



Bristol Blake State Reservation has long been characterized by its boardwalk. The boardwalk in this photo was closed to the public in 2015; a new boardwalk is planned for the near future. (See Appendix K for photo information.)

SECTION 7. BRISTOL BLAKE STATE RESERVATION

7.1. INTRODUCTION

Bristol Blake State Reservation (Bristol Blake) is located in the town of Norfolk, near the intersection of North Street and Route 115. (Figure 7.1.1) It is situated approximately 2.75 miles northwest of F. Gilbert Hills State Forest.

Bristol Blake is located adjacent to the Massachusetts Audubon Society's Stony Brook Wildlife Sanctuary (Stony Brook). Both properties share a common history, and are managed cooperatively as "an arboretum and for wildlife preservation, conservation, and related educational purposes" (DEM 1989).

The Reservation's landscape reflects its past uses as a family farm and as the site of grain, saw, cotton, wool, and shoddy mills. Its wetlands and ponds were largely created and are maintained by a series of dams and spillways associated with these mills. In 1932 the last of the site's mills, the Woolen Company, declared bankruptcy and the property was sold twice for taxes. The property was eventually purchased by Mrs. Bennett Bristol who donated land to both the Commonwealth and Mass Audubon in the late 1950s and early 1960s, respectively. Since

then, Mass Audubon has expanded its holdings, while the size of Bristol Blake remains unchanged.

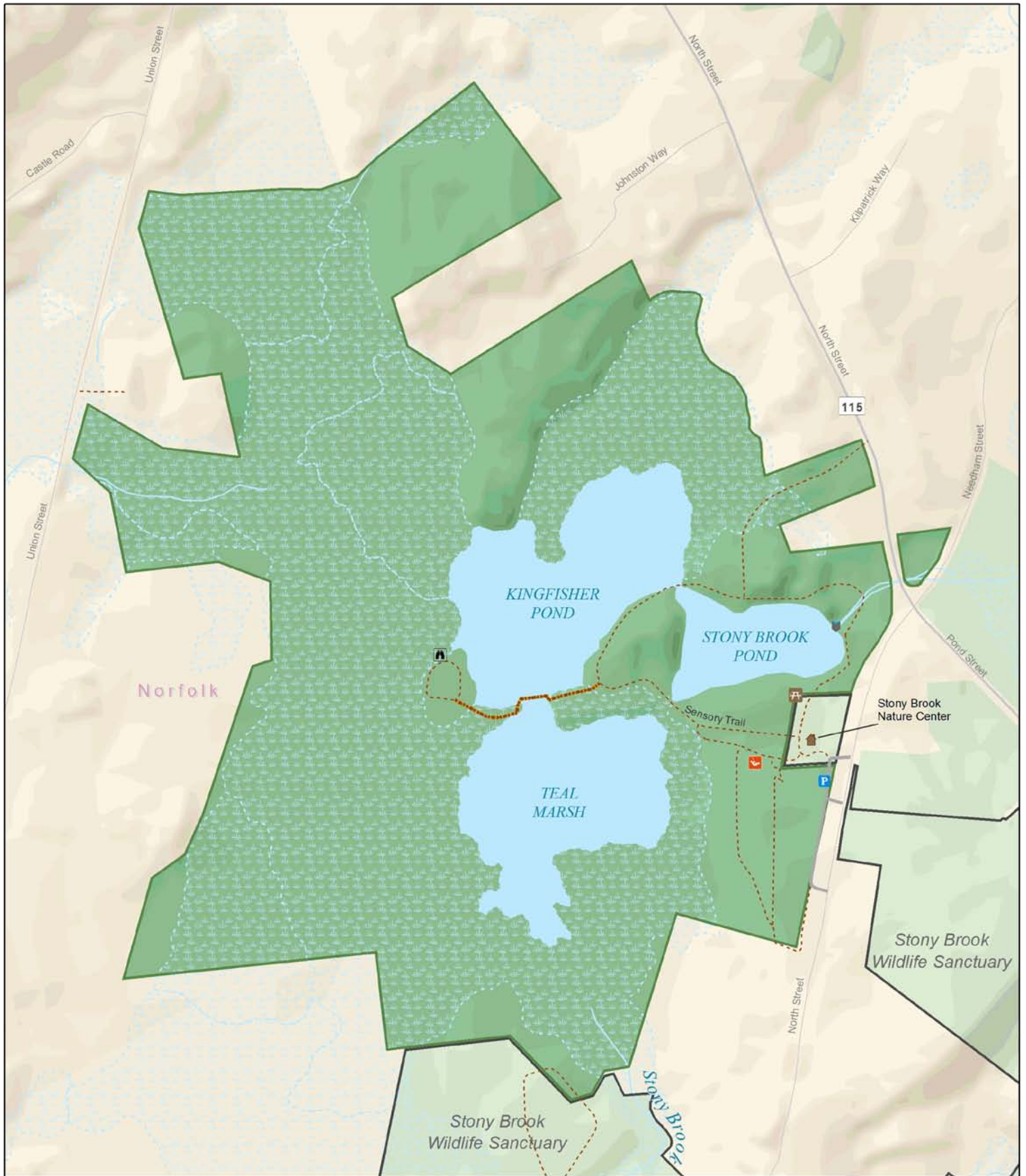
Because of Mass Audubon's presence, programming, and special events, the combined Bristol Blake and Stony Brook properties are better known as a Mass Audubon Sanctuary than as a state reservation. The Reservation's physical, political, and regulatory attributes are summarized in Table 7.1.1.

Table 7.1.1. Physical, political, and regulatory settings of Bristol Blake State Reservation.

Setting	Name or Metric
Location:	Norfolk
Area (acres)^a:	140.15
Perimeter (miles)^a:	3.11
Landscape Designation(s)^b:	Parkland
Legislative Districts:	
House	9 th Norfolk
Senate	Norfolk, Bristol, and Middlesex
Regulatory Designations:	Priority Habitat

a. Calculated using a Geographic Information System (GIS).

b. For a summary of DCR's landscape designations, see <http://www.mass.gov/eea/docs/dcr/ld/ld-factsheet-final.pdf>.



Bristol Blake State Reservation

Figure 7.1.1

1,000

Feet



- Bristol Blake State Reservation
- Stony Brook Wildlife Sanctuary
- Blue Hills Complex Land
- Other Protected Open Space
- DCR Legal Interest
- Boardwalk
- Dam
- Mass Audubon Nature Center
- Picnic Area
- Playground
- Public Parking
- Viewing Platform

Geographic information provided by MassGIS and DCR GIS, 2016

Associated Properties. There are two associated properties, neither is owned by DCR; they are:

- **Mirror Lake Dam.** The acquisition of Bristol Blake brought with it a legal interest in this Town of Norfolk owned dam (MA-02553). These rights were associated with the historic mills that once stood in Bristol Blake.
- **Stony Brook Wildlife Sanctuary.** This 102 acre sanctuary is contiguous with Bristol Blake. It is owned and managed by Mass Audubon, which also jointly manages Bristol Blake with the DCR. The two properties share resources and infrastructure.

