca/en/home/about-us/how-we-make-electricity/renewable-electricity/annapolis-tidal-station.aspx

Thank you to: pharma-geologist (cache owner), Ashley Sprague (NS Dept. of Fisheries and Aquaculture)

Passport Question:

- According to the panel "The French Basin Trail", what ship visited Port Royal in 1636?

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Did You Know: In 2002, the Gulf of Maine Council presented an award to **Ducks Unlimited Canada** for its efforts in impacting 17,686 hectares (43,701 acres) of wetland and associated upland habitats in Nova Scotia since the 1970's. Their work includes creating freshwater wetlands, conserving landscapes with wetland habitats, and working with landowners to restore riparian buffer zones, promote soil conservation, and on wastewater management projects. In 2007 and 2009, the Gulf of Maine Council's Habitat Restoration Program awarded grants to the **Clean Annapolis River Project** for restoration planning at the French Basin Salt Marsh and the assessment and removal of the Clementsport Dam.

Grand Pré

Grand Pré, Nova Scotia



Coordinates: N45° 06.205 W064° 18.656

Geocaching.com code: GC5MEB5

Type of Cache: Earthcache*

The Grand Pré area has a long and rich environmental and cultural history. In July 2012, UNESCO recognized the Landscape of Grand Pré as a World Heritage Site.

Grand Pré was an Acadian settlement from 1682 to 1755. Much of the low lying agricultural lands visible from the look-off owe their origins to the Acadian settlement. Originally salt marshes, the Acadians claimed these fertile agricultural lands from the Bay of Fundy and its highest tides in the world by a series of dykes and aboiteaus. These lands have essentially been continuously farmed and augmented by generations of New England, Loyalist, and Dutch farmers. Grand Pré National Historic Site of Canada, operated by Parks Canada, commemorates the historical settlement, the deportation of the Acadians between 1755 and 1762, and the role of this site as the heart of *Acadie*.

For the Mi'kmaw, who have hunted and fished in these areas for millennia, nearby Cape Blomidon, is where the legendary Kluscap (Glooscap) keeps a watchful eye over his people.

The beaches, shorelines, tidal flats and offshore islands in this area provide globally important staging and migration areas for waterfowl and shorebirds. **Evangeline Beach**, located across the dykeland (N 45° 08.290' W 064° 19.143), is an ideal area to view shorebirds including the Semipalmated Sandpiper (*Calidris pusilla*).

At the peak migratory season, flocks of shorebirds, which can number into the thousands, may be seen running along the mud flats or flying in tight formation along the shore. Environment Canada's **Boot Island National Wildlife Area**, at the mouth of the Gaspereau River to the southeast, also supports significant populations and breeding colonies of Herring Gull, Great Black-backed Gull, Great Blue Heron, and Double-crested Cormorant. Due to the significant shorebird concentrations, this area was declared a Wetland of International Importance for the protection of shorebirds under the UNESCO International Ramsar Convention, and was declared a Hemispheric Shorebird Reserve as part of the Western Hemisphere Shorebird Reserve Network.

Learn more about this area: www.landscapeofgrandpre.ca; www.pc.gc.ca/eng/lhn-nhs/ns/grandpre/index.aspx; or www.ec.gc.ca/ap-pa/default.asp?lang=En&n=1AB8BA89-1

Thank you to: Geraldine Arsenault (Parks Canada), Colin MacKinnon (Environment Canada), Christophe Rivet (Environment Canada), Kathryn Parlee (Environment Canada) and Hillary Davis

Passport Question:

- What artist's painting depicts the collaborative building of dykes at Grand Pré during the Acadian Period? (Hint: read the interpretive panel)
- Bonus @ Evangeline Beach: When is the peak period of shorebird migration for this area? (Hint: read the interpretive panel)

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Kathryn Parlee



Burntcoat Head

Burntcoat, Nova Scotia

Coordinates: N45° 18.679 W063° 48.344

Geocaching.com code: GC3GVXH

Type of Cache: Earthcache*



Please use caution and pay attention to the tides!

Predicted tide times and heights: <http://www.waterlevels.gc.ca/eng/station?sid=270>

Burntcoat Head, located within the Minas Basin of the Bay of Fundy, is officially recognized as having the highest tides in the world. Over 100 billion tonnes of water flow into the Bay of Fundy every 12 hours and 25 minutes (= one tide cycle). Between high tide and low tide, there can be as much as 16 metres (52 feet) difference in water level at this site.

During low tide, you can walk along the beach and on the ocean floor to explore tide pools or hunt for fossils, rocks and shells. During high tide, the creek and nearby marshlands are covered by water giving the appearance of a lake.

Burntcoat Head is also one of only five locations in Canada where the threatened Atlantic Mud-piddock, a clam-like mollusc, is found.



A lighthouse was first built at Burntcoat Head in 1858 to support the booming maritime trade and wooden ship building industries. With the end of that era, a lighthouse was no longer needed for navigational purposes and was eventually replaced with a skeleton mast. In the 1990s, to commemorate the area's history and its recognition as the site with the world's highest tides, the Burntcoat Head Park Lighthouse and Interpretive Centre was opened. The Park, opened during the summer season, contains a replica lighthouse, walking trails and interpretive displays about the natural and human history of the area.

Learn more about this area:

www.burncoathead.com/index.htm

www.tides.gc.ca/eng

Thank you to: Team Fährtsensucher (cache owner), Burntcoat Head Park Lighthouse and Interpretive Centre, Bill Whitman (NS Dept of Fisheries & Aquaculture)

Passport Question:

- What is the date on the concrete block near the lighthouse entrance?
- Bonus: What is written on the brass plaque on the granite monument next to the lighthouse?

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Joggins Fossil Cliffs

UNESCO World Heritage Site

Joggins, Nova Scotia



Coordinates: N45° 41.756 W064° 27.029

Geocaching.com code: GCN186

Type of Cache: Earthcache*



Please use caution and pay attention to the tides!

Predicted tide times and heights: <http://www.waterlevels.gc.ca/eng/station?sid=215>

The Joggins Fossil Cliffs are a world-class palaeontological site stretching approximately 15 kilometres (10 miles) along the shoreline of the Bay of Fundy near the town of Joggins. The cliffs reveal the most comprehensive sampling, or fossil record, of terrestrial life from the Carboniferous Period, some 300 million years ago. The constant erosion from the Bay of Fundy's tides continually exposes new fossils making the cliffs one of the easiest places in the world to find fossils. To date, nearly 200 different species of plants, amphibians and reptiles have been identified from the fossils found here.

The area also has a long history of coal mining, with coal seams exploited as early as 1686 by local Acadian settlers. Coal mining played an important role in the history of the region until the 1950s when the mines were eventually closed.

Due to the global significance of this site, the cliffs were designated a Special Place under the Province of Nova Scotia's Special Places Protection Act in 1989. In 2008, the cliffs were also officially inscribed as a UNESCO World Heritage Site. To protect the site for scientific research, take only pictures and leave only footprints. In Nova Scotia, the law only lets you collect fossils if you have a *Heritage Research Permit* from the provincial government.

The Joggins Fossil Centre (open April through October) was built on a brownfield site reclaimed from the mining industry. The building itself was designed to mimic the formations of the cliffs, and the shape of the building is reminiscent of the old Joggins No. 7 mine that once stood at the site. To respect the natural value of the area, and to minimize the building's footprint, the Centre incorporates many sustainable and green building features including: a wind turbine generator; a solar hot water heating system; passive solar heat and light collection; a green roof; and washroom fixtures that reduce water consumption. The cliffs are accessible to the public and guided tours of the site are provided by staff from the Centre.



