

## E. NATURAL RESOURCES

The Purpose of this section is to:

1. Describe the natural resources in Machiasport including farmlands, forestlands, critical natural resources, and water and marine resources in terms of extent, characteristics, and importance to the economy and character of the Town and region;
2. Predict whether the viability of important natural resources will be threatened by the impacts of future growth and development; and
3. Assess the effectiveness of existing measures to protect and preserve important natural resources.

## FINDINGS

This Chapter provides information on water resources, farm and forestry lands, and critical natural resources in Machiasport and establishes policies for their protection. The most significant natural resource in Machiasport are marine resources, which are basis of the local economy. Machiasport extensive tidal flats and clean marine waters yield an abundance of inter tidal, marine and avian life. Extensive mud flats support clam flats and sea worms as well as wading waterfowl and shorebirds. Machiasport has many critical natural resources, most significantly wildlife habitat. Bald eagle and various shore bird and migrant bird species are found throughout the town. The Machias River and East Machias River, both of which flow through the north part of Machiasport, are rated as high value for their fresh water fisheries and among only a handful of rivers supporting Atlantic salmon young in the United States.

Surface waters in Machiasport are a number of rivers and streams. There are no great ponds (lakes) in Machiasport. Overall, the water quality in Machiasport's surface waters is high; but issues with water quality have been identified in the aquifer near Howard's Mountain. The Town continues to work with affected property owners and the Army Corp of Engineers to identify a solution.

Information on natural resources is necessary to protect environmentally sensitive areas, and to identify opportunities and constraints for development. The natural resources of our town contribute greatly to our quality of life. They provide open space, habitat, and recreational opportunities such as fishing, boating, ATV, horse back riding, snowmobiling, hunting, canoeing, hiking, and cross-country skiing; and are the basis of our natural resources based economy. Overall, existing regulations of critical natural resource are felt to be adequate.

## LOCATION, TOPOGRAPHY AND GEOLOGY

Located on the central coast of Washington County the town of Machiasport is situated approximately 90 miles southeast of Bangor. It is bordered on the north and west by the town of Machias, on the east by the towns of East Machias and Whiting. The municipal boundary of Machiasport abuts the town of Roque Bluffs to the west and the town of Cutler to the east, but Machiasport does not share a land boundary with either town. The land area of the town is

approximately 13,000 acres (see *Map 7: Land Cover*). See *Map 3: Topography and Flood Plains* at the end of this section for general contour elevations. The town has extensive coastal frontage on Machias Bay and Little Kennebec Bay as well as the Machias and East Machias Rivers.

Machiasport is located in a region of massive granite intrusion that was glaciated in the Wisconsin age. The glacier caused till (unsorted, poorly drained soil) to be deposited over the entire region. This poorly drained till formed bogs and ponds and altered the drainage pattern. The topography in these areas is generally a blanket deposit that conforms to the underlying bedrock topography. However, the underlying granite caused the till to be more thickly deposited on the northwest sides of ridges: on the southeast sides boulders were "plucked" and transported further south. Thick, till deposits are also found in bedrock valleys and depressions. The weight of the ice (in some places a mile thick) caused the land to be depressed in relation to the level of the sea. Marine sediments (silts and clays) were deposited in valleys and more sheltered locations. The release of pressure due to the melting allowed the land to rise slowly. This explains why silt and clay deposits can be found at elevations of 100 feet or more. See *Map 3: Topography and Flood Plains* at the end of this section for general contour elevations.

There are nineteen islands in Machiasport and Avery Rock. The islands and their ownership (if in conservation) are described in the following table.

**Table E-1 ISLANDS IN MACHIASPORT**

Name	Acres	# of parcels	Ownership (if in conservation)
Bar Island	47	1	-
Bare Island	70	1	-
Big Libby Island	96	1	Maine Dept. of Inland Fisheries & Wildlife
Chance Island	66	1	-
Feather Bed Island	1		-
Foster Island	55	1	-
Hog Island	31	1	Maine Dept. of Inland Fisheries & Wildlife
Ingalls Island (AKA Starboard Is.)	60	3	-
Little Hog Island	3		-
Little Libby Island	39	1	US Department of Interior
Porcupine Island	2		-
Ram Island	16	1	-
Round Island	12	1	Town of Machiasport
Salt Island	73	2	The Nature Conservancy
Scabby Island	18	1	-
Stone Island	58	1	The Nature Conservancy
Yellow Head Island	10	1	-
The Head	2	1	Maine Coast Heritage Trust

Source: Machiasport Maritime Plan

## LAND SUITABILITY FOR DEVELOPMENT

The suitability of land for development varies based on soil type, soil erodibility, and slope. Development that occurs on unsuitable soils is typically more expensive; and may result in long term damage to natural resources through increased erosion, run-off and poorly performing septic systems.

Soils in Machiasport are of several types: glacial till thinly deposited in the uplands; thick glacial till on northwest slopes and in bedrock depressions; marine silts and clays in the valleys and more sheltered locations, and glacial outwash or ice contact sands and gravels. Some of these types are not particularly well suited to septic sewage disposal. Some are well suited to both septic disposal and forestry.

Soil data presented in this plan is derived detailed (SSURGO) soil survey maps compiled by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS). Paper copies of the soils maps are available in the Machias office of the Soil and Water Conservation Service.

### Soil Potential for Low Density Development (LDD)

Few areas of Machiasport have large tracts of land with soils that are ideal for residential development. The Natural Resources Conservation Service of the USDA has produced a handbook of Soil Survey Data for Growth Management in Washington County. This publication is available at the Machiasport Town office along with soils maps at a scale of 1 inch = 2000 feet. The Soil Survey handbook includes many tables that interpret the suitability of different soils for agricultural production, woodland productivity, erodibility and low density development.

This last interpretation – rating of soil potential for low density urban development – is provided in the table below to guide the concentration of development in Machiasport. Under this system soil potentials are referenced to an individual soil within the county that has the fewest limitations to development (depth to water table, bedrock etc.). This reference soil is given a value of 100 points. Costs that are incurred to overcome limitations to development are developed for all other soils. These costs, as well as costs associated with environmental constraints and long term maintenance, are converted to index points that are subtracted from the reference soil. The result is a comparative evaluation of development costs for the soils in the county. The overall range is large with values between 0 and 100. These numerical ratings are separated into Soil Potential Rating Classes of very low to very high. Thus in the table a soil with a Very High rating has very good potential for development.

The extent of soil types, as well as the extent of soils suitable for various type of development is presented on *Map 4: Soils Classification*. Soils map at a 1:20,000 scale or greater are useful in understanding and planning the soil resources of fields, farms, and communities, but it is not useful for planning small (less than 1 acre) plots. The pattern of soils is often very complex and, in some places, soils of one type grade imperceptibly into others. On-site investigations are needed to determine the suitability of a plot for any septic tank installation or larger development proposal.

Through Machiasport, low suitability for septic systems is the most significant constraint on low density development presented by soil conditions. This is particularly significant given the impact of failing septic systems on Machiasport marine resources.