The Forest and Park Supervisor from F. Gilbert Hills State Forest manages, as time and resources permit, several DCR properties, including F. Gilbert Hills State Forest (Section 6), Bristol Blake State Reservation, Franklin State Forest (Section 8), Wrentham State Forest (Section 9), Rehoboth State Forest (Section 10), West Bridgewater State Forest (Section 11), and Bridgewater State Forest (Section 12). They also oversee DCR's interests in Angle Tree Monument Reservation (Section 1).

7.2. NATURAL RESOURCES

Physical Features

The Reservation has relatively little topographic variation; due to the impounded water that covers much of its surface. The elevation at the water's surface is approximately 175 feet above sea level, with the surface of Kingfisher Pond and Teal Marsh normally about one foot higher than the surface of Stony Brook Pond (GZA GeoEnvironmental, Inc. 2012). Elevation increases to the north and east, with the highest point (229 feet) immediately north of Johnston Way. The lowest point in the Reservation is at the base of Bristol Blake State Reservation Dam (approximately 160 feet). Adjacent Mass Audubon property has slightly greater topographic variation, ranging from approximately 157 feet at Bristol Pond to 236 feet north of the residential development on Audubon's Trail.

Water Resources

Bristol Blake's most prominent features are its wetlands and ponds. These and other water resources are summarized in Table 7.2.1.

Table 7.2.1. Water resources of Bristol Blake State Reservation.

Water Resource	Name or Metric
Watershed:	Charles
Aquifer:	
Medium Yield (acres)	0.00
High Yield (acres)	0.00
Rivers and Streams (miles)	0.11
Vernal Pools	
Certified (#)	1
Potential (#)	0
Wetlands (acres)	79.74
Lakes and Ponds (acres)	22.69

The Reservation's open water, streams, and wetlands are hydrologically connected. Stony Brook flows northward into the Reservation through Teal Marsh, which is hydrologically connected to Kingfisher Pond. Its waters then flow through two concrete spillways into Stony Brook Pond (GZA GeoEnvironmental, Inc. 2012a). It then exits the pond through two spillways associated with Stony Brook Reservoir Dam. From here Stony Brook flows eastward, joining the waters of the Stop River.



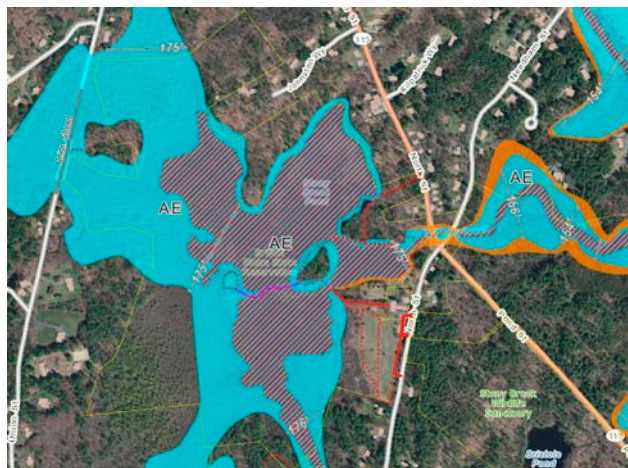
Kingfisher Pond (shown in photo) was created through the damming of Stony Brook. (See Appendix K for photo information.)

Approximately two-thirds of the Reservation is susceptible to flooding. (Table 7.2.2) 100-year floods are predicted to impact the ponds, wetlands, and adjacent uplands, including approximately 300 feet of the Sensory Trail and 1,050 feet of the Pond Loop Trail. 500-year floods are predicted to impact an additional 55 feet of the Pond Loop Trail as well as the banks of Stony Brook downstream of the dam. (Table 7.2.2)

Table 7.2.2. Potential impacts of flooding to Bristol Blake State Reservation.

Type of Impact	Acres	%
Flooding:		
100-year Storm	93.55	66.75
500-year Storm ^a	94.31	67.29

a. Cumulative value; includes 100-year storm impacts.



Predicted flooding at Bristol Blake State Reservation and adjacent areas. The Regulatory Floodway is represented with red and blue cross-hatching, the 100-year flood zone in blue, and the 500-year flood zone in orange. The Reservation's trails are represented by red lines and the boardwalk by a purple line. The non-flooded area in the center of the Regulatory Floodway is the knoll between Teal Marsh, Kingfisher Pond, and Stony Brook Pond. (See Appendix K for photo information.)

Rare Species

State-listed Species

Only one state-listed species, the eastern box turtle, is known from Bristol Blake. (Table 7.2.3) It is associated with a variety of wetland and upland habitats (NHESP 2015b).

Table 7.2.3. State-listed species of Bristol Blake State Reservation, as identified by the NHESP.

Species ^{a, b}	Type ^c	MESA ^d
Eastern box turtle	R	SC

a. Presented alphabetically, by common name.

b. Fact sheets are available at:

<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/ mesa-list/list-of-rare-species-in-massachusetts.html>.

c. Types of state-listed species include: A = Amphibian; B = Bird; I = Insect; P = Plant; and R = Reptile.

d. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered, SC = Special Concern; and T = Threatened.

Priority Habitat

There is little Priority Habitat (6.95 acres, 4.95%); it is located along the western boundary where the Reservation has frontage on Union Street. This Priority Habitat is part of a larger polygon (PH 225) that extends from the Charles River Natural Valley Storage Area in Wrentham and Norfolk into the Reservation.

Vegetation

An inventory of the plants of Bristol Blake and Stony Brook Sanctuary identified 336 species of plants, combined (Mass Audubon 2012).

Invasive Species

There are 20 known invasive or likely invasive plants (Mass Audubon 2012). (Table 7.2.4) The highest concentration is adjacent to the dam.

Table 7.2.4. Known invasive plants of Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary.

Species ^a	Status ^b	Source ^c
Common reed	I	1
Dame's rocket	I	1
European barberry	I	1
European buckthorn	I	1
Forget-me-not	L	1
Glossy buckthorn	I	1
Japanese barberry	L	1
Japanese knotweed	I	1
Morrow's honeysuckle	I	1
Multiflora rose	I	1
Norway maple	I	1
Oriental bittersweet	I	1
Porcelain berry	L	1
Purple loosestrife	I	1
Reed canarygrass	I	1
Spotted knapweed	L	1
Sycamore maple	L	1
Tree-of-heaven	I	1
Water chestnut	I	2
Yellow iris	I	1

- a. Presented alphabetically, by common name.
- b. Plants are classified as being either Invasive (I), Likely Invasive (L), or Potentially Invasive (P) according to MIPAG (2005).
- c. Information contained in this table was obtained from the following sources:
1. Mass Audubon (2012)
 2. D. Williams, Mass Audubon, personal communication.