Learn more about this area:

jogginsfossilcliffs.net/

whc.unesco.org/en/list/1285/

Thank you to: Maritime Geocaching Association (cache owner), The Joggins Fossil Institute

Passport Question:

- Abraham Gesner (in 1836) said that "something" turned to stone.....what was that?
- Bonus: In the "evolutionary maze" in the play space at the Joggins Fossil Centre we learn about causes of extinction. How does the maze communicate the extinction of Saber-tooth tigers?

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Sackville Waterfowl Park

Sackville, New Brunswick

Coordinates: N45° 54.120 W064° 22.000

Geocaching.com code: GC11F7C

Type of Cache: Earthcache*



The Town of Sackville partnered with Environment Canada's Canadian Wildlife Service and Ducks Unlimited to establish the Sackville Waterfowl Park in 1988. Located in the heart of town, this 22 hectare (54 acres) wetland complex borders the Tantramar marshes and includes 4 km (2.5 miles) of trails and boardwalks where visitors can enjoy marshes, meadows, woodlands and ponds. The park is home to over 160 species of birds and almost 200 varieties of wild plants.

Historically, the park was part of an expansive salt marsh that was flooded daily by the Bay of Fundy tides. In the 1700s, Acadian settlers began draining the marshes and built an extensive dyke system to gain access to the nutrient-rich soil for farming. Several farms still exist on the Tantramar marshes today.



Kathryn Parlee

The Sackville Waterfowl Park is a past winner of Environment Canada's National Award for Environmental Achievement.

Learn more about this area:

sackville.com/visit/attractions/waterfowl

www.ducks.ca/your-province/new-brunswick/wetlands-area/sackville/



Kathryn Parlee

Thank you to: paulandstacey (cache owner), Ashley Sprague (NS Dept of Fisheries & Aquaculture)

Passport Question:

- What is the structure located at these coordinates?
- Bonus: Who is the structure named after? (Hint: read the commemorative panel)

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Did You Know: In 2010, the Gulf of Maine Council presented **Chris Porter** with an award for his work forming the Tantramar Wetlands Centre, a community-based centre for wetlands education.

Mary's Point - Shepody National Wildlife Area

Harvey, New Brunswick



Coordinates: N45° 44.053 W064° 40.842

Geocaching.com code: GC5MEAW

Type of Cache: Earthcache*



Visitors must respect the “Do Not Cross onto the Beach” signs. These signs are typically up for 4-6 weeks during the sandpiper migration to protect critical shorebird roosting areas from disturbance.

Mary's Point is a 1200 hectare (2965 acre) wetland located just outside the community of Harvey. It is located within the **Shepody Bay National Wildlife Area**, which is administered by Environment Canada's Canadian Wildlife Service.

Each summer, for 4-6 weeks beginning in mid-July, the extensive mudflats of this area, and of the upper Bay of Fundy, provide an important stopover and refueling site for over 2 million migratory shorebirds. Semipalmated Sandpiper (*Calidris pusilla*) are the most commonly observed shorebird in this area and represent approximately 70% of the species' world population. The area is the only stop that these birds make on a 4,000 km (2,500 mi) journey from their summer breeding grounds in the Arctic to their overwintering home along the northern coast of South America.

In the early 1970s, naturalist Mary Majka and David Christie, along with biologists from the Canadian Wildlife Service began conducting the first shorebird surveys at Mary's Point. Their dedicated research confirmed the importance of Mary's Point as a shorebird migratory stopover area. In 1987, the area was officially named as Canada's first Western Hemispheric Shorebird Reserve and is now listed as a UNESCO Ramsar Wetland of International Importance.

The Mary's Point Interpretive Centre, open Monday to Friday in July and August, offers a range of exhibits, interpretive panels and educational materials for visitors to learn more about the history and value of this site. The Canadian Wildlife Service maintains a trail to access the shorebird viewing area (please follow regulatory signs and remain on the trail to minimize disturbance to wildlife).

Learn more about this area:

www.naturenb.ca/mpbirds/

www.ec.gc.ca/ap-pa/default.asp?lang=En&n=263DB5D8-1

Thank you to: Edith McCormack, Colin MacKinnon (Environment Canada), Ashley Sprague (NS Dept. of Fisheries & Aquaculture)

Passport Question:

- On the “Grindstone Conservation Easement” interpretation panel, what are two birds species represented by photos?

***Please note:** To log this Earthcache, please visit Geocaching.com for additional tasks or questions to be completed.



Vishalla Singh, CWS

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Did You Know: In 1992, the Gulf of Maine Council presented an award to **Peter Pearce**, a marine wildlife conservation, naturalist and educator with Environment Canada's Canadian Wildlife Service. In 1997, the Council presented an award to **Peter Hicklin**, for two decades of outstanding work with Environment Canada's Canadian Wildlife Service on shorebirds and the ecology of the Upper Bay of Fundy. In 1996, **Mary Majka** received an award in recognition of her valuable contribution to shorebird research, the designation of Mary's Point and for her efforts to fundraise for the Mary's Point Interpretive Centre.

Fundy National Park

Alma, New Brunswick

Coordinates: N45° 35.973 W064° 56.883

Geocaching.com code: GC54J4Z

Type of Cache: Traditional*



Fundy National Park covers an area of approximately 207 km² (80 sq mi). Its landscape represents the Maritime Acadian Highlands. The Park includes the rugged coastline of the Bay of Fundy which is home to the highest tides in the world, as well as forests of the Caledonia Highlands which is part of the Appalachian Mountain range.

Fundy National Park falls within traditional Mi'gmaq territory called Siknikteiwag ("drainage area"). The Mi'gmaq, Wolastoqiyik (Maliseet) and Passamaquoddy Aboriginal peoples have a long history with the area and consider it part of their traditional territory. In the 1800, the forests became attractive to a growing lumber industry. Logging and shipbuilding were closely intertwined throughout the 1800's, and several small communities developed in the area with saw mills, shipbuilding and fishing activities. By the mid-1920s, much of the thriving lumber and shipbuilding activities had declined and people had left the area in search of opportunities elsewhere.

In 1948, the area was chosen as New Brunswick's first national park. Fundy is one of Canada's few national parks to offer both a backcountry wilderness experience and an extensive development of recreational activities. The Park includes 3 large campgrounds, a salt-water heated swimming pool, a natural playground, over 120 km (75 miles) of hiking trails, as well as a motel and chalets provider and a nine-hole golf course. Within the Park, there are also a number of on-going research and environmental management activities including ecological monitoring, habitat restoration and species at risk recovery actions.

Fundy National Park also serves as the core area for the Fundy Biosphere Reserve. In September 2007, UNESCO designated the Upper Bay of Fundy in New Brunswick as a Biosphere Reserve because of its unique geological formations, terrestrial and marine ecosystems, and cultural heritage. The Biosphere Reserve includes an area of over 430,000 hectares (1,000,000 acres) extending from the Tantramar Marsh near Sackville to St. Martins and inland to Moncton. Fundy National Park was also recently designated as a Dark Sky Preserve by the Royal Astronomical Society of Canada (RASC), which means that the Fundy National Park is one of Canada's best places to explore the night sky.



Parks Canada

Learn more about this area:

www.pc.gc.ca/eng/pn-np/nb/fundy/visit.aspx

fundy-biosphere.ca/en/

www.rasc.ca/dark-sky-site-designations

Thank you to: Cache Up NB (cache owner), Matt Klem (Cache Up NB), Nadine Gauvin (Parks Canada), Livia Goodbrand (Parks Canada)

Passport Question:

Who lived in the house near this site and what were they the first of?