**Table E-2 MACHIASPORT SOILS SUITABILITY FOR DEVELOPMENT POTENTIAL**

(soils in **bold** are considered prime farmland; soils in *italics* are only considered prime farmland if irrigated or drained)

Key	Soil Name	Suitability	Erodibility	Acres	%
AaE	ABRAM-HOGBACK COMPLEX, 15-45% SLOPES	Very Low	Highly erodible	143	1%
ACE	ABRAM-ROCK OUTCROP-RICKER COMPLEX, 15-80% SLOPES	Very Low	Highly erodible	640	4%
AdB	<i>ADAMS LOAMY SAND, 3-8% SLOPES</i>	<i>Medium</i>	<i>Not highly erodible</i>	9	>1%
AGB	<i>ADAMS-CROGHAN ASSOCIATION, 0-8% SLOPES</i>	<i>Medium</i>	<i>Not highly erodible</i>	18	>1%
BRB	BRAYTON-COLONEL ASSOCIATION, 0-8% SLOPES	Very Low	Not highly erodible	366	2%
BW	BUCKSPORT AND WONSQUEAK SOILS	Very Low	Not highly erodible	171	1%
BxC	<i>BUXTON SILT LOAM, 8-15% SLOPES</i>	<i>Medium</i>	<i>Potentially highly erodible</i>	75	>1%
CSC	COLTON-HERMON COMPLEX, 3-15% SLOPES	Low	Potentially highly erodible	9	>1%
DUC	DIXFIELD-RAWSONVILLE-COLONEL COMPLEX, 3-15% SLOPES	Medium	Potentially highly erodible	6	>1%
Go	GOULDSBORO SILT LOAM	Very Low	Not highly erodible	73	>1%
HCC	HERMON-COLTON-ABRAM COMPLEX, 3-15% SLOPES	Low	Potentially highly erodible	329	2%
HeB	<i>HERMON-MONADNOCK COMPLEX, 3-8% SLOPES</i>	<i>Very High</i>	<i>Potentially highly erodible</i>	18	>1%
HeC	HERMON-MONADNOCK COMPLEX, 8-15% SLOPES	High	Potentially highly erodible	10	>1%
HkC	HERMON-MONADNOCK COMPLEX, 8-15% SLOPES	High	Potentially highly erodible	150	1%
HSC	HERMON-MONADNOCK-SKERRY COMPLEX, 3-15% SLOPES	High	Potentially highly erodible	235	1%
HWE	HOGBACK-ABRAM-RAWSONVILLE COMPLEX, 15-60% SLOPES	Very Low	Highly erodible	528	3%
HXC	HOGBACK-RAWSONVILLE-ABRAM COMPLEX, 3-15% SLOPES	Low	Potentially highly erodible	1,924	11%
Kn	KINSMAN SAND	Very Low	Not highly erodible	19	>1%
KW	KINSMAN-WONSQUEAK ASSOCIATION, 0-3% SLOPES	Very Low	Not highly erodible	128	1%
LaB	<i>LAMOINE SILT LOAM, 0-6% SLOPES</i>	<i>Low</i>	<i>Not highly erodible</i>	95	1%
LbB	<i>LAMOINE-BUXTON COMPLEX, 0-8% SLOPES</i>	<i>Low</i>	<i>Not highly erodible</i>	653	47%
LCB	<i>LAMOINE-BUXTON-SCANTIC COMPLEX, 0-15% SLOPES</i>	<i>Low</i>	<i>Potentially highly erodible</i>	3,349	19%
LKB	LAMOINE-RAWSONVILLE-SCANTIC COMPLEX, 0-8% SLOPES	Low	Not highly erodible	1120	6%
LmB	<i>LAMOINE-SCANTIC COMPLEX, 0-5% SLOPES</i>	<i>Low</i>	<i>Not highly erodible</i>	14	>1%
LSB	LAMOINE-SCANTIC-COLONEL COMPLEX, 0-8% SLOPES	Low	Not highly erodible	1,460	8%
LTB	LAMOINE-TUNBRIDGE-SCANTIC COMPLEX, 0-8% SLOPES	Low	Not highly erodible	897	5%
NAC	NASKEAG-ABRAM-RICKER COMPLEX, 0-15% SLOPES	Low	Potentially highly erodible	315	2%
NBB	NASKEAG-RAWSONVILLE-HOGBACK COMPLEX, 0-8% SLOPES	Low	Potentially highly erodible	1,350	8%
<b>RhB</b>	<b>RAWSONVILLE-HOGBACK COMPLEX, 3-8% SLOPES</b>	<b>High</b>	<b>Not highly erodible</b>	<b>40</b>	<b>&gt;1%</b>
RhC	<i>RAWSONVILLE-HOGBACK COMPLEX, 8-15% SLOPES</i>	<i>Medium</i>	<i>Potentially highly erodible</i>	35	>1%
RmC	RAWSONVILLE-HOGBACK-ABRAM COMPLEX, 3-15% SLOPES	Medium	Potentially highly erodible	139	1%
RNC	RAWSONVILLE-LAMOINE-HOGBACK COMPLEX, 0-15%	Medium	Potentially highly erodible	1,187	7%
SF	SCANTIC-BIDDEFORD ASSOCIATION, 0-3% SLOPES	Very Low	Not highly erodible	529	3%
SG	SEBAGO AND WASKISH SOILS	Very Low	Not highly erodible	109	1%
ShB	<i>SHEEPSCOT FINE SANDY LOAM, 0-8% SLOPES</i>	<i>Medium</i>	<i>Not highly erodible</i>	20	>1%
SJB	<i>SHEEPSCOT-CROGHAN-KINSMAN COMPLEX, 0-8% SLOPES</i>	<i>Medium</i>	<i>Not highly erodible</i>	149	1%
<b>SkB</b>	<b>SKERRY FINE SANDY LOAM, 3-12% SLOPES</b>	<b>High</b>	<b>Potentially highly erodible</b>	<b>46</b>	<b>&gt;1%</b>
SmB	SKERRY FINE SANDY LOAM, 3-12% SLOPES	High	Potentially Highly erodible	43	>1%
SNC	SKERRY-BCKET ASSOCIATION, 3-15% SLOPES	Medium	Potentially highly erodible	190	1%
SRC	SKERRY-COLONEL-RAWSONVILLE COMPLEX, 0-15% SLOPES	Medium	Potentially highly erodible	411	2%
Ud	UDORTHENTS-URBAN LAND COMPLEX	Not Rated	Not highly erodible	157	1%
WF	WONSQUEAK AND BUCKSPORT SOILS, FREQ. FLOODED	Very Low	Not highly erodible	327	2%
<b>Total Land Area</b>				<b>17,489</b>	<b>100%</b>

Source: USDA-NRSC Orono, ME–Soil Survey Data for Growth Management in Washington County, ME, 1997

**Highly Erodible Soils**

Special consideration should be given to the removal of surface vegetation from large areas to avoid soil erosion, which is a major contributor of pollution to surface waters. Soil composition affects its susceptibility to erosion but the combined effects of slope length and steepness are the greatest contributing factors when identifying highly erodible soils.

Most development and intensive land use can and should take place on areas with slopes of less than 15 percent (representing an average drop of 15 feet or less in 100 feet horizontal distance). On slopes greater than 15 percent, the costs of roads, foundations and septic, sewer and other utility systems rise rapidly. *Map 3: Topography and Flood Plains* identifies the location of steep slopes in Machiasport.

**FARM LAND AND FOREST RESOURCES**

The U.S. Department of Agriculture defines prime farmland as the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to produce a sustained high yield of crops while using acceptable farming methods. Prime farmland produces the highest yields and requires minimal amounts of energy and economic resources. It is also often targeted for low-density residential development due to the suitability of well drained soils for septic systems. Very few of the soils in Machiasport are listed as Prime Farmland, the exception being a type of Skerry fine sandy loam and Hogback-Rawsonville Complex (see Table E-2 and *Map 4: Soils Classification*). Several others are classified as Prime Farmland but only if either drained or irrigated.

**Blueberry production**

Agriculture has never been a major commercial activity for the people of Machiasport. A few generations ago residents engaged in part-time farming and supplemented incomes from selling homegrown food products, providing food and grain for sustenance and use aboard ships. Only a few small farms remain in operation today. The most significant agricultural activity in Machiasport is blueberry production. There are approximately 100 acres in blueberry production mostly located on the East Side. None of the blueberry land in Machiasport is regularly irrigated. While the soils in Machiasport are not ideal for many agricultural uses, they are well suited for blueberry production and this activity provides some employment in town.

**Woodland Productivity**

Maine's forests and forest industry play a vital role in the state's economy, especially in Northern and Eastern Maine. Forested areas provide an abundant and diverse wildlife population for the use and enjoyment of all Maine citizens. Furthermore, the forest protects the soil and water and contributes to a wide variety of recreational and aesthetic experiences. The forest provides a wide variety of wildlife habitats for both game and non-game species. Loss of forestland can be attributed to development and to irresponsible harvesting techniques. When forestland ownership is fragmented, public access becomes more restricted due to increased land posting. To optimize forestland use, forests should be effectively managed and harvested.