Natural Communities

Eight natural communities have been identified. (Table 7.2.5) Other cover types, including oak forest, white pine forest, and wooded swamp-mixed have also been reported (Mass Audubon 2012). A description of the reservation's mixed forests (IEP 1978) suggests that the Oak-Hickory natural community type may also be present.

Table 7.2.5. Known natural communities of Bristol Blake State Reservation and Stony Brook Sanctuary.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Cultural Grassland	T	N/A	1
Deep Emergent Marsh	P	S4	1, 2
Mixed Oak Forest	T	S5	3
Red Maple Swamp	P	S5	1, 3
Shallow Emergent Marsh	P	S4	2
Shrub Swamp	P	S3	1, 2, 3
Successional White Pine Forest	T	S5	3
White Pine-Oak Forest	T	S5	1, 3

- a. Classified according to Swain and Kearsley (2011).
- b. E = Estuarine, P = Palustrine, T = Terrestrial.
- c. The NHESP ranks communities from most rare (S1) to the most common (S5).
- d. Information contained in this table was obtained from the following sources:
1. Mass Audubon (2012).
 2. IEP (1978).
 3. DEM & Mass Audubon (2002)

Forests

Because most of Bristol Blake is wetlands or open water, there is relatively little upland forest. Only 31.09 acres (22.13% of the land area) is classified as such. Most is dominated by a mixture of white pine and red and white oaks (Mass Audubon 2012). Understory species include seedlings and saplings of canopy species, black huckleberry, witchhazel, and low bush blueberries. Forested wetlands are dominated by red maple. Non-forested wetlands are almost entirely shrub dominated. Non-forested upland areas include the parking lot, and cultural grasslands associated with the Nature Center.

The Reservation's only CFI plot is located in a red maple swamp. Canopy species include red maple, black gum, hemlock, yellow birch, and white pine. Understory species in this plot include red maple, sweet pepperbush, highbush blueberry, black gum, ferns, muscle wood, skunk cabbage, and mosses.

Wildlife

Mass Audubon has collected information on the birds, amphibians, damsel and dragonflies, and aquatic invertebrates of Bristol Blake and Stony Brook, combined. This information is on file at Stony Brook. As of July 2016, 164 species of birds have been recorded (eBird 2012). The ponds and marshes attract waterfowl, herons, and migratory shorebirds. Swallows and flycatchers forage over the ponds and field. Warblers and other songbirds rest here during migration. Mass Audubon has included the combined Reservation and Sanctuary in its Stop River Important Bird Area (<http://www.massaudubon.org/iba/maps/stopriver.jpg>).

7.3. CULTURAL RESOURCES

This section describes the known and potential cultural resource areas, including pre-Contact and post-Contact archaeological resources, and historic landscapes, buildings, structures, and objects. An overview of significant events in the history of Bristol Blake State Reservation is presented in Table 7.3.1. Cultural Resources are identified in Table 7.3.2.

Five archaeological resources are listed by the MHC. Because the MHC does not make information on archaeological resources available to the general public, these resources are not included in Table 7.3.2.

Table 7.3.1. Significant events in the history of Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary.

Year(s)	Events
1959	Agnes S. Bristol gifts approximately 141 acres for use as an arboretum, wildlife preservation, conservation, and related educational purposes.
1963	Mrs. Bristol donates a house on 1.2 acres to Mass Audubon; it is now serves as an employee residence.
1963	Mass Audubon Nature Center constructed on 1.2 acre parcel; it opens to the public in 1964.
1960s	Central portion of Stony Brook Dam breaches leading to its reconstruction.
1970	Mass Audubon is gifted the 47.72 acres ‘Bristol-Thompson Acres’ parcel by Agnes S. Bristol (Book 4705 Page 680).
1970	Mass Audubon sells a 0.98 acre parcel on Cleveland Street (Book 4661 page 364).
1972	Mass Audubon purchases an additional 36.00 acres (Book 4847 Page 674).
1974	No fishing policy implemented; it is modified in 2000 to allow fishing at three locations in the Reservation.
1975	Mass Audubon purchases approximately 18 acres (Book 4652 Page 70).
1995	Mass Audubon purchases an additional 10 acres of land, expanding their Sanctuary (Book 11034 Page 447).
2000	Mass Audubon acquires 3.91 acre parcel along North Street (Book 15012 Page 437); a conservation restriction on this parcel is granted to the Town of Norfolk (Book 15012 Page 438).
2008	Sensory trail opens in the Reservation.
2015	Mass Audubon acquires 4.28 acres of land (Book 33092 Page 267), and sells a conservation restriction on this property to the Town of Norfolk (Book 33092 Page 271).

Table 7.3.2. Cultural resources of Bristol Blake State Reservation.

Location and Resource	Type ^a	Date ^b	Condition ^c	Integrity ^d	In Use ^e	Utilities ^f	MHC # ^g	Guidance ^h
Bristol Blake State Reservation	LA	1714–1980s	-	M	-	-	NOR.D	1, 2
Blake Family Lands								
Blake, Enoch - Sayles, Caleb House ⁱ	BU	ca. 1807	-	-	-	-	NOR.32	-
Bristol-Blake Reservation - Causeway	ST	ca. 1807	3	M	-	-	NOR.912	1
Bristol-Blake Reservation - Unpaved road	ST	ca. 1940	3	H	-	-	NOR.913	1
Bristol Blake Reservation - Path system	LA	ca. 1975	-	H	-	-	NOR.914	1
Bristol-Blake Reservation - Stony Brook Millpond	LA	18 th , 19 th , and 20 th centuries	-	H	-	-	NOR. 915	1, 2
Stone walls	ST	-		M	-	-	-	1
Norfolk Woolen Company	LA							
Norfolk Woolen Company Dam and Raceway	ST	ca. pre-1715–1960	3	M	-	-	NOR.919	1
<i>Bristol Blake State Reservation Dam (MA00749)^j</i>								
Norfolk Woolen Company North Dam and Raceway	ST	ca. 1714	3	M	-	-	NOR.916	1
Norfolk Woolen Company Dam #2	ST	ca. 1889	4	L	-	-	NOR.917	1
<i>Spillway #1^j</i>								
Norfolk Woolen Company Dam #3	ST	ca. 1889	4	L	-	-	NOR.918	1
<i>Spillway #2^j</i>								
No. 3 Carding Building	ST	-	6	L	-	-	-	1

- a. Resource types include the following: AR = Archaeological; BU = Building; CM = Cemetery; LA = Landscape; LHD = Local Historic District; NRHD = National Register Historic District; OB = Object; and ST = Structure.
- b. Date of construction provided, when known.
- c. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- d. Integrity is a relative assessment of the condition of a resource's retention of its historic character-defining features; H = High; L = Low; M = Medium; and U = Unknown.
- e. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- f. The following codes are used to identify utilities associated with buildings: E = Electric; H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- g. Massachusetts Historical Commission inventory number; does not include Historic Archaeology numbers.
- h. The following guidance is offered for the ongoing maintenance of these cultural resources:
1. Refer to Historic Landscapes - Built Features BMP (DCR n.d.d).
 2. Refer to Vegetation in Historic Landscapes BMP (DCR n.d.e).
- i. This resource is owned by Mass Audubon, its condition is not assessed.
- j. Corresponding names from GZA GeoEnvironmental, Inc. (2012a).