***Please note:** This geocache is part of the Cache Up NB/ Fundy National Park Geocaching Program and the Fundy National Park Passport 2014. For more information on this Passport visit: <http://www.cacheupnb.com/fundy-park/>

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Musquash Estuary

Musquash, New Brunswick

Coordinates: N45°09.210 W066°13.745

Geocaching.com code: GC5789N

Type of Cache: Traditional



More than 85% of the original salt marshes in the Bay of Fundy have been altered or destroyed by humans over the past 300 years. The Musquash Estuary, located about 20 kilometres (12 miles) southwest of Saint John, is one of only a few remaining in the region that has not been significantly impacted by human development. It is the largest undeveloped, natural estuary in the Bay of Fundy. This productive estuary and saltmarsh is home to many birds, mammals, fish, invertebrates, and marine plants. Over 290 species of birds have been spotted in the Estuary, including abundant waterfowl and shorebirds. Beaver, fox, deer, moose, muskrat, harbour seal and even the occasional porpoise can also be found in the area.

The Musquash Estuary plays an important role in the region's heritage. Aboriginal groups are thought to have established seasonal camps along its shores. French settlers and, later, United Empire Loyalists have also been associated with early settlements in the area.

In 1998 the Conservation Council of New Brunswick (CCNB), with support from the Fundy North Fishermen's Association and the local community, proposed the Musquash Estuary and surrounding intertidal area as a candidate Marine Protected Area (MPA) under the Oceans Act. In December 2006 the Musquash Estuary, including the waters, marshes, and intertidal zone, received formal designation as a protected area. The Musquash MPA and administered intertidal area are managed by Fisheries and Oceans Canada in collaboration with an advisory committee composed of representatives from government, non-government organizations, First Nations, industry, and local community groups. In recognition of the importance of the area, complimentary conservation efforts by the Nature Conservancy of Canada, Ducks Unlimited, and the Province of New Brunswick have led to the protection of the majority of the lands surrounding the Estuary, as well as the watershed that feeds the Estuary.



Canadian Hydrographic Service

This geocache was created by the CCNB specifically for this GeoTour. A detailed description on how to find the site is available on geocaching.com.

Learn more about this area:

www.dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/mpa-zpm/atlantique-atlantique/musquash-eng.htm
www.conservationcouncil.ca/our-programs/fundy-baykeeper/musquash-marine-protected-area/

Thank you to: Matt Abbott (Conservation Council of New Brunswick), Tanya Koropatnick (Fisheries & Oceans Canada)

Passport Question:

- What colour string is securing the cache in place?

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Did You Know: In 2004 and 2006, the Gulf of Maine Council's Habitat Restoration Program awarded grants to **Ducks Unlimited Canada** for restoration, research and monitoring within the Musquash Marsh. In 2007, the Gulf of Maine Council presented an award to the **Friends of the Musquash** for facilitating the creation of a Marine Protected Area in the Musquash Estuary, which was declared the first Marine Protected Area in New Brunswick and the Bay of Fundy.

Campobello Island

Campobello Island (Friars Bay), New Brunswick

Coordinates: N44° 52.592 W066° 57.977

Geocaching.com code: GC1DCV8

Type of Cache: Earthcache*



Campobello Island is located in Passamaquoddy Bay and lies just offshore of Lebec, ME, the US's easternmost town. Access to the island is via the Franklin Delano Roosevelt Bridge from Lubec or seasonal ferry from Deer Island, NB.

The island was originally settled by the Passamaquoddy, who called it *Ebaghuit* or "lying parallel to the land". The Passamaquoddy hunted, fished and harvested clams and sea urchins here. The first European settlers are believed to have come from nearby St. Croix Island; the first permanent European presence in Northern North America founded in 1604. Small villages soon supported local and foreign trade in fish, lumber and wood products and commercial activity included brickyards, sawmills, a tannery and a soap factory. Fish weirs were erected in the 1840s to support a fishing industry. Around 1880, following decline in shipping and trade, the island was purchased by U.S. entrepreneurs and promoted as a summer resort for the wealthy. Among these residents were the Roosevelt family and the island eventually became known as the summer residence of U.S. president Franklin Delano Roosevelt. The island flourished as a summer resort for about 30 years. In the late 1950s, the Herring Cove Provincial Park was established to boost tourism. The Roosevelt family also gifted its property to the province, and in 1964, it was established as the Roosevelt Campobello International Park. The Park was created to preserve the family's cottage, protect the area's natural history and beauty, and as an expression of the close relationship between Canada and the United States. Today, fishing and tourism are key to the local economy.



Eric & Elaine Hendrickson

This site is a section of submerged coast. The Earthcache located here gives a good overview of sea-level rise. Along the New Brunswick coast, sea-level has risen by about 50cm over the last 250 years. This increase is due in part to subsidence or lowering of the land, a lingering effect from glaciers that once covered the area and due in part to present day melting of global ice sheets and the thermal expansion of ocean water, an effect of warming global temperatures. Global climate models also project that climate change will further increase global sea levels from 0.5m (1.6ft) to 3.5m (11.5ft) by 2100.

Learn more about this area:

<http://www.tourismnewbrunswick.ca/Products/H/Herring-Cove-Provincial-Park.aspx>

<http://www.fdr.net/>

Thank you to: Northwoods Explorer (cache owner); Abby Pond (SCIWC), Kathryn Parlee (Environment Canada),

Passport Question:

- Identify and submit a photo (date and time stamped) which shows evidence of recent rising sea-levels at this site.

***Please note:** To log this Earthcache, please visit [Geocaching.com](http://www.geocaching.com) for additional tasks or questions to be completed

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Did You Know: The Gulf of Maine Council's Climate Network brings together planners and scientists from around the Gulf of Maine to raise awareness about climate impacts and inspire effective action in local communities — where residents experience first-hand the effects of changing conditions.

Cobscook Bay State Park

Dennysville, Maine

Coordinates: N44° 50.580 W067° 09.534

Geocaching.com code: GC4B1WW

Type of Cache: Traditional*



This 888 acre (360 hectare) park, founded in 1965, is situated on part of the Moosehorn National Wildlife refuge and overlooks Cobscook Bay. Cobscook, the Maliseet-Passamaquoddy tribal word for "boiling tides", describes this setting where the tidal range averages 24 feet (7 metres).



Nutrient-rich salt water flowing in from the Gulf of Maine stimulates plankton growth, which in turn feeds a vast array of invertebrates (such as shellfish and marine worms). Eagles, ospreys, seals, otters and even the occasional bear enjoy the Bay's abundant fish, including smelt, alewives, shad, sea-run brook trout, striped bass and the Atlantic salmon.

Attracted by Cobscook Bay's sheltered coves, mudflats, and eelgrass beds, thousands of shorebirds stop over each fall to rest and forage as they migrate south from northern breeding grounds. The Bay's inner coves support a quarter of Maine's wintering black ducks and the state's highest concentration of bald eagles. A free birding list for the Cobscook Bay region is available at the Park entrance.

The park's geology is shaped by three primary forces: Cobscook Bay's powerful tides; the underlying bedrock

(a volcanic tuff-breccia that dates back to the Silurian Age roughly 420 million years ago); and the glacial action from the Wisconsin ice sheet (approximately 12,000-18,000 years ago) - which deposited mud and an assortment of rock, sand, silt and clay known as glacial till. Where the bedrock is exposed, grooves left by the ice sheet (known as glacial striations) are visible on rock surfaces. For more information on this geologic legacy visit the park's Ice Age Trail. (*Excerpts largely taken from Cobscook Bay State Park on Maine.gov*)

Learn more about this area:

www.maine.gov/cobscookbay

www.fws.gov/northeast/moosehorn/

Thank you to: Maine State Parks (cache owner), Gary Best (Maine State Parks)

Passport Question:

- The Bay is home to a variety of wildlife and bird watchers can expect to see many birds in the area. According to the educational card and fun facts hidden in the geocache, how many bird species can be counted in this area?

***Please note:** This geocache is part of the Maine State Parks GeoTour. Why not take part! For more information on this GeoTour visit: www.maine.gov/dacf/parks/discover_history_explore_nature/activities/geocaching.shtm

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Colonial Pemaquid State Historic Site

Bristol, Maine



Coordinates: N43° 52.717 W069° 31.311

Geocaching.com code: GC4B1YH

Type of Cache: Traditional*

Colonial Pemaquid State Historic Sites displays one of northern New England's earliest communities. Visitors can use a telescopes onsite to observe the area and imagine what it was like in the 17th century, guarding the waters to the Pemaquid River and beyond.