Soils rated with a woodland productivity of medium or above are qualified as prime forestland soils. This designation does not preclude the development of these lands but only identifies the most productive forestland. These soils are rated only for productivity and exclude management problems such as erosion hazard, equipment limitations or seedling mortality. Important forest and farmland are shown on *Map 7: Land Cover*.

Timber harvesting is a relatively minor economic activity in Machiasport and is conducted mostly through selection harvest but also by shelter wood, and clear-cut methods, see Table E-3.

**Table E-3 SUMMARY OF TIMBER HARVEST  
INFORMATION FOR MACHIASPORT, 1991 - 2004**

Year	Selection Harvest, Acres	Shelterwood Harvest, Acres	Clear-cut Harvest, Acres	Total Harvest, Acres	Change of Land use, Acres	Number of Timber Harvests
1991	19	0	10	29	0	3
1992	111	0	7	118	0	4
1993	71	0	0	71	0	3
1994-5	98	9	12	119	0	5
1996	311	0	60	371	0	7
1997	372	0	0	372	0	9
1998	293	0	0	293	0	8
1999	240	75	0	315	6	9
2000	145	155	0	300	0	9
2001	83	0	0	83	0	3
2003-4	32	20	0	52	0	3
<b>Totals</b>	<b>1,775</b>	<b>259</b>	<b>89</b>	<b>2,123</b>	<b>6</b>	<b>63</b>

Source: Year End Landowner Reports to Maine Forest Service, 2005<sup>1</sup>

### Protection of Farmland and Forest Land

The Town of Machiasport does not have protective zoning for farm or forestland; however, variety of programs provide financial incentives for landowners to keep land undeveloped and managed for long term productivity. They include the following:

- Farm and Open Space Tax Law - (Title 36, MRSA, Section 1101, et seq.) encourages landowners to conserve farmland and open space by taxing the land at a rate based on its current use, rather than potential fair market value.

Eligible parcels in the farmland program must be at least five contiguous acres, utilized for the production of farming, agriculture or horticulture activities and show gross earnings from agricultural production of at least \$2,000 (which may include the value of commodities produced for consumption by the farm household) during one of the last two years or three of the last five years.

The Open Space portion of this program has no minimum lot size requirements and the tract

<sup>1</sup> To protect confidential landowner information, data is reported only where three or more landowner reports reported harvesting in the town in a given year.

must be preserved or restricted in use to provide a public benefit by conserving scenic resources, enhancing public recreation opportunities, promoting game management or preserving wildlife habitat.

In 2006, Machiasport had 642 acres of land enrolled in the farmland or open space programs.

- Tree Growth Tax Law - (Title 36, MRSA, Section 571, et seq.) provides for the valuation of land classified as forestland on the basis of productivity, rather than fair market value.

According to municipal records for fiscal year 2006, Machiasport had 1,335.10 acres in tree growth tax status. These programs enable farmers and other landowners to use their property for its productive use at a property tax rate that reflects farming and open space rather than residential development land valuations. If the property is removed from the program, a penalty is assessed against the property based on the number of years the property was enrolled in the program and/or a percentage of fair market value upon the date of withdrawal.

In addition farm operators and forestland owners from Machiasport participate in soil and water conservation programs through the local NRCS office. Although no official statistics exist for Machiasport, the Town is aware of several parcels have come under active management for farmland and forestry products in recent years.

In recent years, development patterns have not significantly contributed to lose of land for farm and forestry uses in Machiasport. However, the Town should continue to encourage farm- and forest-land owners to enroll in current use taxations. Given the limited extent of high-value farmland, any future land use ordinance should also include provisions to protect remaining farmland from development; and ensure that future land use regulation continue to permit productive forestry and agriculture operations such as road-side stand, greenhouses, and pick-your-own operations.

#### **Agricultural & forest resources policies from 1996 Comprehensive Plan**

Machiasport's 1996 Comprehensive Plan found that "agricultural and forest lands are significant components of Maine rural environment, economy and way of life. These areas have value as open space, wildlife habitat, outdoor recreation opportunities, and as scenic resources." The 1996 Plan also found that "timber harvesting should be regulated to prevent erosion and sedimentation, destruction of fish and wildlife habitat and rare, unique and exemplary plant communities, as well as to prevent adverse visual impact along public roads and shore land areas."

Based on these findings, the Comprehensive Plan establish as a municipal goal: "to safeguard Machiasport's forest resources from development which threatens those resources and to preserve marginal open space whenever possible." This goal continues to align with municipal priorities and should be continued. In order to achieve the goals set forth in 1996 Comprehensive Plan, Machiasport established municipal policies and strategies as summarized in the table below along with notes on the status of the policy recommendations.<sup>2</sup>

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<sup>2</sup> A complete list of the policy recommendation from the previous Comprehensive Plan is included in *Appendix B: Executive Summary of the Town of Machiasport Comprehensive Plan, 1996*. A full copy of the previous plan is on file in the Town Office.

**Table E-4 POLICIES & IMPLEMENTATION STRATEGIES RELATED TO AGRICULTURAL AND FOREST RESOURCES FROM THE 1996 COMP PLAN**

<b>Policies</b>	<b>Notes</b>
The Town of Machiasport will preserve and protect its rural character by actively encouraging the preservation, protection, and conservation of identified and productive forest land.	<i>This policy continues to align with municipal goals and should be continued.</i>
The Town of Machiasport will actively encourage efforts to establish tracts of productive farmland, including organic farming sites.	<i>The Town will continue to be support of farming, but it is not felt that active municipal encouragement is necessary at this time. The Committee recommends discontinuing this as a municipal policy.</i>
<b>Implementation Strategies</b>	<b>Notes</b>
The Town will make available information concerning programs to encourage the preservation of farmland and forest land.	<i>This strategy continues to align with municipal goals and should be continued.</i>
The Town will encourage the preservation of open space through tree growth and/or open space ordinances.	<i>This strategy continues to align with municipal goals and should be continued.</i>

Source: Machiasport Comprehensive Plan, 1996

Policies and implementation strategies to protect and preserve the agricultural and forest resources in Machiasport are presented at the end of this Chapter. They included revisions as noted above, along with additional policies and strategies that reflect changes in conditions on the ground, local priorities and State and Federal policy since the previous Comprehensive Plan was adopted.

## WATER RESOURCES

### Watersheds

A watershed is the land area in which runoff from precipitation drains into a body of water. The boundaries of watersheds, also known as drainage divides, are shown for Machiasport on *Map 5: Water Resources*. Machiasport is located in a coastal watershed associated with the Machias River and Machias Bay. The Machias River watershed has a drainage area of 474 square miles.

The portion of the watershed that has the greatest potential to affect a body of water is its direct watershed, or that part which does not first drain through upstream areas. Anything that can be transported by water will eventually reach and impact the quality of a water body. Development activities, such as house and road construction and timber harvesting, disturb the land that drains to a lake by streams and groundwater; thus these activities can pollute the watershed. Except for heath lands and blueberry fields scattered along major roads through town, the majority of Machiasport watersheds are forested.

Threats to water quality come from point and non-point discharges. Point source pollution is discharged directly from a specific site such as a municipal sewage treatment plant or an industrial outfall pipe. The largest source point-source pollution affecting water quality in

Machiasport is the sewage treatment plant located in the neighboring town of Machias. The impact of point source pollution from the Machias sewerage treatment outfall is significant in Machiasport, since it is believed to be a major factor contributing to the closure of clam flats for marine harvesters. In recent years, the Town of Machias has made significant investments to correct the problem. For more discussion of this issue, see *Chapter G. Marine Resources*.

Non-point source pollution poses the greatest threat to ground and surface water quality in Maine communities and Machiasport is no exception. The most significant contributing source comes from erosion and sedimentation as well as excessive run-off of nutrients, particularly phosphorus. In excessive quantities phosphorus acts as a fertilizer and causes algae to flourish or “bloom”. Additional contributing factors include animal wastes, fertilizers, sand and salt storage, faulty septic systems, roadside erosion, dirt roads, leaking underground storage tanks, and hazardous substances.