ARCHAEOLOGICAL RESOURCES

Pre-Contact Resources

Bristol Blake has not been surveyed archaeologically and to date no pre-Contact sites have been recorded. It has a high archaeological potential for pre-Contact sites. Any proposed below ground impacts must be reviewed by the DCR Archaeologist.

Post-Contact Resources

Several archaeological resources are located on, or adjacent to, the Reservation. Because these resources are part of broader landscapes, they are described in *Historic Landscapes*, below.

HISTORIC RESOURCES

Bristol Blake's historic resources are associated with the following three eras of development.

- **17th–18th Century Agrarian Use; contact to 1800.** Resources from this period are associated with early development of the fertile lands dissected by Stony Brook for use as pre-industrial mill sites and agricultural lands.
- **19th and 20th Century Industrial Use;** Resources from the first half of this period are associated with the development of Stony Brook for the purpose of powering industrial endeavors. Resources from the second half are associated with the enhancement of existing industrial mechanics, and the introduction of new systems to provide for the needs of a modernized mill.
- **DEM/Mass Audubon Use; 1959-1965.** Resources from this period are associated with the initial development of Bristol Blake State Reservation.

Historic Landscapes

There are two landscapes on the Reservation. The first is associated with the Blake Family's ownership of the property and includes both agricultural and early industrial resources. The second is associated with the Norfolk Woolen Company.

Blake Family Lands. Although the Blakes were not the first inhabitants of this land, the family was the most active in developing the natural landscape into an income producing property. Their efforts can still be seen today with the presence of the causeway,

roads, and stone walls. Generations of the Blake Family used these fertile lands to make a living in farming, livestock, and mill production. They constructed at least two homes and a barn, including the Mass Audubon owned Enoch Blake - Caleb Sayles House. It is because of their initial efforts, that subsequent owners were able to create a waterways system that powered a noteworthy mill. (See *Norfolk Woolen Company*, below.)

Two quarries, the Glacial Knoll Quarry and Beech Grove Quarry, are located within the Blake Family Lands landscape. They likely provided stone for the causeway, walls, dams, and building foundations. An associated stone dump, located on the glacial knoll, is believed to have been for stones used to construct or repair the causeway or building foundations.

Having served its purpose as an agricultural resource, the landscape now serves to provide visitors with a natural setting for birding, hiking, and other recreational activities. This change of use does not harm the remaining historic resources, allowing the landscape to retain a high level of historic integrity.

Norfolk Woolen Company. Stony Brook Pond (i.e., Mill Pond) is the oldest man-made body of water on the Reservation. It was created by the damming of Stony Brook, and powered grist and saw mills in the late 17th and early 18th centuries. By the early 19th century manufacturing had shifted over to textiles; largely using existing dams for power. In 1889 the Norfolk Woolen Company was established; they soon after modified the existing water management system. They installed a dam next to a pre-existing dam in order to raise the elevation of the pond. They also installed Dam #1 and Dam #2 to help manage water levels to provide a steady power source for their mill. Today's Stony Brook Pond is largely a product of these modifications. The pond no longer serves its original purpose, and all of the dams went through a reconstruction in the 1960's following damage from flooding. Dam 1 and 2 have lost their historic recognition, having been encapsulated in concrete.

The reconstructed Norfolk Woolen Company Dam (i.e., Bristol Blake State Reservation Dam (MA00749)) is classified as an Intermediate sized dam, with a Significant Hazard Potential, in Fair condition. The most recent Phase 1 inspection and

evaluation of the dam identified 15 deficiencies and recommended six studies, six recurrent maintenance activities, and eight minor repairs (GZA GeoEnvironmental, Inc. 2012a). Among the deficiencies were inappropriate amounts of vegetation, both too little and too much; missing mortar on the spillway; displaced stones at the culvert outlet headwall; and a potentially inadequate spillway capacity.



Stony Brook Dam was reconstructed in the mid-1960s following a breach. It currently maintains water levels in Stony Brook Pond. (See Appendix K for photo information.)

A few historic resources associated with the Norfolk Woolen Company remain today. Although all of the buildings that performed industrial services for this company are now gone, foundation pads, raceways and the dam still exist to provide the context for the site. The dam in particular still retains a great deal of its historic integrity, having been little altered since its construction. Downstream from the dam, a raceway winds past foundations and footprints that once rooted machinery and buildings that provided for the creation of woolen products. In summary, the overall site retains very little of its historic integrity, but provides enough for the public to interpret what this site once was.

Buildings

There are no historic buildings that are not associated with the Blake Family Lands historic landscape.

Structures

There are no historic structures that are not associated with a historic landscape.

Objects

There are no known historic objects.

7.4. Recreation Resources

Because the reservation is jointly managed with Mass Audubon as a wildlife sanctuary and environmental education center, the emphasis is on conservation rather than recreation. As a result, there are fewer recreation opportunities here than at other similar sized state parks. In accordance with Mass Audubon's policies, dogs are prohibited from the property. The following recreation activities take place:

- Fishing (designated areas only)
- Geocaching (2 caches as of July 2016, Stony Brook Wildlife Sanctuary only)
- Hiking/walking
- Nature Play Area
- Nature study/Photography
- Picnicking (designated areas)

The Nature Play Area is a 50 x 50 foot fenced in area lined with wood mulch. It contains benches, climbing logs, and carved wooden representations of a turtle and snake.



The Nature Play Area, located between the Nature Center and cultural grassland, was constructed as an Eagle Scout project. (See Appendix K for photo information.)

Mass Audubon conducts two large annual events; an Earth Day/Arbor Day event in April and a Fall Fair in October. The Earth Day/Arbor Day event focuses primarily on environmental education (DEM and MAS 2002); recreation and fundraising are secondary. Average annual attendance ranges from 200–350, depending on the weather. In contrast, the Fall Fair is the Sanctuary’s single largest fundraiser. First held in 1978, this event includes interpretive programming, games, and craftsman booths. An estimated 1,400 people attended in 2015.

7.5. INFRASTRUCTURE

Property Boundary

Bristol Blake lies within an area defined by Union Street to the west, Diamond Street to the south, and North Street to the north and east. Between these roads and the Reservation, land use is generally low-density residential, with many abutting lots largely forested. A few abutting lots are undeveloped. Stony Brook abuts much of the Reservation’s eastern and southern borders. Farther east, across Route 115, is the 41 acre Campbell Town Forest and the Department of Corrections’ 690 acre “Land Use Change Area.”