The Fort House was built in the last quarter of the 18th Century by Alexander Nickels Jr., the son of Fort Frederick's last commander. Today the first floor of this building is open to the public. Inside you will find the period room or parlor which is decorated similar to how it may have been in the early 1800's, a library, exhibit room and archaeological laboratory. The Fort House was renovated through the efforts of the Friends of Colonial Pemaquid.



Near Colonial Pemaquid is the Salt Pond Preserve which honors environmental pioneer Rachel Carson. She is credited with initiating the environmental movement. In an earlier work, *The Edge of the Sea*, Ms. Carson details her tide pool research on the shore of Muscongus Bay, near the southeastern tip of Pemaquid Point. This spot was designated as the Rachel Carson Salt Pond Preserve by The Nature Conservancy in 1966. The Wells Reserve and nearby Rachel Carson National Wildlife Refuge is another site to visit in this passport. (*Excerpts largely taken from Colonial Pemaquid State Historic Site on Maine.gov*)

Learn more about this area:

www.maine.gov/colonialpemaquid

Thank you to: Maine State Parks (cache owner), Gary Best (Maine State Parks)

Passport Question:

- What is the name of the ship referred to in the education sheet hidden in the Maine State GeoTour cache?

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Did You Know: In 2004 and 2006, the **Town of Bristol** and the **Pemaquid Watershed Association** received grants from the Gulf of Maine Council's Habitat Restoration Program for marsh culvert replacement and salt marsh monitoring respectively.

Wolfe's Neck Woods State Park

Freeport, Maine

Coordinates: N43° 49.246 W070° 04.905

Geocaching.com code: GC4B1Y0

Type of Cache: Traditional*



Wolfe's Neck Woods State Park is approx. 4.5 mi (7.2 km) from U.S. Route 1 and Freeport's bustling shopping district. The park bears its name from Henry and Rachel Wolfe, who were the first Europeans to permanently settle here in 1733. Most of the peninsula was cleared for farms, but over time this part returned to forest. In 1969, more than 200 acres (81 hectares) was given to the State by Mr. and Mrs. Lawrence M.C. Smith of Freeport.

The Park contains varied ecosystems, including white pine and hemlock forests, a salt marsh estuary, and the rocky shorelines on Casco Bays and the Harraseeket River. The Park's signature residents are the ospreys who nest on nearby Googins Island. These birds summer on the island and make their annual trek to South America each fall. The Park's Casco Bay Trail includes a number of interpretative panels that enable visitors to learn about the importance of the area.

Nearby, you can visit **Wolfe's Neck Farm**, a non-profit oceanfront farm on the shores of Casco Bay. The 626 acres (253 hectares), which include organic demonstration gardens, barnyard animals and nature trails, are open daily. The farm's educational programs include a summer day camp, school field trips and Teen Ag Program - teaching sustainable farming methods while growing produce for food pantries. The farm also hosts a series of annual events including farm-to-table dinners, barn dances, farm festivals and pumpkin hayrides.

Learn more about this area:

www.maine.gov/wolfesneckwoods

Thank you to: Maine State Parks (cache owner), Gary Best (Maine State Parks), Christine Tilburg (EcoSystem Indicator Partnership), and the Tilburg Family



Passport Question:

- In May, what might you see happening with the ospreys? (Hint: read the interpretive panel located approx. 10-12 feet from the geocache along the trail to the look-out point)



This site is part of the Gulf of Maine Council's **EcoSystem Indicator Partnership's (ESIP) ICUC** project. It is a citizen science project to document, through photographs, the status and changes in the environment at select sites over time. To submit a photo to the ICUC project, please put your camera directly above the osprey picture on the left of the sign. Direct your camera so that the "keep off" sign on the adjacent island is in the middle of your frame. To confirm photo orientation, see the photo above. Submit your photo (with the date and time it was taken) to: ESIPmail@gulfofmaine.org

***Please note:** This geocache is part of the Maine State Parks GeoTour. Why not take part! For more information on this GeoTour visit: www.maine.gov/dacf/parks/discover_history_explore_nature/activities/geocaching.shtml

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Scarborough Marsh

Scarborough, Maine

Coordinates: N43° 33.942 W070° 22.475

Geocaching.com code: Gc3TVV6

Type of Cache: Earthcache*



Be aware that this site is located by a busy road.

Scarborough Marsh is 3,100 acres (1,254 ha) and is the largest salt marsh in Maine. It was also one of Maine's first BirdLife International Important Bird Areas, part of a global effort to identify areas that are critical for bird conservation.

Scarborough Marsh formed over a long period of time. This low-lying area is relatively sheltered and less exposed to the waves and tides that erode the coast so sediment is deposited. Over time, sediment built up and marsh plants established. The plants trapped more sediment and gradually increased the height of the marsh and allowed it to expand. The marsh provides critical resting, breeding and feeding habitat for waterfowl, egrets, herons, glossy ibis and other shorebird species, and supports aquatic species.

The marsh has a long history of human use. Sokokis Indians hunted, trapped, clammed and fished here. In the 1600s, European settlers harvested salt hay for their livestock and used the area for pasture land. In the 1900s, the marsh became viewed as a cheap space to fill and develop - it was even proposed as a site for the town dump at one point. Recognizing the value and significant habitat the marsh provided, in 1957 the Maine Dept. of Inland Fisheries & Wildlife began a process to acquire it.

In 1972, Maine Audubon formed a partnership with the state and opened the Scarborough Marsh Audubon Center. Opened between June and September, it serves as a nature center for the marsh and provides exhibits and walks where a visitor can learn about the natural environment and value of the marsh.



Learn more about this area:

maineaudubon.org/find-us/scarborough-marsh/

www.maine.gov/dacf/mnap/focusarea/scarborough_marsh_focus_area.pdf#sthash.TepX0BFs.dpuf

Thank you to: eebee (cache owner), Christine Tilburg (EcoSystem Indicator Partnership), and the Tilburg Family

Passport Question:

- What two mammals are at the top of the "life in a Maine salt marsh" sign?



This site is part of the Gulf of Maine Council's **EcoSystem Indicator Partnership's (ESIP) ICUC project**. It is a citizen science project to document, through photographs, the status and changes in the environment at select sites over time. To submit a photo to the ICUC project, walk through the interpretive center to the back deck. Place your camera on the top horizontal edge of the "Scarborough Marsh" sign above the "S". To confirm photo orientation, see the photo above. Submit your photo (with the date and time it was taken) to: ESIPmail@gulfofmaine.org

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Wells National Estuarine Research Reserve

Wells, Maine



Coordinates: N43° 19.926 W070° 33.313

Geocaching.com code: GC2V8TA

Type of Cache: Traditional

Estuaries are the transition between the land and the sea. These coastal ecosystems are where fresh water from rivers and salt water from the sea mix, and they are some of the most productive ecosystems on Earth. Estuaries provide important habitat for many plants and animals, they provide natural flood protection for our coastal communities, and also help to protect coastal water quality by filtering land-based pollutants from water as it passes through the estuary. However, estuaries are vulnerable to pollution, sedimentation, climate change, invasive species and other threats which can affect their health and long-term survival.

In 1984, the estuary was designated a National Estuarine Research Reserve by the National Oceanic and Atmospheric Administration (NOAA). The Wells National Estuarine Research Reserve is part of a system of 28 Reserves around the country. The Wells Reserve protects 2,250 acres (910 ha) of dunes, beaches, salt marshes, freshwater wetlands, forest and fields within the watersheds of the Little River, Webhannet River, and Ogunquit River. It is a regional center for education, training and outreach, and also conducts and supports research, studies and monitoring. The Wells Reserve is open every day and offers public access to its grounds. The historic buildings of Laudholm Farm, also on the National Register of Historic Places, serve as an educational and research center for visitors and scientists.