### **Marine Water Quality**

The Maine Department of Environmental Protection classifies surface waters according to their desired use and water quality necessary to support that use. All of the tidal waters in Machiasport are classified Class SB. This indicates that these waters should be suitable for recreation in or on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial processing and cooling water supply, hydroelectric power generation, navigation, and as the habitat for fish and other estuarine and marine life. Discharges of pollutants to Class SB waters are regulated by state DEP wastewater permitting process. *Map 8: Marine Resources* depicts areas in Machiasport that are closed to shellfishing due to excessive bacteria loading.

As noted above, marine water quality surrounding Machiasport is affected by land uses in the town and the surrounding towns of Machias, East Machias and Roque Bluffs. There are 4 licensed overboard discharge permits in Machiasport, the largest of which discharges to Howard Cove from the correctional facility. For further discussion of marine water quality, see *Chapter G. Marine Resources*.

### **Rivers, Streams, and Brooks**

To assess what portion of Maine's rivers, streams, and brooks meet the goal of the Clean Water Act; MDEP uses bacteriological, dissolved oxygen, and aquatic life criteria. All river waters are classified into one of four categories, Class AA, A, B, and C as defined by legislation.<sup>3</sup> Class AA

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<sup>3</sup> 1. Class AA waters. Class AA shall be the highest classification and shall be applied to waters which are outstanding natural resources and which should be preserved because of their ecological, social, scenic or recreational importance.

A. Class AA waters shall be of such quality that they are suitable for the designated uses of drinking water after disinfection, fishing, recreation in and on the water and navigation and as habitat for fish and other aquatic life. The habitat shall be characterized as free flowing and natural. [1985, c. 698, § 15 (new).]

B. The aquatic life, dissolved oxygen and bacteria content of Class AA waters shall be as naturally occurs. [1985, c. 698, § 15 (new).]

C. There may be no direct discharge of pollutants to Class AA waters, except storm water discharges that are in compliance with state and local requirements. [1999, c. 243, § 8 (amd).]  
[1999, c. 243, § 8 (amd).]

2. Class A waters. Class A shall be the 2nd highest classification.

A. Class A waters shall be of such quality that they are suitable for the designated uses of drinking water after disinfection; fishing; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; and navigation; and as habitat for fish and other aquatic life. The habitat shall be characterized as natural. [1985, c. 698, § 15 (new).]

B. The dissolved oxygen content of Class A waters shall be not less than 7 parts per million or 75% of saturation, whichever is higher. The aquatic life and bacteria content of Class A waters shall be as naturally occurs. [1985, c. 698, § 15 (new).]

C. Direct discharges to these waters licensed after January 1, 1986, are permitted only if, in addition to satisfying all the requirements of this

is the highest classification with outstanding quality and high levels of protection. Class C, on the other end of the spectrum, is suitable for recreation and fishing yet has higher levels of bacteria and lower levels of oxygen. Segments of the Machias and East Machias River in the Town of Machiasport are tidal and do not support fresh water fisheries. All 56 stream segments rated for water quality in the town of Machiasport are classified as Class B.

### Shorelands and Floodplains

Shorelands are environmentally important areas because of their relationship to water quality, their value as wildlife habitat and travel, and their function as floodplains. Development and the removal of vegetation in shoreland areas can increase runoff and sedimentation leading to an increase in the amount of nutrients and other pollutants that reach surface water. This can lead to algal blooms and closure of shellfishing areas. Steep slopes with highly erodible soils are particularly susceptible to erosion. The Shoreland Zoning Ordinance, latest revision adopted by Machiasport in 2009, was designed to provide protection to shoreland. The town is currently updating the Shoreland Zoning Ordinance to meet DEP Guidelines issued in 2006.

Floodplains serve to accommodate high levels and large volumes of water and to dissipate the force of flow. A floodplain absorbs and stores a large amount of water, later becoming a source of aquifer recharge. Floodplains also serve as wildlife habitats, open space and outdoor recreation without interfering with their emergency overflow capacity. Flooding can cause serious destruction of property and activities that increase paved or impervious surfaces and/or that change the watercourse on floodplains increase the quantity and rate of runoff that can intensify flooding impacts downstream.

The 100-year floodplains within Machiasport have been identified by the Federal Emergency

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article, the discharged effluent will be equal to or better than the existing water quality of the receiving waters. Prior to issuing a discharge license, the department shall require the applicant to objectively demonstrate to the department's satisfaction that the discharge is necessary and that there are no other reasonable alternatives available. Discharges into waters of this classification licensed prior to January 1, 1986, are allowed to continue only until practical alternatives exist. There may be no deposits of any material on the banks of these waters in any manner so that transfer of pollutants into the waters is likely. [1989, c. 890, Pt. A, §40 (aff); Pt. B, §62 (amd).]  
[1989, c. 890, Pt. A, §40 (aff); Pt. B, §62 (amd).]

3. Class B waters. Class B shall be the 3rd highest classification.

A. Class B waters shall be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; and navigation; and as habitat for fish and other aquatic life. The habitat shall be characterized as unimpaired. [1985, c. 698, § 15 (new).]

B. The dissolved oxygen content of Class B waters shall be not less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean dissolved oxygen concentration shall not be less than 9.5 parts per million and the 1-day minimum dissolved oxygen concentration shall not be less than 8.0 parts per million in identified fish spawning areas. Between May 15th and September 30th, the number of *Escherichia coli* bacteria of human origin in these waters may not exceed a geometric mean of 64 per 100 milliliters or an instantaneous level of 427 per 100 milliliters. [1985, c. 698, § 15 (new).]

C. Discharges to Class B waters shall not cause adverse impact to aquatic life in that the receiving waters shall be of sufficient quality to support all aquatic species indigenous to the receiving water without detrimental changes in the resident biological community. [1985, c. 698, § 15 (new).]

[1985, c. 698, § 15 (new).]

4. Class C waters. Class C shall be the 4th highest classification.

A. Class C waters shall be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; and navigation; and as a habitat for fish and other aquatic life. [1985, c. 698, § 15 (new).]

2. Class SB waters. Class SB waters shall be the 2nd highest classification.

A. Class SB waters shall be of such quality that they are suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation and navigation and as habitat for fish and other estuarine and marine life. The habitat shall be characterized as unimpaired.

Management Agency (FEMA) for administration of the Federal Flood Insurance Program. A 100-year flood is a flood that has 1 chance in 100 of being equaled or exceeded in any 1-year period. One hundred year floodplains are associated with most of the mainland coastline of Machiasport, several interior wet areas, and all of the coastal islands. See *Map 3: Topography and Flood Plains*. Machiasport has adopted a Floodplain Management Ordinance that includes construction standards to minimize flood damage within the 200-year floodplain. A Floodplain Management Ordinance with new flood plain maps was adopted in 2000.

Severe flooding in Machiasport is rare and limited in extent.

### **Wetlands**

The term "wetlands" is defined under both state and federal laws as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support prevalence of vegetation typically adapted for life in saturated soils." Wetlands include freshwater swamps, bogs, marshes, heaths, swales, and meadows.

Wetlands are important to the public health, safety and welfare because they act as a filter, absorb excess water, serve as aquifer discharge areas, and provide critical habitats for a wide range of fish and wildlife. They are fragile natural resources. Even building on the edge of a wetland can have significant environmental consequences. Some wetlands have important recreational and educational value providing opportunities for fishing, hunting, and environmental education.

The Maine DEP has identified wetlands located within Machiasport, as illustrated on *Map 5: Water Resources*. These wetlands were identified as wetlands by aerial photo interpretation. Interpretations were confirmed by soil mapping and other wetland inventories. Field verification of the location and boundaries of the wetlands should be undertaken prior to development. The Maine DEP has jurisdiction over freshwater and floodplain wetlands under the Natural Resources Protection Act (NRPA)/Wetland Protection Rules and Site Location of Development Act and the Mandatory Shoreland Zoning Law provides protection to mapped non-forested wetlands. It is also important to verify wetland extent for specific development proposals as aerial photography interpretation and field spot samples are educated guesses and random samples. Review by wetland professionals should be encouraged when the need arises.