No easements were identified during the preparation of this RMP.

Buildings and Structures

There are no non-historic buildings on the Reservation (Table 6.5.1). The only non-historic structures are two boardwalks, three bridges, and an observation platform associated with the reservation’s trails. The longest boardwalk is approximately 520 feet long, and connects the Sensory Trail to the Beech Grove Trail. The decking

is off level due to ice damage to some of its supports. In 2016, a visual assessment of the boardwalk was performed in response to observed “horizontal displacement and a severe inclination” along much of its length (CLE Engineering 2016). The assessment revealed that the boardwalk “completely failed in a drop in elevation and racking of the supporting posts,” and recommended “that the only feasible solution is to replace the structure including the supporting posts” (CLE Engineering 2016). The second boardwalk is small (i.e., 26 feet), and is located downstream of the dam. Two wooden bridges span spillways on the Sensory and Pond Loop trails; the third is located downstream of the dam. The observation platform is located at the northwest corner of the Beech Grove Trail.



Wildlife observation platform overlooking Kingfisher Pond. (See Appendix K for photo information.)

A modern well is located in the cultural grassland, approximately 350 feet from the Nature Center. It provides non-potable water to faucets on the outside of that building.

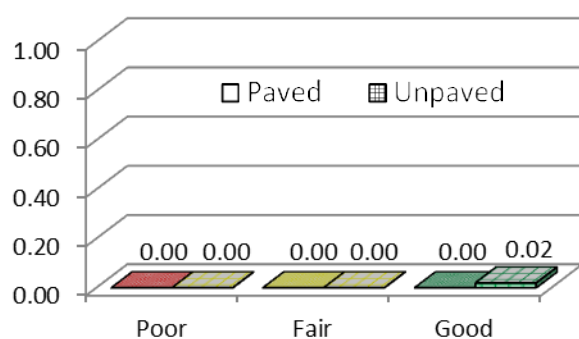
Table 7.5.1. Non-historic buildings and structures of Bristol Blake State Reservation.

Location and Infrastructure	Date ^c	Condition ^b	In Use ^d	Utilities ^e
Boardwalk - Sensory Trail	-	6	-	-
Bridge - Sensory Trail	c. 1970s	2	-	-
Observation platform - Beech Grove Trail	-	3	-	-
Bridge - Pond Loop Trail	-	2	-	-
Boardwalk - Downstream of dam	-	2	-	-
Bridge - Downstream of dam	-	2	-	-

- a. Preliminary condition assessment using the building system and equipment condition codes as used in the Massachusetts Capital Asset Management Information System (CAMIS). The following codes are used: 1 = Excellent-easily restorable to like new condition; 2 = Good-routine maintenance required; 3 = Adequate-some corrective and preventative maintenance required; 4 = Fair-excessive corrective maintenance and repair required; 5 = Poor-renovation needed; and 6 = Fail.
- b. Date of construction provided, when known.
- c. Use categories include N = No, building is not in use; S = Building is used on a seasonal basis; and Y = Yes, building is in use year-round.
- d. The following codes are used to identify utilities associated with buildings: E = Electric, H = Heat; I = Internet; S = Septic system; T = Telephone; W = Water; and W(S) = Water is available on a seasonal basis. This information is included for all buildings.
- e. Infrastructure located on DCR property, but not owned or controlled by the DCR. Its condition is not assessed.

Roads

There are virtually no paved roads. The length and condition of these roads are identified in Figure 7.5.1. The Reservation's forest roads are classified as trails, and are addressed later in this chapter.

Figure 7.5.1. Condition and length of roads at Bristol Blake State Reservation.^a

Parking

There is one public parking lot (Table 7.5.2). It is located partially on Bristol Blake and partially on Stony Brook. Although there is accessible parking, there is no accessible aisle associated with these spaces. During large events, the adjacent cultural grassland is used for parking visitor's vehicles.

Table 7.5.2. Number of public parking spaces at Bristol Blake State Reservation and Stony Brook Sanctuary.

Location	HP	Restricted	Other	Total
Main lot	2	0	24	26
Total	2	0	24	26

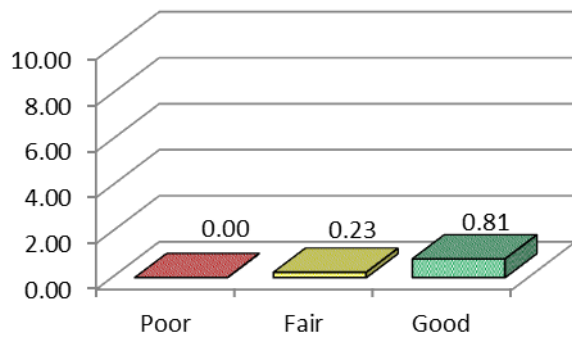


The parking lot for Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary is located partially on DCR property (foreground) and partially on Mass Audubon property (background). Mass Audubon's Nature Center is visible at the back of the photo. (See Appendix K for photo information.)

Trails

There are 0.79 miles of official trails in the reservation (Figure 7.5.2). This includes the Sensory Trail, Pond Loop Trail, and forest roads. There are no known unauthorized trails.

Figure 7.5.2. Condition and length of official trails at Bristol Blake State Reservation.



There are three formal trails: the Sensory Trail, Beech Grove Loop, and Pond Loop Trail. The Sensory Trail extends approximately 1,000 feet, from the Nature Center to the boardwalk at the junction of Teal Marsh and Kingfisher Pond. A post-and-rope guide system, leads visitors past field and forest to a boardwalk overlooking a pond and wetland. Along the way, there are eleven stops with interpretive information. (See 7.6. *Interpretation* for additional information.) Designed as a trail for people of all abilities, there are no stairs or side slopes. The Beech Grove Trail begins at the western end of the Sensory Trail; it provides access to an observation platform overlooking Kingfisher Pond. The Pond Loop trail begins near the nature center, passes along the north shore of Stony Brook Pond, and joins the Sensory Trail near the boardwalk. The Beech Grove Trail and Pond Loop trails are not universally accessible.

Kiosks and Signs

The Reservation's main identification sign is located on the western side of the intersection of North Street and Route 115. A Mass Audubon sign is located at the parking lot entrance. It identifies both Stony Brook and Bristol Blake. A single kiosk is located along the main entrance path, on Mass Audubon property, opposite the southwest corner of the Sanctuary's Nature Center. It describes the property's joint ownership and management. This sign is out of date, with multiple references to the

Department of Environmental Management. Multiple signs and displays are associated with the exterior and interior of the Nature Center.



The kiosk at Bristol Blake State Reservation bears the names of both the Reservation and of Stony Brook Wildlife Sanctuary. (See Appendix K for photo information.)

Iron Ranger

There is no iron ranger.

Memorials and Markers

No memorials or markers were identified on DCR property.