Nearby you will also find the **Rachel Carson National Wildlife Refuge**. The Refuge was established in 1966 by the US Fish and Wild Service in cooperation with the State of Maine to protect valuable salt marshes and estuaries for migratory birds. It was named after Rachel Carson, a world-renowned marine biologist, author and environmentalist. In 1962, she published the book *Silent Spring*, which linked the use of post-World War II chemical pesticides and impacts to the environment and wildlife. She has been credited with launching the contemporary environmental movement and awakening the concern of Americans for the environment



Learn more about this area:

www.wellsreserve.org/

www.fws.gov/refuge/rachel_carson/

Thank you to: geosula (cache owner), Wells National Estuarine Research Reserve

Passport Question:

- The sign on the railing at this site refers to which exotic plant that can invade a marsh when tidal flow is blocked?

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Did You Know: In 2003 and 2006, the **Wells National Estuarine Research Reserve** received grants from the Gulf of Maine Council's Habitat Restoration Program for oyster habitat establishment and for salt marsh monitoring and management at Drakes Island. The **Wells National Estuarine Research Reserve** also received an award from the Council for its excellence in science, communication, partnerships, education, and stewardship of the Gulf of Maine coastal ecosystems in 2009.

Bunker Creek

Durham, New Hampshire



Coordinates: N43° 08.279 W070° 53.250

Geocaching.com code: GC16W54

Type of Cache: Traditional*

Bunker Creek has three major wildlife habitat attractions. The shoreline along Bunker Creek is prime waterfowl nesting habitat. The large white pine trees along the creek are potential eagle perch sites. The upland is maintained as shrub habitat, being rotationally mowed to sustain this habitat type, important to so many wildlife species.

The Great Bay began to shape 15,000 years ago, when the last glacier retreated, leaving behind a flooded valley that became Great Bay. This remarkable estuary, with fresh water from seven rivers and numerous creeks, creates a watershed that drains one-quarter of New Hampshire (930 square miles / 2400 square kilometres), before it meets up with tidal waters and empties into the Gulf of Maine. These lands are home to many species of wildlife, making Great Bay one of the most productive estuaries along the East Coast.

The Bunker Creek trail, located on this property, begins behind the barn and will lead you to the Bunker family graveyard. (Text above taken with permission from The Great Bay National Estuarine Research Reserve geocache passport).



Learn more about this area:

www.greatbay.org/

To view how the seasons affect the creek over the year visit Blake Gumprecht photo stream:

www.flickr.com/photos/gumprecht/sets/72157623166537668/page3/. His photos are also for sale.

Thank you to: horseshoe crab (cache owner), Great Bay Discovery Center

Passport Question:

- When did Valentine Bunker die? (Hint: Make your way to the Graveyard, behind the barn to the right)

***Please note:** This site is also part of the Great Bay Geocache Passport. Download your copy here:

<http://greatbay.org/documents/greatbaypassport.pdf> Also make sure to punch your Great Bay Geocache Passport with the special hole punch found in the cache.

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Did You Know: The University of New Hampshire (UNH) is located in the town of Durham (near Bunker creek). The **UNH Marine Docents** won an award from the Gulf of Maine Council in 2000, for 20 years of increasing public awareness of the marine environment through their volunteer efforts as trained community outreach volunteers.

North Mill Pond

Portsmouth, New Hampshire



Coordinates: N43° 04.291 W070° 46.343

Geocaching.com code: GC34HAH

Type of Cache: Traditional

North Mill Pond is a shallow urban, tidal pond that receives freshwater mainly from Hodgson Brook and regular tidal flow from the Piscataqua River. The land surrounding the North Mill Pond is among the most significantly impacted in the Portsmouth region, as it was one of the first areas to experience development. Due to hard work by many volunteers and organisations, by the early 1980s the North Mill Pond was slowly becoming a functioning tidal marsh again. There were sightings of horseshoe crabs, egrets, gulls, night herons, and numerous small birds, especially on the mud flats at low tide. A local resident group, the Advocates for the North Mill Pond (ANMP) formed to protect and restore North Mill Pond.



ANMP recognized that in order to improve the condition of the Pond, they also needed to focus restoration efforts on Hodgson Brook. With support from the New Hampshire Department of Environmental Services and the City, the Hodgson Brook Restoration Project was launched in 2004. Many Portsmouth area businesses and community members have contributed to The Hodgson Brook Restoration Project by providing office space, donations that have funded projects and volunteering to work on efforts such as residential rain garden installations and stream cleanups. In 2014, with funding from the Gulf of Maine Council on the Marine Environment and the Royal Bank of Canada Blue Water Project, the Hodgson Brook Restoration Project restored 700 feet (213 metres) of urban stream and installed a tree box filter in the Hodgson Brook watershed.

Learn more about this area:

des.nh.gov/organization/divisions/water/wmb/was/hodgson/advocates.htm

des.nh.gov/organization/divisions/water/wmb/was/hodgson/index.htm

Thank you to: 21alpine (cache owner), Jeanne and Joseph C Beland, Kevin Lucey (NH Dept. of Environmental Services)

Passport Question:

- Over time, there have been many people, groups and organizations involved in restoring and preserving North Mill Pond. What school is specifically mentioned, on the interpretive panel, for its help in restoration efforts such as reseeded ribbed mussel beds?

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Did You Know: In 1998, the Gulf of Maine Council presented an award to the **Advocates for the North Mill Pond** of Portsmouth for their on-going dedication to the protection, restoration and enhancement of the North Mill Pond estuary, including: an annual shoreline cleanup, salt marsh restoration through grass planting and mussel seeding, water quality monitoring, storm drain stenciling, community awareness and outreach, and publication of the study entitled "The State of the North Mill Pond. In 2004, **Tricia Miller**, Advocates for the North Mill Pond, was given a Gulf of Maine Council award for her numerous contributions to the work of the Advocates for the North Mill Pond (Portsmouth) and other seacoast environmental organizations.

Odiorne Point

Rye, New Hampshire

Coordinates: N43° 02.459 W070° 42.863

Geocaching.com code: GC15NZJ

Type of Cache: Earthcache*



Please use caution and pay attention to the tides!

Predicted tide times and heights:

<http://tidesandcurrents.noaa.gov/noaatidepredictions/viewDailyPredictions.jsp?Stationid=8424601>

Near Odiorne Point State Park in Rye, is the drowned forest (sunken forest). A forest of trees extended to the east from here to the Isles of Shoals and perhaps beyond. Using carbon dating, geologists have determined that 3,400 years ago the ice-age glaciers had melted enough that the sea-level rose close to its present level, drowning the trees. Trunks and root systems of the trees may be seen today at low tide in the "Drowned Forest" at the southern rim of the park. The roots of different coniferous trees (including white pine and hemlock) are visible at most low tides.

Near this location is the **Seacoast Science Center**. Seacoast Science Center is a non-profit marine science education organization located on the New Hampshire coast. Since 1992 the Center's programs and exhibits have informed people, from toddlers to grandparents, about why a healthy ocean is important. Their mission is ocean education. *"We educate to motivate. We want everyone to recognize and understand that what we do every day has an impact on the health of the ocean and that ocean health impacts our daily lives. A healthy ocean drives our quality of life today and will for future generations."*

Learn more about this area:

www.nhstateparks.com/odiorne.html

www.seacoastsciencecenter.org



Karen Provazza

Thank you to: geogirl06 and Davidmnh2 (cache owners)

Passport Question:

- Look around for a green bench under a red cedar tree on the lawn behind you. Whose name is on the bench?