### **Groundwater - Sand and Gravel Aquifers**

Aquifers may be of two types: bedrock aquifers and sand and gravel aquifers. A bedrock aquifer is adequate for small yields. A sand and gravel aquifer is a deposit of coarse-grained surface materials that, in all probability, can supply large volumes of groundwater. Boundaries are based on the best-known information and encompass areas that tend to be the principal groundwater recharge sites. Recharge to these specific aquifers, however, is likely to occur over a more extensive area than the aquifer itself.

The Maine Geological Survey has identified numerous sand and gravel aquifers within Machiasport, as shown on *Map 5: Water Resources*. There are six aquifers with potential yields of 10-50 gallons per minute in Machiasport, one of which is shared with the neighboring town of

Whiting. Sand and gravel aquifers located in Machiasport are not geographically extensive as compared with other sand and gravel aquifers in the region. According to the Maine Department of Human Services, Bureau of Health, Division of Health Engineering, Drinking Water Program there are two Public Water Supply Sources in Machiasport.

**Table E-5 PUBLIC WATER SUPPLIES IN MACHIASPORT**

Water System Name	Public Water Supply Type <sup>4</sup>	Source Name	Source Type
Downeast Correctional Facility	Community	Drilled Well 350'	Groundwater
Fort O'Brien School	Non-transient, non-community, public	Drilled Well 550'	Groundwater

Source: Maine Drinking Water Program 2008

Map 5 can be used to identify surface sites that are unfavorable for storage or disposal of wastes or toxic hazardous materials. It is important to protect groundwater from pollution and depletion. Once groundwater is contaminated, it is difficult, if not impossible, to clean. Contamination can eventually spread from groundwater to surface water and vice versa. Most aquifer and surface water contamination comes from non-point sources including faulty septic systems, road salt leaching into the ground, leaking above ground or underground storage tanks, auto salvage yards, and landfills.

According to risk assessment prepared by the Maine Drinking Water Program (see Table E-6) the potential for future contamination potential to both public water supplies in Machiasport is high due to the lack of legal control of wellhead protection areas and the presence of potential sources of contamination proximate to both wells.

The most serious issue regarding drinking water in Machiasport is contamination of drinking water supplies in the vicinity of Howard Mountain by TCE (trichloroethylene). TCE is a volatile, chlorinated hydrocarbon widely used as a solvent, paint stripper, and degreasing agent; consumption of TCE by human is associated with an elevated incidence of cancer and other diseases. TCE was first identified in the drinking water supplies for the Downeast Correctional Facilities and nearby households over 10 years ago. Since that time extensive testing has been conducted to identify the source and extent of contamination. The Town of Machiasport's Remediation Advisory Board has been working with the Army Corps of Engineers and other

<sup>4</sup> The Maine Rules Relating to Drinking Water (Chapter 231) define a "public water system" as any publicly or privately owned system of pipes or other constructed conveyances, structures and facilities through which water is obtained for or sold, furnished or distributed to the public for human consumption, if such a system has at least 15 service connections, regularly serves an average of at least 25 individuals daily at least 60 days out of the year or bottles water for sale.

1. Community Water System: A public water system which serves at least fifteen service connections used by year-round residents or regularly serves at least twenty-five year-round residents.

2. Non-Community Water System: A public water system that is not a community water system. There are two types of Non-Community Water Systems. These are:

a. Non-Transient, Non-Community Water Systems: A Non-Community water system that serves at least 25 of the same persons for six months or more per year and may include, but is not limited to, a school, factory, industrial park or office building, and

b. Transient Non-Community Water Systems: A Non-Community water system that serves at least 25 persons, but not necessarily the same persons, for at least 60 days per year and may include, but is not limited to, a highway rest stop, seasonal restaurant, seasonal motel, golf course, park or campground. A bottled water company is a transient, non-community water system.

state and federal agencies to identified solutions. A recent feasibility study conducted by the Corp of Engineer identified several alternatives for corrective action.

**Table E-6 RISK ASSESSMENT MATRIX FOR PUBLIC WATER SUPPLIES**

<b>Risk of Contamination</b>	<b>Due to:</b>	<b>Risk Assessment is based on:</b>
<b>Downeast Correction Facility</b>		
Moderate risk	Well type and site geology	Bedrock well, 350'
High risk	Existing risk of acute contamination	Positive coliform test, septic system within 300' of well.
High risk	Future risk of acute contamination	No legal control or legal control is less than 150'
Low risk	Existing risk of chronic contamination	No chronic chemical contaminants detected; 3 potential sources of contamination within wellhead protection area.
High risk	Future risk of chronic contamination	No legal control of entire wellhead protection area; no legal control of 2500 Phase II/V Waiver radius.
<b>Fort O'Brien School</b>		
Moderate risk	Well type and site geology	Bedrock well, drilled well 550'
Moderate risk	Existing risk of acute contamination	No positive coliform test, Nitrate test less than 5 ppm, septic system within 300'
High risk	Future risk of acute contamination	No legal control or legal control is less than 150'
Moderate risk	Existing risk of chronic contamination	No chronic chemical contaminants detected; 6 potential sources of contamination within 300'.
High risk	Future risk of chronic contamination	No legal control of entire wellhead protection area; no legal control of 2500 Phase II/V Waiver radius.

Source: Maine Drinking Water Program, 2007

One possible solution that the Town is exploring is the creation of water district. However, the limited extent of sand and gravel aquifers in the area is an issue in identifying suitable alternative water sources.

**Water resources policies from 1996 Comprehensive Plan**

Relative to water resources, the Comprehensive Plan adopted by the Town of Machiasport in 1996 found that “activities within a watershed may affect the quality of water great distances away (as evidenced by the Howard Mountain Contamination), the develop of local and regional policies are necessary to ensure future protection. An Aquifer Ordinance has been suggested. Because of its ecological importance, the Larabee Heath, a freshwater wetland, should be preserved and protected from adverse impact. In addition to the wetlands, several erosion sites have been identified along the coastline (one particularly near the cemetery) and are in need of stabilization.”

Based on these findings, the Comprehensive Plan establish as a municipal goals: “to protect the quality and manage the quantity of Machiasport’s water resources, watersheds and the Larabee Heath,” and to “pursue the clean-up of the Howard Mountain water contamination and/or a suitable source of potable water for affected residents.” These goals continue to align with municipal priorities and should be continued.

In order to achieve the goals set forth in 1996 Comprehensive Plan, Machiasport established municipal policies and strategies as summarized in the table below along with notes on the status of the policy recommendations.<sup>5</sup>

**Table E-7 POLICIES & IMPLEMENTATION STRATEGIES  
RELATED TO WATER RESOURCES FROM THE 1996 COMP PLAN**

<b>Policies</b>	<b>Notes</b>
The Town of Machiasport will protect from adverse impact the significant identified water resources within its jurisdiction.	<i>This policy continues to align with municipal goals and should be continued.</i>
The Town of Machiasport will continue to enforce land use regulations protecting its significant water resources from adverse impact.	<i>This policy continues to align with municipal goals and should be continued.</i>
The contamination at Howard Mountain concerns many residents, even as the Army Corps of Engineers has accepted responsibility and will ultimately be responsible for funding alternative clean water sources.	<i>Contamination at Howard Mountain continued to be a concern, the Committee recommends amending this policy to read: "Ensure that all resident have access to safe drinking water."</i>
<b>Implementation Strategies</b>	<b>Notes</b>
The Town will support the Department of Environmental Protection and other state agencies in the preservation of Larabee Heath and other fresh water wetlands within its jurisdiction.	<i>This strategy has been largely implemented. Larabee Heath is held in conservation by the Nature Conservancy; and protected by municipal shoreland zoning.</i>
The Town will support the protection of land adjacent to streams and brooks that make up the watersheds of Marsh Stream, Larabee Heath, Renshaw Land, the East Side, Mill Pond, Bucks Harbor, Howard Cove, and Starboard Cove.	<i>This strategy has been largely implemented. The Town of Machiasport recently updated its Shoreland Zoning Ordinance. As appropriate, identified areas are included in Resource Protection.</i>
The Town will continue to advocate for clean water and protect the aquifers for all residents; water contamination clean-up activities in the Howard Mountain to Miller Mountain area, monitor the clean-up progress of the Army Corps of Engineers, and investigate alternative water supplies.	<i>Contamination at Howard Mountain continued to be a concern. The Town should continue to pursue this policy.</i>
The Town will pursue alternative water supplies for the residents' wells from Howard Mountain to Miller Mountain affected by the contamination.	<i>Contamination at Howard Mountain continued to be a concern. The Town should continue to pursue this policy.</i>
The Town will establish aquifer protection through an Aquifer Protection Ordinance.	<i>This strategy has not been implemented. It is no longer felt to be necessary.</i>
The Town will investigate improved public access to the river through Machiasport, perhaps by purchasing the L. Ray Packing property and revitalizing the area with a marina.	<i>This strategy has been partially implemented. The Town continues to support development of a marina, as support by strategies included in Chapter G. Marine Resources.</i>

Source: Machiasport Comprehensive Plan, 1996

Policies and implementation strategies to protect and preserve water resources in Machiasport are presented at the end of this Chapter. They included revisions as noted above, along with

<sup>5</sup> A complete list of the policy recommendation from the previous Comprehensive Plan is included in Appendix B: Executive Summary of the Town of Machiasport Comprehensive Plan, 1996. A full copy of the previous plan is on file in the Town Office.