7.6. INTERPRETATION

It was the wish of Agnes S. Bristol, the woman who donated Bristol Blake to the Commonwealth, that her land be "used as an arboretum and for wildlife related preservation, conservation, and related educational purposes" (DEM 1989). To that end, the DCR and Mass Audubon jointly operate Bristol Blake and Stony Brook as an environmental education facility. Annual visitation to the Sanctuary averages approximately 10,000. Mass Audubon's interpretive resources and programming includes: static displays, interpretive signs, interpretive media for use with the Sensory Trail, an annual summer Natural History Day Camp, year-round programming, and special events.

The Nature Center is located at the park/sanctuary entrance; it includes static displays, live animal exhibits, rooms for interpretive programming, a gift shop, and staff office space.

The Sensory Trail is an interpretive trail for “all seasons, all senses, all people.” It is located along the historic causeway. Guides to this trail are available in print (Mass Audubon and DCR n.d.), large print, Braille, and downloadable digital audio files (<http://www.massaudubon.org/get-outdoors/wildlife-sanctuaries/stony-brook/about/accessibility/sensory-trail#audiotour>). Twelve Braille, print, and tactile signs are located along the trail; they highlight the following stops:

- Introduction/Trail begins
- Stone wall
- Gray birch
- Eastern red cedar
- Field and bird boxes
- Red oak and cherry
- Red maple
- Spillway
- The Knoll
- Eastern white pine
- Wetland plants
- Ponds and marshes



This sign indicates a stop along the interpretive trail. Note the printed text, Braille text, and blue triangular sign indicating that audio information is available. The ball along the guide rope indicates the presence of Braille text nearby. (See Appendix K for photo information.)

Mass Audubon offers a variety of interpretive programs, including those offered through its Natural History Day Camp. This American Camp Association accredited camp offers regular programming for campers ages 3–10, and specialty programming for children ages 9–15. It offers trail explorations, hands-on activities, non-competitive

games, and crafts. Programming is offered Monday through Friday, from late June through mid-August. Registration and payment are required in advance; fees differ among Mass Audubon member and non-members. Information on Mass Audubon’s summer camps, including Stony Brook’s, may be found at <http://www.massaudubon.org/get-outdoors/summer-camps>.

Interpretive programming is offered throughout the year for all age groups. These are the “related educational purposes” specified by Mrs. Bristol in her donation of the land. The following programs have been presented at Stony Brook:

- A birdwatcher’s migration
- Amphibians after dark
- Beaver walk
- Beginning birding
- Bird banding demonstration
- Bird house gourd workshop
- Build a backyard birdhouse
- Butterflies of Stony Brook
- Early morning birds
- Early morning explorations
- Exploring the landscape for clues to our past
- Family camp out
- Family bird banding program
- Family ponding
- Family tracking
- Hardy birds
- History of Stony Brook
- History tour of Norfolk (partially in Sanctuary)
- Intermediate birding
- Learn the ferns
- Nature’s fireworks: space invaders
- Pumpkin fest
- Raptor identification primer
- Scout night hike
- Shrubs, herbs, and trees; plant identification made easy
- Summer star search
- The legendary bald eagle

- The downfall of the Moon! What is a lunar eclipse?
- Twilight canoe
- Wetland plants: A field exploration
- What's in our backyard?
- Whoooo's out there: Evening wildlife prowling!! (summer program); Stony Brook night life prowling!! (fall program); Winter wildlife prowling!!
- Wildflower ID workshop
- Wildlife in winter
- Winter adaptations
- Winter star search
- Wonder walk for families: Explore the magic of woodlands and wetlands. This program series includes: Winter adventures; Patterns of nature; Spring mysteries; Summer mysteries; Totally turtles; and Sweets for the tweets.

The Sanctuary's staff also offers a variety of interpretive programming off-site.

Interpretive programming is also incorporated into events, such as the Sanctuary's annual Fall Fair and children's birthday parties.

7.7. MANAGEMENT RESOURCES

Staffing

DCR Personnel

The Forest and Park Supervisor at F. Gilbert Hills State Forest manages this property in association with Mass Audubon, under the terms of a Management Agreement.

Partnerships and Volunteers

Bristol Blake is operated through a partnership between the DCR and Mass Audubon. The latter recruits, trains, and uses volunteers for "certain maintenance, interpretive, and visitor services."

Safety

The Norfolk fire department provides fire response and other emergency services. Additional fire response is provided by personnel from DCR's Fire District 4, which is based at F. Gilbert Hills State Forest. The Norfolk Police Department, Massachusetts State Police (Station H-3, Foxborough Barracks), and the Massachusetts

Environmental Police (Region C-7) provide law enforcement.

Funding

Conservation Trust Fund

There are no trust funds.

Retained Revenue

DCR does not generate or retain revenue at this park.

Other Revenues

Park operations are largely funded through admission fees collected by Mass Audubon. Entrance is free for Mass Audubon members, DCR season pass holders, and "any others provided for in the Code of Massachusetts Regulations pertaining to DCR's fees." Other visitors pay Mass Audubon's standard non-member entrance fee, which is currently \$4 for adults and \$3 for seniors and children. Fees in excess of \$12,000 in any given fiscal year go into a Mass Audubon restricted endowment and are used for the benefit of DCR and Mass Audubon properties in the Town of Norfolk. Entrance fees have not yet exceeded this threshold. On-site donations are restricted for use at these properties.

7.8. MANAGEMENT PRACTICES

Management of DCR properties is guided by a variety of regulations, policies, BMPs (e.g., Table 7.3.2), legal agreements, and institutional knowledge. This section describes those practices unique to the management of Bristol Blake.

Legal agreements unique to the reservation are listed in Table 7.8.1. The most important is the Memorandum of Understanding (MOU) between the DCR and Mass Audubon. This agreement sets forth the relationship between these entities for the joint use of Bristol Blake State Reservation and Stony Brook Wildlife Sanctuary as an environmental education facility. It specifies the roles and responsibilities of each party. Key information from this MOU is presented throughout this section. However, property managers are advised to familiarize themselves with the full, and most current, version of this agreement.

Table 7.8.1. Key legal agreements for Bristol Blake State Reservation.

Party and Subject of Agreement	Type ^a	Expiration Date ^b
Towns of Norfolk and Wrentham Control of water levels in Mirror Lake	A	N/A
Massachusetts Audubon Society Management agreement for Bristol Blake State Reservation. <i>May be extended for one or more successive five year terms.</i>	U	2016

a. Agreement types include: A = Memorandum of Agreement; C = Conservation Easement; E = Easement; L = Lease; P = Permit; S = Special Use Permit; U=Memorandum of Understanding.

b. Year that agreement expires.

A Sanctuary Committee provides advice on the operation and management of Stony Brook Wildlife Sanctuary. This Committee includes representatives from the towns of Franklin, Plainville, Norfolk, Walpole, and Wrentham. The Sanctuary Director and the Forest and Parks Supervisor from F. Gilbert Hills are *ex-officio* members of this Committee.

Key planning documents are identified in Table 7.8.2.