***Please note:** This site is also part of the Great Bay Geocache Passport. Download your copy here:

greatbay.org/documents/greatbaypassport.pdf

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3. Sustainable communities

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Did You Know: In 1991, the Gulf of Maine Council presented an award to the **Friends of Odiorne** for their efforts at fundraising and sponsorship of coastal education programs. The **University of New Hampshire Maine Docents** group also won a Gulf of Maine council award in 2000. The Docents act as field guides and instructors at the Seacoast Science Center in Rye, and the Sandy Point Discovery Center in Stratham on Great Bay

Rye Harbor State Park

Rye, New Hampshire



Coordinates: N43° 00.079 W070° 44.666

Geocaching.com code: GC5DCK8

Type of Cache: Traditional



Rye Harbor State Park affords scenic views of the Atlantic Ocean, the Isles of Shoals, and Rye Harbor, also called Ragged Neck. About 6 miles offshore a group of nine islands served as excellent fishing grounds for the European settlers. The cod fish were known to “shoal” or school there. Hence the name.

Down the road, on Route 1A and directly across from Rye Harbor Marina, is Awcomin Marsh.

The Awcomin Marsh restoration project began in November 2001 and aimed to restore 30 acres of salt marsh. During the scope of this project, fill was removed, appropriate marsh elevations were re-established, and a new tidal creek system was created. Many people and organizations were also involved in restoring the marsh

The community was very involved in planting the re-vegetation. In the summer of 2002, approximately 30 volunteers, scientists and resource managers worked together to re-vegetate Awcomin Marsh with native plants. The University of New Hampshire's Jackson Estuarine Laboratory spearheaded the re-vegetation effort. Though some areas were re-vegetated with the help of volunteers, much of the marsh is seeing natural re-vegetation by pioneer salt marsh plants such as common glasswort (*Salicornia europaea*) and Atlantic sea blite (*Sueda linearis*).

Learn more about this area and its restoration:

<http://des.nh.gov/organization/commissioner/pip/factsheets/cp/documents/cp-11.pdf>

<http://www.nhstateparks.org/explore/state-parks/rye-harbor-state-park.aspx>

Thank you to:

BigMike308 (cache owner); Sophia Foley (NS Dept. of Environment; Kevin Lucey (NH Dept. of Environmental Services)

Passport Question:

- There is a bench near the geocache location that is dedicated to E. Durham. What month was he born?

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Did You Know: In 1994, the Gulf of Maine Council presented an award to the **Awcomin Marsh Restoration Project** for its efforts in protecting 100 acres of wetlands by restricting tidal flow in a salt marsh.

Great Bay Discovery Center

Greenland, New Hampshire



Coordinates: N43° 03.355 W070° 53.801

Geocaching.com code: GC16W4R

Type of Cache: Traditional*

Welcome to the Great Bay Discovery Center, education headquarters of the Great Bay National Estuarine Research Reserve. Come visit this land, where the past meets the present. Walk in the footsteps of the Native People and European settlers who made these shores their home while living off the bounty of the Bay.

While visiting the reserve, know that you are just one of many who have been fortunate enough to benefit from Great Bay's abundant natural resources. The self-guided 1,700-foot boardwalk trail begins and ends in the upland forest. Stop at benches along the way to look for birds, berries and new buds in the changing habitats. Access the shore at the boat ramp to see Great Bay up close; hold a mud-snail in the palm of your hand, listen to the wing beats of a passing flock of geese and imagine the journeys of the old Great Bay gundalow captains (excerpts above taken with permission from The Great Bay National Estuarine Research Reserve geocache passport).



Learn more about this area:

www.greatbay.org/

Thank you to: horseshoe crab (cache owner), Great Bay Discovery Center

Passport Question:

- What is the emblem on the end of the boat shed awning?

***Please note:** This site is also part of the Great Bay Geocache Passport. Download your copy here:

greatbay.org/documents/greatbaypassport.pdf

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Did You Know: In 2007, the **Great Bay Stewards** received an award from the Gulf of Maine Council for their dedication to the long-term protection of Great Bay by supporting education, research and lasting stewardship of the estuary. The **University of New Hampshire Maine Docents** group also won a Gulf of Maine council award in 2000. The Docents act as field guides and instructors at the Seacoast Science Center in Rye, and the Sandy Point Discovery Center in Stratham on Great Bay

Newbury Marsh

Newbury, Massachusetts

Coordinates: N42° 47.840 W070° 49.373

Geocaching.com code: GC3335C

Type of Cache: Earthcache*



Newbury Marsh, part of Great Marsh, is a complex ecosystem comprised of upper and lower marshes, salt pans and barrier beaches.

Great Marsh is the largest saltwater marsh in New England and the Gulf of Maine and one of the most important coastal ecosystems in northeastern United States. It is part of the largest contiguous salt marsh north of Long Island, New York. It extends from southern New Hampshire down the northern coast of Massachusetts and is fed by numerous river

systems including: Merrimack River, Parker River, Ipswich River, Rowley River and Essex Bay.



The Great Marsh is a globally important foraging and resting spot for migrating birds along the Atlantic flyway. The area supports more than 67,000 shorebirds representing 30 species. The Commonwealth of Massachusetts designated Newbury Marsh an Area of Critical Concern (ACEC) because of its quality and uniqueness as well as the significance of the natural and cultural resources.

Efforts are underway to study the feasibility of eelgrass (*Zostera marina*) restoration in Plum Island Sound which partly protects Newbury Marsh. The area currently faces several challenges, including the threat of *Phragmites australis*, an invasive species that spreads rapidly and competes with native plants. This

fragile environment supports local fish and shellfish industry and provides a recreational paradise for kayaking, canoeing, hiking, boating and birding.

Learn more about this area:

www.whsrn.org/site-profile/great-marsh

Thank you to: roadwanderer (cache owner), Prassede Vella (MA Office of Coastal Zone Management)

Passport Question:

- What type of fish has a catch size limit of 28"?
- What letter corresponds with "Eelgrass" in the list of plants

***Please note:** To log this Earthcache, please visit Geocaching.com for additional tasks or questions to be completed.

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Did You Know: The Gulf of Maine Council, through its Habitat Restoration Grant Program, has funded several restoration projects within Great Marsh. In 1993, the **Merrimack River Watershed Council** received an award from the Gulf of Maine Council for its protection of the Merrimack River and its watershed.

Belle Isle Marsh

East Boston, Massachusetts

Coordinates: N42° 23.508 W070° 59.413

Geocaching.com code: GC48HCH

Type of Cache: Traditional



The 241 acre (97 hectare) Belle Isle Marsh is the largest surviving salt marsh in Boston, a true gem in the midst of the large urban center. Belle Isle Marsh exemplifies the type of wetlands that once lined the Massachusetts Bay shore and showcases plants and wildlife now rare to the Metropolitan area. With saltwater, freshwater, and meadow areas, this coastal marsh is a critical habitat for diverse wildlife and vegetation. Tall reeds provide cover for muskrats, opossums, snapping turtles, and garter snakes, and the grasslands are home to meadow voles, monarch butterflies, and songbirds. The protected waters are nurseries to fish and shellfish and are critical habitat to many salt marsh plants and wildlife rare to the area.

The marsh has a long history of human use. During the 1600s, the marshlands were used as pasture land for livestock and the salt marsh grasses were harvested for hay. By the mid-20th century, parts of the marsh had been filled and developed with a few homes, businesses, industrial structures and a fuel tank farm. The Suffolk Down race track and the Suffolk Downs Drive-in theatre were also built on filled marshland. In 1986, a substantial wetland reconditioning program was begun.

In the late 1970s, 152 acres (62 hectares) of the marsh was acquired from the Massachusetts Port Authority and established as the Belle Isle Marsh Reservation. The reservation is administered by the Massachusetts Dept. of Conservation and Recreation. The public park, which opened in 1985, allows visitors to stroll along Belle Isle Marsh's winding pathways, sit quietly and enjoy the natural surroundings, or take in the wide ocean view from the observation tower. The park is open year-round from 9:00 a.m. to dusk.



