

780 St. Margaret's Bay

The St. Margaret's Bay ecodistrict encompasses much of the Chebucto peninsula and western Halifax County, extends inland to Hants County, and includes portions of eastern Lunenburg County.

Geologically, it is very similar to the **South Mountain (720)** ecodistrict, being the eastern portion of a granitic batholith which is part of the larger Atlantic uplands. (This upland tilts southerly to make contact with the sheltered oceanic coastlines of St. Margaret's Bay and Mahone Bay.) However St. Margaret's Bay ecodistrict has a moister climate, influenced by its proximity to cooler coastal waters which increases local rain and fog, thereby increasing soil moisture levels. This also reduces summer droughtiness compared to the **South Mountain (720)** where pine and oak are more common.

Mean elevation is 100 m above sea level. Elevations here rise from sea level to near 175 m west of Five Mile Lake.



The predominant soils are well drained sandy loams that have developed on granitic till and are very similar to soils found in the **South Mountain (720)** ecodistrict. For the most part the soils are shallow and stony and the landscape is dotted with large granite boulders (glacial erratics). Soils on this parent material tend to be coarse to moderately coarse, well drained and commonly gravelly with abundant surface stones. This limits both timber harvesting machine operability and stocking levels of trees.

Matrix forests of red spruce blanket the landscape adjacent to Island Lake, Halifax County. *PHOTO: CNS (Len Wagg)*



Ecological Land Classification FOR NOVA SCOTIA



REPORT FOR 2017-13


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Prepared by the Nova Scotia Department of Natural Resources

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Nova Scotia Department of Natural Resources
Renewable Resources Branch

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ISBN 978-1-55457-749-1

Cover Photos

*Front cover: Pollett's Cove, Cape Breton Island; Back cover: Coastal forest along Barrington Bay, Southwest Nova Scotia.
PHOTOS: Communications Nova Scotia (Len Wagg)*

**First Printing: DECEMBER 2017
Report FOR 2017-13**

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380 Central Uplands	
400 Eastern	110
410 Rawdon/Wittenburg Hills	
420 (See ecodistrict 430)	
430 Eastern Granite Uplands	
440 Eastern Interior	
450 Governor Lake	

The areas north of Big Indian Lake, surrounding Five Mile Lake, and near Big Black Lake, exhibit thin or discontinuous till on glacially scoured basins and knobs. Here the topography is flat to rolling, with ridges of exposed bedrock. The topography has an irregular arrangement of low rounded hills and hummocks with pronounced ridges, especially where the soil is thin and/or the bedrock is exposed. Dispersed throughout this chaotic topography are small streams and rivers, bogs and swamps, and several large lakes. The largest river, Gold River, drains the western portion of the ecodistrict. The Pockwock Lake watershed, a significant water supply source for the municipality of Halifax, is within the ecodistrict. Approximately 7.4% or 13 650 ha of the ecodistrict is comprised of lakes and rivers. Total ecodistrict area is 1847 km² or about 10.9% of the ecoregion.

The dominant vegetation of the St. Margaret's Bay ecodistrict is a red spruce forest which occupies all slope positions throughout the area. Hemlock will be found on the lower and toe slopes near watercourses. White pine and black spruce, overtopping a heavy cover of ericaceous shrubs, is found on soils that are shallow to bedrock, coarse textured, and drier. Black spruce occupies the poorly drained soils associated with the lower level ecosites. Occasionally, stands of tolerant hardwood are found on the deeper well drained soils of larger hills.

The additional moisture from frequent rains and fog during spring and summer may also reduce the possibility of fires as compared to the drier **South Mountain (720)** ecodistrict where red and white pine, white birch and red oak (indicators

of a fire history), are more prevalent. The added moisture during the growing season also assists in the re-establishment of red spruce forests after natural or human disturbances.

Hurricanes have played a significant role in shaping the forests of this ecodistrict, most likely due to its geographic position near the Atlantic Coast and at the end of two major coastal bays.

Geology and Soils

The St. Margaret's Bay ecodistrict is mainly underlain by the southeastern most portion of the South Mountain Batholith—a massive granitoid formation underlying much of western Nova Scotia. However, Meguma Group rock (mainly greywacke/quartzite and slate) is also found in the southwest section of the ecodistrict.

Surficial deposits are mainly stony, granitic glacial till that is often shallow to bedrock. Almost the entire ecodistrict is mapped as Gibraltar/Bayswater soils which are derived from this parent material. Larger areas that are excessively stony and/or shallow are mapped as Rockland soils. Gibraltar/Bayswater soils are prone to natural cementation by iron oxides and organic matter, but these ortstein soils are less common here than in the **Western Barrens (770)**. (See Table 35)

Although not easily mapped, this ecodistrict contains the same kind of pocket wetlands found in other ecodistricts, with similar terrain and soil parent materials. This is especially true in Rockland areas where drainage conditions often vary over short distances.