Table 7.8.2. Key management and guidance documents for Bristol Blake State Reservation.

Author and Document	Year
Department of Environmental Management F. Gilbert Hills State Forest: Guidelines for Operations and Land Stewardship.	1989
Gannett Fleming, Inc. Environmental Audit Report: Bristol Blake State Reservation, Norfolk, Massachusetts.	1998 ^a
Haslam, B., and B. Martin. Prescribed burn plan: Bristol Blake State Reservation, Stony Brook Wildlife Sanctuary, Norfolk, MA.	2001
Massachusetts Department of Environmental Management and Massachusetts Audubon Society. Bristol Blake State Reservation & Stony Brook Audubon Sanctuary: Ecological management plan. Autumn 2002.	2002
GZA GeoEnvironmental, Inc. Bristol Blake State Reservoir Dam (sic): Phase I inspection/evaluation report. Date of Inspection. June 1, 2012	2012 ^a
Massachusetts Audubon Society Stony Brook Wildlife Sanctuary rapid ecological assessment. December 2012.	2012

Annual Maintenance

In accordance with the MOU between the DCR and Mass Audubon, much of the ongoing maintenance of Bristol Blake is performed by employees and volunteers of Mass Audubon. Activities identified in the MOU as being performed by DCR are identified in Table 7.8.3. Maintenance activities not taking place on an annual basis are identified elsewhere in this section.

Table 7.8.3. Annual cycle of DCR management activities at Bristol Blake State Reservation.

Activity	Spring ^a	Summer ^a	Fall ^a	Winter ^a
Maintenance - Administrative roads	AN	AN	AN	N/A
Maintenance - Trails, major maintenance only	AN	AN	AN	AN
Mowing - Cultural grassland	N/A	N/A	A	N/A
Mowing - Around dam	N/A	A	N/A	N/A

a. Frequency codes are: A = Annually; AN = As needed; D = Daily, # times; E = Every # days; N/A = Not applicable.

Natural Resources

Water Resources

The acquisition of Bristol Blake carried with it legal rights in, but not ownership of, the Mirror Lake Dam. Among these rights was the regulation of the water level within specified limits. In 1980 the DEM (now DCR) entered into an agreement with the Towns of Norfolk and Wrentham that transferred this responsibility to the Highway Superintendent of the Town of Norfolk.

Rare Species

The DCR does not conduct any rare species monitoring or management. Mass Audubon may observe state-listed species during its biological surveys.

Invasive Species

Management of four species has taken place in the past. Common reed and Japanese knotweed have been controlled by mechanical means (i.e., hand pulling, cutting); *Galerucella* beetles have been used to control purple loosestrife (Mass Audubon 2012). The beetle's impact on purple loosestrife was monitored from 2005 to 2008. Sanctuary personnel and volunteers hand pull water chestnut from the ponds.

Both DCR and Sanctuary personnel control poison ivy, a noxious but non-invasive plant, in areas used for Sanctuary programs.

Vegetation

There is one CFI plot; it was last monitored in 2010. Mass Audubon established six permanent vegetation sampling plots in 2011 and monitors trees, shrubs, and herbaceous vegetation.

Under the terms of the MOU, Mass Audubon mows lawns and trails, and the DCR mows around the dam and also the cultural grassland adjacent to the parking lot. The grassland is managed through annual mowing and infrequent burning (e.g., Haslam and Martin 2001). This management is intended to provide wildlife habitat, slow encroachment by woody plants, and provide conditions favorable for special events. Mass Audubon personnel mow portions of the grassland throughout the growing season. The DCR mows the entire field once per year, immediately prior to the Fall Fair.

Mass Audubon personnel, under the direction of a Licensed Pesticide Applicator, apply herbicides on their property to control poison ivy in areas used by attendees of their day camp. Poison ivy is also common on portions of DCR property used by day campers. Mass Audubon would like to control poison ivy in these areas; the current management agreement is silent on this activity.

Mass Audubon periodically performs vista pruning in front of the observation platform.

Wildlife

There is no stocking of fish or game species. There is no hunting or trapping, "other than for the purposes of control by representatives of the Commonwealth," in accordance with a restriction placed on the use of the property by Agnes S. Bristol, who donated the property to the Commonwealth. The nesting population of Canada geese is controlled through egg addling, which is performed under permit from Mass Wildlife. In 2015, a total of nine eggs from two nests were addled. Fishing is permitted at specific DCR-owned sections of the shores of Kingfisher and Stony Brook ponds; however it often takes place outside of these authorized areas. Hunting, trapping, and fishing are not allowed on Mass Audubon property, with Sanctuary Guidelines instructing visitors to "Refrain from fishing, hunting, or trapping" (<http://www.massaudubon.org/get-outdoors/wildlife-sanctuaries/stony-brook/sanctuary-guidelines>).

A “beaver deceiver” has been installed adjacent to Spillway #2, between Stony Brook and Kingfisher ponds. DCR and Mass Audubon personnel periodically clear beaver-cut vegetation and other materials from the fencing associated with this device. In the fall of 2015, beaver began blocking the upstream culvert designed to keep water flowing through the deceiver. The grates around this culvert were cleaned of mud and debris in 2016.



Beaver deceiver showing materials blocking both the main flow under Spillway #2 and the offshore culvert. (See Appendix K for photo information.)

Cultural Resources

The DCR is responsible for the repair and maintenance of Stony Brook Reservation Dam. Mass Audubon is responsible for reporting any problems with the dam and associated spillway to the DCR, which will “exercise all best efforts to rectify any hazards or damage within a reasonable period of time and according to any available funding.” The DCR’s legal interest in the Mirror Lake Dam does not include maintenance or repair.

Recreation Resources

Picnic areas are maintained by Mass Audubon personnel and volunteers.

Infrastructure

Boundary

The Forest and Park Supervisor from F. Gilbert Hills and the Regional Forester maintain boundary signs and monitor for encroachments.

Buildings and Structures

There are no buildings to maintain. DCR is responsible for replacement of existing boardwalks, observation platforms, and other interpretive structures. Mass Audubon is responsible for the minor maintenance of these structures.

Roads

There are no road maintenance activities unique to this park.

Parking Areas

Mass Audubon is responsible for minor maintenance activities (e.g., clearing debris, pavement markings) and for snow removal. DCR is responsible for major repairs including sealing and repaving the lot.

Trails

Mass Audubon is responsible for minor trail maintenance, and DCR is responsible for major trail maintenance (e.g., relocation, the cutting of downed and hazard trees).

Under the terms of the 2011 MOU, DCR is responsible for maintaining and gating fire and service roads (i.e., forest roads). There is currently no gate on the fire road entrance opposite 81 North Street.

Kiosks and Signs

Mass Audubon maintains the kiosk and most signs. The exception is DCR’s boundary signs. Mass Audubon provides display space inside the visitor center for DCR brochures; the DCR is responsible for updating its contents and maintaining the display.