Joan Leblanc

Learn more about this area:

www.mass.gov/eea/agencies/dcr/massparks/region-north/belle-isle-marsh-reservation.html
friendsofbelleislemarsh.org/

Thank you to: Bumble! (cache owner), Joan Leblanc (Gulf of Maine Council), Prassede Vella (MA Office of Coastal Zone Management)

Passport Question:

- How many steps are there going up the tower?
- How many benches are there between the walking bridge and the tower?

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Deer Island

Boston Harbor, Massachusetts

Coordinates: N 42° 21.287 W 70° 57.621

Geocaching.com code:

Type of Cache: Earthcache*



Deer Island is primarily an industrial site so please obey posted signs. Please stay on designated trails because rising tides may trap unwary visitors who leave the pathway and enter the intertidal area at low tide.

Originally an island, shoreline erosion from the New England Hurricane of 1938 filled Shirley Gut (between Deer Island and Winthrop) connecting the island to the mainland. However, the name Deer Island remains.

During the Pleistocene Ice Age, which ended about 12,000 years ago, glaciers covered much of New England. These ice sheets were not stationary but advanced and retreated, each time eroding material from the bedrock beneath. As the ice melted and retreated, this eroded material or glacial till was deposited in the Boston area. Drumlins, or large asymmetrical, elongated smooth-sloped mounds, make up many of the hills and islands found in the area today. However, not all of the islands have that classic drumlin shape described above. Geologists believe the area was subject to two separate periods of glacial advance and retreat, and therefore many of the islands are made up of more than one drumlin.



Deer Island is also part of the Boston Harbor Islands National Recreational Area. Many of the islands provide important habitat and nesting area for migratory birds. Deer Island itself is steeped in history. It was an internment island for Native Americans in the late 1600s, a landing point and holding area for Irish refugees fleeing the Potato Famine in the 1800s, and a prison between the 1880s and 1980s. Today, Deer Island includes a park which offers trails, picnicking and fishing, but is best known as the location of the Deer Island Waste Water Treatment Plant (WWTP).

The Deer Island WWTP treats about 365 million gallons of waste water each day from 43 cities and towns in the Boston area. It is the centerpiece of the Massachusetts Water Resource Authority (MWRA) and their efforts to protect Boston Harbor against pollution from the region's sewer systems. Waste water passing through the WWTP undergoes primary and secondary treatment resulting in over 85% pollution removal. Before treated effluent is discharged into Massachusetts Bay, it is also disinfected to kill bacteria and dechlorinated to ensure chlorine levels do not threaten marine life. Thanks to the WWTP, Boston Harbor is vastly cleaner than it has been for decades.

Learn more about this area:

<http://www.nps.gov/boha/learn/historyculture/facts-deer.htm>

http://www.mwra.com/03sewer/html/sewdi_access.htm

Thank you to: Sophia Foley (NS Dept of Environment), Joan Leblanc (GOMC), Kathryn Parlee (Environment Canada)

Passport Question:

- On the Shirley Gut interpretative panel, what number is inscribed on the image of the Point Shirley Beach postcard?

***Please note:** To log this Earthcache, please visit [Geocaching.com](http://www.geocaching.com) for additional tasks or questions to be completed.

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Sandy Neck's Great Marsh

Barnstable, Massachusetts

Coordinates: N41° 43.913 W070° 21.147

Geocaching.com code: GC1058Q

Type of Cache: Traditional



Do not venture into the dunes. Also be careful on the beach during nesting season and watch for Piping Plover

Sandy Neck saltmarsh is characterized by sand dunes and coastal thickets. The beach provides important nesting and feeding habitat for migrating shorebirds and the federally threatened piping plover. Diamondback terrapin turtles also nest and feed in the dunes and saltmarsh. Sandy Neck is managed by the Town of Barnstable.

Barnstable Great Marsh is an integral part of the ecologically significant 3,800 acre (1500 hectare) Sandy Neck salt marsh and barrier beach system. Along with the expansive salt marsh views, the sanctuary features two open ponds, shady oak woodlands, and numerous wildlife. Three species of owls commonly inhabit the sanctuary in winter, and five species of turtles nest there in summer.

Learn more about this area:

www.townofbarnstable.us/Conservation/TraillGuides/HikersGuides/Sandy%20Neck%20Brochure4client.pdf



Thank you to:

Jeepingino, Nuttman and Buddy the Pug (cache owner), Prassede Vella (MA Office of Coastal Zone Management)

Passport Question:

- What is the animal depicted in the lower left hand corner of the interpretive sign about Sandy Neck's Great Marsh? (Hint: see the first sign on the right on the Main Trail)

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Did You Know: In 2003, the Gulf of Maine Council's Habitat Restoration Program awarded grants to the **Town of Barnstable** and the **Barnstable County Resource Development Office** for restoration projects at Bridge Creek Salt Marsh and Sesuit Creek.

Cape Cod Tidal Flats

Brewster, Massachusetts

Coordinates: N41° 46.632 W070° 05.593

Geocaching.com code: GC1E67W

Type of Cache: Earthcache*



Please use caution and pay attention to the tides! The ideal time to search for this cache is the 2 hour period beginning 1-hour before low tide and ending 1-hour after the low tide. However, the creeks may still require wading even at low tide.

Predicted tide times and heights:

<http://tidesandcurrents.noaa.gov/noaatidepredictions/viewDailyPredictions.jsp?Stationid=8447241>

Cape Cod is the southern end of the Gulf of Maine. The tidal flats of Cape Cod Bay are a unique environment. It is said that the Brewster Flats are the widest expanse of tidal flats in North America, with only a location in Brazil almost on par. The presence of tidal flats in the coastal environment is very important to shorebirds and wading birds. The invertebrates of the flats provide an abundant food source for shorebirds. Adjacent upland and transitional habitats provide areas for nesting and roosting. Tidal flats are also a source of nitrogen to the ecosystem since the blue-green algae that comprise the algal mat convert atmospheric nitrogen into nitrogen that can be used by other plants.

Tidal flats are made up of three zones: subtidal, intertidal, and supratidal. **The intertidal zone**, also known as the seashore, is the area that is above water at low tide and under water at high tide (in other words, the area between tide marks). Due to the natural cycles sand channels appear across the flat. Organisms that live in this area are used to various extremes harsh sun when dry in the summer, freezing in the winter, flooded for half the day and wave action moves them around. **The supratidal zone** is the area above the high tide. It is sometimes splashed, but not submerged by ocean water. It is only flooded during spring or storm tides. This zone is divided into vegetated and non-vegetated intertidal mud flats and sand. The non-vegetated part may have algae. The life here must survive fresh water floods from land and salt splashing from the ocean. The organisms are also prey to land animals.

Learn more about this area:

www.cctrails.org/lng%20brewbeach.htm

Thank you to: Prassede Vella (MA Office of Coastal Zone Management)



Passport Question:

- Identify at least one type of marine life occupying the tidal flats and submit a photo
- Bonus: Identify the intertidal and supratidal areas using the above info and submit a photo of both

***Please note:** To log this Earthcache, please visit Geocaching.com for additional tasks or questions to be completed.

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Did You Know: In 1999, **Maria Burks**, Superintendent of the Cape Cod National Seashore, received a Gulf of Maine Council award for her recognition of the delicate balance between the social, political and environmental aspects of responsible stewardship. In 2013, the Council also presented an award to **Jeremy M. Bell** for his exceptional leadership on some of the most complex coastal restoration projects in New England, including the NOAA stimulus-funded Stony Brook Restoration Project in Brewster, MA and the NRCS Cape Cod Water Resources Restoration Project. In 2006 and 2007, the **Association to Preserve Cape Cod** received grants from the Council's Habitat Restoration Program for salt marsh and creek restoration and monitoring activities.