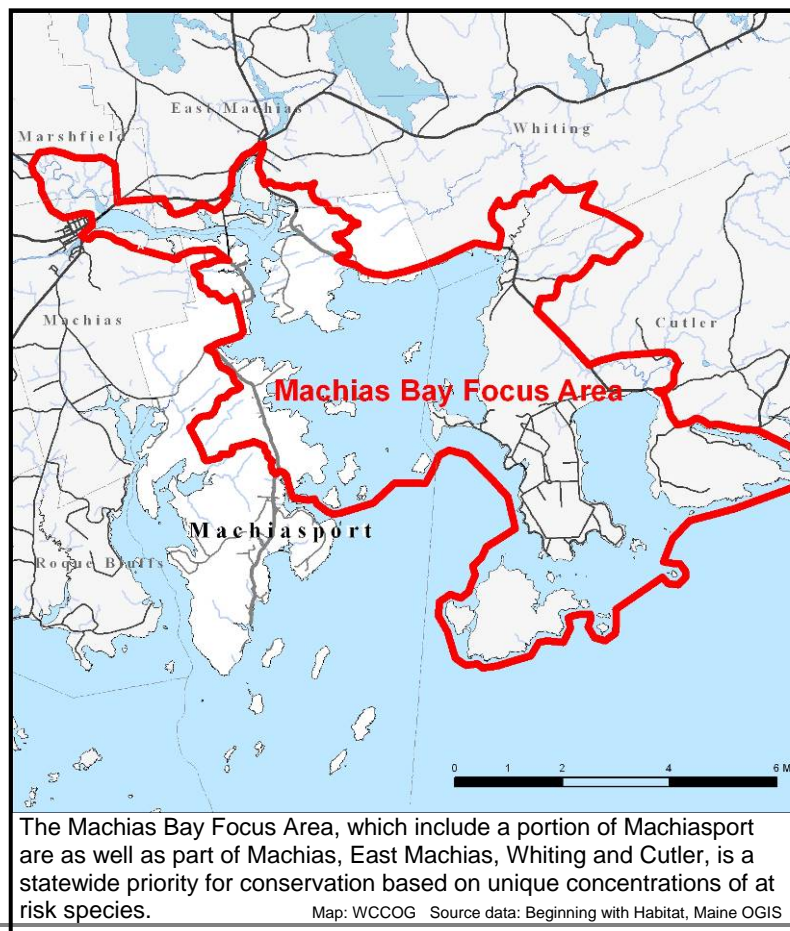
additional policies and strategies that reflect changes in conditions on the ground, local priorities and State and Federal policy since the previous Comprehensive Plan was adopted.

### CRITICAL NATURAL RESOURCES

Beginning with Habitat (BwH), a collaborative program of federal, state and local agencies and non-governmental organizations, is a habitat-based approach to conserving wildlife and plant habitat. The BwH program, housed in the Maine Department of Inland Fisheries and Wildlife (MDIFW), provides comprehensive habitat information to equip local decision-makers with the necessary tools to make informed and responsible land use decisions that mesh wildlife habitat conservation with future town growth needs. Each Maine town is provided with a collection of maps, accompanying information depicting and describing various habitats of statewide and national significance found in the town, and with tools to implement habitat conservation in local land use planning efforts. Beginning with Habitat (BwH) maps and data are updated regularly. The BwH are good tool for flagging potential resource issues early in the development review process when features such as high value wildlife habitat are incorporated into performance standards. BwH maps and the BwH Toolbox are available at [www.beginningwithhabitat.org](http://www.beginningwithhabitat.org). Examples of shoreland zoning ordinances with increased habitat protection standards are available in the BwH Toolbox.

The BwH program has identified Machias Bay as a natural area of statewide ecological significance which contains unusually rich concentrations of at-risk species and habitats. The Machias Bay Focus Area, was identified by biologists from the Maine Natural Areas Program (MNAP) and MDIFW as an area which supports rare plants, animals, and natural communities, high quality common natural communities; significant wildlife habitats; and their intersections with large blocks of undeveloped habitat.

The Machias Bay Focus area includes portions of the Machias and East Machias Rivers, Machiasport and the unique peatland ecosystems in the area. Focus Areas of Ecological Significance are areas of statewide conservation priority. They are identified around unique concentrations of at risk species and habitats and their supporting landscape. These areas are non-regulatory,



but are intended to build awareness and momentum for strategic approaches to conservation. Natural features which contributed to the designation of the Machias Bay Focus area are described below.

**Table E-7 MACHIAS BAY FOCUS AREA FEATURES**

<b>Common Name</b>	<b>Scientific Name</b>
Razorbill	<i>Alca torda</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Crowberry Blue	<i>Lycaeides idas empetri</i>
Livid Sedge	<i>Carex livida var. radicaulis</i>
<b>Rare and Exemplary Natural Communities</b>	
Coastal Plateau Bog Ecosystem	Coastal plateau bog ecosystem
Coastal Plateau Bog Ecosystem	Coastal plateau bog ecosystem
Coastal Plateau Bog Ecosystem	Coastal plateau bog ecosystem
Coastal Plateau Bog Ecosystem	Coastal plateau bog ecosystem
Maritime Slope Bog	Heath - crowberry maritime slope bog
<b>Essential Wildlife Habitats</b>	<b>Presence (P) or Absence (A)</b>
Piping Plover / Least Tern EH	A
Roseate Tern EH	A
<b>Significant Wildlife Habitats</b>	<b>Presence (P) or Absence (A)</b>
TWWH	P
IWWH	P
DWA	A
Shorebird Areas	P
Seabird Nesting Islands	P
<b>Other Data</b>	<b>Presence (P) or Absence (A)</b>
Arctic Tern	A
Atlantic Salmon Habitat	P
Brook Trout	A
Diadromous fish	N/A
Eelgrass Beds	P
Harlequin Duck	P
Horseshoe Crab	A
Marine Worms	P
Razorbill	P
Shellfish	P
Species of Special Concern	P

Source: Beginning with Habitat, 2009

### Wildlife Habitats

Conserving an array of habitats and their associated wildlife species will help in maintaining biological diversity and ensuring that wildlife and human populations remain healthy. To feed and reproduce, wildlife relies on a variety of food, cover, water, and space. Development can result in the deterioration of habitats and diversity through habitat fragmentation and loss of open space and essential travel corridors.

Unfragmented blocks of land provide habitat to a wide variety of Maine's species, both common

and rare, and they are essential for protecting water quality and maintaining opportunities for rural industry and traditional outdoor recreation. Maintaining large unfragmented blocks is an important opportunity for maintaining a community's rural character. Updated BwH maps which include unfragmented blocks of habitat could be available upon request from the BwH program

Wildlife is plentiful in Machiasport and its coastal islands. Bald eagles (*Haliaeetus leucocephalus*) are plentiful and nest on several islands. Just offshore, common eiders (*Somateria mollissima*) gather in large rafts while great blue herons (*Ardea herodias*) and several species of shorebirds grace the tidal flats and marshes. On the ledges off the outer islands large numbers of harbor seals (*Phoca vitulina*) frequently haul out to bask in the sun.