Interpretation

Mass Audubon is responsible for all interpretive programming, signs, and materials.

7.9. RECOMMENDATIONS

Introduction

This section provides recommendations for the near- and long-term management of Bristol Blake. Applied Land Stewardship Zoning recommendations provide general guidance for managing these properties. Future activities and projects should be checked against the zoning map (Figure 7.9.1) for

consistency. Management recommendations are all high-priority, and should be addressed as soon as resources become available.

Applied Land Stewardship Zoning (Figure 7.9.1)

The following Land Stewardship Zoning is recommended.

Zone 1

- No sections of Bristol Blake State Reservation have been designated Zone 1.

Zone 2

- All areas not specifically designated as Zones 3.

Zone 3

The following portions of Bristol Blake are currently developed, appropriate for potential future development, or intensively used for recreation. They have been designated Zone 3.

- Existing developed areas adjacent to the Nature Center and Blake-Sayles House, including cultural grasslands, the DCR-owned portion of the parking lot, the nature play area, and other features.
- The Bristol Blake Reservation Dam, including the earthen dam, all spillways, splash pad, and the adjacent discharge channel.

Significant Feature Overlay

There are no Significant Feature Overlays.

Management Recommendations

Four priority management recommendations were developed for Bristol Blake State Reservation. (Table 7.9.1) For a recommendation to be considered priority it must address one or more of the following criteria:

- Regulatory compliance or compliance with legal agreements.
- Threats to the health and safety of park visitors and employees.
- The imminent loss of a natural, cultural, or recreation resource.

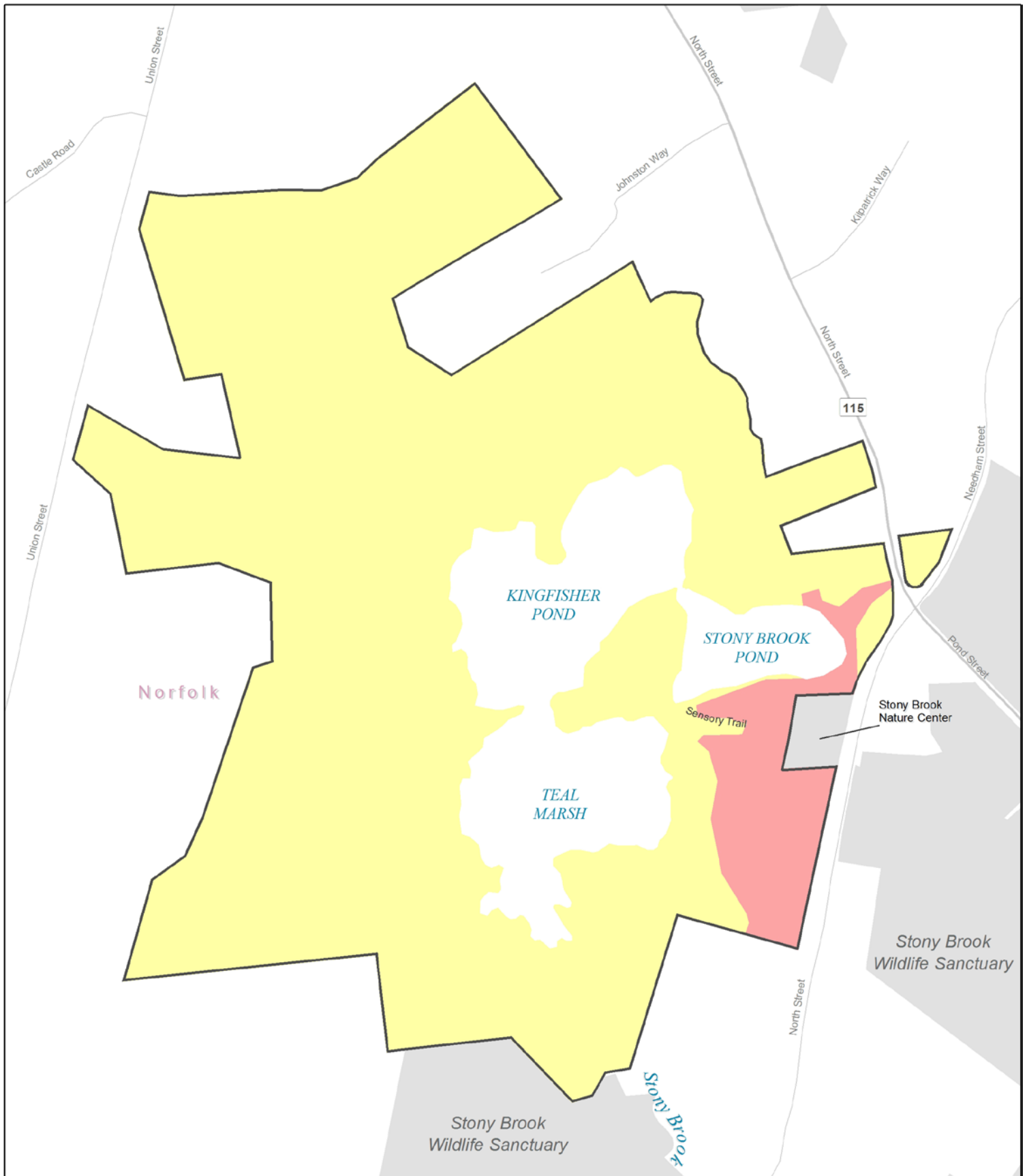
Additional maintenance and management needs observed during the preparation of this RMP, but not meeting one or more of the above criteria, are not included in this plan.

All recommendations are of equal priority.

Table 7.9.1. Priority recommendations for Bristol Blake State Reservation.

Recommendation	Implementation^a
Address dam deficiencies, as identified in GZA GeoEnvironmental, Inc. (2012a).	D, R, V
Replace the existing boardwalk between Teal Marsh and Kingfisher Pond.	E, R
Work with Mass Audubon to control poison ivy in portions on the Reservation in the immediate vicinity of the Nature Center, Sensory Trail, and Nature Play Area.	L, R
Install a gate on the fire and service road opposite 81 North Street, in accordance with the terms of the 2011 MOU.	E, R

a. The following codes identify the party or parties responsible for implementing the recommendations: B = Bureau of Ranger Services; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning, Design & Resource Protection; R = Regional and district staff; S = Park Support Operations; U = Universal Access Program; V = Volunteer or partner; and X = Office of External Affairs and Partnerships.



- | | |
|--|--|
| <ul style="list-style-type: none"> Bristol Blake State Reservation Other Legal Interest - DCR Other Protected Open Space | <p>Land Stewardship Zoning</p> <ul style="list-style-type: none"> Zone 1 Zone 2 Zone 3 |
|--|--|

Bristol Blake State Reservation

Figure 7.9.1

Recommended Land Stewardship Zoning

Geographic information provided by MassGIS and DCR GIS, 2016



1,000

Feet

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