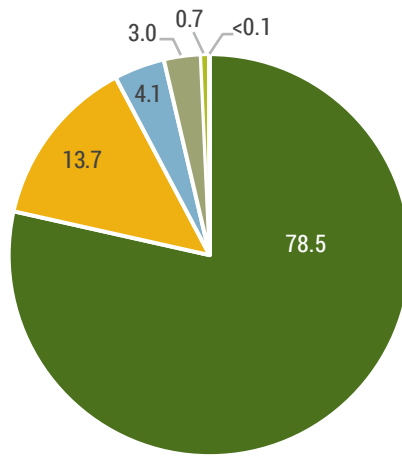
Table 35
Summary information for dominant soils found in the St. Margaret's Bay ecodistrict (780). Only soil associations or series that make up at least 5% of the land area are listed.

Dominant Soils (CANSIS 2013)	% Area	Parent Material	Dominant Texture	Dominant Drainage	Common FEC Soil Types	Soil Orders (SCWG 1998)
Gibraltar / Bayswater *	77	Glacial Till	Coarse	Well-Imperfect	ST2, ST2-G, ST3, ST3-G, ST1	Podzol
Rockland *	15	Glacial Till, Bedrock	Coarse	Rapid-Imperfect	ST15, ST16, ST15-G, ST16-G, ST2, ST3	Podzol

* Stony (S) phases are common (e.g., ST2-S).

**Ecodistrict 780
Percentage Land Cover**

Forest/Woodland	78.5
Urban/Industrial	13.7
Wetlands	4.1
Shrub/Heathland	3.0
Agriculture	0.7
Sparsely Vegetated	< 0.1



Forests

Forests in this ecodistrict and in **South Mountain (720)** are on similar soils and geology, but here they are shaped by cooler temperatures and higher humidity and soil moisture.

On zonal sites (62% of ecodistrict) expansive stands of Acadian softwood forests of red spruce with hemlock, white pine and yellow birch (Spruce Hemlock Forest Group) occur on hilly and hummocky terrain. Soils are well to rapidly drained, coarse to medium textured soils derived from granite till.

A shrub layer, primarily of advanced regeneration of overstory species, includes balsam fir and red maple. Herb coverage is usually low, but species richness can be relatively high including typical woodland flora such as wild lily-of-the-valley (*Maianthemum canadense*), bluebead lily (*Clintonia borealis*), partridge-berry (*Mitchella repens*), starflower (*Trientalis borealis*) and painted trillium

(*Trillium undulatum*). Schreber's moss (*Pleurozium schreberi*) and stair-step moss (*Hylocomium splendens*) are the main bryophytes, with bazzania (*Bazzania trilobata*) very abundant on decaying coarse woody debris.

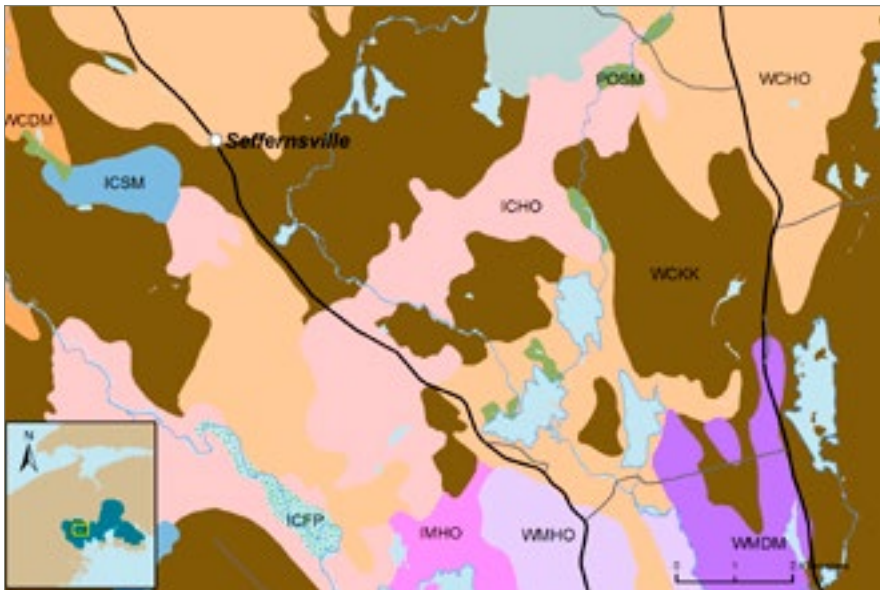
Spruce Pine Forest Group vegetation types occur as small to large patch forests on very coarse to coarse textured, nutrient poor soils derived from granite tills. These forests can occur on a wide range of soil moisture conditions, but are usually associated with imperfectly drained soils on lower slopes and level terrain. They are also common where soils are shallow to bedrock. Black spruce and white pine (with scattered red pine, red maple and sometimes red oak) comprise the overstory. White pine often forms a super canopy over red maple and black spruce.