### **Essential Wildlife Habitat**

Essential Wildlife Habitats are defined under the Maine Endangered Species Act as a habitat "currently or historically providing physical or biological features essential to the conservation of an Endangered or Threatened Species in Maine and which may require special management considerations". These sites are identified by the Maine Department of Inland Fisheries and Wildlife (MDIFW).

There are several sites identified as essential wildlife habitat for endangered and threatened species in Machiasport. Big Libby Island is habitat for state Endangered Peregrine Falcons. The waters around the Libby Islands support wintering Harlequin Ducks (State Threatened). Ledges off Foster Island (Starboard Island Ledge and maybe others in the area) support Arctic Terns (State Threatened).

Any project proposed within Essential Habitat requires IF&W review if the project would otherwise: a) require a state or municipal permit, or b) use public funding. This consultation rarely stops development, but projects may be modified to protect these essential wildlife habitats.

### **Significant Wildlife Habitat**

Significant Wildlife Habitat, as defined by Maine's Natural Resources Protection Act (NRPA), is intended to prevent further degradation of certain natural resources of state significance. NRPA-defined Significant Wildlife Habitats in Machiasport are illustrated on *Map 6: Critical Habitat* and include shorebird habitat, tidal waterfowl/wading bird habitat, inland waterfowl/wading bird habitat and seabird nesting habitat.

Significant Vernal Pools and Deer Wintering Areas are also Significant Wildlife Habitats that may be found in Machiasport, even though there may not be any currently mapped

### **Rare Animals**

In addition to Essential and Significant Habitat, MDIFW tracks the status, life history, conservation needs, and occurrences for species that are endangered, threatened or otherwise rare. There is currently no identified habitat for species of special concern in Machiasport.

**Maine Natural Areas Program**

The Maine Natural Areas Program (MNAP) of the Maine Department of Conservation is responsible for documenting areas that support rare, threatened, or endangered plant species and rare or exemplary natural communities. There is one MNAP identified natural area in Machiasport: Larabee Heath, which is listed as an exemplary Coastal plateau bog ecosystem. This type of ecosystem is described as “peatlands in east coastal Maine in which the surface is raised above the surrounding land. *Scirpus cespitosus* [deergrass] is usually present as extensive lawns and *Empetrum nigrum* [black crowberry] and *Rubus chaemaemorus* [cloudberry] are also characteristic. There are usually few or no trees.” MNAP last characterized Larabee Heath as having “good estimated viability” in 1996. Portions of Larabee Heath are owned by the Nature Conservancy; the Heath is also considered a significant freshwater wetland subject to regulation under Shoreland Zoning legislation.

**Atlantic salmon**

In December 1999, the State of Maine banned angling for Atlantic salmon statewide. In November 2000, the National Marine Fisheries Service and the US Fish and Wildlife Service officially declared as endangered the Atlantic salmon populations in eight Maine Rivers (Dennys, East Machias, Machias, Pleasant, Narraguagus, Ducktrap and Sheepscot Rivers and Cove Brook). There is no listed habitat for Atlantic salmon in Machiasport; however, Atlantic salmon may be present in Machiasport waters.

It is unlawful to angle, take or possess any Atlantic salmon from all Maine waters (including coastal waters), and it is a federal offense to take fish in the above-mentioned eight Maine rivers. Any salmon incidentally caught, must be released immediately, alive and uninjured.

Control of non-point sources of pollutants, principally nutrients and sediments, through the use of local ordinances is one means by which Salmon habitat can be protected without removing parcels from the assessment rolls when they are purchased for conservation.

**Eastern brook trout**

Woodruff Brook, Holmes Brook, Libby Brook, Larrabee Heath, and Meadow Brook) have high value wild native Eastern Brook Trout populations and habitats that should be protected.

**Bald eagle**

Machiasport currently has several sites that support bald eagles, including nesting territory that is occupied by eagles during at least one of the three most recent years and intact for two consecutive years. Bald eagle nesting sites are no longer considered Essential Habitat. Bald eagles nests sites are included *Map 6: Critical Habitat*.

**Scenic resources**

Scenic resources focus prominently in Machiasport’s Community Vision Statement (see *Appendix C. Community Vision Statement*). Machiasport’s scenic resources contribute significantly to quality of life for local residents and visitors. They include: historic farmlands, blueberry barrens, pristine coastal islands, and a varied shoreline with rocky headlands,

extensive inter-tidal areas, and coastal estuaries. Scenic resources in Machiasport are an important force driving recent coastal development in town; ironically, development on headlands and other highly visible locations is also a major threat to preserving scenic resources in Machiasport.

Scenic resources were identified in the 1996 Comprehensive Plan. At that time it was felt that municipal policy was minimally sufficient to protect identified scenic resources. In addition, several areas in town are included in the Downeast Coastal Scenic Inventory 2009 conducted by the Washington County Council of Governments and Hancock County Planning Commission.

Most of Machiasport's scenic resources enjoy some level of protection through a combination of shoreland zoning, conservation easements (especially on coastal islands), and current use taxation. A majority of respondents favor additional measures to protect scenic resources in Machiasport, including municipal investment in scenic view protection (Appendix C, page 10) and standards for development in scenic areas (Appendix C, page 15).<sup>6</sup> Working together with land owners, the Town should develop a plan to protect significant scenic resources.

### **Natural resource protection in Machiasport**

There are a variety of municipal, state and federal laws and legal incentives that protect natural resources in Machiasport. As depicted on *Map 6: Critical Habitat*, most of the critical natural resources in Machiasport are located in or near the shore and receive some level of legal protection through the Town of Machiasport Shoreland Zoning Ordinance. Other state and federal regulation that govern activities occurring in the shoreland and submerged and land marine waters are summarized in *Chapter G. Marine Resources*.

In addition to municipal, state and federal regulations a variety of non-regulatory measures protect critical natural resources in Machiasport. As depicted on *Map 6: Critical Habitat* many areas that support critical habitat in Machiasport are held in conservation. Other areas are enrolled in tax incentive programs (such as Tree Growth, Farmland and Open Space) that provide some level of protection.

Protection of critical natural resource also helps advance town policies relative to increased access for outdoor recreation, protection of forestry and farmland and protection of public water sources. Machiasport has requested a seat at the table when local land trusts and others make significant conservation decisions in town, but has not to date participated in regional planning to protect shared natural resources. There are no state parks or public reserve lands in Machiasport.

### **Critical Natural Resources policies from the 1996 Comprehensive Plan**

Relative to critical natural resources, the Comprehensive Plan adopted by the Town of Machiasport in 1996 found that "Because of the fragile nature of critical areas it is important that they be monitored and plans for their management be developed. Several areas in Machiasport are unique and for their nesting birds, active Blue Heron nests, cobble beaches, and

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<sup>6</sup> 49% favor and 32% strongly favor specific strategies within a zoning ordinance to "limit development in the town's scenic areas." 41% and 28%, respectively, favor or strongly favor town investment in "scenic view protection."

petroglyphs.”