PASSPORT: GULF OF MAINE COUNCIL GEOTOUR



Site	Prov/ State	GPS Location (Geocode)	Question	Answer	Points (Circle)
Cape Forchu	NS	N43°47.657 W066°09.288 (GC11K5K)	What is the name of the red boat on the “Lost to the Sea” interpretive panel?		15
Annapolis Royal Marsh	NS	N44° 44.655 W065° 30.841 (GC11X03)	According to the panel “The French Basin Trail”, what ship visited Port Royal in 1636?		15
Grand Pre	NS	N45° 06.205 W064° 18.656	What artist’s painting depicts the collaborative building of dykes at Grand Pre during the Acadian Period? (Hint: read the interpretive panel)		15
			BONUS @ Evangeline Beach: What is the peak period of shorebird migration for this area? (Hint: read the interpretive panel)		5
Burntcoat Head	NS	N45° 18.679 W063° 48.344 (GC3GVXH)	What is the date on the concrete block near the lighthouse entrance?		15
			BONUS: What is written on the brass plaque on the granite monument next to the lighthouse?		2
Joggins Fossil Cliffs	NS	N45° 41.756 W064° 27.029 (GCN186)	Abraham Gesner (in 1836) said that “something” turned to stone.....what was that?		15
			BONUS: In the “evolutionary maze” in the play space at the Joggins Fossil Centre we learn about causes of extinction. How does the maze communicate the extinction of Saber-tooth tigers?		2

Sackville Waterfowl Park	NB	N45° 54.120 W064° 22.000 (GC11F7C)	What is the structure located at these coordinates?		15
			BONUS: Who is the structure named after? (Hint: read the commemorative panel)		2
Mary's Point – Shepody National Wildlife Area	NB	N45° 44.053 W064° 40.842	On the “Grindstone Conservation Easement” interpretation panel, what are two birds species represented by photos?		15
Fundy National Park	NB	N45° 35.973 W064° 56.883 (GC54J4Z)	Who lived in the house and what were they the first of?		15
Musquash Estuary	NB	N45° 09.210 W066° 13.745 (GC5789N)	What colour string is securing the cache in place?		15
Campobello Island	NB	N44° 52.592 W066° 57.977 (GC1DCV8)	Identify and submit a photo (date and time stamped) which shows evidence of recent rising sea-levels at this site.		15
Cobscook Bay State Park	ME	N 44° 50.580 W 067° 09.534 (GC4B1WW)	According to the educational card and fun facts hidden in the geocache, how many bird species can be counted in this area?		15
Colonial Pemaquid State Historic Site	ME	N43° 52.717 W069° 31.311 (GC4B1YH)	What is the name of the ship referred to in the education sheet hidden in the Maine State GeoTour cache?		15
Wolfe's Neck Woods State Park	ME	N43° 49.246 W070° 04.905 (GC4B1Y0)	In May what might geocachers see happening with the ospreys? (Hint: read the interpretive panel)		15
			BONUS: Submit a photograph for the ESIP ICUC project (write date and time submitted as your answer)		10

Scarborough Marsh	ME	N43° 33.942 W070° 22.475 (GC3TVV6)	What two mammals are at the top of the "life in a Maine salt marsh" sign?		15
			BONUS: Submit a photograph for the ESIP ICUC project (write date and time submitted as your answer)		10
Wells National Estuarine Research Reserve	ME	N43° 19.926 W070° 33.313 (GC2V8TA)	The sign on the railing at this site refers to which exotic plant that can invade a marsh when tidal flow is blocked?		15
Bunker Creek	NH	N43° 08.279 W070° 53.250 (GC16W54)	Find the date when Valentine Bunker died		15
North Pill Pond	NH	N43° 04.291 W070° 46.343 (GC34HAH)	What school is specifically mentioned, on the interpretive panel, for its help in restoration efforts such as reseeding ribbed mussel beds?		15
Odiorne Point	NH	N43° 02.459 W070° 42.863 (GC15NZJ)	Look around for a green bench under a red cedar tree on the lawn behind you. Whose name is inscribed on it?		15
Rye Harbor State Park	NH	N43° 00.079 W070° 44.066 (GC5DCK8)	There is a bench near this geocache location that is dedicated to E. Durham. What month was he born?		15
Great Bay Discovery Center	NH	N43° 03.355 W070° 53.801 (GC16W4R)	What is the emblem on the end of the boat shed awning?		15
Newbury Marsh	MA	N42° 47.840 W070° 49.373 (GC3335C)	What type of fish has a size limit of 28"?		15
			BONUS: What letter corresponds with "Eelgrass" in the list of plants?		2
Belle Isle Marsh	MA	N42° 23.508 W070° 59.413 (GC48HCH)	How many steps are there going up the tower?		15
			How many benches are there between the walking bridge and the tower?		2

Deer Island	MA	N42° 21.287 W070° 57.621	On the Shirley Gut interpretative panel, what number is inscribed on the image of the Point Shirley Beach postcard?		15
Sandy Neck's Great Marsh	MA	N41° 43.913 W070° 21.147 (GC1058Q)	What is the animal depicted in the lower left hand corner of the interpretive sign about Sandy Neck's Great Marsh? (Hint: The first sign on the right on the Main Trail)		15
Cape Cod Tidal Flats	MA	N41° 46.632 W070° 05.593 (GC1E67W)	Identify at least one type of marine life occupying the tidal flats and submit a photo		15
			BONUS: Identify the intertidal and supratidal areas using the above info and submit photos of both		5
Subtotal		Total points from all sites visited and questions/tasks completed			
One Time Bonus		Site found and visited in one or more provinces or states, or in the other country.			25
Total		Subtotal plus One Time Bonus (if applicable)			

To earn a limited edition Gulf of Maine Council 25th Anniversary Geocoin, your goal is to accumulate **100 points**.

Once you have visited enough sites and completed enough questions/tasks to total 100 points, email a copy of the passport with your answers to **geocache@gulfofmaine.org**.

Don't forget to include your mailing address.

Once we have verified your answers, a geocoin will be mailed to you.*

When you receive your geocoin, visit www.gulfofmaine.org/geocache for information on how to activate it.

*Geocoins will be awarded in the order the passports are received, while supplies last. The Gulf of Maine Council is not responsible for passports that are lost in the mail. The Gulf of Maine Council reserves the right to limit or revise this offer at any time. Additional terms and condition may apply.

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Any person or entity that participates in the Gulf of Maine Council GeoTour does so at his or her own risk. Geocaching, hiking, backpacking and other outdoor activities involve risk to both persons and property. There are many variables including, but not limited to, weather, fitness level, terrain features and outdoor experience, that must be considered prior to seeking or placing a cache. Be prepared for your journey and be sure to check the current weather and conditions, as well as tide times and heights, before heading outdoors. Always exercise common sense and caution. Cache seekers assume all risks involved in seeking a cache.

Individual geocaches are owned by the person(s) who physically placed the geocache and/or submitted the geocache listing to geocaching.com. This GeoTour uses existing geocaches and assumes that the individuals who have placed the geocaches have done so with the knowledge and permission of the property owner and have followed the rules, requirements and guidelines from Geocaching.com (<http://www.geocaching.com/about/guidelines.aspx>)

Acknowledgements:

Many thanks to the people and organizations were involved in the creation of the Gulf of Maine Council GeoTour. In particular, we would like to extend a special thank you to the individual geocache owners, who have kindly given us permission to use their caches as part of the GeoTour and to those individuals, who helped prepare site write-ups, provided site specific questions or supplied site photos (see the 1-page write ups for those who provided assistance). In addition, we would like to extend thank you to the following people, who without their help, this project would not have been completed:

- Gulf of Maine Institute, and specifically Dan Earle
- Nova Scotia Department of Environment, and specifically Sophia Foley and Chuck Sangster
- Environment Canada, and specifically Kathryn Parlee
- US Geological Survey