The shrub layer may be densely occupied by ericaceous species such as lambkill, huckleberry and blueberry, along with wild raisin and black spruce regeneration from vegetative layering. Ericaceous vegetation can negatively reduce regeneration of trees and can be a volatile fuel source during dry periods.

As soil drainage gets progressively poorer, wet forests of red maple, alders, false holly, winterberry, and other woody shrubs are common. Often embedded within this element are open woodlands where tree growth and density are

White pine and red spruce occur on the well-drained, stony soils, with small treed wetlands of black spruce interspersed. Looking south towards Mahone Bay from Long Lake, Lunenburg County PHOTO: CNS (Len Wagg)





Ecodistrict 780

Sample area map showing typical ecosections found in this ecodistrict

Ecosection	District %	Cumulative %
WCKK	37.9%	37.9%
WCHO	20.1%	58.0%
ICHO	17.5%	75.5%
XXWA	7.4%	82.9%
WMHO	3.1%	86.0%
ICRD	2.7%	88.7%
WCDM	1.9%	90.6%
ICSM	1.7%	92.3%
POSM	1.5%	93.8%
WMDM	1.2%	95.0%
IMSM	1.2%	96.2%
WFDM	1.1%	97.3%
ICKK	1.0%	98.3%
IMHO	0.8%	99.1%
WCRD	0.4%	99.5%
WFKK	0.2%	99.7%
WMKK	0.2%	99.9%
ICFP	0.1%	100.0%
XXCB	< 0.1%	100.0%

limited by low fertility, moisture extremes, thin soils and/or exposed bedrock. Many areas that have shallow soils, exposed bedrock or are excessively stony have been impoverished by repeated wildfires resulting in poorly stocked woodlands of black spruce and pine.

Uncommon and scattered in a few locales are tolerant hardwoods (Tolerant Hardwood Forest Group) such as sugar maple, yellow birch and beech on those richer, well drained soils found on upper slopes and drumlins. Elsewhere red maple and red oak often occur in mixedwoods with white pine and black spruce but may form hardwood stands depending on the stand-level disturbance.

Hurricanes have been a significant force influencing the forests of St. Margaret's Bay ecodistrict. In 1801 Titus Smith (Hawboldt, 1955) describes traversing an area north of the bay with "miles of country where nearly all the trees had been blown down in the Great Storm of September 25, 1798." Hurricanes Carol (1953) and Edna (1954) impacted this ecodistrict, destroying large tracts of forests (approximately 1.6 million m³) with uprooting and breakage. Other infrequent forest disturbances include fire, and outbreaks of insect species such as spruce bark beetle and balsam wooly adelgid.

Pockwock Lake, looking west between Moose Cove and Sandy Cove
 PHOTO: CNS (Len Waggoner)





Pennal Brook wetland, southwest of Beech Hill, Lunenburg County

PHOTO: CNS (Len Wagg)

Due to the longevity of red spruce, white pine and hemlock forests, uneven-aged and old forest characteristics can develop. The Spruce Pine Forests tend to be more susceptible to frequent stand disturbances and are typically even-aged. Natural senescence is common in these poorer forests. Following harvesting, regenerating areas may have more white pine, balsam fir, white birch and red maple. Many of the early successional vegetation types (red maple, white birch, grey birch, balsam fir) can be by-passed if harvesting or natural disturbance occurs when there is a well-stocked and/or established layer of advanced shade tolerant regeneration (i.e., red spruce, hemlock, balsam fir).

The islands in Mahone Bay included in this ecodistrict are well drained drumlins and most have been converted from forest to other land uses. However a few examples of late successional forest conditions are present (i.e., red spruce, white pine, and scattered sugar maple, yellow birch and hemlock) (SRES, 2002). This indicates these islands are afforded some protection from the Atlantic Ocean.

Non Forests

Non-forested ecosystems occupy about 5.5% of the terrestrial landscape, which is about half the provincial average. Some of the more interesting non-forested ecosystems are the heathlands on the Chebucto and, to a lesser extent, the Aspotogan peninsulas. This heathland is characterized by mixtures of broom crowberry, black crowberry, red crowberry (*Empetrum eamesii*), common juniper, huckleberry, and a variety of other shrubs and ground lichens. Taller shrubs such as bayberry and downy alder are also common. Some heathland have scattered jack pine trees, usually in areas with high levels of exposed bedrock. The heathlands support some rarer species such as mountain sandwort (*Minuartia groenlandica*) and Golden heather (*Hudsonia ericoides*).

The St. Margaret's Bay ecodistrict is part of an important population concentration area for endangered mainland moose. Moose are mostly found on the Chebucto peninsula, but occasionally wander out towards St. Margaret's Bay and are even infrequently found in the broader Waverley/Fall River area. This large mammal utilizes wet forests, upland hardwood forest, denser conifer forests, open wetlands, and open heathlands among its preferred habitat types.