Based on these findings, the Comprehensive Plan establish as a municipal goal: “To protect the Town’s other critical natural resources including wildlife, offshore islands, scenic vistas, and other unique natural areas.” This goal continues to align with municipal priorities and should be continued. In order to achieve the goals set forth in 1996 Comprehensive Plan, Machiasport established municipal policies and strategies as summarized in the table below along with notes on the status of the policy recommendations.<sup>7</sup>

**Table E-8 POLICIES & IMPLEMENTATION STRATEGIES RELATED TO CRITICAL NATURAL RESOURCES FROM THE 1996 COMP PLAN**

<b>Policies</b>	<b>Notes</b>
The Town of Machiasport will protect from adverse impact the identified critical natural areas within its jurisdiction.	<i>This policy should be amended to read: “Conserve critical natural resources and significant wildlife habitat within the Town.”</i>
The Town of Machiasport will continue to enforce land use regulations protecting identified significant natural resources from loss or adverse impact.	<i>This policy is adequately addressed through the amended policy (above) and by policies included in Chapter K Land Use.</i>
<b>Implementation Strategies</b>	<b>Notes</b>
Scenic resources have been identified in the Comprehensive Plan with some detail. The Town will encourage protection of these designated resources.	<i>This policy should be amended to read: “Work with land owners to develop a plan to protect significant scenic resources.”</i>
The Town will inventory all septic systems, establish priorities for replacement of malfunctioning systems, and encourage their replacement.	<i>This strategy has not been implemented. The Town participates in the Small Community Grant program and has taken other actions to address failing septic systems. Continuation of this policy is no longer felt to be necessary.</i>
The Town will inventory erosion problems in watersheds and offer technical assistance to provide mitigation.	<i>Ongoing.</i>
The Town will develop a list of critical natural resources such as steep slopes, highly erodible soils, wetlands, and the like and develop regulatory language for inclusion in the current ordinances.	<i>This strategy has been partially implemented. Implementation strategies related to ordinance revisions are included in the policies at the end of this Chapter and in Chapter K. Land Use.</i>

Source: Machiasport Comprehensive Plan, 1996

Policies and implementation strategies to protect and preserve water resources in Machiasport are presented on the following pages. They included revisions as noted above, along with additional policies and strategies that reflect changes in conditions on the ground, local priorities and State and Federal policy since the previous Comprehensive Plan was adopted.

<sup>7</sup> A complete list of the policy recommendation from the previous Comprehensive Plan is included in *Appendix B: Executive Summary of the Town of Machiasport Comprehensive Plan, 1996*. A full copy of the previous plan is on file in the Town Office.

## POLICIES AND IMPLEMENTATION

Policy	Implementation Strategy	Responsibility	Timeframe
<b>Farmland and Forest Resources</b>			
<b>Goal: Machiasport will safeguard its forest resources from development which threatens those resources and to preserve marginal open space whenever possible.</b>			
Preserve and protect Machiasport's rural character by actively encouraging the preservation, protection, and conservation of identified and productive forest land.	Make available information concerning programs to encourage the preservation of farmland and forest land.	Selectmen; Town Office	On-going
	Encourage owners of productive farm and forest land to enroll in the current use taxation programs.	Selectmen	On-going
	Encourage the preservation of open space through tree growth and/or open space ordinances.	Planning Board	Medium Term (3-5 years)
	Seek input during large land sales to private developed or conservation groups to discuss ways to ensure traditional accesses and uses are retained.	Selectmen	On-going
Safeguard lands identified as prime farmland or capable of supporting commercial forestry.	Amend land use ordinances to require commercial or subdivision developments in critical rural areas to maintain areas with prime farm soils as open space to the greatest extent practicable.	Planning Board	Short Term (1-2 years)
	Limit non-residential development in critical rural areas to natural resource-based businesses and services, nature tourism/outdoor recreation businesses, farmers' markets, and home occupations.	Planning Board	Short Term (1-2 years)
	Permit activities that support productive agriculture and forestry operations, such as road-side stands, greenhouses, and pick-your-own operations.	Planning Board	On-going
To promote the use of best management practices for timber harvesting and agricultural production.	Consult with the Maine Forest Service District Forester when developing any land use regulations pertaining to forest management practices.	Planning Board	On-going
	Consult with Soil and Water Conservation District staff when developing any land use regulations pertaining to agricultural management practices.	Planning Board	On-going
To support farming and forestry and encourage their economic viability.	Include agriculture and commercial forestry operations in local or regional economic development plans.	Selectmen; WCCOG	On-going

Policy	Implementation Strategy	Responsibility	Timeframe
<b>Water Resources</b>			
<b>Goal 1: Machiasport will protect the quality and manage the quantity of the Town’s water resources, watersheds and the Larabee Heath.</b>			
<b>Goal 2: Machiasport will pursue the clean-up of the Howard Mountain water contamination and/or a suitable source of potable water for affected residents.</b>			
Ensure that all resident have access to safe drinking water.	Advocate for clean water and protect the aquifers for all residents; water contamination clean-up activities in the Howard Mountain to Miller Mountain area, monitor the clean-up progress of the Army Corps of Engineers, and investigate alternative water supplies.	Selectmen	On-going
	Pursue alternative water supplies for the residents’ wells from Howard Mountain to Miller Mountain affected by the contamination.	Selectmen	On-going
	Work with land owners around public wells at Fort O’Brien School and Downeast Correctional Facility to identify voluntary measures that will reduce the risk of contamination within the wellhead protection area(s).	Selectmen	On-going
Maintain the high level of water quality in Machiasport, protect significant surface water resources from pollution, and improve water quality where needed.	Amend local land use ordinances as applicable to incorporate stormwater runoff performance standards consistent with: <ul style="list-style-type: none"> <li>a. The Maine Stormwater Management Law and Stormwater Rules (Title 38 MRSA Section 420-D and 06-096 CMR 500 and 502).</li> <li>b. DEP’s allocations for allowable levels of phosphorus in lake/pond watersheds.</li> <li>c. The Maine Pollution Discharge Elimination System Stormwater Program</li> </ul>	Planning Board	Short Term (1-2 years)
	Periodically review and update the floodplain ordinance to be consistent with state and federal standards.	Planning Board	On-going
	Provide water quality "best management practices" information to farmers and loggers.	Selectmen; Town Office	On-going
	Equip Fire Department with fuel containment boom and absorbent materials for spill recovery.	Selectmen; Fire Department	Immediate
	Promote the use of Best Management Practices for Stormwater Management and for Erosion and Sedimentation Control through education of the Planning Board, Code Enforcement Officer and Road Commissioners.	Planning Board; Selectmen; Road Commissioners	Short-term (within 2 years)
	Provide educational materials at appropriate locations regarding invasive species.	Selectmen; Town Office	On-going
	Continue to enforce land use regulations protecting Machiasport’s significant water resources from adverse impact.	CEO	On-going

<b>Policy</b>	<b>Implementation Strategy</b>	<b>Responsibility</b>	<b>Timeframe</b>
Protect water resources in growth areas while promoting more intensive development in those areas.	Consider amending local land use ordinances, as applicable, to incorporate low impact development standards.	Planning Board	Medium Term (3-5 years)
Minimize pollution discharges through the upgrades to septic systems.	Control existing point source discharges (4 existing overboard discharge permits) through application to the Small Community Grant Program and other federal programs.	Selectmen	On-going
Cooperate with neighboring communities and regional/local advocacy groups to protect water resources.	Participate in local and regional efforts to monitor, protect and, where warranted, improve water quality.	Selectmen; WCCOG; Planning Board	On-going
<b>Critical Natural Resources</b>			
<b>Goal: Machiasport will protect the Town’s other critical natural resources including wildlife, offshore islands, scenic vistas, and other unique natural areas.</b>			
Conserve critical natural resources and significant wildlife habitat in Machiasport.	Amend the Subdivision Ordinance to require property developers to look for and identify critical natural resources that may be on site and to take appropriate measures to protect those resources, including but not limited to, modification of the proposed site design, construction timing, and/or extent of excavation.	Planning Board	Short Term (1-2 years)
	Designate critical natural resources as Critical Resource Areas in the Future Land Use Plan.	Planning Board	Immediate
	Periodically review the Town’s shoreland zone ordinances and make necessary amendments to meet current state guidelines.	Planning Board	On-going
	Amend land use ordinance to incorporate maps and information provided by the Maine Beginning with Habitat program into the review process.	Planning Board	Short Term (1-2 years)
	Train road commissioner in natural resource protection best practices and standards for construction and maintenance of town roads.	Selectmen	On-going
	Distribute or make available information to those living in or near critical natural areas about applicable local, state or federal regulations.	Selectmen; Town Office	On-going
	Pursue public/private partnerships to protect critical natural resources such as through purchase of land or easements from willing sellers.	Selectmen	On-going
Preserve important scenic resources.	Work with land owners to develop a plan to protect significant scenic resources.	Selectmen; Planning Board	Short Term (1-2 years)
Coordinate with neighboring communities and regional and state resource agencies to protect shared critical natural resources.	Initiate and/or participate in interlocal and/or regional planning, management and/or regulatory efforts around shared critical natural resources.	Selectmen; WCCOG	On-going